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The Mining Record.

Vol. VI. NOVEMBER, 1899. No. 2.

BRITISH COLUMBIA
MINING RECORD

Devoted to the Mining Interests of British Columbia.

PUBLISHED BY

The Mining Record Limited Liability.

ADVERTISING RATES ON APPLICATION.

H. MORTIMER LAMB, Managing Editor.

London Office : 24 Coleman Street, E.C
Vancouver Branch Office : J. G. Ure, No. 2 Arcade.
Montreal : Gray's Agency.
Denver, Col.: National Advertising Co.
San Francisco : Dake's Agency.

SUBSCRIPTION TERMS:

Canada and the United States, one year - - $2.00
Great Britain and Foreign, " " - - 2.50

All communications relating to the editorial department of the British Columbia MINING RECORD to be addressed to
THE EDITOR, B.C. MINING RECORD,
P.O. Drawer 645, Victoria, B.C.

All communications relating to the business department of the British Columbia MINING RECORD to be addressed to the
BUSINESS MANAGER, B.C. MINING RECORD,
P.O. Drawer 645, Victoria, B.C.

IN what way will the war in the Transvaal affect British Columbia? It is argued with a good deal of truth, that as investment in new enterprises is practically stopped there at present, and as capital for investment in new enterprises is continually being accumulated in Great Britain, a stream of capital may well be set flowing towards British Columbia. Against this, however, must be offset the fact that when the Transvaal is overcome and brought under British rule —as it must be—the greater security thus offered to capital will cause a tremendous boom there after the war is over which will temporarily eclipse everything else in the mining world. The chances are that British Columbia's boom will not come until the re-organization of the Transvaal on the new basis has been fully accomplished. In the meantime, however, Eastern Canada, the United States and Great Britain are contributing enough to maintain a steady rate of progress in the Province.

The market for mining shares is in a peculiar position; the volume of transactions is fairly good and according to reports from Montreal very large at that point. But prices rule low and there is little or no opportunity to make money in speculation. The cause is dear money in New York, and the official explanation is the dread of war in the Transvaal. The real explanation will be found much more in the heavy speculation which has been a characteristic of Amercian business during 1899. Just how far the reaction will go it is hard to say. It is not likely to attain panic proportions, and will be succeeded after a short time by a healthy revival. But the effect upon Canada is to make the Canadian banks concentrate their resources and refuse credits that in the ordinary course of business they are only too glad to grant. There is no market upon which the effect of a contraction of credit is so instantaneous as the mining share market. It brings a certain amount of shares on the market for which there are no buyers and it forces prices down to the point at which investors prepared to hold for a considerable time will come in.

Some very interesting information has recently been received on the subject of the establishment and maintenance of schools of mines, by Mr. Archibald Cameron, secretary of the Rossland school, from the New Zealand Minister of Mines, Mr. A. J. Cadman. The New Zealand schools are not established under any special legislative enactment, but are managed by a local council or committee, with assistance from the Colonial Government by grants of money provided by votes of the House of Representatives. The amount voted for the year 1898-99 was £2,800, in addition to which the Government paid the salaries of three instructors at the annual rate of £350, £200 and £170 each. The sources of revenue beyond the assistance given by the Government are class fees, charges for analyses, and testing, and local subscriptions. In connection with the schools there are three annual scholarships at the Otago University, of the value of £50 each, tenable by students who pass the examinations as required by the regulations of 15th June, 1894, a copy of which is also forwarded. The Otago School of Mines, which, by-the-way, was established nearly nineteen years ago, and the Thames School in New Zealand, the School of Mines and Industries and Technological Museum at Adelaide, South Australia, and the Ballarat, Bairnsdale and Bendigo Schools, in the colony of Victoria, have done an immense amount of good in qualifying local men for important and responsible positions as mine managers and superintendents; and it may safely be asserted that the assistance accorded these institutions by the Australasian Governments has been more than justified by the results attained. Many of the cases of bad mining and consequent disaster in this Province might have been avoided had the managers or engineers in charge of the undertakings been locally trained men, familiarised by adequate practical experience and study with the the characteristics of rock formation and occurrence peculiar to British Columbia mining

localities. It is sincerely to be hoped that the Provincial Government will awaken to the importance of, at least, contributing towards the maintenance of schools of mines in our principal mining centres—that at Rossland being particularly deserving of support.

The adjustment of the labour difficulty in the Slocan and Nelson divisions is apparently as far off as ever, and the outlook, at least as regards the prospect of a creditable silver lead output from West Kootenay this year is particularly gloomy and unsatisfactory. The present unfortunate state of affairs is directly due to the ill-advised and hasty action of the Provincial Legislature last session in the passage of the eight-hour law; yet, notwithstanding, the wage question might have been amicably settled on the lines of mutual concession, but for the obstinate and unreasonable stand assumed at the outset by the few agitators who regrettably occupy positions as leaders of organized labour in this country. The inconsistency, meanwhile, of Miners' Unions in the Slocan is sufficiently illustrated in the fact that members of these bodies are permitted to remain at work in the Ainsworth mines and in one only of the Nelson mines, when the wage paid is on the basis of three dollars per diem, while in the Sandon and—with the solitary exception referred to—Nelson mines, the men are called upon to go out on strike unless they are paid the additional fifty cents demanded by the union for an eight-hour day. This anomaly is explained on the ground that before the eight-hour law came into force, Ainsworth was a "three-dollar camp." But if this is correct, it merely puts the Union in a less advantageous light. Having approved of three dollars a day of ten hours in Ainsworth, it is now cooly admitted that men working eight hours under precisely similar conditions in a neighbouring camp are entitled to a higher wage for shorter hours! The Slocan miners, we are told, are standing out for the pay they have been accustomed to receive in the past. This, however, is far from true. The men have been offered and have refused a higher ratio of pay than that formerly established, but they demand more. One has only to apply the *reductio ad absurdum* to their argument to demonstrate the correctness of this assertion. Suppose, merely for the sake of example, a meddlesome and idiotic Legislature introduced a measure with a penal clause, regulating the hours of underground labour to four or two or none at all in the twenty-four, it would still, if we accepted the premises as in all seriousness set out by the Sandon Miners' Union, be the bounden duty of mine-owners to pay the men just as much for working "no hours" as they (the miners) might reasonably expect to get for "putting in" a good ten hours a day. And on such grounds as these organized labour in the Slocan is "on strike." All mining operations in this district would have been, ere this, entirely suspended but for the absolute necessity of keeping the workings in the principal Slocan mines in order in anticipation of the resumption of work when miners from the outside will be engaged to take the place of the "strikers."

It does not seem so long ago since the mining industry of Canada was threatened with disaster through the imposition of an export duty on ore, aimed chiefly, so far as the western part of the country was concerned, at the establishment of a smelter to handle exclusively Canadian ores on United States territory at Northport. The experience which the country has had with the Northport smelter ought to place it beyond the power of the most prejudiced and least acquainted wtih the necessities of the industry to ever advocate such an expedient again. Had there been no Northport smelter there would have been no $4.50 rate for freight and treatment, and consequently the tonnage and prospective tonnage of the Rossland district would have been less. The projectors of the Northport smelter were influenced by purely economic considerations in placing it where it is without reference to the 47th parallel. And a purely extraneous consideration like that of the existence of a boundary line, had it been used to prevent the erection of a smelter there, would just in so far as it discriminated against the most economic smelting have added to the cost of treatment, and accordingly reduced the tonnage of ore and diminished the returns on what was treated. This might have had the most far-reaching and damaging effects because the future of English capital in British Columbia depends very largely at the present time upon the returns Le Roi shareholders receive, and any cause injuring their interests would have injured British Columbia for an indefinite time. It is not safe to meddle with economic laws to obtain a temporary advantage. Much more is lost in presently unseen and unexpected directions.

It will now remain to be seen whether the British Columbia smelters will be benefitted to the degree anticipated by the re-admittance of lead, the product of Canadian mines and smelters, but refined in the United States, into this country free of duty imports. By an Order-in-Council the Dominion Government has granted this concession in consequence of a strong appeal from our principal lead smelting establishments; but, in our judgment, while the rebate of the duty may serve to counter-balance the advantage the American smelters have over their Canadian competitors in being enabled to sell in the New York market a proportion, or 10 per cent. of the Canadian lead they import, it is extremely doubtful whether, as is claimed, the renewal of the 15 per cent. Canadian import duty on lead bullion will to any appreciable extent assist in building up Canadian lead manufactories, unless the present duties on manufactured lead are considerably increased; and until we are in a position to turn the entire product of our lead mines to manufacturing uses, our lead smelters must be prepared to face a keen competition from the States.

It will probably interest British Columbians to learn that the cylinders of the U.S. battleship *Oregon* were made from iron mined on Texada Island, and although so little is known locally concerning these iron deposits, it is, according to a Mr. Abraham Halsey, secretary of the Puget Sound Iron Company, who publishes a letter on the subject in *Iron and Steel*, a remarkably promising property, yielding after treatment a very superior charcoal iron, which sells in San Francisco at from $25 to $35 per ton. The Puget Sound Iron Company own 2,400 acres of land on the Island, and it is stated, have on this property five million tons of iron ore, assaying 68 per cent. of metallic iron in sight. The mine has, however, not been systematically worked for some time, and the present

reference to the property in the American technical papers looks rather like an attempt to interest further capital in the undertaking.

It is regrettable to learn that the Fairfield Syndicate, which owns and operates the well-known Dorotha Morton mine, now finds that the ore-body which has yielded to date between $80,000 and $90,000 in gold and other values, represents only a rich blanket deposit, the main lead having yet to be found. The mill and Cyanide plant have consequently been temporarily closed down. All interested in metal mining on the Coast will join in hoping that the further efforts of so business-like and bona fide a concern as that which is behind the Dorotha Morton, will prove completely successful.

It is clear that the Alaskan *modus vivendi* virtually concedes nothing to Canada unpossessed before, and the only present advantage it conveys is in certain conditions which prevent conflict of jurisdiction between the Customs officials of the Dominion and those of the United States. Sir Louis Davies, the British Ambassador at Washington, and Colonial Office authorities in London have jointly done their best in the case but without avail; as the United States at present refuses to accept a reference to arbitration; and the boundary dispute, vexatious though it is, cannot be regarded as sufficiently grave to amount to anything like a *casus belli* between two generally friendly nations. A tentative compromise proposal made by Sir Louis Davies suggests that—while other points in connection with the boundary line shall be arbitrated under condition that are very liberal for the United States—Canada is to receive one port, Pyramid Harbour, and thus gain access to the Yukon, via the Lynn Canal. The United States claims to Dyea and Skagway are simultaneously to be recognized by the Dominion and the Empire. This is probably as much as Canada can well hope to obtain under existing political circumstances, and the settlement of the dispute would, even on such terms, involve a considerable gain on the Dominion's present unsatisfactory position. But with the Pacific and Western States Senators and Congressmen resolutely opposing the slightest American concession, while also urging a refusal of arbitration, it seems very doubtful indeed, if even Sir Louis Davies' offer will at this juncture find acceptance at the hands of the rulers of the neighbouring Republic. They will more probably fear, with a Presidential election contest in early prospect, to alienate Western and Pacific States supporters in Congress, and at the same time supply the Democrats with an available campaign weapon. The trouble is that a cry of "not an inch of American ground shall be given up," is very popular with United States electors, who would in a host of cases fail to recognize that the suggested compromise rather involved a settlement of an international territorial dispute on terms very favourable to their country, than any transfer of American territory. It is extremely difficult to convince our neighbours of the Western and Pacific States that Dyea, Skagway, Pyramid Harbour and much other territory, which they claim to be Alaskan, are altogether debatable ground, to some of which Canada seems to be entitled under the old and badly-drawn boundary treaty between Great Britain and Russia. The United States can, of course, claim no further Alaskan rights than those purchased from Russia, and in part delineated by the treaty in question.

According to the American Consul at Dawson City, there is now abundant evidence that only the very rich Klondike placers can be worked at a profit without machinery on account of the high price of labour and living. Hydraulic mining will soon have to be introduced in this country. The opportunity is now open for capitalists to buy claims to **operate with machinery**, which will yield rich returns for the money invested, but the poor man's chances, so far as this country is concerned, are gone. Recently some three thousand Yukon miners left Dawson for the much "boomed" Cape Nome gold fields, where their chances of coming to grief are infinitely greater.

The information obtainable regarding the Anaconda group of claims in the Atlin district, recently purchased by a London syndicate, with which Lord Ernest Hamilton is connected, is somewhat vague, but what there is of it, eminently interesting. The mineral showing (it is not in any sense a vein or lode) is, we learn from an official source, several hundred feet wide, and Mr. Bromly, the syndicate's engineer, after making very careful and systematic tests, has found fair values—in some spots the rock assays over $20 in gold—in every direction where drillings have been made. This extraordinary deposit resembles in point of size the famous Treadwell mine, but on the surface of the Anaconda, where, no doubt, the gold has been concentrated by the action of the elements, the values are decidedly higher. The future profit-earning capabilities of this property, is, however, largely dependent on a fact, not yet ascertained, as to whether or not the rock, which is free-milling on the surface, will continue to have this characteristic as depth is attained. Meanwhile the prospects of Atlin as a quartz and hydraulic camp are by no means unpromising, some quite rich discoveries of both galent and copper-gold ores have **lately been made, and the** country is hardly any more inaccessible than was the Slocan ten years ago; if anything, indeed, it is more favourably situated in respect to transportation facilities. The great difficulty, of course, would be, however, the extreme cold in winter and the necessity of bringing in fuel from some considerable distance.

As regards placer mining in Atlin, the chief complaint of the miners is that the 100-foot claims are too small, and that on all the branch creeks there is an insufficiency of water. Of course, the second of these drawbacks cannot well be overcome, but the first, if the miners' contention is found to be reasonable, could be remedied in the future so far as vacant ground is concerned at any rate. It is asserted that is does not pay to work an Atlin claim of 100 feet only, when, as is generally the case, a man has to sink six feet to bed-rock, and several instances are cited where men have abandoned otherwise fairly promising ground solely on this account.

All mining operations in the Omineca district are now practically over for the season; but the result of the past summer's work has been, on the whole, gratifying. It is true no very remarkable "cleans-up" have

been made, but working with the most primitive appliances, individual miners in many instances had recovered by sluicing and hydraulicing, from one hundred and fifty to three hundred ounces of gold ere the season closed. A still more satisfactory tribute to the hydraulicing potentialities of this field is the recent acquisition of ground there by Californian syndicates, whose representatives have in every case been experienced hydraulic engineers from that State.

The completion of the telegraph line to Dawson City is a matter of much moment, particularly to mining companies operating in the Yukon; though the benefit will be considerably enhanced when the connection is made between Ashcroft and Bennett. Thanks largely to the exertions of Mr. Valleau, Gold Commissioner for the Omineca district, the route of the new line from Quesnelle, is, we understand, to take a different course from that originally considered, and the old telegraph trail as surveyed over thirty years ago by the Western Union Company, is in consequence to be re-opened. Thus the Omineca, as well as the Atlin district, will enjoy, ere long (the advantages of telegraphic communication with the commercial centres. What this will mean to mine-operators in Omineca may, to a certain extent, be estimated, when it is stated that in the case of a break-down of machinery, an order for replacing parts when sent through the ordinary mail channels, not infrequently is from a month to six weeks in transit. Meanwhile, it is satisfactory to learn that preparations are now being made by the Department of Public Works at Ottawa for the early commencement of work on this important undertaking.

The Lenora mine at Mount Sickar is an exceedingly promising prospect, but there is, at present, no warrant for the hysterically boomistic reports which have been appearing of late in the daily papers concerning this "wonderful mine." For example, what could be more utterly absurd than the following paragraph from the *Colonist*, having reference to the contract entered into by the Mount Sickar Company to consign a thousand tons of ore per month to the Van Anda smelter :

"There is enough ore in sight in the Lenora mine to continue this arrangement for an indefinite period. To make a start with, there are 1,500 tons on the dump. The amount of ore in sight in the chute nobody has attempted to estimate; it is too enormous to even make a guess at."

Mining engineers do not "guess at" the amount of ore in sight in a mine; the methods employed for arriving at such a calculation being, as a rule, of a somewhat more precise character. But the paragraph is a particularly fine instance of the ludicrous unreliability of the daily press when dealing with mining affairs in this country. Meanwhile, the policy adopted by Mr. Croft, manager of the Mount Sickar and B.C. Development Company, of shipping comparatively large quantities of ore from the Lenora mine at the present stage of its development, is certainly open to criticism; though the high price copper now commands, and a specially advantageous arrangement with the Van Anda smelter, may serve to justify the course pursued, by the Lenora mnagement.

The shareholders of the late, lamented Golden Cache Mines Company, or rather those of them who have taken advantage of the new owners' offer, may yet perhaps have cause for gratulation. If we accept a recent report on this Lillooet property by the Toronto engineer, Prof. Montgomery, who recently examined the Golden Cache and adjoining claims at the instance of a Toronto syndicate there is yet hope that this ill-starred property may be profitably operated. According to Prof. Montgomery, while "there is practically no ore of commercial value in sight" in the Golden Eagle mine itself, on the adjoining claims known as the Monarch, Ample, Whale and Gladstone, and which, by-the-way, the Golden Cache Company had, we understand, purposed to acquire, are exceedingly promising properties, the value of the ore in sight here (about 1000,000 tons) being placed, after allowing for loss in reduction, at $960,000, or $460,000 when the cost of mining and milling is deducted. Prof. Montgomery concludes his report as follows :

"In making these estimates I have proceeded in the usual way, and while doing so I have been quite well aware that the possibilities of these properties are greater and that there is even a probability that there are 150,000 tons of pay ore in sight at the present time, but I considered it safe and proper to give 100,000 tons as my estimate of the quantity of ore in sight, and $460,000 as the total profit, after paying for the mining and reducing and all necessary expenses incidental thereto. When I make these statements I make statements that could not truthfully be made at any one time in reference to many mining properties. There are but few indeed that can show $1,000,000 worth of ore at one time. I have endeavoured to remove all possible factors tending to exaggeration or uncertainty, and yet there remains an immense quantity of ore of good paying grade, therefore, I have formed the opinion that the Monarch, Ample, Gladstone and Whale constitute a mining property of great value, and I have no hesitation in recommending that this property be operated. With regard to the Golden Cache I would recommend that it be prospected with a view to finding a sufficient amount of pay ore. There is enough evidence to justify this recommendation, and especially as there are a good compressor and drill upon the ground ready for such work, but, understanding that the new owners of the Golden Cache property are also the owners of the Monarch, Ample, Whale and Gladstone, I think it would be well for the present to devote all capital and energy to the working of these last-named properties, in which there is a large quantity of ore in hand, and leave the prospecting of the Golden Cache to later on."

It is to be hoped, both for the sake of the original shareholders, who have acquired shares in the new company, and also in the interests of mining in Lillooet that Prof. Montgomery's very favourable opinion regarding the value of these properties may be justified by substantial returns from the mines themselves.

Apropos of the close-down of the Tangier mine at Albert Canyon, a correspondent from Revelstoke somewhat vainly enquries: "Why do English companies (oh, yes, I'm an Englishman, but this only makes me more ashamed of the asses sent out by Old Country companies to represent important interests) mismanage their properties in B.C. so persistently? It's the rule and not the exception. They pay well enough generally to get good, sensible men. Then

why on earth—but if I continue I shall grow profane." There are, meanwhile, some very marvellous rumours concerning the manner in which work at the "Tangier" has been conducted during the past few months, and our correspondent endorses, as being in the main correct, the following report from the Revelstoke *Herald* :

"The shut-down of the Tangier mine at Albert Canyon, which has been working 25 or 30 men all summer was announced in our issue of Wednesday last. Since then something has been learned about the methods employed in opening up this property, which, to say the least, appear to have been very ill-advised and have in consequence produced results far from satisfactory. Less than a year ago shaft sinking was started on the property and a hole sunk below the creek level about 60 or 65 feet. Enough timber to make 100 feet was built on top of this (the timber part being filled around with waste) and the shaft celled 100 feet underground. Levels to the extent of 800 or 900 feet were run in all directions from the bottom of this pit and $15,000 or $20,000 spent without any results. Gopher holing at the grass roots is hardly the way to make a mine, and intelligent miners who are familiar with the stiuation at the Tangier are at a loss to understand why a considerable portion of the large expenditure already made was not spent in sinking instead of useless work, which leaves the company, as far as a mine is concerned, in practically the same position as when it commenced operations. The Tangier Company, so its miners state, is a good outfit, and intend to do what is right, but it appears to be like so many other English mining companies, the victim of mismanagement in the practical work of development. However, it is to be hoped that the company will not be discouraged to the quitting point by the unsatisfactory showing of the past year's work, but will resume operations in the near future with some one at the head of affairs at the mine who can properly develop the property."

The career of the concern from its inception to date should afford a salutary object-lession to British investors. It afforded a typical instance of a mining company floated on the strength of the very largest assurances, and a lavish use of promotion money and the names of titled and other directors of social standing, who, for the best part, knew nothing whatever of mining or business management.

The I. X. L. mine at Rossland presents the curious spectacle of a property which is free milling and which has a ten-stamp mill within 1,000 feet of the ore bins, shipping ore to a smelter instead of milling and amalgamating on the spot. The reason is not far to seek. Upon ore of the grade of the I. X. L. the percentage loss in milling amounts to a higher sum than the amount charged for freight and treatment by the smelter which pays the miner 95 per cent. of the gold and silver value of his ore. This is an instructive object lesson in the progress made in smelting. Not so very long ago a free milling ore was the most sought for and retained the highest profits. grade for grade. Nowadays there is nothing to pick and choose between a free milling and base ore, except that if the base ore contains elements favourable for fluxing the advantage lies with the base ore.

Whether the Columbia-Kootenay is a mine or not is a question often discussed in Rossland. There is a volume of hearsay evidence repeated "from a man who was working there," or "from a man who was told by the superintendent at such and such a time," and so forth, to the effect that in its immense ore bodies values only occur in spots, and that the general average is too low to pay. Against this must be set the fact that exactly the same thing was said about the Le Roi during 1895 and 1896, and also about the Centre Star from 1892 to the present day, and that these mines are to-day cheerfully productive. The Columbia-Kootenay has also been recently thoroughly tested by Mr. Collins, and a scheme of development outlined which no mining engineer would undertake without enough ore in sight to justify it.

The Le Roi Company has anounced that it is about to ship its dump of second-class ore, which contains 120,000 tons of rock. Fortunately for next year's record this enormous shipment will not all come into this year's figures; but enough of it may to send the tonnage up to 200,000 tons for 1899. This dump is not being added to much at present, because the grade of ore previously stored on it now goes straight to the smelter. It will be remembered that under the old management experiments were entered into at the O.K. mill upon samples of this dump and it averaged about 8 dwt., of which a considerable proportion was saved on the plates, and it was freely stated at the time that the company intended to erect a stamp mill at the mine. This was not done, however, probably because the present improvement in smelting rates was foreseen by the men that have brought it about. There will very likely be further alarmist rumours as to the decrease of the grade of Le Roi ore when this shipment swells the tonnage, on the part of those who read the signs of the times upside down.

The Le Roi returns for the first half of September give a gross return from all values of just an inappreciable fraction over $12 a ton. When it is considered that this allows the mine the full commercial value of the copper in the ore, it is evident that this is ore which would barely be profitable to a mine not operating its own smelter and not working on a large scale. But it is profitable and very handsomely so. The fact is that the ore in the Le Roi is just as rich as it ever was, but the economies effected in treatment have been so great that the Le Roi is able to make a profit now on ore which was previously waste from a commercial point of view. There is an excellent dividend for the shareholders lying already mined in the second-class dump just as soon as the smelter is enlarged sufficiently to treat it. Meanwhile the mine, instead of having its rich spots gouged out for the purpose of sensational returns is making profits on ore left standing before and storing up a vast accumulation of "ore in sight" of a higher average grade than that which is now being worked satisfactorily. To any conservative investor this should present a very satisfactory state of affairs. But if it is satisfactory from the point of view of the Le Roi shareholders how much more so from the point of view of the owners of other mines. Ore is now of commercial value which even two years ago was of no account whatever, and this fact has already given a great stimulus to production and development round Rossland.

There is a very persistent impression among the

investing public in England that the Le Roi smelter is not owned by the Le Roi Company; it is an entirely mistaken impression. On account of legal difficulties in the way of a foreign corporation owning real estate in the State of Washington it was necessary to effect the ownership of the smelter at Northport in a somewhat round about way. But except for the one-quarter interest owned by Messrs. Bellinger and Breen the smelter is owned and operated solely by and for the benefit of the Le Roi mining company And fortunate indeed is it for the interests of the Le Roi shareholders that it is so.

Mr. Carlyle is authority for the statement that on the general average of shipments for this year the Le Roi company has made a net profit of $7.50 per ton of ore mined. This requires a tonnage of 66,666 tons to earn 10 per cent on the capital of the company. This it has already exceeded during the present year, and at present rates of shipment and returns an extra 4 per cent should be earned before the close of the year, bringing the capacity of the mine up to 16 per cent. for this year. Coming out of a mine which has relatively unlimited resources of the same class of ore this must be considered a favourable showing. If it were all that could be done from a mine of large capital and small vein pushed to its utmost it would be but a small return. But the Le Roi is unable to produce more only because it cannot hoist more and cannot keep the timbering of the mine up to a large production. When the improvements under way are completed the output of the mine can be increased to the limit of the hoisting capacity and that output can be maintained for a very long life.

Exceedingly satisfactory developments are attending the opening out the West Le Roi in which is consolidated the No. 1 Josie and West Le Roi and Josie. It is said that the old Josie workings have been extended into the West Le Roi and Josie ground, or rather, that this ground has been opened from these workings and a very satisfactory chute of ore discovered. The No. 1 has been developed to the 400-foot level and is now in a position to break a good deal of ore. This consolidation will assuredly add another great mine to Rossland's list. The No. 1 and the West Le Roi and Josie are two properties which always had ore of a good grade on the surface. Conditions were such, however, that more than the usual amount of faulting and displacement was to be expected near the surface. Their development, however, has been very satisfactory from the first. In the No. 1 particularly, a very small amount of work resulted in the discovery of a large and permanent ore body, without question the extension of the War Eagle vein.

The following report of a passage in an interview which an Eastern paper has with Mr. Mackintosh, the ex-Governor of the Northwest Territories, rings of conservative mine buying gone mad:

"You are at the head of what is known as the Mackintosh syndicate?"

"Yes, but we take all responsibility of developing a property before asking anyone to buy it, or advising the public to invest, and by articles of agreement, three known experts must report that there is twice the value of ore in sight of the price asked for the property."

It might be thought that Mr. Mackintosh had been wrongly reported. But the remarkable similarity between this and a paragraph in another interview shifts the onus from the shoulders of the much-enduring reporter. To buy a mine for half the value of the ore in sight is in North America an impossibility, to sell it for the value of half the ore in sight would be the rankest folly. Besides which the clause in the agreement rendering it necessary to secure the unanimity of three well-known experts on any given subject, let alone ore in sight, is imprimis a bar upon this syndicate's doing any business at all. No three experts have ever been known to agree on anything, and the better known they are the more their opinions seem to differ.

Probably no journalist in British Columbia has accomplished more in the direction of drawing public attention to the mineral resources of the rich district of Boundary Creek, than the present editor of the Midway *Advance*, Mr. E. Jacobs. His conscientous reports of the mines, or, to be more exact, the more developed properties of Boundary Creek which reports during the past three years have appeared in the *News-Advertiser* and in the MINING RECORD; his habit of discountenancing boom statements, and the fearless stand he has always taken on matters affecting the welfare of the district, have brought him the usual reward—the dislike and antagonism of the many he has taken to task or with whose plans he has interfered by his (to them) too honest statement of fact. But if Mr. Jacobs is not popular, he is at least generally respected, and certainly outside the district a great deal of dependence is placed upon his opinions. In these times when it is the rule for editors of the local newspapers published in our mining camps, to assume that their whole duty is comprised in the one effort to indiscriminately "boom" the district in which their prints circulate, sublimely careless whether they publish the truth or not, so long as the end is attained, it is refreshing to find such local newspapers as the Midway *Advance* setting an excellent example against this silly and really quite futile practice. Some few weeks ago the citizens of Greenwood tendered to the noted metallurgist, Mr. Paul Johnson, a complimentary dinner. In the customary course of the convivialities, speeches of the usual after-dinner type were indulged in, and the guest of the evening was toasted and wined. After this what could the poor man do? Mr. Johnson rose to his feet and told the jolly company that "the biggest mines on this continent will be right around Greenwood." (Uproarious and enthusiastic applause.) Mr. Johnson did what was expected of him. He felt happy himself and everyone was happy, so, instead of giving his hearers a long and scientific disquisition on the vein formation of the Boundary Creek district, or on the actual amount of ore in sight in the mines, as calculated by a conservative mining engineer who takes nothing for granted, he indulged in a little playful exaggeration of language fitted to the occasion alone. This is the view taken of the matter by the Midway *Advance*, and we feel sure it is the correct one. So experienced a man as Mr. Paul Johnson in sober moments would certainly not give utterance to statements which he could not substantiate; he would not surely make such a rash assertion as is accredited to him before

a scientific body, nor would he embody it in a report. It is quite enough, meanwhile, to know that Mr. Johnson and his principals have sufficient confidence in the future of the Boundary Creek district to go to the length of establishing there a large and costly smelter.

The Columbia and Western Railway is at last completed as far as Greenwood, and already preparations are being made for the consignment of ore from some of the more developed mines of the district to the Trail smelter. It is not likely, however, that the mineral production of Boundary Creek will exceed or even come up to two hundred tons of ore a week until next summer, when local smelting facilities should, by that time, be provided.

Mr. J. D. Kendall, the well-known mining engineer who was quite recently engaged in professional work in this Province, has lately been interviewed in London by the representative of a leading mining journal. Mr. Kendall then gave the following opinion, which accurately, though briefly, explains why so many London promoted and thence mismanaged British Columbia mining companies have hitherto failed to realize expectations. "I would like," he is reported as saying, "to avail myself of this opportunity of saying that the very small financial success which has hitherto attended the mining operations of British companies in Western Canada is not attributable in the smallest degree to the scarcity of mineral or to unfavourable conditions of working, but is the effect of causes which ought not to be allowed to operate, and can easily be avoided at the beginning, and often overcome at later stages, by a knowledge of the technical and commercial conditions to be dealt with."

Mr. Frank Richards, of Liverpool, Atlin, Vancouver, etc., to whose strange promotion methods the London *Critic* has referred in terms of justifiable censure, is very, very angry, not only with our London contemporary, but also with the MINING RECORD. He will not, however, take any proceedings against the *Critic*, which, after the usual wont of one lashed in its columns, he freely denounces as a "blackmailing sheet." The *Critic* can, of course, afford to laugh at comment thus occasioned.

Elsewhere is published a letter from Mr. Henry Croft, replying to a comment which appeared in last month's issue of the MINING RECORD, referring to the prospectus of the British Columbia Mining and Exploration Company, Limited, of which he is one of the organizers. It will be remembered that we called attention to two statements in this prospectus: (1) that the company's properties "are situated in some of the best mining districts of the Province—and . . . shareholders will have the benefit of being interested in different mining camps, *thereby availing themselves of the development work that is being done on a number of the adjoining mines*;" and (2nd) that "the present sale of shares to the public will be *mainly* devoted to the development of the properties." Mr. Croft in his letter explains, with a considerable show of ingenuity, the meaning it was intended should be conveyed by these statements. We can only express regret that the wording in the prospectus should have been such as to admit of an ambiguous interpretation. The first statement suggests to the ordinary reader, speculation, not mining; the second—well, whatever construction you like to place on it. "The present sale of the shares to the public will be mainly devoted to the development of the properties;" *mainly* may mean anything from sixty to ninety-nine per cent.; and to what purpose the balance of this money is to be devoted is not mentioned in the prospectus. Too much care cannot be taken in the preparation of prospectuses, and even honest-intentioned concerns, as under which category we believe the B.C. Mining and Exploration Company may be placed, must expect criticism from the public and the press if failing in this important particular.

A correspondent residing in Chihuahua, Mexico, sends us for publication the following remarkable circular which has been issued to the victims of a concern called the Union Trust and Smelter Manufacturing Co., of St. Louis:

Chihuahua, Mexico, Julio 3 de 1899.

TO WHOM IT MAY CONCERN

GENTLEMEN!

You are hereby requested to personally state your own complaints to the Postmaster general regarding your dealings and transaction with mr H. Meinhard sect, Treas, Promotor, Presidante manager of the Union Trust and Smelter mfg. Co. 415 Locust St Room 203. St Lomis. Mo.

May the good Lord have mercy on this exseqution proof confidence gentlemen and his hundreds of victims, who deeply deplore their loss of faith and money throngh the mail by a prospectus, which speakes of a way to become wealthy by sending $2. to H. Meinhard & Co. this is what the St. Louis Republic said on may 25 th. with a strong hint and sound warning on may 29 th.

Prospectus which Speaks of a way to Become Wealthy.

Within the past few days a number of St. Louisans have received through the mail a prospectus of the "Union Trust Consolidated Smelter Manufacturing Company" of this sity. The prospectus sets forth that the company has incorporated with a capital of $1. 750, 000 and has obtained all the patents, franchises, trade and options of a dozen or more individual corporations throughout the State, of which it is now sole owner. It offers for sale stock in the new corporation at $2 a share, and guarantees a dividend of 10 per cent per month on each share. It is further stated that "this is no lottery or green goods, but a good snap to get rich, guaranteed as good as gold in ang trust company."

My clients Holt and Spears of El Paso, Texas, inwested $ 1750. 00 with them for a fake smelting mashine, while the swindled me out of $ 1. 300 as agent for them in Mexico. very regretfully. W. T Brice care apartado 83 Durango. Mexico.

The London *Mining Journal* ought surely by now to know that the Atlin gold fields are neither in Alaska, nor even in the Yukon country, but within British Columbia. Yet under the heading, "Mining Men and Matters," a recent issue contained the following:

"Mr. Rider Haggard has, it is stated, turned his attention from literature to the more profitable pursuit of gold mining in Alaska. In company with Lord Ernest Hamilton, he has proceeded to the Atlin gold fields. Certain claims there, according to the correspondent of the San Francisco *Chronicle* have been pur-

chased by the novelist and his companion from Sailor Bill Patridge for half a million dollars. Sailor Bill was a few months ago a poor American sailor, but is to-day a millionaire."

There are other mistakes in the paragraph, for which, however, imaginative Pacific Coast newspaper correspondents are responsible. Thus it is not Mr. Rider Haggard, the famous novelist, but his brother, Colonel Andrew Haggard, also a novelist, but better known as an ex-military man and very capable writer on angling, who is associated with Lord Ernest Hamilton's syndicate in certain Atlin claims and others on the Coast, notably the Blue Bells mine. The syndicate was, moreover, warned in Vancouver to be careful in acquiring property in Atlin, and did not agree to pay "Sailor Bill," who is certainly no millionaire, such a wholly excessive sum, as anything approaching $500,000 for his Atlin interests.

Messrs. Gooderham and Blackstock are as large stockholders and chief promoters of both the War Eagle and the Centre Star Companies, assailed by much-adverse criticism in Eastern Canadian financial circles, by reason of an alleged exaggerated estimate of profits made in the prospectus which accompanied the Centre Star flotation. In that prospectus it was represented that the Centre Star should, from shipments of 1,000 tons a week, pay $420,000 a year in dividends. If so, say Toronto and Montreal money men, how comes it that the War Eagle, a much better equipped mine and shipping 2,000 tons a week only pays $300,000 in dividends? This query Messrs. Gooderham and Blackstock are not unnaturally requested to answer. Meanwhile War Eagle stock goes down many points. An explanation would certainly seem to be needed.

The troubles of the Dorotha Morton mine have added a competent new official to the staff of the Ben D'Or in Lillooet, for the company operating the latter mine has engaged the services as general manager of Mr. W. F. Lundy, who was until the other day superintendent of the Dorotha Morton. Mr. Lundy is an expert at battery work, having long been conversant with it in South Africa, and under his superintendence very satisfactory results attended the operation of the Dorotha Morton mill and Cyanide plant.

The revelations that are being made in the trial at St. John, New Brunswick, of the case of Domville versus the Klondike, Yukon and Stewart River Pioneers, Limited, are throwing interesting but disconcerting light on to the very doubtful promotive methods of this ill-starred Yukon company, and fully account for its failure to realize the large boom promises, on the strength of which the concern was floated, to the detriment of many British investors. The concern began in misrepresentations and continued in gross mismanagement.

When stock in a gold mining company or any other company is pooled it is generally understood that the meaning of this arrangement is that the promoters' stock has been placed in such a position that it cannot be sold until the treasury stock is all disposed of; such treasury stock being in the first place intended for development purposes only. The promoters' stock is supposed to remain in the pool intact, and the certificates are not issued until the pool is legitimately broken. Instances, however, are not wanting in British Columbia mining companies where pooled stock has been "bartered, sold and assigned," even before the treasury stock has been all sold. This is in direct violation of the pooling agreement and the compact made with the public. It is contrary to the express pledges made in the prospectuses and other data issued to the public, and it is therefore to be condemned for that reason alone; if others were not wanting. Meanwhile, some will, naturally enough enquire how pooled stock can be sold if the certificates are not available. In the case where the promoter is one of the locators of the property and holds a large amount of promoters' stock for his interest, it is tacitly understood that he has a "pull" with the company's directorate. While the pool prevents his getting possession of the stock certificates, in some way his sales are recorded on the books of the company, and he is thus protected in his transactions. In other words, he is permitted to break the pool, the only difference being this, that he is not furnished with the certificates but his sales are recorded and the purchaser takes his place for so much of the stock as he has purchased in this manner.

RECENT MINING DECISIONS.

DART VS. ST. KEVERNE MINING CO.

Mr. Justice Drake has decided in this action that a mineral claim cannot embrace several detached pieces of land. Particulars of the judgment will appear in a later issue.

RE O. K. GOLD MINING CO.

Motion of Liquidator of Full Court for leave to enter for hearing the appeal against the allowance of the claim of the Old National Bank of Spokane, a creditor of the company, amounting to $35,853.74. Mr. Justice Drake delivering the judgment of the Court dismissed the motion on the 7th September, 1899. The result is the appeal falls to the ground and the Old National Bank will be allowed to prove in the winding up of the company for the full amount of their claim.

PENDER VS. WAR EAGLE MINING CO.

The facts in this case were that it was one of the arrangements of the War Eagle mine that, when working with drills in a winze or upraise the drills as they require sharpening are thrown down for the purpose of being carried away for repair. A platform of wood was constructed for receiving the drills, and occasionally a drill either missed the platform or bounded off it and fell into the tunnel. Whilst the plaintiff was passing along the tunnel he was struck and injured by one of these drills.

The action was tried three times. On the first trial, judgment was given for the plaintiff and on appeal a new trial was ordered.

The jury disagreed on the second trial.

At the conclusion of the third trial the jury found that the defendants were guilty of negligence in not having the platform so constructed as to prevent the steel drills from shooting into the tunnel, and that the plaintiff was not aware that the drill which injured him was coming down at the time he passed, and assessed the damages at $

On the motion for judgment, the trial Judge entered judgment for the defendants, holding that there was contributory negligence on the part of the plaintiff disentitling him to recover.

On the appeal, the Full Court reversed the decision of the trial Judge, but considering the damages excessive as found by the jury, reduced them to $500.

*NOTES ON THE YMIR MINE AND ITS MILL PRACTICE.

(By S. S. Fowler, S.B., Nelson.)

LYING north of the International Boundary, west of Kootenay Lake, east of Columbia River, and south of Nelson, and the outlet of Kootenay Lake, is a roughly quadrangular mountainous country covering about 1,450 square miles.

View of Wild Horse Creek Valley from Ymir Mine.

Occupying the central portion of this quadrangle is the drainage area of the Salmon River, a considerable stream which has its source within a few miles of Nelson, and flowing south joins the Pend D'Oreille near the Boundary.

This Salmon River country, covering about 900 square miles, was practically inaccessible until the construction of the Nelson & Fort Sheppard Railway in 1893, and it was not until the summer of 1896 that any considerable mining activity was manifest. The country, therefore, is possessed of a very brief history. Aside from the placer mining operations of 35 years ago, which were carried on near the mouth of Salmon and along the Pend D'Oreille, there is now no evidence of mineral location until about 1885, when some two years before the discovery of the Silver King near Nelson, by the Hall brothers, locations of quartz claims were made by these same men near the head of Wild Horse Creek, a small stream entering the Salmon from the northeast at the present town of Ymir, 18 miles from Nelson.

Nothing more appears to have been done for the next decade along the Salmon Valley, but, as stated above, in 1896 many claims were staked, and since then the district has made substantial progress. Today, aside from the property named in the title, the Fern, on Hall Creek, the Porto Rico, on Barrett Creek, the Yellowstone, on Sheep Creek, the Second Relief and Arlington on the North Fork of the Salmon, are considerable producers, or nearly in condition to produce, and there are many other properties throughout the district affording excellent prospects, and indeed some of them have made small shipments of smelting ore.

Physically, the Salmon country is not complicated in structure. It is mountainous, but few of the mountains reach an altitude of more than 7,500 to 8,000 feet, and the summits are generally rounded. The creek valleys are deep, however, and glaciation appears to have been an important factor in determining the present topography. The glaciers, however, have, I believe, all disappeared, although in the Slocan country to the north there are many remnants of that powerful moulding agent to be seen.

The rocks which underlie the region being described, are predominantly of igneous origin. In a very general way it may be said that east of the Salmon the granites are in evidence, while to the west augite porphyrites, schists derived from them, some small gabbro bosses and large areas of tuffs and agglomerate occupy the field. But throughout these rocks may be seen considerable inclusions of sedimentary rocks, principally slates, except along and near the range which forms the watershed between the Salmon and Kootenay Lake, where there are thick beds of quartzites and some crystalline limestone, extending more or less continuously southwesterly into American territory. The country is a very interesting field for geological research, and deserves more extended study than can be given it for a long time. The Dominion Geological Survey sent a party into this field under R. G. McConnell during the summer of 1897, but litle more than a general reconnaisoner was accomplished, the shortness of the season and smoke from the forest fires usually causing an early return of the field parties.

As to the respective ages of the rocks hereabouts, the slates have not been traced to connection with the Kaslo series east of the Slocan slates, but from their lithological features one is inclined to ally them with that series, and if that is proper then the small slate areas of Salmon River are probably of Cambrian or pre-Cambrian age. The various basic igneous rocks may be of different ages, but Mr. McConnell places

Ymir Mine.

* Paper read before the September meeting of the Canadian Mining Institute.

the augite porphyrites in the carboniferous. Some of the granites appear to be comparatively recent, but the youngest rocks of the vicinity occur in dikes of blackish to dark grey colour, varying much in tex-

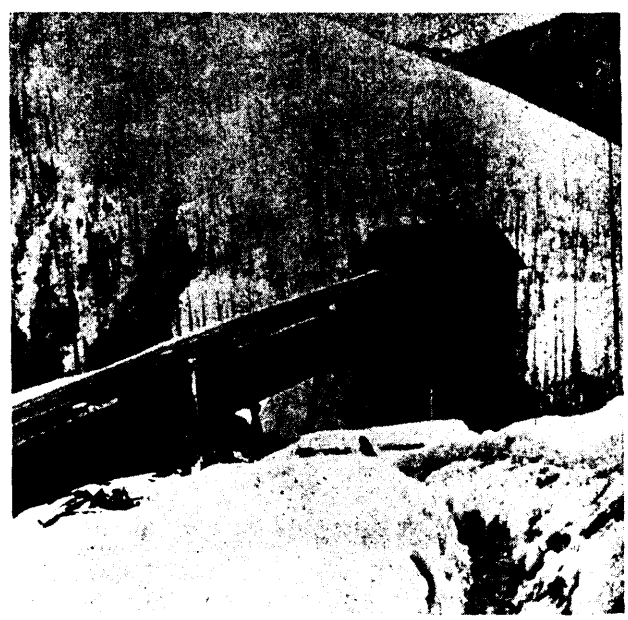
Ymir Mine—Another View.

ture and composition, and piercing the rocks above named, and I believe, most of the veins of the district. Generally these dikes may be described as mica diabase, the biotite probably being a first product of alteration, while frequently the whole mass has become completely kaolinized.

Coming to the Ymir mine itself, we find it on the west side of the valley of a North Fork of Wild Horse Creek. This valley lies in a slate area several miles in length and about 4,000 or 5,000 feet wide. The slates are limited on the east by granite and on the west by porphyrite. They strike about N. 35 E. and stand on edge, the line of contact with the porphyrites being approximately parallel to the strike. Extending from a point near the contact in a direction about N. 65 E. is a fracture in the slates which is traceable several thousand feet, but within the distance along which this one fracture can be identified there are no ore bodies known other than that which has become the Ymir mine.

This property was taken over by its present owners in November of 1896, since which time 5,000 feet of development has been done, resulting in showing an ore body about 500 feet in length, with its end limits practically parallel and vertical. A depth of nearly 500 feet has been attained, but very little water has been encountered, in fact barely sufficient to justify running a pump for sinking.

In plan this ore body shows a decidedly lenticular shape, wtih a maximum width of ore of about 30 feet. No disturbances of importance have shown themselves, but there are many slips and several partially open narrow fissures, while two principal dikes with



Tramway Loading Station at Ymir.

a number of branches cross the deposit generally nearly at right angles to the latter. From a structural standpoint these dikes form one of the most interesting features of the mine, and will be alluded to again. Beside the numerous horses of slate, which in so wide a fissure must be frequent, the vein filling is quartz, impregnated with pyrite, galena and blende, no copper mineral having ever been found.

The ore appears to have been deposited at two different periods or else derived from different sources, for the eastern 300 feet shows a perfectly white quartz, and the sulphides contained are coarser in structure and brighter in colour than in the western 200 feet of the ore chute, where the quartz is not only frequently of dark smoky blue colour and often nearly opaque, but the gold tenure is considerably higher. Near the region where these two varieties of quartz join they are curiously intermixed, but may be easily distinguished. Throughout the mine the walls are usually very free, but in places along the hanging of

Office, Compressing Plant and Storehouse at Ymir Mine.

the blue quartz there is not only no clay parting, but the quartz seems to have replaced the slate, retaining the structural features of the latter and becoming difficult to distinguish underground from the country rock.

Subsequently to the deposition of the ore of both

Aerial Tramway—Ymir Mine—to Mill.

these bodies, the dykes were intruded and the fractures which rendered their presence possible seem to have been followed by movements more or less in the direction of the plane of the vein and in parts, along both walls, with the result that other fissures were formed, some extending for some distance into the footwall country, diagonally to the strike of the vein, and others along the hanging wall. These last fissures are filled with a very nearly barren white quartz, carrying at times sharply angular fragments of slate.

The later movements have also created fractures in the ore body, along one of which at least, where there is a local concentration of galena,—oxidising action has been going on with the result of producing a band of "carbonate," affording fine specimens of Cerussite and a local but marked increase in the gold values, the gold being largely free but invisible except after careful panning.

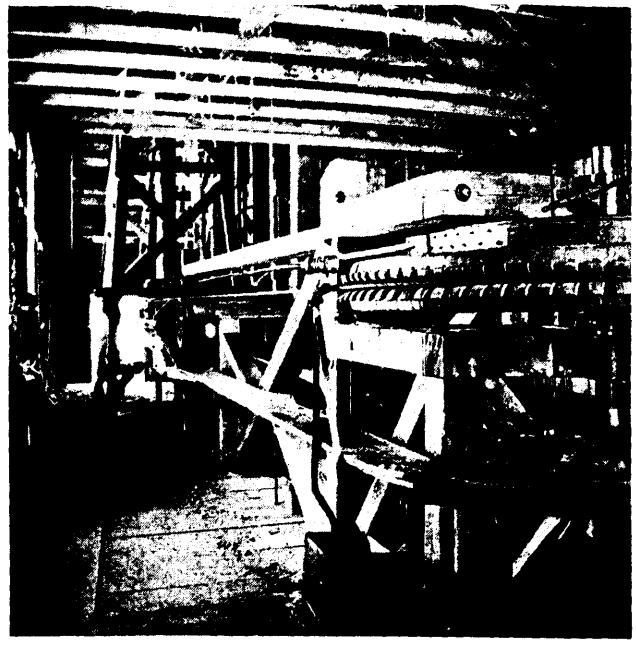
Another effect of these movements is the faulting and fracturing of the dikes and their being rendered more easily subject to alteration. This faulting movement is in the direction of the plane of the vein, but nowhere has it been extensive; *i.e.*, not more than 3 or 4 feet. The material along the plane is usually so soft as to make it difficult to get specimens shewing striation, still we have one from the hanging wall side with two distinct series of striae.

Stoping has not yet proceeded far enough to enable us to know all we desire of the structural features of the vein, but before leaving this part of our subject, I may cite an interesting freak of the larger of the two main dikes we have met with. In the No. 2 Level a four-foot dike comes squarely up to the footwall, where it turns a right angle to the left along the wall, and so continues, gradually curving to the right for 20 feet where it crossed the drift squarely. Going through the dike we found slate, and cross-cutting on the outer side of the dike, we found it suddenly turning again and butting against a fault fissure, nearly filled with two feet of calcite. Just how or where the dike proceeds into the hanging wall we do not yet know, nor is it specially important. The main point to be observed is that our failure to closely examine what we presumed to be the footwall rock led us astray, and into an expanse which was useless at the time except to reveal an interesting structure.

We have not yet developed any special mining system at the Ymir, nor have we so far encountered the necessity of any, for the first stoping was done only in March last, and since the first of June our mill has been principally employed in handling an accumulation of several thousand tons on dumps.

However, the fact that much of the ore body is too wide for stulls and that good mining timbers are scarce, together with the pressure of what will probably prove itself to be a not too strong hanging-wall, will undoubtedly necessitate a system of combined crib-work, filled with waste and of square setting.

The mine produces two general classes of ore; first, mill stuff; second, crude ore. The former is sent directly to mill by a Hallidie Ropeway, about 2,400 feet in length from the mouth of No. 3 Tunnel, *i.e.*, the lowest which has exit to the surface. The second general class consists of two sub-classes, crude galena and oxidized ore or carbonate. Both of these are small in amount compared to the milling ore, and they are shipped directly to the Hall Mines Smelter at Nelson, the crude ore in bulk and the carbonate in sacks. Milling material on reaching a bin at the lower tramway terminal passes through a No. 3 Gates



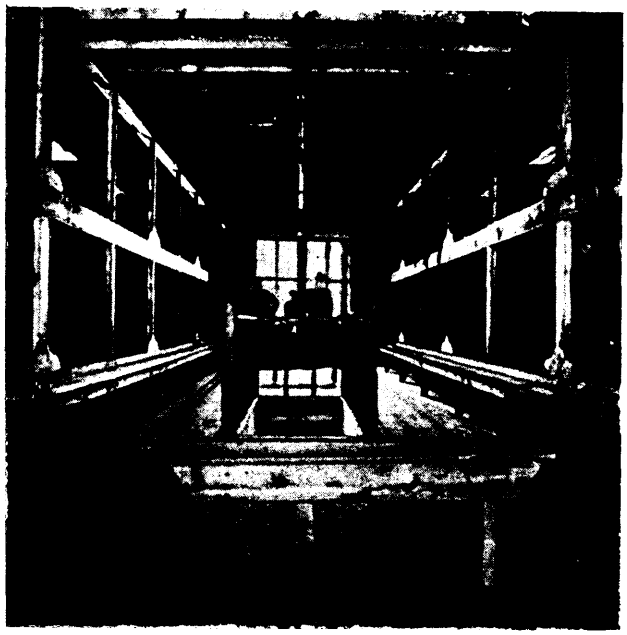
Interior View of Tramway Loading Station at Mine.

crusher, which reduces the coarsest to pass about a 2-inch ring. Below the crusher is a 200-ton bin, from which the feed passes by a tram-car after being weighed, into the battery bins proper. The crusher and tram terminal are in a separate building, but the cost of tramming is a very small item.

The mill proper embraces a 40-stamp 850-lbs. bat-

tery, arranged on four sets of ten stamps each, eight silvered copper plates, 56 in. x 12 feet; four sets of four-cone classifiers, and twelve six-foot Frue vanners. This plant is driven by water with a 6-foot Pelton wheel under 415 feet net head, the crusher being separately driven by a 24-inch motor under 320 feet head. The stamps make from 96 to 102, 6½-inch drops per minute, and with an average issue of 7 inches, crush a little over 100 tons per diem through No. 9 diagonal slot screens, *i.e.*, slightly over 2½ tons per day per stamp.

We have found a tendency toward banking of the pulp at each end of the mortar, to avoid which we give the first and fifth stamps about 1½ inch greater drop. I may also say that we intend trying the method of introduction of feed water advocated by Mr. Bernald McDonald, which formed the subject of an interesting paper by that gentleman read before the Institute.



Interior of New Bunk House at the Mine.

In operation we employ one inside plate, and on it accumulate about 40 per cent. of our gold. The outside plates slope 2 inches in a foot, and on the upper 24 inches of their length we gather about 80 per cent. of the recovered free gold which passes the screens. The lower part of the plate (10 feet), we find to be very valuable, and it passes an extremely small amount only of free gold. An interesting feature of the operation of the lower part of the plate, is that the amalgam on that portion is very much higher in silver than that gathered elsewhere, and proportionately lower in gold.

Zinc blende and pyrite cause us no trouble in keeping the plates clean, but the extremely small size of the galena particles, together with their gravity, causes them to catch in the minute depressions of the amalgam and gradually to cover the latter. For this reason our plates are dressed every six hours, and thus we are able to keep them in excellent condition. This result we consider good work in view of the fact that our concentrates amount to 6 2-10 per cent. of the mill feed, and contains over 14 per cent. lead, and 10 per cent. zinc.

The bullion produced averages about 580-1000 gold, 400-1000 silver, and 20-1000 base, thus showing practically no amalgamation of lead, but the presence of a very considerable amount of free silver.

Without disclosing the gold tenure of our tailings, I may say that they are most satisfactory, and in fact are remarkably low when we consider the apparent baseness of the ore. Of the total gold and silver recovered we find in the bullion 82 per cent. of the gold, 27 per cent. of the silver, and in concentrates 18 per cent. of the gold and 73 per cent. of the silver.

The ore, thus far, has shown itself quite free from acids and from arsenic, antimony and tellurium, a fact which is partially reflected in the very low consumption of quicksilver, viz., about 2-10 of 1 oz. avoirdupois per ton crushed.

Other properties in the vicinity of the Ymir are not yet sufficiently developed to show whether or not this mine is exceptional in its size or the character of its ore, but it seems highly probable that the success which seems in store for it will have much to do toward bringing the Salmon River country into prominence.

Tunnel No. 3, Ymir Mine.

VERBATIM EVIDENCE IN THE IRON MASK-CENTRE STAR LITIGATION.

Having been requested by many of our readers throughout the Province to publish in these columns a verbatim report of the evidence in the Iron Mask-Centre Star litigation, Mr. H. F. Evans, our Rossland correspondent, was enabled through the kindness of Mr. J. B. Hastings to carry out our instructions to copy the official report of the proceedings and evidence taken, and which we are in consequence enabled to publish in serial form.

IN THE SUPREME COURT OF BRITISH COLUMBIA.

Before Mr. Justice Walkem.

BETWEEN :

The Iron Mask Gold Mining Company (Foreign) - - - - - Plaintiffs,

AND

The Centre Star Mining and Smelting Company (Foreign), George Gooderham and Thos. Gibbs Blackstock - Defendants.

Rossland, B.C., April 17, 1899.

The Registrar—The only case on the docket that I know of is between the Iron Mask Gold Mining Company (Foreign) and the Centre Star Mining and Smelting Company (Foreign).

The Court—Are there any appearances for the respective parties?

Mr. E. V. Bodwell—Your Lordship, I appear in the case on behalf of the plaintiffs, as does also my friend Mr. A. H. Macneil.

Mr. A. P. Davis—Mr. A. C. Galt and I appear for the defendants.

The Court—I understand that you are not going to open the case now. I suggest this, that the case be called and regularly opened, and if you want an adjournment, that the main trial be adjourned to such day as you may agree to.

Mr. Bodwell—Yes, My Lord, there are two motions here, notice of which has been given, and my friend Mr. Davis and I thought it would be convenient, subject to Your Lordship's direction on the point, to dispose of these motions to-day and then adjourn the formal opening of the case, that is, the beginning of the evidence, until Tuesday next.

The Court—Suppose we call this the beginning of the case.

Mr. Bodwell—These motions are, of course, a part of the case. The case, I understand, is now open, and these motions are made. After these motions are disposed of, then we have arranged to commence taking evidence.

The Court—I will hear the motions just stated now. What motion is it?

Mr. Bodwell—I have a motion, and my friend, Mr. Davis, has a motion. We have a motion to amend the pleadings, Your Lordship.

Your Lordship will remember the form in which the pleadings were originally framed. The plaintiffs' statement of claim was a statement that they were the owners of a certain mineral claim, and that the defendants had trespassed on that mineral claim and taken ore therefrom. The defendants pleaded in defence to that, that they had a mineral claim and extra-lateral right. But a short time ago, in fact within the last three weeks, certain information came into our possession and upon that information we founded an application to amend the pleadings which were heard and disposed of in Victoria, and certain amendments to the statement of reply were allowed. I think perhaps I had better refer Your Lordship to the amendments now. They are paragraphs 1a, 1b, 1c, 1d, and 1e.

The Court—Who was the Judge?

Mr. Bodwell—Mr. Justice Martin.

The amendment which we ask for now is in the same line, and practically raises a similar issue to that which has been already allowed. In fact, the first amendment which we (preliminary motion of plaintiffs) ask does not change in any way the substance of the amendment of paragraph 1b, except that it states the facts exactly as the evidence will disclose them. At the time we made this amendment we were not fully instructed upon the facts as we are at present, and it is necessary, I think.

The Court—Does this extend the effect of 1b, that you are applying now to amend?

Mr. Bodwell—To amend 1b to conform to the evidence, as we expect it will be adduced.

The Court—I suppose I had better, read it and see what it is. (The Court reads the affdavit). The papers show that, "On the 7th day of July, 1890, one Bourgeois purported to record a claim called the Centre Star mineral claim. At the date of such record the said Bourgeois and one Morris were partners or joint owners of such Centre Star mineral claim, and in the year 1891 an arrangement was entered into between the said Bourgeois and Morris whereby they agreed that their interests in the said claims should be shown upon the record thereof in the mining recorder's office, and accordingly the said Bourgeois abandoned his former record,"—this was not in the pleadings before, at all?

Mr. Bodwell—No; this was an amendment which was allowed.

The Court—I do not recollect Bourgeois name in it.

Mr. Bodwell—No; it was all discovered within the last three weeks.

The Court (resuming the reading)—"and accordingly the said Bourgeois abandoned his former record of the said alleged Centre Star mineral claim." Bourgeois and Morris were Centre Star locators, I suppose. Preliminary motion?

Mr. Bodwell—That is the case we want to show now.

The Court (resuming the reading—"and on the 7th day of July, 1891, re-recorded the said claim, and the said other claim in the name of himself and the said Morris, and the plaintiffs say that the title of the defendants, if any, to the said alleged Centre Star mineral claim is based upon the said record of the 7th day of July." That is, of their joint record, 1891?

Mr. Bodwell—Yes, sir.

The Court (resuming the reading)—"and that if it shall be proved—which the plaintiffs deny—that the said alleged apex of the said alleged vein is on ground contained within the limits of the said alleged Centre Star mineral claim."

Mr. Bodwell—If they prove an apex, we say their claim dates from the record of 7th day of July, 1891.

The Court—If the Centre Star proves it. What you want to show is, first, the location on that?

Mr. Bodwell—Yes, sir.

The Court—And the record of Bourgeois and Morris, that being the origin of their title according to your statement.

Mr. Bodwell—Yes, sir.

The Court—"And that if it shall be proved—which the plaintiffs deny—then it is a question about their lines?"

Mr. Bodwell—I can explain it in a word now, I think.

The Court—In other words, the apex is in your ground?

Mr. Bodwell—No; that their title relates back to the 7th day of July, 1891; that follows from other pleas.

The Court—I think I understand; perhaps I am wrong. The alleged apex is contained within the limits of the said (preliminary motion) alleged Centre Star mineral claim. Well, you deny that?

Mr. Bodwell—Yes, sir.

The Court (resuming the reading)—"then the plaintiffs say that the Iron Mask mineral claim is a prior location."

Mr. Bodwell—"On the dip" under the act of 1891.

The Court—On the dip itself?

Mr. Bodwell—Yes, sir; Your Lordship will remember that the act of 1891 changed the Mineral Act and provided that the prior locator on the dip should have a priority over a subsequent locator on the apex of the same vein, that is, if there were no adjoining owners.

The Court—I understand, that is to say, if they then had the apex on their ground, still, if the adjoining locator first got to the vein by reason of the dip, that he would have a prior claim?

Mr. Bodwell—That is it.

The Court—That is in case he met it or intersected it.

Mr. Bodwell—He would have the vein all the way down, because he was a prior locator on the dip.

The Court—All the way, but not into the adjoining ground. He would have the vein all the way down from where he intersected the dip.

Mr. Bodwell—Yes, he would have his own vein to that point.

The Court—He would have his vein down, from that point—not down to that point—but down from that point?

Mr. Bodwell—We are really getting beyond the point for the purpose of this amendment, My Lord. All we want to show is that their location—in fact we have been allowed to plead that—the plea which Your Lordship has just read has been already made. We have been allowed to state that their location is a location dating from the (preliminary motion) 7th of July, 1891, and not from the 7th of July, 1890, and that we come within the provisions of the amendment of the law, which took place in 1891, and, being the prior locator on the dip we have all of the rights which flow from that, whatever they may be.

The Court—Mr. Bodwell, as a matter of information to me, did the act require, for instance, your people to strike the dip? I mean to strike the dip by sinking?

Mr. Bodwell—No; I don't say the act required anything about it at all; but if this state of facts were proved, that upon one claim a man had an apex of the vein and sinking on that vein he intersected another on an adjoining claim, if he had the prior location, would have priority because he was on the dip before the other man was on the apex.

The Court—I understand you; you mean whether he sunk on it or not.

Mr. Bodwell—That would be the point exactly.

The Court—I understand you.

Mr. Bodwell—The facts as set out there are not exactly as they will appear in the evidence, and I seek to make an amendment which will confirm the statement in the pleadings to the facts as they will be proven, and if Your Lordship will look at that plea which is drawn there and the b. d., you will see the difference. The difference is just this, in a word: The amendment that has been allowed states that after 1891 Bourgeois and Morris became partners. As a matter of fact, they were partners in the year 1890, before they discovered or located any of the claims in question. Bourgeois and Morris entered into a partnership, under the terms of which it was arranged that they should (preliminary motion 11) have a joint interest in every claim which either one of them discovered or which was recorded or located in their joint names, or in the names of either one of them separately. That arrangement continued down to and past the year 1891; in fact, down to the time when the Centre Star claim was sold to Durant and Larbet, who are the predecessors of the Centre Star Company.

The Court—Mr. Bodwell, which was the prior location? I forget.

Mr. Bodwell—It is alleged that the Centre Star is the prior location. The Centre Star has the prior record. The amendment that I now wish to make is in these works:

"The plaintiffs further say that prior to the month of July, 1890, and prior to the date of the discovery, location or record of any of the mineral claims hereinafter mentioned, one Joseph Bourgeois and one Joseph Morris entered into an agreement by which it was stipulated that they should prospect together for mineral claims, and should be joint owners of any and all mineral claims discovered by them, or either of them, or located or recorded in their or either of their names. In pursuance of the said agreement the said Bourgeois and Morris, during the summer of 1890, prospected together in the district in which the claims in question in this action are situated, and while so prospecting discovered a certain mineral claim, which was recorded on the 7th day of July, 1890, in the name of the said Joseph Bourgeois as the Centre Star mineral claim (which said mineral claim is alleged by the defendants to be the Centre Star mineral claim, in questoin in this action). The said Bourgeois and Morris, about the same time also located and recorded a number of other mineral claims in the neighbourhood of the said Centre Star (preliminary motion 13) mineral claim, and were and continued to be joint owners of all the mineral claims discovered by them in the said district and recorded in their or either of their names. On the 7th day of July, 1891, the said Bourgeois and Morris procured the said Centre Star and the said other mineral claims to be re-recorded, in the joint names of the said Bourgeois and Morris, in order that their joint ownership in the said claims, which still continued, might appear on the records of the office of the mining recorder for the district in which the said claims were situated. And the plaintiffs say that the said re-record of the said Centre Star mineral claim amounted in law to an abandonment of the said claim, recorded on the 7th day of July, 1890, and that the title of the defendants, if any, to the said alleged Centre Star mineral claim is based upon the said record of the said claims made in the joint names of the said Bourgeois and Morris on the 7th day of July, 1891, and if it shall be proved—which the plaintiffs deny—that the said alleged apex of the said alleged vein is on grounds contained within the limits of the said alleged Centre Star mineral claim, that the plaintiffs say that the Iron Mask mineral claim is a prior location on the dip of the said alleged vein, if any, and the plaintiffs claim the benefit of the provisions of section 21 of the Mineral Act, 1891."

That is the way in which we wish that paragraph to read. Now, we seek to add another paragraph which carries out the same line and shows this, that

Bourgeois and Morris, being joint owners, as aforesaid, located not only the Centre Star, but the Idaho mineral claims, and that the Idaho and Centre Star were on the same vein, and therefore the location of the Centre Star was bad, and never became a good location; but whatever rights the Centre Star people have in that vein or in that mineral claim dates, not from the record, and is based, not upon the location, but upon the arrangement, whatever it was, that was made with the Government, by which they obtained a patent in 1893. The Centre Star mineral claim was patented in the year 1893, and that in the year 1893 there was no provision in the law for granting extralateral rights, and therefore the claim of the Centre Star people to extra-lateral rights is not founded upon the statute; that is to say, if their title began in 1893, they could acquire no extra-lateral rights with respect to the Centre Star mineral claim; if their title began in 1890, then they would acquire a certain class of mineral rights. If their title began in 1891, they acquired no extra-lateral rights of any kind or description. Now, then, the amendment which we seek to make—the point which we wish to bring to Your Lordship's attention is this: That the title of the Centre Star people being based upon a patent, that the patent relates back to the first valid act which the Centre Star people or their predecessors in title took in order to found the claim which afterwards resulted in a patent; that their original location, being bad, under the Mineral Act, could not be a valid location, but if they have any right at all it is based, not upon location, but upon an agreement between the locators and the Government, under the terms of which it was arranged that notwithstanding the invalidity of their original location, they should still have a patent, but that patent would relate back, then, not to the location, but to the agreement, implied agreement—for it must be so taken—with the Government, by reason of which they got a title (Preliminary Motion 14), which would be in the year 1893. But at that time the Government had no power; no officer of the Land Department had any authority to issue a patent for a mineral claim which would contain the incident of extra-lateral rights.

The Court—This is your case: You say Bourgeois and Morris entered into a partnership prior to 1890?

Mr. Bodwell—Yes.

The Court—That the ground was taken up in Bourgeois' name only; is that correct?

Mr. Bodwell—The Centre Star was taken up in the name of Bourgeois; the Idaho was taken up in the name of Morris.

The Court—Whatever it was, it would not matter. The battle is with the Centre Star just now.

Mr. Bodwell—Yes.

The Court—Bourgeois took up the Centre Star?

Mr. Bodwell—Yes.

The Court—The claim was recorded in Bourgeois' name?

Mr. Bodwell—Yes.

The Court—At least, it was recorded in his name there; he took it up, although they were partners, as you allege.

Mr. Bodwell—Yes.

The Court—Do you allege that that record here over-rides the partnership or the partnership overrides the record—because that is what it comes to?

Mr. Bodwell—The two would stand together in this way: The arrangement between the two was that the Centre Star should be owned by them jointly, and that the Idaho should be owned by them jointly. Whether the Centre Star was recorded in the name of Bourgeois or Morris would make no difference; it was the joint property of both. (Perliminary Motion 15.) If it was recorded in the name of Bourgeois, then Bourgeois would be holding an undivided half interest in that mineral claim for Morris.

The Court—In trust; that is your point?

Mr. Bodwell—Yes. The Idaho being recorded in the name of Morris, Morris held an undivided interest to the Idaho for Bourgeois, therefore they were both the joint owners of the Centre Star and of the Idaho, and the Statute, section 80, is quite familiar to Your Lordship. I think it is section 80, of the Act of 1888, says—the same langauge has been continued down through all of the Mineral Acts to the present day: "No free miner or incorporated company shall be entitled to hold, directly or in the name of another person, more than one mineral claim on the same lode or vein, except by purchase." Now, there was no purchase. The only title which either Bourgeois or Morris had was the title by location.

The Court—In other words, you say they had two mineral claims?

Mr. Bodwell—They had two mineral claims on the same lode, in direct contravention of the Acts. Therefore, their locations both of the Centre Star and of the Idaho were unlawful locations.

The Court—Mr. Bourgeois was the locator of the Centre Star and Morris the locator of the Idaho, each owning a half interest in the other?

Mr. Bodwell—Yes.

The Court—Contrary, as you say, to section 80.

Mr. Bodwell—Yes. Therefore, it was an unlawful location, and no title can be founded on that location.

The Court—An unlawful location in each of them? (Preliminary Motion 16.)

Mr. Bodwell—In each of them, and as to both claims.

The Court—Therefore, no lawful title to either. Don't these sections come into operation after the certificate of improvement—those sections that refer to getting a certificate of improvement—come into operation then?

Mr. Bodwell—That will be a matter of defence, of course, to which proper weight will have to be given. My friend, Mr. Davis, will rejoin, as he has already rejoined that we did not add that, and that question will have to be considered and decided. But just for the moment the point I want to make is, that there can be no lawful location under the Act in this way, therefore, no title can be founded on that location. If the patent subsequently issued to the Centre Star, that patent must either be considered to be invalid altogether, or if valid, to be founded upon an arrangement implied by which the Government agreed to raise its contravention of that Statute and, notwithstanding the defect in the location, to give a patent for the mineral claim, but the patents would then depend not upon location—for that was altogether bad, and always bad.

The Court—I suppose Mr. Davis is going to answer you by quoting Farmer vs. Livingston.

Mr. Bodwell—Farmer vs. Livingston does not apply to this case. In that case Farmer, whoever was the party applying, I think it was Farmer, had not acquired any right in the land at all, because his application for a homestead entry had never been ac-

cepted by the department, and the decision in Farmer vs. Livingston does not touch the point which is before Your Lordship now at all, for Your Lordship will see that it is not an attack upon the patent. It can be decided quite consistently with the patent being allowed to stand. The patent, in words, gives to the grantee (Preliminary Motion of Plaintiffs) from the Crown the mineral claim called the Centre Star mineral claim, and the rights which are provided under section 31 of the Act of 1888, which were extra-lateral rgihts. Now, if there had never been any change in the law, the point which I am making perhaps would not deserve very serious consideration; but the change in the law makes the dates upon which these titles rely of the utmost importance. As I stated a moment ago, if a man had a location in 1888, he obtained a certain kind of extra-lateral rights; in 1891 he obtained a different kind; after 1891 he obtained no extra lateral rights at all. Now, the point I make is: This title cannot be traced back to the location, because the location was absolutely bad, and there was no authority in any department of the Government to make that location good. If the patent issued at all, it issued by virtue of an arrangement and a presumed power in some officer of the Government to waive the invalidity in the former location and to give a patent notwithstanding that. But, as I stated before, the minute you reach that conclusion, then the patent depends, not upon location, but upon the agreement with the Government by which that invalid location was to be considered as not having occurred.

The Court—There is no provision, so far as I remember—except you have seen it yourself—in the Act giving the Government power to waive these conditions.

Mr. Bodwell—No, I am entitled to go that far, but I do not need to. I am entitled to show as the uniform course of decision in British Columbia has been, that the Mineral Act contains within itself all the powers which are to be given to the Government. There is no presumption of an extraordinary power outside of the express wording of the Mineral Act, and it does not confer upon the officers of (Preliminary Motion 18) the Land Department any authority to depart from the Act in granting rights which are dependent upon the Act altogether.

The Court— I do not suppose the other side will dispute that. I recollect Mr. Galt quoted some American case that went that far; but really without quoting any American case, the land laws, as well as the mineral laws of the Province, speak for themselves. The Government has no power to override them.

Mr. Bodwell—No: the point which my friend will make is this—and the case is a perfectly arguable one, but I think I can make a great deal of trouble for him, and I hope I may be able to convince Your Lordship that I am right on that—the case which my friend will make is this: The patent is a record, and as a record it is unassailable, except there appear defects upon the face of it. Well, that is true within certain limits. A record of any court is only good, if the court has the jurisdiction to make the record. No court can exceed its jurisdiction and then say: "There is our record; you cannot attack our jurisdiction, because we have a record." The cases all draw that distinction; every American case which can be cited, draws the distinction that where the officers of the Land Department act within the limits of their jurisdiction and come to a certain decision upon facts which are before them, their decision upon those matters of fact cannot be attacked in any collateral proceedings; but where the Land Officers act in respect to a matter over which they have no jurisdiction, or misapply the law to a state of facts which are proved, in either one of those cases the patent can be attacked collaterally. Now, as I say, I might argue this very fairly, and I submit with a good deal of force, that the Mineral Act (Preliminary Motion 19) did not give to any officer of the Land Department jurisdiction to say that one locator having two mineral claims on the same lode or ledge could hold either one of them. But I need not discuss that question, because I can put my case upon a different ground, and one which will leave the question of the patent out of consideration. There was a case in the United States which illustrates particularly the point I wish to make; that is the case which has been quoted to Your Lordship in argument here very frequently; the case of Waterloo vs. Poe.

The Court—The ejectment case?

Mr. Bodwell—No; Poe is the name of a man; it is not our friend "John Poe," My Lord; I thought it was until I saw the record. The case is in the 54th Federal, but I can tell Your Lordship in few words the point I want to make. In that case a patent was proved, but evidence was received to show that the original location was made without parallel end-lines, and when the survey was made——

The Court—Evidence was received to show no end-lines?

Mr. Bodwell—No, parallel end-lines in the original location; but it was proved that when the survey was made the end-lines were drawn in and made parallel. One side contended that they were entitled to go behind the patent and show that the original location had no parallel end-lines, and therefore that the subsequent location could not find extra-lateral rights, because there were no extra-lateral rights in the location. But the court said this, that at the time at which those end-lines were changed there were no conflicting claims with reference to that land; therefore, it was open to the locator to choose his own location; only he and the Government were interested (Preliminary Motion of Plaintiffs 20) in it. But we think that the drawing in of those end-lines may be taken to be a new location made upon that day, and as that is a question simply between the locator and the Government, and the rights of third parties not intervening we consider this a new location made upon the day on which the end-lines were drawn in, and then the Statute applies and extra-lateral rights attach. I think I am right in saying that that title did not relate back to the original location, but related back to the date when the location was relocated, and if there had been between the date of the original location and the date of the re-location a change in the law abolishing extra-lateral rights, that the patent in the Poe-Waterloo case would have had no extra-lateral rights attached to it, but, of course, the American law had not been changed, so the extra-lateral rights attached. That is exactly our case here. I say, if our friend supports the patent at all, he must support it upon the theory that by some arrangement between the locator and the Government with which third parties were not——

The Court—Wait a moment. Here is your pro-

position, as I have taken it down. I was not familiar with that point in that case, but I know the case. You say if between the time the survey was made and the time patent was applied for the law had been changed, a patent granting extra-lateral rights would not have been given?

Mr. Bodwell—Would not have been given.

The Court—And any patent granted, at any rate, would these rights not have conferred extra-lateral rights?

Mr. Bodwell—Yes; would not have conferred them?

The Court—That is what I understand you to say. (Preliminary Motion of Plaintiffs 21.)

Mr. Bodwell—The next thing I want to draw your Lordship's attention to is this: That from an inspection of the patent itself you cannot say whether extra-lateral rights would be in exactly the same form of words as a patent issued in 1888 with extra-lateral rights; in other words, our form of patent is not changed, although the law has been changed. Your Lordship will find the form of patent set out under section 82 in the Act of 1888.

The Court—It gives the form of patent which is the same to-day.

Mr. Bodwell—Which was the same in 1893. I think it was changed in 1896, but we are not concerned with that.

The Court—I suppose there are really general words in the patent granting such rights as he would have according to law.

Mr. Bodwell—No; I was going to point out to Your Lordship just how it came up. The patent is a simple grant of all minerals, precious and base, under the land, but section 82 says: "Such Crown grant shall be deemed to transfer and pass the rights to all minerals, precious and base, which may be in, upon or under the land of said Crown grant mentioned, including the rights set forth in section 77 of this Act." Now, the rights set forth in section 77 are the extra-lateral rights. A Crown grant in 1893 would be in the same form of words exactly, but a Crown grant in 1893 would not include the rights set forth in section 77—those rights had been repealed. The Act of 1892 not only repeals the Act of 1888, but as a matter of extra precaution——

The Court—The Crown grant of 1893 would not include extra-lateral rights, because that had been done away with? (Preliminary Motion of Plaintiffs 22.)

Mr. Bodwell—That had been done away with by the Act of 1892, section 5, sub-section a.

Mr. Bodwell—The owner of a mineral claim shall be entitled to all minerals which may lie within his claim, but he shall not be entitled to mine outside of the boundary lines of his claim continued vertically downward; and it repeals the Act of 1888 and makes a double-shotted repeal of the whole question of extra-lateral rights. As said in my opening, the right to raise a defence of this kind has practically been conceded to us by the amendments already made. We have already raised similar questions and this is an additional point which only came to our knowledge a short time ago, and in order to show Your Lordship that it is founded upon fact and we have some reasonable prospect of proving it, I read the affidavit of Joseph Morris, the locator of these claims, sworn on the 8th day of April, 1899:

"In the summer of 1890, and before the month of July of that year, Joseph Bourgeois and myself went out prospecting together for minerals. The agreement between us was that we should be joint owners of any and all claims which should be discovered or recorded in either of our names.

"Subsequently we jointly made a discovery of what is now known as the Centre Star and Idaho mineral claims in the present Trail Creek Mining Division of West Kootenay District, and recorded the same at Nelson on the 7th day of July, 1890.

"The Centre Star mineral claim was located and recorded in the name of the said Joseph Bourgeois, and the Idaho mineral claim was located and recorded in my name; but I was as fully aware of the position of the Centre Star (Preliminary Motion of Plaintiffs 23) posts and other particulars of said located as the said Bourgeois, as we acted jointly in making the said location and were jointly interested in both of the same, but they were put in our separate names, inasmuch as they were on the same vein.

"I was frequently on the ground occupied by the Centre Star, Iron Mask, War Eagle and Idaho mineral claims for a long time afterwards as both the said Joseph Bourgeois and myself continued to be joint owners of the said Centre Star and Idaho mineral claims down to the time when we gave a bill of sale of the same to Oliver Durant and Alexander Tarbet, dated, as I am informed by the solicitor for the plaintiffs, the 4th day of June, 1892.

"The said Bourgeois and myself also discovered the War Eagle, Virginian and Iron Mask 11 ledges, but by——" Well, that has nothing to do with this point.

The Court—In short, your point is this: That as they did not follow the law, and in fact disobeyed or disregarded the law, in taking up locations on the same vein, each man taking up two locations on the same vein, although only half-interested in each, the locations were bad?

Mr. Bodwell—Yes.

The Court—And that, therefore, so far as the Grown grant related back to them, it could not convey anything?

Mr. Bodwell—No.

The Court—But so far as it related back to their joint record in 1892 or 1893, was it?

Mr. Bodwell—No; there was a joint re-record in 1891, but that would be bad, too.

The Court—There was a record in both names before 1891?

Mr. Bodwell—No.

The Court—Very well, and these men then recorded in 1891.

Mr. Bodwell—In 1891.

The Court—Jointly.

Mr. Bodwell—Jointly.

The Court—How could they make a re-record jointly of a record that did not exist?

Mr. Bodwell—No, we have two points on that.

The Court—Is that one of your points?

Mr. Bodwell—To keep the point before Your Lordship's mind now, the re-record in 1891 would be as bad as the original record, in 1890.

The Court—I know, but there was no joint record in 1890, I understand.

Mr. Bodwell—No; you are right about that.

The Court—But there could not be a re-record of a thing that is not of itself recorded?

Mr. Bodwell—That is my point exactly.

(To be continued.)

ROSSLAND IN 1899.

By Horace F. Evans.

ON page 64 is shown a view of the City of Rossland in 1899. The observer is supposed to be standing at a point on Columbia avenue, a little above the Masonic Hall, which was recently destroyed by fire. The two buildings in the right hand lower corner are the Government office, wherein presides Mr. John Kirkup, Gold Commissioner, and a private residence.

In this Government office has from time to time been transacted a large business connected with mining locations for the office is also that of the Mining Recorder, also vested in Mr. Kirkup.

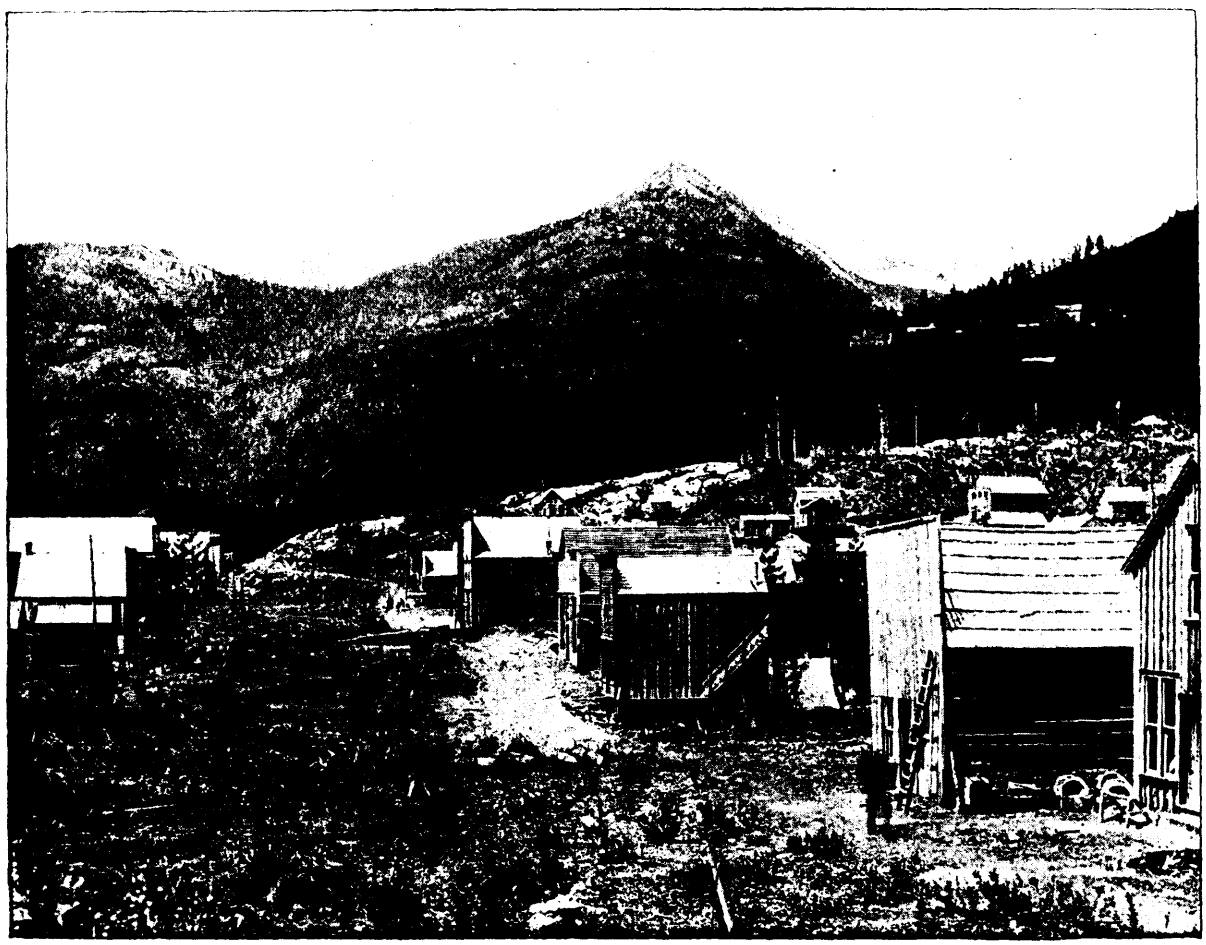
The other Government building could not be brought within the range of the artist's camera, even from where this view was taken. A tail may have its uses, but it is not as attractive as a school-house or as interesting as a theatre, therefore it could not be brought within range.

The location of St. Paul Street is easily determined, it being the first street crossing Columbia Avenue. On the corner is the Montreal Hotel, and above it running north is the Athletic Club looking straight over the roof of the residence next to the Government building.

The view straight up Columbia Avenue is a typical one of Rossland, for this aspiring city would hardly present a good view without this thoroughfare, for it is on this avenue that are located the Bank of Montreal, the Bank of British North America, the Bank of Halifax and the Bank of Toronto.

To one familiar with the landmarks most of the buildings can be recognized, especially the prominent ones.

Looking well over the flat roof of the Athletic Club the War Eagle tram and hoist are plainly visible for the 1,200 feet over which this tram extends. To the left is the Le Roi mine, and its cluster of mine buildings. Its tram, though not very plain, may be traced from the dump through straggling trees until it reaches the ore bin on the line of the Great Northern Railway.



MAIN STREET, ROSSLAND, 1895.

"The view of the city is, perhaps, not as good as one taken from a position further west, but then the view of the mine would not be as complete.

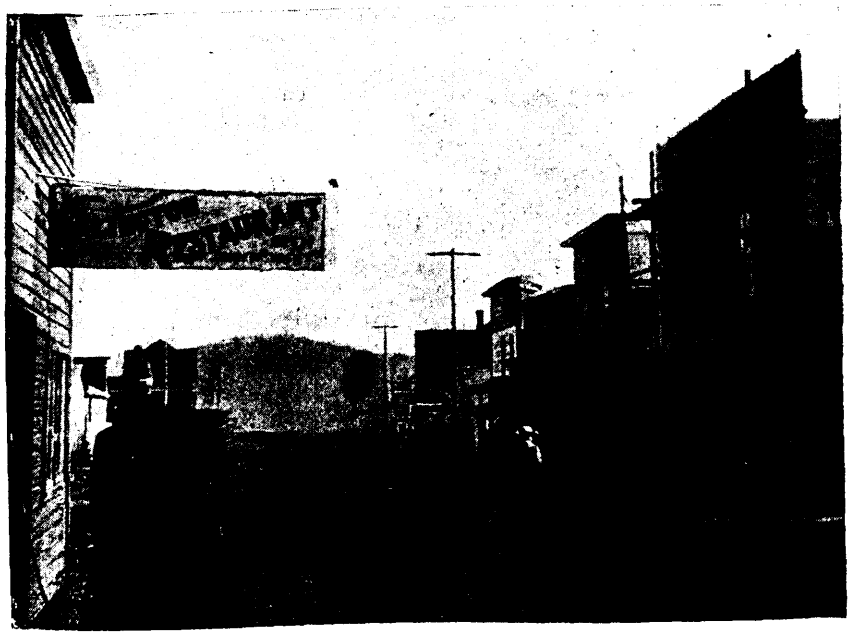
The Centre Star mine and hoist are plainly in view. They are at the foot of the War Eagle tram. Lower down is the Nickel Plate, and looking northwest from St. Paul Street is the fire hall, which runs up like a chimney.

A group of level politicians are supposed to be earnestly conversing on the provincial situation near Washington Street, but are lost in the confusion of awnings and telegraph poles.

The view is only a partial one of the city for the south side of Columbia Avenue is shown only as a

line of houses, while lower town is cut off by the inability of the artist to shoot around the corner. Spokane Mountain and her neighbours appear in the distance as silent witnesses, while the Gertrude, a partially developed mineral claim, seems to be guarding the western portion of Red Mountain.

a floating population of 10,000. It is perched more or less on Red Mountain, 4,000 feet above sea level, and is scattered throughout the valley of Trail Creek—if valley is a permissible word where mountain and valley seemed to be piled on one another in a promiscuous manner.



ROSSLAND THE BEGINNING OF 1896.

The City of Rossland, it is understood, covers a large extent of country within its incorporated limits. It has a permanent population of at least 8,000, and

The city is named after its founder, Ross Thompson, who located a homestead here a few years ago, and soon began to sell lots instead of farm produce.

COLUMBIA AVE. FOUR YEARS AGO

He then struck pay ore very much on the surface, and the pay streak has not yet run out.

There are now two great lines of railways running into Rossland, viz.: the Great Northern, formerly the Red Mountain branch of the Nelson and Fort Sheppard Railway, and the Canadian Pacific Railway. These railways connect Rossland with two of the great transcontinental systems, and therefore it has touch with the outer world.

The growth of Rossland since 1895, when its career began, has been phenomenal. The following figures denote the progress of its mines from the year mentioned.

	Tons of ore.	Values.
1894	1,856	75,510
1895	19,693	702,359
1896	38,075	1,243,360
1897	68,804	2,097,280
1898	111,282	2,470,811
7 months of 1899	77,500	1,395,000
	317,210	$7,984,320

Ore production from Rossland mines 52 per cent. over the corresponding period of 1898.

The increased facilities of ore production and shipment as denoted by the War Eagle hoist and tram, and the car service o the Canadain Pacific Railway will enable the management to add largely to production.

On the strength of this growing industry the City of Rossland has recently begun a system of street grading and other improvements, which materially add to its appearance facilitating traffic. There is a well appointed fire brigade, with modern appliances for the rapid extinguishment of fires.

Through the courtesy of Mr. A. S. G. Goodeve, Mayor of Rossland, the following facts and figures have been furnished in relation to the progress and management of the city:

City of Rossland—1899.

The total value of assessed property according to the last assessment roll is given at: Land, $1,302,130; improvements, $529,530; total, $1,821,660. Rate for 1899 14½ mills, if paid on or before August 31, otherwise 16 mills.

Amount of civic indebtedness for loans, $132,000. The arrangement, in brief, made by the city for water and light amounts to $42,500. City controls the water. Electric light rates will be $1 per lamp of 16 candle power per month for business places and 50 cents per month, 16 candle power, for residences.

THE TREATMENT OF DRY SILVER ORES IN SOUTH AMERICA.

(By A. A. Watson, B. Sc., F.S.C., Assayer and Metallurgist, Vernon, B.C.)

IN British Columbia dry silver ores are not of very frequent occurrence, and when found usually contain enough copper to make smelting the most economical method of treatment; nevertheless dry silver ores have been found containing so little copper as to be valuable for the silver alone and there is every probability that in time to come many of these ores will be treated, either by the Russell process or by amalgamation.

In Chili, Peru and Bolivia both these processes are largely used, notably by the Huarhaca Company, of Bolivia, and at Huantajaya, Cerro Gordo and Santa Rosa, in the province of Tarapaca, Chili. The ores are usually purchased outright by a custom mill, the prices being based upon a scale carefully calculated upon the principle of lower prices per ounce for the silver in very low grade ore than for the silver in comparatively rich ore, for the reason that a higher percentage of extraction is obtainable from the higher grade ore. Ore containing more than twelve parts per ten thousand or thirty-five ounces per ton is usually treated by amalgamation, while ore from 35 ounces down to 18 ounces per ton is treated by the Russell process, or by the ordinary process of extraction by hyposulphide of soda without using sulphate of copper. The amalgamation process is very ancient, being employed by the Spaniards at Patosi, in Peru, in the year 1574, and is fully described by José Acsta in his "Historia Natural y Moral de las Indias," published in 1590. In his time the ore was ground by a mill, termed an "Arrastra," worked by mules or horses, the wet ore being then brought on to a paved floor and thoroughly mixed with common salt by the treading of mules. After standing for a day the ore and salt were mixed with mercury, copper sulphate and ferric sulphate by the same means. When the amalgamation was complete the mass was washed in buddles to free the amalgam from the mud, the amalgam being afterwards retorted.

The chemical re-actions involved have never been really proved, but there seems little doubt that a double decomposition of the chloride of sodium and the sulphates of copper and iron takes place whereby cuprous chloride, ferrous chloride and sodium sulphate are formed and the chlorine atoms while being transferred attack the silver sulphide forming silver chloride.

$$Cu_2 Cl_2 + Aq_2 S = Cu_2 S + 2\,Aq\,Cl$$

The silver chloride is decomposed by the mercury forming mercurous chloride and silver.

$$Hg + Ag\,Cl = Hg\,Cl + Aq$$

In many districts, especially in Taxapaca, horn silver or silver chloride is found and this form of silver amalgamates very readily without the admixture of the sulphates of copper and iron.

The modern process of amalgamation is chemically very similar, but in addition to mercury, zinc amalgam is used and zinc chloride instead of mercurous chloride is formed. The method in use is a fusion of the old Peruvian system with the Washoe system. The ore is ground to the fineness of a mesh of from twenty to forty to the inch, and then removed to an algamation barrel revolving on an eccentric axis so that a jigging as well as circular motion is imparted to it. Here the ore is mixed with water, salt, copper-sulphate, iron sulphate, mercury and zinc amalgam. When the amalgamation is complete the mass is allowed to settle, the mud run off by a pipe placed about a foot from the bottom and the amalgam run off at the bottom and retorted, the silver being afterwards melted into bars. An extraction of about 95 per cent. is usually obtained and custom mills of this kind are generally very remunerative.

Lixiviation.—In the usual method of lixiviation of silver ores in Chili, no copper sulphate is used, the hyposulphide of soda alone being found sufficient to dissolve the silver chloride in the ore. The ore is brought to the mill from the mines round about in sacks on the backs of mules, and after weighing is dumped into the sampler, consisting of a hopper having at the bottom two exits, one nine inches square and the other two inches square. Through the large exit the ore passes down a chute to the "Cancha," or yard, while some of the ore passes through the small exit down a two-inch pipe from which a branch pipe leads back to the ore-chute so that the small quantity of ore passing down the two-inch pipe is divided into two parts, one part going back to the chute and the other part to the sample bag. In this way the whole shipment is sampled, and the sample thus obtained is taken to the sampling room and an average portion crushed fine on a circular iron plate by means of an iron pestle, worked by hand, weighing about three hundred pounds. To work the pestle requires not only great strength zut considerable skill, a side circular motion being used, causing it to gradually travel round the plate and to the centre. With a skilled hand a sample can be crushed and ground fine enough to assay in five minutes. The site of the mill is usually on terraces on the side of a hill, in order to save handling. The ore is shovelled from the "Cancha" through hoppers into ball-mills, of which there are usually two. Here the ore is ground to a fineness varying with the nature of the gangue, in Tarapaca, where the gangue consists of calcite and clay; coarse grinding is the rule. On passing out of the ball-mill the ground ore is removed by means of a screw to an endless chain of buckets and emptied into a revolving calciner of the Howell type. The weight of ore each bucket will carry is known and an amount of salt calculated at about four per cent. of the weight of the ore is added by a workman stationed there for the purpose. None of the mills appear to have adopted any automatic arrangement for feeding the salt, partly owing to the cheapness of labour. The ore is heated to a reddish yellow heat, sufficient for good chlorination, without volatilising the silver. It has been found that, contrary to expectation, the silver chloride ores, if treated alone, are not so well adapted to the process as the sulphide ores, for the reason that salt does not readily evolve chlorine at a low heat unless acid fumes exist in the furnace to decompose it. When silver chloride ores are treated alone the change to the soluble form only takes place at a temperature sufficient to volatilise the silver chloride, and it is customary to mix the chlorides with sulphides so that the sulphurous acid evolved from the sulphides may desubsequent fresh chlorination of both chlorine and subsequent fresh chlormation of both sulphides and chlorides. By this means both the silver sulphide and the insoluble silver chloride are converted into the chloride soluble in hyposulphite of soda.

After chlorination, the ore is removed in trucks,

running on rails, to the cooling floor. When cold the ore is removed to the lixiviation vats where the ore is first washed with cold water to remove the salt and all soluble lime and copper salts. The presence of lime is very injurious, as it precipitates the silver amongst the ore after its solution in the hyposulphite. The ore coming from the furnace is usually analysed for the amount of caustic lime it contains, and calculating the weight of ore in each vat a washing of weak sulphuric acid is given to it in sufficient quantity to just neutralize the lime. After being given one acid wash and three washes with water the solution is run on in three washings, lasting about twelve hours each, generally from below as it is found to penetrate the ore better from below than from above.

The strength of the solution is about one per cent.

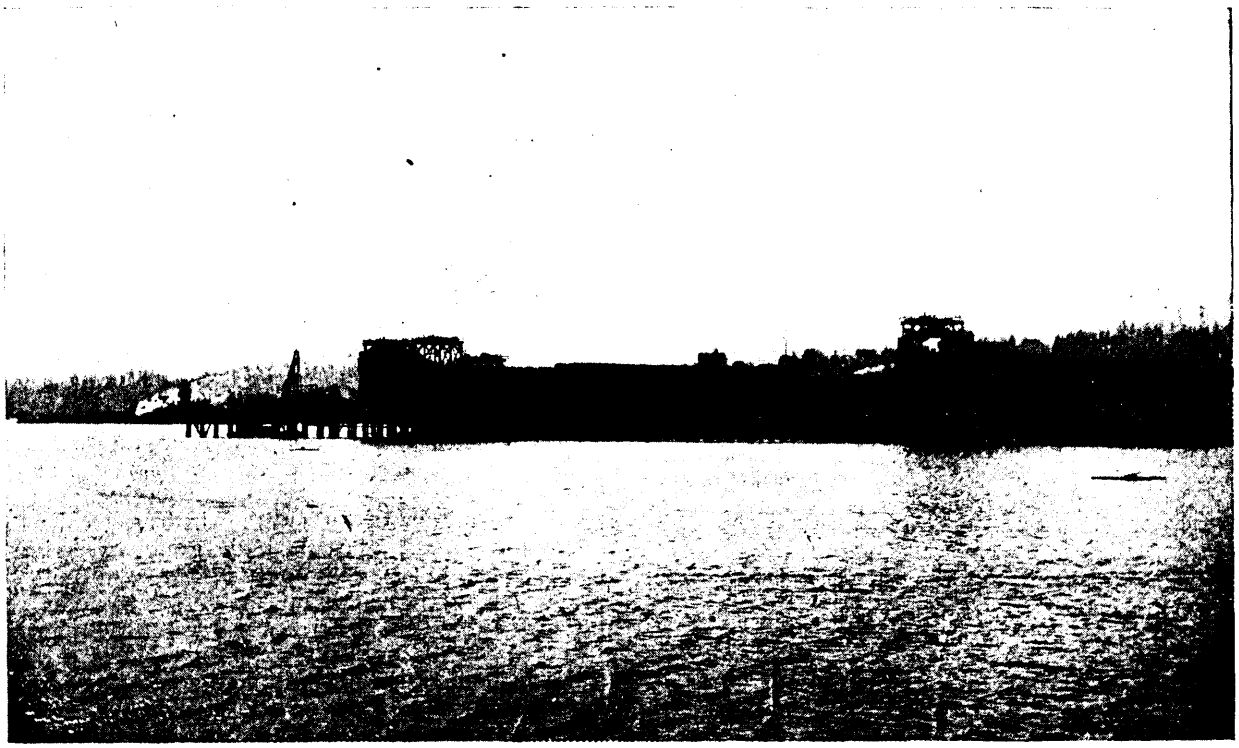
Precipitation.—The precipitation is carried out by means of sodium sulphide manufactured at the mill by blowing steam into a solution of acustic soda mixed with sulphur powder. Generally the sodium sulphide is added in such quantities as to leave some sliver still in solution, for two reasons, **firstly,** because the precipitate subsides quicker under those conditions, and secondly, to allow the same solution to be used over and over again, which would precipitate insoluble silver sulphide amongst the ore if it contained an excess of sodium sulphide. Owing to the presence of salt the chloride of silver is found to partially dissolve out of the ore with the first washing with water and the silver is precipitated from this salt solution separately. The same solution of hyposulphide can only be used a certain number of times, depending on the richness of the ore, for although the soluble salts are removed from the ore by the preliminary acid and water washings it still becomes in time saturated with sodium chloride and weakened in power from the addition of sodium sulphide in the precipitation of the silver from its soluble chloride form as the insoluble sulphide. On this account the solution is usually run away after using half a dozen times.

In using ball-mills great care has to be taken to use iron balls in good condition, otherwise they become chipped in grinding the ore, resulting in the intermingling of pieces of metallic iron with the ore and consequent precipitation of metallic silver amongst the ore itself in the lixiviation vat. In one mill in Tarapaca the extraction sank from ninety per cent. to forty per cent. from this cause alone. With ordinary precautions, however, ball-mills have given great satisfaction. The precipitation vats are made of wood, about ten feet high and four feet wide at the top, and five feet wide at the bottom, and provided with two taps, one for running off the solution and the other for running off the precipitate.

The precipitate of black silver sulphide is run through a sludge pipe to filter presses where it is pressed into cakes and finally dried in a hot room. When dry it is placed in sacks and shipped to England. All the mills have a chemical laboratory and assay office, where every parcel of ore purchased is sampled and assayed and check assays and tests are made from each department of the works.

A sample of the chlorinated ore is taken every day fresh from the furnace, an assay made to show whether any volatilisation of silver has occurred, and part of the sample is washed with acid, water and fresh hyposulphite solution. If the silver chloride is readily extracted it is concluded that the chlorination of the ore in the furnace was satisfactory.

An assay of the tailings is taken at the conclusion of each treatment. If more than two ounces of silver per ton are found to remain, two samples are taken, one washed with pure hyposulphite and one with the solution in use in the works. If more silver is extracted by both solutions the ore is given another



BUNKEES AND LOADING WHARVES AT NANAIMO.—SIDE VIEW.

washing, if only the pure hyposulphite extracts silver the works solution is charged; if no silver is extracted, as sometimes happens, it has generally been through carelessness in the works in the preliminary acid and water washings.

The chloridised ore is daily tested for free lime and daily tests are made of the strength of the hyposulphite solution by titration with iodine. The strength of the solution is never allow to sink below one-half per cent.

BUNKERS AND LOADING WHARVES AT NANAIMO, FROM THE CITY.

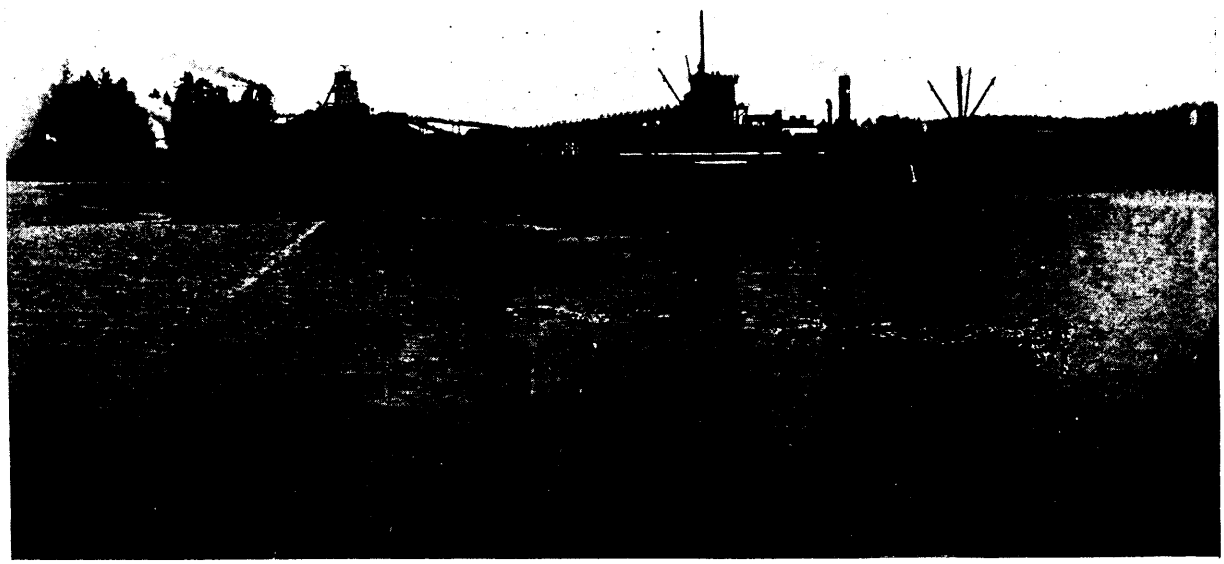
Such is a general outline of the treatment of non-smelting ores in South America. The one approximates to the Washoe process, the other to the Russell process, while both have been considerably modified through local causes.

SHIPPING FACILITIES OF THE NEW VANCOUVER COAL CO., AT NANAIMO.

THE Port of Nanaimo is the headquarters of the chief coal mines, loading wharves, and the general offices of the New Vancouver Coal Mining and Land Company, Limited. Nanaimo is well known throughout shipping circles, as having an easily accessible, safe and commodious harbour, where vessels of the deepest draft can lie alongside the dock at all seasons of the year and in every stage of the tide. Some of the largest battleships of H. M. Navy, as well as the great steam and sailing ships, calling for fuel and to load cargoes of coal, have been afforded admirable shelter, and fast holding ground in the spacious waters of Nanaimo Harbour. We present herewith three views from photos (by W. B. Finley), showing parts of the harbour, with the bunkers and loading wharves of the New Vancouver Coal Company, at Nanaimo and on Protection Island. Owing to the expansion of the company's operations, and the introduction of steam colliers of the largest and most improved type, as freighters of the company's coal, it was found that existing wharves and loading appliances, were inadequate to meet the requirements of the increased volume of trade, and shipping; modern commercial exigencies and economical considerations, also, demand the utmost rapidity of loading and despatch of all coal carriers resorting to the port. Mr. Samuel M. Robins, the superintendent of the company, recognizing the pressing need of improved shipping facilities, projected and has caused to be constructed an entirely new system of loading, which, although necessarily involving a considerable outlay of capital, have proved most satisfactory in action and successfully accomplishes all that was essentially required by the shipping; it is at the same time productive of economy in all respects.

The new works are extensie and bold in their conception. Two special approaches, built partly of solid filling and finishing the last quarter of a mile

with substantial trestle work, standing on some of the finest cedar sills ever hewn out of the forest (part of the company's estate); these elevated railways had to be on grades of 2 per cent., in order to attain heights of about 40 feet above the highest water, and they appear to stretch out like two arms towards their respective staiths, which stand about 1,500 feet apart at the wharf ends. Before reaching the wharf each railway runs on a level upon a plaform, bearing two parallel tracks of lengths sufficient to accommodate trains of full and empty cars at rest. The staiths contain series of chutes, suitable to every state of tidal water; the mouths of the chutes are opened from the level platforms, between the rails of one of the tracks



BUNKERS AND LOADING WHARVES AT PROTECTION ISLAND.

at places, from 3 to 20 feet back along the track; and coal can be loaded continuously, notwithstanding the rise or fall of the sea, with a minimum of breakage in running into ship's hold. The weight-house and portions of the wharves are lit by gas, and the tracks by electric arc lights.

Unique car-handling apparatus (designed and ably executed by the engineer of the works, Mr. W. H. Wall, in the company's workshops) are built into the staiths, which are constructed of massive timbers of towering height, with over-head machinery for raising and lowering the heavy troughs that lead from the ends of the chutes into the collier's hatches. This apparatus, of which steam is at present the motive power, easily performs the labour of handling or moving the laden or mpty coal cars (hopper-waggons, holding six tons of coal) with a speed that has gained the reputation of "lightning" despatch, for the fleet of steam colliers employed by the company in conveying its excellent product of steam and household coal, known as "New Wellington," "Southfield" and "Protection Island'" coal, to the ports of California, the principal foreign market, where the New Vancouver Coal Company is represented by the eminent firm of John Rosenfeld's Sons, and to other over-sea ports and destinations. The "Titania," one of the largest vessls of the fleet, has received her load of cargo and fuel coal (6,000 tons) in the remarkably short space of ten hours and thirty-five minutes, including trimming of cargo at the finish; and other vessels have been loaded, according to their ability to take on cargo, in a proportionately rapid time. An important part of the new system of loading, which has so reduced the time of detention of the costly freighters, to the least possible delay, and has contributed to the moderation of freight rates, will be noticed in the very capacious coal bunkers (upwards of 10,000 tons at Nanaimo side), for storing reserve stocks of coal, which have been erected by the company at great expense. The loading appliances at Protection Island comprise hydraulic lifts, auxiliary to the bunkers there. At the Nanaimo bunkers 80 cars can be filled simultaneously from the bunkers; the chutes are opened and shut instantly by sets of levers and cut-offs; the laden cars are formed into trains of twenty and pushed up to the level platforms, where they are

TECHNICAL PERIODICALS OF THE MONTH.

CASSIER'S MAGAZINE.

CASSIER'S Magazine for October Contains as usual, many eminently interesting articles. Of these, however, a lengthy and comprehensive account of the "Lake Superior Iron Ore Mines and their Influence upon the Production of Iron and Steel," by Jeremiah and Archibald P. Head, which was originally presented in the form of a paper read at a meeting of the British Institution of Civil Engineers; an article by E. Riston, on "Aluminum Manufacture in Great Britain;" a contribution by A. F. Yarrow on "Nickel Steel versus Mild Steel Boiler Tubes," and a capital article on the "Comparative Advantages of Electricity, Steam and Compressed Air for Mining Purposes," by W. E. Garforth, M. Inst. C.E., will appeal more particularly to our readers. We shall, meanwhile content ourselves with a brief review of the last-mentioned paper. Mr. Garforth, in making his comparison between the relative merits of electricity, steam and compressed air as used in mining, deals more especially with the conditions existing in collieries, and some of his conclusions might not therefore apply to metalliferous mine work. In his opinion, for use on the surface, high-pressure dry steam is the most economical power; for transmission of power, electricity is both the most economical and convenient; and underground, compressed air is the safest. The author points out that in coal mines there are many reasons against utilizing steam, when the engines and boilers are placed underground; and of these objections, not the least are the "expense of maintaining boiler flues, the danger of setting fire to the surrounding strata, the difficulty of dealing with the exhaust steam, etc." In the use of compressed air, which, on the grounds of economy, is, it is here stated, vastly inferior to electricity, for power purposes, there is the compensating advantage of safety in coal mines when fire-damp accumulates to any extent. The author lays particular stress on this point and suggests that in coal mines there is always a sufficient element of natural dangers without introducing artificial ones. Nevertheless electricity is recommended by some engineers for use at the coal face in all mines on account of its greater economy, and of course there are coal mines where it can be introduced with perfect safety. The article concludes with a consideration of the two electrical systems—polyphase and continuous currents—each of which has its peculiar advantages and drawbacks. To quote the writer: "The chief points of the three-phase current system are :—1. Absence of commutators in both generators and motors with consequent saving in wear, reduction of repairs and renewals, and less need of constant skilled attendance. 2. Complete immunity from sparking. 3. No starting resistance required for motors up to 10-brake horse-power, unless exceptionally large starting torque is required. 4. High pressure can be transmitted without risk to generator or motor, and copper is saved in the line. On the other hand, in the continuous current system, only (1) "A single pair of conductors is required as against three condustors; (2) Greater starting torque can be obtained with the motors; (3) Accurate measurements can be more readily taken." The author sums up by saying that as a prime source, and under certain favourable conditions as mentioned steam possesses the greater advantages, but for the transmission of power to a distance, "electricity is most economical, efficient and handiest."

THE ENGINEERING MAGAZINE.

The October number of this magazine contains several important articles, prominent among which are contributions by Sir Benjamin C. Browne, on "Standardizing in Engineering Construction;" by Henry Roland, on "The Revolution in Machine-shop Practice," and by J. Carter Lewis, on "Works Management for the Maximum of Production." In considering this latter subject, Mr. Lewis advances the proposition that "in a close study of the relative efficiencies of organization the key to future progress will be found." It is, of course, as he points out, obvious that a study of the efficiency of organization is a much more complicated and difficult matter than the mere timing of operations, for "the factors entering into comparisons of machine duty are very few and certain—speeds, shape and angle of cutters, nature of material—all these are easy of re-duplication, and variations in any of them can easily be allowed for. The comparative efficiency of various methods of attaining the same end . . . can also be studied by the technist with ease, and the results set against those of known experience. But when we widen the area of enquiry and wish to know *not* what it costs us to remove a given surface of material in mere labour hours (i.e., in direct wages) but to arrive at the actual, inclusive, and *real* cost of the whole operation, including the upkeep of the machine in a state of efficiency, the transport of the material from point to point, the share of supervision it obtains whilst under work, the amount of preventible loss and waste, due to imperfect process work, necessitating costly hand labour to finish and make complete—*then*, so far as any possible comparison with the experience of others goes, we are at sea indeed." The writer then, after stating that while one frequently hears the question, "What do you pay such and such class of labour in your place?" the enquiry, "What is your percentage of shop efficiency?" is never made, goes on to define the meaning of the term "efficiency of organization." This, he explains, is roughly speaking, the ratio of indirect and reproductive expenditure to expenditure on saleable goods or "stock." "To place a machine in a shop and a man and a job at it appears very simple; but when we come to consider the case of 100 machines and men and jobs, it may easily turn out that the cost of housing the machines, looking after the men and providing a constant and even succession of jobs, together with the necessary maintenance of the patent in full working order, is the *larger half* of the total expenditure." The writer describes the difference between the high and low standards of efficiency of organization which leads him to consider how the efficiency of any given organization, good or bad, may be studied and its strength and weakness made manifest. His solution lies in the adoption of a "complete and well-digested system of administrative record."

A great many persons entirely miss the point of advantage to be gained by a carefully elaborated system of record in the internal administration of 'works,' but the object of modern organization is to strengthen the administrative arm in its control of routine, to which it acts as a sort of registering barometer.

THE MONTH'S MINING.

MOUNT SICKAR.

(By Our Special Commissioner.)

THE Tyee has a somewhat interesting history. Rather more than two years ago two men named respectively Smith and Buzzard, decided to prospect Mount Sickar for mineral. There was no trail in those days and the hillside, thickly studded with timber and covered with underbrush, was not an easy territory for exploration of this character, but the two men persevered in their search and were rewarded by discovering some indication of mineral-bearing rock upon which they located and staked the Tyee claim. Well, neither of them had money to prospect the property thoroughly, so it was decided between them to go to Victoria and try and interest capital there in the new find. It thus came about that our two prospectors approached Capt. Irving, Mr. W. A. Wilson and another well-known business man of Victoria, and offered to sell them the Tyee claim outright for seven hundred and fifty dollars. These gentlemen, however, refused to purchase the property at any price, and Messrs. Livingstone, Blyth, Dickie, Wood and Mollander, of Duncans, who had acquired a controlling interest in the Tyee, told the locators of the claim that if they would uncover the lead on the property they would be given another quarter interest in addition to the rights they already possessed in the claim. Accepting these conditions Smith and Buzzard went back to the Tyee, and in three days succeeded in removing the diorite capping, upon which they had located and exposing a good showing of mineral. Within a week they had sold their interests—a one-half, understand,—for five thousand dollars. The owners then proceeded to sink a shaft on the spot where the ledge had been uncovered to a depth of approximately fifty feet in ore for the entire distance. Nothing particular was done after that until May of the present year, when Mr. Livingstone, who, by the way, must be regarded as the first man to interest capital in Mount Sickar mines, having succeeded in forming in London a development company or syndicate with a modest working capital of £15,000, resumed operations, by rimming out and timbering the old shaft, which was further carried down a depth of seventy-five feet in ore. From this point the shaft was continued vertically in country rock to the depth of one hundred and fifty feet, a cross-cut being here driven to the south, a distance of twenty-one feet, and passing through twelve feet of gold-bearing quartz of low value. At the same level a drive was also made of twenty-two feet to the north, encountering a seven-foot body of copper ore associated with a baryta gangue, followed by shales impregnated with copper, and last of all, quartz, the entire width of the pay chute being twenty-four feet. The cross-cut was next continued to a distance of fifty feet, when the hanging wall, which is very well defined, was struck. A drive was then put in on the shale to the south and the ore body was again five feet in. A drive to the west was in ore for the entire distance. Recently the shaft has been taken down to a depth of two hundred feet, at which level the work at present is confined to cross-cutting in a northerly direction to strike the ore body. At Mr. Robertson's invitation I descended the shaft and examined the various workings. The shaft is a double-compartment one, six by eight feet in the clear, magnificently timbered and lined and adequately ventilated by means of a hand blower. The timber used is hewn to dimensions of seven by seven and securely mortised together, the lagging of two-inch planking and the lining of one-inch boards. The ladder-way is also worthy of mention, the rungs being, of course, made of iron. Both to the geologist and the mineralogist the formation on Mount Sickar affords much that is of interest. The Tyee vein appears to be a true fissure in a formation of unaltered schist. The filling is very peculiar, and seems to consist of streaks of varying thickness, first of country rock (talcose schist) impregnated with iron pyrites; second, blake shale; third, copper ore with a baryta gangue; fourth, shale impregnated with iron pyrites; and fifth, quartz, shale, baryta and coppery pyrites. Although this formation is not at all common in British Columbia, I am informed it has a counterpart in the Sultana mine, of the Rainy River district of Ontario. As regards values, although I did not have the opportunity of seeing the assay certificates, I was reliably told that the average value of the ore in the Tyee was 5 per cent. copper, $6 gold and 5 ounces silver. The barytic ore, however, carries much higher values in copper, the returns giving ten to twelve per cent. in this metal. The strike of the vein is east and west and the dip 70 degrees north, and elevation of the property above sea level being 1,750 feet. In addition to the work already enumerated, the vein is being prospected 420 feet east of the main workings by a prospect shaft down at present some thirty feet, a cross-cut to the north of 33 feet and to the south of 14 feet, in which the indications are most promising. Under Mr. Robertson's superintendence, the average amount of work performed during recent months has been forty-eight feet, the cost per foot being $25. Most of the men—and no finer a crew could be got together in British Columbia—are Canadian and British miners from the Kootenays. Here at least the eight-hour law does not seem to have created strife, for while the miners are paid the three-dollar wage, the management only charge the employees the reasonable sum of four dollars and a half a week for boarding them. There is no profit derived from the boarding-house on this basis of charge, but then a mining company has no legitimate right to expect profit from this source. Another matter that has contributed greatly to the local popularity of the Tyee Development Company is the fact that residents of the district are always given the preference when surface labour is required at the mine. At present there is accommodation at the Tyee for thirty-five. Before very long, however, work is to be temporarily suspended while the mine is handed over to a new company, when the present horse-whim will be superceded by a steam-hoist and other machinery, and operations will be continued on a somewhat larger scale.

THE TYEE.

But the afternoon is passing and I have yet the Lenora to visit, so I descend the very steep hill and introduce myself to the manager, Mr. Morris, who, without loss of time, piloted me to the workings. The Lenora was staked in the spring of 1896, by the same two men who located the Tyee —Smith and Buzzard. But their discovery was made, not on the copper showing that is

THE LENORA MINE.

now being exploited, but on a small quartz outcrop. Thanks to a forest fire, the well-defined copper lead was exposed, and in 1897 a Mr. Smith, of Glasgow, Scotland, agreed with the locators to expend $500 in preliminary development work on the claim in consideration of receiving a half-interest therein. With this money a tunnel was driven into the hill, cross-cutting two leads. This result was so satisfactory that early in January, 1898, the Mount Sickar and British Columbia Development Company acquired an option on the propetry for a one-fifth interest on condition of expending £5,000 in its further development. Work was commenced by driving east on the lead and continued for a distance of 500 feet, cross-cuts being run at intervals, and thus the south and parallel vein was encountered. Later on at a depth of approximately 100 feet in the tunnel from the surface an upraise was made, and at the same time a winze was sunk to a depth of 100 feet. The tunnel was then continued a further 225 feet, which represents the work on the property to date. But during the spring of this year the Mount Sickar Company acquired full proprietory rights. The formation at the Lenora is similar to that at the Tyee, but the ore appears to be of somewhat higher grade, there is, moreover, quite an extensive body of pyrrhotite, and this is now being stoped out. The tunnel is well timbered with square sets and provided with tram lines. As to the ore values, the following returns of smelter shipments give a fair idea, but it must, of course, be remembered that the ore sent away for treatment, with one exception, has been carefully selected and sorted, and therefore represents the higher grade product of the mine. The first shipment was made to Tacoma, on March 4th, 1899, and the smelter returns were: Weight, 16,399 pounds; gold value, 18 ounces; silver value, 3.6 ounces; copper, 5 per cent.; value per ton, $13.05; net returns per ton, $7.05.

This shipment consisted of ore from the old dump, and was not sorted. The remaining returns are more satisfactory :

SMELTER RETURNS.

March 30th, shipment to San Francisco: Weight, 23,978 pounds; gold value, .35 ounces; silver value, 7.04 ounces; copper, 10.7 per cent.; total value returns, $359.67; value per ton, $22.99 (copper is here valued at 10c).

April 20th, shipment to Tacoma: Weight, 119,377 pounds; gold, 3 ounces; silver, 6.7; copper, 9.5 per cent.; value per ton, $29.44; net returns, $1,388.87.

June, shipments to Tacoma: Weight, 144,312 pounds; gold, .3 ounces; silver, 6.9 ounces; copper, 9.5 per cent.; value per ton, $32.55; net returns, $1,800.10.

Sept. 11th, shipment to Tacoma: Weight, 203,348 pounds; gold, .32 ounces; silver, 5.4; copper, 9.69 per cent.; value per ton, $30.25; net returns, $2,465.59.

Sept. 18, shipment to Tacoma: Weight, 281,630; gold, 2 ounces; silver, 5.1 ounces; copper, 10.8 per cent.; value per ton, $30.54; net returns, $3,442. 93.

Sept. 23rd, shipment to Tacoma: Weight, 50 tons; net returns, $963.94.

Returns were also made of two consignments of ore made during August, but these the Mount Sickar Company have refused to accept, and the points in dispute have been submitted to arbitration. There are now 340 tons of ore at the Tacoma smelter, upon which returns have not yet been received, but from the assays the copper contents of this consignment should be 15 per cent. after deducting the 1.3 per cent. moisture. The company are now producing and sending out twenty tons of ore a day, and propose this week to increase the output to thirty tons, but how long this production can be maintained with the present stage of development is a matter of opinion. The cost of transportation at present is $1.75 per ton for haulage from the mine to the railway station and $2.25 for carriage thence to Tacoma. It has been found that the cost of freight to San Francisco is too heavy to send the ore for treatment there. The company are employing forty-five men, miners receiving $3 for a working day of eight hours, but all drilling is done single-handed, Mr. Morris telling me that according to his experience more work is accomplished by this system. At the time of my visit several commodious frame buildings were in the course of construction, and among others a bunk-house to accommodate twenty-five men is being erected.

Besides the Tyee and Lenora there are several other promising claims on Mount Sickar. The most important, perhaps, is the Fortuna, upon which a drift has been driven for 350 feet, exposing a body of pyrrhotite ore. Then there is the Mona, on the Tyee lead, but higher up the mountain; the Queen Bess on the Westholme waggon road, upon which a Vancouver syndicate has taken a bond and commenced operation; and the Baltic, upon which work is to be shortly resumed, and others (to use the phraseology of the auctioneer) too numerous to mention, for indeed the whole mountain is "staked out."

OTHER PROSPECTS

In conclusion, there is no reason why the Mount Sickar camp should not in the near future contribute very considerably to the mineral production of British Columbia. Both the Tyee and Lenora are excellent prospects, with better showings and in a more advanced stage of development than many so-called "mines" in Kootenay whereof a great deal of "boom" nonsense appears in the press. The motto of the Mount Sickar claim owners should be "festina lente," and if I do not take too much on myself I should like to be allowed to add, that at this stage of the game, the talk of erecting smelters, and goodness knows what else, in the neighbourhood of the Lenora and Tyee is surely somewhat premature, not to say absurd.

SHOAL BAY.

(From Our Own Correspondent.)

With the disappearance of fine weather work on the mining properties of the district has somewhat fallen off. This is most noticeable at the Dorotha Morton mine, where recently about thirty men who were working outside were let out, but as soon as new stoping ground has been prepared, will undoubtedly be taken on again.

The Douglas Pine keeps on the even tenor of its way. Work has lately been commenced on a new tunnel which is to tap the main ore body at about a depth of 300 feet from the surface. Mr. Farquhar, our local assayer, has lately been engaged sampling the lower workings of the Blue Bells mine,

WORK ON DOUGLAS PINE.

and also preparing a plan of the same, and it is confidently expected that work on this promising property will shortly be resumed on a large scale.

KAMLOOPS.

(From Our Own Correspondent).

Although there are yet no regular shippers in this young camp, work is steadily going on in many quarters. The Python property is being developed steadily by sinking and drifting, and the result of the work recently done is very encouraging, the ore being of a most satisfactory grade. A carload lately sent to the Trail smelter yielded 15 per cent. copper, in addition to the gold values.

THE PYTHON AND POTHOOK MINES.

The Poothook is temporarily closed down pending reorganization. It will probably be about next spring before operations are recommenced, but then it will be with improved machinery, and the mine should immediately be placed on a productive basis.

The work done by Mr. L. W. Nestelle, of Fairhaven, on the Cyclone-Dewey group of claims, at the extreme eastern limit of the camp, has shown up some very fine chalcopyrite and chalcocite ore. A tunnel of 90 feet has been driven on the vein, and a trial shaft 18 feet deep sunk. This, together with 100 feet of surface work, has all been done this fall. Last year Mr. Nestelle bestowed attention mainly on the Cyclone, there showing up a large body of ore. The lead opened up on the Dewey this year is of a higher grade, so far as copper percentage goes, the gold assays being much the same.

The Boillot brothers are developing the Wheel Tamas group, and also a group of free-milling properties between Kamloops and Tranquille, on the north side of the Thompson River.

Recent work done on the mica mines at Tete Jaune Cache has shown some beautiful mica, and the 400 lbs. brought down last week could not be excelled anywhere.

MICA FROM TETE JAUNE.

It is rumoured that the owner of the Monte Cristo is negotiating with Mr. H. W. Treat for the sale of this property.

Most encouraging reports come from a new property, the Vancouver, situated on Stuart Island and owned by Messrs. Tom Dunn and Tanner. This is a copper-gold proposition, and it is understood that the pay-streak runs about $7 in gold, and 14 per cent. copper, with small silver values. Work is still progressing on what was formerly known as Cobeldick's property, situated in Estero Basin, but which, it is understood, has been taken over by the B.C. Development Company. A very fine lead of bornite, three feet wide, was encountered in the cross-cut quite recently, and the main lead is expected to be struck at any time now.

News has just come in of a new copper property on Helmcken Island, from which a sample shipment of a ton was sent to the Van Anda smelter for treatment.

REVELSTOKE.

(From Our Own Correspondent.)

All weather indications seem to point to an early winter, which would seem unfair after an extremely late spring and a cold wet summer, but unfortunately the weather is a matter over which we have no control as yet, though doubtless it will be better understood in the future. Those mines, and they are many, that will be working all the winter, have already laid in ample supplies and have settled down to steady, if rather monotonous, work for the next six months at least.

The Big Bend, to which Revelstoke acts as the base of supplies, naturally claims our attention first; and much more activity will prevail there this winter than usual. The Carnes Creek Company intend to push their work ahead, as also do the Boston and B.C. Co., who, by the way, are guaranteeing a smelter near Revelstoke and a steamboat on the river next spring. It is to be hoped that enough ore will be forthcoming from the various properties to keep the smelter going, because, as has been repeatedly pointed out before, a smelter is not exactly the same thing as a cooking stove and cannot be put in and out with the same facility and economy. Unfortunately ore is the last thing many people think about when they talk of building smelters, though to most men it would appear to be the most necessary. The Carnes Creek Company find their new strike of copper ore improving in quality and quantity, though it is as yet quite distinct from their main body of arsenical pyrites, running indeed on one side of it and quite readily separated from it, which may easily be very advantageous. If there was better communication with the Big Bend district than the present pack trail affords, we should soon hear from some of the other camps there, such as the Keystone and the Laforme Creek camps, and ore would be plentiful enough, but at present only high-grade stuff can be profitably handled. The Lardeau will certainly show very marked improvement next year, the railways now being rushed into that district will be an immense help; though, indeed, the Lardeau has so many wonderfully rich claims that there is no difficulty in disposing of the ore at a very fair profit, notwithstanding the expense of freight. The Nettie L., near Ferguson, is still looking remarkably well, and will be very busy this winter shipping the high-grade ore for which it is famous; and there are many more just waiting till the snow becomes permanent to do the same thing.

FUTURE SMELTER FACILITIES.

The Tangier mine (companion to the Waverley) has closed down, for the winter only it is to be hoped, though, many well-informed men think it will be for a longer time; the management is seriously criticized, but time and further development alone will show on whom the blame, if any, should rest. This will make the Illecillewaet camp very quiet all this winter, and it usually is very far from being a lively place. On a recent, rather hurried, visit to some of the mining camps round here, I was struck with the remarkable absence of any attempt at sanitary ararngements; old tin cans and every description of kitchen refuse, together with cast-off clothing, being permitted to accumulate close up to the cabins used as living or sleeping rooms by the men. Now it certainly does seem a very likely method to cause illness in the camp to allow such rubbish close up to the cabins, but it is so very general that exceptions are extremely rare. There is no lack of room to dispose of waste material, it seems

TANGIER CLOSED DOWN.

purely carelessness on the part of the men themselves, though it might well be questioned whether the foreman in charge is justified in allowing such a fertile breeder of disease to exist in the immediate vicinity. On one property only, namely, the Venus, near Nelson, B.C., does there appear to be any notice taken of this matter, and that is said to be a model of a clean, healthy camp—possibly because a well-known M.D. had a good deal to say about the arrangements. But considering the extreme inconvenience and danger arising from sickness in camp, miles away from any medical aid, it seems well worth while to call attention to this matter—indeed if it was not for the abundance of fresh air, and the general good health prevalent on account of it in mining camps, there can be no doubt that much more sickness would exist, and it is sincerely to be hoped that these few "expressions of individual opinion" may be the means of inducing managers to insist on a more tidy, clean, and healthy state of affairs in the camps over which they may have control. It will cost nothing at all, and will prove a paying venture, even if it saves one toothache!

SANITATION IN MINING CAMPS.

A. H. H.

BOUNDARY CREEK.

(From Our Own Correspondent).

A special article on the Mother Lode mine, in Deadwood camp, was published in the September issue of this journal. This gave details of the mine workings. It will be remembered that the preliminary work consisted chiefly of a cross-cut tunnel run 42 feet through the limestone on the footwall side of the lode and thence diagonally across the ore-body for 205 feet, the diorite contact having been encountered at 247 feet from the mouth of the tunnel. The right-angle distance across the lode where thus cross-cut was estimated to be 185 feet. From about the centre of this tunnel an incline winze was sunk to a depth of 100 feet or to about 200 feet below, where the lode outcrops on the top of the hill in which it occurs. From the bottom of the winze a cross-cut was run both ways. At this depth the hanging-wall was met with—seventy-three feet in from the centre of the winze, the lode having apparently straightened up. The permanent development work described included the sinking of a large double compartment vertical shaft, sunk 214 feet, the cutting out at the 200-foot level of a station, on the north side of the shaft, 18x20 and 15 feet high, and a smaller one on the south side, and the running at the same level of some 600 feet of drifts and cross-cuts. Since that article was written the sinking of the main working shaft has been resumed, and at the present time of writing a depth of 285 feet has been reached. At this depth the shaft is entirely in pay ore, so that the whole of the rock now being taken from the bottom of the shaft, the dimensions of which are 9x13, outside timbers, is being placed on the ore dump. At the 200-foot level the most important working thus far developed is the north drift, which at its present distance of 490 feet from the shaft is calculated to be about under the winze in the old workings mentioned above. The drift has for the last 100 feet been continuously in ore that it will pay to send to the smelter. For ventilation purposes the winze in the old workings is now being deepened so as to connect with the 200-foot level. A station has been cut out and a hoist installed in the old cross-cut tunnel and the winze is now down 110 feet, the bottom being in ore similar in character and quality to that met with in the level below. The old and new workings having been started at different elevations, it may be well to explain that the lower cross-cut in the old workings is at a vertical depth of about 187 feet from the outcrop of the lode where it occurs on the top of the hill and that the 200-foot level of the new workings is about 175 feet deeper still (but 200 feet from the collar of the main working shaft), so that this present main level is about 362 feet below the outcrop mentioned. The British Columbia Copper Company also owns several claims adjoining the Mother Lode, but its mining operations are just now being restricted to the further development of that valuable property.

DEADWOOD CAMP—THE MOTHER LODE.

The Sunset group, adjoining the Mother Lode, the Morrison, Buckhorn and the Gold Bug (the last named being a claim to which the Boundary Creek Mining and Milling Company is giving attention) all merit notice in detail, but space restrictions prevent more than bare mention of them this month.

OTHER PROPERTIES.

Outside of the continuous development that for eighteen months past has been in progress on the City of Paris group, there has been comparatively little actual mining work done in Central camp for many months. Now, however, there is to be a change for the better, for a mining company has been organized in New York for the purpose of acquiring and working the No. 7 group of mineral claims, which comprises the No. 7, Lady of the Lake, Fanny H., Glasgow, Helen, McGregor and Tripod. These claims were formerly owned by Messrs. J. F. Tichenor and F. L. Underwood and Col. J. Weir, of New York. The last named having disposed of his interest they have for some time past been owned by the other two gentlemen, who are also largely interested in the New York company owning the Mother Lode group, to which reference has already been made. The No. 7 company has already commenced operations, men being now engaged in erecting the buildings necessary for the accommodation of the miners and the housing of the plant and machinery which will shortly be obtained. This will consist of a 50-horse power boiler, friction hoist with drum, Knowles' sinking pump, with a capacity of 400 gallons per minute, and all the requisite gear and appliances. Pending receipt of the power plant the horse winze (?) now on the No. 7 will be used in connection with the work of putting the present workings in order, preparatory to further developing the property. There is already a 139-foot incline shaft on the No. 7, and 418 feet of drifts and cross-cuts at that depth. A second shaft, 400 feet distant from No. 1, is down 66 feet, at which depth it entered the ledge. No. 1 shaft will be enlarged and timbered to the bottom and the drift at the 139-foot level will be continued until under No. 2 shaft. The vein on the No. 7, so far as yet prospected, runs from about one foot to six feet in width, averaging about 27 inches of ore giving values of not less than $20 per ton. The ore is quartz mineralized with galena, zinc blende and a small quantity of copper pyrites, values being chiefly in gold and silver.

CENTRAL CAMP.

It is reported that work will shortly be resumed on the Norfolk adjoining the No. 7 group and owned by the London and B.C. Goldfields, Ltd. Operations are being continued on the City of Paris group, where some 45 men are employed. The writer has not lately had an opportunity of either visiting this valuable property or of meeting the mine superintendent from whom to obtain information respecting it, but it is known that about 2,000 feet of tunnelling in cross-cuts and drifts have been done, and that one of the leads known as the Lincoln vein is to be sunk where intersected by the main cross-cut tunnel. This group will ship ore to the Granby Company's smelter at Grand Forks so soon as the branch railway line to the mine shall have been completed and the smelter be ready to receive shipments.

This camp is very lively, with an increasing number of men being employed in mining, the town of Phoenix rapidly building up, and several branch railway lines in course of construction, to the better developed of the mining properties.

GREENWOOD CAMP.

The Old Ironsides, Victoria and Knob Hill, which are practically under one management, though nominally owned by three separate companies, are together employing between 70 and 80 men in actual mining and about 40 more in erecting mine buildings, cottages for miners, etc. The Brooklyn, Stemwinder, Idaho and Rawhide are grouped under another management, and it is stated that there will ere long be a comparatively large number of men employed on these claims. The Snowshoe, Gold Drop and Monarch are separately owned and managed, and each gives promise of developing into an ore-yielding mine.. There are numerous other claims in the camp, some with good showings, but those named above have to date had most attention.

Much drifting and cross-cutting is being done at the 200-foot and 300-foot levels of the Old Ironsides and Victoria. There are five faces in ore at the former level and two in the latter. Sinking is in progress at the Knob Hill. Sleeping and boarding accommodation for 200 men is being provided in connection with these three mines, besides which there will be cottages for miners having their families with them.

Mr. Anthony J. McMillan, of Rossland, managing director of the British Columbia (Rossland and Slocan) Syndicate, Ltd., of London, England, was in Phoenix recently visiting the Snowshoe, which is being worked by his company. From him it was ascertained that about 20 men are employed at the mine and that developments are so far considered satisfactory. A 40-horse power boiler, an engine and a hoist were installed some time since and lately, in order to expedite the work of development, a 5-drill compressor plant was purchased. For the purpose of showing up the outcrop of the ore a lot of surface work was done during the summer just ended. Work below ground has been actively prosecuted since the steam plant was installed. The main shaft is now down about 200 feet and cross-cutting has been commenced. Mr. McMillan expects to leave for England during November, and, should his report be satisfactory and his syndicate take up the option they hold on the Snowshoe, it is probable a vigorous policy of development will be entered upon.

THE SNOWSHOE.

Wellington, Summit, and Long Lake are important camps, meriting lengthy notice, but the writer has had no opportunity of personally obtaining information respecting them. The manager of the Winnipeg mine, Wellington camp, is reported to have told a Rossland newspaper that this mine has a large quantity of ore ready for shipment, and that good pyrrhotite ore is being obtained from the 300-foot level. The Golden Crown, adjoining the Winnipeg, is also reported to be looking well and to be preparing to ship ore so soon as the rails are laid along the grade already completed to this camp. The Calumet and Hecla group, adjoining the Winnipeg on the east and south, has been bonded by Mr. W. L. Hogg, of Montreal, for $60,000. Work on this group will shortly be proceeded with.

OTHER CAMPS.

The B.C. and Oro Denero are developing well. The B.C. has let a contract for deepening the main shaft from 160 feet to 260 feet. With this work in progress the mine will increase its working force to about 40 men. The Oro Denero is employing 20 men at surface work and in cross-cutting at the 200-foot level. Other properties in this camp that will yet come into more prominent notice are the Emma and the Rathmullen group.

Particulars of the Jewel group, Long Lake camp, were given in last month's MINING RECORD. Additional plant is now coming in for this mine. The Enterprise and Anchor Mines, Limited, intend working continuously on the Enterprise and Anchor, which adjoin the Jewel. These are very promising properties upon which work had already been done, but now more extensive operations have been inaugurated.

The Columbia & Western Railway has at last reached Boundary Creek, and probably before this appear in print the tracklayers will have completed their work to Midway, the present terminus of the line. The rails will also be laid shortly along the several branch lines to the leading mining camps. The C.P.R. is pushing on construction work with all possible expedition, and is steadily bringing about a complete change in transportation matters, facilities for passenger travel and bringing in of freight being both already much improved. Work on the Granby Company's smelter at Grand Forks and that of the B.C. Copper Company at Anaconda, is being carried on. Telegraph and telephone lines are either being, or already have been, strung throughout the district, so that facilities for communication are now greater. An improvement in mail matter will no doubt follow when a regular train service shall have been established

RAILWAYS, SMELTERS, ETC.

PERCY VERENS.

Midway, B.C.

ROSSLAND.

(From Our Own Correspondent.)

Since my last report much has happened to show the great strides which the mineral industry here is making, especially where capital is available for the necessary development and improvements. The output of ore from Rossland mines exceeds by 23,000 tons the entire output for 1898, as it now amounts to about 134,000 tons gross, and by the end

THE OUTPUT TO DATE.

of the present month, the output will be very close to 140,000 tons. Much continues to be promised, but my experience here is that there is always a wide margin between promises and performances, though the steady advance, so far as Red Mountain is concerned, does not admit of any doubt, since the figures are not wanting to prove this position. Nevertheless this industry has not increased as rapidly as it would have done under more enlightened management as a whole, for there has been much mismanagement, and in one instance, at least, the mismanagement has been the result of gross ignorance and inexperience. It may be understood from this that capital is not always directed by a high order of intelligence, such for instance, as that which for years has directed the coal and fish trade of the Maritime Provinces, and that which in its day brought the West India trade to a high state of prosperity. The greater part of those trades was conducted on the lines of private enterprise, there were no stocks on which to "bull" the market and declare dividends out of the unearned increment, or out of market manipulation, such as we are reluctant to note occur these days. The profits were declared out of earning derived in a legitimate manner, a fact which is well worthy of remembrance, since it is production, which is the base of real prosperity, though I have been credibly informed that the average English investor does not care where dividends come from so long as they come. Perhaps this may be so, but from this condition doubtless result the uncertainty and the anxiety—the desire to unload, an uncertainty which is mischievous in the end, because it may be traced to an unhealthy antecedent.

In this connection it may be mentioned that the Le Roi management has declared a dividend of $250,000, or five shillings sterling per share. As there are 200,000 shares at the par value of $25.00 each, this dividend amounts to about one-twentieth of each share., which is a good distribution. It goes without saying, however, that this distribution is not entirely from ore production. I am informed on good authority that it is made up of the [illegible] the company at the time of the purchase of the mine and smelter and of the enhanced value of the stock at the time when that stock was first put on the market by the "bull" operators. In any case, the dividend is a distribution, few will question it, and the unthinking public will take it for granted that a dividend is simply a dividend. Up to April, 1898, the Le Roi had paid $825,000 in profits to its shareholders. The dividend now declared added to this makes $1,075,000 for the total dividend account. On October 16th the War Eagle paid its regular monthly dividend of $26,250, making a total of profits since the mine was opened of $440,250. These two amounts added give a total of $1,515,250 to the credit of Rossland mines as dividends. Now the nominal capital involved amounts to $5,000,000 for the Le Roi and $2,000,000 for the War Eagle, or a total of $7,000,000, the average time about three years, and therefore the rate = 7 per cent. per annum for $1,515,250 ÷ $7,000,000 = 21 per cent. nearly. Of course, this is on the basis of nominal capital. On the basis of actual capital it would amount to about double that rate, or .42 = to at least 14 per cent. per annum, which is not a bad showing. The news of the Le Roi dividend has been followed by the welcome intelligence that the 1,320,000 shares which the Centre Star management recently offered to the public have all been taken up without any advices from the west or the world's great metropolis, London. According to the statement of Mr. J. B. Hastings, the manager, the vein, 1,200 feet in, has increased from 8 feet to 35 feet, and the ore will average $20 per ton.

A LE ROI DIVIDEND.

In a few weeks both the War Eagle and the Centre Star will be giving more substantial proofs than ever of their able management.

While the aforesaid sum of $1,515,250 represents the total of dividends actually paid by the two great producers, the Iron Mask has, though not actually distributing profits, paid off nearly all, if not all, its indebtedness, and the Centre Star is about to enter upon the dividend-paying era, so that it may be said without fear of contradiction that Red Mountain is only making a beginning, that extensions of the great producers will for a long time to come furnish pay ore in sufficient quantities to pay good dividends, and therefore justify the great preparations which are being made to mine the ore which is known to be in place in the heart of the mountain. Assuming the value per ton of the 140,000 tons of ore credited to Rossland for the end of the present month to be at least $17, the total value is $2,380,000 gross. For the next two months there will be shipped at least 30,000 tons, making an output of 170,000 tons for 1899, but even this may be exceeded, judging from the facts that the Le Roi is about to ship the pay ore of its old dump to Northport, and the War Eagle and Centre Star are about to increase their output. Should 170,000 tons be shipped this will be an increase of about 60,000 tons on the production of 1898, or about 54 per cent. So far, then, as the actual trade, otherwise production, is concerned, the progress of the industry here is gratifying.

Le Roi.—The new tramway to the large ore dump will not be completed for three weeks, when shipments of the best ore from the dump will be made to the Northport smelter. Mr. Carlyle will dissolve his connection with the company about December 1st, and he will then leave for Europe. The new management is inaugurating a new system. The mine will hereafter ship about 2,300 tons per week until the shipments from the old dump begin, when it will ship about 2,500 tons weekly. The War Eagle is shipping about 2,400 tons weekly, and the Centre Star about 650 tons. The Le Roi shipments to date amount to 72,000, the War Eagle about 47,000, the Centre Star about 10,000, and the Iron Mask 4,200, miscellaneous 1,800.

Centre Star.—According to recent statements made by Mr. Hastings, joint manager of the War Eagle and Centre Star mines, the present management of the Centre Star has expended $275,000 in development and other improvements. The joint management have made arrangements for five new compressor plants, and two of the new boilers have been tucked in. The mine is reported in fine condition.

Virginia.—Further developments of the new-found ledge continue to be made. There is another ledge running nearly parallel to what is known as the Fulton ledge. This runs through the Enterprise ground and is claimed by the Great Western

Nickel Plate.—This ledge, it is claimed, is also on the ground of this partially developed claim, and developments are expected shortly.

Iron Mask.—This company is making rapid pro-

gress and its output is nearing the 5,000 tons mark.

No. 1.—Drifting is in progress to the 400-foot level.

Josie.—The management is connecting the workings with the Poorman tunnel.

Gertrude.—Development work is making favourable progress.

California.—Ten men are at work connecting the two tunnels by a cross-cut.

Coxey—Development work is in progress, and a carload of ore will be shipped shortly.

Mascot.—There are no new developments to report. Work continues as heretofore.

White Bear.—The cross-cut is in 12 feet at the 350-foot level. The indications continue favourable.

Sunset No. 2.—Development work continues as heretofore; 26 men and two machines are at work.

Homestake.—The management is cross-cutting at the 200-foot level.

St. Elmo.—A new compressor plant has been installed. Development work is in progress.

Evening Star—Operations have been suspended for the present.

Shakespeare Group.—Mr. F. R. Blockberger, manager of this group, is inaugurating a plan of systematic prospecting, and he is about to have a trial cut between the Skylark and Blockberger claims on Monte Cristo Mountain.

The Okanagan Gold Mines.—The fact that this company has paid a dividend of $4,000 on its capital stock of $80,000 equal to 5 per cent. on the investment ought to be accepted as such until it can be shown that there has been no clean-up and, therefore, no dividend. This will be hard to prove, since the two gold-bricks, weighing 260 ounces, have been purchased by the Bank of Montreal branch at Rossland, and were vouched for by Mr. Fraser, the manager. We hear that a number of the green-eyed fraternity express doubts as to the reality of these bricks and the dividend. The success of this company seems to have annoyed those who hate to see their neighbours prospering. We do not claim that the Okanagan is an Alaska, Treadwell, a War Eagle,a Calumet and Hecla, or even a Homestake, but it has placed itself in the list of dividend-payers, and its management are to be congratulated on this auspicious event.

SLOCAN.

(From Our Own Correspondent.)

Matters remain practically as they were a month ago in this division, the principal mines being to all intents closed, although work is still proceeding at many in a half-hearted manner. The necessity of keeping the workings in order pending a resumption of operations gives employment in the aggregate to quite a number of men, and the further fact that the right to freely enter into contracts has now been acknowledged by the "Unions" has supplied an impetus in the right direction, although one would imagine that it might be a matter of policy on the part of the mine-owners at the present time to keep as many men from working as possible. It is estimated that there are approximately 700 men employed in and around the mines commonly included in the Slocan, this, however, will convey to outsiders an erroneous idea of the condition of affairs unless qualified by the statement that the Silver Lead Mines Association—usually referred to as the Mine Owners' Association—is now advertising for 2,500 miners at the new rate of wages; showing that after all only work that is really necessary or is not affected by the provisions of the eight-hour law is being proceeded with. The Queen Bess and Slocan Star are among those which have availed themselves of the privileges of the contract system, though not as yet to any great extent. The former is busy driving right ahead on its long tunnel, while at the Star excellent results are reported in the No. 5. The Payne is employing only a few men on surface work, exception having been taken to certain action on the part of the Union, resulting in the laying off all men employed underground. The Reco, too, is left with only a watchman and will probably remain closed for the winter.

THE LABOUR SITUATION.

One of the largest employers of labour is the Ivanhoe, which has recently completed the installation of a compressor plant at the mine. The intention is to erect a concentrator as soon as satisfactory arrangements can be made regarding a location.

The California, situated at the back of New Denver, is again being worked in a small way, which added to the activity displayed in connection with the Hartney and Marion relieves somewhat the depression resulting from the temporary shut down of our principal producer, the Bosun.

On Four-Mile prominence is being given to surface work, the construction of the tramway and concentrator for the Wakefield, and the new buildings at the Emily Edith absorbing all the idle men in that vicinity. The latter will be of the strictly up-to-date variety, following the lead set by the Payne, comprising in addition to the usual bunk-house—which in this case will be augmented with splendidly equipped bath-rooms—special apartments for light recreation. These arrangements will naturally prove an incentive to the better class of miners to seek employment where their temporal wants are most carefully looked after.

ACTIVITY NEAR SLOCAN CITY.

A considerable improvement is noticeable in conditions around Slocan City of late, due in large measure to the present and projected operations of the syndicate backed by Senator Warner Miller and represented locally by Mr. Percy Dickenson. Being imbued with ample capital, they have commenced by bonding, among others, a number of claims at the head of Ten-Mile, intending to proceed vigorously with development during the winter. A large proportion of the required supplies is being obtained from local merchants, and this, together with the work going on at the Arlington, Skylark and Ranger, and the Chapleau has had a stimulating effect upon trade generally. Good reports alone are heard from this latter property, and it is probable that operations of a more extended character will shortly be carried out.

THE MONTHLY OUTPUT.

To one who has known the Slocan in its glory it is painful to refer to the present day shipments, but in the name of truth and with many apologies it has to be done, even though one is ashamed of it afterwards. Last month less than 500 tons, all told, found its way to the smelters, over half of which came from two properties at Whitewater, the mine of that name furnishing the principal amount, 195 tons, and the Jackson being re-

sponsible for 83. Of the others, the Payne alone is worthy of mention, having the same amount to its credit, about 80 tons.

Silver still continues on the downward march, notwithstanding that every other metal without exception, including copper, tin, lead, zinc and iron, and many of those in more restricted use, such as platinum, mercury, antimony, etc., maintain an upward tendency. Just what effect the war in South Africa will have it is impossible to predict, but the outlook taken all round is none too encouraging, even in the eyes of the most optimistic individual.

NELSON.

(From Our Own Correspondent.)

A well-known figure has returned to Nelson, in the person of Mr. "Rob" Tolmie, who ie even better known at the Coast. It will be remembered that Mr. Tolmie, who was Mining Recorder here, was ousted from his position by the present Government for no reason whatever, except that he apparently did not agree with their ideas of governing a mining country. Seeing that Mr. Tolmie is a man of great common sense this is scarcely surprising. Mr. Tolmie then went to Seattle, and we feared that he was lost to us forever. He has now returned as the secretary of the Mine Owners' Association, and in that capacity will probably watch the course of legislation in Victoria. If the Government will condescend to take it, they will find his advice on any matters connected with this part of the world exceedingly practical and to the point, but so far they have not shown themselves at all prone to consult anyone who may be in a position to enlighten their own most unfortunate ignorance of the subject.

The strike situation remains the same. The Slocan mines are all closed down, though work continues in every other part of Kootenay, the men so far accepting the reduced pay offered for the reduced time. It is said that the unions over the border have refused any support to the unions of Kootenay, because the wages demanded here are higher than those willingly accepted elsewhere. If the local unions therefore were to close down the entire country there would be no working bees to supply the honey for the great army of drones which thrives on unionism. So certain places remain unmolested. There is, however, a distinct feeling of uneasiness and several small strikes have occurred. There was some little trouble at the Iron Mask in Rossland, with wet workings for an excuse. At the Granite mine near here, men working on contract went out because the management refused any further supply of powder, fuse and light. Both sides are unsettled, and if the unwise legislation has done nothing else, it has created a feeling of dissatisfaction between masters and men, where all was harmony before.

LABOUR TROUBLES AT NELSON.

Since the foregoing was written an important meeting of the Miners' Union was held in Nelson on Saturday, 21st October. It was there decided to raise the siege so far as Nelson was concerned, but to continue it with redoubled vigour in the Slocan. Rossland somehow has escaped so far. This means that the mines round Nelson and at Ymir and other parts of the Salmon River country will be able to get all the men they want at three dollars a day. Various interpretations are placed on this action of the union. By some it is supposed to be a sign of weakness and indicates approaching dissolution, while others, probably nearer the mark, suggest that the union means to concentrate all its energies on the unfortunate Slocan, and when that is subdued, Nelson and Trail Creek will become easy victims. The counter moves on the part of the owners is obvious, but it is doubtful if it will be made. Every mine in the districts now left free from attack should be at once closed, thus shutting off the sources of supply from the union and showing the willingness of mine owners here and at Rossland to stand shoulder to shoulder with their brethren in the Slocan. As long as the camps remain divided the union is sure to subdue them in the end, and the only successful opposition to their attack is united action.

MEETING OF THE MINERS.

There has been some excitement, accompanied by an exhibition of good feeling, amongst all classes over the departure of Captain Hodgins and three men for South Africa. A fund of nearly $700 was raised, out of which a sword was presented to Captain Hodgins, the rest being divided among the other three to provide them with pocket money. The response to the invitation for volunteers and the hearty acceptance of the selection show that any little bickerings, whether political, social or racial, are merely on the surface.

CORRESPONDENCE.

The Editor does not hold himself responsible for the opinions which may be expressed in this column. No notice will be taken of communications unless accompanied by the full name and address of the writer.

THE B.C. MINING AND EXPLORATION COMPANY, LIMITED.

TO THE EDITOR :—In your October issue I notice in your criticisms on the British Columbia Mining and Exploration Company, Limited, you state, "With regard to the concern itself there does not at present appear to be much to promise that the invitation to the public to subscribe for shares will meet with any extraordinarily enthusiastic response."

It is immaterial, I may say, whether the public enthusiastically subscribe to the shares for sale (which are solely for development purposes, with the exception of the ordinary office and legal expenses, which will be exceptionally light, as the officers of the company are giving their time free of cost for the first year) or not, as the late owners have sufficient confidence in the properties to purchase treasury stock themselves, independent of what the public determine to buy.

You state in italics of your own "thereby availing themselves of the development work that is being done on a number of the adjoining mines," evidently criticising the statement made in the prospectus. Now, any sensible person must know that it is an advantage in a new mining country like British Columbia to become interested in a number of the mining districts. I can name a number of properties which have lately become very valuable simply on account of adjoining properties proving to be rich mines and securing railway connection, thereby in-

creasing the value of the adjoining properties whether they have the same vein or not. In a similar way investors generally prefer strong corporations whose interests are scattered, so that the risks are sub-divided; this especially is the case in new countries where development work has not sufficeintly proved the future of the mines.

You also state, "the owners of the various properties have received 350,000 fully paid-up shares for their interests and the present sale of the shares to the public will be *mainly* devoted to the development of the properties." The italics you state are your own. The word mainly was put in the prospectus on purpose to avoid the mis-statement that generally appears in prospectuses. Usually it is stated that the sale of treasury stock will be devoted to development purposes; this is never done entirely, as some of the money is used for office expenses and certain outlays which are necessary for a company to expend but not used for the actual development of the mine.

In the case of the company herein referred to, the monies received from the sale of the treasury stock will be *mainly* (perhaps 190 per cent.) used for developing the properties, the balance being used in ordinary office and legal expenses; these will necessarily be very light, as stated before, the officers of the company not receiving any salary for the first year.

The promoters of the company receive no consideration for their services from the company.

I may say that this company has been formed on very conservative lines. The late owners of the properties receive no cash, but are paid in shares on the same basis of price as the treasury stock is sold at, viz.: Ten cents per share. No salaries are paid officials the first year.

Trusting you will give this letter the same publicity as your criticism, I remain.

Yours truly,

HENRY CROFT.

Victoria, October 5, 1899.

PUBLICATIONS.

THE Canadian Mining Manual, 1899, edited by B. T. A. Bell, Ottawa. This excellent work, which is really a comprehensive and accurate directory of mining companies operating in the Dominion of Canada, is now in its ninth year of publication. The information it contains being compiled from Governmental and official reports, is, therefore, as nearly as possible reliable, but necessarily not brought strictly up to date. As a reference work covering a particular field the Canadian Mining Manual stands unquestionably alone and unrivalled.

The "Slide Valve"—Simply Explained. By W. J. Tenant and J. H. Kinrally, D.E. New York. Price $1.00.

This hand-bood is intended to assist students of the steam engine in understanding the mechanism of various forms of slide valves, and the proper adjustment of various adjacent parts of the steam engine. The authors of the work have devised a graduated rotary disc and represent the varying positions of the crank-shaft and slide valve, by means of which the student may readily comprehend the workings of the various parts of the mechanism. It is important that engineers should clearly comprehend the functions of the various types of slide valves in use, and these are all duly set forth in the work before us.

Report on the Geology and Natural Resources of portions of the District of Nipissing, Ontario, and of the County of Pontiac, Quebec: By A. E. Barlow, M.A., The Geological Survey of Canada. Ottawa, 1899. Price, 30 cents.

This report is accompanied by two maps, each on a scale of four miles to an inch, and constituting Nos. 130 and 138, respectively, of the Ontario series of Geological maps.

"The Slocan District of British Columbia; Its Resources and Opportunities for Investment," by C. Cliffe, editor of the *Mining Review*, Sandon, B.C.

This is an interesting and well-printed pamphlet of some ninety pages, describing in detail the various mines and mining properties in the Slocan district. There is a pleasing absence of the kind of boom twaddle one has learnt to associate with publications of this character, and the information contained in the brochure is, so far as we are able to judge generally accurate. In the Slocan silver-lead mines we have a great heritage, and as the author states "more dividends have been declared by the Slocan properties, in proportion to investments and expenditures, than by any other lode mines in the world."

The Gold Mines of the World; by J. H. Curle, illustrated with plans and photographs. London. Waterlow & Sons, Limited, 1899. Price 16s.

Although entitled the "Gold Mines of the World," only mines in which English capital is invested are dealt with in this book, and as the author himself explains in his introductory chapter he, in this respect, deliberately sacrificed strict accuracy in the naming of his work, to the desire for an effective title. It is, meanwhile a matter for wonderment, that a man should be able within the very circumscribed space of time in which the author made his extensive tour, to visit and inspect the underground workings of no less than two hundred any twenty-eight developed mines, and at the same time write so accurately and so minutely of each. "The Gold Mines of the World" is, in its way, one of the most remarkable books ever published, and we hope next month to review it as exhaustively as it deserves, having regard especially to Mr. Curle's well-considered report on the gold mines of British Columbia.

We have to congratulate the new town of Phoenix, in the Boundary Creek district, on the acquisition of so well-edited and well-printed a newspaper as the *News*, the first number of which appeared this month.

PRODUCING MINES.

SLOCAN.

The total clearances of the Kaslo port on ore for the month of September were :

Gross lbs ore	2,333,791
Pounds lead, contents	371,800
Ounces silver	40,910
Value	$67,393

From the sub-port of Nakusp the following is reported :

Gross lbs. ore	16,000
Value	$6,372

The following ore shipments are reported for the four weeks ending October 13th :

Sandon—

	Tons.
American Boy	20½
Payne	80
McGuigan—	
Rambler-Cariboo	40
Red Fox	14
Whitewater—	
Jackson	48
Whitewater	106
Hillside	1

From January 1st to October 14th the total production of the Slocan is estimated at 18,060½ tons.

NELSON.

The report of the Athabasca mine for the month of September is very favourable. The time run was 29 days, 11 hours. Number of tons crushed, 416¾. Value of bullion recovered, $7,453.55. Concentrates, $2,185.27. Total recovered, $9,638.82. Value of bullion recovered per ton of ore crushed, $17.88. Concentrates, $5.24. Total value per ton $23.12.

The result of the Hall mines smelting operations for the four weeks ending September 30th, are appended 5,142 tons of Silver King ore were smelted, containing (approximately) 119 tons of copper, 80,000 ounces of silver.

LEAD SMELTING.

116 tons of Silver King ore and 836 tons of purchased ores were smelted; 170 tons of silver-lead bullion were produced, containing (approximately) 165 tons of lead, 23,820 ounces of silver, 948 ounces of gold.

The exports of ore and matte from the port of Nelson during the month of September aggregated in value $175,000.

ROSSLAND.

The value of ore and matte exported from this port during September was $380,000.

The production of the Rossland camp for the three weeks ending Oct. 14, are approximately estimated as follows:

	Tons.
Le Roi	4,288
War Eagle	3,224
Iron Mask	403
Evening Star	120
Centre Star	1,333
Virginia	40

The total output to date is placed at 129,037 tons.

LILLOOET.

Last month the Ben D'Or mine, Cadwallader Creek, produced two gold-bricks of the value of $6,147.59 and $7,692.40, respectively.

COAL EXPORTATIONS.

The Vancouver Island coal exportation for the month of September were as follows :

	Tons.
New Vancouver Coal Co.	41,753
Wellington	21,870
Union	2,826
Total	66,449

The New Vancouver Coal Co.'s shipments for the three weeks ending October 20th, were :

Date.	Vessel.	Destination.	Tons.
3—	SS. San Mateo	Port Los Angeles	4,443
3—	SS. New England	Alaska	38
5—	SS. R. Adamson	San Francisco	4,455
7—	SS. Mineola	Port Los Angeles	3,431
10—	Bark C. D. Bryant	Lahaina, H.I.	1,475
13—	SS. Titania	San Francisco	5,089
13—	Str. New England	Alaska	43
18—	SS. San Mateo	Port Lost Angeles	4,457
Total			23,431

THE METAL MARKET—OCTOBER.

[Compiled from the special telegraphic quotations to the B.C. MINING RECORD from the *Engineering & Mining Journal*, New York.]

The market has been devoid of any special feature this month. The bank rates are exceptionally high and the speculative markets have been generally weak, but general business has not been greatly affected.

SILVER.

The silver market has been steady but dull. Prices have, however, declined somewhat since last month. The lowest point reached was 57¾ and the highest 58⅝.

LEAD.

Lead continues to be in good demand and inquiry on the part of the consumers is reported as very fair. There has been no change in prices, the metal being quoted at 4.55 to 4.60, New York, and 4.47½, St. Louis.

COPPER.

The market has ruled quiet but steady, without any special feature. Prices throughout the month have remained stationary, with lake copper at 18½, electrolytic in cakes, wire-bards and ingots 17 to 17⅛; cathodes, 16¾ to 16⅞; casting copper, at 17, nominal.

SPELTER.

Disquieting reports from the ore-fields resulted this month in creating much activity in this market and a large business was done at the following prices: 5.30 to 5.35, St. Louis; 5.45 to 5.50, New York.

THE LOCAL STOCK MARKET.

THE market is at last showing signs of recovering from the depression of the last few months; and generally business during October, on the Toronto, Montreal, Rossland and Spokane Exchanges has been very much more active.

Since our last report Evening Star has declined from 11 to 9 as a result of the closing down of the mine. I.X.L. has advanced from 13½ to 15½; War Eagle has fallen from $3.30 to $3, and Virginia from 11 to 8½; St. Elmo from 8 to 6; Monte Cristo from 7 to 5; Iron Colt from 8 to 5½; Homestake from 13 to 10. Iron Mask has been selling at 72 to 73, and Jumbo at 24. I.X.L. has been very active at from 13 to 16 cents, about 90,000 shares having been sold recently to mostly Western buyers.

AINSWORTH, NELSON AND SLOCAN.

Of Nelson stocks Athabasca, Dundee and Exchequer have been the most active. Payne sold during the month as low as 88 cents, owing to the reported non-payment of the usual dividend. The monthly dividend was afterwards declared and the stock recovered somewhat, and is now quoted at $1.06 to $1.10. It is announced that Rambler-Cariboo will pay regular monthly dividends and this report has

caused the stock to advance from 49 to 60 cents. Dardanelles have been selling at 11 to 12 cents, and Noble Five at from 24 to 25.

BOUNDARY CREEK.

Some very remarkable strikes have been made in the Boundary district by railway cuts, 25 feet of ore has been shown up on the Brandon and Golden Crown, 46 feet on the Winnipeg and 100 feet on the King. These strikes have created a considerable demand for Boundary stocks. Winnipeg has been in great demand and in one week 100,000 shares were sold, principally in the West, at from 30 to 32 cents; Brandon sold at 29 and King at 21 to 25 cents. In the early part of October Rathmullen was very active at from 8 to 8½.

CAMP M'KINNEY.

Cariboo is last quoted at $1.15; Waterloo has advanced from 11 to 13 owing to the recent strike and the fact that crushing is to be commenced immediately. On the Fontenoy the Waterloo ledge has been struck and the 120-foot level; but the shares remain stationary at 16 to 17. Little Cariboo has been selling at 1 cent and Minnie-ha-ha is quoted at 16 cents.

FAIRVIEW.

Fairview Corporation has been in some demand at 5 to 5½ cents.

VANCOUVER ISLAND.

Several dealings in Mount Sicker and B.C. Development Company shares are reported for the month at $4.85.

TEXADA ISLAND.

Van Anda shares have been again active and have advanced from 7½ to 9 cents.

CATALOGUES AND TRADE CIRCULARS.

THE 1899 edition of Catalogue No. 15, of the Gates Iron Works, Chicago, describing cement-making, has just been issued. This catalogue is illustrated with some dozen plates, showing the Gates Rock Breaker, Fine & Gyratory crushers, crushing rolls, ball and tube mills and rotary cement kilns. The catalogue is in its way quite unique, in that it offers for the first time a complete line of modern machinery designed for cement-making and embracing the whole process, made by the same firm.

We have received the fourth edition of Messrs. Fraser & Chalmers, Catalogue No. 8, giving a list of crushers and pulverizers, manufactured by them.

The Hendrie & Bolthoff Mf'g. and Supply Co., of Denver, Colo., whose representative, Mr. F. H. Boswick, recently visited British Columbia, have just shipped a small electric hoist and an air-compressor to Rossland. We anticipate that this is but the entering wedge of this enterprising concern into the trade of this side of the line. They have a most extensive line of steam, compressed-air and electric hoists, and our readers would do well to correspond with them when in the market for machinery. In this connection we might add that this concern has placed twelve hoists in Washington during the past six weeks.

Their new catalogue of hoisting machinery has been received at this office, and every one of our B.C. miners should send to them for a copy of this very handsome little booklet.