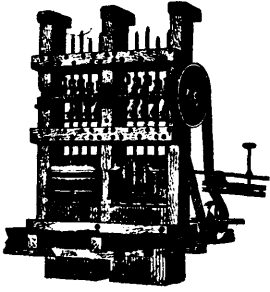


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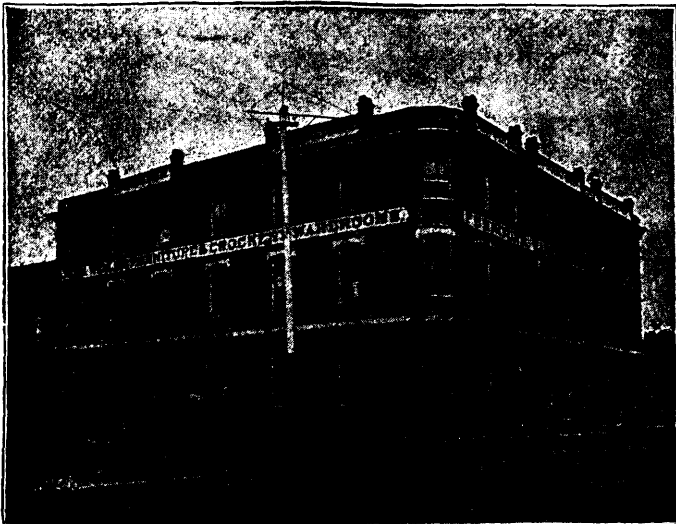
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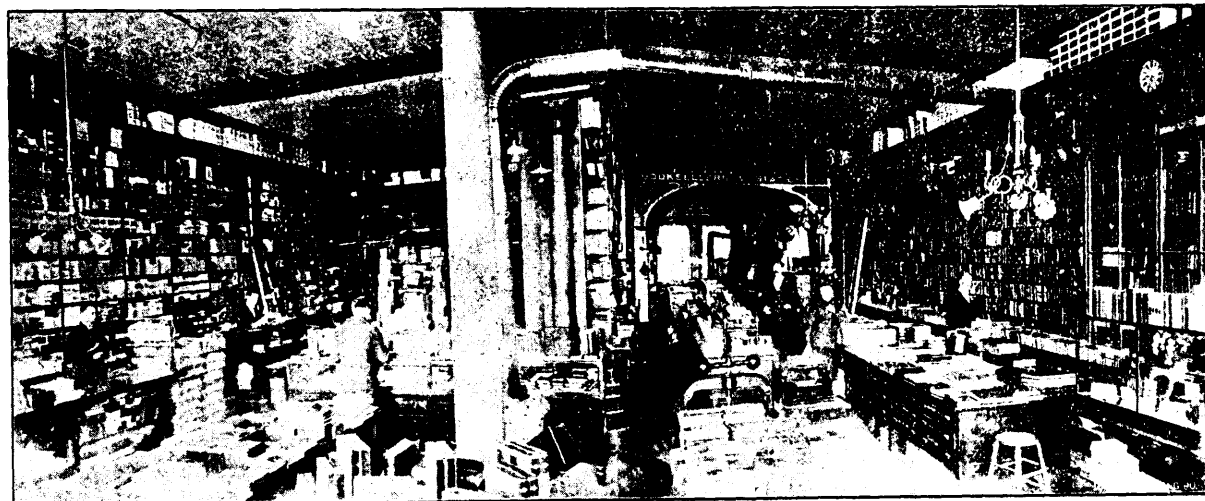
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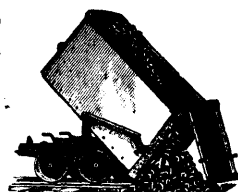
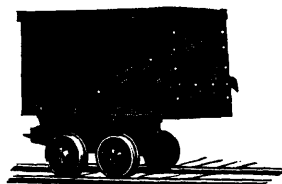
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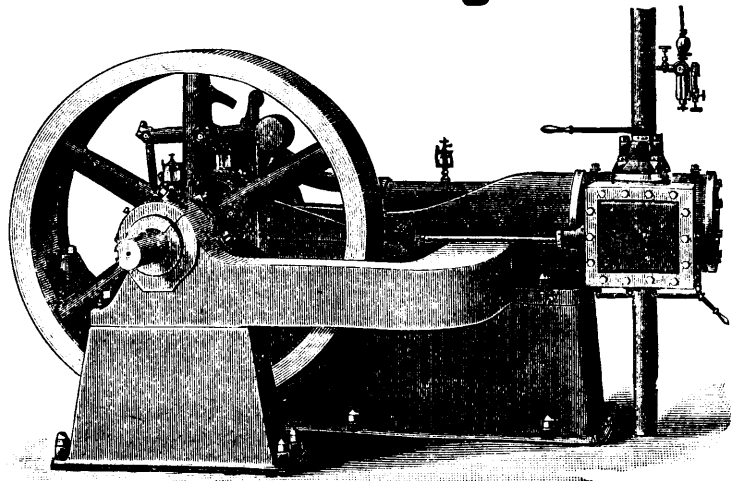
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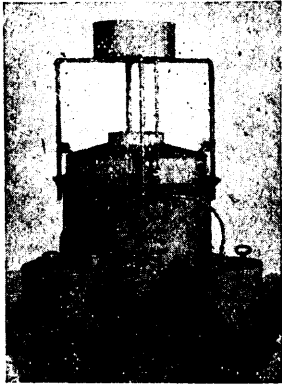
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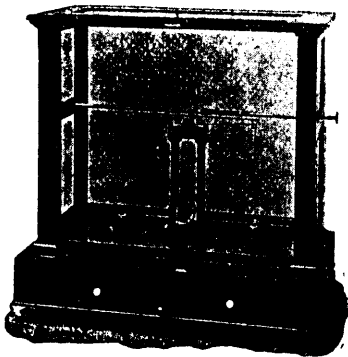
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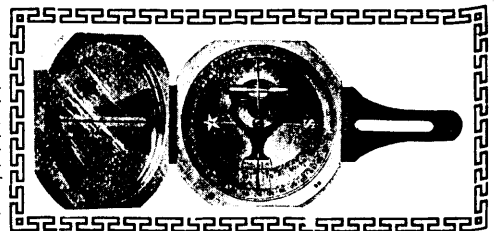


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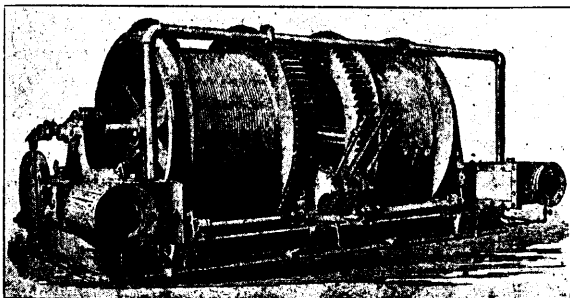
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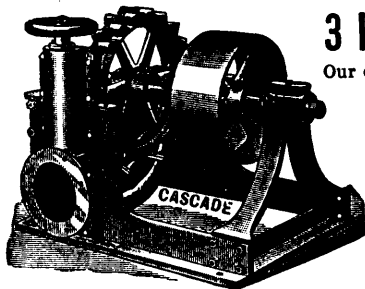
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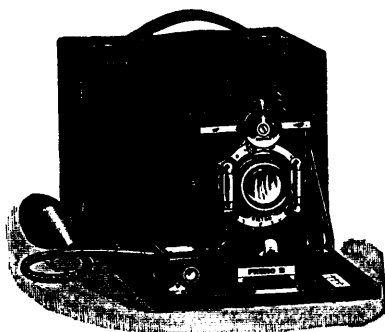
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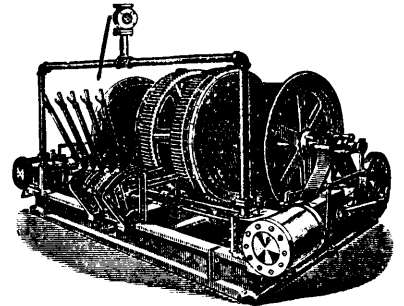
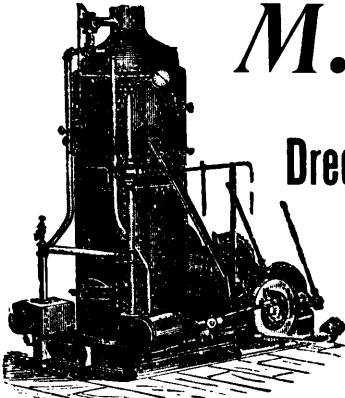
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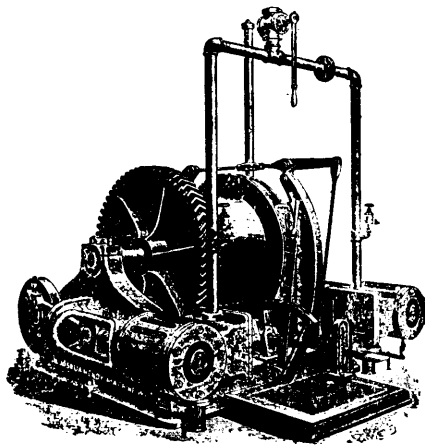
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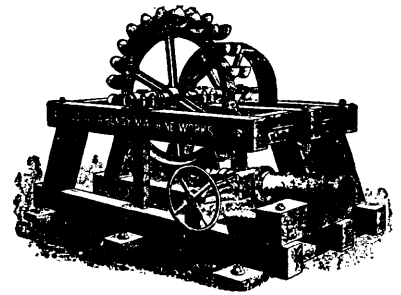
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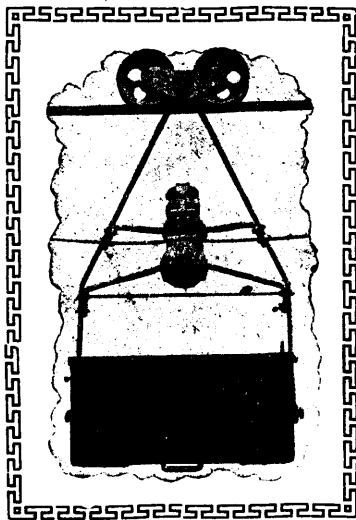
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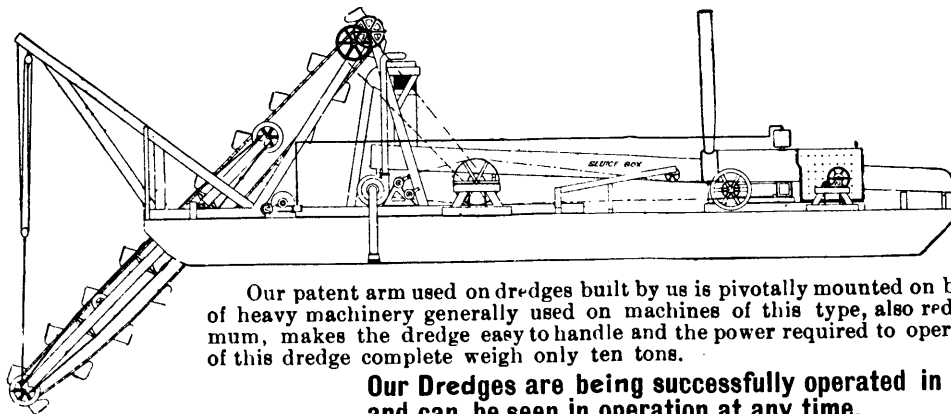
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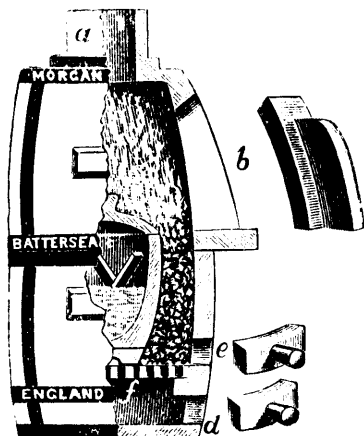
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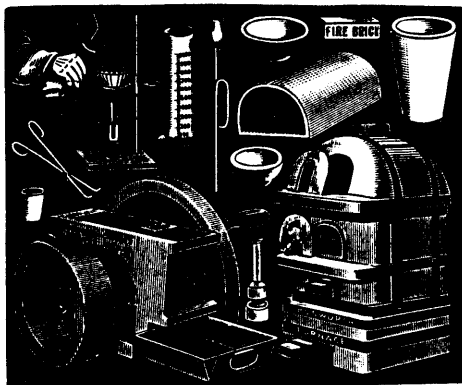
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The Mining Record.

Vol. IV.

DECEMBER, 1898.

No. 12

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.*
Vancouver Office: W. T. STEIN, Board of Trade Rooms, Hastings St.
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All communications relating to the editorial department
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P.O. Drawer 685, 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 685, Victoria, B.C.

THE MONTH.

THE collapse of the Golden Cache Company—which may just possibly not be final, though things look ominous enough—has and will for some time

THE	local stock markets, Lillooet and
GOLDEN	Bridge River stocks being naturally,
CACHE	however, more particularly affected.
FIASCO.	But this is relatively a very unimportant

detail resulting from the disclosures revealed to the unfortunate shareholders of this Company at the meetings held on the seventeenth and twenty-third of November. These revelations are of the most serious nature and may almost be regarded as prima facie evidence of most regrettable and apparently wrongful concealment on the part of the directorate for more than a year of damaging facts regarding this property, during all of which time investors were allowed, led by glowing press reports, doubtless more or less inspired, to believe that the Golden Cache had a future before it as bright as the mine's own name, and as a result not only were the price of shares maintained at an absurdly high valuation, but heavy purchases were made in them by both English and Canadian investors, the president of the company, Mr. J. M. McKinnon—who, by the way, shamelessly showed the white-feather by resigning his office and temporarily (we suppose) leaving the country previous to the meeting the other day—and other directors (we except Messrs. Robertson and Hamilton), actually acting as brokers for the sale of Golden Cache shares, receiving commission on such sales. In June of last year Mr. J. A. MacFarlane, F. C. S., of Vancouver, concluded a series of reports on the property of the most unfavourable nature, asking at the same time to be relieved from a managerial position, in which he felt he could be of little service, his observations, so far as he could judge, having tended to show no real prospect of profit

earning from the mine. This report was posted to the secretary of the company on the 27th of June, and within a very short time after, in the natural order of things, it should have been brought to the attention of the directors, yet Mr. MacQuillan, then acting as Vice-President of the Company, sold, we believe, on behalf of another concern with which he was associated, the Dominion Development Company, a large block of shares at the boom price of \$1.80 per share. Mr. MacQuillan explains his conduct in this respect by stating, first, that in spite of repeated protests on his part important information and correspondence appertaining to the Company's business was frequently withheld from him, and secondly, that when he saw Mr. Macfarlane's report at a Board meeting in July, 1897, he had expressed the view that no credence should be placed in it, as in his opinion Mr. Macfarlane had adopted this means of venting his spleen for his discharge from the Company's service. It is fair in Mr. MacQuillan's case to state our belief that there is much that is plausible in his account, and it is well known that he has strenuously advocated, almost from the commencement, the engagement of a duly qualified and independent mining engineer to thoroughly examine and report upon the Golden Cache property; at one time, offering, in fact, on the part of the Dominion Development Company, to defray the entire cost of such a proceeding. Not only was this offer not accepted, but Mr. J. D. Kendall, of the firm of Bewicke, Moreing & Co., whose high professional standing is known to every member of the Golden Cache directorate, was refused permission to examine the property on behalf of English clients. It is something also in Mr. MacQuillan's favour—though not very much—that at the meeting last month he publicly apologized to Mr. Macfarlane for the false construction he had placed upon that gentleman's eminently honourable and straightforward conduct, which led him much to his then detriment to report as he did on the prospects of the mine. But Mr. MacQuillan cannot say that he was not a party to the suppression of Mr. Macfarlane's reports from the public.

With regard to other directors, Mr. Skene seems to have been more sinned against than sinning, being himself a heavy loser, as likewise Mr. W. Robertson and Mr. Robert Hamilton, who are not in the public mind associated with the suspicion of deliberate wrong-doing, which certainly attaches to some of their colleagues, although, of course, they must share with them any blame on the general charge of bad management. Meanwhile, after these matters had been more or less intelligently discussed at the first November meeting, a committee of five shareholders was appointed to confer with the directors to devise some plan for securing funds to meet the Company's present liabilities and also for the continuance, if deemed advisable, of operations at the mine. This committee recommended the issue of debentures to the amount of \$15,000 to effect these purposes, as being in the best interests of the shareholders, in the

belief that an expenditure of a further \$8,000 will prove whether or not the abandonment of the property would be justifiable. This recommendation has to be submitted to the directors, and we therefore take the opportunity of suggesting to these gentlemen that as the public chiefly complain that the mine has not been recently examined by a qualified, independent mining engineer, before anything further is done in mine development this step should be decided upon.

After hearing the foregoing remarkable revelations, the shareholders of the Golden Cache Company expressed themselves, with hardly an exception, as strongly in favour of a Government enquiry into the affairs of the undertaking, if legally possible of arrangement with the Attorney-General, as representing what is virtually a Provincial Ministry of Justice. The motion was not formally put, the meeting having been called for other and special purposes, but it was practically arranged that the Attorney-General should, on behalf of the shareholders, be requested to make all possible investigation into the conduct of the affairs of the company. This plan had previously been suggested in a leading article, known to have been penned by the Hon. F. C. Cotton, the Minister of Finance, in his paper, the *News-Advertiser*, and was thus fully endorsed as being in the general interest of the Province. But it may, we apprehend, be found somewhat difficult for the Crown to investigate thoroughly the affairs of a business undertaking as is, presumably, the Golden Cache, unless there be definite charges of malfeasance amounting to punishable criminality, brought against an official or officials of the company.

Very likely, however, some large investor, such as for instance, Mr. Oldroy, M.P., may, by civil action, cause a very thorough investigation of the conduct of the company, and no doubt, ere our next issue appears, things may thus or otherwise, be developing themselves towards fuller revelation of facts. Yet sometimes, unfortunately for the public interest, large British and other investors, when duped, prefer to grin and bear their losses, however heavy, than to risk the throwing of good money after bad. This recently happened, when many thousands of pounds sterling were lost, largely as a result of notorious misrepresentation in the case of a lumber concern at Takush Harbour, on the North Coast. In this wealthy English capitalists were induced to invest large sums and thereafter lost the greater part of the money thus invested, under very dubious circumstances. The incident is at the moment recalled to many by reasons obvious enough to those who know something of the facts in connection with the promotion of that doubtful deal. Although the Takush Harbour affair was hushed up it left its mark, and without doubt proved hurtful to British Columbia in the London money market.

Apropos of the Golden Cache affair it would be interesting to learn how many newspaper writers and correspondents in British Columbia received fully paid stock in the concern in consideration of appreciative press notices of the undertaking in its boom days. That such considerations passed seems to be generally suspected. Mr. Hooley's press methods, on a small scale, and regulated strictly pro rata, hav-

ing been for some time in vogue in British Columbia, though latterly not much has seemingly been done of this nature.

Vancouver seems to be peculiarly unlucky as regards the setting before it of one impracticable or doubtful smelter scheme after another in constant succession. The above unfortunate state of affairs is

VANCOUVER
AS A
SMELTING
CENTRE.

once more illustrated by the scheme of a company, proposed to be founded in London, England, under the title of the Vancouver Smelting Company, Limited. Its projectors, who apparently include a well-known Vancouver man now on a business visit to England, recently issued a draft advance prospectus, stating the authorized capital of the company as intended to be £300,000, and giving preliminary details of certain provisional contracts for the acquisition of a smelter site and plant, the obtaining of ore supplies and the purchase of mining claims for a large aggregate sum. The prospectus also gave the names of local directors and technical advisers in Vancouver, included amongst them being those of the Mayor, Mr. Garden, Mr. J. D. Kendall and Mr. W. Pellew-Harvey. Unfortunately Mr. Garden has felt bound to declare, as also Mr. Kendall and Mr. Harvey, that his name was placed on the prospectus without authority. Mr. Garden objects to various important points in the scheme, and especially condemns—quite rightly—the use of his official style of "Mayor of Vancouver" in connection with a business project, whilst Mr. Pellew-Harvey agrees with the view also held by other Vancouver people whose names have appeared on the prospectus that the proposals as there made are not such as form the basis of a successful undertaking. Still more emphatic is Mr. Kendall's repudiation of the concern, and it may here be stated that this gentleman wrote a letter to the promoters of the scheme in London refusing to act as engineer for the company or to allow his name to be placed on a prospectus relating thereto, and reminding them that when previously approached on the subject he had distinctly stated that he would not associate himself with the enterprise until he was properly assured of its bona fide nature, and could, moreover, be satisfied that the promoters meant business.

Having regard to these criticisms and repudiations, it is clear—especially as it is just now very difficult to promote in England even the most legitimate and promising of colonial company enterprises—that those behind the project of the Vancouver Smelting Company, Limited, must revise it altogether to have the least chance of making a success of their endeavour. They have unfortunately, in all probability, lost what opportunity they had by the bad bungle they have made of their first effort.

Meanwhile, we have excellent authority for stating that the particulars are likely to be ere long made public of another and a much more promising scheme, for the establishment of reduction works at Vancouver. The matter is not yet past the embryonic stage, but the details, we are assured, are being worked out upon thoroughly practical lines, and there is every reason to believe that a matting plant of sufficient capacity to meet all requirements for the present of the Texada and Coast Mainland districts will be erected

in the course of the next year at or near Vancouver. But the fact is quite well recognized that the time has not yet arrived when it would be wise to set up smelting works on the Coast upon any sort of a large scale, and a matting plant, which could be installed at a relatively small cost, of from 80 to 100 ton capacity, and capable of producing a 60 per cent. matte would serve all purposes, unless any phenomenal developments take place, for some time to come. Vancouver has, however, every prospect of becoming at a future date a smelting centre of importance, but much depends on the success attending the opening up of mining properties in the Kamloops and other camps along the main line of the C. P. R., as well as the profitable working of the Coast and Texada properties. If too, British Columbia lead can be marketed direct in the Orient, a smelter and refinery in Vancouver for the treatment of the Slocan galena ores might be successfully operated.

The question which has been much debated lately regarding the advisability of the passage of legislation against alien ownership of placer ground in Canada presents many very complex features. Undoubtedly the law enacted by the United States was largely influenced by the desire to build up a nation, and it was consequently deemed important that every immigrant should become a naturalized citizen of the Republic. Taxation without representation, be it remembered, was the principle for which the American colonies fought in the eighteenth century and the enforcement of the law against alien ownership of property has since resulted in building up a nation of 70,000,000 inhabitants.

The desire to seek fortune where greater opportunities existed for the acquisition of wealth and position was the magnet which has attracted men of sturdy independence of character to emigrate from the over-crowded European centres to the New World. The advantages which accompanied citizenship in the United States were so pronounced that the majority of new comers were glad to embrace this opportunity when offered them.

The natural wish to have a voice in the government of the adopted country, to acquire land, to prospect for minerals were the powerful influences at work. In short, the laws had been framed with a view of making citizenship so valuable from a commercial standpoint that it overbalanced consideration of sentiment.

But supposing Canada compelled an alien to declare his intention of becoming a British subject before he could acquire placer ground in the Dominion, would that prevent him from purchasing his supplies in United States markets if he felt so disposed? Would it prevent him from carrying his gold dust to an American mint? Would it make the Government of the great Northwest self-supporting? In a word, would it be productive of any great good to either the Dominion or to this Province?

The placer mining districts of the Yukon, should and we believe now do, produce a sufficient revenue to defray all expenses of administration, and yet probably four-fifths of that revenue is derived from an alien population. Subtract the revenue from this source, and

a deficit is at once created. Besides, greater expense would be entailed on the Government to keep aliens out of the country. The whole length of the Alaskan boundary would have to be closely watched or small parties of prospectors would dodge across, make discoveries on some remote creek, work for a time and dodge back again, taking with them the results of their work, and leaving Canada so much the poorer. But under the present conditions it is not worth a man's while to avoid paying for a miner's license.

Instead of attempting to keep aliens away from the placer districts on the sentimental ground of "Canada for Canadians," would it not be more practical for the Canadian Government, and the representatives of the commercial interests in the Dominion to pass such legislation, and to cultivate such a spirit of enterprise that the miners would find it to their own advantage to deposit their gold in a Canadian mint, to purchase their supplies from Canadian merchants and to travel by Canadian transportation lines. The fact that Yukon gold dust has found its way to Seattle and San Francisco is due to the better facilities for its disposal offered in those cities. This condition was brought about by the enterprise and the foresight of the representatives of the people in Washington.

Patriotism is very pretty in theory, but it is rarely practical when an attempt is made to reconcile it with commercial instincts. Enterprise, alertness, business ability will not be governed by sentimentality. The English corporation which engaged the services of John Hays Hammond, an American mining engineer to superintend their operations in the Transvaal at a salary of \$60,000 per annum, did not allow sentiment to interfere when making that selection. Ability for the position was considered of paramount importance.

If the sentiment "Canadian placer gold for Canadians" could be practically carried out, of course no one on this side of the line would have the temerity to oppose it nor indeed the desire. But it is much easier to advocate a reform, especially of a popular nature, than to provide means for carrying it into effect.

There is no doubt that the United States recognized the impracticability of enforcing the non-alien ownership law in Alaska, when it was so modified with regard to that territory that Canadians were allowed the equal rights with the United States citizens. When, moreover, it is considered that last season only about \$8,000,000 in gold dust was brought out of the Yukon, while possibly \$20,000,000 were expended in supplies and transportation, and that Canada had every opportunity for securing a large share of this trade there is less reason for the present agitation, and if an anti-alien law had been in effect there would probably not have been a one-hundredth part of the expenditure in Canadian cities that was otherwise the case, because men would have avoided Canadian territory entirely until they could have discovered some point along the boundary where they could safely elude the vigilance of the Canadian officials, for it is absurd to imagine that any force of police could have effectively patrolled so immense a stretch of border line as that between Alaska and the Yukon—and once in the country the veteran placer miner would soon prove that there were several ways of "beating the devil round the stump."

Meanwhile, there is very little likelihood, we think, of the introduction in Canada of legislation of an anti-alien character. The remedy must be sought in another direction, and if this is found and rightly applied the problem will solve itself to the satisfaction of the most patriotically inclined son of the Dominion.

Writes Mr. Hess' financial editor in *The Critic*, of London :

"I have read a good deal of twaddle lately about a so-called British Columbia Chamber of Mines. A little light on the subject may at this juncture be healthy and useful, especially as the stupid reactionary move of the British Columbian Government in abolishing their London Agency may give undue prominence to the other project. So far as I can learn, this so-called 'British Columbia Chamber of Mines' has no connection whatever with the Government of the Province and is the pet project of a man named McTaggart, of Vancouver, who runs a weekly paper, *The British Columbia Mining Critic*, in which he continuously puffs various properties. THE BRITISH COLUMBIA MINING RECORD, of Victoria, a sterling production which has done and is doing much to expose humbugs, has severely criticised this man McTaggart, his paper and his Chamber of Mines scheme, over and over again."

But in some respects this criticism of the Chamber of Mines is not quite just, for while the Chamber was started on what were admittedly false lines, an effort has since been made to establish it upon a more popular and substantial footing. It is still, however, anything but a representative institution, a fact which may, perhaps, be partly attributed to the "stand-offishness" of the mining men of the up-country districts, who rather resent Coast interference under any guise. But it is not altogether improbable that Mr. Lawrance, the secretary, may yet succeed in gaining for the Chamber in due time, the recognition and support of the British Columbia mining community generally. With regard to Mr. McTaggart, to whom reference is made, there is no evidence of which we are aware to show that his motives were anything but disinterestedness in the prominent part taken by him in the organization of the Chamber of Mines, and afterwards in the gratuitous devotion of much of his time while acting as honorary secretary to that body.

The dismissal of a Mr. Thompson who acted until recently as Mining Recorder at New Denver, has created a good deal of ill-feeling against the present Government in the Slovan. Mr. Thompson seems to have been a capable official, although an anonymous writer in a local paper accuses him of discourtesy, a charge which is, however, indignantly denied in another letter, also anonymously signed. Meanwhile from information secured from the Department of Mines, we are given to understand that the Department could not recognize Mr. Thompson's official standing at all, for the simple reason that he had never been gazetted to the post of Mining Recorder at New Denver, merely receiving the appointment through Mr. Sproat, the Gold Commissioner, as that gentleman's clerk. But if Mr. Thompson had given proof of his ability to discharge the duties of this office in a satisfactory manner, the fact that his appointment had not been previously gazetted should

not have disqualified him from being regularly installed as Mining Recorder, and we have therefore either to infer that Mr. Thompson was discharged on account of incompetence or misconduct; or that the dismissal is a flagrant instance of the working of the "spoils system," which has become so disgraceful and regrettable a feature of political life among our neighbours to the south of the International Boundary. It is not fair to Mr. Thompson that his reputation should thus suffer without good cause, and at the same time the Government cannot afford to allow the impression to gain strength that our civil service is to be disorganized to gratify political grudges or to reward party friendships, and when dismissals are made the public has a right to learn the cause.

Apropos of civil service appointments, we were much gratified to note that in a speech at a farewell banquet given in his honour at Ottawa the other day, the Rt. Hon. the Earl of Aberdeen, feeling that his term of office as Governor-General of Canada having then expired, he could express with greater freedom his opinion with regard to Dominion public affairs, spoke feelingly upon the necessity of reform in the system upon which the Canadian Civil Service is based and suggesting the adoption of the British plan of competitive examinations and a non-political civil service on the lines advocated in THE MINING RECORD some two months ago. There is no question of prominent public interest in Canada to-day of greater importance than this.

A correspondent, a prominent mining engineer, writes to THE MINING RECORD: "You will perhaps be interested to learn that the letter which appeared in your columns signed 'Anti-Boomer,' seems to have had some effect. I was informed recently that two experts have examined the Waverly since the letter appeared in THE RECORD criticizing the company and its methods, and it is shrewdly suspected that this action was taken in consequence of that criticism."

A certain well-known engineer practising in the Province, has adopted a plan by which he hopes in future to check—at least in such instances as he himself is professionally concerned—the unfortunate habit too common among London promoters of ruining the prospects of an otherwise promising flotation by over-capitalization. His method is very simple and should certainly prove efficacious, providing, always, he has to deal only with honest men. When asked now to pass professionally upon any property which, it is proposed, shall subsequently figure on a prospectus, this gentleman takes the precaution to close his report with a significant statement, beginning: "The capital for this company must not exceed" such and such an amount. The question of capitalization is, it is hardly necessary to point out, one of the greatest importance, and yet investors, strangely enough, very rarely as a rule take the trouble to enquire upon what basis of calculation the capital required for new promotions is decided. Obviously no one is better qualified to form a just opinion of the extent to which a mine may be safely capitalized than a competent engineer who has had the opportunity of examining the property thoroughly, of estimating its resources, the amount of ore in sight, and of considering those other factors which would necessarily

enter into such calculation. If other mining engineers would follow the example set in this particular by the gentleman to whom we have specially referred, or rather, perhaps, if the investing public would insist on promoters publishing evidence in every prospectus issued that the capital asked for had been fixed upon the recommendation of a trained mine expert of admitted ability and judgment there would be fewer disappointed shareholders than is now the case. But reforms of this nature are not too easily brought about.

The present month has been notable for the number of accidents, fatal and otherwise, which have occurred in the mines in more than one section of the Province. The sad fatalities in the Nanaimo coal mines could not, of course, have been well avoided, and it is very well known that in the New Vancouver Company's collieries every possible precaution is taken to protect the lives of the miners, but in the case of the Sunset, No. 2 mine accident, at Rossland, it is quite clear that the law with reference to the placing of stages at regular intervals in the ladderways was disregarded, and two men whose lives might thus possibly have been preserved, were in consequence killed. There are, we are credibly informed, a number of mines throughout West Kootenay in a similar unsafe condition, and instances of gross carelessness in the handling and stoving of explosives are of the commonest occurrence. The Act, passed by the late Government, for the better protection of workmen in the metalliferous mines, while being a step in the right direction has not proved particularly effectual for the reason that one inspector only is appointed to do work which would require the attention of at least six qualified men to adequately perform. If, however, the Government decides that the Province cannot afford to appoint more than one Inspector of Metalliferous Mines, it is some small satisfaction to the working miners to know that the present incumbent of the office, Mr. McGregor, is at least a capable and energetic man, and if he cannot be in two places at once, certainly no fault can be attributed to him on that account. Nevertheless, if Mr. McGregor would seek information from mining engineers in private practice, who are constantly visiting professionally the various districts and are likely, therefore, to learn much as to the provision (or want of it) made in the bigger mines of these localities for the prevention of accidents, he would, we believe, learn very much that would be of the greatest service to him in the execution of his duty. As to the relative safety of our mines with those of other countries one has only to compare the insurance rates paid by mining companies in England under the Employers' Liability Act, of three shillings and sixpence on the hundred pounds with the one per cent. rate in force here to form an opinion, which from this estimate would indicate that a miner in British Columbia is exposed to six times the risk of losing his life as is his confrere in the Motherland.

At last the troublesome litigation of months is settled and the British America Corporation are placed in charge of the Le Roi mine. The history of the proceedings reads like a chapter out of Bret Harte or a page of romance. What has complicated mat-

ters in the past has been the holdings of the Le Roi Company in the State of Washington. This has allowed the peculiar laws of that country to come into operation and we have had the anomaly presented to us of a company working a British mine in British territory and the British shareholders thereof being debarred from their right in participating in the dividends. That this really would have proved to have been the case had the matter been pressed to a judicial arbitrament is seriously open to doubt. Be that as it may, it remains that the minority shareholders of the State of Washington publicly gave out their intention of declaring a dividend which should not be participated in by the British majority. This amusing paradox came to pass because of the Northport smelter. It being situated over the boundary line could not be held, it was declared, by foreigners. How this point is now to be evaded when everything is settled and the lion and the lamb are lying in peace together has not transpired.

Meanwhile, the majority shareholders got \$6 for their stock; the minority \$7.25, plus the ore and matte at the Le Roi smelter at Northport. The value of this latter will probably prove to be about \$200,000. In other words the minority people are selling their shares for \$8.25. A difference of \$2.25, meaning a rise in the selling value of the shares of 37½ per cent. On the other hand, if the majority had not acquiesced in this result the consequence would have been the alternative of a long series of complicated legal trials and decisions which may or may not have run away with more than the amount of money expended. Here also rises the question of "gophering." If the output of the mine had not been increased in the manner which has been witnessed there could have been no such claim raised as \$8.25 per share. Of course the opposite view is that the imposing output has been obtained at the expense of legitimate development and that output will have to be seriously curtailed in order to allow of the development, on this supposition, seriously behind, regaining its place in the mine. But this is again weakened by the fact of the find in October of the high grade of ore in the new chute between the 500 and 600 foot levels. It is at any rate pretty clear why the one party wished to expedite output, for the more the mine was shown capable of producing the higher would be the probable value of the shares and the greater the reserve of ore and the amount of matte at the Northport smelter. On the other side, there was every reason to restrict such output, even if the claim was not correct that the development work was being neglected, and the true interests of the mine made thereby unduly to suffer.

We have always held that it is desirable in the general interest of the Province to minimize British Columbian employment of Mongolian labour, usually engaged at rates below the average standard of Western working life. We, however, recognize at the same time, that the Mongolians in our midst must, so long as they behave as orderly settlers, be permitted to engage without molestation in ordinary occupations at which they are lawfully employed. British freedom must be accorded to them as to all others peacefully resident, temporarily or permanently, within the limits of the Empire. Hence we thoroughly approve the action of the authorities in West Kootenay in prosecuting alleged participants in re-

cent forcible attempts to expel Chinese workers from the Slocan districts. The Chinese in British Columbia have as valid a claim to the protection of their lives and property as we demand for British subjects in China. What we seek and are ready at all times to promote by such influence as lies at our command, is the further legal restriction by statute of Chinese labour immigration, not the cruel harrassment of Chinese already in the country, though we hold that he must, far more rigidly than is now usually the case, be made to strictly conform to the same sanitary and other regulations concerning social order, that affect the white population at large. And after all, it is the more skilful competition of very low wage accepting Japanese labour that most seriously now affects and will in the future yet more seriously affect our white working population, while it is admittedly most difficult for many reasons to restrict Japanese immigration in like position to that which can readily be applied to the Chinese. A fair day's wage for a fair day's work, measured in each case by a reasonable British American standard, is what should, so far as possible, be secured for worthy British Columbian workers. But this end should be certainly gained by only fair and legitimate means.

In an advertisement published in one of the Rossland papers inviting the public to buy shares in a Ymir mine, an extract from one of the late Provincial Minerologist reports referring in quite sufficiently cautious language to this property is quoted. But the amusing part about the notice is the evidence of anxiety on the part of the advertisers to lay stress upon the fact that Mr. Carlyle once expressed officially a more or less favorable opinion concerning the claim in question, and, perhaps, both to give this special emphasis and also to prove their keen appreciation of his excellent judgment in this particular instance, the late Provincial Minerologist figures in the advertisement as the "Hon." W. A. Carlyle! One can well realize how thoroughly Mr. Carlyle, who has a keen sense of humour, would enjoy this delicate bit of attention.

Mr. Pellew-Harvey, the Vancouver metallurgist, has hit on what seems to be a capital plan for enabling mine-owners to not only get the highest market prices for their ores, but also to check accurately the returns on consignments received from smelters. Thus in a circular letter, a copy of which we have before us, Mr. Harvey proposes to accept, F.O.B., at Vancouver parcels of ore in large or small quantities, which he agrees to purchase outright, deducting therefrom only the small cost of sampling and assaying. At the same time he will act as a sort of agent for mine-owners in dealing with foreign ore-purchasers for, he very truly points out, although good contracts may be made by mine-owners with smelting companies, there are occasions when shipments will receive higher quotations than at others, according to the demand at the time of sale. Mr. Harvey's object is to create a keener competition for B.C. ores among the smelting establishments of the United States and elsewhere. We are meanwhile glad to learn that in the matter of reduced freight rates on ore consignments from the mining districts the C.P.R. have displayed a liberal spirit.

Mr. Robertson, the Provincial Minerologist, we

understand, hopes to issue the annual Mines Report early in January of next year. If he succeeds in securing the necessary statistical information from mine-owners in time to carry out this intention it will certainly be an achievement worthy of being recorded in letters of gold upon the walls of the offices of the British Columbia Department of Mines.

A correspondent referring to the suggestion we made last month anent the subject of a necessary change in the system now employed for the registration of mineral claims in the offices of the Mining Recorders throughout the Province, relates an instance of claim-location in East Kootenay which he thinks sufficiently demonstrates the difficulty that would exist in the way of obtaining accurate information from the official records, even if the present system were bettered on the plan suggested in the MINING RECORD. A prospector near Golden located two claims which for present purposes may be described as the "Eureka" and the "Iron Cap." He subsequently sold both locations, but upon the purchaser leaving the district and failing to do the assessment work on the properties the original owner re-staked the "Iron Cap" ground, re-naming the claim the "Eureka," and at the same time made another location on presumably the same lead,—adjoining and in the same direction—calling this claim the "Iron Cap." Now, asks our correspondent, how would anyone searching the records distinguish between the two sets of claims, bearing in mind that the country is not surveyed, and that the registration description in both cases would be identical? So far as our own suggestion goes, we can only say that the above is certainly a most unusual complication, and that although such a case might possibly occur again, our correspondent does not take into account the fact that under the present system of registration the confusion would be still worse confounded, whereas, if our suggestion were acted upon and all record-entries relating to any one mineral locations were made under this heading in a specially indexed register kept for the purpose, instead of as now in several, the enquirer would, by turning up the entry in the case first cited, find that the claims "Eureka" and "Iron Cap" had either been abandoned or that the assessment work had not been performed upon them. He would then find elsewhere that subsequently two claims bearing the same name and in the same locality had been recorded, and here at once then would be some data upon which, if required, investigation could be instituted. That is all. But, of course, to go to the root of the matter, every claim should, on the plan adopted throughout Australia, be surveyed before it is recorded, and maps corrected up to date, kept in the Government office of each district. This system, however, is not likely to be introduced into British Columbia.

It will no doubt interest some of our readers to learn that Mr. E. S. Topping, of Trail, who, as we mentioned in our August issue, was referred to in the prospectus of the British Columbian Mineral Properties, Ltd., as having a "reputation second to none in British Columbia as a shrewd and clever mining engineer," has now entered an action against that somewhat doubtful concern for the recovery of the sum of \$387.67, cash paid out and work performed by him for the said company. What an opportunity for a version of Æsop up to date!

THE MORISON MILL AND CYANIDE PLANT AT THE DOROTHA MORTON MINE.

THE Dorotha Morton claim is situated on a mountain 2,300 feet above Fanny Bay, Phillips Arm, Coast District. It was bonded by the Fairfield Ex-

which taps the ledge 90 feet from the surface, and drives east and west on the pay streak have been run. The width of the ledge is 100 feet, the metals carrying low grade values; but at present it is not intended to work more than 10 feet, which forms the pay streak. This is well defined, and occurs about 20 feet from

the hanging wall, assays indicating the value of the pay streak to be about \$20 to the ton.

A main working tunnel, 8 by 6 feet, is being driven to strike the ledge 300 feet from the surface; but it is anticipated that 550 feet will have to be driven before the pay streak is reached, two hundred feet of tunneling having already been driven. The driving is carried on with rock drills, the power for



ploration Syndicate Ltd., on the 18th July, 1897, and is now owned by them. Work was at once started, and has been continued up to date. Besides the Dorotha Morton, the syndicate own adjoining and on the extension fourteen claims. About 1,200 feet of driving has been done, and the mine is opened up by a cross-cut tunnel,



1. The Bunk House at the Dorotha Morton. 2. Upper Tunnel.

which is supplied at the mill site on the beach, the air being carried up in 4-inch pipe 6,500 feet long. The compressor was supplied, through the Hamilton Manufacturing Co., by the Rand Drill Co., and is capable of running four drills. The ledge is composed of sugar quartz, well mineralised in the pay streak, and generally carrying fine iron pyrites throughout the whole body. Analysis of the ore from the pay streak showed it to consist mainly of silica, sulphide of iron and zinc, a little arsenic, gold, silver, and traces of copper. The gold is disseminated in a very fine state throughout the rock, which makes it readily yield to cyanide treatment; but no free gold can be obtained by panning.

The ore from the mine will be conveyed over an aerial tramway (Bleichert system) supplied by the Trenton Iron Works, New Jersey. The length of the

pared with the 85 to 95 of the ordinary cam mill, and will work with a 1,500-pound stamp head as smoothly as with one of 100 pounds. But a full description may not be uninteresting. On the top of the ring posts is a crank shaft with cranks at equal angles, each of which is provided with a connecting rod jointed to a cylinder, so that as the crank revolves the cylinder moves up and down. Within the cylinder is a deep, solid plug or piston, the rod passing through the cylinder bottom and constituting the stem to which the stamp head is attached, a jacket surrounds the cylinder, and at a few inches from the bottom is a port or opening communicating with the jacket space. The cylinder below the piston is filled with liquid, for which the jacket forms a reservoir, and above both the piston and the water level in the jacket are air spaces with free communi-



Terminal of Tramway, Dorothea Morton Mine.

tramway is one mile and a quarter, and has a capacity of 100 tons per day of ten hours. From the terminal of the tramway, which can be seen in the photo, the rock will be dumped into a chute, which will carry the ore on to a grizzly, the fine particles dropping direct into the ore bin and coarser material into a Blake Marsden Stern crusher, which discharges into the ore bin. From the bin the ore passes into Challenge feeders, which feed the mill.

The mill differs somewhat from the ordinary stamp battery generally in use, and is known as the Morison High Speed Mill. This mill is a new departure, and its success only remains to be demonstrated in a practical way to ensure its being used in place of the old method all over the world.

The great feature upon which the designers of the Morison mill lay particular stress is the fact that it will give from 130 to 150 drops per minute, as com-

pared with the 85 to 95 of the ordinary cam mill, and will work with a 1,500-pound stamp head as smoothly as with one of 100 pounds. But a full description may not be uninteresting. On the top of the ring posts is a crank shaft with cranks at equal angles, each of which is provided with a connecting rod jointed to a cylinder, so that as the crank revolves the cylinder moves up and down. Within the cylinder is a deep, solid plug or piston, the rod passing through the cylinder bottom and constituting the stem to which the stamp head is attached, a jacket surrounds the cylinder, and at a few inches from the bottom is a port or opening communicating with the jacket space. The cylinder below the piston is filled with liquid, for which the jacket forms a reservoir, and above both the piston and the water level in the jacket are air spaces with free communi-

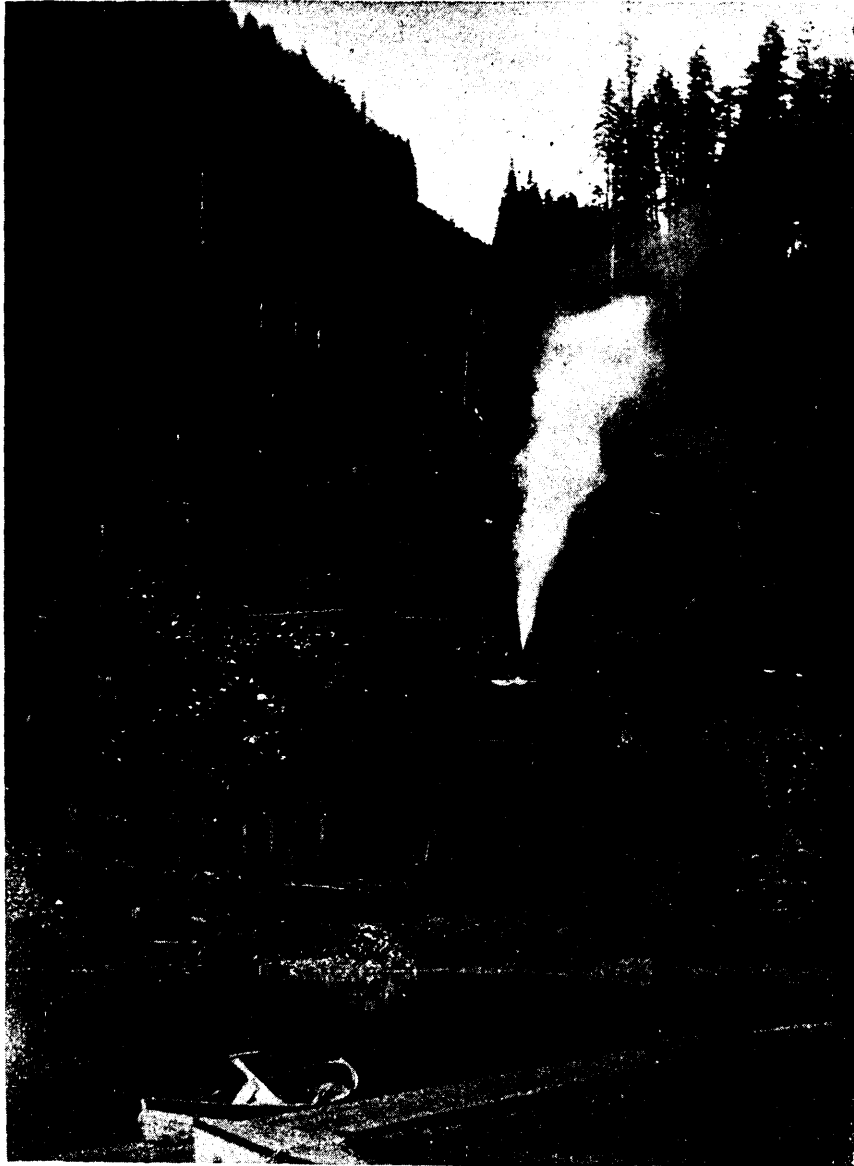
cation between them. The head strikes the rock on the die before the cylinder has completed its downward stroke, so that, at the end of the stroke of the cylinder, the bottom of the piston is above the port in the side of the cylinder, and the liquid is thus enabled to flow in. As the cylinder returns on its upward stroke the liquid is squeezed through the port from the cylinder into the jacket space, which has the effect of gradually and smoothly overcoming the resistance of the weight until, when the bottom of the piston closes the port, no more liquid can escape, and any further upward movement of the cylinder will raise the stamp head on an incompressible liquid buffer. The blow causes a rebound of the head, and, while still rising therefrom, the liquid "pick up" catches the weight, and the energy required to move a body from rest is thus saved, causing a very considerable economy in power to work the battery. So gradual

and smooth is the effect that, whether the weight be 100 pounds or 1,500 pounds, or more, there is not the slightest shock on the mechanism, and in this respect it constitutes a very great improvement on the sledge-hammer upward blow delivered by a cam. When the cylinder and the stamp head have completed the up-stroke, the cylinder descends, under the control of the crank, at a velocity exceeding that at which the stamp head would fall under the influence of gravity; so that, not only is there no retarding friction, but the cylinder, travelling the faster of the two, actually assists gravity, increasing the velocity, and, consequently, the force of the blow. It will thus be seen that while the lifting of the stamp is controlled by the crank, the falling and the crushing effect are due to gravity, assisted by the friction of the driven cylinder. The quick knapping blow in the Morison mill granulates rather than pulverises, so that the sluices are far less than with the cam mill. This is an important consideration, as the cyanide liquid will more readily permeate through the pulp, and more complete absorption and easier leaching will result, increasing the percentage of gold recovered.

From this type of mill, then, the crushed ore from the Dorothea Morton mine

will be conveyed direct to settling tanks (the three tanks as shown in the third and fourth illustrations), each of which is 20 feet in diameter and 7 feet 6 inches deep, and furnished with distributors to ensure the mixing of the fine and coarse sands. These tanks are fitted with bottom discharge doors, through which the tailings will be dropped into cars and can be dumped into any one of the six tanks below, where the tailings will be treated with cyanide for six or nine days. After treatment the tailings will be sluiced through the bottom of the tanks to a launder, which will carry them into the sea.

The three large tanks 20 feet in diameter and 10 feet deep, at the bottom will contain the cyanide solution. These cyanide tanks were built by the Royal City Mills, Vancouver. The power for the battery compressor engines is supplied by 3.50 h.p. locomotive boilers. These were supplied by the Hamilton Manufacturing Co. Crushing was started towards the end of the present month, and the results of Mr. Lang's enterprise and the application of cyanide in the treatment for the first time of this class of ore in the Province should soon be made public.



General View of Plant from the Water.

NEW GOLD FIELDS AT ATLIN LAKE.

WHILE at the present time it is impossible to secure any information of a strictly scientific nature respecting the richness, extent and permanence of the gold discoveries which have been made within the last three months to the extreme north-west of the Province, near Atlin Lake, there is yet sufficient evidence of the existence of gold in payable quantities in this locality to warrant the indulgence of the most sanguine expectations with regard to the future possibilities of these new diggings; and, owing to the accessibility of the country, it is very probable that next spring will witness there a repetition—of course, in a mild form—

of the Klondike excitement of this year. If so, it will be some satisfaction to the unfortunate among the gold-seekers to experience very few of the hardships which necessarily rendered disappointment so much more acute to those among the pioneer Yukon prospectors whose quest proved fruitless.

To reach the Atlin gold fields, one, after arriving at Bennett by the usual route, takes the steamer on the lake to Taku Arm—a journey of only one hundred and twenty-five miles—when it is necessary to land and pack one's supplies through a sort of rolling prairie country, over which a good waggon road has

been cut, for a distance of two miles to the north shore of Lake Atlin. To cross the lake the prospector is obliged at present to construct some sort of a boat or raft; but, no doubt, by next year someone will be found enterprising enough to establish a steam ferry system to carry passengers and their outfits across the seven miles of water from one shore of the lake to the other, whence a trail leads to Camp Discovery on Pine Creek.

The Atlin placer diggings were discovered by a man named Miller, who is said to have first obtained his information about the existence of gold in the creeks some three years ago from a Juneau Indian, who at the same time showed him a number of nuggets. Miller at once proceeded to the spot; but, so far as can be learned, without staking out any ground. He must, however have satisfied himself of the truth of the Indian's story, for he returned to Pine Creek in February of this year, accompanied by eight or ten



others, and together these men staked thirty 250-foot claims on Pine Creek, which were recorded by the officer commanding the detachment of the North-West Mounted Police at Tagish, under the impression that the district was in the North-West Territory. When the "rush" to the new diggings began in August, Mr. Norman Rant (to whom we are indebted for the photographs accompanying this article), the son of Capt. Rant, the Gold Commissioner at Bennett, was temporarily appointed Mining Recorder for the district, and ordered to proceed at once to Camp Discovery, where he arrived on August 5th. Shortly after his arrival all the claims held by Miller and his partners were "jumped" and staked out afresh, in accordance with the regulations of the British Columbia Placer Act, as 100-foot claims. This action on the part of the newcomers created a great deal of ill-feeling, and, perhaps, only the presence of the men of the Mounted Police, the tact of Capt. Rant, and the wholesome respect of the American miners for British-Canadian law, prevented bloodshed. The case will be tried in the spring, and it is quite safe to express the opinion that the prior rights of Miller and his partners will be in every way

recognized, for even now there seems to be some doubt as to which side of the boundary separating British Columbia and the North-West Territory the Atlin Lake mining district is situated.

The Discovery claim on Pine Creek has, according to Mr. Rant's statement, been worked by a cut to its full length of 250 feet, 6 feet deep and 10 feet wide, and since May of this year the four partners have taken out approximately \$8,000 in dust and nuggets. The average value of the gold, which is of a beautiful light yellow colour, is rather higher than that found in the vicinity of Dawson, being placed at \$16.75 per ounce. The diggings on Pine, and, indeed, on all the creeks so far located upon in the district, are very easily worked, the water being never much more than from three to four feet deep in the streams. The method chiefly employed for the recovery of the gold is by ground sluicing, but rockers are occasionally used in cases where the bed-rock is shallow and men are anxious to secure quick returns. Since August some twenty claims have been worked on Pine Creek, each, without exception, paying from \$25 to \$30 per day to the man; and from what is at present known, the striking uniformity of the values for the entire lengths of the creeks where staked is a remarkable and certainly a most pleasing characteristic of the Atlin district, which differs in this particular from the Klondike region, the paystreak in the creeks there, notably in the

case of Bonanza, being extremely variable and uncertain. Nuggets weighing from one to four ounces are commonly found on Pine Creek; but the biggest find yet reported is the discovery of a nugget valued at \$275, which was washed out of a claim near Discovery.

Since August, 1,500 claims in the district, were recorded with Mr. Rant but altogether 3,000 applications for leases were made to him officially. A large proportion, of course, of these leases

were granted for creek claims on Pine, Birch, four miles west of Camp Discovery, Musket, near Birch, emptying into Surprise Lake, Spruce and Wright Creeks, but a large number of bench claims have been staked, and some of these appear to afford even better results than the creek locations, Mr. Rant telling a story of a man who carried the dirt down from this bench claim to wash it in the creek, and making from three to five ounces a day in pay. Wright Creek, however, which parallels Pine, is said to be the most promising in the district, the water being very shallow and the gold in the gravel being quite generally coarse; and another stream recently discovered, and known as Goose Creek, thirty-two miles north-east of Pine Creek, also promises well. Very little prospecting for quartz has yet been attempted, but some finds of free-milling quartz, showing visible gold and also of galena ore, are reported, and some thirty or forty



1. Capt. Rant, Gold Commissioner, and Capt. Belcher, N.W.M.P.
2. Crossing Lake Atlin on a raft.

claims have been staked, an assay recently made from one of these giving \$22 in gold to the ton and 28 ounces silver.

In short, there is every reason to believe that in the Atlin Lake district another large precious mineral producing locality has been found which will further assist in bringing British Columbia into the first rank among

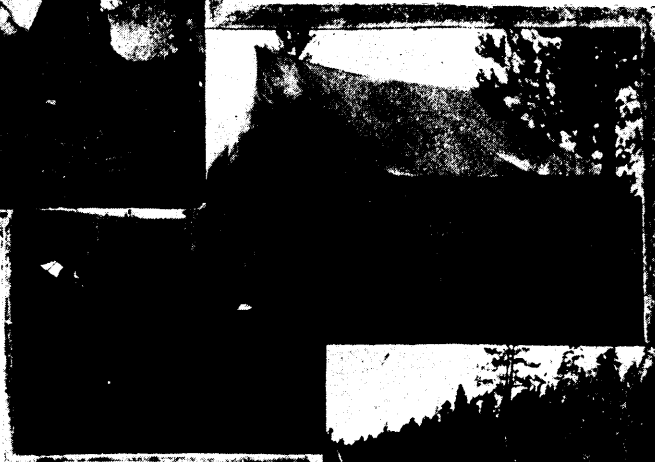
not only of the growing interest in that country, but also of the fact that the Council includes among its members so many gentlemen permanently identified with the Province. You must understand that those who projected the forthcoming Mining Exhibition had intended to hold it separately. The Council of the Incorporated London Chamber of Mines, however, arranged with the Earls Court authorities about three months ago to take over the entire control of the mining section of the Greater Britain Exhibition, and to embody in it the exhibition which they had themselves decided to hold in the metropolis of the Empire. Since this arrangement was made the following Colonies have applied for space: Queensland, Victoria, Western Australia and New South Wales, and we have every reason to believe that Canada, New Zealand, India and South Africa will also be well represented."

"I understand that mining machinery of every type will be accorded particular prominence?"

"Yes; the Council are determined to afford every facility for the exhibition of



the mineral producing countries of the world—a position which she is gradually but steadily fitting herself to occupy. It is noteworthy that the Atlin Lake discoveries have already attracted the attention of outside capital.



NEXT YEAR'S MINING EXHIBITION IN LONDON.

AN INTERVIEW WITH THE SECRETARY OF THE ORGANISING BODY.

(From Our Special Correspondent.)

THINKING that British Columbians would like to know something of the plans of those responsible for the organisation of next year's Mining exhibition at Earl's Court, I called on Mr. E. Jerome Dyer, the Secretary of the Incorporated London Chamber of Mines—the body who has taken this matter in hand. I found Mr. Dyer already up to his eyes in work in connection with the preliminary negotiations—although the date fixed for the opening ceremony is nearly seven months ahead—but quite willing to afford me all the information at his disposal.

"Tell me," I said, "first of all, the exact part your Chamber takes in year's 'Greater Britain Exhibition'?"

"With pleasure," he answered. "We are only too delighted to give the Press all the information we can, and, of course, the representative of the MINING RECORD of British Columbia is an especially welcome visitor in view

1. A Cigar and Tobacco Store, Camp Discovery.
2. The Restaurant.
3. Recorder's Tents.

every description of implements and machinery in connection with mining. In proof of the representative character of this section it will be sufficient to mention the names of a few of the firms who have already booked space. For instance, among others, we have the Thames Mining Machinery Co.; Holman Brothers, of Camborne; Robey & Co., and Ruster, Proctor & Co., both of Lincoln; the Tacking Mill Foundry Co.; the Pulsometer Engineering Co., and many others equally representative have applied for space, and will, in the majority of cases,

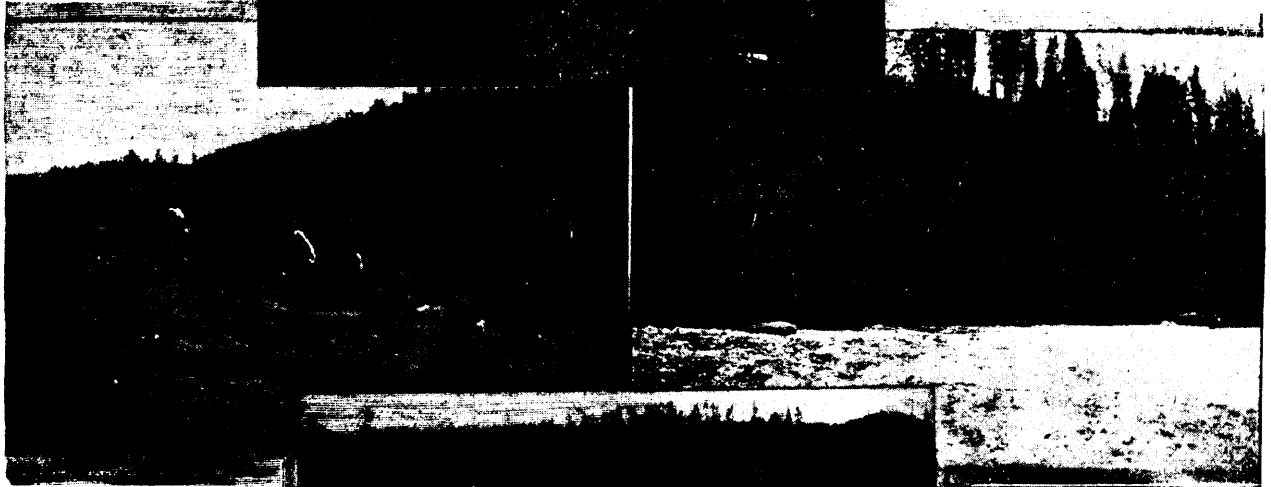


Pine Creek from Bluff behind Camp Discovery.

be included in the final list of exhibitors. It is also worth noting that a large number of machinery manufacturers in the United States and other countries are now in negotiation for space. We regard it as

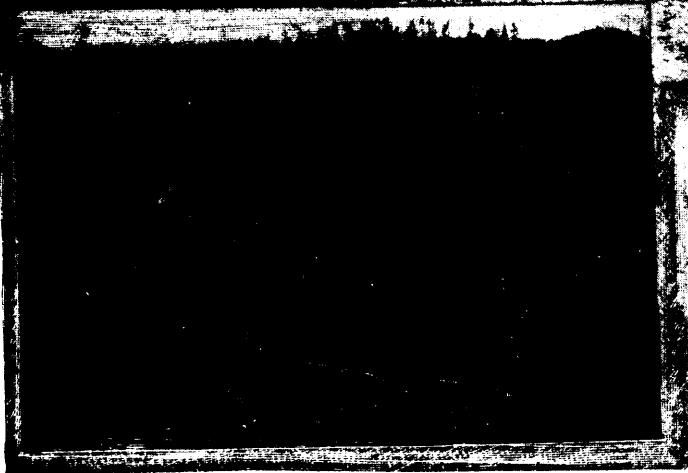


tion of this kind?" I suggested. "That view has been represented to me by many people; but I do not think myself that the majority of the visitors to the Exhibition—and particularly such a one as this—would trouble themselves whether it was held at Earl's Court or the Agricultural Hall. Investors, who are expected to form the great majority of those who



indicative of a signal success next year, that although the Exhibition is nearly seven months ahead, over three-fourths of the space in the Mining Courts of the Greater Britain Exhibition has already been applied for, 'or is under requisition'."

"Don't the majority of people regard Earl's Court as rather an unsuitable place for an Exhibi-



will visit the Exhibition, and who will travel up, most of them, from the country for the purpose of gaining information about mines and mining methods, will not worry about the exact locality."

"I take it that, so far, you are quite satisfied with the progress you have made in preliminaries?"

The reply was emphatic. "Fully; in every way. We are sure of success. And we deserve to

1. Pine Creek.
2. View from Recorder's Tent.
3. Pine Creek—Looking East.
4. View from West Bank.

succeed, for we are bringing together as fine a collection of minerals, mining appliances, etc., as has ever been collected under one roof in London before. The fact that so many of the leading mining colonies are taking the matter up officially should be sufficient to convince every one that the exhibition will be thoroughly representative and official in character."

"I have heard it said that you intend to show us how mining operations are conducted in different parts of the world. I hope this is true?"

"Well, in addition to the more serious exhibits we are introducing several novel features in the shape of representations of placer mining as carried on in Canada, alluvial mining in Australia, and deep level mining as carried on in South Africa and Australia. It is proposed to represent these industries by working models for the most part on a life-size scale. Deep level mining at Earl's Court will, however, necessarily be on a much smaller scale. The arrangements of



Above Discovery Claim, Pine Creek.

these models will be in the hands of Mr. Wm. Keast, who has ben for years fixing up and managing 'Working mining models in various parts of the country, and more particularly at the Crystal Palace.'"

"What about competitions. I hear that you propose to offer medals and prizes for rock-drilling contests, etc.?"

"Yes, we do," replied Mr. Dyer with a smile at my inquisitiveness. "In order to carry out one of the chief objects that my Chamber had in view in holding this mining exhibition, viz., that of attracting all the recent improvements in mining machinery to Earl's Court, it was thought desirable to hold contests in rock drilling, crushing by stamp batteries, and any other of the various forms of mining procedure which would lend themselves to such tests."

"What about power?"

"Did I not tell you about that? Well, I overlooked it. The greater portion of the mining machinery will be working at certain times every day, and this alone will, no doubt, attract people from all over England who are not *au fait* with the most modern improvements in mining machinery. With regard to the power to work it, three kinds will be available—steam, electricity and compressed air."

"What will you do with the profits you make, if the Exhibition should prove the success you anticipate?"

"My dear sir, I thought you knew by this time that the Chamber is not allowed under its Board of Trade license—which, by the way, is a very strict one—to make a profit in the ordinary sense of the word. It was never intended that the Chamber should be run as a commercial enterprise, but solely and simply in the interests of the mining industry and mining interests. Please do not let such an erroneous idea travel as far as British Columbia, and if it has already started do, please, try and catch it up and check its misrepresenting character."

"What did you say, is the Chamber composed of representative groups, or is it confined to one or two colonial sections?"

"Now, I don't think I ought to be bothered with such questions as that, nor do I think you ought to put them."

I gently protested that I simply wished to give him an opportunity of correcting a mistaken impression. It was not my statement, but that put forward by other people, jealous, no doubt, of the enterprise of the Chamber and its Council.

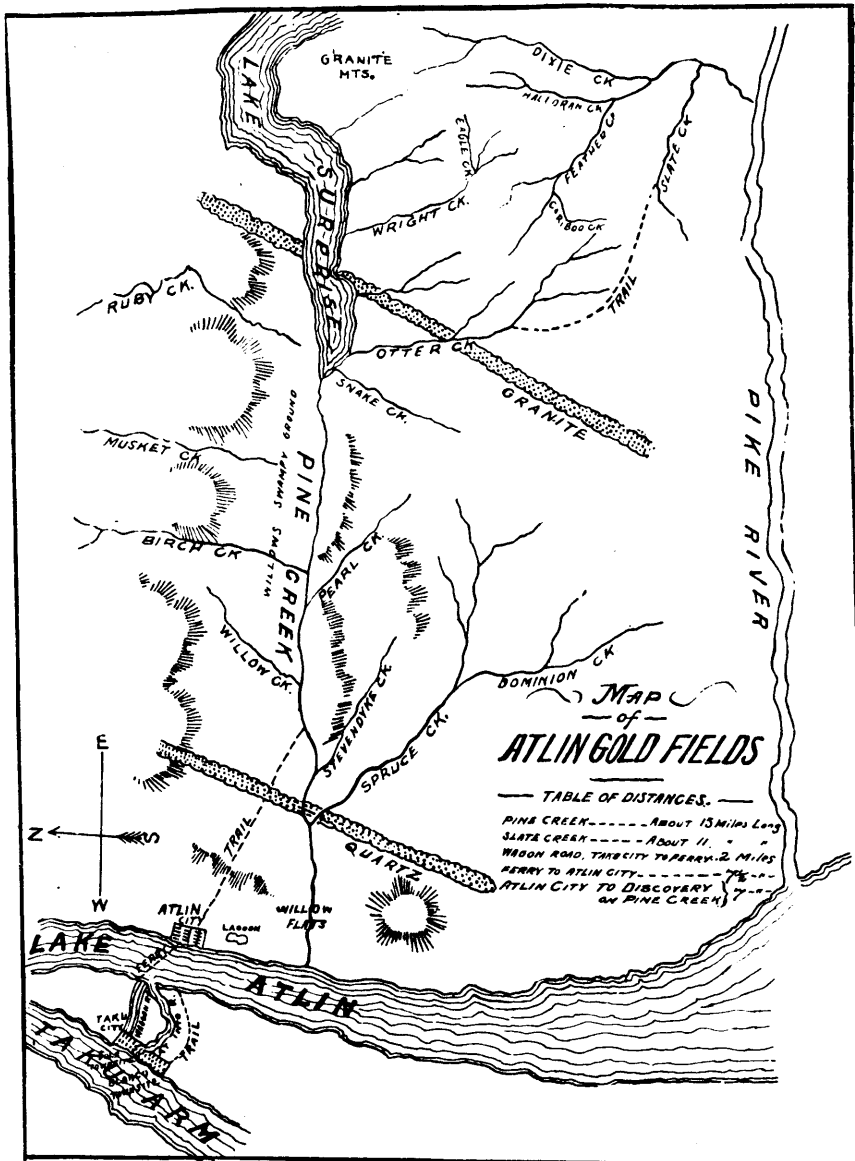
With somewhat severe mien, expressive of his displeasure at being asked to explain the palpably foolish question, Mr. Dyer said:

"The Council of the Chamber consists of mining men representing various groups that have nothing whatever in common excepting that of a general interest in the mining industry. In many cases these gentlemen never met each other prior to joining the Council. Furthermore, we have representatives of groups in the same colony, and sometimes in the same districts, and as these groups may be said to be in a way competitors, it can scarcely be alleged even that, except from the point of view of common interests as mining men engaged in a common industry, they are acting in concert for personal or collective aggrandisement.

In a word, they are hardly likely to collaborate in any schemes other than for the general good of the Chamber and its objects."

"I hesitate, Mr. Dyer," I spoke meekly, "to further trespass on your time and impose on your good nature, but in addition to what you have told me of the general programme of the Exhibitions, should be glad to know if you can tell me anything of special interest to my British Columbian readers."

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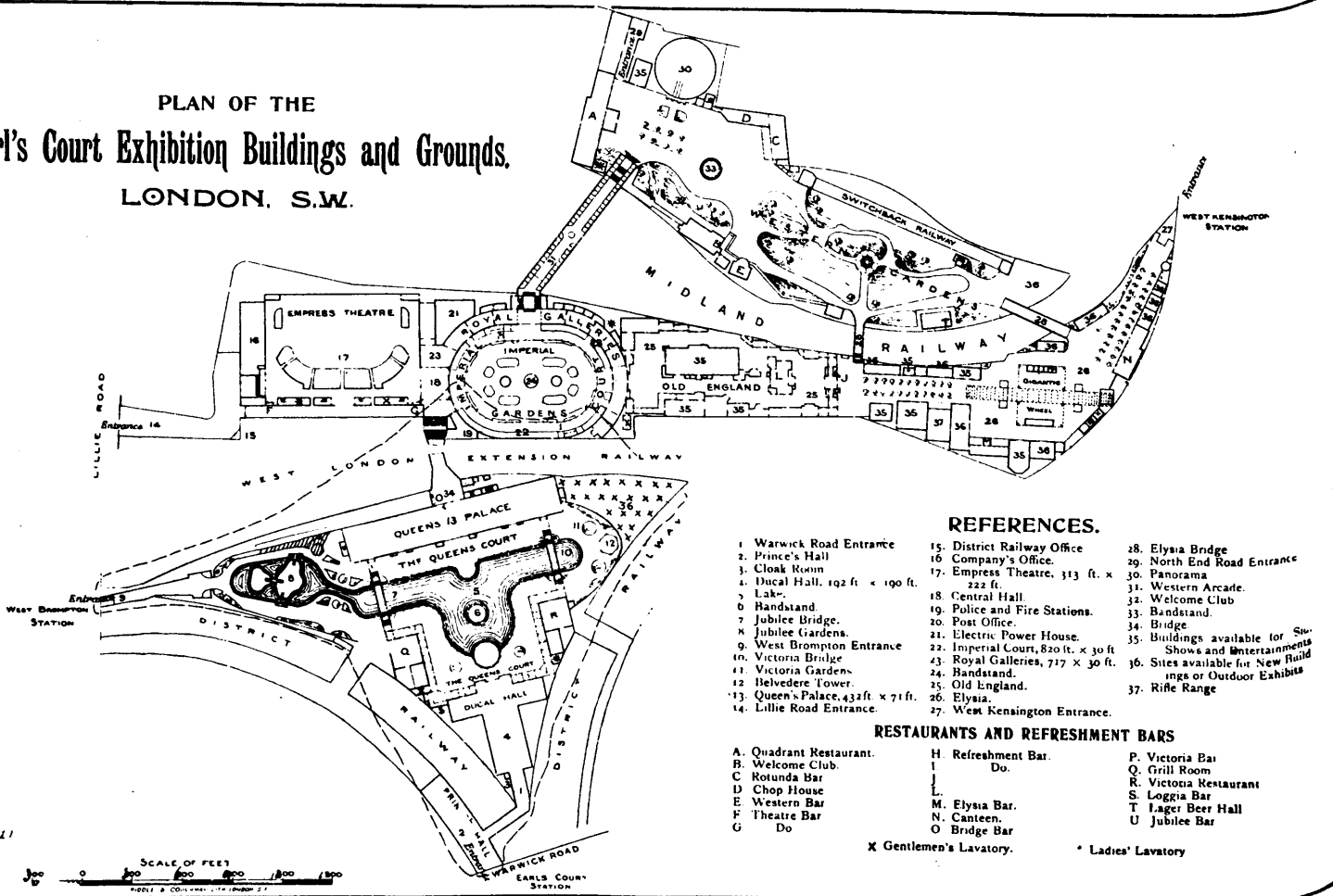
"As regards British Columbia, I can simply tell you that we have approached the Government of that Province and have received a reply to the effect

that they regretted they were not in a position to take any part in the Mining Exhibition. I believe, however, that the matter has been taken up by the Canadian Mining Institute, who have received letters from the mining societies of the various Provinces stating that these societies would support the central institution in an application to the Dominion Government, asking them to make arrangements for a general Canadian exhibit. I might further mention that Mr. Wm. Thompson and Colonel Anstey, members of my Council and our representatives recently in Canada, had interviews with the Central Government, and with the various Chambers and Provincial Governments, and I believe that good results will follow these exertions.

"In connection with British Columbia, I must say,

of great promise, so far as its mineral resources are concerned, and that though the British shareholder is not at present in receipt of any material return on the capital already advanced, the minerals are there, and only require the mining. I might remind you that although the colonies of Queensland, Victoria and Western Australia are showing magnificent returns to English investors in many of their mines, they yet still perceive the necessity of constantly keeping their rich mineral resources before the eyes of the British investor. How much greater occasion is there then for British Columbia showing at present adequate return to those who have supplied her with funds to do likewise. As a matter of fact the reply of the new British Columbia Government that they could do nothing rather dismayed many mem-

PLAN OF THE
Earl's Court Exhibition Buildings and Grounds.
LONDON, S.W.



REFERENCES.

- | | | |
|-------------------------------------|--|---|
| 1. Warwick Road Entrance | 15. District Railway Office | 28. Elysia Bridge |
| 2. Prince's Hall | 16. Company's Office. | 29. North End Road Entrance |
| 3. Cloak Room | 17. Empress Theatre, 313 ft. x 222 ft. | 30. Panorama |
| 4. Ducal Hall, 192 ft x 190 ft. | 18. Central Hall. | 31. Western Arcade. |
| 5. Lak- | 19. Police and Fire Stations. | 32. Welcome Club |
| 6. Handstand. | 20. Post Office. | 33. Bandstand. |
| 7. Jubilee Bridge. | 21. Electric Power House. | 34. Bridge |
| 8. Jubilee Gardens. | 22. Imperial Court, 820 ft. x 30 ft | 35. Buildings available for Shows and Amusements |
| 9. West Brompton Entrance | 23. Royal Galleries, 717 x 30 ft | 36. Sites available for New Buildings or Outdoor Exhibits |
| 10. Victoria Bridge | 24. Bandstand. | 37. Rifle Range |
| 11. Victoria Gardens | 25. Old England. | |
| 12. Belvedere Tower. | 26. Elysia. | |
| 13. Queen's Palace, 432 ft x 71 ft. | 27. West Kensington Entrance. | |
| 14. Lillie Road Entrance. | | |

RESTAURANTS AND REFRESHMENT BARS

- | | | |
|-------------------------|---------------------|------------------------|
| A. Quadrant Restaurant. | H. Refreshment Bar. | P. Victoria Bar |
| B. Welcome Club. | I. Do. | Q. Grill Room |
| C. Rotunda Bar | J. Do. | R. Victoria Restaurant |
| D. Chop House | K. Do. | S. Loggia Bar |
| E. Western Bar | L. Do. | T. Lager Beer Hall |
| F. Theatre Bar | M. Elysia Bar. | U. Jubilee Bar |
| G. Do | N. Canteen. | |
| | O. Bridge Bar | |
- X Gentlemen's Lavatory. * Ladies' Lavatory

however, that it seems a wrong policy at this stage of the mining history of the Province to stand aloof from such a splendid opportunity of obtaining a grand advertisement of the unbounded mineral resources of their Province. This is a critical time in the history of B.C. mining. Need I remind you, 'That there is in the affairs of men (and nations) a tide which taken at the flood leads on to fortune.' British Columbia at present shows the English investor but little or no return upon the millions already sunk in mining enterprise in that colony, and very little more financial support will be forthcoming until some tangible results are produced. It should be plain to the new Government that every means available should be taken advantage of to satisfy the European capitalist that British Columbia is a land

of great promise, so far as its mineral resources are concerned, and that though the British shareholder is not at present in receipt of any material return on the capital already advanced, the minerals are there, and only require the mining. I might remind you that although the colonies of Queensland, Victoria and Western Australia are showing magnificent returns to English investors in many of their mines, they yet still perceive the necessity of constantly keeping their rich mineral resources before the eyes of the British investor. How much greater occasion is there then for British Columbia showing at present adequate return to those who have supplied her with funds to do likewise. As a matter of fact the reply of the new British Columbia Government that they could do nothing rather dismayed many mem-

bers of my Council who are at present largely interested in that country, for there is nothing so disheartening to the ready and adventurous investors of this country, as the discovery that the Governments of those colonies which are the fields of their enterprise are quite indifferent to the prospects of the industry in which they take such a deep and largely moneyed interest."

This concluded the interview, and Mr. Dyer, bidding me good-bye, kindly said :

"I shall always be pleased to place at your disposal any information regarding the developments in connection with the forthcoming Mining Exhibition, for the benefit of the readers of THE RECORD, whose enterprise I appreciate fully."

A SUMMER IN LILLOOET MINING DISTRICT.

(By W. M. Brewer, M.E.)

THE writer proposes to give here a brief description of the section of country prospected by him during the past summer as a continuation of the article written by him for the MINING RECORD, and published in the July issue of this journal :

To reach Pemberton Meadows *via* Harrison Lake, the Douglas Portage, Tenas and Lillooet Lakes, is all plain sailing, and no obstacles, and, indeed, few inconveniences are met with on the route. But to proceed up the Upper Lillooet River to the forks of that river in order to prospect virgin ground was another matter.

Although the valley of the Upper Lillooet is broad and level, thereby affording every advantage for the construction of a good waggon road, yet at present it is impossible to travel much further than 15 miles above the mouth of the river. The reasons for this are that the river spreads out over the valley through several channels, or rather sloughs, caused by the diversion of the waters during high stages from the main channel owing to the accumulation of logs and trees brought down by the current from the head waters. Consequently, as most of these sloughs are sufficiently deep to swim a horse, and their width often several hundred feet wide, the traveller finds his way blocked if using pack animals or travelling on foot, and so chooses to continue his way by canoe as the only available means of travel.

The difficulties attending canoeing in these streams are many, because the current at even low water is so rapid that canoes must be poled along near the banks. At high water, which was the stage during June, July, August and September of the present year, it is impossible to reach the forks, for the current runs at an average rate of 10 miles an hour, and at places still more rapidly and the river is too deep even along the banks for expert canoemen to pole. The trees, roots and log jams add to the difficulties, besides making navigation in the frail canoes used by the siwashes extremely dangerous.

Some idea of canoe travel along this stream can be gathered from the writer's experience, as follows :

On June 8th I started from Currie's ranch, 10 miles above the mouth of the Upper Lillooet River, with two siwashes, both most expert canoemen, selected from some hundred or more who reside at the rancherie. For over two days the men worked hard, and without ceasing, and only reached a point some 30 miles above their starting point, allowing for the sinuosities of the stream. This was still about 20 miles below the forks, and every foot of distance gained was harder to make than the preceding one, until the current became so strong it was absolutely impossible to proceed farther. The return trip was made in three hours and a half, the canoe merely drifting with the current. To come down in safety required the exercise of great skill in steering, as well as the utmost vigilance ; and even then, at several points the danger of capsizing was imminent.

On September 10th I again started from the Currie ranch with two siwashes—selected men. This time a point some 10 miles farther was made than had been reached on the previous occasion. But the forks were still at least 10 miles above, and the rush of water was so great that no advance could be made. The last two miles required the hardest work on the part of

both Indians, notwithstanding the canoe was unladen, and occupied two hours' time ; but in returning down stream, with the writer and a companion in the canoe besides the siwashes, the journey was accomplished in fourteen minutes, and the return trip of 40 miles in five hours and twenty-four minutes. The point gained during the latter trip was the mouths of the Twin Creeks, which are opposite each other. The waters from these creeks rush into the river as mighty torrents, carrying along huge boulders, trees and logs with resistless force. A few colours were panned from gravel on both of these.

How little is known of this river is made manifest by its appearance on the published maps of the Province, for on these it is laid down, according to the scale, as a stream of less than 20 miles in length, with no tributaries except the two forks near the head. As a matter of fact, it is not less than 60 miles in length below the forks, and no one, not even the siwashes, know the length of either of the forks. The best information the writer could obtain on this subject was from Indians who had lived at the rancherie all their lives. One of these had been with a Government prospecting party several years ago, the members of which, after having to abandon their canoes at the mouth of the North Fork, travelled for one day up it to one of its tributaries, from the gravel in which placer gold was panned. No attempt was made to go beyond this point, although the head waters of the stream had not been approached. It was also learned that no one had been more than five miles above the mouth of the South Fork. It is asserted that here occur hot springs, which have been visited on two or three occasions, by white men guided by siwashes. If gold occurs anywhere on the South Fork, nothing is known of it.

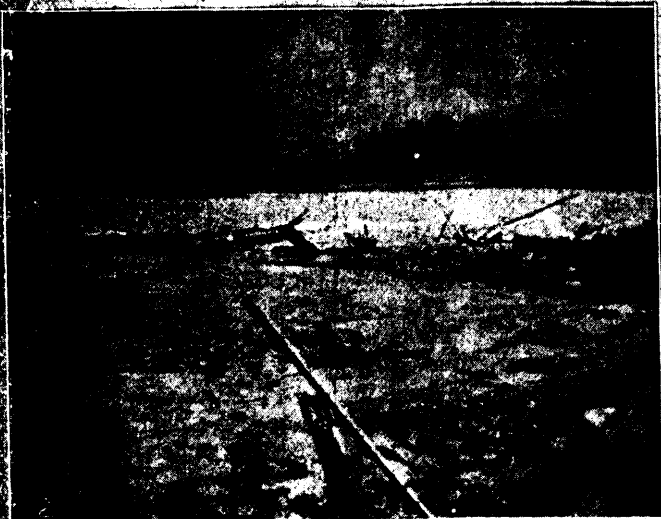
One expedition, headed by a man named Patterson, accompanied by six siwashes, made a trip several years ago from the mouth of the South Fork to the Squamish River, and down that to the head of Howe Sound. This party, however, was cruising for timber, and paid no attention to prospecting for mineral.

Pemberton Meadows and the entire Upper Lillooet Valley formed undoubtedly at some period an immense lake bed, which has become filled up to the head of Lillooet Lake. This itself is gradually filling up, for the land extends farther to-day than it did years ago ; but, of course, this process is going on very slowly. However, 10 miles above the head of the lake rushes are to-day found at a depth of several feet below the surface of the ground.

To give an idea of the inaccuracies of the published maps, Green River, which heads in Green Lake and flows northerly, is shown as a tributary of the Upper Lillooet River, while as a matter of fact it empties into Lillooet Lake itself at the northwest corner, the Lillooet River emptying at the northeast corner. The Lillooet River is shown as having no tributaries, but really there are several creeks of considerable size which join with it. The first flows from the north, with its confluence at the rancherie, about four miles above the mouth, this is the Birkenhead River, locally known as Tom Poole Creek ; the next flows in about 12 miles from the mouth, having its source in a glacier several miles south of the river ; the next of any size is Stickine Johnny Creek, which empties into the river from the north about 20 miles above its mouth ; then Billy Williams Creek, with its confluence about 40

miles above the mouth, this flows from the north also, and has its source at the summit of the Chilcoten Pass, on the Divide, between the Upper Lillooet and Bridge Rivers; above this some 12 miles the Twin Creeks flow into the river opposite each other. Apparently the head waters of both Bridge and the Upper Lillooet Rivers are not far removed from each other, and will

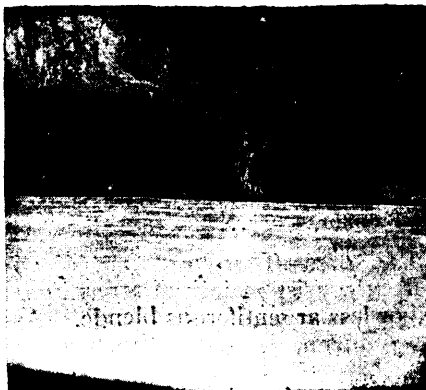
be found in the vicinity of Chilcoh Lake. This conclusion is arrived at by the writer from information received from Indians who have crossed the Divide. These men followed an old Chilcoten Indian trail travelled by a band of Indians many years ago when raiding the Douglas tribe at Pemberton Meadows. These raids used to be frequent, and to-day there are living at the Pemberton rancherie men who were stolen as boys by the Chilcotens. This old trail crossed Bridge River some four miles above its south fork, near the mouth



1. "Hunter Jack's" Ferry Crossing Bridge River at Sucker Creek.
2. View of the Upper Lillooet River. 60 miles above mouth.
3. Camp Scene at Pemberton Meadows.
4. Coast Range Mountains, Upper Lillooet River.
5. Forest Fire in the Mountains—Near Pemberton Meadows.

of Chilcoten Creek, and follows that stream to near its source, where a natural pass occurs between the mountains, thence down to the Upper Lillooet River, across it, and down the valley to the rancherie.

The writer walked from the last-named river through this pass twice during the summer, and found the grade easy and the conditions such as to admit of the easy construction of a waggon road to Chilcoten Creek; but beyond there to Bridge River he cannot express any opinion of the country from observation. This route, though, would appear to be the most advantageous for travel from the Coast if connected with the Squamish trail, to which reference was made



Granite Bluff on Upper Lillooet.

in the MINING RECORD in July, but is to be more fully described in the present article.

The topography of the country on both sides of the Upper Lillooet is very rugged, the altitude of the mountains being from 500 feet to probably 6,000 feet above the level of the valley. Many glaciers are seen, especially on the south side, but on the north side none occur below the Chilcoten Pass. From the mountain sides some enormous glaciers can be seen to the northwest. These are situated on the



Canoeing Sixty Miles Above Mouth of Upper Lillooet.

north side of the river, and probably form the source of the northerly of the Twin Creeks.

This entire section of country is referred to on the maps as "mountains and glaciers." The reference is certainly correct, but still the district is not so difficult that it would defy the explorations of the determined prospector.

Granite predominates on both sides of the river as far up as the writer ascended, but very frequently

dikes of diorite, porphyrite and pyroxene rocks occur as intrusions. These are almost invariably traversed by ledges of quartz of varying thickness, mineralised with impregnations of iron pyrites. Panning pulverised samples from many of these failed to result in showing free gold, but assays from thirty-six samples yielded low values in gold in each case, the values



The Return from the Chilcoten Pass, Upper Lillooet.

being insufficient, however, under present conditions, to warrant further expenditure for development. No copper values were found in any of these samples.

Some of the ledges here are of enormous thickness, as shown by crosscuts made by creeks, the waters of which have eroded channels, leaving the breasts on each side exposed, to the height of from 10 to 50 and sometimes 75 feet. Often these ledges are exposed



Falls on Small Creek, Pemberton Meadow.

by rock slides, and when this is the case the slide has usually occurred along the strike of the ledge.

This granite belt is not as wide on either side of the river as many have supposed. The writer's exploitations demonstrated this at several points on the north side and along the Squamish trail on the south. For instance, along the Pemberton Portage, north of the rancherie, other rocks, apparently of eruptive origin, are found within two miles of the river, and on Owl Creek, which empties into Tom Poole about three miles from the rancherie, these are very pronounced, and appear to predominate for some distance up the creek; but another belt of granite is encountered after crossing Owl Creek to the north. In crossing the Chilcoten Pass the same character of rocks occur about four miles from the river, and no granite is seen

until the pass is crossed, when a belt having a north-westerly trend is met with almost paralleling the porphyrites and diorites. The highest mountains are apparently all granite judging from the slides, while the lower ones surrounding the summit of the pass are composed of porphyrite, and sometimes diorite.

The writer concluded, after visiting the Blackwater Camp later, that the Chilcoten Pass was really an extension of that mineralised zone, having a very decided northwesterly trend, and that this paralleled the Upper Lillooet, probably being crosscut by the North Fork or some of its tributaries. The lower



How we Provisioned the Camp on Bridge River.

mountains on the pass show very significant signs of mineralisation, and samples brought from the outcrops of some of the bodies all yielded traces of gold by assay, but no copper. That portion of the district has never been prospected by white men; in fact, from the best information obtainable only two other expeditions besides the writer's have reached the summit of the Divide from the Lillooet side, and no one from the Bridge River side has succeeded. One party went through the Chilcoten Pass, the other left the river at Stickine Johnny Creek, and followed that to the summit, but neither of these crossed to Bridge River. Indeed, although the writer made an effort later to traverse the entire distance, but from the Bridge River side, he found the work of cutting a pack trail, because of dense growth of timber, would occupy more time and require a greater outlay than he was prepared to make. For the reason that such a trail would cross the formations the trip would undoubtedly prove a very interesting one, and possibly very profitable. But the snow remains on the pass quite late, and on June 12th it lay on the level ground about three feet deep, although the mountain sides were all bare.

(To be Continued.)

SOUTHERN BRITISH COLUMBIA.

By J. D. KENDALL.

(Continued from last month).

SILVER Copper Ores—Only one mine, to date, is working these ores, that is the Silver King, on Toad Mountain, near Nelson. The principal silver-bearing minerals in that ore are bornite and chalcopyrite with some tetrahedrite and a little stibnite. They occur in association with quartz, and some other accessory minerals, in a more or less reticulated man-

ner in the country rock, and, like the gold-copper ores of Rossland, are more concentrated in some parts than in others. As with all similar ores, the metallic percentages of the ore shipped depends upon the tenor aimed at in dressing, but the ratio of silver and copper appears to be about one ounce of silver to 3.5 lbs. of copper. The following are assay results of ore shipped from the Silver King, to the smelter at Nelson:

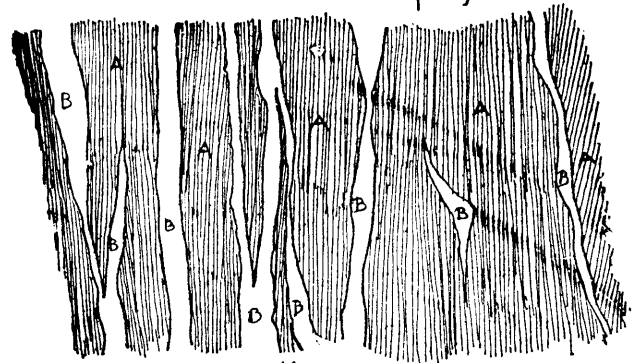
	1.	2.	3.	4.
Silver, ozs. per ton.....	35.05	30.00	22.08	32.00
Copper, per cent.....	5.06	5.59	4.40	4.30

An idea of the general composition of this ore may be formed from the following results of a partial analysis of a piece of it:

Silica.....	35.4 per cent.
Alumina.....	15.4 " "
Manganous oxide....	9.1 " "
Lime.....	8.5 " "
Magnesia.....	4.9 " "
Copper.....	5.1 " "
Iron.....	9.8 " "
Sulphur.....	3.7 " "

Silver lead ores—These ores are of wide occurrence. They consist mainly of argentiferous galena, with more or less argentiferous blende. Associated with these minerals is frequently found, in varying

PAYNE MINE
Section in No. 3 Tunnel, 960 feet from Mouth.



A Argillite (Clay Slate) Fig 7.
B Galena
Scale 7 feet to an In

quantities, highly argentiferous tetrahedrite. Sometimes metallic silver, or some of the ores of silver—as hyrargyrite and stephanite—occur in easily noticeable quantities. The average metallic percentages of some of these ores, as shipped in large quantities, are given in the following table, which also shows the ratio of silver to lead:

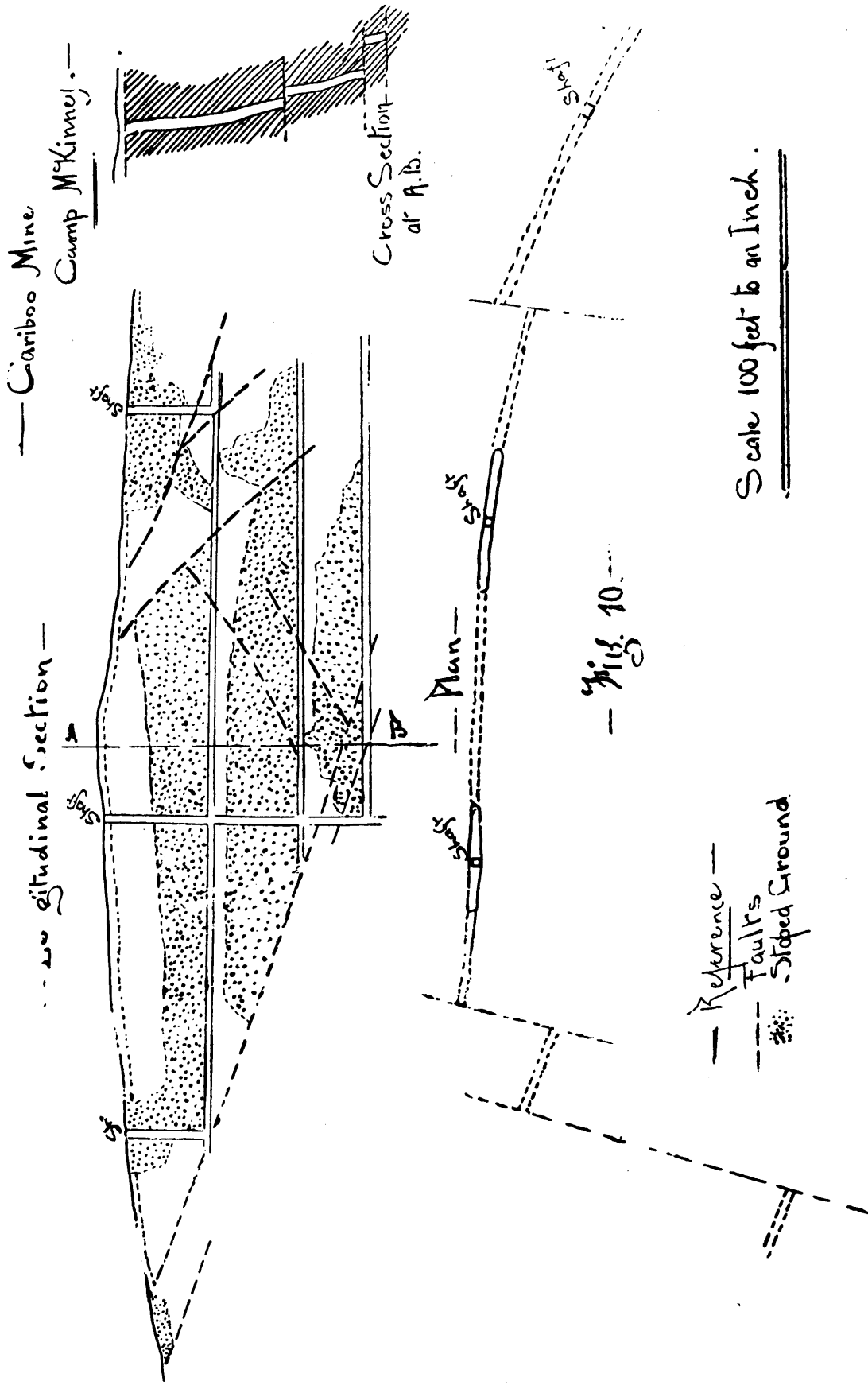
SILVER.	Silver.	Lead.	Silver.	Lead
	Ozs. per ton.	per cent.	oz.	lbs.
Payne Mine.....	107	51	1 to	9.9
Whitewater Mine.....	113	33	1 "	5.8
Ruth.....	105	65	1 "	12.5
Idaho.....	146	42	1 "	5.7
Alamo.....	122	40	1 "	6.5
Enterprise.....	177	22	1 "	2.4
Reco.....	309	43	1 "	2.78

In the Coeur d' Alene mines, Idaho, U. S. A. the

ers often make to these ores, as compared to silver-lead ores, is that they do not make tonnage so fast.

Ore deposits—All the ores above mentioned, and that have yet been worked, are found almost entirely

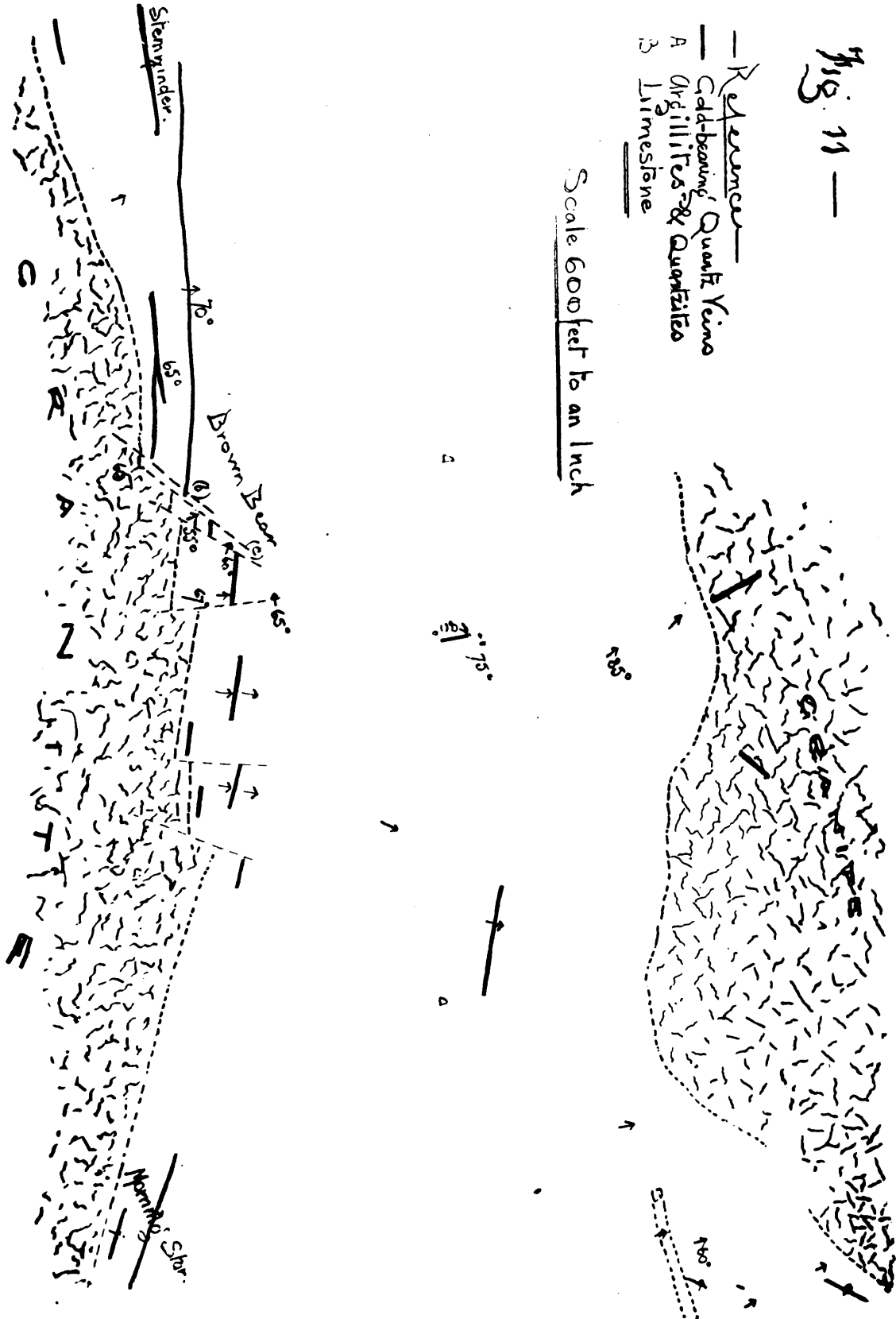
in veins, more or less regular. Sometimes these are "bedded" as in some of the gold bearing quartz-veins at Fairview, or Fire Mountain, but more generally they are transgressive to the strata



of bedded rocks and in almost all cases, whether the rocks be bedded or not, they follow the lines of more or less severe faulting. They do not take any particular direction, even on the same hillside, as is sometimes thoughtlessly assumed. This will be evident from an inspection of figure 5 in last month's issue.

There is great variation in the amount of "hade." Some veins are nearly vertical, others at an angle of about 35 degrees with the horizon. The same vein sometimes varies greatly at different depths. There is, however, a striking agreement in the direction of hade, as will be seen by reference to figure 5.

The widths of the veins and pay-streaks are like-



wise very variable. In some cases the ore is curiously split up by the country rock, as shown in figure 7, which is a cross-section of the Payne vein, as seen in No. 3 tunnel 1,000 feet in from "day" and at a depth below the surface of about 360 feet. An interesting section showing how a pay-streak sometimes becomes unusually large and the ore highly concentrated, is given in figure 8, which is a section of part of the Ruth vein, near Sandon. A rib of solid galena, four feet wide, occurred in the centre of the vein, and a smaller rib on each side of it, also mostly galena, the remainder being siderite and limonite. The total width of the vein, at that point, including the eighteen inches of "horse," was eight feet. The average width of the pay streak is, however, of more interest to the miner. In some of the more extensively opened mines this has been found to be as under:

MINE.	Average width. Feet.	Area Super Feet.
Le Roi (gold-copper).....	17.0	35,000
War Eagle ".....	3.9	60,000
Payne (Silver-lead).....	.7	180,000
Alamo ".....	1.2	60,000
Cariboo (gold-quartz).....	3.75	87,000

Section in Alamo Mine

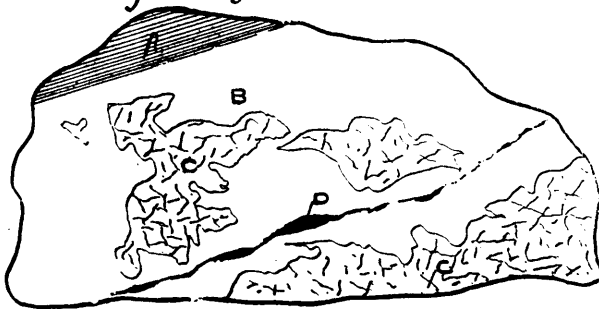


Fig. 12

- A Argillite
- B Crushed & Kneaded
- C Porphyritic Felsite
- D Galena

Scale 6 feet to an Inch

Of none of these chutes has the total extent been determined. The widths are the average, in each case, in the areas opened at the time they were taken.

There is usually one well-defined wall to these veins, and sometimes two, accompanied generally, by a greater or less thickness of "fluccan" or "gouge," but, in some instances the ore is "frozen" to one or both walls.

The length of the pay-chutes is very variable. Some of the longest yet proved being:

	Length proved. Ft.
Payne (Silver-lead).....	1,080
Ruth ".....	840
Cariboo (Gold-quartz).....	570
War Eagle (Gold-copper).....	315

The full length of the pay-chute has not been proved in any of these cases.

The depth to which some of the veins have been proved may be illustrated by a few examples:

	Depth Proved. Ft.
Le Roi (Gold-copper).....	700
Payne (Silver-lead).....	480
Whitewater (Silver-lead).....	450
Cariboo (Gold-quartz).....	200

Ore has been worked from the surface, in each case, and is still going down in the bottom of the mine, without any indication of giving out.

Too little work has been done on any of the veins to show whether or not the pay-chutes have any definite pitch in relation to any other feature of the vein or country rock.

No preference has been established, among the veins, for any particular kind of country rock, unless it be of the gold-bearing pyrrhotite and pyrite for basic volcanic rocks; but too little is yet known of the country for such statements to be made with any degree of confidence. Gold-copper ores—but without any pyrrhotite as at Rossland—occur on Texada Island, at the Van Anda mine, in limestone. There, however, the proportionate value of the precious and base metals is such that the ore is more properly called a copper-gold ore. In the Slocan there are more veins being worked among the argillites (clay slates) than in the granitic area, but that arises, so far as can be at present seen, from the greater ease of working the argillites and not because the veins are better or more numerous in those rocks. The Enterprise mine, on 10-Mile Creek, is in granite, yet it contains some of the richest ore found in the Slocan, and has a pay-chute (shifted at one part about 100 feet by a fault) over 1,100 feet in length and neither end of it reached.

Gold-bearing quartz occurs in argillite at the Cariboo mine, in quartzites and argillites at Fairview, in syenite at Nelson-Poorman and in basic volcanic rocks at the O. K. mine, Rossland.

The mode in which the gold-bearing-pyritous ores of Rossland, the silver-copper ores of Nelson and the dry silver ores occur in the veins, has already been briefly described. A few words may here be devoted to the gold-bearing quartz veins, and the silver-lead ores of the Slocan. In the former, the ore occupies the full width of the vein, unless interrupted by horses of country rock. The quartz has sometimes a banded structure, more or less parallel to the walls of the vein, and the sulphides are mostly distributed in courses that are also parallel to the walls, more or less, but with frequent interruptions and great irregularities in width.

The silver-lead ores also have more or less of a banded form parallel to the vein, the continuity and regularity being broken by country rock, quartz, siderite, limonite and other associated minerals. Sometimes the metallic minerals occur in threads, strings, spots and blotches in quartz or country rock, or in the volcanic rocks which sometimes penetrate the latter.

THE MONTH'S MINING.

ALBERNI.

VERY little of interest has taken place in this district during the past month, and the Thistle and Alberni Consolidated mill fiasco has had a most regrettable and dampening effect upon the district generally. This, moreover, may be but temporary, and an effort, we are assured, will be made by the company owning the Alberni Consolidated to ere long resume work on the properties in the future of which they have the greatest confidence, quite warranted by the promising showing in the workings.

TEXADA ISLAND.

There is much activity in this district at the present time. During the month Texada Island was visited by the Provincial Mineralogist, Mr. Robertson, and Mr. Herbert Carmichael, the Government Assayer. Both gentlemen were most favorably impressed with the very fine showings met with in the developed properties, and Mr. Robertson proposes, we understand, to publish in the next report of the Mines Department, a number of photographs of Texada mines, including a flash-light view of the lower workings in the Van Anda. Active work is being prosecuted on the Van Anda, the Marble Bay, the Silvertip, the Juniper, the Copper King, and other properties. On the Surprise, which it is reported was recently acquired by a Seattle syndicate for the sum of \$120,000, a depth of 360 feet has been reached, the vein going down between clean walls for the entire distance. The Silvertip is being developed by a shaft which is now down some 200 feet, and the Juniper with a tunnel.

CARIBOO.

The Cariboo season has now closed. In the Barkerville district the autumn supply of water was somewhat scanty, and in consequence no very phenomenal runs are recorded. A clean-up was made by the Cariboo Goldfields Co., Ltd., but the actual gold saved has not been announced. During the year, however, the hydraulic elevating plant has been successfully installed and next season the company's property should begin to pay big returns. On Slough Creek, the Exploration Company, Ltd., of London, are prosecuting development work with all possible speed, and a contract has been let by the manager for the delivery of one hundred and thirty thousand feet of sawn 16-inch square timber; fifty thousand feet of 11-inch square timber, which is required for the timbering of a triple compartment shaft. A number of leases upon which development work has been proceeding for some time will next year begin to afford returns. On Horsefly, on the Miocene Company's property, a triple compartment shaft was started at the commencement of the month under the direction of Mr. R. H. Campbell, and a contract has been let for two hundred thousand feet of sawn timber.

The clean-up of the Consolidated Cariboo Hydraulic Mining Company for the season is now definitely valued at \$111,000, which, taking all things into consideration, is not deemed an unsatisfactory showing.

During the season a vast amount of development work was done in completing the equipment of the mine; two lines of sluices, seven feet wide, were placed in the bed of Dancing Bill Gulch, for the recovery of the gold from the lower, or bed rock bench of high-grade gravel. These sluices are paved with improved steel riffles, weighing in the aggregate 79 tons.

A canal, 7x13 feet deep and ten miles in length, was commenced early in June and completed on November 15th.

A dam 485 feet long on top, and 50 feet high, was constructed across the outlet of Morehead Lake at the head of the canal, for the purpose of making a reservoir for the storage of about 550,000,000 cubic feet of water. This great storage reservoir will double the Company's water supply and the product of the mine will be increased in proportion. The construction of the Morehead dam and canal furnished employment for 350 men and 120 head of horses, and cost \$125,000.

During the progress of opening up the lower, or bedrock, bench of gravel, very rich ground was encountered. One stratum, on bedrock, prospected from 25 cents to \$3 per pan in coarse gold. A number of fine nuggets were found, one of which weighs 6¾ ounces and is worth about \$115.

With the increased water supply the output for next season will fully double that of any season since the equipment and opening of the mine.

KAMLOOPS.

(From Our Own Correspondent).

It is stated that there is a prospect of the Cinnabar mine at Savona being operated again in the near future. Mr. Lightnor, one of those interested in the property, recently visited

the mines, and declared that the indifferent success achieved so far was due to faulty retorts.

Work is still being prosecuted on the Pothook, the shaft being down some 225 feet. At the 160-foot level, while drifting, a body of ore—copper glance, bornite and chalcopyrite, more or less mixed with gangue—was struck. So far it is proved to be 22 feet in width, with the full extent not yet determined. It is also reported that included in this 22 feet there is a chute of solid bornite four feet in thickness.

Two enormous quartz ledges have been located less than a mile south of Jacko Lake, and a large number of claims in all parts of the district have been recorded during the past month.

There is a healthy feeling of confidence among local mining men, and the opinion that Kamloops camp is destined to be a great copper producer is becoming strengthened day by day.

The excellent work done by Mr. L. W. Nestelle, on the Cyclone group, at the eastern limit of the mineral belt, demonstrates that the large ore deposits are well distributed throughout it. A sample ton of the ore from this group has been sent to the smelter at Everett for treatment, and if the results be satisfactory systematic work is likely to be commenced on this property with little delay.

Many owners of claims are having assessment work done, and not a few are taking advantage of the new section authorising the recording of more than one year's work at one time.

None of the bonds taken by Mr. Cecil W. Ward with such a flourish of trumpets a few weeks ago have been taken up. It is doubtful whether anyone here ever expected anything would come of them, the only wonder is that owners of claims would enter into such foolish contracts as these were. The claims concerned are in most cases excellent ones, though a few are very prospective, indeed.

Snow fell on the hills about the middle of November, but not sufficient to interfere with work, which is carried on with vigor.

Work has been resumed on the Erin fractional claim. It is reported that the Pothook people intend erecting an engine-house at once.

A good deal of development work is being done at Mamette Lake, where there are a number of claims located. The ore found is tetrahedrite, and it occurs in masses distributed unevenly throughout the country rock. Mamette Lake is reached from Kamloops or Savona. Several men are employed on a group of claims in the hope of finding a definite ore chute.

ALBERT CANYON.

(From Our Own Correspondent).

The Waverley teams started out on the 16th to begin the supplying of the mines Waverley and Tangier, for the winter. They expect to have completed this provisioning by Christmas and are employing quite a few teams to do it. The mines will be worked all winter, and all development done will be done, as far as can be learned, under ground. Mr. J. D. Graham is still manager of the Company.

CAMP MCKINNEY.

(From Our Own Correspondent).

Within the last few weeks a marked change has taken place here; scarcely an idle man in camp, while every stage night the two hotels are filled to overflowing. Experts under the guidance of some of our local lights, are examining the numerous properties, good, bad and indifferent, which have been so long lying dormant; two survey parties are at work, and from the outside comes the news that McKinney is one of the best talked of camps in the Province.

That this change is in a great measure due to the re-organisation of the old Cariboo Co., by which this splendid gold property has been acquired by Toronto people, goes without saying; at the same time the very opportune rich strikes made both east and west of this famous claim, has opened the eyes of mining men to the fact that this is not a "one-mine camp," a reputation which it has unfortunately too long enjoyed. Although the new deal in the Cariboo was completed some little time since, the change in the active management of the property only took place quite recently, on the arrival of Mr. G. B. McAuley, when Mr. I. T. Keane assumed charge as superintendent. Very extensive development work is contemplated, giving employment to a large force of men during the winter, as the 20-stamp mill will be kept running, in addition to the "dead work." It may be a somewhat bold assertion to make, that this property is likely to prove the largest free gold producing mine in the Province, but when it is considered that already over half a million in bullion has been taken out, that the depth reached is not yet 300 feet, that the ore chute extends the full length of the claim, viz., 1,200 feet, that the continuity and richness of the vein has now been proved some 2,000 feet east and west of the main workings,

in other words, for nearly one mile can the vein be traced, and where opened has shown the same character of rich sulphuret ore, with occasional free gold, there is nothing very chimerical in the assertion, but rather it is based on logical deductions.

During the progress of sinking the shaft on the Waterloo Claim, now down 54 feet, some splendid bunches of free gold have been met with, while the sulphuret ore is much distributed throughout the vein, which is from 6 to 7 feet in width. This claim, as mentioned in a previous letter, has been stocked in Spokane, with the head offices here. The capital is \$100,000, in 1,000,000 shares of 10 cents each, and as the shares are now quoted at their par value and are likely to be very much higher before this letter appears, it speaks volumes for the estimation in which the property is held.

The latest sensation has been the great showing made in the Sailor. This claim is about 1,500 feet south-west of the Cariboo, and was recently bonded by its owner, Chas. Dietz, to some Greenwood parties for \$15,000, 10 per cent. being paid down and the remainder in two payments of three and six months respectively. No time was lost in getting to work, and from a shaft sunk a little north of the old shaft, and now down some 30 feet, very fine sulphuret ore has been taken, having all the characteristics of the Cariboo ore, and would seem to confirm the opinion of many of the old-timers, that it is a continuation of this vein. The ore taken from the old shaft on this claim is as rich as any in camp, the dump averaging over \$30. Between the Sailor and the Cariboo are situated the Rover and the Kamloops, and these claims should command a good figure and find ready purchasers. Some minor deals have taken place of properties in the vicinity of the Sailor and Waterloo, but at present no work has been done. The evident desire of outsiders to get hold of claims in the neighbourhood of the recent strikes is stimulating claim-owners to do a little real work on their properties, and it may be mentioned that, much to the detriment of the camp, the axe has been more in evidence than the drill during the past few years in the matter of assessment work, and the proposed amendment touching re-locations will be heartily welcomed by the *bona fide* miner and is a step in the right direction. There is a rumor in camp to-day that the Minnehaha is to start work right away, a large block of stock having been sold and the proceeds to be devoted to development work. It is to be hoped the report will prove true; there is some very rich ore in the claim, and further development will, in the opinion of many conversant with the property, show up a body of it.

Winter is with us, there being some ten or twelve inches of snow, and sleighing will soon be in order. Some fifty or sixty men are on the different pay-rolls, but this number will undoubtedly be very much increased. Our school, under the able direction of Miss Dell, is making good progress. We expect shortly to have sufficient scholars to form a district school. The Rev. W. W. Campbell is resident minister here, and it is very gratifying to be able to state that his services are well attended, some evenings there being "standing room only" in the school house. To-morrow being Thanksgiving day, the hotels have laid in a good supply of turkeys, which will undoubtedly be done justice to by the "boys."

FAIRVIEW.

(From Our Own Correspondent).

The Smuggler mill is about completed and by the time these notes are printed will, it is hoped, be crushing ore, and so making a new name for Fairview. Considerable activity is apparent in the formation of new companies to operate here.

The Dier, Davidson & Russell companies have all been amalgamated under the name of the "Fairview Corporation." This will enable the company to carry on work on the most promising of its properties, such as the "Stemwinder," and as this mine seems to improve with development everyone is pleased to know that work will be energetically carried on.

The Dominion Consolidated Mines Co., Ltd., with a capital of \$500,000 in two million shares of twenty-five cents, is another company lately chartered. The directors are men of good local standing and are as follows: G. H. Mawrer, managing director of the Smuggler; L. W. Shatford, general merchant, Fairview; Stephen Mangott, part owner of the Morning Star mine; A. E. Mason, of the B.C. Lumber Co.; John Love, chemist, and A. McInnes, Sec.-Treas. of Smuggler G. M. & M. Co. The claims owned by the Company are the Fairview, "Dominion, A. D. A. and Black Hawk. The former properties are extensions of the Smuggler and supposed to hold the Smuggler lead. The Black Hawk is, however, the most promising of all and lies close to the Okanagan River two and a half miles from the

town of Fairview. There are three ore ledges on this claim of free milling character. The lowest assay made giving \$13.16 of which \$9.16 was gold; 173 pounds of ore sent to Tacoma smelter gave \$24.07. One of the ledges on which work has been done is three feet wide and traceable for 500 feet. A tunnel is to be run 200 feet along to tap one ledge at a depth of 300 or 400 feet and this tunnel will eventually be continued another 150 feet to strike a parallel ledge at a depth of 600 feet, from this you may imagine that the company has an ideal tunnel site. I hope next month to describe further this and other properties in camp. RICARDO.

KETTLE RIVER.

A correspondent, Mr. William G. Guttridge of Rock Creek, writes to the MINING RECORD as follows, concerning this promising section: "As one of the first to prospect in this locality, I should like to call the attention of your readers to the promising nature of the discoveries which have been made within recent times in the Kettle River district above Rock Creek, at what is known as Canyon Creek. So promising are the prospects of this camp that a charter for building a railway thereto from Midway has already been applied for, and during the past month the C.P.R. also have sent in a party of surveyors to examine the possibility of a route. Canyon Creek is reached by crossing the ferry on the West Fork of Kettle River, ten miles above Rock Creek, and following the trail until one arrives at Beaver Creek camp, where some well defined veins of high-grade silver-gold ores have been uncovered and are now being developed. Here one leaves the West Fork trail, and enters the valley of the Kettle River, where there is an abundance of excellent timber and water. Thence to Canyon Creek is a distance of twenty-two miles. This camp was first discovered by two prospectors named Sullivan and Waddell, who located two claims, the Montana and Colorado, which they have since continuously worked. The Montana shows a well defined quartz ledge, approximately four feet wide, carrying good gold and silver values, which is being opened up by means of a tunnel. A 65-foot tunnel has been driven to the Colorado lead, assays from which give \$30 in gold, \$16 in silver, and 4½ per cent. copper to the ton. A number of other claims have been located here, having equally promising surface indications, and I might perhaps specially mention the Assayer, Excelsior, May Queen, and the Robin Hood, which latter has been opened with a 20-foot shaft, exposing a well defined ledge, four and one-half feet wide, of quartz, chalcocopyrite and pyrrhotite, the paystreak averaging eighteen dollars in value. Besides these claims there are several large deposits of arsenical ore. One of these, the O.K., has been stripped for the distance of 1,000 feet, appearing to be eighteen feet in width for that distance, surface values averaging \$8. On the Silver Dollar claim visible free gold is found in the ore. The formation is quartzite, slate and granite. The prospectors in this camp are very enthusiastic, and show how much they are in earnest by remaining to work during the winter on their properties, and men of experience from Rossland assert that the surface showings here are quite equal to those met with in that now famous mining centre."

BOUNDARY CREEK.

(From Our Own Correspondent.)

The past month has not witnessed any special developments in the mining camps of Boundary Creek, yet progress has been made on several of the better known claims, and there is a prospect of an increase of development work in the near future. No sales or bonds at high prices have been reported, nevertheless the district is more than holding its own in public estimation, and there are fresh evidences of material progress. Next in importance to the near approach of construction parties along the line of the Robson-Midway Railway is the fact that three chartered banks have each opened a branch at Greenwood, and one is expected to open shortly at Midway. Not that the present state of either the mining or trading interests of the district warrants the opening of three branches in any one part of it, but that the action of the banks in opening is a significant testimony to the importance that is attached to the prospects of the district, else would there not be such competition for its banking business at this comparatively early stage in the development of its mineral resources, although these are believed to be both extensive and very valuable.

From a practical point of view, however, there is a feature in the situation that is even more important than railway construction or bank opening, since these would naturally follow in the ordinary course of events. This particular feature is that actual mining development is being more actively proceeded with than at any previous time in the history of

the district. True, the number of claims upon which this satisfactory state of affairs obtains is almost infinitesimal in comparison with the total number of mineral locations, but in this respect the district is by no means singular, since nearly all new mining camps exhibit in degree a similar disproportion. As last month's Boundary Creek letter to the MINING RECORD gave some details of the work accomplished and the plants in use on several of the best developed claims in the district, the present position of these may now be briefly summarised.

Deadwood Camp is represented by the Mother Lode, owned by the British Columbia Copper Company, Ltd., of New York. At the time of writing the vertical double-compartment main working shaft at this mine is down 110 feet. The past week having been employed in timbering, the depth sunk since the first of the month is correspondingly less, but by the end of the month a much better showing will have been made. It may be of interest to here mention that other work on this property includes about 150 feet of shaft and winze sinking and nearly 500 feet of underground cross-cutting, also that the pumping, hoisting, and air drilling plant installed is the largest and most complete yet brought into the Boundary country.

Greenwood camp is now in the van as regards the number of claims upon which mining work is being done and the extent of the ore bodies disclosed. The Old Ironsides, with more than 60 feet of ore of good average value in crosscut at the 200-ft. level, and the adjoining claim, the Knob Hill, with its crosscut tunnel showing more than 350 feet of ore, also averaging well, values being in gold, silver and copper, are the show properties of the camp. But they are not alone in development work, for the Mackenzie & Mann Syndicate have resumed operations on the Brooklyn and Stemwinder, both of which have already had a lot of work done on them to open up their fine ore showings. Among others in the vicinity is the Idaho, upon which some rich ore has been uncovered and which is a very promising claim. The Snowshoe, in the same camp, is still idle, but work is being pushed on the Rawhide, which adjoins it. The Four Ace has changed hands, a one-half interest in it having been purchased by Mr. Robert Jaffray, of Toronto, and the other half by three Greenwood men.

At the Winnipeg, in Wellington camp, the main shaft has been sunk 100 feet vertically and thence about 140 on the incline. It is intended to continue sinking this incline shaft about 60 feet deeper, and at the 300-ft. level to cross-cut for the lead. It is understood that the sinking is being done in country rock on account of its being softer and more workable than the solid pyrrhotite which comprises the vein here. The expectation is that the 300-foot level will be reached by the end of the current year. Should the ore body be found to retain its average size and values down to the 300-foot level, the future of the Winnipeg should be practically assured, since the occurrence of a strong and well-defined lead would to that depth would warrant the expectations that it would prove to be permanent. Cross-cutting at the 150-foot level was the work planned for November on the Golden Crown, adjoining the Winnipeg, but no information is just now available to the writer as to what work is being done on this claim. A contract has been let for 100 feet of tunneling on the Oro, also in Wellington camp. It is stated that there is a good quartz ledge on this claim.

Work on the Cordick, in Summit camp, has been retarded by the extreme hardness of the rock encountered, so progress has been slow. The arrangements mentioned last month as having been made to provide for working on the Oro Denero all through the winter are being carried out, so this claim should at least be prospected sufficiently to determine whether the promise its big surface showing gives is borne out below ground. The Summit claim is again having attention, but the prospecting shaft is not yet deep enough to demonstrate what may be looked for as development progresses. It is reported that the B.C., which is now the star claim of Summit camp, will resume work soon after Christmas, but this report lacks official confirmation.

Work has been resumed on the Jewel, in Long Lake camp, Mr. Gilbert Mahon having arrived from Rossland early in November and having without delay put matters on a working basis. The water has been pumped out of the mine workings, and buildings, more roomy and comfortable, are being erected for the better accommodation of the mine employees. Great hopes have in the past been entertained respecting the Jewel and neighbouring claims, so a resumption of work is noted with much satisfaction. Confident anticipations are still indulged that Long Lake camp will yet produce a permanent payable mine. There is a prospect of work being also resumed shortly on the Anchor and Enter-

prise claims, which are located on a continuation of the Jewel lead. The adjoining Lakeside fraction is still being prospected by drifting on the lead, which is yielding very likely-looking quartz ore. The owners are much perplexed though over the assay returns made to them. One average sample taken from right across the lead was returned as having \$131 in all values, whilst a check assay of pulp from the same sample was stated to have given only \$17. A test of a like nature was made after a fresh sampling, but results were again widely divergent. Another sample and other assayers will now be tried, and a more consistent result is hoped for.

Recent developments on the D. A. and the G. A. R. claims, owned by the Boundary Creek Mining & Milling Company, of Greenwood, and situate within two miles of that town, are encouraging. After several narrow veins of the rich ore, so characteristic of the D. A., had run out, a body of quartz about five feet in width, heavily mineralised with iron and dipping in an opposite direction to the narrow veins, was uncovered. This is now being followed down, and it is hoped it will make into a well defined lead, in place and carrying good values. The cross-cut from the G. A. R. shaft is also in quartz showing mineral freely. Some very nice ore has been found on the Tacoma, in close proximity to the D. A. workings. The earlier understanding that this ground was to be conveyed to the British Columbia Mining & Milling Company has not yet been carried out.

The work of driving the 600-foot cross-cut tunnel on the City of Paris in Central (or White's) camp is still being proceeded with, but no new developments have lately been reported. Nor is there much of importance to note respecting Graham's camp, in which work is now confined chiefly to the tunnel Mr. Graham, of Spokane, is putting in on one of his group of five or six claims. It is stated that a few men will shortly be set to work on the Non Such, one of the Republic group, situate in Smith's camp, near Boundary Falls and owned by the Republic Gold Mining Company, of Spokane, Wash. The Non Such is the oldest recorded quartz location in the Boundary Creek district, and a deal of development work—chiefly tunneling—has been done on it, but although much quartz carrying good values has been met with, it has not been in place, nor sufficiently continuous to encourage persistent development. There is little doubt, though, that with a fairly liberal expenditure of capital, so as to admit of the disturbed ground being passed through and the settled country entered into, this claim, and its near neighbours too, would give permanent, good results.

Only one more claim will be mentioned this month, viz., the King Solomon, in Copper camp. The bunch of specimen copper ore, which for a time attracted much attention locally, has been passed through. Work is being continued, though, and believers in copper camp are now patiently waiting for news of a fresh strike. It would indeed be disappointing were it eventually demonstrated beyond the possibility of a doubt that the really enormous surface showings of the Big Copper, King Solomon, and other claims in the vicinity, are not reliable as indications of the presence of big bodies of copper ore below ground. But this contingency is not feared; on the contrary it is believed that whenever Copper camp shall be given a fair test it will fulfil its great promise, as have already done the several other camps in the Boundary Creek district, in which prospecting to a reasonable depth has been systematically carried out. PERCY VERENS.

Midway, B.C.

ROSSLAND.

(From Our Own Correspondent).

The report on the mines in the vicinity of Rossland for the past month is interesting from the fact that so many properties are resuming work; and that so large a quantity of new machinery is being ordered. The resumption, moreover, of work is on such a scale that it may confidently be expected that the output for 1899 will as much exceed that of 1898 as this year exceeds last.

War Eagle—The output of the War Eagle for the middle week in November was upward of 1,680 tons; the hoist is practically completed and the final machinery should be in place and work started by Christmas Day. The installation of the new machinery at the imposing hoist on the War Eagle ledge, above the Le Roi, will give a tremendous impetus to the output of the mine. Already more than sufficient is being shipped to meet all expenses, to pay dividends and to augment the reserve, and when the new machinery is in working order, the mine lit by electricity and the new compressor working its drills, Mr. Hastings, the manager, will indeed have cause to be proud of the property and of its dividend paying capabilities. The annual report presented by Mr. Hastings is a model of what mine accounts could be made in this camp.

The well worn theory that hard work is cheaper than machine work is not borne out by the figures compiled by the superintendent of the War Eagle Co. Work at present is chiefly confined to the upper levels of the mine. A great deal of new ground has been opened up by the completion of two new raises, the great body of pay ore come upon some time since can now be stoped out to advantage. Altogether the War Eagle presents extremely promising features.

Le Roi—The trouble over this mine is reported to be definitely settled and the B. A. C. take possession. The price paid to the minority shareholders is stated to be \$7.25, which is a considerable advance on that which was paid to the majority. Thus the tactics adopted by the Turner clique in actively pushing forward the shipments from the mine, despite the cries that it was being "gophered," have been amply justified from the monetary point of view by the price which was obtained for the shares. The new chute, the discovery of which was recorded last month, has been opened up for 100 feet and found to run \$60 to the ton. Development is proceeding all over the workings.

White Bear—Nothing of importance can be mentioned this month. The drift to the eastward is still being continued. Manager Cole is employing a force of 18 men.

Iron Mask—Work is going on all over the property, especially at the west end, near the ore bodies in dispute between the Iron Mask and Centre Star. A new winze is down some 60 feet and the north vein is still being exploited. The foundations for the new compressor plant are completed and the machinery is expected shortly. Louis Janin, a mining expert well known in California, has been looking over the mine with a view to the legal aspect of the case between the proprietors and the Centre Star people. The trial is to come off shortly, the owners of the Iron Mask being very confident of the result.

Centre Star—The chief work is proceeding on the new three compartment shaft. Each compartment is five feet square. Two will be used for the skips but the third is reserved for the men and for the necessary piping. This shaft is being worked on in three directions. First it is being sunk from the surface; next it is being upraised from the tunnel level, which is about 150 feet below; and lastly, it is being sunk as a winze from the tunnel level downwards. Superintendent Hastings expects to complete the shaft to the tunnel level within the month and to sink the whole of the proposed depth, 550 feet within a year. But this will, if accomplished, be quite a record performance. Work is also progressing on the shaft at the other end of the ground and also on the north ledge. The property has been re-surveyed in prospect of the coming trial. Eighty-five men are at work and every available machine is in employment.

Monte Christo—There was a rumour current during the past month which found publication in some of the Spokane papers that the mine was to be re-opened. This was, however, contradicted by the officers of the company, John M. Smith, president, and F. W. Rolt, vice-president, in a public letter. They stated that the mine would not resume until such time as an expert had examined the workings. When the expert was to appear on the scene did not transpire.

Virginia—About twenty men are employed with two machines sinking the shaft from the 300 foot to the 500-foot level. It is now down about 385 feet. No cross-cutting will be done until the 500-foot level is reached.

Iron Horse—Work on the double compartment shaft, which is down 55 feet, has been temporarily suspended pending the installation of the new machinery, which should be in place by the middle of December. The shaft house has been completed and preparations for the reception of the plant are practically finished.

Commander—Work is proceeding on the shaft which is being sunk vertically. It has now nearly attained the 300-foot level and the copper ore which was crossed on the higher levels is giving place to quartz. At the 500-foot level, the management claim all surface developments will have been passed through and a good body of pay ore is confidently expected.

Alberta—The company have discontinued work owing to lack of funds.

Novelty—A new find was made this month near the Grant property with the consequence that the management are so pleased with its appearance, the ore having assayed \$21.60, that work has been suspended on the older shafts altogether, and the new ledge is being stripped, cross-cut and sunk upon.

Giant—Work on the shaft is suspended. The reason assigned is that arrangements are being made by which it is

hoped a considerable accession of funds will be obtained and a seven-drill compressor installed, which will enable the work to be pushed more satisfactorily. The main body of ore, which had faulted and apparently dipped out into the Evening ground, seems to be coming back into the shaft, which is down 110 feet. The tunnel is being proceeded with and has been drifted 120 feet. The rock is well mineralised, but the ore chute is not yet in sight, though thought to be near.

Gertrude—During the past month the shaft, which is now 120 feet deep, has been timbered all the way down. The tunnel which is being driven to meet it at the 100-foot level is nearly completed. On its completion a station will be excavated and the horse whim will be utilised to drive the shaft down to the 200-foot level. The rock need only be raised to the level of the tunnel, which will considerably expedite matters. Rumour has it that a strike has been made, but the particulars have not been made public.

Mascot—Work is actively progressing all over the mine. The main tunnel is in 450 feet, and has attained a depth of 160 feet. A new tunnel which is to tap the ledge at a depth of 800 feet has been started, and is in 50 feet. The face of the main tunnel shows a vein of fair ore, while both the winze and shaft look favourable. Unaccountable delay has occurred in the arrival of the machinery which was ordered from the East three months since. The compressor plant is ready but everything is kept back for the motor, which should be here according to the latest advices by the first week of the month. Wires are being put in by the West Kootenay Power & Light Company, which will carry the power necessary for the working of the machinery.

Evening Star—Work is going on in the lower tunnel where six men are drifting, under the Superintendent, Mr. Roy Clarke. It is hoped that the large body of ore exposed in the upper tunnel will be met and opened by the continuance of the lower driftings.

Iron Colt—There is considerable money now in the treasury and the directors of the Company have decided to open up the property better by sending a winze from the tunnel down to the 500-foot level.

Good Hope—Has closed down for want of funds.

Santa Rosa—Has closed down for the winter. The directors propose to put in machinery in the spring and extend the tunnel, which has been drifted about 400 feet.

Coxey—Has come to the front with the news of the wonderful find in the tunnel in the middle of November. Work was resumed on the upper tunnel about the beginning of that month, and not long after the start a large vein of copper ore was encountered which averages \$16 to the ton. Some of this runs up as far as \$100 in gold and copper. It is thought that the ledge will be shortly found in the lower tunnel at a depth of about 200 feet. The Coxey is immediately facing the Jumbo on the other side of the ravine, and the find is thought to have thoroughly established the existence of a northern vein, which runs through the properties between the Monte Christo and Coxey, to the north of the ore bodies nearer the edge of the gabbro in the Le Roi, War Eagle, Iron Mask, Centre Star and Virginia. It is, therefore, to be expected that with the coming of spring the properties in line will be thoroughly exploited.

Jumbo—Work is principally going on in the new tunnel, which opens up the ledge at a depth of 400 feet. The rock in the tunnel above is nearly all pay ore.

Wallingford—Work has lately been resumed on this property which is situated on the upper slopes of Record Mountain four thousand feet above Rossland. There are comfortable quarters for the men mine of whom purpose putting in the winter and thoroughly proving up the property.

Eureka Con—Work has also been resumed on this claim.

Velvet—Superintendent Morrish is drifting both ways along the vein at the 200-foot level. Both drifts which have only recently been started, are in ore and the conditions look favourable.

Victory Triumph—A cross-cut has been made at the 100-foot level which proves the vein to be eight feet wide, carrying gold and copper values. A new shaft house is in course of erection, wherein, on completion, a horse whim will be established.

No. 1—In No. 1 tunnel the ore chute has been proven to be good paying rock for over 200 feet, the extent of the exploration. A station is being excavated in the shaft at the 100-foot level preparatory to cross-cutting. A fine vein of copper ore some five feet in width has been exposed. The shaft house is now completed.

Josie—Work is proceeding at the 300-foot level, and also where the dike crosses the workings near the shaft house. Here Superintendent Long is cross-cutting in various directions in order to thoroughly explore the vein, here much disturbed by the presence of the dike. Bunches of pay ore are being come across, but the real ledge has probably not yet been met with.

Nickel Plate—Work is here, and at the Great Western, under the charge of W. S. Haskins, who is drifting in his old, energetic manner. Some good ore is in sight but these properties have yet to show their real worth.

Columbia Kootenay—On this mine work is being done on various tunnels and vast bodies of ore are being exposed. On No 5 tunnel drifting is nearly at the point where the ore chute discovered on the upper levels may be expected to be found. Fifty men are employed on this property.

Deer Park—The main shaft is down 310 feet and from this point cross-cutting has been commenced. Just before reaching the bottom of the shaft a fine vein of quartz was exposed. Work has been started both on this vein and in the cross-cut at the bottom. What the showing actually amounts to the management have kept to themselves. It is believed to be very good indeed. At the 100-foot level cross-cuts are being made which tend to establish the trend of the veins. At the other levels, as stated in the issue for last month, similar cross-cuts will be made.

Grand Prize—Considerable surface work has been done and sufficient progress has been made to encourage the thorough exploitation of this property.

Abe Lincoln—The shaft on this mine is about completed and cross-cutting will be the order of the day until steam supersedes the present horse whim. Assays taken from the bottom of the mine run to \$30 and there seems to be quite a quantity of pay ore at the foot of the shaft. The management thoroughly deserve whatsoever success they obtain for the mine is a model from the cheapness and efficiency with which it has been worked.

Sunset No. 2—A cross-cut is being driven from the shaft to open up the ledge at a new point. This is at the 350-foot level and is likely to be quite a long drift.

Lily May—Work has been resumed on this property, and after the machinery has been thoroughly overhauled it is proposed to sink the shaft down to the 200-foot level. It is now in some 180 feet at which point work was dropped last spring.

Silver Bell—Nothing new has transpired with regard to this property, which as stated last month was recently taken in hand by Mr. E. L. Sawyer, of Toronto, not Montreal as appeared through a clerical error.

Gopher—Work has been suspended on the winze owing to the presence of water. On the installation of pumping machinery the winze will be proceeded with. In the meantime several cross-cuts are being made in the tunnel.

Homestake—Work has been resumed on this property. Three shifts of men, working eight hours each, are employed. It is proposed to sink the pre-ent shaft from the depth where work was dropped, viz., 137 feet to the 300-foot level. Here, should the indications not be favourable, it will be continued down to the 500-foot level. There is enough money in sight to allow of work proceeding, with economical management, for the next year and a half, perhaps two years, to come. The plant is in first-class order and is the best of its kind, the compressor is of five-drill power, which means at this altitude loss of one. There is little fear if the work be thoroughly done, but that the new management will be rewarded with success.

YMIR.

(From Our Own Correspondent).

The white mantle of winter has covered the mountains in our vicinity, and there seems to be renewed activity on that account, because a number of private owners will endeavour to ship this winter by raw-hiding their ore to the railway; besides, inside of a month at the latest, we shall see the Ymir, Porto Reco and Dundee mills complete and commencing to crush. Ymir, to date, has shipped very little ore, but it can be expected that as soon as the above-mentioned mills begin operations, the camp will make a name for itself by adding to the Province's list of shipping mines.

The following is my summary of the month's happenings: Mr. Frank Davie, of Spokane, has taken a lease and bond on the Black Cache, and has a number of men at work. He contemplates shipping from the property this winter. The values from this property range from \$60 to \$100 in gold. Mr. Lloyd

Harris, the president of the Alf Mining Co. Ltd., made his yearly inspection of the Bullion group, which is being operated by his company. Mr. Harris has expressed himself as well pleased with the prospect. In the spring a road is to be built and a compressor plant installed. Accompanying Mr. Harris was Mr. W. Pellew Harvey, of Vancouver, who made an extensive series of tests as to the best method of treating the ore. The season's work has been in charge of Mr. A. McDonald.

Work on the Elise is steadily going forward, while the value of the ore continues to improve. Mr. W. J. Noble has secured a contract to sink 100 feet of shaft on the Monarch group. This property gives fair values in gold and copper. During the month the Dundee made a shipment of two carload lots to the Hall Mines at Nelson. The first car shipment went 18.4 oz. in silver, 2,858 oz. in gold, 19.9 per cent. lead, or a total of \$77.15 per ton; the second returning 7.65 oz. silver, 1,095 oz. in gold, 4.3 per cent. lead; total \$28.40. As a result of sinking on the ledge of the Evening Star, fine ore has been encountered. Two carloads of machinery from the E. P. Allis Company recently arrived here, and included vanners, crushers and rolls. This machinery is from the Dundee concentrator. A force of men are busy installing the hoisting plant at the Tamarac.

It will be seen upon comparing the stock reports for the past few months that Ymir stocks continue to advance, and, I think, justifiably so. Fortunately for this camp we have no wild-cat companies plying their nefarious calling.

Within the past few weeks there has been several very important and rich strikes made on Barrett Creek, and some very fine specimens showing free gold are being shown. Upon this creek is situated the Porto Reco mine.

NELSON.

(From Our Own Correspondent).

During the past month nothing of remarkable interest to the mining world has occurred in the immediate vicinity of Nelson. Even the river creek placer diggings have not yet proved a "Klondike," and recently very little has been heard of the work in that locality; still, however, the presence of gold has been proved beyond doubt, and further development may result in better news.

The Athabasca group is looking very well indeed, and the stamps and other machinery are reported to be working quite satisfactorily. A good deal of ore has been shipped from time to time to the Hall Mines Smelter, and very handsome returns have been realised. The Exchequer group adjoining is also well spoken of, and it is very likely that it will be a profitable venture; though as yet, perhaps, hardly enough work has been done on the ground to render any prophecy safe, it is at any rate in a very good neighbourhood.

The busiest camp has apparently been in the vicinity of Ymir and Erie, where concentrators, stamp mills, tramways, and cyanide plants are all either built or being erected, to deal with the very remarkable showing of ore that occurs there. The most notable mines at present appear to be the Dundee, Second Relief and Arlington, all in that district.

It is interesting to note that an English company has been formed to treat lead and other ores, which on account of the presence of considerable zinc are considered difficult to smelt at a profit in this country. Zinc always has been troublesome in the blast furnace, not only mechanically by forming crusts in the furnace itself, but also by greatly increasing the loss of silver, hence an ore carrying much zinc has been regarded with much disfavour by smelting men generally. The details of the process are as yet not made public, but as the works will be situated in Lancashire, England, where labour, fuel and other necessities are much cheaper than here, the venture will probably be quite successful. It seems more of a chemical process than ordinary smelting from what little is said of it, and if it does succeed it will be a great help to many of our mines in this country.

There has been much discussion about the founding of a School of Mines in this district. While fully alive to the inestimable value of such an institution, it seems to me that no town can be selected as being sufficiently central to suit all who might wish to become students. It must not be forgotten that one cannot go from one place to another in this country like one can in older and more populous countries, at a few minutes' notice and at a small expense; and, therefore, any one School of Mines might fail in its object. But science classes held in every town that will support them would be a possible way out of the difficulty; and if our Government can see a way towards assisting the teachers according to the success of the pupils, as is done in England—payment by results, in fact—very valuable service would be rendered to all those interested in mining matters.

A. H. H.

SLOCAN.

(From our own Correspondent.)

Silverton—The following is my monthly summary from this camp: Rawhiding commences here immediately, and the Vancouver, Wakefield, Fisher Maiden, Emily, Edith and Comstock will be among the heavy shippers. The amount of ore in sight at the Vancouver has, the foreman tells me, been doubled within the last thirty days. This amount is estimated at 20,000 tons and a foot of ruby silver in the face of one of the tunnels. This ore gave smelter returns of over \$2,000 to the car, deducting freight and smelter charges. Work on the Comstock concentrator is being prosecuted rapidly. The Wakefield is sacking a car a week. A new strike has been made at the Fisher Maiden of a foot of clean ore assaying 170 ounces, and fifty per cent. lead.

New Denver.—A telegram has been received by Mr. Sandeford, manager of Bosun mine, announcing the smelter returns from the three car-loads of ore shipped from this most promising property to the Chicago & Aurora smelter, as 4,015 ounces net. During October one hundred tons of ore were shipped from the Bosun to the smelter. A shipment will also shortly be made from the Marion mine on Silver Mountain, ten tons of ore approximating 100 ounces in silver and 45 per cent. lead, have recently been mined from the No. 1 tunnel, which has been driven in forty feet.

Sandon.—The mines in the vicinity of Sandon continue to make big shipments, and the showing for November is particularly good.

BIG BEND.

(From Our Own Correspondent.)

Hydraulic mining operations have ceased for the winter on the French Creek Company's property and manager and men are now returned to Revelstoke. Taking into consideration that this was the company's first working season; that they had but one derrick and but one opening, and worked short-handed besides for a good part of the season, the result is thought by the engineer, Mr. Sheaff, as expressed in an interview with a local paper, to be satisfactory under the circumstances. This is very cheering news (though the public would have liked to know, approximately, the size of the clean-up) and many entertain hopes of seeing Big Bend become a hydraulic camp as well as a quartz one.

Smith Creek is to be again exploited by hydraulic means, and an effort is to be made to make for its profitable working next summer, if reports received are correct. Smith Creek has been a difficult piece of ground to successfully open heretofore and a fresh attempt is therefore anticipated with interest. The old pipe line will be relaid and a Pelton wheel and derrick installed.

On the Aberdeen, a very promising property on Carnes Creek, a 75-foot tunnel has been contracted for, and it is likely that it will be further developed next spring, as it is regarded by many familiar with the locality to offer encouraging prospects of successful operation.

There is much talk concerning the probable formation of a local company to develop Keystone Mountain properties. Several owners of good properties in this most promising field are thinking of pooling their interests and inviting the public to assist them in developing what is one of the most likely looking camps in Big Bend. Correspondence has already passed with some English people who are ready to take interest in the promotion of a company upon a business-like plan.

It is also learned, through the press, that a company is to be formed in England to put steamers on the Columbia and take other steps to develop and stimulate trade and the transportation to Big Bend. The company, it is said, will be floated this winter and provisional directors are already appointed. Transportational facilities are badly needed in Big Bend, and a good river system will do a good business without doubt.

TROUT LAKE.

The latest from Trout Lake is that ore has been struck in the second tunnel on the Silver Cup at 280 feet depth. The ore is said to be of much the same character as in the older workings, and, if so, opens up a splendid prospect for this very valuable mine. Mr. D. G. McNeill, the present mine superintendent, is an experienced mine manager, and he is reported as saying that 75 men could now be advantageously employed on the property. It is reported that the Cup will resume shipments at an early date.

The Ethel, recently acquired by the Commonwealth Company, is turning out very well. It has a small but very rich vein, and its owners claim that it is now putting up some of the highest grade silver ore ever shipped. It will shortly

make a half-car or carload shipment and curiosity will be aroused as to its value.

Work will be prosecuted all winter on a very large number of properties in this camp, and the signs are all indicative of a splendid camp next year. This is especially well grounded on account of the probability there is of railroad facilities entering the district. The C. P. R. engineers have completed their lines from Arrowhead to Kootenay Lake and the Lardeau-Duncan people, on the other side of Hall Creek, are extremely active also. The probability is that inside another year Trout Lake may have not only one, but two railway outlets, and then look out for a camp that will be a world-beater. But to resume, amongst the properties that will be worked this winter are the Free Coinage, Goldbug, Union Jack, Black Diamond, Ethel, Commonwealth Company claims on North Fork, Towser and several others too numerous to mention here. For an exhaustive and fair account of the Trout Lake properties see the pamphlet recently published by the Trout Lake Topic.

LARDEAU.

Another camp coming rapidly to the front is Lardeau. Your correspondent recently heard an old resident of that camp say that more work had been done there this year than ever before since it became known. The Beatrice group in Mohawk is being opened by the Beer Bros. of Nelson, and have about 150 tons of ore sacked at the mine. The Brunswick, the property of the Lardeau-Goldsmith Co. of Rossland, is also being opened up and sample shipments have been sent to the smelter. The Lost Cup is another good working property at 9-mile Creek. Then there are several other good properties like the Copper Chief, Glengarry, and others on which a good deal of work has been done. Lardeau will, without doubt, experience and share with Trout Lake all the benefits of expected railway construction, and just as this goes forward news is received of negotiations being commenced between the representative of a strong English company and the owners of a very promising group of claims on one of the tributaries of Fish Creek. More particulars next letter.

EAST KOOTENAY.

(From Our Own Correspondent.)

Wild Horse—Mr. Egan has made the second payment on the Big Chief group, on Boulder Creek, and is working two shifts steadily. The property consists of a 4-foot ledge, which is traceable for some 500 feet. Some remarkable assays have been obtained, varying from \$100 to \$2,500 to the ton. The quartz is to all appearances free milling, and small pockets consisting of almost entirely free gold are found throughout the ledge, varying from the size of a large pea to that of a walnut. The average value of the quartz, however, outside of this, is not high, running not much more than \$3 to the ton.

Tracy Creek—Mr. Polson, of the Estella mine, has two shifts employed in the lower tunnel of this property. The driving is now in 600 feet, and there are good indications that the main ore chute will be, ere long, encountered.

Windermere—Arrangements have been made to work two shifts on the Delphine group, on Toby Creek. The ledge, which is three feet wide, is of high grade galena, the assay value being over \$100 per ton.

The Pretty Girl group on Horse Thief Creek will be worked during the winter under Mr. Jones' management.

St. Mary's—The new buildings for the manager and men at the South Star are rapidly approaching completion, when the working force will be increased to thirty men for the winter.

On the Sullivan group a small force of men only is employed at present, the machinery for the mine having not yet arrived. The work is to be confined to sinking on the lode, and by the New Year close on thirty men will be on the pay roll.

The Fort Steele Development Syndicate, of London, England, owning the Kimberly townsite (distant about one and one-half miles from the North Star and Sullivan group), have very nearly completed their hotel, which will be the finest building in East Kootenay, handsomely furnished and lighted by acetylene gas. The building is three stories high, is lathed and plastered throughout, and has commodious reception rooms and wide, shady balconies and verandahs.

Mr. Pollen has just returned from his claims on Alki Creek, which Mr. Leslie Hill has examined for an English company. The property has several ledges from four feet to eight feet wide, carrying good values in copper and gold. The claim has been well opened up and there is a good showing.

Mr. Campbell Johnson, of Nelson, B.C., has made an examination during the month of a group of claims on the west fork of the St. Mary's River.

Moyai—Mr. T. T. McVittie is now at Moyai surveying an aerial tramway for the St. Eugene mine.

ANNUAL REPORT OF THE WAR EAGLE MINE.

THE second annual meeting of the War Eagle Consolidated Mining and Development Company was held in Toronto on November 15th. The report of the manager, Mr. John B. Hastings, shows that during the year ending October 1, 1898, 4,116 feet of development work was done. Shipments were not commenced until May, but from that time until October 1, the total output of the mine was 28,523 dry tons of an average gross market value of \$23.52. The total gross market value of the shipments is thus shown to be \$670,735.28. The total smelting charges on this ore were \$313,891.30, and the net value of it was \$356,483.98. The total value of the ore now in sight, consisting of 100,000 tons of an average value of \$17 per ton, is estimated at \$1,700,000. It is a noteworthy fact that a year ago the reserve amounted to only \$1,105,000. Since then there has been shipped from the property ore to the total value of \$670,735.28. Despite these heavy shipments, the reserve has increased by 55 per cent., and is rapidly increasing. Another notable fact in connection with the property is that during the past year the management has been able to treat ore carrying \$4.12 less values than in the previous year. The reduction is made possible by the increased tonnage and by reduced smelter charges. The report in full is as follows:—

WAR EAGLE MINE OFFICE, ROSSLAND, B.C.,
November 1st, 1898.

To the Directors of the War Eagle Consolidated Mining and Development Company, Limited, Toronto, Ontario.

DEAR SIR: The following is my report for the past year upon the Company's mining properties, the account and cost sheets till September 30th, and the condition of the mines till October 21st.

DEVELOPMENT FOR THE YEAR.—Since October 1st, 1897, the date of my last annual report, up till October 1st, 1898, the following work has been done at the cost specified, exclusive of assaying, ore sorting, properly chargeable to ore production of headings:

3,480 feet of tunneling, average cost per foot	\$21.15
451 feet of raising, average cost per foot	29.78
185 feet of sinking, average cost per foot	96.25

4,116 feet total.

From driving these headings 2,316 tons of ore was produced and shipped.

TOTAL HEADINGS ON THE MINE.—The work done during the past year added to the former headings makes a total of:

Tunneling, feet	8,304
Raising, feet	851
Sinking, feet	665

Total..... 9,820

This does not include 250 feet of the main work shaft timbered through the stopes from the 250-foot level to the surface.

ORE EXTRACTION FOR THE YEAR.—As you know the smelting conditions were such that regular stoping in the mine and ore shipments were not begun during the year until May. Besides the ore just mentioned, there was produced and shipped from stopes 26,559 dry tons at an average cost per ton of \$3.24; the total shipments for the year aggregate 28,875 tons.

Average gross smelter value.....\$ 20.01
Total smelter's gross value..... 570,744.23

The "gross market value" per ton of the ore in metals was: Gold, \$18.90; silver, \$1.15½; copper, \$3.46½. Total, \$23.52.

TOTAL PRODUCT OF THE MINE.—The following table gives the total production of the mine, the gross market value is the actual value of the gold at \$20.67 per ounce, silver at New York quotations, and copper at New York price for casting, the difference between this column and "smelter's gross value" is really a smelting and marketing charge, and the amount is shown under the heading of "indirect smelting charge."

PRODUCT OF THE WAR EAGLE MINE, CHANGES AND VALUE PER TON.

Year.	Net Value.	Direct Smelting Charge.	Smelter's Gross Value.	Smelting Charge Indirect.	Actual Total Smelting Charge.	Gross Market Value.
1894.....	\$24 41	\$12 50	\$36 91	\$ 6 63	\$19 13	\$43 54
1895.....	29 05	10 87	39 92	7 41	18 26	47 33
1896.....	21 29	9 89	31 18	5 79	15 68	36 97
1897.....	13 35	9 96	23 31	4 33	14 29	27 64
1898.....	12 51	7 50	20 01	3 51	11 01	23 52

CHARGES AND VALUES PER ANNUM.

Year.	Net Tonnage.	Net Value.	Direct Smelting Charges.	Smelter's Gross Value.
1894.....	4,693	\$ 1,145 55	\$ 586 62	\$ 1,732 17
1895.....	998,093	289,951 30	108,486 32	398,437 68
1896.....	892,029	180,944 38	88,222 41	278,166 79
1897.....	740,630	98,896 19	73,752 42	172,648 61
1898.....	2,852,800	356,843 93	213,900 25	570,744 23
	5,487,745	\$936,791 46	\$481,948 02	\$1,421,720 48

Year.	Indirect Smelting Charges.	Total Smelting Charges.	Gross Market Value.
1894.....	\$ 321 39	\$ 958 01	\$ 2,053 56
1895.....	73,925 83	182,412 15	472,363 51
1896.....	52,611 07	139,833 48	329,777 86
1897.....	32,034 22	105,786 64	204,682 83
1898.....	99,091 05	310,891 30	670,735 28
	\$247,883 56	\$742,881 58	\$1,679,013 04

NO. 1 RAISE STOPES.—This stope fully justified my expectations, and from the map it will be seen that it is not entirely gone, but the remaining areas are of lower grade. The total net product of the stope during the year was 9,030 tons at \$21.34; smelter's gross value, \$192,700; deducting transportation and treatment, net value, \$124,975. As the area extracted, including No. 1 raise from which 170 tons were shipped, is 8,424 square feet and the ore averages 9 cubic feet to the ton. The average width of the ore was 10 feet.

THE WEST STOPE.—The shipment for the year was 3,813 dry tons at \$20.45; \$77,974.85 gross value; deducting smelting and transportation charges, \$49,378.35 net value. The area extracted was 5,140 square feet. After deducting 530 tons from the year's product, as this amount was broken down in the stope at the beginning of the year at 9 cubic feet to the ton, an average width of seven feet is found. The value and width fairly represent the present condition of the stope.

WEST RAISE STOPES.—We only drew on the west raise stopes for 224 tons during the year and the work done was to break down about 1,000 tons of ore and leave it in the stope. The 224 tons averaged \$23.40, \$5,241.60 gross value, deducting transportation and treatment \$3,561.60 net value. My last year's report said they contained, as far as worked, 6 feet of continuous ore. We are now shipping heavily from here, the October output being 1,100 tons, gross value \$24,000.

375 EAST STOPES.—This ground has materially improved during the year, the best showing before that period was five feet of \$20 ore, the stopes shown on map, inclusive of the level, cover an area of 4,176 square feet from which 4,513 tons have been shipped this year and 90 tons last year, indicating 9¾ feet as the width of the ore. This 4,513 tons averaged \$19.80, \$89,357.40 gross value, deducting transportation and smelting charges, \$55,509.90 net value.

WINZE STOPES.—The winze stopes are really a part of the 375 east, as their position on the map shows. The area stoped is 2,844 square feet, the production 3,418 tons, which at nine feet to the ton gives 11 feet width of ore. The value per ton averaged \$24.35, \$83,228.30 gross value, deducting transportation and smelting charges, \$57,593.30 net value.

375 WEST STOPES.—This ground has yielded lower in value than the rest of the mine, but there is such a large area left, and especially the rich ore along the bottom of No. 2 level, that I hope during the ensuing year the average value will greatly increase. The area stoped is 3,420 square feet, yielding 2,926 tons of shipping ore, at nine feet per ton, giving width of eight feet. The average value was \$13.80, \$40,378.80 gross value, deducting transportation and smelting charges, \$18,433.80 net value.

FIVE HUNDRED FOOT LEVEL.—This tunnel has been continued 450 feet to the shaft and 250 feet further, making it at present writing one-half mile long from mouth to face. The tunnel was run on the hanging wall without finding ore of value, so 200 feet east of the shaft a cross-cut was put to the foot wall, proving the vein was 42 feet wide with 32 feet of mixed ore. A careful sample of the west side of this cross-cut in five-foot sections gave 20 feet of \$10 ore and 12 feet of \$25 ore, total values. A raise has been made from this cross-cut to the 375-foot east level. The whole raise is in ore of varying value. It started in good ore. The first 140 tons shipped assayed \$19.88 gross value. The last 259 tons \$6.74. By special arrangement with the smelter we were allowed \$1.74

per ton on the lot. As the head of the raise comes out north of the good ore on the 375-foot east level, it is probable the main body of rich ore is south of the raise. The tunnel west of the shaft has been in low grade ore; 158½ tons shipped as broken assayed \$13.18, giving, by special smelting term, \$8.18, and 451½ tons shipped as broken from other portions, assayed \$16.40.

EAST RAISE.—This working did not discover any bodies of ore.

SOUTH DRIFT.—Nothing has been done here for the year, and the ore body, 50 feet long and 30 inches wide, assaying \$20 in gold per ton, with the same width and values in the face, remains intact. This drift was run 500 feet south, and an ore body 40 feet long, two to ten feet wide, was encountered, which produced, when driving through it, 192 tons, assaying \$18.47, \$3,546.25 gross value, and from the stope above the tunnel, 326 tons, assaying \$14.85, \$4,841.10 gross value. A total of 518 tons, averaging \$16.19, \$8,387.34 gross value; deducting cost of transportation and smelting, \$4,502.34 net value. There is yet 50 tons of the best ore piled in the tunnel. The ore body gave out going up, but is in the bottom of the tunnel.

SIX HUNDRED AND TWENTY-FIVE EAST.—In running this drift 90 feet easterly on the vein from the south cross-cut from the main shaft on the 615-foot level, 347 tons of rock broken in driving, shipped without sorting, assayed \$14.10, \$4,892.70 gross value. No drifting has been done west on the vein at point of intersection by the cross-cut, it averaged six feet wide and \$25 in value.

ORE RESERVES.—There are large bodies of ore ready for extraction, of which the aggregate will run lower in value than the past product of the mine. I place it at 100,000 tons smelter's gross value, \$1,700,000; with the usual amount of development and shipping, what could be conveniently stoped, I would again place the cost of extraction at \$3.25 per ton. The ore estimated as available is between the 250-foot level and the bottom of the mine as developed.

SURFACE IMPROVEMENTS.—The present plant of compressor and hoist proved quite insufficient for our needs during the past year and the development has been slower than with a more complete plant. The new plant, consisting of an electrically driven double drum hoist with capacity for lifting 16,000 pounds at 750 feet per minute, a 24¼x48 so-called 40-drill compressor and a 20-horse power blower, will be in operation by the first of the year.

The new steel gallows frame, 100 feet high from collar of shaft to centre of sheave, and iron shaft house 185 feet long, 40 feet wide, 120 feet high, with large ore bin capacity, crusher and sorting belts, is practically completed.

A water and drainage system, containing 6,000 feet of pipe, has been put in, and wooden tanks built to hold a domestic and fire supply of 75,000 gallons, 45,000 gallons of which has from 140 to 250 feet pressure above the buildings.

Commodious and substantial general offices, assay offices and stables have been built. The War Eagle Hotel Company has erected handsome board and bunk houses for our employees, easy waggon roads have been built from the railroad and the timber to the main shaft.

DEVELOPMENT FOR THE YEAR.—The following are the most important features: The making of a main incline shaft of the No. 2 winze by carrying the latter to the surface at an incline of 58 degrees from the 250-foot level upwards and downwards in triple compartment at 64 degrees. The 375 east and west drifts have been extended and stilled for stoping, and raises made from them to the 250-foot level. A raise, No. 6, has also been made from the 500-foot level to the 375-foot level. A raise, No. 5, in the east end of the mine from the 500-foot level to the 250-foot level. Large pockets have been put in on the 500-foot and 625-foot levels to load the skips from.

CROWN POINT.—A fair amount of exploiting was done on the mine above the main tunnel. The large surface ore body was found to gradually pinch out, and in view of the expenditures on the War Eagle, with your permission, I discontinued prospecting on the claim.

RICHMOND GROUP.—The necessary assessment work has been done on the claims and they have been surveyed and advertised for a Crown grant, which, I believe, will be immediately issued. Acting on your instructions the Company's holdings have been increased by the purchase of one-quarter of the Summit, a contiguous claim, of which it now owns one half; and the purchase of the whole of the Mineral Hill and

Eureka; also contiguous claims, these last having the Slocan Star vein for about 800 feet.

COST OF MINING.—I believe these will be found to be minutely and comprehensively explained, as far as may be, in suitable compass, by the tables forming part of report.

CONCLUSION.—Finally, I will again call the attention of the Board, as it was my pleasure to do last year, to the capable and energetic services of John Fitzwilliams, foreman, and Charles V. Jenkins, accountant. I am, dear sirs, yours truly,

JOHN B. HASTINGS.

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 RESOURCES OF BOUNDARY CREEK.

TO THE EDITOR:—Of late very little has appeared in the columns of your valuable periodical, or in those of other Coast publications concerning the Boundary Creek mining properties. I crave permission to write briefly concerning some of the best.

The pride of the district are the Old Ironsides and Knob Hill, in Greenwood camp. On the Knob Hill a tunnel 360 feet has been run cross-cutting the ledge almost at right angles, and the farther wall has not yet been reached. Throughout the full 360 feet it is all pay ore without a pound of waste, and will all average \$18 in gold and copper. The same values are obtained in the Ironsides on which a shaft has been sunk 200 feet. The development machinery on this property consists of a 10-drill compressor, pump and two hoists. Besides these properties in Greenwood camp the following are being worked: Red Rock, Rawhide, Brooklyn, Idaho, Bullion and Pheasant.

The Wellington camp work is being actively prosecuted on the Winnipeg and Golden Crown. The Winnipeg shaft is down 225 feet, and it is intended to sink to a depth of 300 feet and cross-cut to the ledge. The Golden Crown is drifting at the 150-foot level. The Winnipeg ore, consisting of a pyrrhotite carrying copper pyrites, is the highest grade base ore in the district, giving as high as \$700 in gold value. Both of these properties are equipped with good machinery, and are well managed.

In Deadwood camp are the Mother Lode and Morrison. The first has an ore body of copper and iron-gold ore 200 feet in width, and has installed upon it the largest development plant ever brought into British Columbia. The ledge will average in value from \$16 to \$20 in gold and copper values. The Morrison machinery is upon the ground, but has not yet been set up. This property contains a large body of ore, but whose entire width has not yet been determined. Other considerably developed properties in this camp are the Sunset, Great Hopes, Marguerite and Buckhorn.

In Long Lake camp the Jewel is the only mine equipped with machinery. The ores are quartz, carrying free gold and tellurides assaying from \$5 to several thousand dollars per ton. Beside the Jewel there are in this camp the Dinero Grande, Enterprise, Lakeside, Silent Friend and Roderick Dhu, all of which have been extensively opened up, the assay values being generally high. I might name, among other properties in the district, the King Solomon, in Copper camp, from which have been taken the most magnificent specimens of native copper, and of the highest grade copper glance, and the Big Copper, in the same camp; the No. 7, City of Paris, Lincoln and Jack of Spades, in Central camp; the Skylark, Last Chance, Kan-ka-kee and Nightingale, in Skylark camp; the Strathmore, D.A. and G.A.R., in Providence camp; the Bruce, in Graham's camp; and the Golconda, Boundary Falls and Republic, in Smith's camp. All of these properties have been more or less developed; some have shipped ore to a limited extent, and the majority of them will, it may be confidently asserted, become producing mines directly, or very soon after the district enjoys the very necessary advantages of railway transportation.

It may not be out of place to state here, in conclusion, that the price of Boundary Creek stocks has advanced during the last two months very notably. For instance, Knob Hill has advanced from 16 cents to \$1, and at that point was all taken up; Morrison advanced from 5 cents to 18 cents; Boundary Creek Mining and Milling stocks from 1½ to 10

cents; and Winnipeg is being held at 25, and few shares are to be had even at this price. The district is yet in the inchoate stage, but its resources are enormous, which fact will be sufficiently demonstrated in the next two or three years.

Yours faithfully,
W. S. KEITH.

Greenwood, B.C.

[Mr. Keith, who is a well known assayer of Greenwood City, has not, we fear, perused of late the columns of the MINING RECORD as closely as he should, otherwise he would hardly make the statement that Boundary Creek has not received, in these columns, that attention its importance as the coming camp of Southern British Columbia certainly demands. Our regular correspondent from Midway, "Percy Verens,"—who also, I believe, contributes the very able and voluminous articles on Boundary Creek, which appear nearly every week in the Vancouver *News-Advertiser*—keeps the readers of the MINING RECORD the world over, well informed, month by month, of the mining developments in progress in the various promising camps in this section of South Yale, and his letters, we have reason to know, are very highly appreciated.—Ed.]

MINE MANAGEMENT—A SENSIBLE SUGGESTION.

TO THE EDITOR:—It would seem from Mr. Ronald C. Campbell Johnson's letter which appears in your November issue under the above heading, that mine owners, managers, etc., and generally those supervising mining operations are in a great degree responsible for the numerous accidents which occur to men in and around mines.

It is certainly a very sensible suggestion if the Provincial Government would enforce a law which required fully qualified and competent men to take charge of operations, to which the element of danger is so largely prevalent. This, however, would by no means prevent the occurrence of fatalities largely due, and to a very great extent caused by negligence of the employees.

The numerous accidents which are daily brought into prominence before the public in the courts of justice by proceedings instituted against the employer by employees, resulting almost invariably against the employer, are in most instances due to the utter disregard of danger, which workmen accustomed to dangerous work are apt to exhibit, following the oft quoted maxim "familiarity breeds contempt."

It is usual amongst the public, that whenever an accident occurs, and before enquiring into the cause, to sympathise with the injured, and blame the man in charge, who perhaps is most careful in safeguarding his men.

The appointment of only one mining inspector for the Province, is inadequate with the present rapid development of the mining industry. Following the example of the British Government a mining inspector should be appointed to each district, with one or two qualified assistants, who, when necessity calls, should be summoned to investigate into the cause of each accident, and the guilty party made to bear the penalty, and I feel convinced that a large majority of accidents will be found to be due to the carelessness of the men, and not to the unqualified mining engineer. Yours truly,

HENRY BRELICH, A.R.S.M.

Nelson, B.C., Nov. 18th, 1898.

ANSWERS TO CORRESPONDENTS.

J. A. McP. (Brooklyn, N. Y.) You will find a reference to the Yukon railway in September issue of the MINING RECORD. The road will, it is expected, be completed to Lake Bennett early next summer, but it will be at least two to three years before the line is completed to Dawson.

Mr. J. Manford Brown, of 615 Hornby Street, Vancouver, B.C., writes:

"I will esteem it a favour if you will place before me the address of two or more mine-owners, where properties owned or controlled by them are of established value, and where a proposition to buy the same for a price which represents that value will be welcome, it being desired to find value for investment at as cheap a figure as is possible. Private parties having exhausted their funds in considerable development work will be most acceptable. I believe you know of such opportunities better than most brokers, or at least where such opportunities are most likely to be found. Undeveloped claims not wanted at any price."

Perhaps some of our readers can give our correspondent the information he requires.

W. H. F. (Spokane). Many thanks for your letter. Perhaps we were too hasty in forming an opinion upon the information submitted to us, and we shall avail ourselves of the first opportunity to investigate more thoroughly.

L. D. (Toronto, Ont.) Yes, quite true. You will notice the remark this month on the condition of the Golden Cache Company's affairs.

T. A. W. (Quamicham). Many thanks for your kind wishes. We shall endeavour to do more than keep the MINING RECORD up to its present standard, for, you know, there is always room for improvement.

TRADE CATALOGUES AND CIRCULARS.

THE Denver Fire Clay Company, of Denver, Colorado, have just issued the seventh revised edition of their illustrated catalogue, which in many respects is distinctly a work of art. The catalogue is handsomely bound in cloth, and is very profusely illustrated. This catalogue will be forwarded upon application, and will prove of particular interest to assayers and metallurgists.

A copy of the General Catalogue from the Gates Iron Works, of 650 Elston Avenue, Chicago, has been received. This firm, which was first established in 1842, is beginning to do a large business in British Columbia, and the famous Gates crushers have been very largely introduced throughout the Province during the past year. The General Catalogue deals with the various classes of mining machinery manufactured by the firm, but special catalogues describing in detail the Gates rock and ore breaker, the Blake and Dodge crushers, rock crushing plants and appliances; improved crushing rolls; gold and silver mills; the Tremain steam stamp mills; Connersville blowers; Manganese steel; smelting furnaces and cyanide and chlorination processes, are separately issued.

We have received from the Trenton Iron Company, Trenton, N.J., an advance copy of an interesting brochure published by this firm on the "Construction and Operation of Wire Cable Ferries." There are many streams in British Columbia on which this system might be advantageously employed.

COAL SHIPMENTS.—OCTOBER.

Following were the foreign shipments for October, by the New Vancouver Coal Mining and Land Co., Limited.

Date.	Vessel.	Destination.	Tons.
1—	Bark Ceylon	Honolulu, H.I.	852
1—	Bark Sea King	Honolulu, H.I.	2,355
4—	S.S. Burma	Port Los Angeles	4,317
4—	Str. Pioneer	Port Townsend	8
8—	S.S. Siam	San Francisco	4,358
12—	S.S. Titania	San Francisco	5,434
12—	S.S. Lombard	China	603
19—	S.S. Burma	San Diego	4,415
22—	Str. Pioneer	Port Townsend	21
26—	S.S. Siam	San Francisco	4,383
26—	S.S. Titania	San Francisco	5,434
26—	S.S. Amur	Alaska	148
27—	S.S. San Mateo	San Francisco	4,361

Total..... 36,689

New Vancouver Coal Co.....	36,689
Wellington.....	15,399
Union.....	4,522

Total..... 56,610

NOVEMBER.

The Collector of Customs at Union kindly sends us the following return of coal shipments to foreign ports for the current month:

Shipments from this port were..... 4,030 tons.

SHIPPING MINES.

ROSSLAND.

Shipments from the Rossland camp for the month have been remarkably heavy, the average weekly output from the War Eagle alone exceeding and that from the Le Roi doubling the mine production of this camp during the corresponding period of last year. This would be eminently satisfactory if it could be positively shown that the policy of the Le Roi

management in continuing to increase the output from this mine is judicious and justifiable. The shipments from October 29th to November 26th, were as follows:

	Tons.
Le Roi	10,145
War Eagle	6,205
Iron Mask	205

From Jan. 1 to Nov. 19, the following shipments have been made:

	Tons.
Le Roi	60,317
War Eagle	44,902
Centre Star	2,657
Poorman	453
Iron Mask	3,286
Cliff	140
Velvet	350
Monte Christo	416
Sunset No. 2	30
Deer Park	6
Giant	114

Total 112,671

The output last year was 72,840 tons.

NELSON.

Last month the mine exports, through the port of Nelson, were valued at \$64,298.

We are indebted to Mr. Henry E. Croasdaile, general manager of the Hall Mines, Limited, for the following results of this company's smelting operations for the four weeks ending Oct. 28th, 1898: For twelve days' twelve hours' smelting, 2,215 tons of ore were smelted, containing (approximately) 48 tons copper and 33,400 ounces silver.

SLOCAN.

The following shipments were made over the Kaslo & Slocan Railway for the three weeks of the month, ending Nov. 17th.

Mine.	Destination.	Tons.
Payne	Pueblo.....	250
Slocan Star	Pueblo.....	60
Sovereign	Aurora	20
Miller Creek	Tacoma	20
Jackson Mines	K. O. Co.	18
Antoine	K. O. Co.	17
Last Chance	Pueblo.....	40
Whitewater	Everett	49
Reco	Denver.....	19

Total 493

A local newspaper published at Sandon gives the following list of shipments from the Slocan from Jan. 1st of the present year to Oct. 31st, the estimated aggregate value of the returns being \$2,970,000.

	Tons.
Payne	11,550
Ruth	3,335
Idaho (Three Forks)	2,635
Slocan Star	2,373
Last Chance	1,439
Queen Bess (T. F.)	1,334
Silverton Camp, about	1,000
McGuigan " "	1,000
Alamo (T. F.)	541
Reco	420
Bosun (New Denver)	220
Sovereign	80
Treasure Vault	40
California (N. D.)	40
Ajax	33
Canadian Group	22
Goodenough	20
Sapphire	19
Hustler (T. F.)	19
Coin	9
Wonderful Group	8
Fountain Fraction	7
Wonderful Bird	6
Argo	2

Total 26,185

To this total should be given the Lucky Jim shipments at Whitewater, which may be estimated at 900 tons.

THE METAL MARKET—NOVEMBER.

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

The general condition of business during the month has undergone very little change, and no considerable improvement in trade has been manifested. Rates abroad continue high.

SILVER.

This market, which at the commencement of the month was fairly active, has since showed signs of depression and prices have fallen several points. The highest price was reached on the 3rd, when 61 7-16 was reported from New York. During the past week (Nov. 25th) prices have fluctuated between 60 $\frac{7}{8}$ and 60 $\frac{3}{4}$. The average price of this metal during November of last year was 57.93. The average last month is placed at 60.42.

LEAD.

A better tone was reported as prevailing in this market towards the middle of the month, but the latest advices are not so satisfactory, and the tendency is again weak. Consumers anticipate yet lower prices. Our latest quotations are 3.67 $\frac{1}{2}$ @3.70c. New York, 3.57 $\frac{1}{2}$ c. St. Louis, for both common and desilverised, as against 3.72 $\frac{1}{2}$ @3.75c. New York, 3.60@3.62 $\frac{1}{2}$ St. Louis, during the first week of November. The average price for October, 1898, was 3.78 (New York) and for November, 1897, 3.70c. New York.

COPPER.

The buoyant tendency of the market continues, and some few transactions in lake copper are reported at 13c., a quite exceptionally high price. But whatever new sales of lake copper are now made are for shipment *via* all rail from the smelting works, which entails an extra expense to producers of $\frac{3}{8}$ c. per pound. There is also a good demand for electrolytic copper, and 12 $\frac{1}{2}$ @12 $\frac{3}{4}$ c. has been paid for cakes, wirebars or ingots, and 12.30 @12.40c. for cathodes for January and February delivery. The average price of copper last month was 12.41c. and for November, 1897, 10.88c.

SPELTER.

Spelter continues in excellent demand, and at good prices, latest quotations being 5.35@5.40c. New York; and 5.20@5.22 $\frac{1}{2}$ c. St. Louis.

THE STOCK MARKET.

BROKERS report for the month of November a good volume of business, and the indications are that all stocks will be very active in the near future.

Coast shares have been quiet, but all cheap Van Anda shares offered under four cents find ready sale. The Consolidated Alborni deal did not go through, and in consequence some stock has been offered for sale as low as 4 $\frac{3}{4}$ cents, with few buyers. We understand that other parties have entered into negotiations for the purchase of the property, and it is believed that if the mine was controlled by mining men of knowledge and experience, with capital to draw upon, it would not be very long before dividends were declared.

A rich strike has been made on one of the claims belonging to the Van Anda Company, and several Coast mines will soon enter the list of regular shippers.

Golden Cache shares have sold as low as two and a half cents. It is difficult to understand what the ultimate result will be, and great dissatisfaction is expressed over the action of the directors in suppressing their manager's report of June, 1897. At present these shares are unsaleable.

Crows' Nest Pass Coal Company shares have been in very great request, and the price has gone up from \$16.50 to \$26.00 per share during the month. One firm of Victoria brokers report the sale of a large number of these shares during the month. The price is now firm at \$26 in the west.

Camp McKinney stocks have been active, Waterloo being a favourite and advanced from five cents to nine cents. Cariboo has been in great request and since our last report the price has advanced from 75 cents to \$1.25, and orders are hard to fill.

In the Fairview Camp Smuggler has been in great demand, and the price has advanced to twenty cents.

In Nelson and Slocan districts, Athabasca has been in request and the price has advanced from 33 to 43.

Dardanelles has been a favourite again owing to the recent strike, and all cheap stock is being bought up. The price has advanced from five to eight and a half. Nelson-Poorman, Noble Five and Dundee shares have also been in demand.

In Rossland stocks Iron Mask has been in demand, and the price has advanced from 55 to 73, and not many offering at 73. Improved machinery is being installed, and this property is expected to enter the dividend paying list next year.

Monte Christo has advanced from eight to eleven cents, Gertrude from seven to eleven, and White Bear, Iron Colt, Gopher, Novelty, Iron Horse, Silverine, Deer Park and Georgia have been in demand. It is reported that a very handsome offer was made for the Georgia recently, and refused. The British America Corporation has at last succeeded in purchasing 205,000 Le Roi shares from the majority shareholders, which practically gives them the mine. In the Big Bend country north of Revelstoke, the property of the Carnes Creek Mines is said to be looking very well, and enquiry is being made for these shares.

In Kamloops district a very rich strike has been made in the Pothook, and other properties are looking well.

Great developments are taking place in the Cariboo district. Big results from hydraulicing may be expected next year.

THE ROSSLAND STOCK MARKET.

(Special Report and Quotations by Messrs. Dickinson & Orde.)

DURING the past month there has been little or no further developments with regard to the Monte Christo mine and though the market is slowly recovering from the effects of the slump, the deadness of the various stocks which are purely Rossland, is directly traceable to this cause. Deer Park, though strengthened by the news of a find near the bottom of the shaft, has even receded a point or two. This cannot continue as the mine is sufficiently strong to take its stand upon its own merits, and we predict that a steady rise in the shares will shortly supervene. There is a very fine showing on the Gertrude, and in consequence this stock has gained more than a point or so. Also on Red Mountain, the long delayed find on the Coxe, come upon during the past few weeks, has had an unlooked for effect in certain quarters. The Homestake has started work on the South Belt, and we

think it likely that this stock will in the near future make many friends. In the Boundary country, Camp McKinney, Waterloo, Old Ironsides and Knob Hill have been in extremely good demand. Cariboo, it is probable, will advance still further. Whether Knob Hill and Old Ironsides will retain their present position on the market the outcome of the next few weeks should show. While these stocks have many friends and the possessors hold closely, they have not as yet proved themselves to be first favourites. Boundary stocks have certainly been the feature of November. Brandon and Golden Crown is looked upon by many as the next mine to come to the front from that district. A good many shares are being quietly bought up. Returning to Rossland we must not omit to mention Iron Mask, Evening Star and Abe Lincoln, all of which have found buyers during the month. A comparison of this month's stock market prices with those of last will elicit the fact that notwithstanding the depression the stocks have very generally improved :

Abe Lincoln	\$ 15	Athabasca	\$ 43
Commander	13	Brandon & G'n Cr'n ..	25
Deer Park	18	Cariboo (C. McKinn'y) 1	20
Eureka	10	Cariboo Hydraulic ... 1	20
Gertrude	12	Cayoosh Creek Mines ..	50
Giant	7	Dundee	25
Gopher	5	Dardanelles	8
Grand Prize	4	Fern	60
Iron Colt	12	Goodenough	20
Iron Horse	18	Golden Cache	10
Iron Mask	75	Hall Mines	3 50
Jumbo	53	Knob Hill	85
Le Roi	8 50	London Hill	17
Lily May	20	Nelson Poorman	40
Monte Christo	15	Old Ironsides	85
Mugwump	5	Reco	2 00
Novelty	6	Salmo Cou.	20
Poorman	13	Smuggler	22
Rossland Homestake ..	6	Slocan Star	1 60
Silver Bell	5	Sable Creek	5
St. Elmo	6	Tamarac	15
Victory Triumph	9	Tinhorn	14
Virginia	44	Two Friends	15
War Eagle	3 00	Van Anda	5
White Bear	8	Victoria Texada	13

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When writing to Advertisers kindly refer to the B.C. MINING RECORD.

Mining Stocks.

Prepared by A. W. Mors & Co., Mining Brokers, Victoria, B.C., Nov. 24, '98.

Company.	Capital.	Par Value.	Price.
TRAIL CREEK.			
Alberta.....	\$1,000,000	\$1	6
Big Three.....	3,500,000	1	14
Bruce.....	1,000,000	1	10
Butte.....	1,000,000	1	02
Caledonia Con.....	1,000,000	1	5½
California.....	2,500,000	1	15
Camp Bird.....	1,000,000	1	05
Celtic Queen.....	750,000	1	08
Centre Star.....	3,800,000	1	
Commander.....	500,000	1	18
Deer Park.....	1,000,000	1	18
Enterprise.....	1,000,000	1	20
Evening Star.....	1,000,000	1	06
Georgia.....	1,000,000	1	11
Gertrude.....	500,000	1	11
Golden Drip.....	500,000	1	15
Gopher.....	1,000,000	1	05½
Hattie Brown.....	1,000,000	1	08
High Ore.....	500,000	1	05
Homestake.....	1,000,000	1	6
Imperial.....	1,000,000	1	10
Iron Horse.....	1,000,000	1	17½
Iron Mask.....	500,000	1	73
I.X.L.....	1,000,000	5	10
Iron Colt.....	1,000,000	1	11
Jumbo.....	500,000	1	45
Le Roi.....	2,500,000	1	8 00
Lilly May.....	1,000,000	1	20
Mabel.....	1,000,000	1	15
Mayflower.....	1,000,000	1	10
Monita.....	750,000	1	19
Monte Cristo.....	1,000,000	1	11
Morning Star.....	1,000,000	1	04
Nest Egg-Firefly.....	1,000,000	1	10
Northern Belle.....	1,000,000	1	10
Novelty.....	1,000,000	1	05
Palo Alto.....	1,000,000	1	05
Phoenix.....	500,000	1	13
Poorman.....	500,000	1	13
R. E. Lee.....	2,000,000	1	5
Red Mountain View.....	1,000,000	1	3
Rossland, Red Mountain.....	1,000,000	1	13
St. Elmo.....	1,000,000	1	06
St. Paul.....	1,000,000	1	12½
Silverine.....	500,000	1	06
Silver Bell Con.....	500,000	25	5
Victory Triumph.....	1,000,000	1	9
Virginia.....	1,000,000	1	42
War Eagle Consolidated.....	2,000,000	1	3 00
West Le Roi.....	500,000	1	24
White Bear.....	2,000,000	1	08
AINSWORTH, NELSON AND SLOCAN.			
American Boy.....	1,000,000	1	8
Arlington.....	1,000,000	1	6½
Argo.....	100,000	0 10	10
Athabasca.....	1,000,000	1	43
Black Hills.....	100,000	0 10	10
Buffalo of Slocan.....	150,000	0 25	—
Canadian M. M. and S. Co.....	2,000,000	1	07½
Channe.....	250,000	0 25	25
Cumberland.....	500,000	10	
Dundee.....	1,000,000	1	30
Dardanelles.....	1,000,000	1	09½
Dellie.....	70,000	1	12
Eldon.....	1,000,000	1	05
Ellen.....	1,000,000	1	07½
Elkhorn.....	1,000,000	1	10
Exchequer.....	1,000,000	1	10
Fern Gold.....	200,000	0 25	63
Goodenough.....	800,000	1	25
Gibson.....	650,000	1	17½
Grey Eagle.....	750,000	1	
Hall Mines.....	300,000	£1	7 00
Lerwick.....	1,500,000	\$1	20
London.....	150,000	25	25
Minnesota.....	1,000,000	1	
Nelson-Poorman.....	250,000	0 25	30
Northern Light.....	250,000	1	16½
Noble Five Con.....	1,200,000	1	18
Ottawa and Ivanhoe.....	1,000,000	1	12½
Payne.....	2,000,000	2 50	
Rambler Con.....	1,000,000	1	14
Reco.....	1,000,000	1	1 30
Slocan-Reciprocity.....	1,000,000	1	06
Slocan Star.....	500,000	50	1 50
Santa Marie.....	1,000,000	\$1	05
Silver Band.....	250,000	0 25	12½
Slocan Queen.....	1,000,000	1	10
Star.....	1,000,000	1	07
St. Keverne.....	1,000,000	1	03½
Bunshine.....	500,000	10	
Tamarac.....	1,000,000	1	08
Two Friends.....	240,000	30	13
Washington.....	1,000,000	1	25
Wonderful.....	1,000,000	1	05
LARDEAU.			
Lardeau Goldsmith.....	200,000	1	04
Consolidated Sable Creek Mining Co.....	1,500,000	1	10
TEXADA ISLAND.			
Gold Bar.....	100,000	10	10
Raven.....	1,000,000	1	10
Texada Proprietary.....	250,000	0 25	25

Texada Kirk Lake.....	600,000	1	1 00
Treasury Mines.....	250,000	25	25
Van Anda.....	5,000,000	1	05½
Victoria-Texada.....	150,000	0 25	10
VANCOUVER ISLAND.			
Alberni Mountain Rose.....	250,000	1	05½
Consolidated Alberni.....	500,000	1	5
Mineral Creek.....	500,000	1	05½
Mineral Hill.....	750,000	1	05
Quadra.....	500,000	1	05
CARIBOO.			
Cariboo Gold Fields Ltd.....	£100,000		
Cariboo Hydraulic Consolidated.....	\$5,000,000	1	85
Cariboo M. & D. Co.....	300,000	1	25
Golden River Quesnelle.....	£350,000	£1	1 40
Horsefly Hydraulic.....	\$200,000		
Horsefly Gold Mining Co.....	1,000,000	\$10	1 50
Victoria Hydraulic.....	300,000	1	85
LILLOOET DISTRICT.			
Alpha Bell.....	500,000	1	
Cayoosh Creek Mines.....	500,000	1	
Excelstor.....	500,000	1	
Golden Cache.....	500,000	1	05½
Lillooet Gold Reefs.....	200,000	25	
FAIRVIEW CAMP.			
Smuggler.....	1,000,000	1	20
Tin Horn.....	200,000	0 25	12
Winchester.....	2,000,000	0 25	16
BOUNDARY.			
Golden Crown.....	1,500,000	1	25
Knob Hill.....	1,500,000	1	65
Old Ironsides.....	1,000,000	1	70
CAMP MCKINNEY.			
Camp McKinney Development Co.....	1,000,000	1	13
Cariboo.....	800,000	1	1 25
Minnehaha.....	1,000,000	1	20
Waterloo.....	1,000,000	1	10
REVELSTOKE.			
Carnes Creek Consolidated.....	1,000,000	1	10
VERNON DIVISION			
Hidden Treasure.....	100,000	10	10 00
CROW'S NEST PASS.			
Crow's Nest Pass Coal Co.....	1,500,000	25	26 00

† Dividends paid to date are as follows: War Eagle, (new company) \$90,000; Trail Creek District—Le Roi, \$825,000; War Eagle (old company), \$217,000; Camp McKinney—Cariboo, \$221,000; Nelson District—Hall Mines, \$226,750; Fern, \$10,000; Slocan District—Payne, about \$1,000,000; Slocan Star, \$400,000; Hero, \$287,000; Idaho, \$240,000; Whitewater, \$151,000; Rambler-Cariboo, \$40,000; Last Chance, \$40,000; Two Friends, \$5,000; Hidden Treasure \$11,000.

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We are also prepared to furnish all kinds of Lumber for construction of Steamers, Barges or Boats.

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This Department is under the management of J. O'Sullivan, who possesses a technical knowledge which embraces every detail of this intricate profession. He is a chemist of very high order and was for 26 years in the chemical laboratories of Messrs. Vivian & Sons, Swansea, the world-famed smelters. This department issues certificates of assays of ore submitted, which are absolutely accurate, and determine the exact value of metals contained in the ore. The laboratory is replete with all modern machinery and contrivances, and is in every respect a model workshop.

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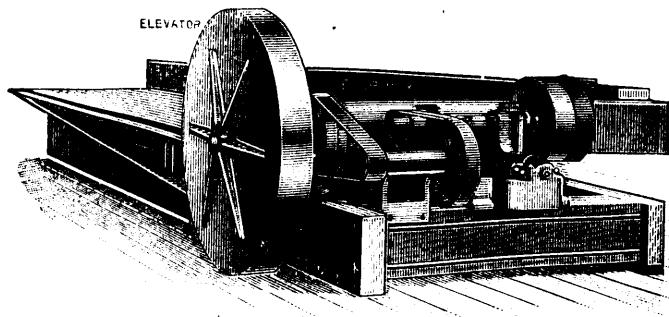
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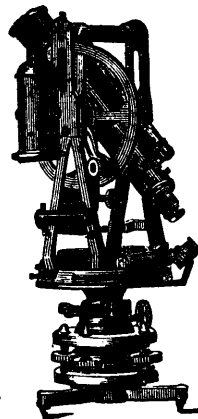
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TIME TABLE NO. 36.

(Taking effect September 1st, 1898.)

VANCOUVER ROUTE.

VICTORIA TO VANCOUVER daily except Monday at 1 o'clock.
VANCOUVER TO VICTORIA daily except Monday at 13 o'clock or on arrival C.P. Railway No. 1 Train.

NEW WESTMINSTER ROUTE.

LEAVE VICTORIA—For New Westminster, Ladner and Lulu Island Sunday at 23 o'clock; Wednesday and Friday at 7 o'clock. Sunday's steamer to New Westminster connects with C.P.R. Train No. 2 going east, Monday.

FOR PLUMPER PASS—Wednesdays and Fridays at 7 o'clock.
FOR MORESBY AND PENDER ISLANDS—Fridays at 7 o'clock.
LEAVE NEW WESTMINSTER—For Victoria Monday at 13:15 o'clock. Thursday and Saturday at 7 o'clock.

FOR PLUMPER PASS—Saturday at 7 o'clock.
FOR PENDER AND MORESBY ISLANDS—Thursday at 7 o'clock.

FRASER RIVER ROUTE.

Steamer leaves NEW WESTMINSTER for CHILLIWACK and way landings every Tuesday, Thursday and Saturday at 8 o'clock during river navigation.

NORTHERN ROUTE.

Steamships of this Company leave Victoria for Fort Simpson via Vancouver and intermediate ports on the 10th, 20th and 30th of each month, and for Queen Charlotte Islands on the 10th of each month.

KLONDIKE ROUTE.

Steamers of this Company leave weekly for Wrangel, Juneau, Skagway and Dyea.

BARCLAY SOUND ROUTE.

Steamer "Willapa" leaves Victoria for Alberni and Sound ports the 1st, 7th, 14th, 20th. Extending latter trip to Quatsino and Cape Scott. The Company reserve the right of changing this Time Table at any time without notification.

G. A. CARLETON,
General Agent.

JOHN IRVING,
Manager.

The Wilfley Ore Concentrator Syndicate, Limited.

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WE CLAIM THE FOLLOWING FOR THE WILFLEY TABLE:

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- 2nd. It will save more concentrates in proportion while so doing and will catch any float gold, amalgam or quicksilver which may escape from the mortars or plates.
- 3rd. It will make cleaner and more valuable concentrates, thus saving useless expense for transportation of valueless material, and also reducing the smelting charges.
- 4th. It requires little or no attention when once adjusted, and no expert is required either to adjust or run the machine.
- 5th. It will save much expense in power and room as compared with mills using other concentrators.
- 6th. It has no expensive belts to crack and wear out and no complicated machinery to keep in repair.
- 7th. It is the only sensible plan of concentration, as it successfully treats any kind of materials, which is not true of any style of belt machine.

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Surveying, Architecture, Drawing and Assaying, Cyanide, Chlorination, Metallurgy, Assaying of Ores, \$25; Bullion and Chlorination Assay, \$25; Blow-pipe Assay, \$10; Full Course of Assaying, \$50. Established 1864. Open all year.

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Tel. 222. P.O. Box 372.

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(Heidelberg and Leipzig.)
 Late Official Analyst for the Province of New Brunswick.
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VANCOUVER, B.C.

THE MINERAL INDUSTRY, ITS STATISTICS, TECHNOLOGY AND TRADE, VOL. VI. 1897.

(By R. P. Rothwell, Illustrated, Price \$5.00.)

Among the especially valuable papers in this number are:—Calcium Carbide and Acetylene, by A. H. Cowley; The Manufacture of Hydraulic Cement in the United States, by F. H. Lewis; Manufacture of sulphuric Acid without Lead Chambers, by George Lunge; Progress in Electrochemistry, by H. Borns; Manufacture of Clay Ballast, by H. F. Bain; By-product Coke Ovens, by W. H. Blauvelt; Briquette Manufacture, by P. R. Bjorling; Progress in Electro Copper Refining by Titus Ulke; The Copper Industry in Arizona, by James Douglass; Copper Smelting in the Caucasus, by G. Rolle; Telluride Gold Ores, by J. F. Kemp; Gold Mining in Siberia, by R. De Batz; West Australian Gold Mining, by H. C. Hoover; Progress in the Metallurgy, P. Argal; Mining Practice in South Africa, by E. D. Chester; Progress in the Metallurgy of Lead, by H. O. Hoffman; Recent Smelting Practice in Colorado, by L. S. Austin; Progress in Electro-Metallurgy of Nickel, by T. Ulke; Occurrence and Treatment of Platinum, by Henry Louis; Metallurgy of Quicksilver in Italy, by V. Spirek; The American Slate Industry, by H. L. J. Warren; Progress in the Metallurgy of Zinc, by W. E. Ingalls; Progress in Ore Dressing, by R. H. Richards; Accidents in Mines, by F. L. Hoffman, and Tunnel Rights by R. W. Raymond.

The Scientific Publishing Company, New York,
253 Broadway.

PROVINCE OF BRITISH COLUMBIA.

Gold, Silver, Lead, Copper, Coal, Coke, Oil, Iron, Mercury, Platinum, Etc.

The Mines of British Columbia Have Produced Over
\$100,000,000.

AMOUNT AND VALUE OF MATERIALS PRODUCED 1896 AND 1897.

	Customary Measures.	1896.		1897.	
		Quantity.	Value.	Quantity.	Value.
Gold Placer.....	Oz.....	27,201	\$ 544,026	25,676	\$ 513,520
“ Quartz.....	Oz.....	62,259	1,244,180	106,141	2,122,820
Silver.....	Oz.....	3,135,343	2,100,689	5,472,971	3,272,836
Copper.....	Lbs.....	3,818,556	190,926	5,325,180	266,258
Lead.....	Lbs.....	24,199,977	721,384	38,841,135	1,390,517
Coal.....	Tons.....	846,235	2,327,145	882,854	2,648,562
Coke.....	Tons.....	615	3,075	17,832	89,155
Other Materials.....			15,000		151,600
			\$7,146,425		\$10,455,268

Production for 1890, \$2,608,608; for 1896, \$7,146,425; for 1897, \$10,456,268.

GO LD.

Gold-bearing lodes are now being prospected in many parts of the province, and at Rossland magnificent ore-chutes of very profitable gold-copper ore are being mined and smelted, the Le Roi having paid to date \$725,000 in dividends, with a large and increasing amount of ore in sight as the workings attain greater depth, while systematic development on other properties is meeting with excellent results, mining having just fairly begun in this camp. Little doubt can be entertained that Rossland will become a heavy producer of gold, and that excellent properties now only await sufficient and abundant capital to become paying mines, to further aid in which the facilities for cheaper transportation and smelting are being now supplied. At Nelson and at Fairview, Camp McKinney, Greenwood, Central and other camps in the southern part of Yale, important work is being done on the quartz ledges there, several new mills being under erection.

Exploratory work has also been in progress in East Kootenay and in Lillooet, Alberni, and on the Gulf Islands and along the coast line of the Mainland, as well as in other parts of the province.

In Cariboo, several large undertakings, involving a large amount of capital, are at work exploring both modern and ancient river channels, the Cariboo Hydraulic Mining Co., on the Quesnelle River, proving, on development, to have in a channel of the latter kind, a great deposit of exceptional richness, while other parts of this district now offer every inducement to capital.

Into Cassiar, Omineca, and the great area to the north, as well as Cariboo, there now promises to be a great exodus of explorers, excited by rich diggings now being mined in the Yukon as on the Klondyke, to the north, and rivers and creeks long reported to be gold-bearing will now be made accessible, and well tested.

SILVER-LEAD.

Despite the drop in the price of silver, the Slovan mines are being much more extensively worked, while the shipments of high grade ore are constantly increasing. The production for 1897 has much exceeded that of 1896, as such mines as the Payne, Ruth, Whitewater and other mines increased their output.

At Nelson, the Silver King or Hall Mines are shipping constantly a large amount of silver-copper ore, and the Lardeau, Trout Lake, Illecillewaet districts, on further exploration, promise to become rich. In East Kootenay large bodies of silver-lead ore will be mined on completion of the railroads now under construction.

COPPER.

Copper is being produced to a limited extent at Rossland and Nelson, but the large deposits of at present low grade ore in the Boundary Creek district will be fully tested when the railroad, now almost assured, is constructed. Prospecting is being done at Kamloops, along the west coast of the Mainland and of Vancouver Island, as well as at many other points, and Texada is producing high grade bornite ore.

COAL AND COKE.

The large collieries on Vancouver Island are producing about a million tons of coal annually, and at Comox an excellent coke is now being produced, much of which is shipped to the inland smelters. The great deposits of coking coal in East Kootenay, at the Crow's Nest Pass, are now being opened, as the C.P.R. is now being built to the Columbia River to supply the great mining regions with cheap coal and coke.

SMELTERS AND RAILROADS.

The smelting industry is now beginning to assume large proportions, as preparations are being made to treat the ores of this Province within her own borders, a most important factor in the increasing prosperity of this country, entailing as it does, and will, the employment of much capital and many men. The extension of the railroad systems to different parts is now in progress, and the next few years will see many parts in which the prospects for good mining are excellent, made easy of access, while ores can be shipped with facility to the smelting centres, where the assembling of the various inter-fusing ores will make possible the treatment of all British Columbia ores at home.

CAPITAL.

Capital can now find here excellent and many opportunities for investment, if proper business care and the experience of qualified men are utilized, as the values placed on mines and undeveloped properties have reached a reasonable basis.

MINERAL LANDS.

Mineral lands are open to location to any person over eighteen years of age, who has obtained a free miner's certificate, and perfect title to lode claims can be easily secured after \$500 worth of work has been done per claim. A great extent of territory has yet to be prospected.

YUKON GOLD FIELDS.

As the Klondyke and other gold fields in the Yukon in British territory are reached mostly via British Columbia, all supplies and outfits obtained at Victoria, Vancouver, Ashcroft, Kamloops, etc., can be taken in free of duty, which otherwise will have to be paid if not purchased in Canada.

For information, Reports, Bulletins, etc., address

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Department of Mines,

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The HON. J. FRED HUME,

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The New Vancouver Coal Mining & Land Co.

(LIMITED.)

(FORMERLY THE VANCOUVER COAL COMPANY.)

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SOUTHFIELD COAL

(Steam Fuel.)

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THE NEW WELLINGTON COAL, which was introduced in 1890, has already become a favourite fuel for domestic purposes. It is a clean, hard coal, makes a bright and cheerful fire, and its lasting qualities make it the most economical fuel in the market.

THE PROTECTION ISLAND COAL is similar to the New Wellington Coal. This coal is raised from the submarine workings under the Gulf of Georgia and is shipped from wharves both a Protection Island and Nanaimo.

The several mines of the Company are connected with their wharves at Nanaimo, Departure Bay and Protection Island, where ships of the largest tonnage are loaded at all stages of the tide. Special despatch given to mail and ocean steamers.

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