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BRITISH COLUMBIA MINING RECORD

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BRITISH COLUMBIA
MINING RECORD

E. JACOBS,.....Managing Editor

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NOTES AND COMMENTS.

The Vermilion Forks Mining Co., Princeton, Similkameen, is inviting tenders for hauling 500 tons of coal from Princeton to Hedley, a distance of about 26 miles. It would appear that a beginning is to be made to find a market for Princeton coal.

In its notes on the Missouri ore market under date Joplin, August 26, the *Engineering and Mining Journal* mentioned that prices were then $12 per ton higher for lead and $12 per ton higher for zinc than a year ago. A review of the eight months ending on that date brought out the fact that zinc ore had averaged in price $44.90 per ton and lead $58.54 per ton.

The *Industrial Advocate,* of Halifax, Nova Scotia, concludes an appreciative review of the 1904 Annual Report of the Minister of Mines for British Columbia and the pamphlet "British Columbia, the Mineral Province of Canada,' 'as follows: "The province of British Columbia sets a good example in the character and amplitude of its official mining literature."

It is reported from Whitehorse that the commissioner of the Yukon is having made a survey of the boundary line between Yukon Territory and British Columbia, in the Little Windy Arm country, for the information of prospectors, so that they may know where it will be necessary for them to record mineral locations they make. The commissioner visited the Alsek, Kluane, and Windy Arm districts of Yukon Territory this month, and Mr. R. G. McConnell, of the Geological Survey Department, is now examining the last-mentioned section.

The increasing interest taken in the United States in the stocks of two or three of the copper mining companies of British Columbia is evidenced by the substantial advancement of prices. In its mining stock market report late last month the *Engineering and Mining Journal* made the following satisfactory reference to the stock (par value $5 per share) of the British Columbia Copper Co., which is profitably operating copper mines and a smelter near Greenwood, Boundary district of British Columbia: "In the outside market, the only sensation was a sharp rise in British Columbia Copper, which sold up to $9."

Last May the *Canadian Mining Review* published the statement of "an esteemed correspondent" that at the Le Roi mine, Rossland, "McMillan, it is believed, is 'gutting' ore bodies, and economising on development." A few days ago the Rossland *Miner,* which cannot by any stretch of imagination be considered as disposed to do Mr. McMillan even the most scant justice, said: "That the Le Roi is in first class condition and particularly from the 1,350 to the 1,550-ft. level is evidenced by the fact that preparations are under way to deepen the main shaft from the 1,350-ft. level, its present terminus." A strange association indeed—gutted ore bodies and a mine in first class condition. Who'd ha' thought it?

In reply to an enquiry "Is Granby stock a good buy at present as an investment?" the *United States Investor,* of Boston, New York, and Washington, replied in its issue of September 9:

"It is believed by many that Granby is a fair purchase at present prices, its friends maintaining that the time is not far distant when Granby may be placed on a dividend basis, as equipment is now being put in to handle an enormous quantity of the low-grade ore with which this property abounds. Inability to handle the ore at the smelters alone restricts the product of the Granby mines. Earnings are rapidly increasing on the present high price for copper, and while this security is slow to advance in the stock market, higher prices for the stock at no distant date are predicted by some. Bought now and laid away for a year or two, the investment may prove profitable."

The editor of the Anaconda *News,* published at Anaconda, Boundary district, after having, two or three weeks ago visited the exposition at Portland, Oregon, made the following comment in his paper: "The *News* man had a long hunt at the Lewis and Clark Exposition at Portland to find the Canadian exhibit. In a far corner of the Foreign Building, occupying a space about 20 by 30 ft., was the entire showing. It consisted of a case of ore from British Columbia, furs, and a few pamphlets about Victoria. The editor noticed a rock labeled 'Winnipeg, Greenwood,' which constituted the main exhibit from the Boundary. Had the authorities any energy, they would not have allowed the only ore from the district to be from a mine that has been shut down for years."

In Mr. Norman Carmichael's interesting article on "Lead Mining in the Linares District, Spain," published in the August number of the MINING RECORD, he was wrongly made to state (on page 297) that some 30 mines at Linares support a population of about 300. This was an obvious error. Stated more clearly than in the original manuscript, the meaning of which was not plain, the position is that the Linares mines, while having an output of practically the same tonnage as that of the St. Eugene, in British Columbia, employ about 3,000 men and sustain a population of 30,000 to 40,000 people, while the St. Eugene employs about 300 men and largely sustains the population of the town of Moyie—say 3,000 people. The Linares mines therefore sustain nearly ten times as many people as does the St. Eugene.

The Sandon *Standard* takes a favourable view of the outlook for the Slocan. Among its late comments are the following: "The recent rich strikes in the mines close to Slocan City have brightened up the little town wonderfully," "Times are improving around Silverton. Over 80 men are now at work and the working forces are being steadily increased." "Since his appointment as manager of the Payne property Mr. G. F. Ransom has steadily pushed development, paid up several thousands in old bills floating around and sent a few thousands more to the Montreal office. The recent strikes have greatly improved at the mine, and in the not distant future we expect to see activity once more about the old big dividend-paying mine."

The directors of the Hastings (B.C.) Exploration Syndicate, Ltd., of London, England, have granted a bonus of one month's salary to the company's officials in British Columbia, and to the miners and other men working at the company's Arlington mine, at Erie, Ymir district, a bonus of two and one-half shifts. This is in appreciation of the excellent results achieved from mining at the Arlington, which have enabled the directors to pay the stockholders a dividend of one shilling per share. In comparison with the public disparagement of their company's general manager by two directors of the Tyee Copper Co., and the unjust treatment of the late managing director and general manager of the Le Roi Mining Co. by other directors of that company, the commendable action of the directors of the Hastings Syndicate stands out in strong and creditable contrast.

The management of the Spokane Interstate Fair, at which the mineral display has for years been a prominent feature, has this year made extra efforts to secure a creditable collection of mineral exhibits, to which end it has sent a representative to mining camps to seek the assistance of mine managers and others. Exhibits have been sought from camps in Washington, Oregon, Idaho, Montana and British Columbia. A handsome silver cup has been offered for the best display from any camp, and specially designed diplomas for the best exhibit in each of twenty-five enumerated classes. Diplomas will also be awarded for unenumerated exhibits that shall be adjudged worthy of them. The fair will be held in Spokane, Washington, from October 9 to 15, inclusive, and it is expected that the mineral display at this, the largest fair held in the north-west, will be in keeping with the general variety and excellence usually marking its other departments.

The report of the Eva Gold Mines, Ltd., printed on page 355 of this issue indicates an encouraging condition of affairs at the Eva mine, at which Mr. A. H. Gracey has been doing good work for some time past. Not only at the Eva, but as well at other mining prop-

erties around Camborne, which is in the Fish river section of northern Lardeau, is the outlook promising. The Oyster-Criterion (also in charge of Mr. Gracey) bids fair to make a good showing this year; a new company has been formed to acquire and work the Camborne group; the Beatrice has ample funds for the enlarged development and production already arranged for; the Silver Dollar is putting in a small power plant and other equipment; the Mammoth is opening up well, with high-grade ore being taken out for shipment, and several other properties not so well known are also looking well as development proceeds. Steady progress from this on should be the general experience in Camborne camp.

The decision of the stockholders in the Spitzee Gold Mines, Ltd., to make the issued shares of that company assessable to the amount of $1.50 each, and in this way to provide for calling up $87,000 over a period of eighteen months or more, as shall be found advisable, is a practical demonstration of their confidence in the partly developed mine owned by their company. Shipments of ore to date have aggregated nearly 5,000 tons, of an average value of about $12 per ton, and it was stated early this year that drifts on the 100 and 200-ft. levels together exposed some 30,000 tons of ore, so that there seems to be a comparatively large tonnage in sight. The company has been well managed, and has enjoyed a good reputation as a mining company, the *bona fides* of which were not open to question. We shall, consequently, have pleasure in seeing it meet the expectations of its stockholders by becoming a regular dividend-payer before the whole of the lately authorised additional capital shall have been called up.

For cheery optimism the *Prospector*—long the bright star of Fort Steele but eventually impelled, by the general removal of business to the growing neighbouring town of Cranbrook, to go with the crowd—is an example to newspapers, if there are any in the mining sections of the province, disposed to conclude that their districts are going to the bad. Recent evidence of the faith that is in him is the following hopeful comment of the editor of the *Prospector*:

"What South-east Kootenay now requires to place it in the front rank of mining districts is, first, capital; next, time and railway communication. It is gradually obtaining the latter. It is easy now to raise capital for any good South-east Kootenay enterprise, and the Canadian Pacific Railway Co. is pushing its roads right into the Kootenay. By this means the cost of transportation and treatment of ore will be reduced to such a level that not only high-grade properties, but low grade as well, will be put on a remunerative basis. We shall doubtless witness a great rise in the mineral output of South-east Kootenay in 1905 and 1906."

If newspaper reports may be believed, the usually uncommunicative manager of the companies owning the Nickel Plate group of mines, near Hedley, Similkameen, and the 40-stamp mill at that town, has, at Rossland, been induced to talk for publication. Remembering the Nelson "fake" interview with Mr. A. J. McMillan, that that gentleman afterwards so unkindly yet most positively denied took place, it may not be safe to assume that Mr. Rodgers really was interviewed and actually did say what has been attributed to him in print. But if he did, then has he been most inconsiderate towards those who have been contradicting the MINING RECORD when it stated, and repeated, that general average values of Nickel Plate ore were $12 to $15 per ton. Now here is the gentleman who knows all about it again telling people that "the ore carries values from $10 to $15 to the ton." Really, Mr. Rodgers, you shouldn't. Don't you know that it's the custom in certain quarters to seize every opportunity to make it appear the MINING RECORD may not be relied upon? How could you do such a thing? Why, it's preposterous.

The visit to the big mines and the smelters of the Boundary district of Mr. J. Parke Channing, of New York, president of the Tennessee Copper Co., the metallurgical practice at whose important smelting works is noted from the fact that it is thoroughly modern, and economical to a degree reached in few other smelting establishments in America, is noteworthy. Having the benefit of the information and practical experience in the Boundary of Mr. J. E. McAllister, who prior to his appointment as manager of the B. C. Copper Co's smelter at Greenwood was assistant superintendent at the Tennessee Copper Co's works at Copperhill, Tennessee, U.S.A., the visiting engineer had peculiarly favourable opportunities to ascertain the practice followed and results achieved in the British Columbian district that has attracted widespread notice by its almost phenomenal success in metallurgy as required in the reduction of its ores. British Columbia cannot but be the gainer from the visits of men prominent in the mining and smelting world, particularly when made under conditions admitting of their arriving at the actual facts of smelting progress and results in the province.

At last the shipment of ore in quantity from the Britannia mine, Howe Sound, has been commenced. During nearly six years there have, from time to time, been published reports telling of the large quantity of ore occurring on the Britannia group, but no bulk shipments were made. Within the last two years the situation in regard to this very promising property has been greatly improved. Capital for the extensive development and ample equipment of the mines has been provided, and preparations for large production have at length made such progress, that shipment of ore in quantity, with little or no interruption, can now be proceeded with. The possession of an enormous quantity of ore, and of adequate facilities for mining, transporting, concentrating where necessary, and smelting, on a large scale, together with the high price for copper now ruling, should be an inducement to the Britannia Copper Syndicate to prosecute its big

enterprise with unremitting vigour, and this it may be expected to do, for its affairs are now in the hands of men who act rather than talk. We offer sincere congratulations to all concerned, upon the facts that success now appears to be at hand, and that their important undertaking bids fair to soon bring them an abundant return.

The Ymir mine, owned since September, 1898, by the British company known as the Ymir Gold Mines, Ltd., has experienced some remarkable vicissitudes during its active history, which dates back to 1896, in November of which year the London & British Columbia Gold Fields, Ltd., commenced work on it. For a while it was operated at considerable profit, so that dividends amounting in the aggregate to $200,000 were, in 1901, distributed among its stockholders. Afterwards, the average values contained in the ore fell to such an extent that it has been difficult latterly to keep the mine working. The turning in its long lane of adversity seems, however, to have been reached at last. Brief notes of the change for the better are given, under the heading of Company Cables, on another page, and the information there contained may be supplemented by the following, from the Ymir *Herald*: "The improved condition reported in our last issue is still further improved and on the 5, 6, and 7 levels there is now a large quantity of pay ore. In the west drift on the 500-ft. level the rich ore already reported maintains its width and value, while in the east drift of the 700-ft. level 10 ft. of $12 ore is reported." Better times for the Ymir mine may, therefore, be expected, and with good grounds for confidence in their being at hand.

The Nelson *Tribune* appears to have been indulging lately in that popular western diversion known as "joshing," in connection with the recently published opinions of a Mr. Horace F. Evans, who describes himself as "explorer and geologist," concerning the classification of the Nicola coals. It is intimated that the gentleman of the "Liberal College of Art," as we has seen him designated, does *not* agree with Dr. R. W. Ells, of the Geological Survey Department of Canada, but *does* agree with the present editor of the *Tribune*, who in his professional capacity of coal expert some time since made a pronouncement with which, it seems, Dr. Ells is not in accord. That is from the *Tribune*: "The able report of Horace F. Evans of the United States Geological Survey which we printed last night settles the vexed question of the classification of the Nicola coals. Four years ago the writer in face of strong protest on the part of interested parties, and the production of fancy analyses, pronounced it a 'lignitic' field, and declared that a correct understanding of the geological formation precluded any other conclusion. One of the highest authorities on the continent now fully endorses this opinion and we imagine his report will be final." Being like the man from Missouri, we require that some one "show me," before believing that Mr. Horace F. Evans is either "of the United States Geological Survey," or "one of the highest authorities on the continent," so we wrote to the United States Geological Survey making enquiry concerning Mr. Evans' alleged connection with that important institution. The acting director of the Survey replied: "Mr. Horace F. Evans is not a member of this Survey, and has never been connected with it in any way. Any representation which he may attempt to make to that effect is false." It is but fair to Mr. Evans to point out that, so far as we have seen, the allegation in this direction was not made by himself, but by the *Tribune*, to which the falsity must be attributed. As to whether or not the Nicola coals have been properly classified by Dr. Ells, we are not greatly agitated. We had that experienced geologist's specific assurance that tests made under his direction showed those he had dealt with to be coking coal, which is of infinitely more importance, from our practical standpoint, as bearing upon the relation they may be expected to have to the reduction of ores occurring in the Nicola and surrounding districts, than the opinions of so-called "highest authorities," or even those of such an unusual combination as that of coal expert and newspaper editor. But, to return to our first expressed impression—the *Tribune* must have been "joshing."

Last month we stated that Mr. W. B. Pool, who is notorious in connection with great expectations and, to date, barren results—so far as gold production to any appreciably large extent is concerned—from the Lucky Jack mineral claim, Poplar creek, (respecting which the Rossland *Miner* and other unscrupulous newspapers published, during the latter half of 1903, grossly exaggerated reports), "is the man who tried to deceive the provincial mineralogist, when that official visited Poplar creek, by showing rich gold specimens he falsely alleged were taken from a claim he was largely interested in, seemingly with the object of favourably influencing the expected official report." We did Mr. Pool injustice to this extent, that we inadvertently omitted several words. Our charge, as then intended and now more fully stated, is that he falsely represented that the rich gold specimens were taken from *a tunnel then being driven on* a claim he was largely interested in. The words we now italicise were omitted last month. We have no doubt that rich gold specimens were found on and near the surface on the Lucky Jack claim. Mr. Pool's deliberate knavery lay in his attempt to make the provincial mineralogist believe that rich gold quartz had been met with at depth, when it had not, as the official visitor promptly ascertained. The *Lardeau Mining Review* observes that "the *Mining Record* accuses W. B. Pool of a very serious—what we would call—crime." That is just the point; we, too, call it crime, but instead of following the *Lardeau Mining Review's* course, which is the old trick of "no case, so bully the witness," we contend that the crime should have been punished severely. No good can come of imputing "personal animus" to the MINING RECORD which has the hearty approval, in its condemnation of such fraud, of all who desire to see the mining indus-

try, especially in mining company promotion, freed from the pernicious influence of rogues and swindlers. Do Mr. Pool's friends wish us to stir this matter up still more?

We quote the following from a editorial in the Nelson *Tribune* which, although published early in August, did not come to our notice until too late for refutation in our last issue. In the course of its comments on the annual meeting of the Tyee Copper Co. the *Tribune* said, first: "In December last a dividend of 10 per cent was declared; it was paid out of capital, not a dollar of it was earned." Again, it stated: "There is one very significant fact, viz., that in 1902 the board was informed by Mr. Wm. Thompson, the eminent mining expert, that he did not like the appearances at the 200-ft. level, and he strongly advised the sinking of a shaft to prove the conditions at depth. With $365,000 in the treasury there is no excuse for not having followed expert advice which was known to be both competent and disinterested." The allegation in regard to payment of a dividend out of capital is a gross misrepresentation, as, too, is the implication that sinking to considerable depth has not been carried out. The *cash* capital subscribed by stockholders in the Tyee Copper Co., $350,000 in all, was expended in developing the Tyee mine to a producing stage, mine equipment, construction of an aerial tramway 3½ miles from mine to railway, erection and equipment of a smelter, and in providing all accessories needful for a shipping mine and operating smelter. Out of *actual profits earned* the company has to date paid dividends totalling 20 per cent. Further, beside having its mine producing ore of average good grade at the rate of 2,000 tons per month, both mine and smelter in excellent order, and no outstanding liabilities, the company now has nearly $400,000 cash to its credit. That is to say it has about $50,000 more actual cash (or its equivalent) than the total it received as proceeds of stock subscriptions, and as well possesses a mine and smelter free of debt, and this, too, after having paid its stockholders 20 per cent in dividends. Then as to development at depth—much development work has been done on several levels down to 800 ft., beside prospecting with the diamond drill, while at the time the *Tribune's* false suggestion was made the deepening of the shaft from the 800-ft. to an intended 1,000-ft. level was in progress. The misrepresentation in this latter connection is especially inexplicable when it is remembered that in the published report of the company's last annual meeting, held in London on July 18, Mr. Ludwig Loeffler, a large stockholder, was shown to have made reference to the 400, 600 and 800-ft. levels. The reason of the persistent attacks of the *Tribune* on the Crow's Nest Pass Coal Co. is well understood, but it is a mystery why it should have commenced to throw mud at the Tyee Copper Co., which has the distinction of having achieved success, thanks to excellent local management, supplemented by the favourable condition that heretofore its affairs have not suffered from the too common vagaries of a London directorate.

THE ROSSLAND MINER AND THE INDEPENDENCE OF THE MINING RECORD.

IN May, 1904, we had occasion to refute insinuations of the Rossland *Miner* intended to reflect upon the integrity of the MINING RECORD. After having shown those insinuations to have been entirely false we expressed the belief that "the reputation of this journal for honesty and straightforwardness cannot be injured by attacks from such a quarter." Beside showing the *Miner* to have been at entire variance with the truth in its innuendos we quoted the following editorial reply of the Boundary Creek *Times*, Greenwood, published some time previously by that newspaper, to some aspersions indulged in by the *Miner*: "We find a newspaper whose 'graft' was so notorious that it was recently the subject of stinging condemnation from a Supreme Court judge, who characterized this sheet as a disgrace to Rossland and the province—this same Rossland *Miner* is found deprecating the fact that a large portion of the provincial press is willing to advocate anything or anybody for money. The Rossland *Miner* is a gross libeller as well as a grafter! Outside the Rossland *Miner* and its editor, there are few newspapers or newspaper men in this province who are not innocent of such a serious charge. The Press of British Columbia, outside of a few newspapers like the Rossland *Miner* which have fallen into the hands of corporations who are always thanking God that they are not like other newspapers, is as honest and straightforward and as independent as the Press of any country in the world. The Rossland *Miner* cannot bring the Press of British Columbia down to its own level by hurling wild charges of venality."

Having no reply to make to either the truthful and fearless assertions of the MINING RECORD or the severe condemnation above quoted, the *Miner* has since, until this month, refrained from again publishing insinuations against this journal. Even now its suggestions are not particularly harmful, yet since their evident intention is to in some measure weaken the position we have taken against a campaign of misrepresentation by the *Miner* and other corporation controlled newspapers, we take advantage of the opportunity it affords us to show the baselessness of the suggestions of the *Miner* that this journal is, even in slight degree, influenced by considerations as to who are or are not stockholders in the company owning it. Further, it will be conclusively shown that under existing conditions we need not consider whether Mr. McMillan or, on the other hand, those who have prompted the newspaper attacks of the last few months upon that gentleman, are pleased or displeased with the attitude we think the position warrants us in taking upon Le Roi affairs. And since these matters have an important bearing upon the question of whether or not the opinions expressed in the editorial columns of the MINING RECORD may be relied on as

sincere, we have confidence that our many friends will make due allowance for our intrusion upon their notice of details of our business not otherwise of interest to them.

Commenting on an editorial reference in the *Canadian Mining Review* to our defence of Mr. A. J. McMillan against the carping and unjust criticism of several provincial newspapers, the *Miner* said: "The *Canadian Mining Review* never seems to be able to disassociate the BRITISH COLUMBIA MINING RECORD from Mr. McMillan. It is more than likely that the *Review* has heard a rumour to the effect that Mr. McMillan is part owner of the RECORD. Others besides the *Review* have this idea, and it is probable, if the truth were known, that such is the case." We reply to this suggestion by stating without reservation who the owners of this journal are.

The British Columbia Record, Limited, is a registered incorporation with an authorised capital of $20,000 in 20,000 shares of $1 each. The registered stockholders are:

H. Mortimer Lamb	6,547	shares
Thos. R. Cusack	4,400	"
E. Jacobs	6,700	"
Mrs. H. Bostock	1,000	"
British Columbia (Rossland & Slocan) Syndicate, Ltd.	1,000	"
Five small shareholders	353	"
Total	20,000	"

Mr. Cusack further holds a transfer from Mr. H. M. Lamb of 600 shares, bringing his actual, though not registered, holding up to 5,000 shares. Under his agreement with Mr. Lamb, Mr. Jacobs has the first right of purchase of the former's remaining shares, upon certain specified conditions. The directors are: H. Mortimer Lamb (chairman), Thos. R. Cusack, and E. Jacobs (managing director and editor).

It will be seen, then, that Messrs. Cusack and Jacobs have interests in common, and since they are working in harmony, they control the MINING RECORD, both as shareholders and directors. Mr. Cusack leaves the conduct of its affairs entirely in the hands of Mr. Jacobs, and has never offered an opinion nor even made a suggestion, as to what shall be published in its columns.

It may be added that the company's books show the purchase of the 1,000 shares registered in the name of the British Columbia (Rossland & Slocan) Syndicate, Ltd., to have been made by Mr. G. S. Waterlow (who, we understand, controls that organisation) in the early part of 1901, at par value of $1 per share. Further, Mr. McMillan does not now, nor so far as we know did he ever, own a single share in the company owning the B. C. MINING RECORD.

We are confident the foregoing will prove a conclusive reply to any suggestion that under its present editor the MINING RECORD is improperly influenced by considerations as to its ownership. It is not necessary to insist that it does not accept money to advocate or oppose any one or anything—its proper attitude in this respect is generally known. We think the Rossland *Miner* is completely answered herein. Now we dare it to be as open as to its ownership and management, and we further dare it to make oath that it has not at any time, neither directly nor indirectly, demanded payment for withholding, nor received "consideration" in any form for having neither published, nor refrained from publishing, as the case might have been, in its reading columns statements affecting individuals, firms, or companies.

ORE OF GOOD GRADE AT DEPTH IN MOTHER LODE MINE.

SOME interesting results have been obtained from prospecting with the diamond drill below the 300-ft. level of the British Columbia Copper Co's Mother Lode mine, in the Boundary district of British Columbia. A hole, started in the 300-ft. level and drilled at an angle of 75 degrees towards the east, entered the hanging wall rock at a depth of about 100 ft. The details of assays of the core at various depths were as under:

Depth of Hole.	*Oz. Gold.*	*Oz. Silver.*	*Per cent Copper.*
0 to 10 ft.	0.42	0.44	4.00
10 to 20 ft.	.36	.60	4.40
20 to 30 ft.	.42	.84	3.70
30 to 40 ft.	.02	Trace	.60
40 to 50 ft	.06	.18	2.80
50 to 70 ft.	.05	.17	1.60
70 to 85 ft.	.40	.26	4.10
85 to 100 ft.	.40	.20	2.70
Average	.258	.317	2.89

Gross assay value (with copper at 16 cents and silver 60 cents) is $14.60.

While at best, cores from diamond drill holes are but indications of the general character of the ore penetrated, and so may not safely be taken as a reliable basis for estimating average values of the whole body, it is yet gratifying to find ore of such good grade in the deeper parts of this mine.

When, three or four years ago, the mining of ore in the 200 and 300-ft. levels of the Mother Lode mine was discontinued in favour of quarrying the ore in large open cuts at the surface, thus avoiding the cost of hoisting from underground, there were big reserves of ore left in those levels, which had been opened for considerable lengths. The ore body, as opened at the 200-ft. level, has a width varying from 80 to 100 ft., and the workings show it to be continuous at this level for at least 350 ft. At the 300-ft. level less exploration was done, but the main ore body was proved to maintain its large size, while a second shoot of ore, 18 to 20 ft. wide, was encountered and followed for 200 ft. without its dipping out of the level. The "pillar and stope" method of mining that had been followed here was described and illustrated in the MINING RECORD in April, 1902.

LE ROI DIRECTORIAL DISSENSIONS.

UNDER the above heading the *Financial Times*, of London, England, on September 8 published correspondence relating to the ejection from the board of directors of the Le Roi Mining Co., Ltd., of the managing director, Mr. A. J. McMillan. No reason was stated in the published copy of the letter to Mr. McMillan from his co-directors requesting him to resign, but in that of Mr. McMillan's letter to the chairman in reply to the latter's request for his resignation the following occurs: "You tell me that my presence at board meetings is not agreeable, owing to the fact that the directors wish to discuss and proceed with amalgamation proposals which I do not approve, and, and you therefore suggest that I should resign my seat from the board." Mr. McMillan refused to resign the trust committed to his care by the shareholders, whose interests, he pointed out to the chairman, "need protecting to-day more than at any time since I have been connected with the company." Mr. McMillan's colleagues appear, in the absence of stated and sufficient "cause," as generally understood among business men, to have adopted an extreme and arbitrary course which to us was entirely unjustifiable. It is expected of men in responsible positions, to whom have been entrusted large and very important interests, that they will comport themselves accordingly, and not act like wilful children. To think of men of mature years, varied business experience, and supposedly sound judgment adopting an attitude, to use a simile familiar to all in the West, of "You can't play in our yard, I don't like you any more," would be most amusing were it not that grave issues are at stake. Yet this seems to be the position taken by a majority of the board of directors of the Le Roi Mining Company.

Assuming, then, that the only reason for this unjust treatment and consequent intended and needless humiliation of Mr. McMillan, was his opposition to certain amalgamation proposals, as finally evolved—for the original proposals had been considerably enlarged upon—it may be well to look into this matter and Mr. McMillan's position in regard to it. Mr. McMillan has been twitted by some of those whose enlarged proposals he has opposed, and in the provincial press of British Columbia, with having at first favoured amalgamation and afterwards worked against it. Speaking at the general meeting of shareholders in the Le Roi Company held in London on January 31 last, he said, after having first expressed himself on general grounds as being in favour of the scheme that had been suggested: "If after full inquiry it is thought desirable to proceed and it is found possible to prepare a tangible scheme, the whole matter will, as stated in the report and again by the chairman in his speech to-day, be laid before the shareholders before any definite action is taken." Mr. McMillan was one of a committee of two appointed to deal with this matter, but it eventually developed that his opinion and judgment were not wanted, unless he would make them conform to the scheme and terms that others had resolved upon.

As some of Mr. McMillan's reasons for disapproving the amalgamation proposals as finally evolved have been made public, we may with propriety discuss them, and we do so the more readily since in the campaign of misrepresentation and abuse that for several months has been carried on by newspapers either influenced by, or in sympathy with, those whose enlarged plans he has opposed, his objections, as we understand them, have not been correctly stated. Generally it has been represented that his opposition was chiefly, if not altogether, based on what he considered the under-valuation of the Snowshoe property and the over-valuation of the Centre Star and War Eagle. Tacked on to the latter was a concentrating mill, built at Trail and operated a few weeeks, only to demonstrate that these works as then equipped were practically valueless for the purpose designed, consequently it was altogether objectionable to load the new amalgamation with $300,000 worth of property that had so far been a disastrous failure. Next, he did not recognise the necessity for the acquirement of the Canadian Pacific Railway Co's Canadian Smelting Works at Trail while the Le Roi Co's smelting works at Northport were, in his opinion, under the improved conditions then prevailing at them, reducing ore quite as effectively and cheaply as could be done at Trail. Further, he saw grave objection to the proposed acquirement from the Canadian Pacific Railway Co. of large areas of undeveloped coal lands, which would require much capital for their development and utilisation, and which, with several Crow's Nest coal and coke companies already operating and in a position to supply an abundance of fuel, would be a source of weakness rather than an advantage to the proposed amalgamated company. Any or all of these objections may have been well taken, and they should even now be given serious consideration.

As to the valuation of the Snowshoe and Centre Star and War Eagle mines, respectively—without knowledge of the actual valuations placed upon these and the other properties it is proposed to amalgamate, we are, necessarily, not in a position to express a positive opinion. We may, though, point out that when the Snowshoe Gold & Copper Mines, Ltd., was floated, in which organisation Mr. G. S. Waterlow took a prominent and active part (and in which he and his friends are large stockholders), after much development work had been done and the value of the property approximately determined, the capitalisation was fixed at £250,000 ($1,250,000); and when the Mother Lode and Snowshoe amalgamation proposals were well advanced, which was after the Snowshoe had shipped 94,000 tons of ore (since which time no work has been done in that mine) Mr. Waterlow was a consenting party to the proposed apportionment of £226,000 for the Snowshoe interests out of the capital it was proposed the new company should have. Lately the Gold Drop group, immediately adjoining the Snowshoe group, was purchased by the well-known Granby Co. at a price stated by the Phoenix *Pioneer* (which is usually correctly informed upon Granby affairs) as $225,000, and yet as compared with the Snowshoe it

is undeveloped and has not shipped any ore except for test purposes. And, too, the Dominion Copper Co. has the Rawhide mine at one end and the Stemwinder near the other end of the Snowshoe group, and no one suggests that these properties are of little or no value, as has been done in connection with the Snowshoe.

The sale a few months since of a controlling interest in the Centre Star, a large interest in the War Eagle (after about $500,000 of debt had been discharged by the sellers), together with a big interest in the St. Eugene silved-lead mine in East Kootenay, for the sum of $825,000, as widely reported in Canadian newspapers, suggests that Mr. McMillan's objections may be well grounded, and that directors having only the interests of the shareholders at heart would at least endeavour to overcome his opposition by convincing arguments rather than endeavour to stamp it out by the exercise of the power they possess—possibly only for a short time.

Space is not available just now for us to go into several other matters connected with this unfortunate imperilling of the best interests of the Le Roi stockholders as a body by the high-handed proceedings of three directors, but we shall give a little attention to the results achieved by Mr. McMillan in the capacity of general manager, from which position he has also been precipitately removed. It will be remembered that following the resignation of Mr. S. F. Parrish (who, by the way, in self-defence made public the statement that Mr. J. H. McKenzie had, on his taking over charge in February, 1903, informed him "that the mine was worked out and its life would continue not to exceed six months, or into the summer of that year), Mr. McKenzie was again appointed manager. The position of the company was at that time a desperate one. In this connection Mr. McMillan told the shareholders in general meeting last January. "Mr. McKenzie, in discussing matters with me in the month of May, advised that we should continue to operate the smelter for three months—a sufficient time to enable us to use up the ore stock at the Northport smelter—and that, during the time we were doing this, we should also operate the mine in a small way, shipping about 150 or 200 tons of ore daily. He estimated that at the end of the three months—about the middle of August—we should owe the Bank of Montreal between £30,000 and £40,000 over and above our liquid assets. *Mr. McKenzie thought that certain concentration tests* he was about to carry out, in connection with our low-grade ores, would be completed by that time, and that they would be successful, in which case we would then require another £40,000 to build a mill, thus making it necessary to find altogether not less than £75,000 or £80,000. The local representative of the bank favoured these views, and I was strongly urged to come over to England and recommend to you that the company take steps to raise this amount. Obviously, to raise such a large sum in London meant an issue of debentures or of preference shares, or the adoption of a scheme of reconstruction, involving an assessment of 7s. 6d. or 10s. per share upon the shareholders. Believing, as I have always done, that the Le Roi is a great mine, this proposed method of dealing with the affairs of the company did not commend itself to my judgment. It seemed to me rather that, with good business management, the mine could be made to pay and to retrieve the position of the company, and I advised my colleagues in this sense." Let us do Mr. McMillan the simple justice of looking at the position as it was when he was summarily ejected last month. In place of active hostility between the several heads of mine, smelter, and general office, all branches of the staff were working in harmony; costs of mining and smelting had been appreciably reduced; the heavy bank overdraft had been paid off out of actual profits made, and the company had cash to its credit; large ore bodies of payable grade had been found down to the 1,500-ft. level (including the downward continuation of the big Black Bear ore shoot which had previously been extensively prospected for without success, but lately found on the 900-ft. level), and the mine generally was in first class condition; while at the smelter better work was being done than for years, if not than ever before in the history of the Northport works. And this is the management that has had to go down before the Juggernaut of *Canadian Pacific Railway Co. interests.*

To those who have attended in Boundary towns gatherings at which was sounded what may be termed the district's general slogan, the cry of: "What's the Matter With the Boundary?" and the prompt response, "It's All Right," are familiar enough. And, indeed, the Boundary district is "all right." Apart from the smaller undertakings that contribute more than a little to its general prosperity, and the railway construction now in progress which is the means of circulating much cash, there is in the operations, present and prospective, of the three big mining and smelting companies that have expended large sums of money in establishing themselves in the copper producing business, the basis of a sound and permanent development that will eventually sustain a comparatively large population. Already are there sufficient copper furnaces at the three district smelters to reduce, if run at their full treatment capacity, about 4,000 tons of ore per diem. Given an average value of $5 per ton, this would mean a recovery of $20,000 a day. Multiply this sum by 365, the number of days *in the year, and see what the result will be.* More than $7,000,000 per annum from the mines of three companies, and this, too, without their having to draw upon one half of their mineral resources. True, there is not sufficient power available just now to admit of all those furnaces being kept in full blast, but there will be before next spring. As to the ore supplies these are more than ample, as, too, are railway transportation facilities. Is it not, then, time for a wider appreciation of the fact that the mining and smelting industries of the Boundary district, while already second to none in the province, are steadily growing in importance? We repeat that the Boundary is "all right."

KING SOLOMON MINES, VANCOUVER ISLAND.

(By E. Jacobs.)

LAST autumn announcement was made of the organisation of a small mining company to which was given the name of the King Solomon Mines. It was formed to acquire the King Solomon and Queen of Sheba mineral claims, situated on Copper mountain, in the Helmcken district, about 4 miles by wagon road from the Cowichan railway station, which is distant 30 miles from Victoria, on the Esquimalt & Nanaimo railway. Other than the fact that the prospectors from whom the claims were acquired had shipped to the Tyee Copper Co's smelter of Victoria, who after examining the property in company with Messrs. W. Lewis and F. E. Young, and satisfying himself that the property gave promise of proving a valuable one, organized the small syndicate thereafter known as the King Solomon Mines. This syndicate has an authorised capital of $15,000, divided into ten shares, of which one ranks as fully paid up, this having been allotted to Mr. A. C. McCallum as agreed when the property was acquired on behalf of the syndicate. There has been called up to date $5,500, leaving $8,500 available for assessments as shall be required for further development and equipment purposes. The shareholders of the syndicate and their proportionate share holdings are as follows: Mr. J. S. H. Matson, 3 shares, and

No. 1—Large Ore Body Uncovered Near Prospect Shaft, Showing Face of Ore 25 ft. in Depth.

at Ladysmith, about 56 tons of ore that had given comparatively high copper returns, and that the ore showing on the King Solomon was a promising one, little or nothing was made public about the property.

Of the two carloads of ore shipped, the first lot, taken from an open cut on the side of a rocky bluff on the King Solomon, gave the excellent average of 8.93 per cent copper (dry assay) per ton for the 30 tons shipped. The second lot, from a prospect shaft on the same claim, appeared to the shippers to be of lower grade, so they were not a little surprised to find that it contained an average of 9.64 per cent copper per ton for the 26 tons shipped. These good average results attracted the attention of Mr. J. S. H. Matson, Messrs. W. Lewis, F. E. Young, A. Coles, D. M. Rogers, F. Lloyd (Westholme) and J. S. H. Matson (in trust), one share each.

At the time the syndicate acquired the property the development work done consisted chiefly of a 10-ft. tunnel from the open cut from which the first lot of ore was obtained, and a prospect shaft sunk 17 ft. 6 in. The latter had been put down in a second good surface showing, distant about 350 ft. from the former, both being on the King Solomon claim. Mr. Wm. Lewis was appointed mine superintendent, and the first development work (commenced in October,

1904.) he did there was to deepen the prospect shaft. At 31 ft. 6 in. depth water came in too freely to admit of work being continued without pumping facilities, so no more was done in the shaft, which was altogether in ore though not all solid. At the bottom of the shaft there is a paystreak of 30 in. of clean chalcopyrite ore assaying up to 26 per cent copper, but giving a general average return of rather more than 15 per cent copper, gold about 80 cents and silver 1½ oz. per ton. Pyrrhotite and chalcopyrite occur freely in the ore in which the shaft is sunk, but the bulk is of lower grade than that just mentioned. Recently a large body of ore and mineralised ledge matter has been uncovered on the surface near the shaft, this extending, so far as yet exposed, to about 153 ft. from the shaft. Much good ore occurs in this big exposure, one face, opened close to the prospect shaft (shown in accompanying illustration No. 1) being quite 25 ft. in depth, while further away, at the other end of the showing, there is a deeper face which is freely mineralised though much decomposed. Solid ore has just been met with immediately below the latter. These two faces are in part separated by a horse of country rock, which, however, may be only a surface intrusion. The work done here has rendered it practicable to take out ore whenever it shall be deemed advisable to make shipments, towards which end a wagon road is being made by the syndicate to give connection with the government wagon road, construction of which was stopped within two-thirds of a mile of the King Solomon workings, the appropriation for it having been exhausted before the mine was reached.

No. 2.—Prospect Shaft, With Dump of 10 Per Cent Copper Ore.

No. 4.—About 75 Tons of Ore and Waste, Averaging About 5 Per Cent Copper.

No. 3.—About 60 Tons High-grade Ore, Averaging Nearly 20 Per Cent Copper.

No. 5.—Open Cut and Entrance to 93-ft. Tunnel, all in Ore.

The face of ore shown in illustration No. 1 has been sampled, and the assay values obtained were 7.36 per cent copper and a little gold and silver. There are about 50 tons of ore on the dump, taken from this face, which it is estimated will run fully 8 per cent

copper. Another dump (shown in illustration No. 2), containing about 28 tons taken from the shaft, will, it is believed, average quite 10 per cent copper, this having the appearance of being better grade ore than that taken from nearer the surface and which ran 9.64 per cent. as already mentioned.

About half way between the shaft and the open cut from which the first shipment was made, a deep trench through heavy capping has exposed ore. This ore has not yet been opened up, but it has an apparent width of 15 to 16 ft. Not sufficient work has yet been done to determine whether or not it is part of the same ore body occurring at the shaft, in the one direction, and in the tunnel, in the other. However, its proved occurrence here gives promise of later development showing its connection with one or the other, and perhaps with both.

When the syndicate's miners were driven out of the shaft by water, attention was turned to the workings from which the orignal owners made their first shipment. Here the prospect tunnel was extended until a distance of 93 ft. in all had been reached, beside a 11-ft. cross-cut from the tunnel to the right, and an incline 5 ft. in depth in ore following its dip out of the cross-cut. The tunnel is in ore all the way, and in driving it about 60 tons of high-grade ore (see illustration No. 3) and a dump of some 75 tons of fines (illustration No. 4) containing much good ore, were obtained. A general sample of the first-mentioned lot assayed 19.98 per cent copper, and a grab sample of the fines returned 4.98 per cent copper. The original open cut, now the entrance to the tunnel is is shown in illustration No. 5.

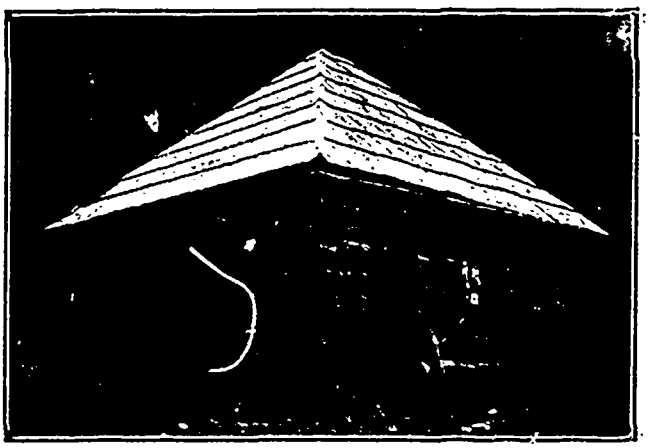
The big outcrop here seems to be crescent shaped, extending around the face of the bluff in one direction, and up a small draw or gulch in the other. The ore appears to occur between granite and limestone with a large iron-capping forming the bluff or knoll above it. Where stripped for about 100 ft. around the bluff practically the whole face exposed seems to be ledge matter with good ore occurring in parts. There is one vein of about 18 in. of solid ore showing the full length exposed, and where the stripping was stopped ore still appears. Up the gulch (shown in illustration No. 6) an ore body having an average width of about 8 ft. has been uncovered for something like 150 ft.; and the assay returns from what is stated to have been a conservative sampling along its full exposed length are given as 10.64 per cent copper. The direct distance from the ore body exposed in the gulch to the face of the tunnel into the hill is 97 ft., and the vertical depth from the top of the iron-capped knoll to the tunnel face, 70 ft.

The various measurements and distances above given will in some measure serve to convey an idea of the extent of the ore showings on the King Solo-

No. 6.—Surface Exposure of Second Big Ore Body, About 8 ft. in Width and Stripped for 150 ft.

mon property, as at present exposed. No development work has yet been done on the Queen of Sheba claim, on which there is known to occur one likely-looking iron capping, beside which indications of the presence of copper ore have been noticed in several places.

While it is not intended in this descripton to endeavour to give the impression that the King Solomon is a mine of assumed permanence, it is desired to show that it is a property giving much promise, to the admittedly very limited extent of its development. Its ore showings, as at present opened, are decidedly encouraging, and the estimate of the manager, Mr. J. S. H. Matson, that there is now about $70,000 worth of ore in sight—allowing 12 cu. ft. of ore to the ton and calculating an average copper content of 5 per cent, with a value of 10 cents per lb.—does not appear to be an extravagant one. But even if this estimate be too sanguine by 50 per cent, the syndicate certainly has much to show for its total expenditure to date of about $5,500. Of this amount the sum of $1,000 was in reduction of amount due



No. 7.—The Mine Superintendent's Log House.

on account of purchase of the claims, and $250 for buildings, the latter including blacksmith's shop, powder house, log house (illustration No. 7), etc. Allowing, further, for outlay on the wagon road now being made, it will be seen that actual development to date has cost only about $4,000, for which the syndicate has certainly received full value in work done. There have not been any charges made for office and other management expenses.

Summed up, it may be said that the syndicate has a partly developed mining property with a comparatively large quantity of ore of excellent grade easily accessible: an advantageous location, being situated within four miles of a railway station and with a good down-grade, connecting wagon road: an abundance of timber suitable for mining purposes, as shown in accompanying illustrations, and conservative and capable management, both at the mine and in the Victoria office. It is planned to shortly install a small power plant, including a 90-h.p. steam boiler, 24-h.p. hoist, and 2-drill air compressor. Shipment of ore will probably be soon commenced, and it is expected that smelter returns thereafter will pay all current working and equipment expenses, and, as well, leave a fair margin of profit for future disposal in such manner as shall be deemed advisable.

Other mineral claims have been located in the vicinity of the King Solomon property, but owners have not so far developed them sufficiently to indicate their value, if they have any from a mining standpoint. Yet it is improbable the King Solomon possesses the only ore body in the locality, so it may be expected that energetic prospecting, whenever it shall be undertaken, will result in the discovery of other occurrences of ore of a grade and in sufficient quantity to warrant the expenditure of money in their exploitation.

ZINC IN NORTH-EAST KOOTENAY.

COMPARATIVELY little is heard nowadays concerning the mineral resources of North-east Kootenay, though the Golden *Star* frequently endeavours to impress the public with the fact that the district around Golden has extensive undeveloped mineral resources meriting the careful attention of men prepared to spend money in opening up some of the varied mineral deposits of that part of the Kootenay country. In connection with the examination into the zinc resources of the province, lately commenced on behalf of the Dominion government, the Golden board of trade has, the *Star* states, prevailed upon the hon. the minister of the interior to have the freely mineralised Golden mining division reported on by the zinc experts employed by the government. A timely account of zinc occurrences in this mining division has been published in the *Star*, contributed by Mr. Frank N. Anderson, M.E., engineer to a mining company operating in the Golden district. Mr. Anderson described a visit he made to Zinc gulch, going in from Leanchoil, on Kicking Horse river, winding up Beaverfoot valley, over the foothills of the Chancellor range, thence across the bridge at Ice river and on to the camp ground in Zinc gulch, lying under the shadow of Mt. Goodsir, the peak of which rises to an elevation of 11,925 ft.

"Along the wash of Zinc gulch," says Mr. Anderson, "which is drained by Rustler creek, have been found very good specimens of zinc. I was fortunate in finding a nice specimen of red zinc ore, a good grade of zinc oxide, which is one of the freest and most easily reduced zinc ores one can find. This piece of float had been washed from above, but not from any of the zinc deposits I visited, under the guidance of Mr. M. Dainard.

"A promising prospect was shown me where about 12 ft. of an incline shaft had been driven on an argentiferous lode, a silver-galena zinc ore, of a width of 18 in., in a compact state, dipping into the mountain at 22 degrees, and an assay gave values of 26 oz. silver, 16 per cent lead and 51 per cent zinc. The zinc, being of the sphalerite (blende or black jack class),

cannot be from the lode where the oxide float came from.

"That the entire gulch has all the indications of a zinc zone, can easily be seen by anyone accustomed to the study of formations, and it can be traced over the low ridge which forms the divide between Ice river and Moose river (a more southerly tributary to Beaverfoot river). Good pieces of float zinc are found in the debris of the slides, chiefly of the sphalerite nature, and sometimes quite red in colour, caused by the oxide of manganese in small quantities found in the specimen. Being undeveloped in any way and only a few mining claims staked, the prospector has before him an open country with indications of good zinc deposits throughout an area of 10 by 5 miles, as the best grade of zinc ore lies undiscovered in the mother lode.

"The zinc deposits of the Spillimachene will form a good subject for our coming visitors also, as here we have the oldest staked claim in the Kootenay, which was located by a man named Cannon, who was one of the early prospectors of the world-renowned Coeur d'Alene district. Drifting into the upper valley of the Columbia he was shown this immense lode of silver-lead ore by the Indians, as this was a source of their lead supply for the manufacture of bullets. As silver dropped in price, and the silver-lead mine became a silver-lead-zinc property, lower tunnels were driven in hopes of getting away from the zinc; these proved to the contrary, i.e., zinc increased and values in silver and lead decreased. Now in other hands, the property is being developed at the lower levels as a zinc mine, showing a width of vein of 3 ft. of almost clean sphalerite, carrying no values save 55 per cent zinc.

"To reach the Spillimachene zinc mines is an easy task, and it would be a pleasure trip for the coming government expert, as the Ptarmigan will carry the entire party up the Columbia and land it at Spillimachene, and thence there is a good trail of 7 miles from the landing to the mines. The entire trip would occupy only two days of their valuable time, and allow them in return to see one of the great zinc semi-developed lodes of the Golden district."

The *Financial News*, of Boston, Massachusetts, lately published what has been described as a rather remarkable article on "The Next Great World Development," of which, in that journal's opinion, Canada will be the scene. Among the causes that will contribute largely to this development are mentioned railway construction and the utilization of Canada's large resources in agriculture, forest, and mineral wealth. The last-mentioned is thus referred to: "Everything indicates that Canada is full of mineral —the precious metals, coal, iron, copper, lead, nickel, phosphates, and in fact everything that the requirements of the world call for abound, to say nothing of oil. These fields are thus far comparatively untouched . . . . . Altogether there seems to be good reason for the optimism which prevails in Canada." It may be added that the last few words apply with especial force to British Columbia, the "Mineral Province of Canada."

Mountains in Slocan District—View Looking Across Slocan Lake.

SLOCAN CITY MINING DIVISION.

(By W. D. McGregor, M.E.)

MINING operations in the Slocan City mining division during the summer just past were chiefly on Springer creek, almost without exception on properties situated along the big series of north and south fissures, or fissure zones. There are, between the Sandon slates and the gneiss which comes in at Slocan lake, at least eight separate zones being developed.

Ottawa.—By far the most important work done is that on the Ottawa, on which, at a depth of 600 ft. an adit has been driven more than 1,000 ft. on the vein, cutting the main ore shoot at a depth of 520 ft. below its apex. This shoot did not extend to the surface, but its apex was found at a depth of 80 ft., after the shoot had been encountered in No. 1 tunnel. The opening of this body of ore at the 600-ft. level gives rather more than 200 ft. of backs between that level and No. 4. Its length in No. 4 was 370 ft., and its average width about 18 in. After sorting out half its bulk, its average value was about 200 oz. silver to the ton. The ore shoot has increased steadily in both length and width as depth has been gained, from its apex down through the several levels opened, and its average values have ranged from 150 to 200 oz. silver per ton. On No. 5 level it has been penetrated for a length of 120 ft. from where it was encountered at a point about 100 ft. south of its most southerly occurrence on No. 4. On No. 6 the ore so far shows a width varying from 12 in. up to 5 ft. Its average width on this level is 30 in., and fully three-quarters of its bulk is shipped. Returns from single car-load lots have been at the rate of 365, 370 and 383 oz. silver per ton, respectively. Present work consists of further extending the adit, and raising in ore; also cross-cutting a zone in which another shoot of ore has been encountered, following a cross fracture plane. This shoot at present shows a length of 40 ft. of 200-oz. ore, with a width of 20 in. The cross-cut is still in ore, which shows no sign of oxidation, but is essentially a "deep" ore.

Near No. 5 there has been met with what appears to be the apex of another ore shoot, 8 to 10 in. wide. Its length is about 80 ft. and it occurs at a point about 800 ft. south of the shoot above-mentioned. The advisability of sinking a main working shaft near the south boundary of the ore shoot is under consideration. Plans are being prepared for the compressor plant it is intended to install on this property, which continues to ship its ore to the Hall Mining & Smelting Co's smelting works at Nelson.

Arlington.—For two months a few men have been working in this mine, prospecting underground. Three cars of high-grade ore have been taken out in the course of development on B level and shipped to Nelson. Beside this, about 5 tons of ore a day have been shipped from the second-class dump, in which there is a considerable tonnage.

Enterprise.—The lessees of this property have been taking out ore, beyond which there has not been much doing here.

Slocan City—From Springer Creek Valley.

Neepawa.—Operations have been confined to extracting the remainder of the shoot of ore cut last year, when the mine was held by Isaacson Brothers under lease.

Hampton.—One of the remarkable finds of the summer was made at the Hampton, on which a shoot of high-grade ore was discovered near the surface. A car-load is being taken to Slocan City for shipment to the smelter. The erection of buildings and the carrying out of other work in preparation for the winter's operations, are in hand, it being planned to employ 8 or 9 men throughout the winter.

Dayton.—In the summer a cross-cut was driven about 200 ft., and this reached the ore early in July. Since then the vein has been drifted on, and in the course of this development a car-load of ore was got out and was shipped to Nelson. This property is privately owned and is situated in the westerly zone, in which gold occurs, the ore carrying about one oz. of gold to the ton, in addition to values in silver. Buildings, including quarters for 12 men, ore bins, etc., are being erected.

Happy Medium.—This property is under option and may be sold. Some 6 or 7 tons of 200 oz. ore have this

season been taken out from between the surface and the 50-ft. level.

Pioneer.—The Pioneer Mining Co. is planning extensive work for the ensuing winter. There is on the company's property a big block of ore, the shipment of which, it is proposed, shall be commenced as soon as a good snow road can be got. Comfortable quarters have been provided and all preliminary work done. Under favourable conditions it is probable that between 1,000 and 2,000 tons of ore will be shipped during the winter, there being at least 1,000 tons already in sight.

General.—Summarising the season's operations, it may be mentioned that the properties that have shipped ore during the season have been the Ottawa, Arlington, Enterprise, Neepawa, Hampton, Dayton and Happy Medium, while those that have been engaged in sorting and storing ore for shipment next winter include the Bondholder (which is leased to O'Neil, *et al.*), the Pioneer Co's Black Prince, the Myrtle and the Northern Light.

Arlington and Speculator Mines, in Slocan City Mining Division.

YUKON GOLD VALUES, ETC.

INCLUDED among the statistics given in the pamphlets prepared at Dawson for the information of members of the American Institute of Mining Engineers who visited the Yukon in July were the following, for which the MINING RECORD could not find space last month when publishing the Review of the Canadian Yukon contained in the pamphlets referred to:

Values of gold dust.—The following are the values of gold dust from some of the most important creeks in the Yukon:

	Per. oz.
Bonanza, Discovery to 7 below	$15.93 to $16.16
Bonanza, 7 to 47 below	16.14 to 16.45
Bonanza, 57 to 105 below	16.00 to 16.45
Bonanza, Discovery to 7 above	15.79 to 16.80
Bonanza, 8 to 43 above	17.01 to 17.09
Eldorado, mouth to 36	14.97 to 16.10
Hunker, Discovery to 32 below	16.95 to 17.28
Hunker, Discovery to 28 below	17.39 to 17.65
Hunker, 50 to 75 below	16.20 to 17.17
Last Chance, mouth to 15 above	14.32 to 16.66
Dominion, upper Discovery and above	16.62 to 17.10
Dominion, upper to lower Discovery	16.75 to 16.95
Dominion, 243 below to 256	17.32 to 17.92
Gold Run, mouth to 12	17.64 to 17.70
Gold Run, from 46 to 70	17.84 to 18.00
Steep and Ledge	16.56 to 19.55

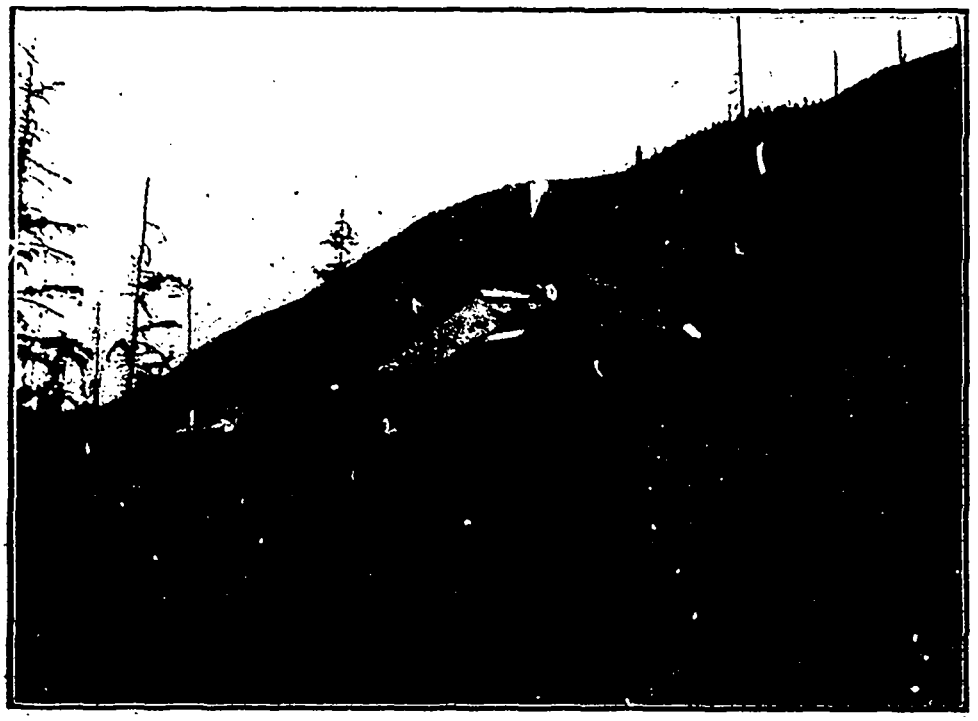
The temperature in the Yukon in 1904 was as under:

January	22.4 below zero.
February	25.8 " "
March	4.5 " "
April	32.5 above "
May	42.9 " "
June	53.5 " "
July	56.1 " "
August	52.1 " "
September	36.0 " "
October	27.7 " "
November	0.0 zero.
December	2.0 above "

The following table shows the number of hours of sunlight on the respective dates given:

December 21	3 hrs.	25	min.
January 1	3 "	52	"
January 11	4 "	57½	"
January 31	6 "	45	"
February 15	8 "	18	"
March 1	9 "	5½	"
March 21	12 "	0	"
April 11	14 "	38½	"
April 25	15 "	42	"
May 11	17 "	15	"
June 21	21 "	25	"

Duties of a miners' inch.—In the report of the Anglo-Klondike Mining Co. for 1904, whose claims are situated on Bonanza creek, the account of hydraulic work done, shows a duty per miners' inch per day for various runs, using 200 in. of water under 150 ft. pressure, of 6.29, 4.68, 5.98, 8.73, and 6.66 cu. yd. respectively.



Enterprise Mine, on 10-Mile Creek, Slocan City Mining Division.

THE COAL FIELDS OF THE STATE OF WASHINGTON, U.S.A.

DEVELOPMENT of coal fields of the adjoining State of Washington would appear to have been much more rapid during the seven years 1898-1904 than those of British Columbia, judging the progress made by the production of coal in these countries, respectively, during the period mentioned. Washington's production in 1898 was 1,884,571 short tons, while that of British Columbia was 1,272,168. In 1904 Washington's output was 3,137,681, while that of British Columbia was only 1,404,063. The maximum output reached by Washington was that of 1903, when 3,193,273 tons were produced; that of British Columbia was in 1901, with a production of 1,635,570 short tons.

According to the official statistics gathered by the United States Geological Survey, the State of Washington is more than maintaining its lead over all other states west of the Rocky mountains in the production of coal. In fact, it is claimed that Washington is the only state in the far west that is to-day producing coal in considerable quantities.

Dealing with coal production in Washington, the Report of the Survey shows that:—

"The coal fields of Washington are confined to the western and central portions of the state. Four principal fields may be mentioned, the North Puget Sound, including the mines of Skagit and Whatcom counties; the South Puget Sound field, containing the operations in Pierce and King counties, and the Puget Sound Basin, just east of Seattle; the Roslyn field, on the eastern slope of the Cascades, and the southwestern field, embracing the counties of Lewis and Cowlitz.

"The coals of Washington range from lignite to bituminous coking coals, and some natural coke has been observed. The bituminous coals of Washington are the only coking coals on the Pacific slope in the United States. The coking coals are found in the Wilkeson-Carbonado district, in Roslyn field and in the north and south Puget Sound districts. They run high in ash and are usually washed before coking. The lignite coals of Newcastle and Renton are gen-

erally of high grade and well suited for domestic use.

"Coal was first discovered in Washington in 1848, when lignite, of rather low grade was found in the Cowlitz valley. Four years later bituminous coal was discovered on Bellingham Bay and the first mine in the state was opened on this bed. Shipments were not begun, however, until 1860. This mine was operated continuously from 1860 till 1878, when, because of a fire caused by spontaneous combustion, the workings were abandoned, and they have not since been reopened. Shipments were not resumed from any of the mines in the northern districts until 13 years later, in 1891.

"In the year 1903, the year of maximum production, Washington's output of coal was 3,193,273 tons. Compared with 1903 the coal production of Washington in 1904 shows a decrease of 55,592 short tons, or 1.7 per cent. The value of the product at the mines fell off from $5,380,679 in 1903, to $5,120,931 in 1904, a loss of $259,748, or 8.4 per cent.

"This decrease in production and the proportionately larger decrease in value were due to the much increased use of fuel oil in San Francisco, and other California cities, which form one of the principal outlets for Washington coal.

"The number of men employed in the coal mines of Washington increased from 4,768 in 1903 to 5,287 in 1904, while the average number of days worked decreased from 285 to 243. Owing to the larger number of men employed in 1904, the average productive capacity per man for the year shows a decrease from 670 tons in 1903 to 593 tons in 1904; while, due to the fewer number of days worked, the average daily efficiency shows an increase per man from 2.35 tons per man in 1903 to 2.44 tons in 1904.

"Of the total number of coal mines in Washington there were seven mines employing 110 men that reported eight hours as the length of the working day; 17 mines, employing 4,042 men reported eight hours for miners and either nine and a half or ten hours for "day" men; four mines employing 700 men reported nine hours, and six mines with 757 men reported ten hours.

"Out of a total production of 3,137,681 tons of coal in Washington in 1904 1,219,230 tons came from King county, 1,240,400 tons from Kittitas, and 531,589 from Pierce. The remaining 146,462 tons were scattered over the state."

WATER RIGHTS ON PLACERS IN BRITISH COLUMBIA.

FOR the information of holders of water rights in connection with placer mining in British Columbia, the following excerpt from the report of Brown *et al.* v Spruce Creek Power Co., Ltd., (*Martin's Mining Cases of British Columbia, Vol. II., Part* 1) is again published, by request. The case was an appeal by the defendant company from a judgment of the County Court of Vancouver, Mining Jurisdiction, directing the company to allow 600 miner's inches of water to pass its intake, for the benefit of other placer miners in working their claims. The case was tried at Atlin, B.C., by His Honour Judge Henderson, on September 1-5, 1904, and the plaintiffs were three of many individual placer miners working claims on Spruce creek, Atlin mining division, and using its water in close succession for that purpose:

"The County Court has jurisdiction over water rights appurtenant to placer claims.

"Though such jurisdiction is concurrent with that of the Supreme Court, it is not ousted by the mere fact that an action was begun in the Supreme Court by the same parties, respecting the same subject matter before it was begun in the County Court, and if no objection is taken it will continue to exercise its jurisdiction.

"If objection is taken, the proper course is to apply to stay one of the actions, and it depends upon the circumstances which one will be stayed.

"It is too late to object to the jurisdiction after judgment.

"A layman is a leaseholder and may apply for a water record, which is appurtenant to the mine and not to the miner."

"No one has a status to attack a water record who has not got one himself, or what is equivalent to one under the act: a right to water under Sec. 29 confers such a status.

"Individual miners working on the same creek who have statutory rights in the same water may join in an application for a record, or to reduce or modify an existing record, which is being misused to their disadvantage, and on such application the Gold Commissioner may make such adjudication as seems to him just; and unless those interested who participated in, or properly had notice of, the proceedings appeal from his decision, in the summary way provided by Sec. 36, they are bound by it.

"If the action taken by the Gold Commissioner was the proper one, it is not invalidated because he gave wrong reasons, or relied on one section instead of another which authorised his action.

"Decision of Henderson, Co. J., affirmed."

A good mixture which will prevent the rusting of machinery, says an English publication, is made by dissolving one ounce of camphor in one pound of melted lard. After the impurities have been skimmed, black lead should be added to give the whole an iron colour. After cleaning the machinery carefully and smearing it with the mixture it can be left indefinitely, or if wiped off after 24 hours it will obviate rust for some time. When removed the metal should be polished with a soft cloth.

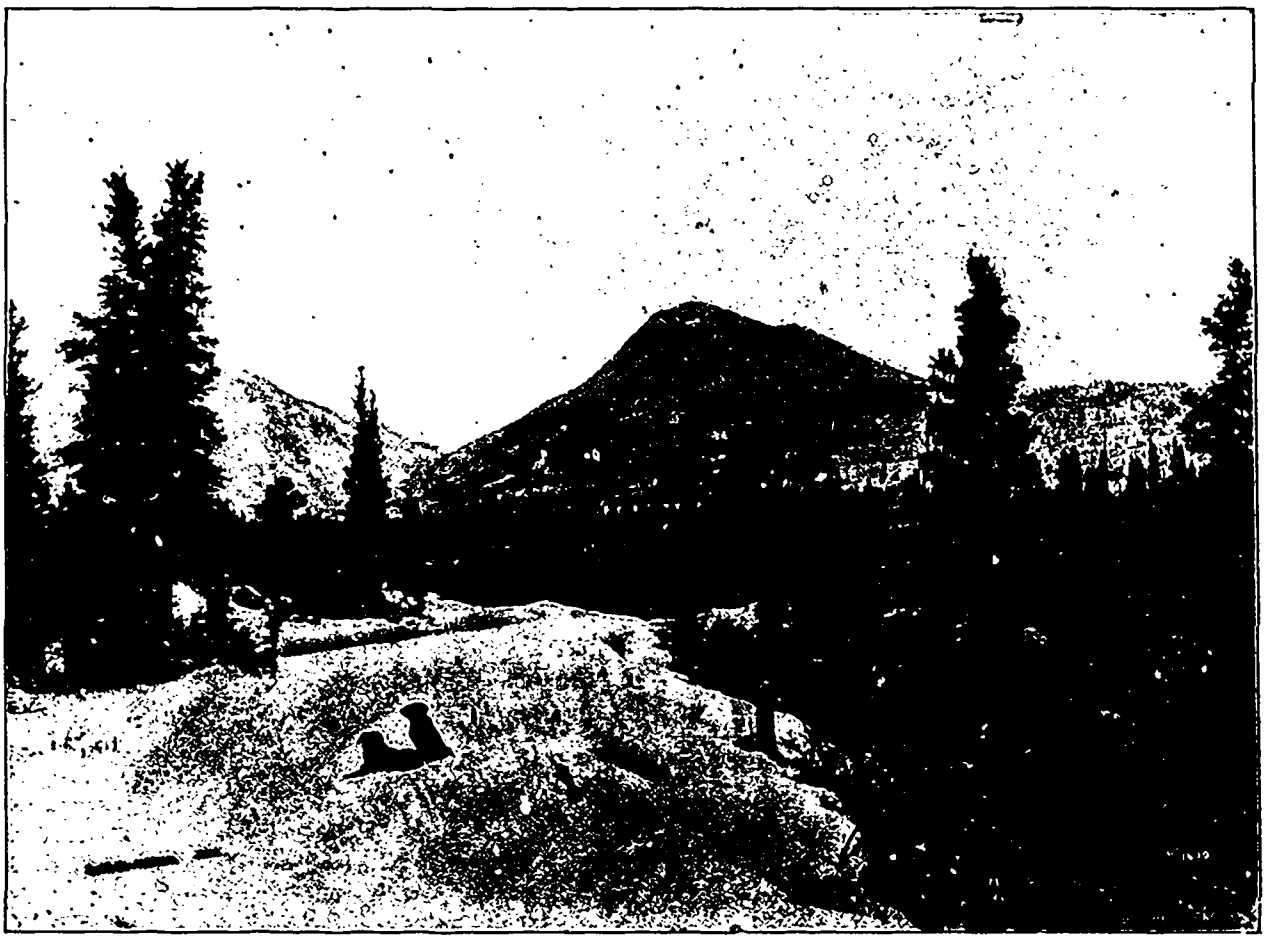
"The making of a great mine," observes the Denver *Daily Mining Record*, "is a matter of years. It is not a fly-by-night achievement. When will the great body of mining stock investors arrive at that depth of understanding that must accompany the most intelligent and economical development of the mineral resources of the West?"

PROGRESS IN THE KLUANE DISTRICT, YUKON TERRITORY.

WRITING to the Whitehorse *Daily Evening Star*, under date September 9, Mr. A. M. Rosseau, who owns claims on Burwash creek, in the Kluane district of Yukon Territory, and had just returned to Whitehorse from a visit to Burwash extending over two months, gave the following notes of Burwash and Fourth of July creeks:

Burwash creek this year (with, possibly, the exception of the Fourth of July) has had more real work done on it than any other in that section of country. In many instances the result has been highly satisfactory, but in more it has been unproductive so far as a yield of gold was concerned. To most of those who have worked intelligently and well the creek shows that, with proper facilities for mining, good returns may be expected. A difference of opinion existed among the miners as to where the preliminary work of prospecting should be done, as equally good showing had been made upon the hillside and in the creek bed. The past season's work, however, has, it is believed, proven that in the wash of the creek gold may be looked for in greater quantities than upon the hillside. The proof of this is that while in a few cases several ounces of gold have been cleaned up on small areas on the rimrock the men who have worked in the creek bed have had continuous pay, after reaching bedrock, of from $8 to $15 per day to the man. Again, while the claims upon which work is being done in the channel of the creek are widely separated the amount of gold taken out per man is about the same.

The difficulties of working in the creek bed, however, are greater than those encountered on the benches; hence many prefer to prospect the benches during the summer and leave until winter, when there is no danger of high water filling up their workings with gravel and boulders, the prospecting of the creek bed.



Mount Bratnober, on the Road to the Kluane Goldfields, Yukon Territory.

The greater part of the gold produced in Burwash this season has been taken from the creek bed on a few claims below the canyon—discovery and those adjoining—and 28 and 69 above. The first-mentioned are being worked by Al. Dart and Henry Collier, Attamore Bros. and Gippert, 28 above by Martin Itchen of Skagway and 69 by Sullivan and Conners. Other claims, notably those of Demontier and Leroy, 71 above on Burwash, and Ernie Johnston, on Tad demagooch, a tributary of the same creek, have yielded small amounts.

During the past summer between $2,500 and $3,000 in gold dust has been paid into the store of the Bullion Hydraulic Co. at Silver for supplies for Burwash and Fourth of July creeks. In addition Tony Sears has in the past two months taken out two wagon loads of necessaries, for which he was paid in gold dust the first trip over 21 oz. and as much, if not more, for the second.

The outlook for the coming season on these two creeks appears to be bright. Gold has been proved to exist in paying quantities; deadwork, the bugbear of the prospector, has been done, provisions will be much cheaper than at present and everything appears favourable for a good clean-up.

EXPERIMENT IN EXTRACTING GOLD FROM YUKON BLACK SAND.

EXTRACTION of gold from black sand is receiving an increased amount of attention. Not only are there placer mining men, who are much interested in the problem of saving the very fine gold and other valuable contents of some of the black sand occurring in placers and elsewhere, endeavouring to find an effective and economical means of recovering these values, but, in the United States, the Geological Survey Department is conducting, at Portland, Oregon, a series of tests on a scale designed to demonstrate in what manner and to what extent it is practicable to make recoveries of the valuable contents of such sand.

Among other recent notices of experiments for the recovery of gold from black sand is one which appeared last month in the Yukon *World*, relative to a test made at Dawson, as follows:

"It was really a test of a new patent for the extraction of the most minute particles of gold from black sand. The inventors are Fred C. Robinson and Larry Lillico, of Dawson. The first-named first experimented with the proposition in the Saskatchewan before he came here, and every season since he has taken bags of black sand outside for comparative treatment, and in this way has worked up his method to what he believes is an entire success.

"It has been known for a number of years that all the finer gold escaped in the very best methods of sluicing, and there then came in the cyanide process of treating the black sand residue of the sluice boxes. By running this through the cyanide process considerable gold has been obtained. But in the Klondike it would not pay to send out this refuse black sand to a smelter, and the other processes that have been invented for treating it have on the general average, not recovered as much gold as would pay for the operation.

"Mr. Robinson believes that he has successfully solved the problem. He has been working his patent on the creeks for a few months with good results, and yesterday was a test of what could be done with discarded sand from a property on Bonanza creek.

"The sand provided for the test weighed 38 lb. It was placed in a large pan and a chemical preparation poured over it. This chemical preparation is one of the secrets of the process. Then Mr. Robinson produced a tiny sluice box in two sections, each about 10 in. wide by 13 in. long, made of copper and the top surface silver-plated. The first section is of smooth plates, with only two obstructions, and the second is corrugated.

"When the chemical preparation was put into the pan of sand the latter crackled as will sometimes be heard in the cyanide process. The action of the chemicals was said to disintegrate the black sand, and precipitate the gold, and these, the particles of gold too fine to be called colours even, then came together by natural attraction.

"A stream was turned in to the tiny sluice box and the sand, after its first treatment, was ladled into the boxes and washed in the ordinary way. Not a colour could be seen on the riffles, and it was evident that the company had already washed the gold as close as it was able to do. This was apparent from the quantity of mercury in the gravel.

"Then came the clean-up, which again showed no gold, but it was placed on a hot-blast gasoline stove and cooked. The result was a little yellow heap which was more than $5 in pure gold dust.

"Mr. Robinson claims that his is the only system by which all the gold in the gravel can positively be obtained. It will not only work over at a profit all the discarded sand from sluice boxes, but also the residue from stamp mills. He believes quartz mill owners will be eager to use his process when it is shown that it will increase the output by 25 per cent. Fortunes, says Mr. Robinson, have been made by working old dumps over by the cyanide process, but his process, he considers far superior even to the cyanide.

"The test at Dawson was certainly a success, when a little more than $5 in gold were obtained from well-washed black sand weighing only 38 lb."

COPPER EXPORTS.

EXPORTS of copper from the United States during July were 17,213 tons, which brings the total for this year, so far, up to 143,606 tons, compared with 133,534 during the corresponding seven months of last year, and with 105,813 during the corresponding period of 1903. The figures are as follows:—

	1905.	1904.	1903.
January	19,694	29,085	11,141
February	17,508	17,073	16,108
March	21,073	22,852	20,097
April	22,261	13,983	16,424
May	23,758	14,772,	16,283
June	22,096	16,279	14,027
July	17,213	19,490	11,733

Going back three years more, comparisons with the corresponding periods are as follows: 1902, 61,869 tons; 1901, 97,838 tons; 1900, 68,451 tons. These figures show steady and large increases in copper exports from the United States.

BOSUN AND MONITOR MINES, SLOCAN MINING DIVISION.

KOOTENAY newspapers, at the close of last month, published a report of the purchase by the Monitor & Ajax Fraction, Limited, of the Bosun mine, situated between New Denver and Silverton, on Slocan lake. This announcement was premature, since at that time only a provisional agreement had been concluded, and could not be carried into effect until after it had been ratified by the shareholders in the Bosun Mines, Ltd. The sixth ordinary general meeting of the latter company was convened to be held in London, England, on September 1. The report of the directors prepared for submission to the shareholders on that occasion contained the following:

"Owing to the difficulties of mining conditions in British Columbia, which have been referred to in previous reports, it has long been apparent that no favourable results from working the mine could be expected without smelting at the mine itself, or mechanically concentrating the ore before shipment. The cost of a smelting plant, and the fact that the supply from one mine alone could not be sufficient to work a separate smelting plant, renders the former idea impracticable. Your directors, therefore, have been giving much attention to the possibility of concentrating the ores. There have been diffiiculties, however, as to erecting a concentrating plant entirely for one mine, both as regards providing for the cost and sufficiency of ore supply; but an opportunity has arisen of considering amalgamation with a neighbouring mine which has a concentrating plant now in course of erection.

"As a result of somewhat prolonged negotiations, your directors have the pleasure to announce that they have no concluded a provisional agreement with the Monitor & Ajax Fraction, Ltd., whereby in consideration of a certain number of shares in this latter company, the Bosun Mines, Ltd., will hand over its mines and property to the Monitor & Ajax Fraction, Ltd. By these means the Bosun and Monitor and Ajax interests will be worked together, and the shareholders in the Bosun Mines, Ltd., will obtain the benefit of the use of a concentrating plant.

"The mines and concentrating plant of the two concerns are immediately adjacent to each other, and can be worked as one concern under the best conditions for economy, and your directors believing this proposed arrangement to be in the best interests of the company, and as giving a probability of leading to good results, will ask you at the general meeting to ratify the agreement.

"The purchase consideration is payable in shares and the proposed terms of purchase will, it is estimated, leave approximately 26,000 ordinary shares of £1 each, and 6,666 deferred shares of 1s. each of the purchasing company for distribution among the shareholders of this company after the discharge of all the debts and liabilities of this company."

The Bosun group consists of 8 mineral claims, advantageously situated near the east shore of Slocan lake. Ore in quantity was first found on the property by Capt. W. H. Sandiford, now of Victoria, and it was he who made the mine, his theory as to the mode of occurrence of the ore shoots having proved to be correct. He was in charge of operations from the time development work was commenced in the summer of 1899 until October, 1903, when the difficulties of mining conditions above referred to rendered the continued working of the mine at a profit impracticable. He remained at the mine until last autumn, when he removed to Victoria, leaving a caretaker in charge.

It is noteworthy that the Bosun was the first mine in the Slocan to ship zinc ore, as such. This product, was shipped, to the extent of about 1,900 tons, to Antwerp, Belgium. The Bosun zinc ore carries comparatively high silver values, much of it averaging 80 oz. per ton. None of that shipped contained less than 50 oz. per ton.

The Bosun has been somewhat extensively developed by six adits, with raises connecting several of them. No. 1 is the lowest and has been driven about 1,200 ft. At a vertical distance of 130 ft. higher up the hill, No. 2 is in 800 ft. No. 3 is 80 ft. above No. 2, and has been driven about 1,000 ft. No. 4, 85 ft. higher, is some 500 ft. in length, and No. 5 is in a similar distance. From the face of No. 5 to the surface the distance is about 60 ft., while No. 4 is the same distance below. No. 6 is in the next hill, on the Fidelity claim, and is in about 150 ft. This last adit has about 1,200 ft. of backs, the hill rising sharply above it.

The lead is described as a large fissure vein of quartz with galena and argentiferous zinc blende. Beside the 1,900 tons of zinc ore above-mentioned, there have been shipped nearly 3,000 tons of galena. Further development will, it is believed, disclose the presence of much more ore of similar quality to that the mine has already produced.

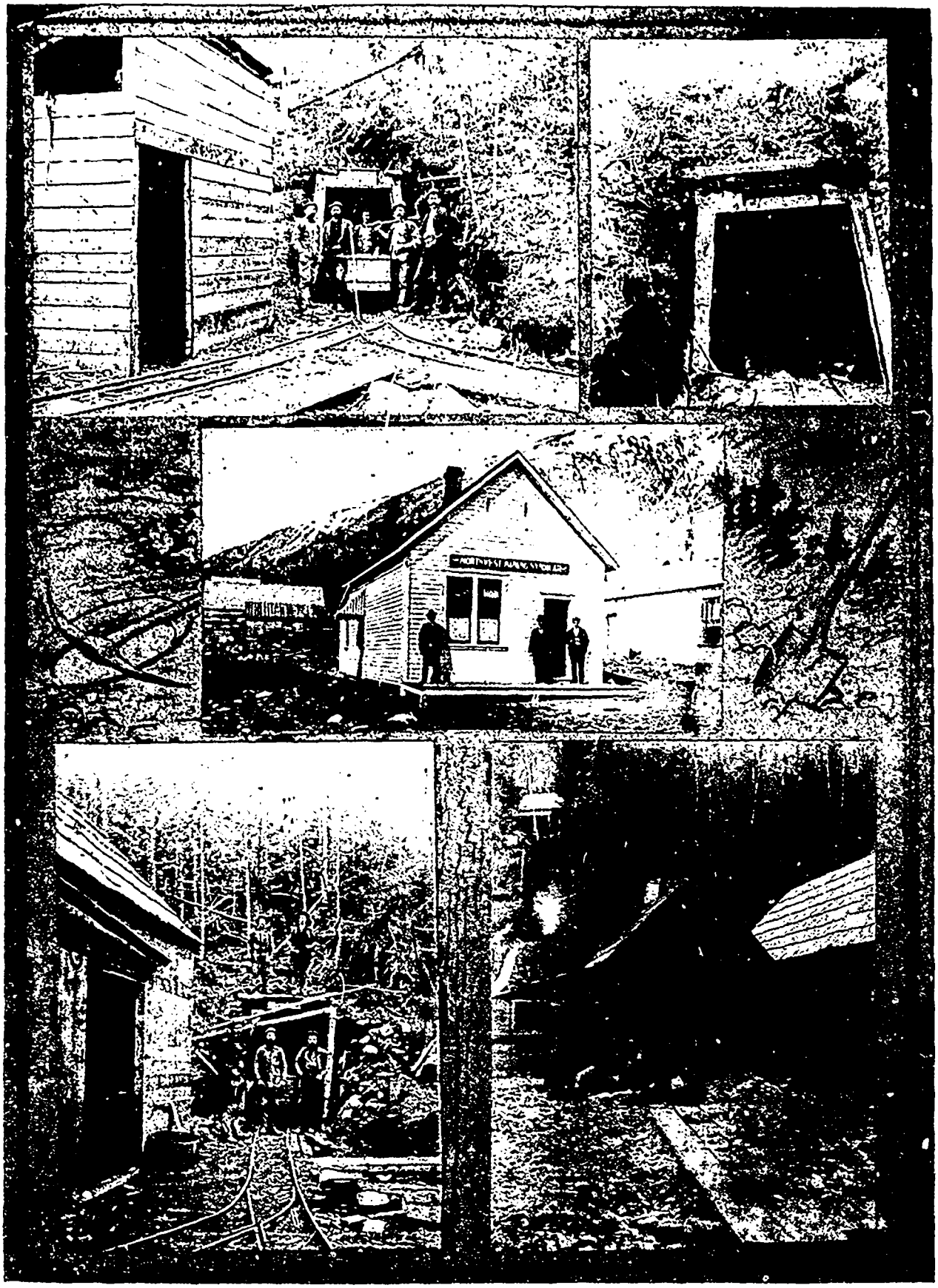
The following article, which was contributed to the MINING RECORD in 1899 by the late Mr. Howard West, A.R.S.M., may prove of interest at this time:

AN EARLY DESCRIPTION OF THE BOSUN MINE.

The Slocan has been aptly termed a poor man's country, in contradistinction to other parts of the province, from the fact that in many instances owing to peculiar natural advantages, it has been possible to defray the preliminary expenses incurred in development from the proceeds of ore obtained almost at the grass roots. Never perhaps has this been more conspicuously exemplified than in the case of the now well-known Bosun mine.

So many unauthentic reports, some of them almost ludicrous in their inaccuracy have been circulated regarding this property that it is a pleasure to be able to chronicle the true ungarnished facts as they really exist.

The history of the Bosun hinges on the accidental discovery in the summer of '97 of a vein of galena on what was afterwards known as the Fidelity claim. It has been frequently recorded how a prospector returning home one evening was struck by the casual appearance of pieces of galena embedded in the roots



(1) Tunnel No. 1, Bosun Mine. (2) Tunnel No. 2, Bosun Mine.
(3) Office of the Company, New Denver. (4) Tunnel No. 3, Bosun Mine.
(5) Miners' Bunk House and Blacksmith Shop.

of an upturned tree. Investigation led to the finding of the vein whence these were derived and subsequent staking of the ground, which, by the way, had been located several times previously and abandoned as worthless on account of the heavy superficial covering of gravel and debris, which rendered systematic prospecting out of the question. The physical feature, however, which proved so great an obstacle to the miner, was the condition most favourable to the agriculturist, so it came about that the ground situated below the Fidelity, being well irrigated and close to the lake, was appropriated to the uses of the rancher. This peaceful condition of affairs was, however, destined to be short-lived, for designing persons who had thoroughly mastered the intricacies of the mining law saw capital in staking off the ground and acquiring the right to sink shafts and run tunnels through the owner's crops, the result being that the Boatswain and Tyro were added to the list of the claims in the Slocan mining division.

Such a brilliant piece of strategem was rewarded by the payment of $700, although it is somewhat doubtful if they could have substantiated their right to the ground at that time, had it been called in question. Peace at any price, however, appeared to be the motto of the rancher, and so having disposed of likely complications he proceeded with his task of cultivating the soil, a wiser though apparently poorer man. This latter, however, remained to be proved, in the course of time it became necessary in order to retain possession to do the annual assessment as required by law, and having previously made efforts to trace the Fidelity vein on to the Bosun ground, open trenches were dug near the boundary line with a view to its discovery. Fortunately these proved highly successful, or at any rate a vein—whether identical with that originally found or not—carrying galena, was here brought to light, which, although unknown at that time, contained in embryo the possibilities of the Bosun mine as it exists to-day. The uncertainty regarding its ultimate value and the amount of capital required to effectually prove it, led the owner to accept an offer made by Mr. W. H Sandiford, representing the North West Mining Syndicate. By the terms of this option he agreed to keep two men continuously at work on the property for 30 days, at the expiration of which he had the privilege of either relinquishing all title, paying 10 per cent down on a year's bond at $15,000, or purchasing at a cash consideration of $7,500.

Starting some 300 ft. down the hill, away from the Fidelity line, he commenced to sink an experimental shaft in the hope of encountering a continuation of the vein, thereby proving conclusively that it entered and was contained in the Bosun ground. Here again the efforts were crowned with success, for within a few feet of the surface, as soon as the loose ground was traversed, encouraging indications were met with. Something more than indications, however, are required to make a mine, and luckily it was not long before this was forthcoming in the shape of a fine streak of galena. When first discovered this was barely wide enough to measure, it is true, but then big things sometimes have small beginnings, more frequently perhaps in mining than in other directions, and this proved to be emphatically the case in the present instance. As the distance from the surface increased, so did the width of the galena in proportion, until at a depth of forty feet, ore was visible for almost the entire width of the shaft. Under the circumstances it is not to be wondered at that Mr. Sandiford accepted the latter alternative in the terms of the agreement, and Mr. Harris, the owner of the ranch, who had been deluded into paying $700 for two worthless claims, found himself the richer by $7,500. Truly the fortunes of mining are many and various.

On July 4, active development began under the new company, and although employing only a few men at first, the force has been steadily increased until to-day it numbers over 30. Within two months of making the payment, and three of the commencement of operations, while still in the initial stage of development, shipments were begun, the first car leaving the mine on September 6, to be followed by five others the same month, making a total of 120 tons for September, or a value of considerably more than the original cost of the property. From that time to this there has been no diminution in the producing capacity of the mine, the output being consistently maintained in the neighbourhood of 100 tons a month. In all, 900 tons have been shipped to date, having a net value of over $60,000, a record, I venture to assert, unprecedented in the history of mining in the Slocan and in all probability of the whole province.

The ore, which is of the ordinary Slocan variety, associated more or less with argentiferous zinc blende, occurs in a well-defined vein cutting the enclosing argillites at a somewhat oblique angle, having a general trend N.E. by S.W. and dipping approximately 55 degrees in a S.W. direction.

As an example of true fissuring, I question if this vein is surpassed in the district, every feature distinctive of this mode of origin being conspicuously displayed. Subsequent movements have caused certain irregularities, parts of the vein being tortuous and winding as shown on the plans, but the original method of deposition is none the less obvious on that account, the uniform persistency of the vein being demonstrated afresh in every working. The real width of the deposit is not readily attainable, but in places where both walls are clearly defined it is seen to be from 4 to 6 ft. At such portions two parallel and highly polished surfaces indicate the extent of the mineral bearing ground, the solid galena often reaching the full width of the cavity. The presence of a layer of clayey matter, or what is commonly known as gouge, and the many striations on both walls, prove undeniably the movement that must have taken place. Sufficient work has hardly been accomplished to give a clear conception of the precise nature of the deposit, no means having yet been discovered of ascertaining just when and where valuable mineral is likely to be encountered. It is the general opinion shared by those in authority, that the ore runs in

shoots, which dip in an easterly direction, extending from one level to another, but in the absence of corroborative evidence in the tunnels themselves, judgment had best be deferred until this is forthcoming. The Slocan deposits are proverbially erratic, and there are many who assert that the only safe way is to stope out every inch of ground within the vein, this method being observed in practice at the Payne and other large mines. However that may be, the indications at the Bosun certainly point to the correctness of the former theory, and the results of development in the lower tunnels will be awaited with interest. The gangue is similar to that found in most other veins consisting of quartz, lime, spathic iron and a large amount of brecciated country where the rock has been badly crushed or much fractured.

tunnels have been driven continuously on the vein, and a third has recently been started 150 ft. further down. On account of the great depth of gravel at this point —proved by an experimental shaft to be considerably in excess of 100 ft.—this tunnel, although driven for a distance of 140 ft., is still encountering gravel and boulders, but is expected to meet with solid rock at almost any moment, when cross-cutting will be resorted to in order to locate the vein. This will provide 150 ft. of stoping ground to the tunnel above, there being equal scope below before the level of the lake is reached. So far, very little stoping has been found necessary to ensure the regular shipments, sufficient ore having been taken out in the course of development. The two upper levels are connected by raises, the ore from above being sent down chutes where it

New Denver, on Slocan Lake—Known as "The Lucerne of the Kootenay."

The original method of attacking the vein by means of a shaft, requiring the hoisting of the ore and waste a considerable distance, was merely a temporary expedient to obtain as much information as possible in the time at command; as soon as convenient, therefore, steps were taken to investigate the ore shoot from below, thereby lessening transportation charges and facilitating the drainage of the workings. The No. 1 tunnel, some 75 ft. vertically below the top of the shaft was started on September 15 last and is now in a distance of 331 ft., having made connection with the shaft about 200 ft. from the entrance. The No. 2, 75 ft. again below this, was started a little earlier, in July, and has been extended until at the present time its length is in the neighbourhood of 450 ft. Both

can be concentrated in one spot and thus handled more expeditiously.

The company, quick to recognize the importance and economy of including as many surrounding claims as possible in their group, have been gradually acquiring those situated most advantageously for their purpose, and now number the following among their holdings: Boatswain fraction, Tyro, Tyro fraction, Fidelity fraction, Broken Lock, Lake View, Lake View fraction, Alpha, and Alpha fraction. But little development has been attempted on the majority of these, although there is some 500 ft. of tunnelling on the Lake View, which shows a very promising ledge more than 30 ft. in width. As soon as ever the snow goes, however, it is the intention of the management to thoroughly exploit the whole of this ground.

The occurrence of a somewhat excessive amount of zinc in the ore, has been a source of some anxiety. The zinc increased as depth was gained, but the company's directors have taken the bull by the horns, and grappled with the difficulty before it has had time to assume serious dimensions. As a result, a shipment of practically pure blende, assaying approximately 50 per cent zinc, being almost free from lead, is now on its way to London, where the most profitable method of treatment will be thoroughly investigated. A successful outcome will benefit not only the shareholders in the Bosun, but give a stimulus to the whole district, which I need hardly say will be gladly welcomed and duly appreciated.

This article would be incomplete without a reference to the unique position in which the North West Mining Syndicate and its shareholders stand when compared with other companies similarly situated. Soon after the first annual meeting the directors were able to announce, with pardonable pride, the declaration of a 20 per cent dividend as a result practically of the first year's operations. This encouraging condition of affairs was due to several causes, a brief analysis of which might serve as an object lesson to our companies who have made a failure and then attributed it to the country. To attempt to eliminate the element of chance would be to deprive mining of a good deal of its attractiveness from the investor's standpoint, but to proceed always along the most careful business lines is the first and obvious duty of all interested in this important phase of the industry; and this is what a good many—in fact I do think we may say the majority of directors—do not. To begin with, the company under consideration has an experienced London board, composed not merely of thorough business men, but those who have had to deal with mining ventures in other parts of the world, and therefore know precisely what they are about in this instance. Secondly, and of quite equal importance, is the fact that they are not burdened with a capital so vast as to be entirely unmanageable and out of all proportion to the scale of their operations. The third factor which contributed to their success is the unlimited confidence which they reposed in their local representative, Mr. W. H. Sandiford, who had full power to act for the company in any emergency which might arise. To his foresight and judgment, acquired during some twenty-five years' varied experience in every quarter of the globe, they owe a large measure of praise, and if there is one gratifying feature about the whole connection it is to know that his services to the country have been fully recognized by the directors and substantially acknowledged; a most excellent precedent for other companies who wish to achieve like success.

View of Slocan Lake, With a Lake Steamer in the Distance.

THE MONITOR MINE.

There was not much information obtainable relative to the Monitor mine when the MINING RECORD published its review of mining in Slocan during 1904, in which year only one car of ore was shipped by this mine, and not much development work was done, the company having been giving its attention to putting in a line of flume and power plant for the mine, and to the erection of a zinc enriching plant at Rosebery, on Slocan lake. The construction and equipment of these works has since been proceeded with.

The provincial mineralogist visited the property in the summer of 1904. The *Annual Report of the Minister of Mines for* 1904 contained the following account of the property:

"The monitor mine, including the Monitor and Hustler fraction, is owned by the Monitor & Ajax Fraction, Ltd., of 42 and 44 Effingham House, Arundel street, London, and is under the local management of Mr. Maurice Gintzburger, with Mr. A. R. Fingland as mine superintendent. The mine is idle, pending the installation of machinery at it, and the construction, near Rosebery, of a plant for the separation and recovery of the zinc blende, which occurs with the galena to such an extent as to have been a cause of penalty

at the smelter. Its removal from the galena will permit that ore to be treated at a lower figure, while the zinc, if properly prepared for market, will have a distinct value of its own. Formerly the mine shipped extensively, the total shipments amounting to 3,185 tons of ore, which netted $192,401, of which there was shipped prior to 1901 (when the present company took possession), 688 tons, valued at $68,869.60, the present company having shipped 2,497 tons, valued at $123,531. The property is situated on the south slope of the south fork of Carpenter creek, opposite the town of Three Forks.

"The country rock is slate, and is cut by a well-defined quartz vein having a general N. 10 degrees E. strike, and a dip to the S. E. of from 60 to 90 degrees, cutting the bedding of the slates nearly at right angles. The vein varies in width, but is as great as 48 in., and carries galena and carbonates, with silver values and a certain amount of gold, also, in parts, a considerable percentage of zinc blende.

"The property is developed by 5 adit tunnels, of which the highest, or No. 1, is 450 ft. long, and in its course cuts one fault with a throw of 40 ft., beyond which the vein has been again picked up. No. 2, 78 ft. lower and 650 ft. long, has about 200 ft. of additional exploratory workings off it, and cuts through two faults, the first, near the portal, with a throw of 32 ft. to the right, the second being that noted in No. 1. The work was pushed through both these faults, but was finally stopped at another fault, which dips into the hill with the bedding at an angle of 60 degrees. No. 3 is 50 ft. below No. 2, and meets at the portal a fault with a throw to the right of 20 ft., and also cuts through the 32-ft. fault coming down from the level above. This tunnel likewise is stopped at 850 ft. in, by the same fault which blocks No. 2. No. 4 is 122 ft. below No. 3, and is 1,080 ft. long, and cuts the same two faults as does No. 3, but has not, as yet, been driven out to the main fault. No. 5 is 217 ft. lower than No. 4, and is a cross-cut for 400 ft. with 120 ft. of drifting on the lead, in which is encountered a new fault not previously met with. It is estimated that this level would have to be extended 1,000 ft. before it struck the line of the main fault. There has been good ore in the upper levels, which, although pretty well mined to these levels, is still continuing into the floor, so that the long tunnel is expected to cut these ore shoots with depth. Besides this, No. 5 cuts a new ore shoot on which some stoping has been done and an intermediate level started."

Among recent tariff changes which affect British Columbia industries are the following: Dry white lead, 30 per cent *ad valorem;* white lead, ground in oil, 35 per cent *ad valorem;* cement, Portland and hydraulic or water lime, in barrels or casks, the weight of the package to be included in the weight for duty, 12½ cents per 100 lb.; in bags 12½ cents per 100 lb., together with 25 per cent *ad valorem* on the bag; also, exemption from duty of machinery not made in Canada for use in alluvial mining.

THE TARIFF COMMISSION IN BRITISH COLUMBIA.

THE tariff commission, composed of Hon. W. S. Fielding, minister of finance; Hon. Wm. Paterson, minister of customs, and Hon. L. P. Brodeur, minister of inland revenue, commenced its sittings in British Columbia at Nelson on 15th inst. The local daily newspapers published full reports of the proceedings, and from them it is gathered that the case for the lead mining and smelting industries was admirably presented by the secretary of the Nelson board of trade in a report prepared by a special committee and endorsed by the board. Lumbering and fruit growing interests were also well represented.

Beside the submission of the lead committee's report, which was also approved by the delegate from the Kaslo board, there appeared before the commission Mr. Jas. Cronin, of Moyie, manager of the St. Eugene mine, which is the largest producer of lead in Canada; Mr. Louis Pratt, of Sandon, secretary-treasurer of the Last Chance Mining & Milling Co.; Mr. Leslie Hill of Nelson, representing more particularly the interests of the "dry ore" producers of Kootenay; Mr. J. L. Retallack, delegate from the Kaslo board of trade; and Mr. Geo. Huston, of Sandon. The lead smelters of West Kootenay were represented by Mr. J. J. Campbell, manager of the Hall Mining & Smelting Co., Nelson, and Mr. T. W. Bingay, of the Canadian Smelting Works, Trail. Mr. G. O. Buchanan of Kaslo, the Dominion official entrusted with the distribution of the lead bounty, also gave information relative to tariff changes necessary for the protection of the lead industry.

The representations of the lead committee, as read before the members of the commission, were as follows:—

"Nelson, B.C., Sept. 15, 1905.

"*To Hon. W. S. Fielding, Hon. William Paterson, Hon. L. P. Brodeur, composing the Tariff Commission of Canada.*

"Honourable Sirs:—The lead industry of British Columbia through the action of the United States government in imposing prohibitive import duties, lost its best and natural market, and as a result it had in 1903 dwindled to a very small limit, as will appear from the following: In 1900 there were produced 31,870 tons of lead; in 1901, 25,790; in 1902, about 12,000, with a production for the last half of 1902 and up to July of 1903, at the rate of about 6,000 tons per annum. To remedy this the government of Canada passed the act entitled, '*An Act to Provide for the Payment of Bounties on Lead Contained in Lead-bearing Ores Mined in Canada,*' being Chapter 31 of the Statute of 1903, with the result, coupled with the recent increase of import duties on "dry white lead" and "dry white lead ground in oils," that a marked and encouraging advance in the production of lead ores, namely, an increase of at least 500 per cent, is recorded and the increase in the number of operating mines producing ore containing lead is at least five-fold; in addition, one lead smelter at Marysville has

been erected; and the capacity of the lead refining works at Trail has been so increased that now it is capable of refining all the lead consumed in Canada; thus showing, quite apart from the incidental benefit to all indirectly concerned, fair returns for the attention already given the industry by the government..

"The lead producer of British Columbia has to contend with prices of supplies, made higher in part by the present tariff on Canadian imports, higher wages, and also more expensive conditions of transportation, than the producer of lead in many other parts of the world competing in the foreign markets; which, taken with our exclusion from the markets of the United States, places the industry under a serious handicap, in an attempt to secure adequate returns to cover expenditure, in selling our surplus in the markets of the world.

"The whole question, therefore, is to continue to secure to the industry such assistance by tariff or otherwise as will give the producer of lead ore a fair return for his lead, and thus enable him to operate at a profit, and to place the industry upon a permanent basis.

"The prosperity of the lead industry is an essential to the development of much of the mineral wealth of the Kootenay district. The mineral resources of the province are very great, and to secure a full development of the valuable silver and gold deposits, the lead ores—so necessary for the proper and economical treatment of such other ores—must be mined to their fullest extent; therefore any assistance rendered to the lead producer is a matter of great concern to the producer of silver and gold-bearing ores. The prosperity of these industries, in turn, means the prosperity of the smelters, our great coal mines, the transportation companies, our wage-earners, our merchants, and in fact all business located in this country. Such prosperity should be a matter of great concern to the farmers and ranchers of the neighbouring provinces of Alberta and Saskatchewan, who look to British Columbia for an important market for their produce; and to the manufacturers in the Eastern provinces of all classes of goods here consumed; also to the wholesalers of all the provinces of Canada.

"The importance to Canada of fostering the mining industry of British Columbia can be appreciated when one contemplates what its mineral production amounts to in comparison with the mineral production of all other parts of Canada combined.

"The following is a table for the year ending December 31st, 1904:

	Total Production of Canada	Of which British Columbia produced	Of which all other provinces combined produced
Gold, exclusive of Yukon	$ 6,063,000	$5,704,908	$ 358,092
Silver	2,127,859	1,719,516	408,343
Copper	5,510,119	4,578,037	932,082
Lead	1,637,420	1,421,874	215,546
Coal	14,599,090	3,760,884	10,838,206
Coke	1,884,219	1,192,140	692,079
Total	$31,721,707	$18,377,359	$13,244,348

"Iron—Large deposits in British Columbia, but not yet operated.

"Nickel—Deposits in British Columbia, but not yet operated.

"The total production in Kootenay of lead in ores for the year ending June 30, 1905, amounted to 27,844 tons, as against about 8,000 tons for the year immediately preceding the granting of the 'lead bounty.' The total consumption by Canada of lead in all shapes is about 15,000 tons, which consumption with the development of the West may be expected to show a considerable yearly increase.

"The present lead-producing areas in British Columbia are East and West Kootenay. From these districts 125 different properties were shippers of lead-bearing ores to the local smelters during the last year; and we say confidently that this number is, under favourable conditions, capable of a large increase.

"In the silver-lead mines (alone) of British Columbia, including the many concentrating mills, and mine plants, there is invested at least $20,000,000; and this is exclusive of the re-investment, in development and equipment, of large sums of money realised from ores mined. In addition, a very large amount is invested in dry-ore mines, dependent for their prosperity, and in many cases for their existence, upon the production of lead ores, and the maintenance of a home lead-smelting and refining industry. A large number of investors scattered all over the Dominion are interested in both of these classes of mine.

"There is invested in railroads and steamboats dependent on these mines and their incidental mining industries for their traffic, about $14,700,000.

"In the lead smelting and refining industries of Kootenay, exclusive of all other smelting plants, there is invested about $1,000,000. The lead smelters of the Kootenay are: The Canadian Smelting Works at Trail, the Hall Mines smelter at Nelson, and the Sullivan smelter at Marysville; added to these is the lead refining and manufacturing works at Trail, operated by the Canadian Smelting Works.

"There are employed directly in the silver lead mines of the Kootenay about 1,500 men, who receive per annum at least $1,900,000 in wages, the most of which is again expended by them in this district. In addition to this—difficult to calculate—considerable amounts are paid to the smelter employees, in lead smelting. These different sums will, of course, increase with the further development of the industry.

"The business of smelting and refining means the direct expenditure of large sums for coal, cordwood, lime-rock, and lime, assay, and other supplies. The business of mining means the direct expenditure of large sums for transportation of ores to smelters and of the bullion of pig lead to the markets of the world: for supplies for men (covering all classes of canned goods produced by the Eastern provinces): flour, meats, eggs, vegetables, the produce of the farms of Manitoba and the North-west Territories; and also suitable farm produce for live stock; wearing apparel supplied by the wholesalers of the Eastern provinces: and powder, fuses, caps, and candles, machinery, tools

and equipment manufactured to a large extent in Canada, and involving a very heavy expenditure.

"It can safely be said that the whole prosperity of the entire population of Kootenay is dependent directly or indirectly upon the prosperity of the mining and lumbering industries of the Kootenay, and that silver-lead mining is the most important part of these different industries; the necessity, therefore, in the interest of the people of Kootenay, the farmers of Western Canada, the Eastern manufacturers, and the investors—living in all parts of Canada—in our mines and transportation companies, for assisting the lead mining industry of Kootenay by any legitimate means, must be apparent.

"Respecting changes in the tariff affecting the lead industry, we believe that with the exception of the present duties upon 'dry red lead,' 'orange mineral' and 'litharge,' the present 'general tariff' if established as a minimum, coupled with the present lead bounty, is sufficient to enable the lead producer of this province to operate at a profit; but when the lead bounty under the above-named act expires, it will be absolutely necessary, in order to keep the industry in a healthy or paying condition, to give a greater measure of protection: and we trust that the progress shown under the temporary relief by way of bounty, already granted, will fully justify the government in taking such steps as will permanently place the industry on a solid basis, and thus warrant the investment of capital in lead mining, in the treatment of lead ores, and in the manufacture of lead products.

"To state definitely now the amount of protection which will be required when such bounty expires is quite impossible, and if attempted might prove misleading; because of necessity it is not now known, and cannot with any reasonable accuracy be estimated, what will then be the total lead production or total lead consumption of Canada, or the then condition of the foreign lead market to which our surplus product will need to be exported; and without such data it would now be idle to suggest what changes in the tariffs are, or what other assistance or protection is, necessary to enable the lead producer of this province to then operate at a profit.

"Respecting 'dry red lead' and 'orange mineral,' we draw your attention to the present low tariff of 5 per cent *ad valorem*. Very considerable quantities of these commodities are being consumed in Canada and we respectfully suggest that the tariff be increased so soon as these products are manufactured in Canada.

"Respecting 'litharge,' which is admitted free of duty, we suggest that it also be taken into consideration when manufactured in Canada.

"When it is found desirable to fully adjust the tariff affecting lead and lead products, we suggest that the present apparent irregularities of tariff on pig lead as compared with sheet lead and in bars, lead pipe and other lead manufactures, be remedied.

"The present rate of duty upon pig lead, 15 per cent (less 5 per cent—10 per cent under the preferential clause) leaves our market in Eastern Canada open to the surplus stocks of the world at periods when lead prices are temporarily low.

"We call attention to the disproportion between this rate and the rates now in force upon lead in sheet and in pipe.

"In the production of a ton of pig lead there is expended for mining, concentrating, hand-picking, smelting and refining, 90 per cent or more of all that the product is worth, yet the protection afforded by the tariff is but 15 per cent.

"In the further manufacture of pig lead into sheet or pipe there is an expenditure of not to exceed 10 per cent of the value (say $5 per ton), but the duty is increased upon sheet lead to 25 per cent and, in the case of pipe, to 35 per cent.

"In connection with the tariff upon paints we direct attention to the frauds practised upon the consumers of paints in Canada through the medium of adulteration. Bulletin 78 of 1901, prepared by the Inland Revenue Department, entitled '*White Lead in Oils*,' and bulletin No. 91, of 1903, prepared by the same department, and entitled '*White Lead in Oils*, 1903,' serve to show that the grossest forms of adulteration are practised in the preparation of paints that are put upon the market and sold as lead paints.

"We strongly urge the importance, as a corollary of the recent increase of duty upon corroded lead and mixed lead paints, the adoption of the most stringent regulations to prevent the sale within Canada of adulterated paints, except when such paints are plainly designated, marked and described according to their real constituents.

"We further point out that tariff classification of lead and lead products is not now as full as is necessary to protect the industry or as will be required from time to time with the introduction of Canadian manufacture of other lead products; and we respectfully suggest that a classification similar as far as practicable to that found in the United States tariff be adopted.

"We are pleased that you have visited this part of the province and can see in a measure at least some of the conditions under which we labour; in addition we have several men engaged in the lead mining and smelting industries present, who will be pleased to answer all such questions as may occur to you.

"All of which is respectfully submitted.

FRED STARKY, President.
S. M. BRYDGES, Secretary.
J. J. CAMPBELL,
S. S. TAYLOR,
B. WHITE,
Committee of Nelson Board of Trade.
JOHN L. RETTALLACK,
Delegate of the Kaslo Board of Trade.

Summarised, the opinions on the lead question Mr. Jas. Cronin expressed before the commission were as follows: If it were not for the aid received in the shape of a bounty on lead the lead mines would not be working. When payment of the bounty shall cease it will be necessary to close the lead mines unless an equivalent protection be granted against such com-

petitors as Spain, Sicily, Italy and Mexico, which countries employ cheap labour. In the United States labour is as highly paid as in British Columbia, so there is nothing to be feared from the competition of that country. A duty of one cent per pound less than the United States duty, which is 2½ cents, would be sufficient protection. He did not think local freight and treatment rates excessive. Local freight rates were $2 to $3. Freight and treatment charges of local smelters at $15 per ton are lower than those of United States smelters, which are $16 to $20. The lead which comes to Canada from England in various forms is bought in Spain, Sicily and Italy, and is refined to the extent of 25 per cent of its value and then sent to Canada, cutting down the home market to about 7,000 tons, whereas the total Canadian market is about 15,000 tons. The duty on white lead should increase the home market in another year to perhaps 10,000 to 12,000 tons.

Mr. J. J. Campbell, manager of the Hall Mining & Smelting Co., Nelson, hesitated to express an opinion on the specific duties to be placed on lead, as conditions might be very different three years hence. Nevertheless he objected to an *ad valorem* duty because the less the world market price the less would be the duty, and this at the very time when the lead producer needed it most. He would, therefore, advocate a sliding scale commencing with the lead in ore, pig lead, and corroded lead and so on, giving a higher rate each time. This had been adopted successfully in the United States. He thought, though, there was no need for a duty as long as the present bounty was continued. The cheaper smelting rates given by European smelters were the result of special conditions, which were not permanent. A dearth of lead ore compelled the European smelters for the time to make lower rates. The Hall Mines smelter was on the eve of adopting new processes which would cheapen production. With these in use smelting charges would be lessened and at the same time the smelter would be able to do better than to make only a bare profit, as had been its recent experience. There had not been any advance in local lead smelting rates since the lead bounty was granted. Any change made had been in the other direction. The best test of fair smelter charges was the average prosperity of the lead industry. He had no complaint to make concerning transportation charges. As to the marketing charge of one cent per pound, that was arbitrary. Taking that into consideration the freight and treatment charge was adjusted. As a matter of fact the figures for the last three months' operations showed that $20 per ton marketing charge was not sufficient to cover the actual expenses. Hence the freight and treatment charges had to be so adjusted as to cover this loss. It was his opinion that a great stimulus would be given to British Columbia lead mining if investors could be assured that the government aid was permanent. For this reason duties would be a greater benefit than bounties. It took so long to develop a mine that short term bounties did not cover the ground.

Mr. J. L. Retallack thought the minimum protection on pig lead should not be less than that afforded by the tariff at present; that is 10 per cent on pig lead and $15 bounty. This amounts to something less than $25 a ton. The cost of producing pig lead is very much greater than the cost of lead manufactures; therefore the lead should have the higher protection. To produce a ton of lead pipe costs less than $5, yet the duty is 20 per cent, whereas the duty on pig lead does not aggregate 15 per cent. The duty on sheet lead is more justifiable. The duty on paints should be based on their lead contents but it is not. Lead mines in Kootenay are badly handicapped by lack of capital. To attract capital a permanent tariff would be better than a terminable bounty.

Mr. Louis Pratt said the views that had been expressed covered very nearly all the information he possessed. He was satisfied with the bounty and hoped that at the expiration of that bounty the tariff would be suitably adjusted. He had no complaint to make regarding freight and treatment rates. They were as low as any in the country, lower than in the United States.

Mr. G. O. Buchanan, lead bounty adjuster, thought the lead industry was not fairly treated in the tariff. Corroded lead was fairly dealt with, but the pig lead should be better protected. The duty should be increased to 25 per cent. There was no good reason why the manufacturer of sheet lead or pipe, using simple and inexpensive processes, should get the benefit of half the work done by the manufacturer of pig lead. The duty on lead would not make a higher cost on paint. He thought there should be 25 per cent duty on pig lead and 5 per cent more on sheet lead and lead pipe with an additional 5 possibly, on white paint. The top duty should not be more than 35 per cent, and the duty on pig lead, 25 per cent, would allow a living protection to it and to the manufacturers of lead products. Most of the surplus Canadian lead was going to the Orient as Australia was now shipping to Europe and not entering the Orient. He was of the opinion the price of lead would stay up.

Mr. T. W. Bingay, marketing agent of the Canadian Smelting Works, Trail, declared that the marketing charges of Trail had never been covered by the one cent per pound charged. The price of lead in the Orient was fixed by the Australian market and not by the London price, plus the freight to the Orient. The Trail smelter within two weeks will have the capacity of its lead refinery increased to from 50 to 55 tons a day and will then be in a position to handle all the lead bullion offered. The cost of manufacturing lead pipe was low—$5 a ton would cover it. The English price of pipe is about $10 above that of pig lead. He thought, nevertheless, there should be an extra duty on lead pipe. The smelters here are not a monopoly. If they were to charge very much more all the ore would go to Germany, where prices were very close to those of the Kootenay.

Mr. Leslie Hill explained how the requirements of silicious ores for smelting purposes gave the dry ore producers an interest in the continued activity of lead

mining and smelting. If the lead smelters were not running there would be no market for the dry ore.

Mr. Geo. Huston, of the Sandon *Standard*, spoke of the competition of Europe with its excess of silicious ores for the lead ore of Canada and advocated the export of British Columbian ore in order to stimulate the greatest possible production of ore. He did not think more ore should be smelted in Canada than could be used in the home market. He attacked the Canadian Pacific Railway Co. as controlling the lead mining industry. He alleged that there were abuses existing in consequence of the C. P. R. being a smelting as well as a transportation company. The policy of the C. P. R. had depopulated the Slocan. The object of the C. P. R. in putting in a smelter at Trail was simply to prevent American railways getting the haul of the ore. He could not say the C. P. R. charges excessive transportation rates. He considered the granting of the lead bounty worked to the disadvantage of the country and was responsible for the ores not going out of the country. What the Slocan wanted was a free field for the smelters. The smelters here should meet the charges elsewhere. The German smelters were offering much better rates than those here, but the transportation rate, in excess over that of East Kootenay, in the Slocan, wiped this out. That excess was $2. East Kootenay had benefited by the bounty; the Slocan had not. Twelve mines now were not active. He was in favour of a tariff but not of a bounty, unless that bounty were equal for exported ores as well as those smelted locally.

This completed the presentment of the case for the lead miners and smelters.

AT ROSSLAND.

The commission sat at Rossland on 18th inst., when a memorial prepared by a special committee of the Rossland board of trade, was presented. This memorial (omitting a brief representation regarding rough lumber) read as follows:—

"To Hon. W. S. Fielding, Hon. William Paterson and Hon. L. P. Brodeur, Tariff Commissioners.

"Honourable Sirs: The Rossland board of trade present for your earnest consideration the following recommendations regarding proposed changes in the existing tariff:

"1. Duty on lead and lead products.

"2. Duty on rough lumber.

"3. Removal of duty on fluor spar.

"4. Reduction of duty on explosives when used for mining purposes and removal of duty on raw materials from which they are manufactured.

"5. Reduction of duty on candles when used for mining purposes and removal of duty on raw materials from which they are manufactured.

"6. Removal of duty on steel rails when used for mining purposes.

"Duty on Lead and Lead Products.—The Rossland board of trade heartily endorses the memorial presented by the Nelson board of trade on 15th inst., for a substantial duty to be placed upon lead and the products of lead, but this board recommends a specific duty rather than an *ad valorem* duty, and suggests a rate of 1⅛ cents per pound on pig lead and 1½ cents per pound on such products as litharge, dry red lead and orange mineral, as soon as they are manufactured in Canada. The reason for recommending this specific duty rather than an *ad valorem* duty is owing to the fact that the countries selling lead produce the same at a cost varying in proportion to the cost of labour in those countries. Under these conditions we consider a specific duty would be a more consistent protection. For example, 100 lb. of lead may be bought in Mexico, which is a cheap labour country, for $2.00, and loaded in a steamer at Acapulco and landed for small cost at Vancouver. Supposing the duty to be 25 per cent *ad valorem*, in this case the amount paid would be 50 cents. On the other hand, in Australia, owing to the high price of labour, the same amount of lead would cost $3.00, and allowing the cost of export to Montreal to be the same, the 100 lb., of lead from Australia would have to pay 75 cents duty, while the lead from Mexico would come in for 50 cents. By making the duty specific the lead in each case would pay the same rate per pound.

"While lead is not produced in the Rossland district, the conditions surrounding the production of lead in neighbouring districts have a most important bearing upon the welfare of the mines here, on account of the fact that our dry ores can be treated more cheaply in conjunction with lead ores, and should the lead mines be obliged to close down, the smelters would be unable to provide the lead necessary for the treatment of dry ores, and thereby the cost of smelting the dry ores would be increased to such an extent as to make the mining of the same unprofitable.

"Removal of Duty on Fluor Spar.—The Canadian Smelting Works, of Trail, B.C., have erected an electrolytic lead refinery at Trail. The refinery was built for the purpose of refining Canadian lead and supplying the Canadian market with Canadian pig lead. The most important element in connection with the electrolytic refining process is the solution used, or electrolyte. This has been purchased in the past from manufacturers in the United States, and was formerly subject to a duty of 20 per cent. This duty was removed by the last tariff revision, which greatly helped and stimulated the industry, but on account of the unstable character of the solution and the great losses experienced in its transportation, the Canadian Smelting Works are now contemplating the manufacture of their own hydro-fluo-silicic acid, or electrolyte, which acid is manufactured by treating fluor spar with sulphuric acid.

The sulphuric acid is obtained through Canadian chemical companies, but fluor spar will have to be imported from foreign points, as there is at present no known deposit of fluor spar in the Dominion of Canada.

"As the electrolyte, which is produced from fluor spar, is a very important item in the cost of lead refining, amounting to between 70 cents and $1.00 per ton of lead, and as fluor spar is at present subject to a duty of 20 per cent, we ask that the duty be removed

from fluor spar, so that it will be possible to establish a manufacturing plant for hydro-fluoric or hydro-fluo-silicic acids in Canada.

"Memo to accompany application for the admission of fluor spar into Canada free of duty.

"Fluor spar, or calcium fluoride (Ca F 2) is composed of 48.7 per cent fluorine and 51.3 per cent calcium. It is found in nature mixed with various impurities. The commercial product contains from 60 to 90 per cent calcium fluoride.

"Uses.—The principal use is for the manufacture of hydro-fluoric and hydro-fluo-silicic acid. The next most important use is as a flux in metallurgy, especially in iron and steel. It is also used in the manufacture of opaque and opalescent glass, enamels, glazes, etc.

"Where Found.—There are no known deposits of fluor spar in Canada. The principal deposits are in the states of Kentucky and Illinois, in the United States. The next important deposits are in Germany and then Great Britain.

"Manufacture of Acid.—There are but two forms manufacturing hydro-fluoric acid in the United States, viz., J. C. Wiarda & Co., Brooklyn, and the General Chemical Co., of Pittsburg. There is only one firm manufacturing hydro-fluo-silicic acid, viz., the General Chemical Co., of Pittsburg.

"Owing to the rapid action of this chemical in dissolving metals and glass, and its rapid destruction of wooden containers, shipping companies will not accept the acid as freight from foreign points. It is also found that there is a great loss in shipping from points in the United States, owing to its destruction of containers.

"The acid is made by treating fluor spar with sulphuric acid, forming hydrogen fluoride and calcium sulphate(Ca F 2 plus H2 S 04—2 H F plus Ca S 04). This reaction will take place at ordinary temperatures, although complete decomposition only takes place at 130 degrees centigrade, or higher. The acid is evolved as a vapour and is dissolved in water, giving hydro-fluoric acid. Hydro-fluo-silicic acid is made by treating quartz or silica with the hydro-fluoric acid. Hydro-fluo-silicic acid is used as an electrolyte in the electrolytic refining of lead.

"Fluor Spar in Metallurgy.—Fluor spar possesses the property of rendering a very fusible and liquid slag, and very infusible and refractory substances can be readily fused by mixing with fluor spar. In iron and steel metallurgy, it is useful for carrying silica, sulphur and phosphorous into the slag.

"It is submitted that the remission of the duty upon fluor spar, when imported for use in the manufacture of acid or other metallurgical uses, would not injuriously affect any person or interest in Canada, and that such remission would be consistent with the general policy of promoting manufacturing industries in Canada

"Reduction of duty on explosives when used for mining purposes and removal of duty on raw materials from which they are manufactured.

"The Rossland board of trade asks that the present tariff of 3 cents per pound on explosives when used for mining purposes be reduced by at least one-half and that the raw materials used in the manufacture thereof be placed upon the free list. The reason for this is that under the present tariff the cost for explosives per ton of ore produced is at least 64 cents, which is almost an impossible burden for the low grade ores to bear. Mines which are in process of development feel this even to a greater extent, the cost of powder in that case being one-fourth of the total expense thereof.

"Reduction of duty on candles when used for mining purposes and removal of duty on raw materials from which they are manufactured.

"The present duty of 25 per cent *ad valorem* on the class of candles used for mining purposes adds materially to the expense of mining, inasmuch as 5 cents per ton of ore is added to the cost of mining, and this board urges that the duty on this class of candles be reduced by at least 50 per cent, and in order that the manufacture of candles may be encouraged in Canada, the board further urges that the raw materials from which mining candles are manufactured be placed on the free list.

"Removal of duty on steel rails when used for mining purposes.—The board further urges that rails when used for mining purposes be placed upon the free list, in view of the fact that the raw material is at present receiving a government bounty, and we therefore consider that under existing conditions, the price is excessive.

"All of which is respectfully submitted.

ROBERT HUNTER, President.
R. W. GRIGOR.
A. C. GALT,
J. S. DESCHAMPS.
JAMES CRONIN.
A. B. MACKENZIE, Secretary.
Committee of Rossland Board of Trade.

"Rossland, B.C., September 18, 1905."

Mr. A. H. McNeill appeared before the commission on behalf of the Rossland board of trade, and read the foregoing memorial.

Mr. Jas. Cronin said he favoured, for reasons set forth in the memorial, a specific instead of an *ad valorem* duty. He directed attention to the high cost of powder, candles, steel and machinery, all used largely in mining. The mines of British Columbia were essentially low grade, and the margin of profit so small that the cost of materials used was of much importance. Powder cost 15 cents per lb. here as against 12 cents in the United States. The duty on powder is 3 cents per lb.; he thought a reduction of one-half (*to 1½ cents per lb.) would not be unreasonable.* The duty on candles, which is 25 per cent *ad valorem*, should also be reduced one-half. The cost of candles adds 5 cents per ton to the cost of mining ore here. Steel rails also cost more in Canada than in the United States. The rails most used in mining weigh from 8 to 16 lb. to the yard. Chilian mills, which are not made in Canada, are not on the free list.

Mr. Jules Labarthe, superintendent of the Canadian Smelting Works smelter, at Trail, spoke in favour of the removal of the duty on fluor spar, of which material the refinery at Trail would consume about 500 tons a year. Hydro-fluo-silicic acid is difficult to transport and much of it is wasted in transit. He knew of no Canadian interest that would be prejudicially affected by placing fluor spar on the free list. In regard to machinery, pulleys and shafting, which are an essential part of machinery used in smelting works, and were dutiable—he thought these should be admitted duty free.

Mr. Smith Curtis presented to the commission an open letter showing wherein under the existing tariff British Columbia is placed at a disadvantage as compared with the other provinces of the Dominion. He spoke in support of his written contentions and showed further the need of tariff revision. He impressed upon the commission the need of protecting and fostering the infant zinc industry on lines similar to those adopted for the lead industry, and was vigorous in his declaration that a bounty on lead and zinc should be paid, regardless of the imposition of an import duty. He argued that this duty should be as heavy as that on similar products. He also took up the question of railway rates, and declared that western freights are many times heavier than the average eastern rate. He made a strong plea, too, for a lower tariff on staple articles of commerce.

IN THE BOUNDARY DISTRICT.

The commission also visited Greenwood, Phoenix and Grand Forks, in the Boundary district, and held a session in the first-mentioned town on 20th inst. A memorial, signed by managing officials of the three companies owning and operating both mines and smelters in the district, was presented by Mr. J. E. McAllister, manager of the B. C. Copper Co's smelter. Much testimony in support of the requests for removal of duties was given by Messrs. McAllister, A. B. W. Hodges, general superintendent for the Granby Con. M. S. & P. Co., T. R. Drummond and W. C. Thomas, general and smelter managers, respectively, for the Dominion Copper Co., Duncan McIntosh and D. W. Cummins.

A copy of the memorial was not received in time to have it printed in this number of the MINING RECORD, but the following is a summary of it: Removal of duty of 3 cents per lb. on dynamite; reduction in duty on structural iron from 35 to 20 per cent; removal of 5 per cent duty on bar steel, such as is used in smelters, not now made in Canada; removal of 25 per cent duty on mining candles, as suitable candles are not made in Canada; reduction on rubber hose from 35 to 20 per cent, as suitable hose is not now made in Canada; reduction from 35 to 25 per cent on iron pipe 2 inches and under, as suitable pipe is not made in Canada; removal of duty on rails used for mining and smelting purposes; removal of duty on steel castings now bearing 35 per cent in rough, and 30 per cent when finished, as castings such as they require are not made in Canada; also addition to free list of slag trucks hauled by mechanical power, and amendments to clause defining blast furnaces so as to admit them free complete, and defining converters coming in free as "converting machinery for iron or copper;" also free admission of repair parts of mining machinery which is admitted free.

On the lumber question the memorial stated that "the operators of the mining and smelting industry in this section are opposed to the placing of a duty on rough lumber coming into the country."

The Hon. Mr. Fielding is reported to have stated that the session at Greenwood was one of the most important the commission had yet held.

ONTARIO GOVERNMENT DIAMOND DRILLS

ONTARIO'S attitude towards the mining industry is a helpful one in some ways. For instance, the government owns diamond drills, which the bureau of mines is keeping actively employed. The assistance these drills render to owners of mining properties is considerable. There are two drills; one capable of boring to a depth of from 1,200 to 1,500 ft., and the other with a capacity of about 500 ft. depth. The larger drill bores a core an inch and an eighth in diameter, and the smaller a core of fifteen-sixteenths of an inch. The operations of both are under the direct supervision of the bureau of mines, through drill managers appointed by that department. The regulation under which the bureau of mines bears 35 per cent of the cost of operating the drills will not be in force after the close of the current calendar year, unless the period of its application be extended. The cost of operation begins on the date the drill is ordered to be taken to any particular property, and ceases on the day work is completed thereon. It includes all freight and other charges for transporting the drill, travelling expenses of the drill manager and any of his employees whom he shall take with him, and supplies for the plant, in addition to the actual cost of the drilling after the plant has been set up and put in operation. As a general rule the unskilled labour, that is the men needed in addition to the drill manager and his two drill runners, may be more cheaply obtained from place to place, as the drill is moved about.

According to an official return, the aggregate of holes bored by the two drills, this representing the work of the larger drill for nearly two years and that of the smaller for one year, was 7,012.5 ft. The total cost per foot drilled by the larger drill was $4.40 for 2,784.5 ft. in hornblende and chlorite schists, etc., and $2.38 per foot for 1,027 ft. in shale, sandstone and limestone. The cost of the smaller drill ranged from 84 cents per foot for 1,529 ft. drilled in shale, up to $4.92 for 356 ft. in trap and granite. The average cost per foot over all holes drilled was $3.15.

The New Zealand Mines Department has received a report from Germany on the result of a parcel of scheelite which was shipped to that country some time ago. The ore realised as much as 32 marks per unit, which works out at about £122 10s. per ton.

ZINC NOTES.

The following notes concerning zinc have been taken from interior newspapers:

The zinc enriching plant at Rosebery is expected to be running shortly.

The zinc experts employed by the Dominion government to report on the zinc resources of the province, are examining mines around Sandon.

The zinc smelter at Frank, Alberta, is offering to take silver-lead ores carrying zinc, and pay for the zinc in addition to the other metals. It is stated this will add from $10 to $34 a ton to the values of some Kootenay ores which have hitherto been considered too refractory for profitable treatment.

The Slocan Star mill has been closed down, owing to shortage of water. The run this year was about the longest during the summer months since the mill was built. During the time that the mill was running this year more than 800 tons of silver-lead and about 2,000 tons of zinc concentrates have been sent out. The former went to Trail, and the latter to Pueblo, Colo. With the mill closed zinc ore shipments will cease, which will also mean a reduction of the force working at the mine. However, about 30 men will be kept at development work.

The production of zinc ores in the Slocan country is steadily increasing, and a number of separating plants are being installed in that district. Two new zinc separators have been received at Kaslo for the Kootenay Ore Co., and these are being installed. These machines were manufactured especially for the treatment of the Slocan ores. Extensive tests have been made from the ores of a number of the mines. It is estimated that by the beginning of next season the production of zinc ores in the Slocan will be double the present output. As soon as the separators shall have been installed by the Kootenay Ore Co. there will be several other shippers in that camp. The Jackson mine and the Ruth will send their products to the Kaslo plant.

COAL NOTES

Nanaimo newspapers last month stated that it was the intention of the Western Fuel Co. to erect a corrugated iron building, 100 by 50 ft., and a new power house.

No agreement has been reached at the time of writing between the Western Fuel Co. and the miners. It is understood that there have been several meetings between representatives of the men and the company, but as yet without a satisfactory settlement of the differences between them having been arrived at. Mr. W. L. Mackenzie King, deputy minister of labour, is expected to reach Nanaimo before the end of September, not at the request of either party to the dispute, but by instructions from the Dominion government under the provisions of the *Conciliation Act* (which is not compulsory) to endeavour to bring about a settlement of the difficulty.

The Canadian-American Coal & Coke Co., Ltd., has plans drawn and other preparations forward for the erection of a new tipple at the company's colliery at Frank, south-west Alberta. It is the intention of the company to increase the daily output of its coal mine to 1,000 tons, of which 600 tons are now being delivered under contract.

The Hemo Coal Co. is developing mines on the Saskatchewan river east of Edmonton, and will supply fuel for that district.

The tug Pioneer left Seattle on August 28 for Douglas Island, Alaska, towing the old hulk Oregon, which carried 2,000 tons of coal for the Treadwell mines. Capt. Newman, in command of the Oregon, stated that the expected to reach Douglas within 10 days.

The fine building, comprising offices, warehouse, etc., the Crow's Nest Pass Coal Co. is erecting at its Coal creek colliery, is nearly completed. The building is 140 ft. long by 40 ft. wide and is built of concrete blocks. The flat roof is covered with galvanized iron. The office is 60 ft. long and is divided into five compartments—for the superintendent, accountants, engineers, clerk of stores and overman. The other 80 ft. is reserved for warehouse purposes.

The Wellington Coal & Wharfage Co. holds the lease to about 150 ft. of waterfrontage at the foot of Carrall street, Vancouver, and intends building there bunkers for its local trade. It is possible that a bunker at which the mosquito fleet may coal will also be provided. When the bunkers shall have been erected coal will be taken from the scows, which transport it across the gulf, and placed in the storage bins by means of electric conveyors. On the land side wagons will load at chutes so that there will be no unnecessary handling of the coal.

From the Blairmore *Times* it is learned that around the mines of the International Coal & Coke Co., at Coleman, south-west Alberta, everything is moving along smoothly. Development work is being kept well in advance of the miners and the company has now more than three miles of underground development work done on its property. A steady output is maintained of 300 tons of coal daily. This output can be increased at any time to from 1,500 to 2,000 tons per day, as the mine, tipple and haulage are now capable of handling that amount. This mine is now the largest producer of steam and coking coal in Alberta, and bids fair to hold that position for some time to come.

The Wellington Colliery Co.'s coal mines at Comox are reported to be very busy. There are six mines working in the Cumberland district, and others may soon be opened. The district has benefited greatly by the strike at the Western Fuel Co's mines, at Nanaimo, many of the best miners from Nanaimo being now employed at Cumberland. All the Dunsmuir railway workshops at Wellington are being transferred to Union wharf, a few miles from Cumberland, since the transfer of the E. & N. to the C. P. R. These works employ about 100 men in connection with the extensive local railway system of the Wellington Colliery Co.

Reports from Nicola are to the effect that an agreement has been signed under which Mr. James Dunsmuir, president of the Wellington Colliery Co., Vancouver Island, has obtained the coal rights of the late William Charters, the late John Charters, William Voght and Jesus Garcia, in all 2,800 acres, near the mouth of the Coldwater river. A cash payment has been made and a two-year bond given with interim payments. Work is be commenced as soon as possible and to be continued during the life of the bond. The necessary plant to prospect and thoroughly open up different parts of the property will be on the ground shortly.

ROCK DRILLING CONTESTS.

Several rock drilling contests took place on Labour Day in mining towns. Particulars of some of these have been published in local newspapers, as under:

At Hedley, Similkameen, five teams entered the double hand drilling contest. Of these, Burtch and Ellstrom won first money with a hole drilled 28⅛ in., and McKinnon and Bowerman were second with 24 9-16 in.

At Sandon, Slocan, in single hand drilling, with ⅞-in. steel and 4 lb. hammer, E. Patriquin, of Silverton, drilled to a depth of 11½ m., and Dan McGillivary, Sandon, 10⅜ m. In double hand drilling, with ⅞-in. steel and 8 lb. hammer, Savage and McGillivary drilled 29 15-16 in. with Growder and Patriquin second (depth not stated).

The Sandon *Standard* says: "We had another drilling contest on Thursday. It was a contest against 'the hole,' that is the hole drilled by Foulds Bros. of Greenwood, a year ago last Labour Day. Savage and McGillivary, of Sandon, thought they could beat it, and found many backers. The match was talked persistently since September 4, finally arranged and pulled off Thursday afternoon. The boys had the hole beat until the eleventh minute, when the drill stuck and some time was lost. At the call of time they had drilled 30⅞ in., but the distance bored by Foulds Bros. was 32⅝ in. Great interest was taken locally in the event and about $600 changed hands."

COMPANY MEETINGS AND REPORTS.

EVA GOLD MINES, LTD.

The second annual general meeting of the Eva Gold Mines, Ltd., was held at Nelson on September 5. The directors' report, manager's report and financial statement were submitted and adopted. The manager's report was as follows:—

"To the directors of the Eva Gold Mines, Ltd.:

"Gentlemen:—I beg to submit my report of operations at the Eva mine from August, 1904, to August 1, 1905.

"At the date of my last annual report we were beginning to repair and reconstruct our mine buildings, tram line, etc., which, with all surface improvements at the mine were destroyed by forest fire. Our loss proved more serious than we had anticipated, and it took nearly six months to again get everything into regular running order. The aerial tram was completed shortly after January 1, and the stamp mill was placed in regular commission on January 10.

"During the period of reconstruction certain underground development, referred to in last year's report, was carried on in the mine, and a subsidiary tram line was built connecting the upper workings with the mine terminal of the main tram. This subsidiary tram is of the two-bucket type, 1,350 ft. long, and with a capacity of 100 tons or more per day. It has proved very satisfactory and has enabled necessary development to be carried on in the upper portions of the mine.

"Development in the past has been confined largely to the walls of what are called Nos. 1 and 2 veins. These lie from 100 to 175 ft. apart, are parallel and extend for over 2,000 ft. through and beyond our property, and it was thought the ore was confined to certain shoots along these walls, but as work progressed, it was found that large bodies of ore occurred in the nature of lenses and cross-veins between the walls, the former roughly paralleling them and the latter crossing from one to the other. Later development has been directed more particularly to opening up these deposits by cross-cuts and drifts on the cross veins.

"During the past year 1,058 ft. have been driven, divided as follows: Drifts, 715 ft.; cross-cuts, 185½ ft.; upraises, 157½ ft. The results attending this work have been satisfactory, and large bodies of ore have been exposed at different points.

"Realizing that the great bulk of these large ore deposits is low grade and that it will have to be handled on a large scale to yield most profitable results, it was decided in order to get a reliable idea of the value of the ore, to make thorough mill tests, and during the seven months from January 1 to July 31, this plan has been followed, and the mill supplied with ore from the development of these ore deposits. From 700 ft. of drifting and raising during this period, scarcely 100 tons of the ground broken was put over the waste dumps.

"In addition to the ore derived from development three surface 'glory holes' were opened up above three different levels, Nos. 5, 3B, and 1B, as a further means of testing on a large scale average values of the ore. From these holes approximately 2,500 tons were mined, which ranged in value from $2.50 to $5.50 per ton in gold. Many thousands of tons of this ore apparently exist, and most of that near the surface can be mined by the 'glory hole' method and delivered at the mill for less than $1 per ton.

"During the seven months referred to we have milled approximately 6,600 tons (produced as above-mentioned from development and test pits), which has averaged in gross value $4.25 per ton. From this has been recovered $3.10 in bullion and 45 cents in concentrates per ton of ore. Altogether since the mill was built there have been mined, approximately, 14,000 tons of ore, which has yielded in bullion $5 and in concentrates 35 cents per ton. This gives a fair idea of the general average values.

"In regard to costs: owing to the fact that so much of our output has been from development, it has been difficult to properly adjust mining costs, but including the total cost of the 700 ft. of development, the total cost of mining, milling, etc., per ton, covering the period that the mill has been running from January 1 to July 31, 1905, is $3.945. I may say, however, that actual mining under present conditions can be carried on for from 75 cents to $2 per ton, according to location, and may on the average not exceed $1.50.

"As these costs are being actually realized with a 10-stamp mill with mining and development carried on by hand, the possibilities with a large mill and power drills (where ample water power is already developed) are at once apparent, and fully sustain the estimate of a possible working cost of $2 per ton, and as the value of the ore recently treated may be taken as a reliable average of many thousands of tons now known to exist, profitable operations are practically assured.

"The above figures cover a period of seven months and I wish to point out that they are being gradually improved upon. Our extraction percentage and tonnage milled have increased and the average values are higher.

"Last month (August) the average gross value of the ore milled was $5.50 per ton, from which we recovered $4.10 in bullion and approximately 60 cents per ton in concentrates. This ore was supplied almost entirely from development, and a fair margin of profit was made over and above all expenses.

"A. H. GRACEY,
"Manager.

"September 2, 1905."

The following directors were elected for the ensuing year: Dr. E. C. Arthur, W. W. Beer, J. Laing Stocks, W. C. Bayley, A. H. Gracey, G. A. Hunter and A. L. McCulloch. At a subsequent meeting of the directors W. W. Beer was appointed president, Dr. Arthur, vice-president; W. C. Bayley, secretary-treasurer, and A. H. Gracey, manager.

SPITZEE GOLD MINES, LTD.

On August 28 at an extraordinary general meeting of the stockholders in the Spitzee Gold Mines, Ltd., which has a nominal capital of $350,000 in 70,000 shares at $5 each, it was resolved that calls to the amount of $1.50 per share on the 58,000 issued shares shall be made, not more than 25 cents per share to be called up in any three months. It is thought that the $87,000 thus made available will be sufficient to put the company on a dividend-paying basis. Shipments of ore to date aggregate nearly 5,000 tons of an average value of about $12. At the beginning of 1905 it was stated that drifts on the 100 and 200-ft. levels together exposed some 30,000 tons of ore. The mine is equipped with a small power plant, and transportation facilities are excellent, a spur from the Rossland-Trail railway running to the mouth of the shaft. In addition to paying for development work last year, the company made final payment on two of its mineral claims.

CARIBOO CONSOLIDATED, LTD.

A meeting of shareholders in the Cariboo Consolidated, Ltd., was held on August 24, at the offices of the company, London, England, in compliance with a promise made by the directors to call them together in the autumn. Sir James Bevan Edwards, who presided, said that considerable progress had been made in the development of the company's Lightning creek property. A cablegram had been received from one of the directors then visiting the mine, conveying certain recommendations for the future, and when these were carried out the mine would become dividend-paying. The chairman promised to communicate to them the result of the visit to British Columbia as soon as the director returned, and, there being no resolution before the meeting, the proceedings terminated with a vote of thanks to the chairman.

ST. EUGENE CON. MINING CO., LTD.

At a meeting of the St. Eugene Consolidated Mining Co., Ltd., held in Toronto, Ontario, last month, the following directors were elected: Messrs. W. D. Mathews, Toronto; W. H. Aldridge, Trail; James Cronin, Moyie; W. L. Mathews, Toronto; F. G. Osler, Toronto; E. B. Osler, Toronto; J. A. Finch, Spokane; J. C. Drewry, Rossland; E. P. Heaton, Toronto; George Sumner, Montreal. Mr. W. D. Mathews was afterwards appointed president; W. H. Aldridge managing director and Mr. James Cronin general manager.

COMPANY CABLES AND NOTES.

CABLES.

U. S. A.

Alaska Mexican.—July: 120-stamp mill 29½ days, 19,044 tons; estimated realisable value of bullion, $27,292. Saved 367 tons sulphurets; estimated realisable value, $24,978. Working expenses, $34,045.

Alaskan Mexican.—August: 120 stamps, 30½ days, 20,607 tons; estimated realisable value of bullion, $30,476. Saved 390 tons sulphurets; estimated realisable value, $26,871. Working expenses, $36,495.

Alaska United.—July: Ready Bullion claim: 120-stamp mill 29½ days, 19,020 tons; estimated realisable value of bullion, $20,807. Saved 377 tons sulphurets; estimated realisable value, $10,427. Working expenses, $26,904.

Alaska United.—August: Ready Bullion claim, 120 stamps, 30½ days, 20,350 tons; estimated realisable value of bullion $25,001. Saved 385 tons sulphurets; estimated realisable value, $11,717. Working expenses, $27,603.

Alaska Treadwell.—July: 240-stamp mill 29½ days, 300-stamp mill 29¾ days, 88,928 tons; estimated realisable value of bullion, $81,378. Saved 1,770 tons sulphurets; estimated realisable value, $75,268. Working expenses, $95,061.

Alaska Treadwell.—August: 240-stamp mill 30½ days, 300-stamp mill 21¾ days; 72,285 tons ore; estimated realisable value of bullion, $78,833. Saved 1,370 tons sulphurets; estimated realisable value $61,422. Working expenses, $89,935.

British Columbia.

Le Roi.—June: Shipped from the mine to Northport during the past month 3,738 tons of ore, containing 3,430 oz. gold, 3,200 oz. silver, 163,600 lb. copper. Estimated profit on this ore after deducting cost of mining, smelting, realisation and depreciation, $13,500. Expenditure on development work during the month, $10,000. Experimental concentration mill commenced running on the 1st July. Nothing new of importance to report in the mine.

Le Roi.—July: Shipped from the mine to Northport 8,575 tons of ore, containing 2,954 oz. gold, 2,885 oz. silver, and 174,000 lb. copper. Estimated profit on this ore after deducting cost of mining, smelting, realisation and depreciation, $9,000. Expenditure on development work during the month, $10,250. Shipped from the concentrator to Northport, 116 tons of concentrates of an estimated value of $1,850.

Le Roi.—August: Shipped from the mine to Northport during the past month 9,158 tons of ore, containing 3,697 oz. gold, 3,600 oz. silver, and 211,250 lb. copper. Estimated profit on this ore, after deducting cost of mining, smelting, realisation and depreciation, $25,000. Expenditure on development work during the month, $8,500| Shipped from the concentrator to Northport 71 tons of concentrates, of an estimated value of $960. Have found extension of Black Bear ore-shoot, 900-ft. level; promises large tonnage. Have found the ore at 1,550-ft. level. Average value, $14. Extent at present unknown.

Le Roi No. 2.—July: Shipped 280 tons. The net receipts are $4,294, being payment for 197 tons shipped and $2,213, being payment for 60 tons concentrates shipped. Total receipts, $6,507.

Le Roi No. 2.—August: Shipped 780 tons. The net receipts are $2,563, being payment for 191 tons shipped, and $2,098 being payment for 63 tons concentrates shipped; in all, $4,661; in addition to above, received $4,125 for 350 tons ore on dump. Total receipts, $8,787.

Slough Creek.—August: Mr. J. D. Kendall, the consulting engineer, cabled on 14th inst.: "Arrived here August 7th; everything is in first-rate order; the water is gradually decreasing, and the difficulty appears to be overcome; fresh samples confirm those taken on my previous visit." (Office Note.—The average value of the samples mentioned was 20s. 8d. per sq. yd.)

Tyee.—June: Smelter ran 13 days, and smelted—Tyee ore, 1,988 tons; custom ore, 294 tons; total, 2,282 tons. Matte produced from same 267 tons. Gross value of contents (copper, silver and gold) after deducting costs of refining and purchase of custom ore, $30,950. (Office Note.—Part of June product was treated in the first few days of July, in order to suit the visit of the American Institute of Mining Engineers on 4th instant).

Tyee.—July: Smelter ran 11 days, and smelted Tyee ore, 1,793 tons; custom ore, 262 tons—2,055 tons. Matte produced from same, 277 tons. Gross value of contents (copper, silver and gold), after deducting cost of refining and purchase of custom ore, $31,472.

Ymir.—June: 30 stamps, 27 days, crushed 2,000 tons, producing 363 oz. bullion; estimated realisable value, $3,390; concentrates, 250 tons shipped, estimated value, $4,400; cyanide plant, 1,700 tons of tailings, estimated value, $1,000; sundry revenue, $80; total $8,870. Working expenses, $8,714; profit, $156. Expended on development, $2,870.

Ymir.—July: 20 stamps, 31 days, 1,700 tons; 321 oz. bullion; estimated realisable value, $3,150; concentrates, 153 tons shipped, estimated value, $3,700; cyanide plant, 1,330 tons, estimated value, $1,325; sundry revenue, $45; total, $8,220. Working expenses, $8,035. Profit, $185. Expended on development, $2,942. General condition of things better. Levels 5 and 7, ore payable.

Ymir.—August 28: Crosscut to the hanging wall, level No. 5, struck an important body of ore. The average width of the vein is 5 ft.; average assay of ore is $25. Will telegraph any change. (Office note.—Until further work has been carried out, the directors do not wish too much importance to be attached to the above cable, but in view of the width and value it is information they feel the shareholders should have at once.)

Ymir.—September 1: In further reference to the strike of ore on the 28th ult.: Level No. 5 (west), the average width of the vein is 5 ft.; the value is $20 (per ton), now exposed (for) 20 ft. Level No. 7 (east), there is a pay streak 8 in. wide (of) first-class ore, (and) shows considerable signs of improvin

NOTES.

Arlington, Eric.—During the month 130.7 tons of ore were shipped to the Hall Mines smelter, the net returns on which amounted to $6,120.42. The expenses, including development, were $4,488.23.

Giant Mining Co., Ltd., London, E.C.—Lien registered August 12, for £1,000 6 per cent debentures, part of £9,000; amount previously issued, £8,000; no trustees; charged on the undertaking and all the property, present and future, including the uncalled capital for the time being.

During August the Tyee Copper Co.'s smelter ran 12 days and treated 2,018 tons of Tyee ore, giving a return, after deduction of freight and refining charges, of $39,110.

Notice has been gazetted of the removal of the office of the Brown Bear Mining & Development Co., Ltd., from Donald to Golden, B. C.

The Elk River Coal & Oil Co. has done considerable prospecting on its property up Elk river. The work is in charge of Mr. John F. Wilson, of Blairmore, a well known and capable mining man.

A special meeting of the diectors of the Similkameen Valley Coal Co. was held last month at Nelson, when it was decided to arrange as soon as possible for active development.

The Camborne Mining Co. has been formed at Calumet, Michigan, U.S.A., to take over the affairs of the Northwestern Development Syndicate, Ltd., and the Gold Finch Mining Co., Ltd., and a circular has been forwarded to the shareholders in those companies acquainting them with the plan of organization.

Mr. H. E. Levy intends visiting England in the interests of the Omineca & Peace River Mining Co., of which company he is president. His object is to dispose of sufficient stock to enable the company to put in a larger and more modern plant than the one in use at present, which only makes it possible to pay working expenses. With more efficient equipment the company would, it is believed, be able

to work its claims at a good profit. The company also intends to acquire an adjoining claim upon which it has an option.

The Beaver Valley Oil Co., Ltd., has been organized in Vancouver to acquire oil lands at Horsefly, Cariboo district. There are five provisional directors: Messrs. R. T. Ward, president of the Horsefly Hydraulic Co.; Grier Satratt, A. P. Allan, A. O. Walker, R. A. Corbett. James Harvey is secretary. Mr. Harvey has a bottle of petroleum he brought from the ground It looks of good quality, but has not yet been analyzed. He has secured eight square miles for the company. The ground covers the discovery claims.

Vancouver newspapers state that the Forest Rose Mining Co., which has been operating in Cariboo district ever since 1864, is being reorganized, and Vancouver people will acquire the controlling interest in it. The company owns valuable bench claims and leases on Williams creek, a mile below Barkerville, Cariboo district. It paid a dividend this year, although operations were restricted, owing to a scarcity of water. This defect will be remedied by the extension of the flume an additional 1,600 ft. The company has a prior water record for 1,000 miner's inches. Absolute title to ownership is vested in the company. Crown grants were issued for the St. George claim in 1875 and for the Forest Rose in 1876. The balance of the ground, embracing in all more than 250 acres, is held under lease from the government. The Vancouver investors purpose installing an up-to-date hydraulicing plant in time for next season's operations.

THE FRASER RIVER ELECTRIC RAILWAY & POWER CO.

The following officers have been appointed for the ensuing year: President, Geo. R. Ashwell, Chilliwack, B.C.; first vice-president, W. H. Vanderhoof, Sumas, Wash.; second vice-president, E. C. Rose, Rossland, B.C.; treasurer, W. L. Macken, Chilliwack, B.C.; secretary and general manager, J. Burtt Morgan, Chilliwack.

CERTIFICATES OF INCORPORATION.

San Juan Mining & Manufacturing Co., Ltd., with a capital of $1,000,000, divided into 1,000,000 shares of $1 each.

Green City Gold Mining, Smelting & Development Co., Ltd. with a capital of $1,500,000, divided into 1,500,000 shares of $1 each.

Spitzee Mining Co., Ltd., with a capital of $350,000. divided into 70,000 shares of $5 each (re-incorporated).

A REMINDER OF THE PAST.

The following has been taken from an advertisement published in London last month by the Official Receiver in Companies Liquidation:

In the High Court of Justice. Companies Winding up. Mr. Justice Buckley. In the Matter of the Companies' Acts, 1862 to 1900, and in the Matters of the British America Corporation, Limited, the East Le Roi Mining Company, Limited, the West Le Roi Mining Company, Limited, the Columbia Kootenay Mining Company, Limited, and the Columbian Proprietary, Limited.

To be Sold by Tender, pursuant to the directions of the High Court of Justice (Companies Winding Up) in Four Lots Gold Mining Leases and Properties in British Columbia, together with the machinery, plant, stores, utensils, ores, and tailings upon the said properties and belonging to the abovenamed Companies.

Lot I.—The mining claims "You Know," "Surprise," "Lucky Queen," and "Golden Queen" (portion of) situate in the Rossland Mining District, covering approximately 44 acres. The Baltic fraction of about one acre.

Lot II.—The "Golden Dawn," which lies to the east of the Rossland Township, and is of the extent of 45 acres or thereabouts.

The "Fred" claim of about ten acres.

Lot III.—Black Eagle claim of some 34 acres in extent.

Lot IV.—Argenteuil, Hawkeye, Tootsie, Whoop-up, Beresford, Dufferin and Mist Fraction. The Tootsie and Whoop-up are located on Sophie Mountain, adjacent to the Velvet mine. They are together of about 95 acres. Argenteuil and Hawkeye are of about 30 and 22 acres respectively.

The Beresford, Dufferin, and Mist Fraction cover approximately 128 acres.

BRITISH COLUMBIA'S LEAD PRODUCTION.

Finally revised figures of lead production for the fiscal year ended June 30 last, have been published. These vary but little from the figures published in the MINING RECORD in July, when the total was stated as 55,752,019 lb. The following are the final figures:

	Lb. Lead.	Bounty.
Nelson smelter	16,421,071	$116,709.10
Trail smelter	13,446,036	96,684.36
Unclaimed	7,559	51.84

Including claims paid at the Marysville smelter, the totals for lead produced and treated in Canada are 33,730,546 lb. of lead and $240,288.90 bounty.

The amount of lead exported was 21,972,988 lb., on which the bounty paid was $96,697.37.

The grand total for the year, therefore, is 55,703,534 lb. of lead produced and $336,886.37 paid in bounty.

The leading producers and earners of the lead bounty were, in order of production, as follows: St. Eugene, North Star (both in East Kootenay), Slocan Star, Ivanhoe, Payne (all in the Slocan), Paradise (N.E. Kootenay), Silver Cup (Lardeau), Enterprise, Lucky Jim, Silver Hustler (Slocan), Ymir (Ymir), and Triune (Lardeau).

AUGUST LEAD RETURNS.

From the Nelson *Daily News* it is learned that the returns of lead treated during August at the Nelson smelter show a total of 4,352,526 lb. of ore received, containing 1,983,295 lb of lead. Those from the Trail smelter show receipts of of 4,514,323 lb. of ore, containing 2,152,837 lb. of lead. The grand total for the two smelters is 8,866,849 lb. of ore, and 4,136,132 lb. of lead.

The shipments from most of the mines for the month show a substantial increase over the month before. Three-fifths of the ore and over four-fifths of the lead is credited to the St. Eugene mine.

On account of the high price of lead that ruled on the London market during August the bounty paid by the Dominion government will be only about half of the original $15 per ton. The quotation of £14 is just half way between the maximum bounty price, £12 10s., and the price at which the bounty will be withdrawn, £15 10s. For a large part of August the quotation was above £14.

THE WORLD'S PRODUCTION OF GOLD.

The special mining commissioner of the London *Economist* estimates the world's production of gold in 1904 at £71,000,000, say $355,000,000. Of this total he apportions $87,500,000 to Australia, $86,500,000 to the United States, $85,000,000 to South Africa, and $22,500,000 to Russia, the remainder being divided between India, Mexico, Canada, and other countries in which gold is being mined. Another estimate by the same authority is that within the next five years the world's annual gold production will have increased to $450,000,000. He expects that the greater portion of such increase will be from South Africa. He also provides for large increases from other portions of Africa.

Mr. Edward Hooper, of London, England, known in the Kootenay in connection with his periodical visits to the Ymir mine, in the capacity of consulting engineer, and Mr. S. J. Speak, recently general manager for the Ymir Gold Mines, Ltd., have formed a business partnership as mining engineers, with headquarters in London. Mr. Hooper was to leave London on 20th inst. on a professional visit to Western Australia.

MACHINERY NOTES.

A centrifugal pressure electric pump, operated by a 75-h.p. Westinghouse motor, has been installed at the 400-ft. level of the Granby Co's Old Ironsides mine, at Phoenix, Boundary district. The pump has a capacity of 300 gal. per min. against a 500-ft. head.

The Le Roi Mining Co., Rossland, has received a large set of Cornish rolls, for use in its concentrating mill.

A hoist, to be used in deepening the Le Roi No. 2 shaft from the 900-ft. level has reached Rossland, and the 150-h.p. electric motor, ordered some time since for operating the new hoist, is expected to shortly arrive from Ontario.

The Riblet Tramway Co., Spokane, Washington, U.S.A., has been engaged for several weeks in constructing an aerial tramway from the Conrad group of mineral claims, on Little Windy arm, Yukon Territory, to the lake, for the conveyance of ore and supplies. The stationary cable is stated to be 10,380 ft. in length.

The Reward Mining Co., which is driving a long adit into the Nettie L. mountain, near Ferguson, northern Lardeau, has obtained the 5-drill compressor that was at the City of Spokane mine, Rossland. The boiler has already been installed, and the other part of the plant is nearly ready for operation at its new location.

An electric motor, for hauling ore and waste, has been substituted for man-power at the Centre Star mine, Rossland, with a considerable saving in cost of removal of the ore to the bunkers and the waste to the dump.

A diamond drill is now in use at the Nickel Plate mine, near Hedley, Similkameen. At the Daly Reduction Co's stamp mill, Hedley, the rope drive was early last month connected up between the tower and the big driving wheel in the mill.

The three new steam boilers, of a total capacity of about 500 h.p., the Jenckes Machine Co., of Sherbrooke, Quebec, lately made for the St. Eugene mine, Moyie, East Kootenay, have been installed. Other new plant for this mine includes a 30-drill air compressor and 20 machine drills, ordered last spring from the Canadian Rand Drill Co., also of Sherbrooke.

Two air compressor engines are being installed at the Crow's Nest Pass Coal Co's Michel colliery, south-east Kootenay.

The Canadian Metal Co. has purchased some power plant for use at the zinc properties at Ainsworth it lately acquired. The plant includes two vertical boilers—one 15 and the other 40 h.p., two sinking pumps, and two hoisting engines—one 6½ by 8 and the other 7 by 10.

Tenders are being invited for the installation of another unit of 3,000 h.p. at the Vancouver Power Co's power house at Lake Beautiful, New Westminster district. Three units, of 3,000 h.p. each are already in operation, so the new installation which it is not expected will be available for use until next spring, will bring the total up to 12,000 h.p.

The steel tipple at the Crow's Nest Pass Coal Co's Coal Creek colliery is about completed.. The machinery is now being installed and one of the Smith gravity box car loaders is being put in.

The Hinton Electric Co., Ltd., of Victoria and Vancouver B.C., has been awarded a contract, by the City of Victoria, for the supply of electric machinery and supplies to the value of between $9,000 and $10,000, including the following: one 150-kw. two-phase alternating current generator complete with exciter and switchboard; three 50-light 7½ ampere 2,200 volt 60 cycle constant current air cooled automatic regulating transformers; three standard marble transformer panels complete with meters, oil switches, and operating apparatus; 150 7.5 ampere alternating current series long burning arc lamps, all provided with automatic cut-outs; and, for line work, one ton of No. 6 insulated copper wire. Delivery of the whole to be completed within 75 days of signing of contract.

The electrical power plant of the Britannia Mines, on Howe Sound, about 40 miles north of Vancouver, B.C., has been completed and is now in operation. The motive power is derived from two huge Pelton water wheels. The water to turn these wheels is supplied from Britannia creek. The head of water used is one of the highest on the Pacific Coast. The hydraulic pressure on the pipe lines just back of the wheels, with the nozzle open, shows an effective pressure on the water wheels of 803 lb. per in. on a head of 1,750 ft. The water from the brow of the hill is brought down in steel pipes, tested under hydraulic pressure to 1,800 lb. per in. The pipe line is 2⅝ miles long, the first mile being of wooden stave pipe, there being very little grade. The remaining 1⅝ miles consists of the steel pipe above mentioned, the most of the drop being in this stretch of piping. The transmission lines and the wiring were installed by the Hinton Electric Co. The machinery and pipe installation were under the direct supervision of Mr. Wynn Meredith.

TRADE NOTES AND CATALOGUES.

The Paraffine Paint Co., whose offices have been in the Pioneer building, Seattle, Wash., for the past four years, has removed to 408 Occidental avenue, where it occupies premises in connection with Messrs Rhoades, Apfel & Ernest. The company's business has increased in the northwest to such an extent during the period above-mentioned that it requires additional warehouse room, so has decided to locate permanently in the more commodious store now occupied. Beside having there an excellent wareroom for the display of its stock, the company has expensively fitted up offices, where friends and patrons will be cordially welcomed.

The Caldwell Brothers Co., of Seattle, Washington, announce that they have been appointed representatives for the American Rand Drill Co. and the Ingersoll-Sergeant Drill Co., which have been amalgamated as the Ingersoll-Rand Co. This union of expert engineers on air and pneumatic machines in the United States, possessing valuable patents, will be duly appreciated. Both purchasers and manufacturers will be gainers by this advantageous combination, as improved machinery and service will result. The Caldwell Brothers Co. is now in a position to supply its patrons with the best and most improved compressors, rock and coal drills, and pneumatic tools of every description, as well as quarrying machinery for which it is also agent, and it carries a large and complete stock in these various lines. The firm desires its patrons to particularly notice that it can offer the service of expert engineers to design and lay out plans, and thus secure the carrying out of work to best advantage.

The Hardsoeg Drill Co., of Ottumwa, Iowa, U.S.A., has issued a new catalague of its Wonder Air Hammer Rock drills, comprising the following drills: Little Wonder side valve, Little Wonder trigger valve, Little Wonder air feed, Big Wonder mounted, Great Wonder mounted, and Little Wonder air feed mounted styles. Each of these drills is illustrated and its advantages set forth. Illustrations and particulars of all steel drill bits, sharpening tools for bits, and appliances used with Wonder Air Hammer Rock drills, are also given. There is a constantly increasing demand for a pneumatic rock drill which combines the advantages of being strong and durable, yet easily handled by one man, and using but a limited amount of air, and the marked success of Wonder Air Hammer drills, which are now in use in British Columbia as well as in many other countries, is convincing evidence of their excellent quality and general usefulness.

Two booklets received from the Link-Belt Machinery Co, of Chicago, Illinois, are Special Booklet No. 42: "Washing Bituminous Coal for Coke or Fuel," and Booklet No. 45, "Car Hauls." The first deals with coal washing, of which it gives valuable and interesting details: the Luhrig jig: the operation of a Luhrig washery: the New Century jig: the Stewart jig: sampling coal from the mine, and testing and analysing samples: refuse cars: Link-Belt revolving screens, coal tipples, the Victor box car loader: re-screening plants: Luhrig elevators: bucket elevator car unloaders, etc. It is profusely illustrated, and cannot fail to prove useful to those interested in the coal mining industry. The Link-Belt Co makes the following claim: "As pioneers in the washing of

bituminous coals our long experience qualifies us to design washeries based upon analyses and washing tests of samples submitted, and to guarantee both the efficiency of our machinery and the results to be obtained. During the past fourteen years we have designed and built the largest and most successful coal washing plants in America." The "Car Hauls" booklet gives information concerning the use of Link-Belt car hauls at both coal and metal mines, and illustrates a number of these plants in actual use.

The Canada Foundry Co., of Toronto, Ont., sends Bulletin No. 31, from its mechanical department, illustrating and describing the "Canada" gyratory rock and ore crusher, and Bulletin No. 32, from its boiler department, which goes fully into the subject of water-tube boilers and matters pertaining thereto. The Canada water-tube boilers are described in much detail, which is accompanied by a number of half-tone views of the boilers, showing either their construction or the boilers complete.

The Canadian Westinghouse Co., Ltd., of Hamilton, Ontario, has forwarded three more illustrated circulars, viz., No. 1108, "Westinghouse Regulating and Reversing Controllers;" No. 1115, "Direct Current Self-Contained Generators:" and No. 1118, "Westinghouse Type CCL Solid-Frame Polyphase Induction Motors ½ to 75-h.p.-Constant Speed." These treat, with the company's accustomed thoroughness, with the several electrical apparatus named.

From the Westinghouse Electric & Manufacturing Co., of Pittsburg, Pa., U.S.A., have been received its illustrated circulars No. 1120, "Westinghouse No. 113 Railway Motor, for Direct-Current Service," and No. 1123, "Westinghouse Prepayment Wattmeters." Both supply technical descriptions of the respective appliances forming their subject matter, and point out the advantages attendant upon the use of these machines.

The London *Mining Journal* has described what is believed to be the largest pumping-plant in the world, which was manufactured by Messrs. Hathorn, Davey & Co., Ltd., Leeds, England. The order was obtained in competition with foreign manufacturers, and the machinery was made entirely in England.

Mr. Dixon, representative of Hadfield's Steel Foundry Co., Ltd., Sheffield, England, is visiting British Columbia. He is accompanied by Mr. Frederick Peacock, of Peacock Brothers, Montreal, Quebec, sole Canadian representatives of Hadfield's Steel Foundry Co. These gentlemen have been visiting the chief mining districts of Kootenay, Boundary and Similkameen, *en route* to the Coast. The Hadfield's Co's manufactures are well known throughout Canada, Messrs. Peacock Bros. having secured large patronage for them.

The Japanese army has rebuilt the City of Dalny, near Port Arthur, North China, largely using the Paraffine Paint Co's "Malthoid Roofing" for roofing purposes. The compactness and ease with which it could be transported, together with the fact that all requisites for its use were contained in each roll, enabled the Japanese army to quickly, inexpensively, and thoroughly re-roof the buildings that had been partially destroyed by fire and the devastation of war. Malthoid Roofing has been used extensively by the government of Japan for several years, and has proved to be durable, also exceptionally convenient and inexpensive for army use.

The Westinghouse Companies' Publishing Department has prepared a special publication, entitled "Westinghouse Railway Apparatus," which will be distributed at the convention of the American Street Railway Association, at Philadelphia, Pa., U.S.A. The book illustrates and describes in a general way the lines of alternating and direct current railway motors manufactured by the Westinghouse Electric and Manufacturing Co., as well as their generators for railway work and systems of control for electric railways. It also illustrates and describes their system of catenary line construction for street railway work. Much information covering detail and repair parts of motors and other railway apparatus is embodied in the work.

MONTHLY AVERAGE PRICES OF METALS.

(From The Engineering and Mining Journal, New York.)

SILVER.

Month.	New York		London.	
	1904	1905	1904	1905
January	57 055	60.690	26.423	27.930
February	57 592	61 023	26 665	28.047
March	56 741	58.046	26 164	26.794
April	54 202	56.000	24.074	26.108
May	55 430	57 832	25 578	26 664
June	55 673	58.428	25 641	26.910
July	58 095	58.915	26.760	27.163
August	57 806	60 250	26.591	27 822
September	57 120		26.349	
October	57 923		26 760	
November	58.453		26.952	
December	60.563		27.930	
Year	57 221		26 399	

The New York prices are in cents per fine ounce; the London quotation is in pence per standard ounce, .925 fine.

COPPER IN NEW YORK.

Month.	Electrolytic		Lake.	
	1904	1905	1904	1905
January	12.410	15.008	12 553	15 128
February	12.063	15 011	12.245	15.136
March	12.299	15 125	12.531	15.250
April	12 923	14.920	13.120	15 045
May	12.758	14.627	13.000	14.820
June	12 269	14 673	12 399	14.813
July	12 380	14.888	12 505	15.005
August	12.313	15 664	12 468	15.725
September	12 495		12.630	
October	12.993		13 118	
November	14.284		14 456	
December	14.661		14.849	
Year	12 823		12.990	

Prices are in cents per pound. Electrolytic quotations are for cakes ingots and wire bars; cathodes are usually 0.25c. lower.

COPPER IN LONDON.

Month.	1904	1905	Month.	1904	1905
January	57 500	68 262	July	57 256	66.887
February	56.500	67.963	August	56 952	69.830
March	57 321	68.174	September	57.645	
April	58.247	67.017	October	60.012	
May	57.321	64.875	November	65.085	
June	56.398	65.881	December	66.384	
			Av., year	58 857	

Prices are in pounds sterling, per long ton of 2,240 lb., standard copper.

TIN IN NEW YORK.

Month.	1904	1905	Month.	1904	1905
January	28 845	29.325	July	26.573	31.760
February	28.087	29.262	August	27.012	32.866
March	28 317	29.523	September	27.760	
April	28.132	30 525	October	28 596	
May	27 718	30.049	November	29.185	
June	26.325	30.329	December	29.286	
			Av., year	27.986	

LEAD IN NEW YORK.

Month.	1904	1905	Month.	1904	1905
January	4.347	4 552	July	4.192	4.524
February	4.375	4 450	August	4 111	4.665
March	4.475	4 470	September	4.200	
April	4.475	4 500	October	4.200	
May	4.423	4.500	November	4.200	
June	4.496	4.500	December	4 600	
			Av., year	4.309	

SPELTER.

Month.	New York		St. Louis		L'nd'n
	1904	1905	1904	1905	1905
January	4 863	6.190	4.673	6.032	25 063
February	4 916	6 139	4 717	5 989	24.594
March	5 057	6 067	4 841	5 917	23 825
April	5 219	5.817	5 038	5 667	23 813
May	5 031	5 434	4 853	5 284	23 594
June	4.760	5 190	4 596	5 04	23 875
July	4.873	5 396	4.723	5 247	23.938
August	4 866	5 706	4 716	5.556	24 675
September	5.046		4 896		
October	5.181		5 033		
November	5 513		5.363		
December	5 872		5.720		
Year	5.100		4.931		

BOOK REVIEWED

The Copper Handbook, 1904.—A Manual of the Copper Industry of the World. Vol IV, for the year 1903. Compiled and published by Horace J. Stevens, Houghton, Michigan, U.S.A. Pages, 774. Price, in buckram binding with gilt top, $5; in full library morocco, $7.50.

This valuable book contains a very large amount of information, that must have entailed much labour in its collection and arrangement, and which supplies to a considerable extent what was long a real want, viz., a generally full review of copper mining and matters directly connected therewith. Its wide scope is evident when the subjects of its sixteen chapters are noted. These are, successively: History, Geology, Chemistry and Mineralogy, Metallurgy, and Uses of Copper; Glossary of Mining Terms; Copper Deposits of the United States, Canada, Newfoundland, Mexico, Central America, the Antilles, South America, Europe, Africa, Asia, and Australia and Oceanica; Copper Mines of the World; and Copper Statistics. Between the self-indexing style followed where practicable and the index at the end of the book, the arrangement is convenient for ready reference. The book has been prepared along systematic lines, and, in addition to its particular information relative to individual copper mines of the world, contains useful features of general value.

The author states that the present annual edition of the Copper Handbook "will be found more complete than its predecessors, in a variety of ways. The statistical tables have been revised and brought to the close of 1903 in most cases, and as near thereto as the data available has allowed in all other instances. The longest chapter of the book, which is devoted to detailed descriptions of the large number of 3,311 copper mines and copper mining companies, in all parts of the world, has been rewritten throughout, with great care, and the revision has been so thorough that it is doubtful if there are a half dozen descriptions remaining unchanged from the preceding edition. Not only has the number of the mines and mining companies been increased by exactly half, but the descriptions of all of the producing mines of importance have been greatly amplified, all of the old matter of importance being retained, and incorporated with the new material in logical order. The work of revising the statistical and descriptive chapters has proven so arduous, however, that it has been found impossible to revise the technological chapters, unless the issue of the work were delayed several months past the customary time for its appearance, which was deemed unwise." It is promised that the work of revising the preliminary chapters of the Handbook will be taken in hand at once, for the 1905 edition, a very large amount of material having already been collected for this purpose.

It is not intended in this notice, of what is freely acknowledged to be a work reflecting great credit upon its painstaking author, to do more than briefly comment upon the information given relative to copper mines in British Columbia, and make a passing reference to that concerning copper production in Canada. The latter will be disposed of in few words. It is to be regretted that an injustice is done the Dominion by making it appear (as first table on page 741) that Canada's production of copper was 1,315 long tons less in 1902 than in 1901 when, as a matter of fact, it was 436 tons more—a difference of 1,751 tons—the official figures appearing in the report of the Section of Mines of the Geological Survey of Canada being 37,827,019 lb. in 1901, and 38,804,259 in 1902. It may here be added, as germane to this point that the total production in 1903 was 42,684,454 lb. and in 1904 (estimated) 42,970,594 lb.

The reason the earlier chapters of the book were not revised and brought up to a later date has already been quoted, nevertheless it is poor consolation to those who are endeavouring to give this province full credit for the increase in its mineral production that has taken place from year to year to find such a recognized authority failing to bring his figures showing the total copper production of the province nearer than three years before the time of publication of the book under review. The production for 1901 (as page 124) is given as 27,693,746 lb. of copper, which is correct, but it is not too much to expect that that of 1902 (29,636,057 lb.) and 1903 (34,359,921 lb.) would have been shown, even if it were not practicable to include that for 1904 (35,710,128 lb.).

As to individual copper-producing mines of British Columbia, it is manifest that an earnest endeavour has been made to do them justice. Prominence is given to several of them, but the space devoted to them, respectively, seems, to have been determined by the replies they made to applications for information. A revision of the matter before publication, by some one well informed as to these mines, would have led to the excision of several errors, but on the whole there is little to find fault with on the score of attention given to the copper-producing mines of the province. With such fully detailed published reports of the larger Rossland mines, though, it was to have been expected that the notices of them would have been more extended and complete. Next year smaller mines of merit, such as the Jumbo and Spitzee, in Rossland district, and the Emma, in the Boundary, will probably also have notice.

The foregoing criticism is not prompted by a carping spirit, but rather to point out positive faults with a view to their being avoided in future issues. The Handbook, despite some shortcomings, is a decidedly useful work and one that should meet with practical appreciation, especially in English-speaking mining communities, the world over. It is worthy of the liberal support of all interested in copper production, and the hearty co-operation, to make it increasingly reliable, of all in a position to supply information relevant to the important subject with which it so exhaustively deals.

BOOKS, ETC., RECEIVED.

United States Geological Survey.—

Report of Progress of Stream Measurements for 1904. Parts VI, VIII, and XI.

Second Conference of Engineers of the Reclamation Service. By F. H. Newell, Chief Engineer; with accompanying papers. Pages 267.

The Copper Deposits of Missouri. By H. Foster Bain and E. O. Ulrich. Pages, 52; illustrated by half-tones and maps.

The Lead, Zinc and Fluorspar Deposits of Western Kentucky. By E. O. Ulrich and W. S. Tangier Smith. Pages, 217; illustrated by half-tones and maps.

The Normal Distribution of Chlorine in the Natural Waters of New York and New England. By Daniel D. Jackson. Pages, 31; with maps.

The Delavan Lobe of the Lake Michigan Glacier of the Wisconsin Stage of Glaciation and Associated Phenomena. By William C. Alden. Pages, 106; illustrated by half-tones and maps.

Bureau of Provincial Information of British Columbia.—

Game of British Columbia. Bulletin No. 17. Pages, 68; with numerous well-finished half-tones.

The Timber and Pulp Wood Industries of British Columbia. Bulletin No. 21. Pages, 36; illustrated by half-tones.

Michigan College of Mines, Houghton, Michigan.—Year Book for 1905. Pages 137. Accompanied by booklet of half-tone college views.

Radium, Radioactive Substances and Aluminum, with Experimental Research of the Same. A pamphlet by Myron Matzenbaum, B.S.,M.D., Cleveland, Ohio, U.S.A. Pages, 24; illustrated.

Capt. Harry Johns, for years manager of the Sunset mine, Boundary district, is now in charge of development work the British Columbia Copper Co. is having done on the Grant group, near Chesaw, across the International boundary line from Rock creek, Boundary district.

MINING MEN AND MATTERS.

Mr. C. A. Stoess, P.L.S., is engaged in survey work in the Similkameen district.

Mr. G. G. S. Lindsey, general manager of the Crow's Nest Pass Coal Co., has returned to Toronto from a visit to Europe.

Mr. Jas. McKen, of Barkerville, has been gazetted acting gold commissioner for Cariboo during the absence on leave of Mr. John Bowron.

Mr. G. O. Buchanan, of Kaslo, adjuster of claims under the *Lead Bounty Act*, has returned from a visit to the fair at Portland, Oregon.

Mr. J. Elsop, P.L.S., has left the Similkameen for Manitoba, where he will be engaged on the line of the Grand Trunk Pacific railway.

It is stated that the Dominion government will shortly issue monographs on the occurrence, exploration and uses of mica and asbestus.

Mr. Geo. D. Potter, formerly a mine manager in the Slocan district, but now of Spokane, Washington, visited Sandon early in September.

Mr. Fred Hawes, manager of the Wellington Colliery Co.'s shipping wharves at Ladysmith, has returned from Seattle after a month's vacation.

Mr. H. F. Minard, M.E., of Denver, Colorado, has been visiting the Jumbo and other Rossland mines in the interests of eastern States clients.

Mr. J. Leonard Stanford, president and manager of the Northwest Coal Coke Co., has returned to Nelson from a four months' visit to England.

Mr. W. J. Bresnahan, mining adviser to Mr. P. Clark, of Spokane, has been examining mining properties at Salmo, Ymir district, for his principal.

Mr. Paul L. Couldrey, manager of the Le Roi No. 2 mine, Rossland, was in Vancouver recently to meet Mrs. Couldrey on her arrival from England.

Mr. John Hopp, of Stanley, Cariboo, long known as manager of the Slough creek drift mining enterprise, visited the coast cities at the close of last month.

Mr. M. McMaster, manager for the Slocan-Cariboo Co., on Canadian creek, Cariboo, has gone east. He expects to return in the spring and resume drifting operations.

Mr. Donald G. Forbes has returned from a trip through most of the principal gold-bearing districts of the Canadian Yukon and Alaska, from Dawson to Nome.

Mr. Rienzi W. MacFarlane, for some years engaged in mining in the Malay Peninsula, and previous to that in British Columbia, is now in charge of a mine in Mexico.

Mr. E. J. Wilson, late manager for the Yampa Mining & Smelting Co., Bingham, Utah, is now manager for the Arizona Smelting Co., at Val Verde, Arizona.

Mr. H. Perry Leake was in Vancouver at the end of August, after having examined the Beatrice mine, near Camborne, Fish river district, northern Lardeau.

Mr. A. C. Johnson, of Cranbrook, is acting gold commissioner and mining recorder for the Fort Steele mining division during the absence of Mr. J. F. Armstrong.

Mr. R. M. Atwater, Jr., of Helena, Montana, who in 1903 was manager of the Ymir mine, near Ymir, B.C., is now at Bisbee, Arizona, examining the Calumet & Arizona Co.'s properties there.

Mr. A. N. Mouat, of Winnipeg, has resigned the important position of comptroller of the Hudson's Bay Co. and accepted that of general manager of the Breckenridge-Lund Coal Co., of Lundbreck, south-west Alberta.

Dr. W. B. Dawson, brother of the late Dr. Geo. M. Dawson, who was director of the Geological Survey of Canada, is engaged in making a tidal survey of the Canadian Pacific coast.

Mr John H. Mackenzie, of Bradley & Mackenzie, mining engineers, San Francisco, California, has again been appointed general manager for the Le Roi Mining Co., Rossland.

Mr. J. A. Coryell, C.E., one of the pioneers of the Boundary district of British Columbia, but now exploring for a syndicate in East Africa, is reported to have located what is believed to be a valuable diamond field.

Mr. W. M. Musgrave, representing the Edwards' patent roasting process for sulphide ores and preparing gold and silver ores for chlorination, is visiting Kootenay and Boundary mines.

Mr H. L. Frank, of Butte, Montana, president of the Canadian-American Coal & Coke Co., operating a coal mine at Frank, southwest Alberta, Canada, visited that property late in August.

Mr. Francis Forrester Ketchum of Beaverdell, west fork of Kettle River, Boundary district, has been gazetted deputy mining recorder for the Greenwood mining division, with sub-office at Beaverdell.

The appointment of Mr. Richard Roberts, mining engineer, of Alamo, B.C., as attorney for the Idaho-Alamo Consolidated Mines, Ltd., in place of Mr Philippe Davidson Abeir, has been gazetted.

Mr. A. J. Swinney, who was in charge of the mines and chlorination mill of the Ferguson Mines, Ltd., in Northern Lardeau, British Columbia, until last summer, recently left London for Spain, where he will examine mining properties.

Mr. S. S. Fowler, consulting engineer, of Nelson, who is manager of the London & British Columbia Gold Fields, Ltd., has been examining a gold mine at Kenora, Ontario, for an English syndicate.

Mr. J. Metcalf, of Palouse, Wash., a director of the Nicola Coal Mines, Ltd., has been at Coutlee with Mr. Paul Bockmer, managing director, looking over the company's interests in the Nicola district.

Capt. F. A. Hill, of Renton, Wash., has been appointed manager for the Canadian-American Coal & Coke Co., in place of Mr. G. H. Broome, resigned. This company's colliery is at Frank, south-western Alberta.

Mr. Oliver Harthne is stated by the Rossland *Miner* to have been appointed mine superintendent for the British Columbia Mining & Development Syndicate, owning mining property on White Grouse mountain, East Kootenay

Mr. W. J. Barker, mine superintendent at the Arlington, Erie, which lately paid a 5 per cent. dividend and is now looking well for future production, has been at Portland, Oregon, visiting the Lewis and Clark Exposition.

Mr. Jas. H. Kennedy, engineer of construction on the V., V. & E. railway, went to Ottawa a short time ago to appear before the railway commission in connection with the opposition of the C.P.R. to V., V. & E. railway plans.

Mr. R. G. McConnell, of the Dominion Geological Survey Department, recently left Whitehorse for Windy arm, also in Yukon Territory, to look over the country from which finds of rich mineral deposits have been reported.

Mr. W. J. Elmendorff, of Spokane, Wash., has been engaged to make an examination of the Chapleau mine, Slocan City mining division, which property is under lease to Mr. F. Stock, on behalf of prospective purchasers in Spokane.

Messrs. C. Fernau, Octave L. Liegeart and Ed. Riondel, of the Canadian Metal Co., which is establishing zinc smelting works at Frank, Alberta, recently visited several zinc mining properties at Ainsworth that have been acquired by their company.

Mr. R. W. Brock, who has been engaged for several months in making a structural geological survey of Rossland camp, has returned to Ottawa, preliminary to resuming his duties at Kingston, Ontario, as professor of mining in the School of Mines there.

Mr. W. E. Zwickey, manager of the Rambler-Cariboo Mines, Ltd., who was in Nelson about the time of the sitting there of the tariff commission, reported that satisfactory progress is being made with the driving of the 4,000-ft. tunnel on his company's mine in the Slocan.

Mr. J. B. Hobson, manager of the Con. Cariboo Hydraulic Mining Co., owning the big hydraulic mine at Bullion, has gone to Toronto, Ontario, whence he will proceed to New York to there meet the capitalists who will probably become largely interested in Cariboo's largest hydraulic mining enterprise.

Dr. H. S. Poole, of Halifax, Nova Scotia, who has for several months been engaged on Vancouver Island, collecting information relative to the coal fields of the island, has concluded his field work for the season and has returned East, to report to the Geological Survey Department of Canada.

Dr. Robert Bell, acting director of the Geological Survey Department of Canada, recently reached the Pacific coast from Ottawa and took steamer at Vancouver for Skagway. His destination was not make public, but it was considered probable he was en route to Dawson and other Yukon points.

Mr. J. C. Gwillim, professor of mining at the School of Mines, Kingston, Ontario, which is affiliated with Queen's University, Toronto, left Blairmore, Alta., late in August to resume his duties at Kingston, after having spent several months in mining sections of south-west Alberta and British Columbia.

Mr. S. B. Ells, of the Geological Survey Department of Canada, lately took a trip through the Nicola and Similkameen districts to examine coal measures there. He was accompanied by Mr. T. J. Smith, of Vancouver, secretary of the Diamond Vale Coal & Iron Mining Co., owning a coal property at Quilchena.

Mons. Albert de Romeu, of Paris, France, who is understood to have been commissioned by the French Government to investigate the field in Canada for certain minerals, recently spent ten days in Cobalt camp, northern Ontario, where rich cobalt-silver ores occur. He was accompanied by Mons. Adolphe Chalas, of Paris and London, who is stated to have had large experience in connection with the nickel mines of New Caledonia.

The Michigan College of Mines, Houghton, Michigan, U.S.A., has published a booklet of views intended to supplement the catalogue descriptive of a portion of the work at the college. Their object is to make more evident the methods pursued at that institution, also, to some extent, to show the facilities for practical instruction afforded by its immediate surroundings. The views and the College Year Book should be examined together—both are obtainable on application.

Professor Robert H. Richards, professor of mining engineering and metallurgy at the Massachusetts Institute of Technology, Boston, Mass., and U. S. government expert on the black sand concentration experiments in progress at the Lewis and Clark Exposition, Portland, Oregon, is in British Columbia. It is stated that his visit is at the request of the Dominion government, made through the U. S Geological Survey Dept., for the purpose of making an examination of black sands occurring in places on the British Columbian coast.

Dr. R. W. Ells, of the Geological Survey Department of Canada, has returned from Graham Island, of the Queen Charlotte group, whence he went last spring to examine and report on the coal measures of that island. Before going back to Ottawa he has been again visiting the Quilchena and Nicola districts, where he last year examined the coal measures. He proceeded thence to the Tulameen, Similkameen, and Okanagan districts of British Columbia, in each of which coal is already being prospected, or indications of its occurrence have been found.