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THE MONTH.

One of the most important recommendations made to the Government by the Provincial Mining Association at the convention in February last, was to the effect that the Acts relating to quartz and placer mining should be carefully revised and consolidated, with a view to their simplification and for the removal of the numerous anomalies and instances of ambiguity of language now existing. As it is likely that, following the elections next month, the House will be called together shortly thereafter it is to be hoped that this is one of the matters that will receive early attention. The Association has suggested several important and radical amendments to the present law, and the time should therefore be opportune for these to be carefully considered and the Acts revised, so that for a period at least the "continual tinkering" of which complaint has been justly made may be rendered unnecessary. But this is, though a sufficient, by no means the sole reason why a careful revision of the mining law is required. To the layman the Acts as they now stand on the Statute Books may appear reasonably plain and intelligible, but those to whom law is a profession and who are therefore in a position to form correct conclusions from their own experiences, are perfectly

well aware that the Mineral Act in particular is full of pitfalls for the unwary and is responsible for as much litigation as it is possible for an Act of Parliament to be. The question is how a satisfactory revision might best be made, for a revision that was not perfect would, of course, be to make confusion worse confounded. It appears to us that the only safe and sensible procedure to adopt would be the appointment of a commission to whom not only the revision of the Acts might be entrusted, but also for the hearing of evidence in proof or otherwise of the necessity for and wisdom of the numerous reforms and amendments which the Mining Association as an organization representative of the industry, as well as private individuals have from time to time recommended to the attention of Provincial administrations. No one for a moment can question the great work accomplished by the Mining Association or doubt its disinterestedness or its representative character; but it must be recognized that some antagonism was created in certain sections of the country in consequence of certain comprehensive recommendations made by the Association in convention, which it was claimed did not meet with the views or wishes of a large class, who are certainly entitled to be heard. Moreover, such objection might and would very properly be used by the member or members of the Legislature representing such constituencies as strong reasons for opposing the passage of legislation on the lines suggested. Then, too, it was urged reasonably enough that it was impossible in the short space of time the Mining Convention was in session for the many matters there brought up for discussion to receive such consideration as in some cases their importance, involving a question of radical amendments and changes in mining law and policy, would warrant. But by the appointment of a commission, including, say, a judge of the Supreme Court, and of practical men representing the different branches of the mining industry, to investigate conditions and requirements, obtain all possible information on the subject of the proposed reforms, and gain some idea of the preponderance of sentiment, in the mining districts affected, the Legislature would then have no difficulty in arriving at correct conclusions and no excuse for refusing to carry out the clearly expressed wishes of the mining communities.

The representative of the MINING RECORD who early last month visited Poplar Creek contributes to this month's number some interesting information relative to that district. As was to be expected he characterizes as ridiculous exaggerations many of the sensational statements that have appeared in the Kootenay newspapers, the like of which continue to be published by them. It is gratifying, though, to have his assurance that apart from these picturesque, but unfortunately inaccurate, stories there are in the Lower Lardeau surface showings of unusual excellence and great promise. With so little development work as yet done there was not at the time it was visited, much more that was definite to be said of that section. No single gold property had as yet demonstrated by the shipment to mill or smelter of even a few tons of ore that in quantity the ore contains values that will leave a good margin of profit above the cost of mining and recovery of the precious metals. There was an excellent reason for this lack of proof, viz., that sufficient time had not yet elapsed since the presence of gold in unusually large quantities in surface rock was discovered for this to have been done. At least one organization now has matters in train for giving its property more than a superficial test, and this fact is an evidence of the *bona fides* and the confidence in the value of their property exhibited by those who have promoted the Poplar Creek Mining & Milling Company. That their work will be abundantly successful is much to be desired. But until results that establish the permanence and profitableness of this new mining field—new in the sense that it is only now being opened up, although known for years to prospectors as mineral-bearing—judgment should be suspended. So much attention has now been turned to the district, that the provision of sufficient capital to give it a thorough test appears to be assured. It is not reasonable to look for results establishing the permanence of the field within a few weeks. Development work takes time, so that it may be months before sufficient data will have been obtained on which to come to a well-grounded conclusion. There is much in favour of the more expeditious development of this section than is common to new camps. A railway passes through it; bases of supplies are within easy reach; the country is not more inaccessible to prospectors than usual, in fact there are other parts of the Province receiving the attention of prospectors that are much more difficult to explore and closely examine than is this. One serious drawback is that the open season will not last many weeks longer, for snow may be expected to soon cover the ground and to remain until next spring. Yet surface showings have been discovered on half a score creeks, so that there should be some underground

prospecting carried on the winter through on each of these. It should be practicable to do much to open up most of them, so that if they or any of them, prove of sufficient merit, the whole of the open season of next year will be available in which to install plant and equipment and make other necessary provision for permanent working. It is to be hoped that results will amply justify all reasonable expectations. The Province as a whole cannot but benefit from the profitable development of any of its natural resources, but misplaced confidence and resultant failure are the reverse of a benefit, since they serve to deter enterprise that might otherwise find an outlet in some legitimate channel. The MINING RECORD is not pessimistic as regards Poplar Creek, but the memory of the alleged wonderful richness of the Golden Cache mine and the disastrous failure of that Coast-promoted venture has not yet quite passed away. One such fiasco, with its train of evils, does more harm than half a dozen successful mining ventures can do good. So it is urged that no hasty conclusions be arrived at in regard to the Lower Lardeau, in which there are likely to be discovered half a dozen creeks quite as rich as Poplar Creek is reported to be. But whether this be so or not, Poplar Creek will probably be found to be a permanent mining camp.

Commenting editorially on mining conditions in British Columbia, the *Engineering and Mining Journal*, of New York, in a recent issue, after noting the gradual improvement that is taking place, and referring to the satisfactory developments in Rossland, the Boundary and the Coast districts, remarks:

"The weak point is in the continued idleness, or semi-idleness of the silver-lead mines in the Kootenay and elsewhere. The proposed bounties on lead refined in Canada may benefit these mines, which have practically no outlet at present for their product; shut out of the United States by the tariff, they have to compete in the comparatively limited market of Canada with British and Spanish lead, which can be sold there at a lower price than the British Columbia mines can afford to make. The eight-hour law in this Province is not working well, and has made a good deal of trouble. The increased cost of labour is injuring many of the smaller mines, and may result in closing down many of them. There has been a good deal of friction over the matter, and the labour situation is far from being satisfactory."

Had comment on these lines been made two or three years ago, it would perhaps have been an accurate enough summing up of the situation, but we confess

surprise that our usually well-informed contemporary should in this instance be so far astray in its facts. The American tariff has never directly restricted or adversely affected lead mining in British Columbia, but for the closing of the American market on the British Columbian producer some three years ago, the American Smelting Trust was entirely responsible. Since that time the product of our lead mines has been sold in the world's market, on London prices, less, of course,—and herein has been the drawback—large deductions for commission, freight and other charges. There is no question meanwhile but that the aid recently afforded the industry by the Federal Government will have the effect anticipated, for already nearly all the large lead mines in Kootenay have either resumed operations or are preparing to do so. As to the eight-hour law, even discussion on this issue has long since ceased, and it may be safely asserted that the present relations between capital and labour employed in our mining industry is more satisfactory than it has been for many years past.

The mining districts of the Kootenay have lately been receiving the particular attention of an enterprising young man who appears to have come to the conclusion that there are in that part of British Columbia numbers of fish of the genus "sucker" waiting to be caught, and that he is in possession of the right kind of bait to ensure his making a large catch. He must be very unsophisticated, though, or his methods would not be so coarse as they are; or possibly he is saturated with a kind of ignorant assumption characteristic of a certain class of persons from the United States who have the impudence to take it for granted that people resident in this Province can easily be "worked." His modesty and veracity are evidenced by his advertising that the Chicago publication he claims to represent—by the way, he omits to mention that it is a Chicago publication—is "The only paper giving attention to British Columbia in the United States"; that it is "The best and most readable journal in the world," and that a special article in it "is copied into 1,000 other journals and is read by over 5,000,000 persons." That this is the veriest clap-trap goes without saying, and if it be asked why Provincial newspapers publish it the reply is that their advertising columns are open to those who will pay for the use of them. But it is rather to the valuable services this genius is prepared to render that attention is here directed. Let his own offers speak for themselves, and here they are: "I will disseminate exact information regarding mining ventures, pro-

tecting the outside investor from having unpayable properties foisted upon him by unprincipled promoters." And again: "Advice on British Columbia stocks given free. Good prospects written up. Terms from \$500." It is interesting to speculate as to which will be given most consideration, the outside investor asking for exact information regarding mining ventures and free advice on mining stocks, or the man with the "good prospect" and \$500 or more to spare to make it appear good. Anyway, don't forget the \$500 if you are a prospective seller, but if you are an outside investor—well, who is likely to give you something for nothing? Certainly not a Chicago paper's agent.

The fact that an arrangement has been made for the treatment at the British Columbia Copper Company's smelter at Greenwood of the whole of the output of shipping ore from the Le Roi No. 2 Company's mines at Rossland is a matter worthy of more than passing notice, since it suggests that the several well-equipped and thoroughly modern smelting works established in the Boundary District of this Province need not necessarily restrict their operations to the reduction of ores produced in near-by mining camps. Heretofore, whilst practically the whole of the output of Rossland mines has been sent to the Trail and Northport smelters, no great surprise would have been felt at the shipment of ores that would stand the longer haul to United States smelters situate a greater distance from the mines than are those in the Boundary. But that Boundary smelters should treat Rossland ores did not seem probable, notwithstanding that the nearest smelter in that district, that at Grand Forks, is less than 100 miles by rail from Rossland, and the farthest, that at Boundary Falls, only about 130 miles. However, what was either not thought of at all or regarded as improbable has come about, and now Rossland ore is being treated at Greenwood—not a very large proportion of it, yet sufficient to prove whether or not Boundary smelters may in the future be regarded as probable competitors for Rossland custom ores. No particulars have been made public as to the terms of the contract recently entered into between the two above-mentioned companies, but this much is definitely known—that the Le Roi No. 2 Company gets terms that will leave it a larger margin of profit than it derived under its previous smelting arrangements, and the B. C. Copper Company, while it obtains ore having constituents so proportionate in iron, silica and sulphur as to make it a very desirable ore to mix with that from its own Mother Lode mine, receives a re-

munerative treatment rate. The advantage is therefore mutual, and both the Rossland and Boundary mining sections are to be congratulated upon this opening up of business relations in a direction that may reasonably be expected to lead to reciprocal development; on the one hand tending to increase ore production; and on the other to enlarge smelting operations.

One of the directors, a Mr. Allan MacLean, of London, of the Kootenay & Velvet Rossland companies, in an interview the other day expressed himself of the opinion that the reason the Rossland mines had not heretofore paid dividends was not so much due to the fact that the companies were over-capitalized, as that costs of production were unduly great. The suggestion here made was that the miner was paid too high a wage, and further, that freight and treatment charges were exorbitant. It is very difficult to either affirm or deny a general statement of this nature, but at any rate it may be unhesitatingly asserted that so far as mining costs go, the cost of mining Rossland ores compare most favourably with the costs of mining similar ores under similar conditions in any other country in the world; and it has time and again been shown that it is cheaper to employ intelligent labour at what might seem to be a high rate of wage than to employ so-called cheap labour, which is rarely intelligent. Again, if the investment of British capital in our mines is dependent on the lowering of wages as now paid, or on the employment of "cheap labour" in the mines, it is easy enough to predict that British Columbia will not be developed by British capital. It is quite possible, however, that there is still room for freight reductions, while every year almost has witnessed the lowering of treatment costs, and by the introduction of concentration methods the minimum should soon be attained. There is no doubt about it that the Rossland mines are over-capitalized, and they were over-capitalized in this way, that too high a price was paid for them, and they also were expected to line their promoters' pockets at the same time. Suppose, for example, a fair price had been paid for the Le Roi when it was taken over by the B. A. C.; that it had been capitalized at its present nominal capital, and that the difference had been set apart for development purposes. What would have been the result? Instead of getting six or seven hundred thousand dollars in the hole, and then having to get out again, the Le Roi to-day would have paid its shareholders very nearly a hundred per cent., and that notwithstanding "excessive cost of production, freight and treatment."

A recent issue of the *Lead and Zinc News*, of St. Louis, contained the following: "Zinc producers in the Kootenay District of British Columbia are likely to encounter trouble in securing a market which will provide any great returns for their zinc product. Shippers of zinc from this district will be compelled to come into contact with the zinc product of Leadville, which has a market advantage in freight rates and which will naturally be given the preference over the British Columbia ores on that account, all other considerations being equal. The present freight rate on zinc from British Columbia is almost prohibitive, being \$11, against \$3.50 per ton from Leadville to the Kansas gas belt smelters. Until some market concessions can be secured from the railroads of British Columbia the competition of the Colorado ores are likely to prove a very formidable factor in a competitive market. The sooner that the zinc producers of the Kootenay realize this fact and take steps to secure the needed concessions, which will be of advantage to the railroads through the increased tonnage that such concessions would insure, the sooner they will be able to increase their shipments. Zinc can be and is economically produced in that district, but will have little market value until existing conditions are improved."

These comments, however, lose point when it is stated that it is impossible to make comparison between the zinc ores produced in Colorado and those of British Columbia. It is very common, for example, for the Colorado ores to carry an iron contents of from 10 to 15 per cent. and consequently these ores require, before they can be successfully treated in the retorts, to be mixed with the higher grade product from Joplin. British Columbia ores, on the contrary, rarely contain more than from 5 to 6 per cent. iron, while their silver contents is generally also much higher than the zinc ores of Colorado. That we can successfully mine and export zinc-bearing ores in British Columbia is furthermore shown by the last annual report of the Payne Mining Company, in which the statement is made that during the year a thousand tons of ore, carrying from 43 to 45 per cent. zinc values was shipped from the mine to Iola, Kansas, upon which the net profit was eight dollars per ton. The freight rates on these ores to the States are certainly somewhat heavy, though not exorbitant, and it is doubtful whether the railroad companies could afford to greatly reduce the present charges; but the day is not far distant when the zinc ores of the Province will be made into spelter in British Columbia.

During the month a somewhat extravagantly worded article appeared in one of the Vancouver daily newspapers, announcing that the Lanyon Zinc Company contemplated the early establishment of a zinc smelter on Burrard Inlet, and that the Great Northern and the Canadian Pacific railways were already making plans to compete for the hauling of the smelter product. We are in a position to state that absolutely no credence should be given to this report.

It is now reasonably certain that the 1903 returns of mineral production will show a very appreciable advance both in respect to tonnage and values over those of last year. In fact it is a long time since the outlook appeared as encouraging, or prospects as indicative of approaching rapid development and expansion as is now afforded. Another month or six weeks should permit of both Rossland and Boundary equalling respectively the tonnage produced by these districts in 1902, so leaving perhaps, two months of the present year in which last year's achievements may be exceeded. From Nelson and Ymir reports of progress are equally satisfactory. New mines are being opened, others upon which operations have been long suspended are being re-worked. On Morning Mountain alone, there will soon be no less than six stamp mills in steady operation, when last year there was but one. The number of mines again actively working in the Slocan is rapidly increasing, while the Lardeau is fast becoming a most important productive centre. Recent production from the Crow's Nest coal fields shows an advance of over a hundred per cent. as compared with returns covering corresponding periods of last year, the average daily output then being 1,371 tons, and lately 3,251 tons. As for the Coast, the metalliferous yield of 1902 has already been well surpassed. The only present obstacle in the way of progress is the scarcity of mine labour—this new circumstance being a healthy sign—nevertheless it is to some extent restricting operations in the Boundary, Slocan and Lardeau districts. It is not to be expected, however, that this difficulty will be more than a temporary one. Naturally the depression that has overshadowed the industry for so long, and from which it has emerged with such astonishing suddenness, is responsible for driving from the country a large number of miners, while many also have participated in the rush to stake claims in the Poplar Creek and other districts in which the recent new gold discoveries have been made. But once it becomes apparent that conditions in British Columbia are settled and that there is some certitude of a general resumption

of mining operations with the assurance of steady employment, there will be no difficulty in obtaining from the States all the mine labour required. Although, meanwhile, this revival in mining is taking place, some time must necessarily elapse before the changed conditions exercise any considerable influence beyond the confines of the mining territory itself. The only capital being invested in British Columbia mines at the present time is American, and this in relatively small amounts. It is impossible to raise money in England, however meritorious the property offered, and the suspicion with which Eastern Canada regards mining in the Province may be judged by the entire absence of speculation and the utter flatness of the mining stock market, once so active in Montreal and Toronto. While the active demand for mining stocks in 1898-99 had little if any significance as indicating the actual position of mining in the Province of those years, the inactivity since in this regard has been significant, and a revival of speculation would be more so. That can now only come about by the entering of a fair proportion of our mines on a dividend-paying career. Three or four mines only this year have distributed profits and these outside of the Crow's Nest Coal Company in very inconsiderable sums, and all the talk in the world of better times will not outweigh an argument of that kind in the minds of the sceptically inclined. When as there is every reason to hope they will do in the near future the two Le Rois, the Granby, the Payne, the Tye and half a dozen other companies that could be mentioned, make a beginning in the direction of substantial dividend-paying, then there will be another big and more permanent mine-investment boom in British Columbia.

Another instance of bad and extravagant management is reported in the case of the Northwestern Development Co., an American undertaking operating the Camborne group, in the Fish Creek district. This concern seems to have pursued precisely the same course as that followed by the Lillooet, Fraser River & Cariboo Goldfields, which has so often been held up as an awful example and warning of fatuous English methods. But this American company also purchased prospects, and before developing them spent money right and left in the erection of stamp mills, tramways, saw-mills, hotels and stores, with the inevitable results. The company is now in debt to the tune of \$14,000, nine thousand of which is owing for labour in British Columbia, and a further large sum of money must be found by December next to complete the purchase on claims under bond. At a somewhat stormy meeting

of shareholders the other day, the managing director responsible for this state of affairs was deservedly censured, and it was also decided to appoint a commission to investigate and report on the condition of the property, when an effort will be made to raise additional capital to extricate the company from its difficulties.

The *Camborne Miner* recently published the following: "The financial statement of the Northwestern Development Syndicate, owners of the Camborne group and Goldfinch mine at Camborne, as presented at the recent shareholders' meeting held in Michigan, shows the affairs of the company to be in a bad way. The treasury is exhausted and, besides a debt for labour and supplies of some \$14,000, a heavy payment is still due the vendors of the claim. Former Manager Brock came in for a severe roasting at the hands of some of the directors. It was shown that the directors could never get a detailed statement from Brock as to how the company's money was being spent. They held Brock's receipt for \$142,925, but had no account of how a large portion of this sum was disbursed. * * * The property as yet is merely in the prospect stage, as the work done by Brock determined little or nothing as to the merit of the group." While in no way excusing the former manager, who is stated to have come in for "a severe roasting," the question immediately suggests itself to any one familiar with the custom followed by all careful and competent directorates "Why not have had the manager's account carefully examined at least monthly by an independent auditor?" Surely it is the directors who are most to blame in this matter. Did they not know that their manager was busying himself more with a townsite venture than with the development of the company's mining property? Is it news to them that much of the company's money was sunk in this townsite; that a large hotel building was erected but never completed; that money was also spent in a sawmill to be operated by electricity and which never did what any small mill having steam for power would have done; that the mill and hotel were connected with the power house nearly a mile distant by transmission wires which are now lying on the ground in many places? Granting that the former manager was reckless, extravagant, and it may be, incompetent—he certainly proved himself, by his actions, utterly unsuitable for the position of mine and mill manager—who

is to blame if not the directors who permitted him to go on wasting the company's money until it was practically all gone? And after getting rid of their spendthrift manager, did these directors do what any business-like directorate would have done, put in charge of mine and mill a manager of known practical experience and proved ability? Not a bit of it; they sent in from Michigan a young man who, whatever his theoretical attainments—and doubtless they are high and creditable—had neither practical knowledge nor experience. These directors have been playing for the fall the company has had, so the shareholders should blame them, for they are the men actually responsible for the fiasco they have made of the enterprise entrusted to their management. Of course the old cry that shareholders have to pay heavily, even to the extent of losing all the money they put in, for venturing to invest in mining in British Columbia, will again be raised, but here again, as has so often occurred before, they will pay not because the mining property has no value, but because of the want of business caution and good management on the part of those to whom they entrusted the expenditure of the money they paid. Further, if the statement that the property is as yet merely in the prospect stage came from the directors—most likely it was made by the local newspaper quoted—then it may be asked "Why was an aerial tramway put in, a 10-stamp mill erected, an electric power plant installed, and other plant and equipment provided, before the value of the mineral claims held had been fully established?" As a matter of fact the mill has been producing gold from ore sent down from the company's mine. But it would indeed be a rich mine that could continue to stand the drain first of reckless extravagance, and next of inexperience in its mine-management, and all the while of utter carelessness or incompetence on the part of its executive. With a careful and efficient directorate, an experienced and fully competent manager familiar with Western methods and conditions, and sufficient capital to give it a thorough test, the mining property of the Northwestern Development Syndicate would in all probability soon prove itself of much merit. There does not appear to be any reasonable doubt that there is on some claims much gold quartz ore of a grade that will return a good profit above cost of mining and milling, but the mine and mill must be run on lines of economy and efficiency; townsite, hotel, sawmill, and like outside risky schemes be avoided; and attention of the management be concentrated on legitimate mining and gold-milling, to ensure the success that under proper conditions appears to be attainable.

The declaration of a dividend by the Providence Mining Company, of Greenwood, is the first step taken in this direction in the Boundary District, if the Cariboo-McKinney Company be not regarded as properly a Boundary company. The Providence is as yet a small mine, owned by a company having a comparatively small nominal capital, viz., \$200,000 in 40,000 shares at \$5 each. Of these shares 27,800 have been issued, part to the promoters of the company and part to buyers at par. The purchase price of the property, \$50,000, has within twelve months been paid, half of this amount having been obtained from proceeds of ore. All working expenses have been paid, and now the shareholders have received a dividend of ten cents per share, and a promise of a like sum monthly hereafter until circumstances shall warrant a higher dividend being paid. If more mining enterprises were carried out on similar lines in this Province it would make a better showing and outside investors would be ready to invest money in British Columbia mines. The secret of the success of the Providence Company is an open one—good judgment in the selection of the mineral claim to be opened up, an executive of resident business men of known ability and rectitude, economic and capable mine management, and a comparatively small number of shares. The combination is by no means out of reach of the general run of those disposed to put money into mining ventures, yet strange to say it is the exception, not the rule. When men learn to exercise ordinary business care and intelligent discrimination in mining, they are just as likely to make a success of it as of any other enterprise, but so long as they do not take the most ordinary precautions to see that their money is wisely placed and judiciously expended they will suffer loss, and mining will be given a bad name, though often undeservedly.

It has been contended frequently enough with more or less truth that the reason for at least half the failures of British mining undertakings in this field is attributable to incompetent management. A year ago it appeared that the Hastings Exploration Syndicate, owning the Arlington mine at Eric, might be included among those English companies whose non-success is traceable to this cause. The mine was badly gutted; by uneconomical methods of treatment, most of the profit from the rich ores had been lost, and the prospects were decidedly inauspicious. The management, however, was changed, and with it the policy. The mill was shut down and the ore, carefully sampled, sent to the smelter; the property was judiciously prospected and administration and other expenses rigidly

regulated, with the result, that this year the total expenditure is more than covered by the receipts, the net profit on the ore shipped having been \$44,000, while the company also received a royalty of 25 per cent. on \$22,000, on a prospect they were able to lease. This showing from a property supposed last year to have been exhausted is certainly highly creditable to the present management.

The attention of a number of the leading mining and smelting men in the Kootenay has been drawn to the occurrence near Ymir of a large deposit of mineralized limestone, some particulars of which are given elsewhere in this issue. The great importance of the discovery, which was made last year, of this deposit, is becoming more and more recognized, and as the B. C. Standard Mining Company, which has acquired the property, extends its operations and enlarges its output the value of the ore to both the company selling and the smelters buying it will be demonstrated to an increasing extent. The unusual advantages that are here combined are the wide area of mineralization and the consequent immense quantity of ore available; the probability that here, as in other mining districts where similar gold and silver-bearing deposits of limestone occur, very rich shoots of ore will occasionally be met with; and the low mining, transportation and treatment costs, quarrying or underground chambering being the most advantageous method of mining the ore, and the position being favourable for transport from the workings to the railway by means of an aerial tramway, together with the comparative nearness of the mine to the smelters at Nelson, Trail and Northport, all of which have heretofore had to use barren lime rock, the cost of quarrying and transportation of which they have had to pay. Other distinctly advantageous features are (1) that so far experience has shown that whenever the silver and gold values fell in any part of the deposit worked the percentage of lime increased, the latter gaining an advantage in the smelting rate to, at least in part, compensate for the falling off in values; and (2) that the leading stockholders, including the directorate, are men of high standing and large experience in mine or smelter management, who are putting their own money into this enterprise and are adopting the most economic and effective methods in working and equipping the property. Further, there has been no "watering" of the stock, that disposed of having been sold at par. All things considered, the Hunter V. group enjoys exceptional advantages, so that its prospects appear to indeed be bright.

Our special correspondent writes that with characteristic caution and reserve the more influential of the members of the British Commercial party that lately visited the Boundary District refrained from freely expressing on the spot their opinions or impressions of what they saw at the several mines and smelters visited. Between very limited time and the fatigue consequent upon the unavoidable crowding of much sight-seeing into the few hours available, the district was not by any means given a "fair show," yet the most was made of the opportunity, notwithstanding its regrettable limitations. The Granby Company's big mines, situate at Phoenix, and the B. C. Copper Company's important Mother Lode mine, near Greenwood, were visited, and some idea of their extent, equipment, and producing capabilities was gained; a brief stop was made at the Oro Denoro and Snowshoe mines; the modern smelting works at Grand Forks and Greenwood, respectively, were inspected and much information was obtained; the Providence and Elkhorn, as typical of the high-grade gold and silver properties of the district, were given close attention; a passing sight was had of the volume of water impounded at Cascade, for the generation of electric power at the Cascade Water Power & Light Company's works there, and the utilization of that power at mines and smelters was seen; and the while questions were answered and explanatory information volunteered until the imperative "all aboard" of the train conductor called a halt to the giving and receiving of particulars of the industries that are all-important to the Boundary. A few of the visitors frankly stated that they were quite willing to put money into mining enterprises such as they had seen in operation in the district, but where could they obtain disinterested and thoroughly reliable advice to guide them? Again, why were some of the companies capitalized to a degree that in most cases appeared to conservative men of business excessive, and in others so very high as to make them fear that dividends, if paid, would necessarily return but a very small percentage on the money invested? Further, why are shares of a nominal value of one dollar issued as paid up on payment of only ten cents? Why not make the capital \$100,000, and thus have the real amount stated, not a fictitious \$1,000,000? These questions were not answered satisfactorily; rather was there a general disposition to admit that the over-capitalization thus objected to could not be defended. Yet despite these drawbacks a country possessing such immense and valuable mineral resources must, the visitors considered, be worthy of the attention of capital, so they would make further enquiries with a view to putting money into such enterprises as shall be well recom-

mended by those in whom they shall find themselves able to place confidence. The chief burden of their advice, when given, was that the confidence of British capitalists must be sedulously fostered, and once gained must be carefully maintained and fully deserved, and then all the capital requisite to the development of mines and the establishment of reduction works will be forthcoming. A fair run for his money is all that the average Britisher expects, but this he quite properly insists on having.

The use of electricity for power purposes in connection with mines and smelting works is gradually becoming more general in the Province. The power generated at Bonnington Falls, on the Kootenay River, by the West Kootenay Power & Light Company, has long been utilised at Rossland mines and at the Trail and Nelson smelters; the works of the Cascade Water Power & Light Company, on Kettle River, supply power to the Granby Company's smelter at Grand Forks, and to the Granby and Snowshoe mines at Phoenix, and now preparations are being made to substitute electric power from Cascade for steam at the B. C. Copper Company's smelter, Greenwood, with a probability of other establishments in the Boundary Creek valley also ere long taking advantage of this available power. The Granby Company in part provides at its power works on the North Fork of Kettle River the power for its smelter. The Silver Cup Company is about to generate electricity to run the 20-stamp combination silver mill it is erecting on the South Fork of Lardo Creek, near Ferguson. These are the more important mining and smelting establishments in the Province using electric power. There are others besides, and doubtless still more will follow before long.

Another alleged discovery of a deposit of hematite is reported to have been made at Quatsino Sound, to the north of Vancouver Island. The discovery of ore of this character at several localities has been announced from time to time for the past two or three years, but as yet without authentication, in some cases subsequent tests showing that the occurrences thought to be hematite were magnetite.

Apropos of smelting rates at Rossland these appear to be now about as low as can be reasonably expected, and the Northport smelter, instead of reducing has slightly raised the scale of charges on low-grade iron ores, and has signified to shippers that if they are dissatisfied with the new arrangement they are quite at liberty to take their ores elsewhere.

A TWO WEEKS' TRIP TO CARIBOO.

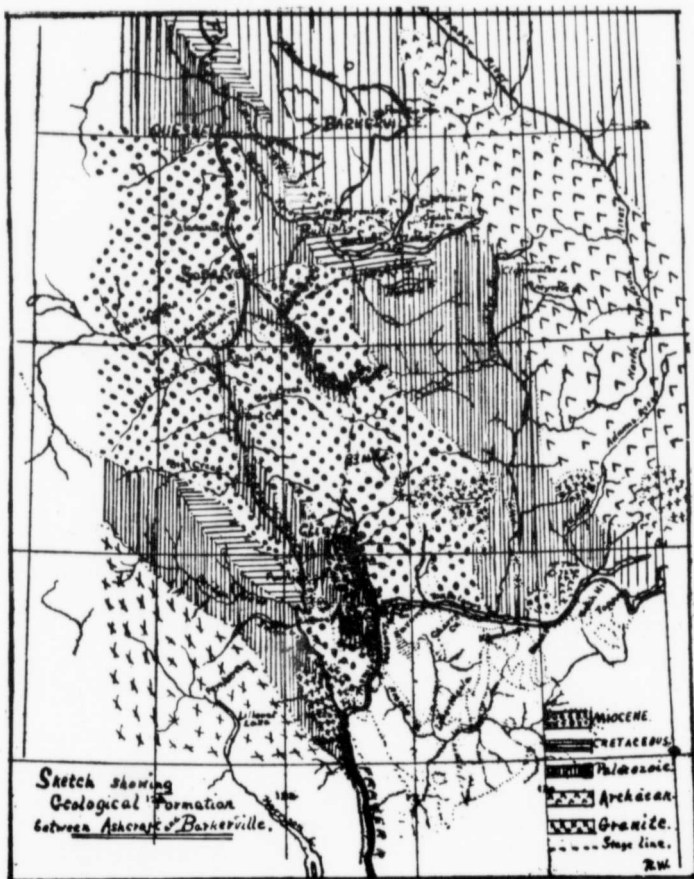
(Rosalind Watson, M.A., Assoc. M. Inst. M.E.)



Clean-up from Mosquito Creek.

CARIBOO is the largest district in British Columbia with the exception of Cassiar, and has an area of 150,000 square miles. Though so large a tract of country, extending from the 52nd to the 60th parallel and from the 120th to the 126th meridian, it is one familiar to comparatively few people be-

to be; but the company now in operation is the British Columbia Express Company. Two stages a week in summer, and one in winter, leave Ashcroft for Barkerville and proceed via Clinton, Lac la Hache, 150-Mile, Soda Creek, Quesnel, Cottonwood and Stanley. The round trip of 560 miles usually takes eight days, but has been covered by a "special" in three days and fourteen hours. Though the drive is an uncommonly long one the writer found it enjoyable and less fatiguing than anticipated. A hundred horses are in service along the line, so admit of frequent changes being made. Fine horses they are, indicating that the company's manager, Mr. Leighton, understands horse flesh and chooses well his stock-tenders. The drivers



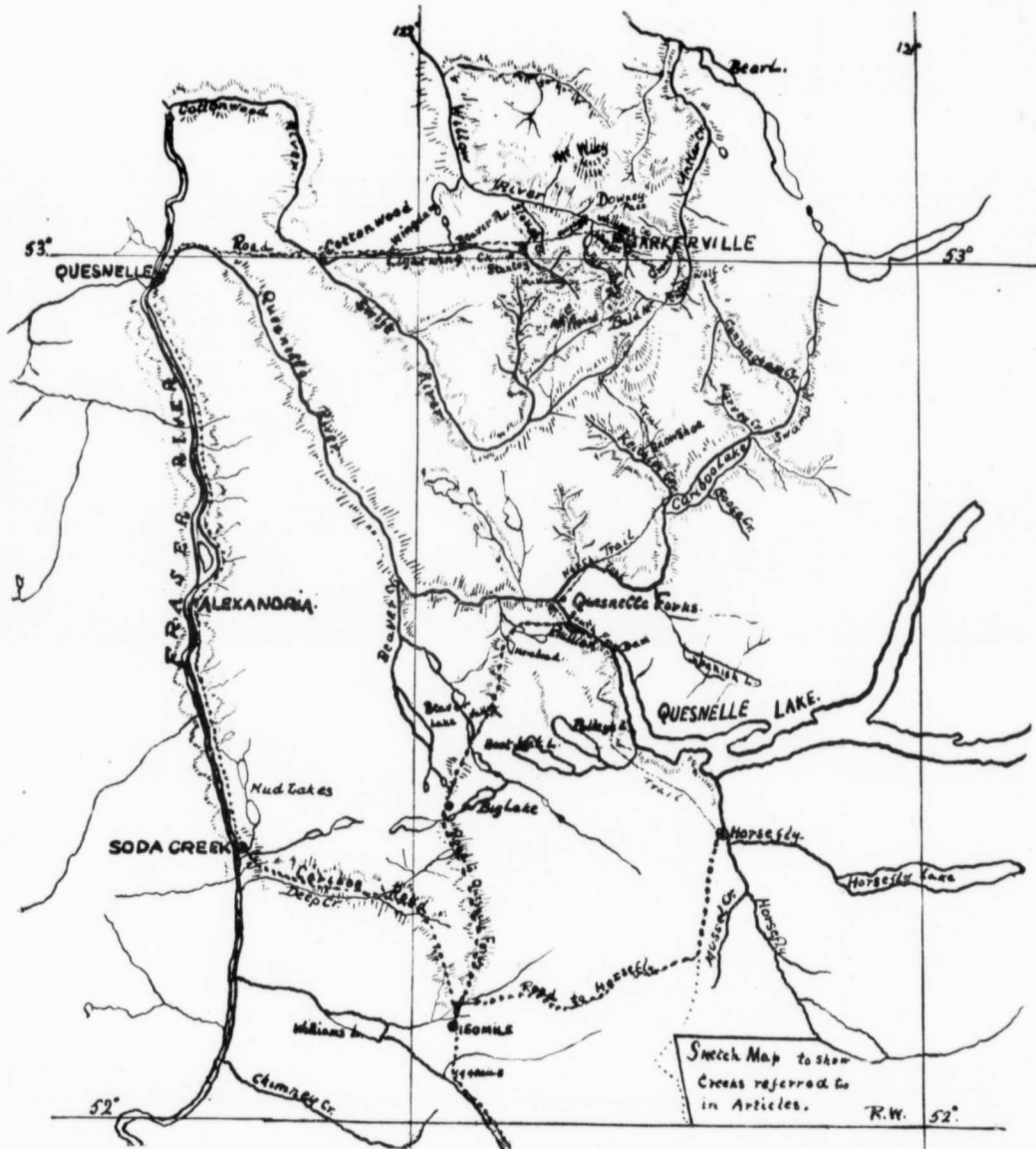
cause of its lack of railway transportation. Travelling has to be done by stage. When the Government wagon road was completed in 1864, Barnard established his express company and ran a stage weekly from Yale to Barkerville, a distance of 396 miles. With the completion of the Canadian Pacific Railway in 1885, Ashcroft became the point of departure and so continues

are expert handlers of four-in-hands, and the road houses provide good meals and comfortable beds.
 GEOLOGY AND GENERAL CHARACTERISTICS—ASHCROFT TO BARKERVILLE.

At four o'clock on Monday morning, the 10th of August, the writer left Ashcroft. After crossing the Thompson River, we began the ascent of the terraces

and on top of the third found ourselves at an altitude of 1,500 feet, in proximity to the Cache Creek garden, which is owned by an English Company and worked with conspicuous success by Chinamen. Last year's crop of potatoes was 600 tons and prospects point to

Adjacent to the road there are many exposures of shale. These, according to the geological map published a few months ago by the Canadian Survey, belong to the Cretaceous period, Ashcroft being the centre of a Cretaceous area eleven miles long and four

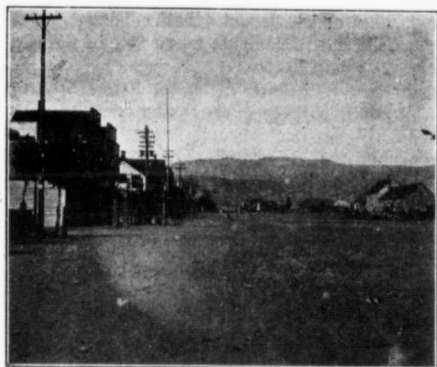


as good a yield this year; oats were cut and lying in stooks. This garden appears like an oasis, for the surrounding soil looks barren with nothing growing upon it but bunches of sage-brush or wormwood. It is in reality, however, a fine sandy loam, and with irrigation becomes highly productive.

miles wide. According to the same map the formations change about Cache Creek and are represented as belonging to the Paleozoic era, sufficient work not having been done upon them to allot them conclusively to any period of that era.

The arrival at Fifteen-Mile House, Hat Creek, for

breakfast was welcome. To understand how welcome you must drive from four to six in the morning in a bracing air. If some enterprising Ashcroft person would open a coffee house near the B. C. Express office he would have the gratitude as well as the coin of passengers who are now "sent empty away." At Hat Creek, the road to Lillooet branches off from the main line, and about four miles farther north striking evidence of mineralization appears in the iron-staining of the hill-side. The mouths of three tunnels



Ashcroft, point of departure for Cariboo.

were observed but inquiry elicited the information that no ore body had been reached. On the Maggie claim, between the waggon road and the Bonaparte, River, Hawkins is said to have sunk a shaft 200 feet and struck copper. There is a marked similarity in all the country rock between Ashcroft and Clinton. Occasionally measures that seem to be true shales



British Columbia Express Co.'s Stages at Hat Creek.

appear, and in one particular place these were seen to maintain a horizontal position, but in most cases they have been metamorphosed and converted into schists. At times they were thought to resemble igneous rocks, but a closer view precluded that idea; for the talus was in all cases the same, of fawn colour

or slaty gray, and sometimes flecked with white, which was, we presume, kaolin.

Onward from Clinton the traveller to know just where he is has much subtracting to do, for here the old Lillooet road comes in, and thereafter the mile-houses are numbered according to their distance from Lillooet, which is thirteen miles farther than Ashcroft. The old mile-posts increase his difficulty, for on them, in addition to the mileage from Lillooet, is marked the distance from Yale. It is true there are new posts with the number of miles from Ashcroft cut into them, but these so closely resemble trees lopped off for telegraph poles that they are easily overlooked and even when one is seen all difficulty is not at an end, for the old calculation sometimes does not tally with the new, even when that vexed subtraction has been done.

At Clinton the altitude is about 3,000 feet; six miles north of the town there is a rise of 800 feet; from that point to Bridge Creek, a distance of about sixty miles, a mean altitude of 3,900 feet is maintained.



Eighty-three-Mile—a Well-kept Road-House.

The highest point on this plateau is Mt. Begbie, situated just beyond 83-Mile, height 4,200 feet. Drift covers the surface of the country and no exposures of rock occur, with one conspicuous exception, at the 61-Chasm, where there is disclosed a vertical section of basalt of the Miocene period, upwards of 1,000 feet in thickness. In the bottom of the ravine lies a lake fed at its north-western end by a creek and having its outlet to the southeast into the Bonaparte River. When the basaltic plateau was at a lower elevation there was evidently a river here which cut out this canyon along a natural line of weakness. The drift or boulder-clay which covers the surface of the plateau as with a mantle bequeathed by the Ice Age, consists of clay, sand and boulders of all sizes. These boulders are largely vesicular or scoriaceous in character and representative of the underlying volcanic rocks, but there is also among them more or less of foreign material. Between 70-Mile and 83-Mile a chain of lakes

lends variety to the scenery. Loch Lomond is specially picturesque. To these lakes sportsmen are attracted each year in increasing numbers.

The descent from the basaltic plateau to Lac la Hache and the older measures which continue to Soda Creek, is made by four hills or escarpments—100-m., 103-m., 108-m., 111-m.—the altitude at the 111-Mile House being about 2,700 feet. Lac la Hache is now eleven miles long and about one and a half miles wide; we saw *not* because its environs show that it once



Thompson River, showing three terraces to left.

assumed much larger proportions. On its south side there is a high and wooded ridge beyond which lies the Fraser; to the north, rolling country admirably adapted for grazing purposes and resembling very much that part of the Okanagan between Vernon and the Greenhowe ranch. Most of the land along the lake and its outlet, the San Jose River, is taken up and the farms in every case appeared prosperous.



Clinton.

Two ranches, 108-Mile and 134-Mile, were sold this summer. Of each of these the purchase price is reported to have been between \$15,000 and \$25,000. From 150-Mile, where the Cariboo Trading Company has large interests, to Soda Creek, is a somewhat uninteresting section of about 28 miles. No rocks appear *in situ*; little cultivation of the soil has taken place; spruce, pine, cottonwood, junipers, and an occasional birch thickly line the road. After passing through an Indian reservation and by a Roman Catholic mission

we descended the three-mile hill to the Fraser River. The formation at Soda Creek closely resembles that of Cach Creek. The country rock is schist and the soil a fine sandy loam requiring irrigation and well-adapted for vegetables and fruits.

At this point during the summer months, the stage ride is agreeably broken by transfer to the "Charlotte," a trim and well-equipped stern-wheeler owned by the North B. C. Navigation Company and operated by it during the past six years. The steamer was built for speed and makes the run of sixty miles to Quesnel in nine hours, but the return trip, which is downstream, takes only two and a half. Though parts of river are difficult to navigate every foot of the way is known to Captain Foster.

At three or four places along the Fraser, Chinamen were observed rocking. Year after year they work the same bars and one season took out \$80,000 between Quesnel and the "Canyon." For the most part the river is bordered by high bluffs wooded to the top and



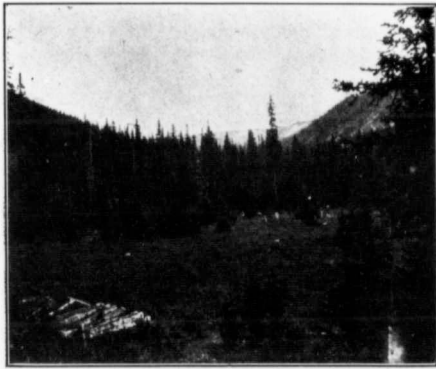
The 61 Chasm.

with wash-gravel even at the highest points. On the mountain between Mud Lake and the Fraser an outcrop said to be of copper was clearly defined and the ore body traceable for hundreds of feet. Not far from Quesnel a body of lignite occurs. An abandoned dredge that lies rotting in the river shows that some one has made a mistake and that dredging there is either not profitable or not practicable.

Quesnel is an important distributing centre and has good stores, a grist mill and a sawmill. Ordinarily its population is about fifty. We who were Barkerville-bound, left the Fraser behind us here and resuming the stage, turned our faces eastward and ere nightfall were at Cottonwood, 28 miles distant and 1,000 feet higher in altitude. The first ten miles of the road are drift-covered and no rock is exposed, but on 11-Mile Hill and Bonanza Hill schists appear. Shortly after leaving Cottonwood we came in sight of Lightning Creek, which we followed, passing Wingdam, Beaver Pass with its saw-mill and brick-yard, and Stanley. From Stanley two roads lead to Barkerville: one, the Richfield road which crosses a summit of 5,300 feet; the other, the new road of lower grade that runs by

Jack of Clubs Lake. The country rock is slate and schist either dark in color, due to the presence of graphite, or grayish and talcose. Sometimes it is fissile and contorted; sometimes, as at the "Canyon," it is almost massive in appearance. Limestone also occurs. It was seen cropping out at the side of the road north of Barkerville and in the pit of the Forest Rose. We were told that it also occurs at Downey Pass and east of Antler Creek. In the first mentioned case it was bluish in colour, crystalized almost to a marble, its bedding indistinct.

Barkerville is situated on Williams Creek at an elevation of 4,185 feet. Its main street is a quarter of a



Bald Mountain, taken from the old Cariboo Road at an altitude of 5,000 feet.

mile long with an imposing Chinatown at one end. According to last census its population, including the miners of neighbouring creeks, is 457, but that of the town itself is not more than 200.

The Barkerville gold-bearing creeks all take their rise near Mounts Agnes and Bald (alt. 6,200 ft.) and are tributary to the Fraser by way of the Cottonwood or Willow Rivers. The drainage system of pre-glacial times appears to have maintained similar relations, for the old river channels as a rule occupy the same valleys as the present streams but at a lower level. Borings at Lightning Creek have shown that modern gravels slightly auriferous have a thickness of about thirty feet, and are succeeded in depth by about seventy feet of boulder clay, beneath which lies the pre-glacial gravel, auriferous, and about sixty feet in thickness. At Slough Creek the same relations exist—75 feet modern gravel, 95 feet boulder clay, 45 pre-glacial gravel.

DISCOVERY OF CARIBOO CREEKS—JOHN ROSE FIRST MAN TO CROSS BALD MOUNTAIN.

We had the good fortune to meet two pioneers, Mr. Dunlevy, of Soda Creek, and Mr. John McLean, of Quesnel, and to hear from them an account of the discovery of gold in the Horsefly Country. This interesting information will be given in a subsequent article dealing with mining on the Quesnel. Both of

these gentlemen came to British Columbia in 1858 so know whereof they speak. They unite in bestowing upon one, John Rose, the honor of being the first white man to cross Bald Mountain. In 1860, Rose and Dunlevy were mining at Keithley Creek. At the close of the season, Rose proposed that he should set out on a prospecting tour if Dunlevy would provision him and give him a man. Dunlevy agreed. So in October Rose set out with Johnson, crossed Bald Mountain, and discovered Antler Creek. He sank a hole and panned out \$114. Snow began to fall and provisions to run short, so he re-crossed the mountain in snow knee-deep and returned to Keithley with between \$400 and \$500—but kept the strike secret. In the following summer of 1861 he worked those claims on Antler Creek which he had located for Dunlevy, himself and others, the first named, as before, providing the stores. Meanwhile, on Keithley, suspicions gained ground that Rose had struck a "good thing," so four men set out on snowshoes in the fall of '61 to follow in his tracks; these were Martin and Weaver, Houser and "Black Jack." They appear to have gone in pairs by Harper's Creek and Swamp River, respectively. They found Cunningham Creek and passing on to Antler Creek saw Rose's stakes and the very hole out of which he had taken \$114. Through the deep snow they dug, and panned out \$17.



Cariboo Cameron's Cabin, showing Kate Carson, of Lillooet,

This they took to Quesnel Forks and showed to Rose. Then the stampede of '62 began.

To this man John Rose, head and shoulders above other prospectors of his time, we feel we must pay our passing tribute. From Mr. Dunlevy we learned that he was an American from the State of Ohio, had been educated, he thought, for the Presbyterian ministry, and knew something about geology. He was a close observer, modest, and extremely polite; was tall, of large frame, dark and could travel wonderfully fast through the woods even though packing a heavy load. Arriving in Cariboo in 1858, he prospected along the Quesnel River, and discovered the bar which bears his name on the South Fork in 1859. Within the next three years he discovered Keithley,

Antler, Williams, Lightning, Sugar and probably Lohce Creeks. Along with Johnson he was killed by Indians in the fall of '62 on Bear River. A search party was sent out by Mr. Dunlevy which discovered buttons, remnants of clothing and part of a knife. The conclusion arrived at was that the Indians had killed the men and buried their bodies under the camp fire. Apparently he was without relatives. No inquiries were made. What gold he had found had been spent in prospecting or in assisting his comrades.

MINING OPERATIONS IN 1903.

The present season has been a disappointing one in Cariboo owing to insufficiency of water, occasioned by lack of precipitation. The snow-fall of 1903 measured in inches was 110, that of 1900 was 141. And not only was the snow-fall unusually light but its removal in spring was disadvantageous. As a result of the scarce-

work continuously since 1880. Two years were spent in working by drifting and then an hydraulic plant was installed. The pit at the present time is 1,100 feet long and strikes in a north-easterly direction; its width from rim to rim 200 feet and depth about 80 feet. The working face shows 10 feet surface gravel; 40 feet boulder clay; 15 to 20 feet yellow gravel; 10 to 15 feet slide rock. All this material is auriferous except the clay; from bed-rock as much as \$1,000 has been washed in one day. Washing this season was 10 feet from bed-rock, which is slate much contorted. The boulders are easily coped with, but the clay has to be blasted out. Work advances at the rate of fifty feet a year and there is three-quarters of a mile of virgin ground ahead.

A fair water supply is obtained from Antler Creek and conveyed by half a mile of ditch 5 feet wide at



Barkerville, from head of pipe-line on Cow Mountain.

ity of water some mines had to shut down after two weeks of piping. The output of the mines in the vicinity of Barkerville for 1903 will be, it is estimated, upwards of \$125,000. Up to the middle of August the Express Company had sent out \$50,465 in care of Messenger McKinley, who makes two trips per month.

ANTLER CREEK.—Antler Creek, as already stated, was the discovery creek. Out of it has been taken in the neighbourhood of \$2,000,000. Work this year was confined almost exclusively to two of its tributaries, Grouse and China Creeks.

GROUSE CREEK.—Waverley Hydraulic Company, John Pomeroy, manager. On Grouse Creek a company composed of local capital possesses one creek claim and two pieces of real estate, and has been at

top, 2½ feet at bottom and 20 inches deep and by 2,500 feet of pipe grading—from 30 to 9 inches. A No. 2 Giant is used and a three or four-inch nozzle employing 250 miners' inches of water under a head of 200 feet. There is 2,500 feet of bed-rock flume 22 inches by 3 feet, at 2¼ per cent. grade, paved with 8-inch spruce blocks. The gold is coarse, requiring no mercury to save it, and values \$16 net, or \$17 at the mint. Piping began on May 15th and lasted eight weeks. The clean-up was completed on August 21st and amounted to between \$4,000 and \$5,000, which will admit of a small dividend being paid. Six men, whites and Chinamen, were employed at a wage of \$2.50 to \$4.00.

CHINA CREEK.—China Creek Hydraulic Company, B. A. Laselle, manager. This company, consisting of

American capital, has operated for three seasons on China Creek, which flows into Wolf Creek, a tributary of Antler, but the first season was spent in prospecting. A good supply of water is obtained from Antler Creek and conveyed by four miles of ditch and 1,200 feet of pipe. In 1903 one No. 4 Giant was used, a six-inch nozzle, and 1,500 miners' inches of water though the mine has a capacity for delivery of 2,000 inches. The average depth of the deposit is 60 feet, and is made up of 20 feet loose wash-gravel, containing some gold; 35 feet blue slum, easily washed but carrying no gold; 8 feet medium coarse, yellow gravel, resting on slaty bed-rock and having in it few boulders that have to be blasted. There is rim rock on both sides of the pit with a width between at present of 400 feet, but the channel is evidently narrowing and will continue to do so, it is expected, until half that

on August 15th with a No. 6 Giant and 8-inch nozzle and would continue, it was hoped, until the middle of October. The bank averages 65 feet, of which 35 feet is pay gravel and the remainder silt or slum. For the whole 65 feet the average value was said to be 25 cents per cubic yard. The dump is fair and the water privileges unsurpassed. Twelve men were employed inclusive of white and Chinese.

WILLIAMS CREEK.

Williams Creek has been the greatest gold producer in Cariboo; out of it has come something like \$20,000,000. It received its name from "Dutch Bill," who was directed thither by Rose in 1861 as to a creek where he could make an ounce a day. Thousands of men were attracted by the discovery and on the two and a half miles of creek that proved richly



"Waverley"—Grouse Creek.

width is reached. There are 400 feet of bed-rock sluice 3 feet square, paved with 8-inch spruce blocks; and an excellent dump with perpendicular drop of 100 feet. Nine men, mixed, are employed; wages, \$2.50 to \$4.50. The season began about May 10th, and at the time of visit the cleaning up was proceeding, and so satisfactorily that the company will pay dividends this year for the first time. On the plant about \$25,000 has been expended.

CUNNINGHAM CREEK.—Wonderful progress was made by the Bear Hydraulic Mining Company in installing its plant this season. Work started on May 15th with the excavation of $2\frac{3}{4}$ miles of ditch, the enlargement of $2\frac{1}{4}$ miles of old ditch, and the laying of 1,200 feet of 20 to 15-inch pipe. Hydraulic mining began

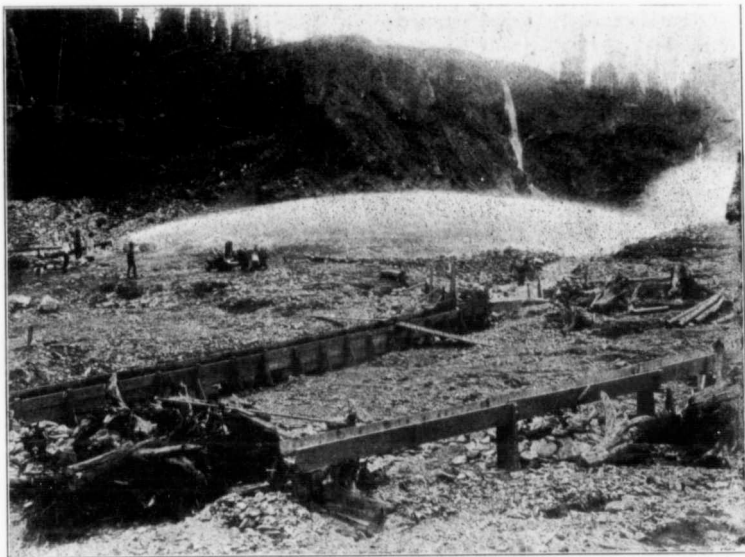
auriferous three towns sprang into existence—Barkerville, Cameronton and Maryville. John Cameron, better known as "Cariboo Cameron," arrived in 1863 and by the fall of that year was a rich man and went home to Glengarry carrying with him about \$125,000. The cabin which he lived in during that year is now in a dilapidated state, as may be seen by accompanying photograph. It was built on the Cameron claim, Cameronton, and for many years was the dwelling place of James T. Steele, secretary of the Cameron Company. Though so unpretentious a structure, in it there has been cleaned a million dollars.

CARIBOO GOLD FIELDS, LIMITED.—Heavy expenditure of English capital has been made on the Gold Fields plant, as yet without commensurate returns.

Williams Creek has poor dumpage facilities, so tailings have to be elevated and it is in connection with the elevator, as will be seen, that difficulty has been encountered. The company leases by Act of Parliament two and a half miles of Williams Creek from Barkerville to the reduction works. Their pit is about 500 feet long from north to south and about 125 feet in the bottom from bank to bank. From a report made

tapped from the Lightning Creek system at 200 feet head, the balance being used for power and for washing the tailings. There are two Giants; only one, however, was used in 1903, and that with a 4-inch nozzle.

The gold-saving appliances are considered very complete. From face to elevator the gravel is sluiced through 400 feet of bedrock flume paved partly with blocks and partly with longitudinal riffles. During



China Creek.

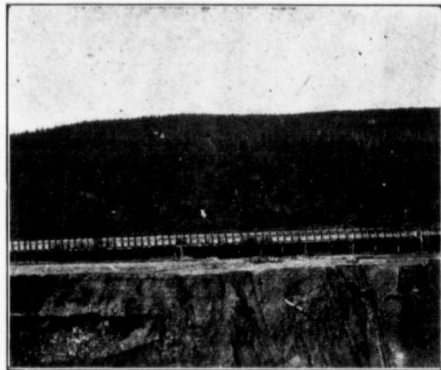
to the company in 1897 we get the following vertical section and values:—

- 12 ft tailings, 5c. cubic yard.
- 8 feet earth, 5c. cubic yard.
- 12 feet gravel, 10c. cubic yard.
- 12 feet clay, no value.
- 33 feet gravel, 50c., \$5, and \$8 cubic yard.

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Beneath the 15 to 20 feet of tailings that stud the surface, earth may be seen containing the remains of trees. Below the earth and to within six feet of bed-rock, the gravel is virgin ground. Timbers may be seen protruding at the bottom of the pit and indicating the drifting done by the miners in the 70's through the six feet of gravel above bed-rock. An old drain of 1864 also is visible in the face. The water supply system consists of 11 miles of ditch from Lightning and Jack of Clubs Creeks and 3,000 feet of 18-inch pipe. In addition there are four and a half miles of ditch from Mink Gulch and a pipe line grading from 30 to 11 inches to convey water for hydraulicing purposes, but these are not used at present. Fifty miners' inches is found sufficient for hydraulicing and this is

this course it is found by experience, that about 60 per cent of the gold is saved. The tailings then are hoisted 112 feet by a bucket elevator, while the water is carried by a drain about half a mile and emptied into Williams Creek. Five cubic yards of gravel is



Double Compartment Flume of Goldfields Company, to divert Water of Williams Creek.

about the amount raised at each revolution of the chain of buckets, there being 180 buckets in the chain, each of barely one cubic foot capacity. Thirty buckets a minute is regarded as the best speed, though forty may be worked without difficulty. The tailings are dumped by the buckets on to a grizzly which separates coarse from fine material; the former passes directly into the coarse compartment sluice, which is plated for about ten feet at the head with sheet iron; the latter passes through a revolving screen where a second separation takes place, the coarse material going to the coarse compartment sluice and the fine material passing over gold-saving tables and into the fine compartment sluice. Coarse and fine compartments unite to form a maine sluice which carries the tailings across the flat and dumps them into Williams Creek. The

bearings were made of low Moor steel, it is presumed, when they ought to have been of hard steel and bushed. The engineers in England apparently did not understand the conditions though told in what the preceding buckets had been defective. Now the question is to get something which will be grit-proof, and Mr. Brough, secretary of the company, has sent home a patent which he believes will solve the problem.

Twenty men were employed this summer, not including the ditch-tenders. Upwards of \$750,000 has been expended, of which fully \$500,000 has been on construction work. Last year the clean-up was about \$20,000.

FOREST ROSE.—Owners, Innes and Fry. This claim, which is above the Gold Fields, was worked in the 60's and early 70's by drifting. In 1876 it was



The Forest Rose.

water for washing the gravel after it has been elevated and the water for driving the Pelton wheel come through separate pipes from the upper tank, under 500 feet pressure, which could be increased to 1,000 feet pressure for hoisting power; 600 miners' inches of water are used.

As has been said, trouble has been encountered in connection with the buckets. Grit gets into their bearings and wears them out in a very short time. The first chain of buckets was manufactured by the Link-Belt Machinery Company, Chicago, and lasted one season, that of 1902. The second chain was made by Graham-Morton Manufacturers, Leeds, with lighter buckets because those of the previous year were regarded as unnecessarily heavy, but with worse success. They only ran from 7th May to the middle of June, 1903—a little more than one month! The

opened up for hydraulicing, which has been continuous except in 1901 and 1902. Last year was spent in repairing the ditch which comes from the Canyon one and a half miles further up Williams Creek; and in getting out timber for a new flume that was laid down with 6 feet higher grade than the old one. Work this year began about May 15th on a new face to the north-west of the old one, where there is about 50 feet of clay and sand and 25 feet of coarse gold-bearing gravel. Bed-rock is slate with a little limestone; the slate, of course, is the better accumulator of gold. The cut is 1,400 feet in length and measures between 300 and 400 feet from bank to bank. Work in the past has paid wages, but this year's operations were largely dead work.

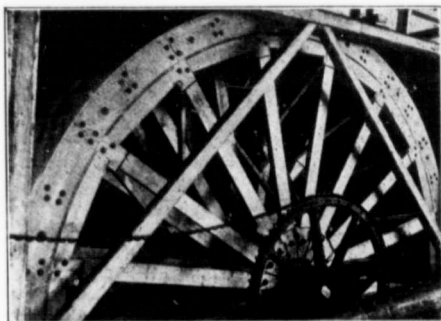
EL DORADO.—The El Dorado is owned by a local company of five men, all working or represented,

who have one hydraulic lease which adjoins the Black Jack, a Chinese proposition, and is in the old channel of Williams Creek. The first clean-up was made about the beginning of August and was very satisfactory, paying expenses. The property will clear itself this year, but there will be no dividends. Sufficient water is available from Williams Creek and Conklin Gulch at a possible pressure of 400 feet. There are four and a half miles of ditch 2 feet across both bottom and top and 18 inches deep; and 650 feet of 7-inch



Shaft House, Willow River.

pipe. One Giant is used with a 2-inch nozzle. The bank that is being washed has a depth of 35 feet made up of 4 feet top soil containing no gold and 31 feet gravel. Work has advanced 160 feet and the yield of the gravel has been 17 cents per cubic yard. No trouble is experienced with boulders and no bank blasting is required. There is 150 feet of ground sluice. Longitudinal riffles pave the first and sixth boxes; 6-inch balsam blocks the remainder. The gold is coarse, largest piece so far worth twelve dol-



Water Wheel, Willow River.

lars and sometimes associated with quartz. As there is no dust mercury is not required. The value of the gold is \$16.40 or \$15.95 net.

WILLOW RIVER.

Tributary to Willow River, whether first, second or third-hand, are Mosquito, Slough, Burns and

and Lowhee Creeks. These in the past have produced in the neighbourhood of \$15,000,000.

MOSQUITO CREEK.—The Alabama and Williams claims are owned by Flynn Bros. Between \$10,000 and \$12,000 was the clean-up this year, with only three weeks' piping. It was made in the beginning of August before the writer's visit. Near Mosquito Creek, but on Willow River, F. C. Laird & Co. have been trying for nine years to get to deep gravel, but their attempts so far have been frustrated by the



Shaft House, Slough Creek.

volume of water encountered. An immense water wheel 28 feet in diameter and 7½ feet in the face, is employed to work two Cornish pumps. We were informed that the last shaft was sunk about 100 feet and struck bed-rock but at a high point, about 10 feet above the lowest part of the old channel; and that at the present time the management had ceased operations waiting for the water to subside. Mr. Laird has met with many backsets in his determined efforts to



Point Claim, Van Winkle.

reach the gold which prospect holes have proved exists, among the number being the burning of his former shaft-house and the caving of a tunnel.

SLOUGH CREEK.—The Slough Creek, Limited, is attempting the same thing at Slough Creek that Mr.

Laird is at Willow River, namely, to work pre-glacial gravels by sinking and drifting. And with about the same amount of success. Beginning in 1892 the Slough Creek, Limited, spent between three and four years prospecting. Ten bore holes were made across the creek at distances of 100 or 200 feet. These passed through 60 to 90 feet gravel containing colours; 90 to 100 feet blue clay, valueless; 40 to 50 feet gravel, gold-bearing. Best indications were found in the deepest holes, and the deepest was 316 feet, of which 28 feet was in slate. While this boring was going on, a shaft 5 feet by 15 feet was sunk about 90 feet in gravel, but had to be abandoned on account of water. Work was then begun on a shaft to the north, along

about 130 feet all in gravel. But again water! Three drives were made to the east to divide the flow of water and work was stopped last February to allow the water to drain off. But as the water did not drain off, this season the main tunnel was extended 140 feet to the south and 10 feet from the end an incline was run southeast for 150 feet. On the day of visit rock was still in the face, but the foreman was expecting to break through to gravel at any minute. If the water could be handled the gravel would be loaded on to a car, hoisted to the surface, and there washed with the water pumped from the mine. Last year a little gravel from the drives to the east was sluiced through 100 feet of flume and, it was said, with satisfactory



"Williams' Claim," Mosquito Creek.

the rim and above drainage level, and in a direct line with the prospect holes, with the expectation of getting out of water, and under the protecting afforded by the impervious clay stratum, drifting to where the deepest borings had been made.

About 1898 sinking began on a three-compartment shaft 14 feet 8 inches by 4½ feet. An hydraulic jetting machine that averaged 10 feet to 12 feet per ten hours cut through the slate to a depth of 365 feet. From the foot of the shaft a tunnel 8x7 feet was driven with rising grade to the south 1,222 feet. Water was encountered. Then about 1,050 feet from the shaft an incline was run towards the east for 100 feet, it being supposed that the main tunnel was 22 feet below gravel. Gravel was reached but farther in than expected and water in large quantities was again encountered. From the end of this incline a tunnel was driven to the south, paralleling the main tunnel for

results. The gold was coarse. Dump is fair with a fall of about twenty feet. There are two Worthington pumps; one was working and handling 500 gallons of water per minute from the foot of the shaft. The plant, housed in a commodious shaft-house 40 feet by 78 feet, includes four boilers, two 60-h.p. and two of 30-h.p., dynamo for lighting, engine that drives fan for ventilating, friction hoist, air compressor and drills. The camp consists of ten buildings and 14 to 18 whites are employed at an average wage of \$4.00. Three-quarters of a million is perhaps not an over-estimate of the money spent on this property. The mere bringing in of the machinery must have been costly, for the freight rate from Ashcroft is six cents per pound.

The Chinese have an hydraulic mine on Slough Creek and bring water by ditch and flume from the Canyon. Where the line crosses the stream the

trestling is perhaps 75 feet high and affords a sample of Chinese engineering.

ON BURNS CREEK, tributary of Slough, is the Lafontaine property, from which a lot of gold has been taken. In 1903 there was great scarcity of water. Jack of Clubs Creek failed and the mine had to shut down after piping 19 days. One quarter of a mile farther down, at the mouth of Burns Creek, Chinamen were working in what is believed to be the old channel, but they had not then reached bed-rock.

LOWHEE CREEK.—The Cariboo Consolidated, Limited Company, owns five leases on Lowhee Creek and has worked for four summers with 12 to 16 men. In 1903, 14 men were employed; wages, \$3.50.

Jack of Clubs Creek is the source of the water supply which is conveyed by eight miles of ditch, 4 feet at bottom and 8 feet at top, and by two lines of pipes

cury is used in cleaning up. A splendid dump is afforded by Lohee Creek which flows into Jack of Clubs Lake. Hydraulicing this year began May 24th and lasted 35 days. The clean-up occupied two weeks early in July and although no figures were available was said to be "satisfactory."

LIGHTNING CREEK.

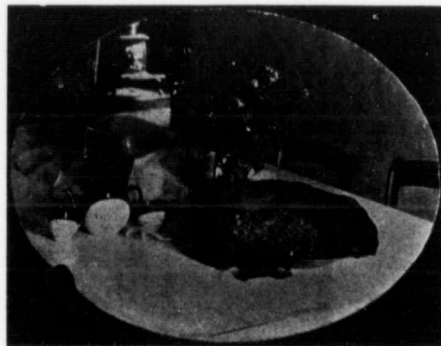
The length of Lightning Creek is about thirty miles. All of this has not been found rich, but from two miles below Stanley to seven above, gold to the amount of about \$10,000,000 has been derived. Tailings, timbers, tunnels, shacks, and an occasional water-wheel manifest the activity that once marked this section. Recent development on the creek is limited to Wingdam, Lafontaine and Van Winkle. At Wingdam American capital is invested. A shaft was sunk about 80 feet, but on drifting slum was encountered. According to report the development work was done before the ground was properly prospected. At the time of visit nothing was doing.

One of the most reassuring sights of Cariboo was seen at the Lafontaine mine, formerly the "Eleven of



Boring Machine—Lafontaine, Lightning Creek.

600 feet and 800 feet, respectively. Two Giants usually are worked, but this year only one with a 4-inch nozzle and 500 miners' inches of water. The gold-saving apparatus consists of a double-compartment bed-rock flume, 1,250 feet in length with 6-inch grade, each compartment 2 feet wide and 3 feet deep and paved with 9-inch spruce blocks. In spring when there is a large supply of water both sluices are used, but later on in the season only one. The present face is 50 feet deep and consists of coarse gravel, auriferous throughout. Bedrock, which is dipping away from the work, has not yet been reached, but will be next year, it is expected. Boulders are blasted out at the rate of 200 in 24 hours, no bank blasts being required. The gold is both coarse and fine and values \$18.60 net. Mer-

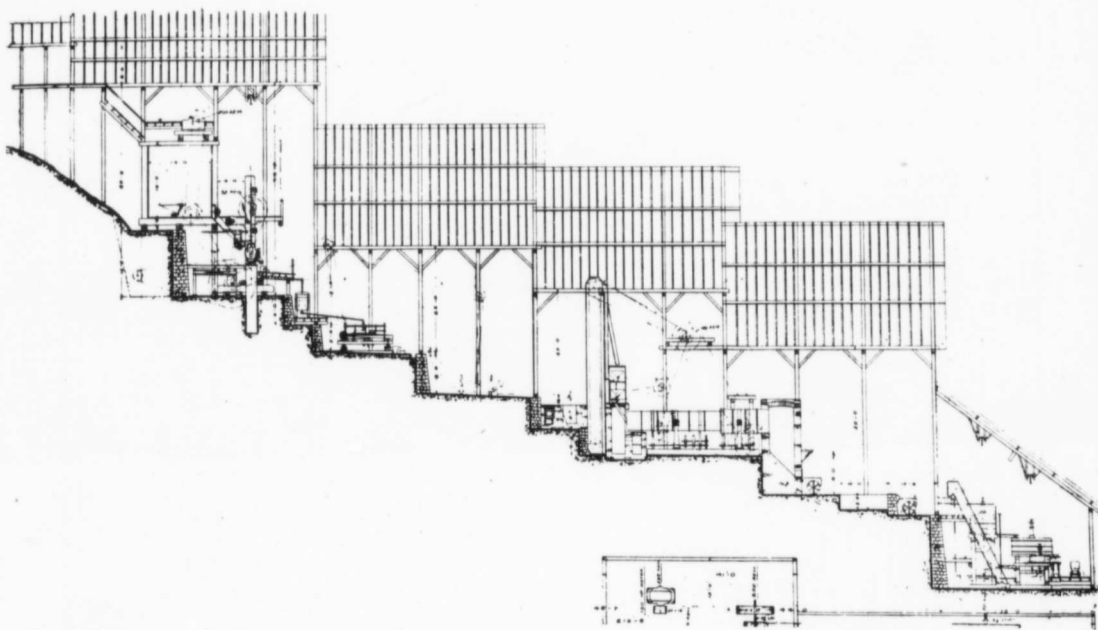


56¼ oz. from one pan of dirt at Point Claim, Van Winkle, on Lightning Creek.

England," where substantial and up-to-date camp buildings were being constructed. Sinking was also going on in ground previously tested by boring. The shaft was down 50 feet and would have to be continued to a depth of 175 feet to reach bed-rock. The company has five miles of Lightning Creek from Beaver Pass to Van Winkle. At the former place a lumber mill and brick-yard have been equipped to provide material for the construction work of the camp. Two miles below Lafontaine an American Wellworks boring machine was at work. The first hole, put down near the waggon road, struck bed-rock at 149 feet; the second hole, 100 feet distant from the first, struck bed-rock at 159 feet, having passed through 30 feet surface gravel, 70 feet clay, 59 feet gravel, yellow and reddish. With a glass colours were distinguishable in the sand coming from ten feet above bed-rock.

On the site of the old Van Winkle there are two adjoining claims, the Montgomery and Point, that within the last two years have produced \$60,000 from a paystreak 20 feet wide and 70 feet long. Fifty-six and a quarter ounces have been washed from one pan and 194 $\frac{1}{4}$ ounces was the wash-up for two days' work last November; \$4,000 of this gold was seen—nuggets very flat and smooth, the largest worth \$98. The Montgomery is owned by five men, but the paystreak has been worked out. The Point is owned by three men and work on it continues. A shaft was sunk 55 feet, but at that depth water inconvenienced the miners and they upraised to the 35 foot level. The average value of the gold is \$18.50.

that will have reference to Poplar Creek and other streams in its vicinity now having particular attention, as may happen if more space be required for these descriptive notes than the MINING RECORD can give in one month's number, the reader will be taken over the route in the opposite direction to that travelled by the writer. It must not be supposed, however, that it is necessary for those going into the district from the C. P. R. main line at Revelstoke to first proceed to Nelson, whence there is communication with Poplar Creek, *via* Kaslo and Lardo, at least three times a week, and occasionally more frequently. An alternative route may be taken from the north, this being from Arrowhead by steamer to Beaton, thence to



THROUGH THE LARDEAU.

(From our Special Commissioner.)

THE purpose of the writer in contributing these notes of a trip through the Lardeau country, taken during the latter part of August and beginning of September, is to give some general rather than particular information relative to a section of the Province that, by reason of the reported recent finds of unusually rich gold-bearing ore, has suddenly come into considerable prominence. The direction taken was from Arrowhead to Camborne, the business centre of the Fish River mining camp, thence *via* Beaton (Thompson's Landing) to Trout Lake up to Ferguson, and then down Trout Lake and the Lardeau River to Lardo, at the head of Kootenay Lake, whence steamers run daily to and from Kaslo and Nelson. In order, though, to avoid possible delay in the publication of that part of the account of the trip

Trout Lake City by stage, and then by steamer down the lake to Gerrard, whence a passenger train runs 33 miles to Lardeau on the evenings of Mondays, Wednesdays and Fridays, passing *en route* Poplar Creek and other streams now being actively prospected by a small army of prospectors, most of whom have been attracted to the district by the glowing accounts published of rich gold finds at Poplar Creek during the two or three months last past.

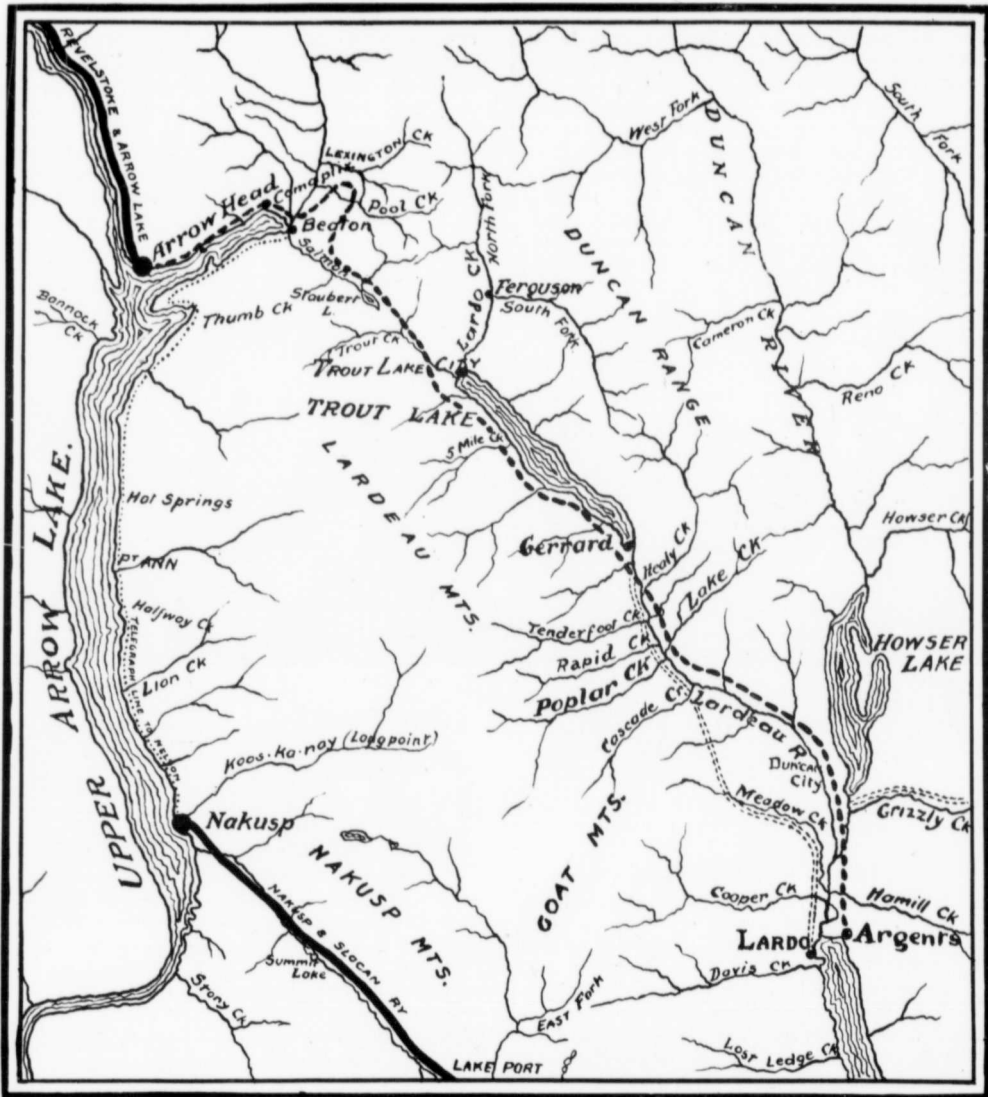
That there may be no confusion as to the use of the names Lardo and Lardeau, respectively, it may here be noted that whilst the former is correctly applied to the small settlement at the head of Kootenay Lake at which arrival or departure by steamer is made, and to the railway between that point and Gerrard, at the foot of Trout Lake, besides being generally favored by many more particularly interested in the southern part of the extensive district known as "the Lardeau country," the name Lardeau is more commonly used when

applied to the central and northern parts of the district, and is the official name of the mining division embracing the most northerly section.

Unfortunately there is no large-scale map of recent publication that shows, so far as the writer has seen, the country under notice. At Nelson maps are ob-

those unfamiliar with the district to whatever other source of such information as shall be available to them.

The Lardeau country is divided between three official mining divisions, Ainsworth division taking in the southern part, up to the divide between Cascade



tainable that in a general way give an idea of the location of the several places and creeks that will be mentioned, and the C. P. R. Lands Department also has a map that will serve a like useful purpose. If practicable a rough sketch map will accompany these notes, but if a suitable one be not obtainable in time for it to appear with them, recourse must be had by

and Poplar Creeks; Trout Lake division embracing its central, and the Lardeau division its northern section. Heretofore records of locations in the Ainsworth division had to be made at either the sub-office of Howser, on the Duncan River, or at Kaslo; those of Trout Lake division, at Trout Lake City; and those of Lardeau division, until the removal of the recorder's

office to the more central and convenient town of Camborne, at Comaplix, on the northeast arm of Arrow Lake. Now records may be made at Poplar Creek of locations made in both the Ainsworth and Trout Lake divisions, much to the convenience and monetary advantage of those making them. A recent issue of the British Columbia *Gazette* contained official notification of the appointment of Mr. Alexander Lucas, mining recorder at Kaslo, Ainsworth division, as a deputy recorder for the Trout Lake division, with office at Poplar Creek, where he has been established and doing a brisk record business in a tent for some weeks. The number of records of claims located in the two divisions embracing the Poplar Creek district, of course including locations on other streams between Gerrard and Lardo, during about ten weeks to September 1, was more than 400, so that the necessity for an office near at hand was urgent, which fact the provincial Department of Mines recognized and acted upon.

Taking the streams flowing into the Lardeau River between Lardo and Gerrard (leaving out of account those coming in from the east below where the Duncan River joins the Lardeau a few miles north of the head of Kootenay Lake, into which their combined waters flow) in the order of their occurrence, they are respectively, Cooper, Meadow, Cascade, Poplar, Rapid, Tenderfoot, and Canyon Creeks. From the Lardeau Mountains on the west, and Lake, Hope, Camp, and Healey Creeks, from the Duncan Mountains, on the east. Numerous mineral claims had in years gone by been located on the watersheds of some of these, but little development work was done on them, and many of them were allowed to run out. Writing for the Annual Report of the Minister of Mines for 1897, the then Provincial Mineralogist observed: "The various groups of claims now located are widely scattered, and this year further prospecting is adding to their number, especially on the ranges on either side of Trout Lake and up Canyon and Tenderfoot Creeks, the southern affluents of the Lardeau River, but although the early locations date back to 1891-92, there is yet a great lack of work which is so necessary to progress." This state of affairs seemingly continued until this year, for but brief mention is made in the more recent Annual Reports of the claims on creeks south of Trout Lake. It is interesting, in view of recent developments, to note that the 1898 Report had mention of Poplar Creek, on which the occurrence of a strong ledge carrying gray copper and galena, and traceable through a group of claims for upwards of a mile, was reported, and that in last year's Report the following is the only reference to Poplar Creek: "The Spyglass is situated on Poplar Creek and is owned by J. Winquist. It contains some of the highest grade ore in the Lardeau, assays having given 3,740 ounces of silver and \$120 in gold, to the ton."

No one personally informed regarding recent developments on Cooper Creek, which enters the Lardeau nearly 20 miles south of Poplar Creek, was met, nor was any information available respecting Meadow Creek, the lower part of which flows through extensive low-lying flats or "meadows" upon which a number

of cattle are pastured. Indeed it is not until what is known as the Second Crossing, that is the second place at which the railway crosses the Lardeau River, is reached, that the visitor finds much evidence of the presence of the prospector. Second Crossing is about three miles south of Poplar, and here the townsite boomer is trying to "get in his work," for already the new townsite named Goldhill is being advertised, and all and sundry are being advised to "get in on the ground floor." Near by was camped a well-known prospector named Buffalo—no one spoken to knew his given name—on one of whose claims Wm. Kellem had just before found gold within a quarter of a mile of the railway and on the watershed of Cascade Creek. Kellem stated that the ore was 12 feet in width, and that rough gold could be seen in places in it. Another prospector gave the information that Buffalo pans good gold prospects for nine feet across the lead, and that he gets gold along a distance of about 200 feet, adding, "The gold occurs in a sort of laminated schist. This rock is a puzzle to most prospectors, but it carries gold all right. Other claims in this neighbourhood have fissure quartz veins, crossing the formation and showing gold. The gold is free, much of it too fine to be seen by the naked eye, but the rock pans well." From the same source the information was received that the strike of the gold belt is similar to that of the general formation. This belt is about two miles wide, a kind of porphyritic schist which the quartz veins cross almost at right angles. The river in its general course parallels the formation, but the tributary creeks come in at right angles to the main stream. This part of the district, that is the country drained by Cascade Creek, is being as closely examined by prospectors as is Poplar Creek, so that reports of the new finds may be looked for from time to time.

POPLAR CREEK.

SPYGLASS GROUP.—In 1901 John Winquist, who has been prospecting in this part of the Lardeau for about six years, located west of the above mentioned "gold belt," three claims on Poplar Creek, about 11 miles up from its junction with the Lardeau River and at an altitude of between 3,000 and 4,000 feet higher up than that of the river. He has done a lot of surface prospecting on these claims, and has run one tunnel in 35 feet and another about 10 feet. The claims have not been easily accessible, the trail being very rough, but now the Government is making a good trail up the creek. The ore met with on these claims, which are known as the Spyglass group, is quartz mineralized with gray copper, some of it carrying high values in native silver and gold, the latter ranging up to \$120 from specimen assays. It occurs at the contact of lime with granite, and the ledge varies from two feet to three feet six inches in width, the paystreak being from six to twelve inches. Winquist has taken out a few tons of ore, and this he expects to ship this fall.

GOLD PARK GROUP.—It was, though, the discovery by Geo. Gilbert and Frank Marquis of free gold on their Gold Park claim, about June 15th, that, upon its being made public at Kaslo a week later, caused the first outside excitement over Poplar Creek. These

men had been prospecting in the district each season since the summer of 1898, in which year they found at

cess, and again in 1900 they failed, but in the course of the latter season's prospecting up Poplar Creek they



Lucky Jack Mineral Claim, Poplar Creek.

the mouth of Poplar Creek some float carrying copper. The following summer they endeavoured to find the lead from which this ore had come, but without suc-

cess. In the summer of 1901 they ran two tunnels on this silver-lead ledge, but finding that at that time claims having only

this kind of ore were not saleable, they abandoned this claim. The same season they located two claims, also on Poplar Creek, situated nearly a mile from the Lardau River and at an altitude above it of about 600 feet. These they named the Ochre and Ophir, respectively. In 1902 Marquis returned to do the necessary assessment and in the course of his prospecting work he uncovered what is now regarded as the main lead, this appearing to be continuous for a comparatively long distance along the strike of the "gold belt." This lead has been cut on a score or more of claims over a distance of about six miles, from Cascade Creek across Poplar Creek and on to Rapid Creek. From specimens of ore taken from it Gilbert and Marquis obtained assay values ranging from \$7 to \$11.75 in gold, and other prospectors gave their returns as from \$8 to \$9. The ore is described as quartz with two kinds of spar and various oxides and sulphides. The same season (1902) Marquis located the Gold Park claim, his "discovery" being on a promising looking quartz fissure vein occurring on the south, or upper, side of the "main lead," from which it is about 50 feet distant. The former lead is from 12 inches to two feet in width, and specimens showing free gold have been obtained from it. Gilbert and Marquis Ochre and Ophir locations were also made on this lead. Whilst prospecting the Gold Park last June they made the discovery, already mentioned, that started the rush to Poplar Creek. Mr. Gilbert stated that when they found the gold they took out four or five pieces of quartz showing gold plainly, and six or seven pounds of decomposed ore, described as an oxidized sulphide, known locally as "carbonates," and in which there was a deal of gold. For safety they then covered over the place they had taken this valuable ore from, told Magnusson and his partners, who were also prospecting on the creek, of their find so that they could stake some claims, and then went down to Kaslo where a scribe with a particularly lively imagination wrote a story that read like a fairy tale, as indeed much of it was, and this spreading far and wide caused the first rush to Poplar Creek. Upon their return Gilbert and Marquis started to sink a shaft on the vein, which at the surface was about seven inches in width. At 20 feet down they met with indications of a lead coming in from the north, so at that depth they drifted in that direction, and at 10 feet in there were three veins showing in the face of the drift, these being three inches, six inches and twelve inches in width, respectively, and all carrying fine gold, as shown by crushing and panning the ore. About 200 feet north of the shaft and on the strike of the lead there outcrops what is believed to be the same vein, which at the surface there is about 18 inches in width. It is intended to get out some ore and ship it to a smelter for a bulk test. The presence of tellurium is suspected, and if it be found in the ore in any appreciable quantity the values may be expected to run proportionately high. At the time of writing the development of the Gold Park group is limited to that above described, but the owners intend to endeavour to prove that the property is a valuable one before entertaining any thought of selling it.

GOLDHILL AND GOLDSMITH.—Nearer the river are

two claims, the Gold Hill and Goldsmith, known as the Swedes' claims, owned by H. Magnusson, Eric Strand and B. Lawson. These were located last June. Magnusson showed some excellent gold specimens which he stated were obtained from a quartz lead that runs east and west and can be traced by surface croppings across both claims. He has seen in all six quartz leads on these claims. The gold cannot always be seen with the naked eye, but on crushing and panning the quartz fine gold can generally be obtained. So far only open-cut work has been done.

LUCKY JACK GROUP.—Lower down is the Lucky Jack group, the surface showings on which caused such a sensation and mainly influenced the rush to Poplar Creek that took place after they were discovered. There are three claims in this group, viz., the Lucky Jack, Lucky Three, and Little Phil, together giving an area of about 130 acres. The property is described as "a regular network of veins," ten in all having been found on it. The main lead runs almost due north and south, whilst others appear to cross it at right angles. This main lead has been stripped in different places along its course for about 1,000 feet. It stands out distinctly between the flat abutting on the railway and the top of the first foothill, which rises 60 to 70 feet. Then there is a draw in which it again crops out and in which lies much quartz that has fallen from the vein above, and then up another hill between 200 and 300 feet in height. It is this second hill that is shown in the accompanying illustration, but the photograph gives only a very imperfect idea of the actual appearance of the hill with the vein standing out from the rock through which it cuts, the camera having so foreshortened it in the view as to convey an entirely inadequate idea of its dimensions and actual appearance. When seen by the writer there was still much coarse gold visible, and he was informed that much more had been knocked off by early visitors, the owners of the claim estimating their loss in the actual gold value of the numerous specimens, appropriated by many who had helped themselves, at not less than \$2,000. One specimen seen in the possession of a resident hotel-keeper, by whom it had been purchased, contained, so the owner estimated, not less than \$27 worth of gold, and this specimen was only about the size of a walnut. A number of specimens in the possession of Mr. E. M. Morgan, one of the locators and owners, certainly bore out the statement that the surface showing of coarse gold had been a phenomenal one. These had been broken off exposed portions of the lead after it had been found impossible to guard against their being stolen. Even at the time the writer visited the property it was still considered necessary for some one to be within hearing at night in case any further attempts at purloining specimens be made, so every night two men slept in a tent just below the outcrop shown in the illustration, and had with them a dog to give an alarm should any night prowlers come around. But it was not the number and value of the specimens that gave the writer a favourable impression of the property so much as the fact that from quartz from the breast of the tunnel, then in 35 feet, excellent prospects in fine gold, not visible to the eye be-

fore crushing and panning, were obtained every time a test was made. This tunnel was started on the lead at about 20 feet above the flat, so as to leave room for a dump. It will have to be driven about 155 feet before it will be directly under the outcrop shown in the illustration, and about a similar distance further to get under the highest part of the upper hill, where a depth of about 300 feet will be gained. At 35 feet in the tunnel the vein, which was broken where started on, showed a width of 30 inches to three feet. Where it stands out above the draw the quartz is about two feet in thickness, but lower down the enclosing walls appear to be between five and six feet apart. But even

was visited, and the manager, Mr. E. M. Morgan, and the secretary, Mr. Frank Holton, were hard at work getting things into shape for the operation of the property in such a manner as to give it a thorough test. A boarding and bunk house was just about finished, a site for a stamp mill was being cleared, the claims were being surveyed, and matters generally were being put in train for development and production. It may be added that no attempt was made by either of the gentlemen named to boom the property. They departed from their recently adopted rule of not showing visitors over the claims—a rule made imperative in that they had been kept busy doing that alone



Poplar Creek Townsite.

if the width of the gold-bearing quartz be only two feet where the vein is in place and undisturbed, if it continue to carry similar values to those obtained from crushing and panning the ore occurring in the tunnel, provided the gold can be saved, it should be a paying proposition above the ordinary run of gold-quartz mines. However, nothing short of a long mill run will demonstrate that the property is as good as, from present indications, it appears to be, so until this shall have been accomplished it cannot be regarded as having been proved to come up to surface promise. The preliminaries for the organization of the Poplar Creek Mining & Milling Company, capitalized at \$500,000 in \$1 shares had been completed when the property

until they found it necessary to stop doing so, and by the fact that they could not keep an effective watch on everyone, so continued to lose the exposed gold specimens—and without demur showed the writer whatever there was to be seen. They impressed him as men confident they had a valuable property, and one that they were eager to prove. There was, in their opinion, no need for exaggeration, for they had no doubt there is gold in the ore, and plenty of it, and their intention was to put themselves in a position to begin extracting it as quickly as possible, and leave others to talk if they wanted to.

There had been numerous other mineral locations made on Poplar Creek at the time the foregoing par-

ticalars were obtained; in fact it is quite likely that every available acre of ground had been staked for some distance up the creek, but no attempt was made to ascertain what promiscuous staking had been done—it was only information as to actual discoveries of mineral and developments that the writer sought. It may be added, though, that apart from the almost hysterical excitement a few persons either having their own selfish ends to serve, or in their ignorance repeating and perhaps unintentionally adding to every story of "more gold than quartz" they heard in the camp, or the irresponsible utterances of others whom the sight of gold causes to lose their heads, these originating most of the ridiculous exaggerations given publicity to by some of the Kootenay newspapers—apart from these absurdities, men of experience and not reckless in their utterances freely admitted the unusual excellence of the surface showings and the great promise for the future should it be found that the veins live down to any considerable depth and maintain good values, which after all are conditions indispensable to the permanence of any lode mining camp.

RAPID CREEK.

Although Gilbert and Marquis were the first to find on Poplar Creek a quartz vein showing gold, it was across the divide, on Rapid Creek, that gold in quartz was first discovered in this part of the Lardeau. This discovery was made in the summer of 1902 by J. Nesbit and Geo. Munroe, who still hold two groups of claims on Rapid Creek, but who have not done much on them beyond surface prospecting. Smith and Rogers have a group of three or four claims, located three years ago, on this creek. On one of these they have driven a cross-cut tunnel about 120 feet, gaining 100 feet depth by the time it cut the lead, which is a quartz vein showing a little galena and also carrying gold. This was cut last March, but in the previous fall gold was found on the surface on the same claim. When the snow went off the ground a lot of prospecting was done up this creek previous to the rush caused by Gilbert and Marquis' find over the divide. Two other gold-strikes on Rapid Creek have been reported, one on J. Chisholm's Hecla group, staked about the end of May, and the other on Gordon and Ferguson's claims, located early in June. Only surface stripping had as yet been done on these two groups up to the beginning of September. Numerous other locations had also been made on this creek, but these were too recent for much prospecting to have been done on them by them.

TENDERFOOT CREEK.

The Lardeau Mines, Ltd., with head office in Spokane, Wash., owns nine Crown-granted mineral claims, situate on Tenderfoot Creek and known as the Maggie May group. These are distant from Trout Lake about four and a half miles. The manager, Mr. James Ruthertford, who now makes Poplar Creek his headquarters, supplied the following information relative to this group: "These claims are well situated for economic mining by a system of tunnelling. On the Glengar-

nock a tunnel has been driven 125 feet on a lead about 12 feet in width. In this a shoot of white quartz, three feet in width and mineralized with galena, zinc blende and iron pyrites, has been met with and so far as developed, it is 70 feet in length. The average values of this shoot are 2 oz. gold and 10 oz. silver per ton. The remainder of the vein is white quartz, impregnated with galena and iron pyrites, and carrying values up to \$10 per ton. The whole vein is good concentrating ore. Only trial shipments, up to 500 lbs., for test purposes, have so far been made, and these have given satisfactory results. A test made in London by the Elmore oil process resulted in a saving in concentrates of 87 per cent. of the total assay value, whilst a water-concentration test showed a saving of 83 per cent. of the values.

"On the Liza Fraction, adjoining the Glengarnock, there is a quartz vein 10 feet in width. In this vein there occurs a 12-inch paystreak of solid galena giving a total value of \$70 per ton, in gold, silver and lead. This can be mined and shipped to the smelter at a profit, and it is the intention of the company to make shipments shortly.

"A tunnel on the Maggie May has been driven 54 feet on a vein of argentiferous quartz and galena, three feet six inches in width. The average silver and lead contents, which constitute the principal values in this ore, have not yet been ascertained by a bulk test. The drift is being continued to cut, at an estimated additional distance of about 70 feet, a shoot of ore exposed on the surface and dipping away from the face of the tunnel.

"Open cuts on other claims have shown the occurrence on them of ore veins. There are in all seven auriferous veins known to traverse the property. The company intends developing three leads until it has sufficient ore available to warrant the erection of a concentrator, to operate which there is a good water-power obtainable from Tenderfoot Creek."

It may be added to the foregoing that other claims on Tenderfoot Creek have had occasional mention in the Annual Reports of the Mines Department, but nothing of interest was heard of them last month. Towards the end of August a reported strike of gold in quartz on a claim situate about a mile below Trout Lake and near the mouth of Canyon Creek attracted attention to that part of the district, and numerous locations were made, but no work had been done when the neighbourhood was visited a day or two later.

HEALEY AND LAKE CREEKS.

But little information was obtainable relative to Healey, Camp, Hope and Lake Creeks, easterly tributaries of the Lardeau River. From Mr. T. J. Pearson, who in 1898 staked his claims, situate up Lake Creek, opposite Poplar Creek, it was ascertained that there are good mineral showings in Johnson's Basin, from four to five miles up the creek from the Lardeau River. The ore is quartz with galena and some gray copper, these carrying good values in gold and silver. Among other holders of claims in that neighbourhood are Craig and Hillman, and a number of Nelson men. A lot of surface work has been done, but so far very

little underground prospecting. The camp is about 3,000 feet higher than the river, but it will not be difficult to get a good grade for the pack trail the Provincial Government is about to make from Poplar Creek to the basin. Pearson stated that the country up there is open, with grassy slopes and pretty scenic effects. Fishing is good, there being mountain trout, and in places speckled trout two to three pounds in weight, and easily caught with a bit of red flannel for bait. Ptarmigan can be shot, and there are caribou about, for last summer he saw a doe and a yearling, which fed around not far from his camp for an hour or two.

Mr. H. Magnusson mentioned some claims, known as the Handy group, that he and his partners sold

Hacking, stated to be a mining expert from Granite Falls, Montana, is here quoted: "In the case of the Handy Gold Mining Company, in which I am interested, the railway runs within 50 feet of our claims. The fact that gold-bearing ore existed there was discovered during the grading for the railway line. Since the Handy Company secured control of these claims it has done considerable work on them by driving several tunnels to determine the values. I sent several tons of ore to the Hall Mines smelter, a distance of 78 miles, and I secured the following smelter returns: Test No. 1, west end tunnel,—Gold, 14.18 oz.; silver, 29.4 oz.; total value, \$297.01 per ton. Test No. 2, tunnel No. 3—Gold, 4.95 oz.; silver, 18 oz.;



Marquis and Gilbert's Claim, Poplar Creek.

last November to parties represented by Col. W. M. Brayton. These claims are now controlled by an organization named the Handy Gold Mining Company. Locations since made have been added to the group, which now consists of seven in all. They are situated near Healey Creek, on the eastern side of and almost abutting on the railway, and only about two miles south of Gerrard. Before parting with their claims Magnusson and partners did about \$1,700 worth of work on them, this work including three cross-cut tunnels, of 51, 31 and 35 feet respectively, run to cut as many different leads. The main lead, which occurs close to the railroad, is about three feet in width, is mineralized with gray copper and galena. In connection with this property the following, published in a Vancouver newspaper, of an interview with Dr. F. H.

total value, \$109.31 per ton. Test No. 3, east end tunnel.—Gold, 1.72 oz.; silver, 12.5 oz.; total value, \$41.13. Test No. 4, north tunnel, across foot of vein.—Gold, 20.48 oz.; silver, 12.7 oz.; total value, \$416.44. There are now several cars of this ore ready to ship to the smelter. The lead on which we are working has a width of four feet on the surface, and only a short distance in the tunnel it increases to over six feet. We intend to sink a shaft 100 feet, starting at the apex of two cross veins, to further determine the value of the ore."

South of Poplar Creek a commencement was made about the end of August to do some placer mining by means of a pump operated by a portable steam engine. This work was being done on the opposite side of the Lardeau River. As there was

no bridge near, and no one connected with the outfit was met, no particulars of results thus far obtained were available. In closing these notes on the Lower Lardeau it is desired to lay stress on the unusual advantage the district possesses in having a means of speedy communication, by means of railway and steamer, already provided. Seldom is it that a newly opened mining district has railway facilities provided before development has proved whether or not it has any merit, but this district is thus favoured. With such excellent surface showings, so large an area of mineral-bearing country, and transportation difficulties already overcome, the district should be quickly proved. There will not be many legitimate reasons for delaying development; work should be vigorously prosecuted right through the winter, at any rate on claims that have already come into prominent notice. If they prove to be payable enterprises, next spring should see a transformation of the district from a little-known camp having a few prospectors scattered here and there over it, as it was a few months ago, to a busy gold and silver mining centre serving to demonstrate in an unmistakable manner that British Columbia still has, within easy reach of its business centres, mining fields well worthy of the attention of experienced prospectors and of the class of investors that is not afraid to spend money in systematically following up promising indications of the presence of the precious metals.

DREDGING IN ATLIN.

MR. O. F. SWITZER recently addressed an interesting letter to the Atlin District Board of Trade on the subject of dredging in that territory, from which we abstract the following:

"New Zealand is entitled to the credit for constructing the first gold saving dredge. In that country there were large alluvial deposits, and the scarcity of water prevented the working of the ground, and a condition somewhat similar to that existing here, a flat country and no dump is responsible for their efforts for constructing a machine that would operate under these conditions. The first dredge they built was known as the "dipper type," which is somewhat similar to the steam shovel now used by railway companies, which were all right for handling dirt, but faulty when it came to the question of saving fine gold. A number of years were spent in experimenting with this type of dredge with varying results, but considerable progress was made. About this time the Legislature of California restricted hydraulic mining in that State; this was due to the fact that the numerous operations so altered the climatic conditions of the country as to interfere with agriculture pursuits, and the washing down of the mountains of gravel filled many of the navigable rivers and interfered with shipping. This interference with the class of mining referred to was the angel in disguise that caused the evolution of the dredge, which was brought about by the concentration of energy and inventive ingenuity of the California placer miner. Their first

effort was to dredge a tributary of the Sacramento River, and was far from successful, as about all of the river dredges have been since that time. The great difficulty with dredging rivers is the uncertainty of the depth to bed-rock, and the continuous washing of barren dirt by the current to the point of digging. This, in connection with the trouble caused by freshets, is responsible for the failure of nearly all the first dredging operations. The Fraser River country is probably more noticeable for the number of failures with this class of dredge than any other district, and has done much to discourage those interested in the dredging business. These numerous failures caused a distinct departure in the manner of working, and what is now known as inland dredging had its inception in this country. This simply means the creation of a lake large enough to float a dredge. A comparatively flat piece of ground where the bed-rock is not sixty feet below the surface is necessary.

"The Bucyrus Company, of South Milwaukee, manufacture the style of dredge now being erected by our Company on Gold Run, and the successful operation of the many dredges in the different States, built by this company, has placed this class of mining out of the range of a speculation and has classed it as a simple business proposition or a question of handling the largest amount of ground possible, at the least possible cost, by the introduction of a scientifically constructed mechanical appliance as against muscular energy. As a matter of fact, I don't know to-day of a single inland dredge that has not been a money maker where the operation has been honestly handled.

"The dredge in question, is over all, about 175 feet in length, draws three and a half feet of water, and contains about 600 tons of material; the digging end consists of an endless chain of buckets (of the close connected type) 96 in number, and have a capacity of three and a half cubic feet each, and dump at the rate of 16 per minute. The chain of buckets works over the end of a ladder, from the middle of the bow of the dredge; the buckets coming up loaded dump into a hopper which feeds a revolving cylinder, perforated, as the cylinder revolves with the boulders, gravel and gold in it. Two centrifugal pumps placed on either side of the dredge discharge 3,000 gallons of water per minute in the cylinder, causing a perfect disintegration of the material, and the gravel and gold are carried through a steel flume with an under current arranged with the most modern gold-saving devices known, while the boulders are discharged through the end of the cylinder and dumped through stone chutes overboard. The result of the most careful test shows that we save 98 per cent. of the gold.

"In California to-day there are dredges working on ground that had once been hydrauliced, and the gold lost by that method has left the ground worked over sufficiently valuable to dredge. It has been proven also that ground carrying as low as ten cents per cubic yard can be worked by this method at a profit.

"The dredge in question will be run by electricity generated by the company's power plant situated be-

low Pine Creek Falls. Six miles of pole line will connect the power house to the dredge. Two Victor high pressure turbine wheels which generate 350 horsepower, will furnish the power. One mile of ditch, 350 feet of wood flume, and 1,800 feet of steel flume, 30 to 24 inch discharge, with 180 foot head, will supply water to the wheels. The dredge will be electrically lighted, and the telephone line will connect the different stations."

A MEASURING-TAPE, AND ITS USE IN MINE SURVEYING.*

(By S. J. Pollitzer.)

THE writer's opinion, backed up by experience, is that the connection of a surface and an underground survey can be effected by two-plumb-lines, just as accurately as by the use of any optical instrument. Further, to make a comprehensive survey of a mine an horizontal projection alone is not all that is wanted; vertical sections are equally as important, and to be able to prepare these one must have the means of measuring correctly the relative heights of the various points in the mine. These are the reasons that induced the writer to construct a measuring-tape, 3,000 feet long, which he presumes is long enough for use in any mine in Australia.

The wire used for the purpose is a soft pliable steel wire of No. 24 Birmingham wire-gauge, weighing two ounces per 100 feet, and Prof. Warren, of Sydney University, states that this wire will stand a strain of 84 pounds. In the writer's own experiments the wire stood a strain of 56 pounds, without showing the least sign of weakness or over-strain. To one end of the wire is attached an excellently-made detachable plummet of brass, weighing exactly 9 pounds, and it is made in such a manner that additional weights can be added to it without greatly disturbing either the wire or the plummet. A weight of 9 pounds was chosen, because, in experiments, (1) it was found that a weight of even less than 9 pounds would keep the wire in a perfectly vertical condition, but there must be no kink in it; and (2) when the wire is played out in a shaft for nearly its whole length, the maximum strain on the upper end of the wire must not exceed one-fourth of that found in above-mentioned experiment.

Based on the 9 pounds' weight, the wire was divided at each length of 10 feet under a 9 pounds' strain and with a noted temperature: the correct strain was obtained by means of a spring-balance that had previously been tested with ordinary standard weights; and for each succeeding length of 100 feet, two ounces were added to the original 9 pounds of strain. At the exact 10 feet division-points, small pieces of the same wire were twisted across them, and soldered to them with a drop of lead-solder; at that end of the twisted bit of wire, where an eye was formed, a piece of white calico, measuring 2½ inches by 1½ inches, was fast-

ened, and on the calico was stitched in black wool the number of feet at that spot, and at every 50 and 100 feet mark the calico was replaced by red Turkey cloth, of course, provided with its respective number stitched in black wool. The pieces of calico and Turkey cloth were also used for covering up and enveloping the twisted wires, to which they were attached, so as to prevent them from scratching or otherwise damaging the rest of the wire, when being wound up. The length of the wire is wound upon a cedar wheel, 18 inches in diameter and 1¾ inches thick, with a groove in its periphery, 4 inches deep. The wheel when in use is attached to a strongly-made wooden trestle, which is permanently fixed to a purposely-made staging placed over the mouth of the shaft. The wheel can be stopped at any single inch throughout the depth of the shaft.

Where a joint had to be made in the wire caused by its being accidentally broken, or adding a fresh coil, the two ends were overlapped for a length of about two inches and lightly twisted over each other, so as to keep them fairly close together. Afterwards this joint was closely wound with thin brass wire, which was extended to about half an inch on either side of the single wire; and the entire joint was covered with a thin coating of lead-solder.

When the tape was finished, it was taken to the Sydney Land Office, and tested on the standard length of 100 feet. It was found that to bring each 100 feet wire within the two standard marks, the same strain had to be exerted almost in every instance as that under which the particular part was constructed; and in those few instances where the strains did not agree, the differences were never greater than two ounces more or less.

Before the wire is brought into use, the surveyor selects two points in the roof of each level that is to be connected, and these two points forming the ends of the base-line in that level are marked by two steel pins, 5 to 6 inches long and ¾ to 1 inch thick; these pins are permanently fixed in the roof, and have a small hole drilled in their centres. They should as much as possible be placed in such a position, that neither of them shall form an ill-conditioned triangle with each cage-shaft, and the distance between the pins are carefully measured.

After one of the cages has been disengaged and secured over-head, a temporary staging is erected over that shaft-mouth, upon which the trestle for the wire-wheel is nailed down; the staging should be of such a height that there shall be between it and the surface of the shaft a clear height of about 4½ feet. Then the 9 pounds brass plummet is hooped on to the wire, both are lowered 3 or 4 feet, and kept in that position until the plummet is quite still and there is no perceptible movement in it; this is done with the object of preventing any swinging or knocking of the plummet against the sides of the shaft while it is being lowered. The plummet is then slowly and gently lowered by turning the wheel, until it reaches the shaft bottom or the required level; before the plummet reaches that point, the shaft below must be covered

*Condensed from a paper read before the Institute of Mining Engineers.

with planks, and a bucket of oil placed upon it to receive the plummet.

After the plummet and wire have been brought to absolute rest, and after having laid down on the surface a similar base-line to those in the various levels, and connected the surface-base to the general surface survey, the surveyor connects the wire with the base-line by the triangulation method, by sighting from each point of the base-line on to the wire, and carefully ascertains the angles included between the wire and the base-line at each end. This process he begins on the surface, repeats it in each level in succession, and finishes at the shaft bottom. The bucket of oil is then removed, and the plummet is left free for the purpose of measuring the heights; if the plummet swings more or less, it does not affect the vertical measurements.

To measure the heights or depths, the surveyor begins, in the reverse order, that is, at the bottom. With the assistance of an ordinary spirit-level, he draws a line across one of the vertical beams of the timbering, level with the lowest point of the plummet; and this line he marks permanently, as the bench marks for the lowest level. In the second cage, he then goes to the surface and reads the number of feet on the calico mark next below the surface, and thence to the surface or to a similar bench mark, as the one at the bottom, he can measure with a small hand-tape or any other measuring staff, and in this way the depth to the bottom is ascertained. The plummet is then gently wound up to the next higher level, into a position similar to that in which it was placed in the one below it, and the identical operation is repeated. In fact, this operation is repeated until all the levels have been treated in the same way, and the survey of the shaft is finished.

Next, the wire and the second cage change places, and the operation is repeated through the second shaft, except that the measuring of the heights is entirely omitted, as the measurements in the one shaft will serve.

In this way, the writer brings down an azimuthal line of definite co-ordinates in every level, which is a correct way of connecting the surface and underground surveys in vertical shafts.

It has been stated that the triangulation of the wire from each end of the base-line begins when the wire is at complete rest. When is the wire at complete rest, and how is that to be ascertained? One answer is given in Mr. G. R. Thompson's paper on the subject; but in addition to that, the writer uses another check. While he is observing the wire from each end of the base-line, two assistants stretch a thin strong piece of white cotton diagonally across the shaft at different levels, leaving a few inches in height between each cotton strip; one end, the further one, is fastened to a nail while the assistant holds the other end in his hands, strains it, and brings it quite close up to the wire, without, however, touching it. He holds it in this position while the surveyor is making his observation: the least movement in the wire will in this way be surely detected, and the instrumental obser-

vation is stopped until the wire is again at rest. Of course, the surveyor detects the lateral motion of the wire through his telescope, yet it is desirable to have two assistants, each stretching a piece of cotton.

In mines, where there is either an artificial or natural air-current so strong that the wire will not come to rest, the only way of stopping the air-current is by placing doors temporarily across the levels whence the current comes. Of course, this means a cessation of all work below, for the time being, which is justified by the importance of the survey connection.

The use of a brass plummet prevents all local magnetic attraction, and this latter will hardly ever be strong enough to deflect the steel wire from the perpendicular, when such a plummet is hanging from it.

Some 15 months ago, the writer's services were requested on one of the largest goldfields in the western part of New South Wales. On this mine, there are a score of shafts and many miles of levels and drives. At the 800-foot level of one shaft, there was a large quantity of ore in sight ready for treatment at the battery. The battery was close to another shaft, and there was no connection between the 800-foot levels of the two shafts, and between the two shafts there is a fairly deep creek. They are about 1,000 feet apart in a straight line, and are vertical. The question was where and how to make the shortest possible connection between the respective levels, which were by no means at the same horizon. The survey, which was carried out very much in the manner here described, and the requisite calculations, were finished within less than three weeks; and then it was pointed out to the manager that over one of the pins driven in the floor of one level he must make a perpendicular rise in the rock over-head of about 45 feet, and, by driving in the direction indicated by two pins in the roof of the other level for a distance of about 270 feet, the connection would be effected. The country rock through which this connection was made is very hard diorite, and it took more than seven months to complete the connection. One morning, the writer received a letter from the manager congratulating him on the successful connection, and stating that the survey was perfectly correct in every detail.

BROWN ALASKA COMPANY.

Mines and Smelters on Prince of Wales Island.

(By E. Jacobs.)

THE Brown Alaska Company, of New York, is making good progress with the development of its mines and the construction of its smelting works at Hadley, Prince of Wales Island, Southeast Alaska. The officers of this company are Mr. D. B. Brown, New York, president; Mr. E. H. Morrison, Fairfield, Washington, vice-president; Mr. H. H. Smith, New York, secretary and treasurer; Mr. I. Silverman, Hollis, Alaska, manager. Mr. Paul Johnson, the well-known smelter designer and builder, is general manager of the smelting works now in course of erection at Hadley, near the company's Mamie mine, and he has as his assistant Mr. Rudolf Liden,

who has also been his right hand at other smelters he has erected in different parts of North America.

Messrs. Moran Bros., of Seattle, were given the contract for the manufacture of the blast furnace, boilers, and other heavy plant and machinery required for the smelter, and they had most of the castings finished and other iron and steel work well in hand by the middle of August, so that by the time this is published they will probably have shipped the greater part of the plant they contracted to supply. The firm also sold the company a 350-ton barge, in which plant and material was to be conveyed from Seattle to the site of the works at Hadley.

In designing the smelter Mr. Johnson has provided for works of large capacity, but, as is customary when new enterprises are being launched, the preliminary equipment is on a smaller scale than it is intended shall eventually be attained. The water-jacketed blast furnace is 44 inches by 160 inches at tuyere line. It will have a daily treatment capacity of 400 to 450 tons, and will use hot blast supplied through a separate heating furnace, by a No. 8 Connersville blower having its own 150-h.p. direct-connected, Reynolds-Corliss girder-frame steam engine. The furnaces will be housed in a large steel frame furnace building of dimensions sufficiently large to leave room for more blast furnaces and a copper converter, which will be installed whenever it shall be advantageous to put them in. Mechanical feeders will feed the smelting charges to the furnace; each will be half the length of the furnace, and provision will be made for their distributing the charge as shall be required to produce best smelting results. Two locomotives and a number of specially-constructed slag trucks will handle the slag, which will be dumped hot instead of being "shotted," as at many reduction works. These trucks will each carry about five tons of slag. Other plant and machinery will include a battery of steam boilers, electric light engine and 250-light dynamo, a full equipment for the sampling mill, and all other necessary appliances.

Coke for smelting and coal for other purposes will be obtained from Ladysmith, Vancouver Island. It will be taken up in a 3,000-ton hull, and it is estimated that it can be delivered at the smelter at a total cost of about \$6 per ton. The product of the smelter will be shipped out on the return trips of this hull, so that an additional freight charge will thus be avoided. It is intended to have the smelter in operation by the first of January next.

Two tunnels have been run on the company's Mamie mine, near Hadley. The upper is about 100 feet above the lower, and they have opened up at these different levels a vein of ore 41 feet in width carrying an average of about six per cent. of copper and \$1 in gold and silver. From 12 to 15 feet of this ore body runs 7 to 8 per cent. copper. The ore is magnetite, with chalcopyrite and some iron pyrites.

The Mount Andrews mine, adjoining the Mamie and owned by a Scotch steel manufacturer, has contracted to supply the smelter with 100 tons of ore daily, this to have a minimum copper content of four per cent. The Cracker Jack, in the same neighbour-

hood, described as a big gold-quartz mine, with ore running \$40 to \$50 in gold per ton, will also send ore to the smelter—from 75 to 100 tons per diem—which will furnish the additional quantity of silica required to flux the ores from the other mines mentioned. As more custom ores come in, and the company's own mines become farther developed, to ensure a larger regular supply than is at present available, an enlarged treatment capacity will be provided for, the object of the company being to build up a big smelting business at Hadley.

INSPECTION OF STEAM BOILERS AND MACHINERY.

THERE have been some changes made recently in connection with a re-arrangement of the districts heretofore covered by the several provincial inspectors of steam boilers. The chief inspector of machinery, Mr. John Peck, whose headquarters are at New Westminster, will continue to examine and check all plans connected with construction work, it being usual for manufacturers to have these passed before proceeding with the manufacture of new boilers, etc., so as to obviate any necessity for alterations that might otherwise arise should it afterwards be found that the requirements of this department had not been met in construction. He will also test materials as heretofore; supervise the examination of engineers, whom the law provides must hold a provincial certificate of competency to entitle them to take charge of any steam plant operating in the Province; and generally superintend matters in this department. District A now includes New Westminster and east to Camp McKinney, including the Okanagan. It also takes in the northern part of Kootenay, from Nakusp northwards, and extends along the C. P. R. main line to the eastern boundary of the Province. This district is in charge of Inspector Thos. H. Goldie, with office at New Westminster. District B, which formerly included the Gulf Islands as well, is now restricted to Vancouver Island only, and of this Inspector Samuel Baxter is in charge, with office at Victoria. District C embraces the lower portion of the Kootenay and the Boundary, and is under Inspector Andrew Sutherland, newly appointed, and whose office is at Nelson. District D is a new district, taking in part of the territory hitherto included in the New Westminster and Victoria districts. Vancouver City, the West Coast of the Mainland, and the Gulf Islands, now constitute this district, of which Inspector George O. Madigan, lately removed from Nelson, has been given charge.

During September Chief Inspector Peck, assisted by Inspector Madigan held examinations of engineers at Greenwood, Nelson, Cranbrook, Fernie, Golden, Revelstoke and Vernon. Altogether some 75 candidates presented themselves for examination. Since the institution of these examinations for certificates of competency more than 700 candidates in all have been examined. The necessity for this insistence upon men proving themselves competent to take charge of steam boilers and machinery before being permitted

by law to do so is becoming more and more appreciated by owners and managers, who now recognize that the enforcement of the law in this respect considerably lessens the risk of loss, both of life and property, and are consequently more favourable disposed towards the carrying out of the statutory provisions than they were a year or two ago.

GOLD AND MANGANESE MINING IN BRITISH COLUMBIA.

WE are indebted to Mr. L. E. Dudley, U. S. Consul at Vancouver, for the following advance sheet of his consular report on the above subject to his Government:

"I have recently visited Atlin, British Columbia, and vicinity. This district is very rich in gold, and there are large hydraulic plants being established there, some of which are already producing gold in very considerable quantities. There is one dredging plant in process of construction; it is expected that it will be in operation before the close of the present season. This dredging plant is the first that I have seen building in the interior. It is quite a different operation from dredging work on the bars of rivers which I have seen heretofore. A large basin is excavated, in which the dredge is built. A ditch seven miles long brings water with which to fill the basin and float the dredge when completed. This will also furnish power to develop electricity to operate the machinery on the dredge. The advocates of the dredge proposition think it superior to the ordinary hydraulic work, for the earth that has been washed fills up the space immediately in the rear and is not thrown down into the stream, as is the case with the hydraulic companies. This dredge is expected to dig into the benches and make its way, leaving the ground very much as it found it, except that it will have extracted the gold.

"The Atlin gold is generally not as fine as is found in the beds of the streams in other districts. There are some individual miners who seem to be doing well in this district, but it does not appear to me to be a country in which men with small capital can do very much, but at the present time wages are very high. The ordinary pick-and-shovel men are paid \$3.50 per day and board, and their expenses into the country in the spring of the year and out again in the autumn are paid by their employers, and they can save nearly everything they earn if they are pleased to do so.

"Returning to Atlin after a visit to one of the creeks, I noticed a great bank, which at first seemed like snow; upon a little further examination I thought it was alkali, such as I have often seen in New Mexico and other places in the Southwest. On inquiry I found that it was manganese. One gentleman told me that he had investigated this great deposit and had dug down 15 feet through a pure body of manganese. It appears almost like potters' clay of the finest quality. I was assured that there is unlimited quantities of this mineral in the vicinity of Atlin, but the present freight

rates make it impossible to deliver this to the iron manufacturers at a profit. I have very little doubt that the time will soon come when this will be a valuable deposit, one to be developed at great profit; today it appears to be valueless. It is my opinion that some of our manufacturers of steel in the United States would do well to investigate this large deposit of manganese.

"There are new mines being discovered in the vicinity of Atlin constantly, and I believe that this will eventually become one of the largest mining districts on this coast, but, as I have previously said, it will require large capital for its development. At the present time there are five hydraulic propositions under development. Three of these are now sending out gold frequently, which I am informed is secured at a price which yields good profit on the investments. There are others under process of development that are expected to be in operation before the end of the present season or, at least, early next year."

COAL EXPORTATIONS AND TRADE.

THE output from the Crow's Nest collieries is being steadily increased, production this month having been exceptionally heavy. In August the output was 73,600 tons, of which 19,000 tons represented the coke output. The new ovens being built at Morrissey are rapidly nearing completion, fifty ovens there being now in commission.

Mr. Robert Jaffray, vice-president of the Crow's Nest Company, in a recent interview, stated that the company has built or is building 412 dwelling houses for the men and employees at the three collieries, viz., Coal Creek, Fernie, Michel and Morrissey, and in addition are now adding 46 buildings for mechanical and business purposes. At Michel and Morrissey there are 500 coke ovens in course of erection, 250 at each place. Between Fernie and Michel there are already 636 ovens in operation, so that when the new ovens are completed there will be 1,136 ovens going, with an aggregate capacity of from 1,200 to 1,500 tons of coke per day.

The *Fernie Free Press* publishes a statement that the C.P.R. has instituted a mining and metallurgical department for the purpose of developing coal properties to provide coal for its own consumption. The company's property near Banff, about five miles from the town and within the park reserve, is being steadily developed. Two seams of semi-bituminous coal are being opened and two seams of semi-anthracite are also thought to exist there. The coal is of good steaming quality and will be very useful for railway purposes. The seams dip at an angle of about 45 degrees.

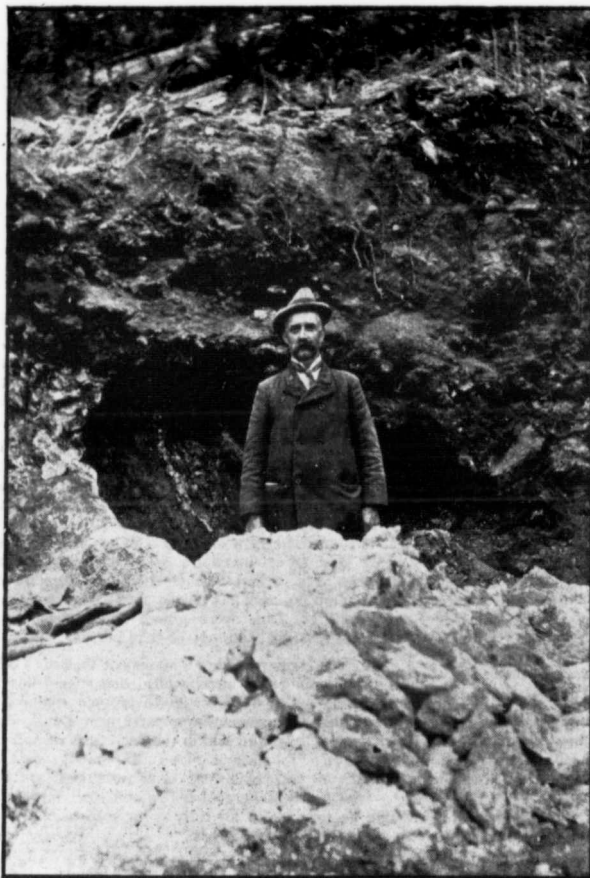
At the Coast collieries, mining operations are in full swing, production from the Wellington collieries being now maintained at the rate of about 1,000 tons a day, while every effort is being made to increase the coke output to keep pace with the local smelter demand. In the past week the No. 4 tunnel has been opened at Extension, necessitating the employment of over two hundred more miners. Messrs. Harrison, the coal and metal brokers of San Francisco, announce in a recent report that colonial grades of coal cannot compete in that market with the British Columbian product, as the steamer rates on the coast are now very low and are likely to remain so. The advanced cost of oil for fuel purposes has also limited competition from that quarter. In fact, it is thought that if the United States Congress allows coal to remain on the free list after January the 15th next, many manufacturers and others will discard oil fuel altogether in favour of coal.

BOUNDARY DISTRICT NOTES.

(From our own Correspondent.)

THE Hall Mining & Smelting Company, of Nelson, operating the Emma mine, in Summit Camp, Boundary district, has made contracts with the Trail and Greenwood smelters for the supply of ore from this mine. The large percentage of iron the ore carries makes it useful to the smelters for fluxing purposes.

MORRISON.—A shoot of fine-looking ore was met with in one of the stopes on the tunnel level of the Morrison mine, in Deadwood Camp, early last month. More than 1,000 tons



The recent new strike at the Lenora mine, Mt. Sicker, Manager Treggear standing in open cut.

of ore from the dump have been shipped to the Greenwood smelter, and now shipments are being made from the stopes in the mine.

WINNIPEG.—After a rather long suspension of work at the Winnipeg mine, in Wellington Camp, operations have been resumed, under the immediate direction of Mr. Richard Plewman. A favourable treatment rate has been obtained from the Montreal & Boston Copper Co.'s smelter, and shipments of ore are being made to that company's works at Boundary Falls.

WEST FORK OF KETTLE RIVER.—Mr. W. G. Gaunce, secretary of the Greenwood Board of Trade and of the Greenwood

branch of the Provincial Mining Association, has been in this district obtaining mineral specimens for exhibition at the October annual exposition in Spokane, Wash. The work of completing the wagon road up the West Fork is now in hand, the Provincial Government having obtained an appropriation for this purpose before the Legislature was dissolved last summer. It is probable that through communication suitable for loaded waggons will be established before the snow flies.

E. P. U. MINES.—The main shaft of the E. P. U. is down 85 feet and the vein in the bottom shows ten inches of quartz carrying free gold and tellurides and running about 5 oz. gold and 9 oz. silver to the ton. A drift at the 60-foot level has been run 45 feet south from the shaft, with the vein still strong in the face of the drive. The vein has been stripped for 300 feet north from the shaft. Good ore shows all along this open cut and an average sample taken from one place, where the vein is 18 inches wide, assayed 7 oz. gold. It has now been demonstrated that the shoot of pay ore opened up is at least 350 feet long, probably more, for it has not yet run out at either end. Shipments to date aggregate 104 tons, of an average gross value of rather better than \$100 per ton. Some very good ore is being taken out of the adjoining Goldfinch claim, under the same management as the E. P. U., and this property is also looking well. Only stoping is at present being done, but development will shortly be undertaken. Forty-four tons of ore have been shipped, most of this running between \$109 and \$110 per ton.

ELKHORN (Providence Camp.)—To the end of September about 240 tons of ore have been shipped from the Elkhorn, situate just outside the northern limits of the town of Greenwood. The main shaft is down 142 feet on the incline. At the 80-foot level a drift has been run easterly towards the adjoining Providence claim, about 150 feet, going into the hill, which rising rapidly gives a depth at the face of the drift of nearly 200 feet from the surface. Good ore has been obtained the full length of this drift, the pay shoot varying from 8 to 18 inches in width, the average being about 12 inches. Where widest the vein has yielded ore of good grade, but it is more compact and solid and generally runs higher where the width is about 12 inches. One hundred feet west of the main shaft and lower down the hill a shaft was sunk 25 feet, and the west drift at the 80-foot level will shortly connect with this and give better ventilation underground. Some of the best ore encountered came from this west drift. At the 140-foot level a drift west is in about 40 feet. The vein is much the same in size as at the upper level. The grade seems to be improving, though, for more native silver shows in the ore, which has given an average value of about \$100 per ton for that shipped to date. Sorting has been discontinued, the ore now going to the smelter at Boundary Falls just as it is extracted from the mine. Thirteen men are employed on the Elkhorn. Either a horse whim or a small steam hoist will shortly be substituted for the horse and whip which so far has served for hoisting purposes.

PROVIDENCE (Providence Camp.)—The main shaft on the Providence is down 188 feet on the incline, or about 140 feet vertical depth. At the 100-foot level a drift has been run 60 feet south and 280 feet north, following the vein which varies in width from six to eighteen inches of pay ore. Drifting to the north is being continued. At 176 feet another level has been opened out, drifting both north and south. The north drift is in 80 feet and the south 40 feet, and the

vein is being followed both ways, the pay shoot of ore maintaining its general average width and value. Shipments for three months ended September 30 total about 220 tons, making an aggregate output of 616 tons since the mine was opened. Hoisting is now done by steam power. There were 32 men on the payroll towards the end of September. The Providence declared a dividend of ten cents per share early in September, and it is expected that a similar return will be made to the shareholders monthly until the mine shall have been opened up sufficiently to admit of shipments being increased, after which the monthly dividends will be larger.

DEFIANCE AND GOLD BUG.—Prospecting work is in progress on both the Defiance and the Gold Bug, but no details have lately been obtained. Some specimens of rich ore have been shown in Greenwood, and it is stated that both claims look promising.

YMR DISTRICT.

(From our own Correspondent.)

THERE is a very apparent revival in the mining industry in this section. Its influence is felt in all directions in the community, the general trade being better than at any time heretofore, whilst there is more work offering than there are men to take it.

At the Ymir mine the crews stand at about 180. During the last couple of months the grade of ore treated has been considerably better than in the previous months, so that higher returns may be anticipated. In addition, some shipments have been made of crude ore from a rich deposit found in the east drift on the 500-foot level.

The property which has gone most ahead during the last few months has been the Wilcox mine, owned by the Broken Hill Mining and Development Company. Professor Lakes, of *Mines and Minerals*, published at Denver, Colorado, recently examined the mine and passed a most favourable report on it. The stampmill is steadily making good profits, while shipments of crude ore now in transit will make large additions to the profits. The control of the property has recently changed hands, the stock owned by Philip White, one of the original owners, having been purchased by Eastern capitalists, who were already large holders of treasury stock. White is reported to have received about \$50,000 for his interest.

Messrs. Wolfe and Dawault, who recently bonded the Gold Cup group here for \$15,000, have evidently decided to stay with the property, since they are now preparing to put in a ten-stamp mill, the machinery for which is now on its way here. The Gold Cup shaft is now down to the 100-foot level and drifts are in progress in both directions at that level. The ore is five feet wide at this depth and is reported to carry about \$18 to \$20 in gold, mostly free milling.

Herbert Porter, who has a lease on the Atlin mine, has just shipped a carload of ore which went \$27.40 per ton.

Mr. G. H. Barnhardt, late superintendent of the Ymir mine, is now working the Porto Rico mine under lease. The stamp mill is being repaired and is expected to be in working order about the 1st prox. He will also undertake the milling of ore from the rich spotted Horse group close by.

The Tamarac mine is now in operation again, a small force of men being at work on the deep level.

At the Hunter V. mine which has now been acquired by the B. C. Standard Company preparations are being made for maintaining a large output. The Hunter V. ore consists of a lime formation, which forms a valuable smelter flux, in addition to carrying fair gold and silver values. A contract has been let to B. C. Riblet & Co. of Nelson for the erection of an aerial tramway with a daily capacity of 600 tons per day. The ore lies in such shape that it can be carried out from the surface and the smelters are glad to take it free of smelting charge.

Mr. J. Laing Stocks, secretary of the Duncan United Mines, Ltd., has left Nelson for Alberta, where he will engage in ranching. Mr. Norman Carmichael, engineer in charge of the company's mines, is now also attending to the company's local office matters.

MINING IN THE "DRY BELT."

(By W. D. McGregor.)

WHILE not participating in the lead bounty "except indirectly," as my friend says, by paying the smelters \$1 to \$2 advance on freight and treatment or to show the lead miners that there is no discrimination against them as the smelter men might claim, nor as yet in the rush to Poplar Creek, this district is doing the most satisfactory work in its history. While shipments are small, some 1,000 tons, they are of very high grade, and in most cases sorted from ore broken in development work only. Much interest is, of course, taken in the new Parks process plant which is to be installed on Springer Creek below the Arlington. This is the outcome of a long series of experiments, and if anything near as successful as in the experimental plant should make a series of big dividend payers in the camp. The Arlington, Ottawa, Speculator, Black Prince and others having big bodies of low-grade sulphide ores are within a radius of a couple of miles of the location of the first mill.

On Ten-Mile Creek the Enterprise mine is still being worked under lease and producing to the satisfaction of all concerned. It is understood that the original lease has been extended and the holders are increasing the force from 40 to 60 miners. Among the shipments from the creek I notice two tons from development on the Westmount giving 140 ozs. returns, and two lots from the Highland Light and Victor a couple of tons giving 480 ozs. and 670 ozs. per ton respectively.

Springer Creek is busy, more attention being paid to the proving of the larger bodies of low-grade ore than in previous years. The Dayton, Cripple and Hampton are all taking out and sacking rich ore. The Myrtle will ship the cream of the ore broken in last winter's development as their sample of one and a half tons returned 200 ozs. per ton. They are planning for steady development and will make no attempt at taking out ore, as the vein where cross-cut on the 50-foot level shows to be 30 feet wide and all ore if worked on a large scale. The vein has been traced for 1,000 feet and shows as strong a cropping at furthest cut as at the main working. The owners seem well advised to sink to the 100-foot and explore on that level instead of picking out the rich streaks and leaving the balance waste. Another wide and strong ore body being exposed is the Combination, well down the creek.

Lemon Creek shows the greatest improvement of the year. The gold-bearing belt, crossing the North Fork of the creek and extending across the head waters, is the centre of interest. The development of the Violet-Kilo and of the Legal; the yield of the Meteor under lease, and the development on the Hansen and other groups near the head of the creek have been factors in the situation. The purchasers of the Hoodoo group have acquired the Howard Fraction group adjoining and are constructing a road and driving a 1,000 foot cross-cut tunnel to open their property at depth. Prospectors are coming in daily with rich gold specimens, and Tiger Creek, Mineral Creek and all the upper forks of Lemon Creek have strikes of more or less importance. Several of the older prospects have been largely improved by intelligent development.

THE PROVINCIAL MINING ASSOCIATION.

TO THE EDITOR:—At the request of the Executive Committee of this Association, I hand you copy of a resolution passed by them at their last meeting. In doing so, I beg to state emphatically that our objects are non-partizan in politics, but business ones, solely for the benefit of the mining industry. We desire, therefore, to elicit from each candidate for Parliamentary honours—whether Conservative, Liberal, Labour or Socialist—his views on the subject matters which engaged the attention of the 250 delegates to our last Convention in Victoria, wherewith they represented the ideas of some six thousand persons dependent upon the success of the mining industry and were certainly well posted on the several mining questions.

As an Association, we have no interest whatever in any party, but we look to the Government of the day, and the

Opposition of the day—which together form the House of Legislature—to care for the great and increasing industry of Mining.

We ask that the new Government and Opposition shall, whichever party they represent, not only refrain from retarding this great industry, but that the House when it meets will vigorously proceed to examine our suggestions and amend the laws which are proved to be injurious, when we say the mining industry will rapidly become the greatest revenue-producer, indirectly and directly, in the Province.

This Association includes all classes of the mining industry: bankers, lawyers, mine-owners, miners and muckers; black-smiths, engineers—civil, mechanical and electrical, timbermen, farmers and ranchers, smelter and refinery men, mine managers, clerks, teamsters, *et al*, whose political views include Conservatism, Liberalism, Industrialism, Socialism, and the rest of the political parties, large and small. All are, however, unanimously of the opinion that each party member elected shall be placed upon a stand hedged round by his public utterances, which it will be impossible for him to escape from as heretofore, for he will represent, not himself, but some distinct party which will feel the responsibility and see that he who is elected to represent it will do his duty, bearing in mind that the mining industry is a Provincial question and not a party one in any sense whatever.

I am, yours truly

JOHN KEEN,
President.

The following resolutions were passed:

Re MINERAL ACT.

That whereas under Section 9 of the Mineral Act it is provided amongst other things, that, subject to the proviso therein stated, no person or joint stock company shall be recognized as having any right or interest in or to any mineral claim or * * * water right * * * unless he or it shall have a free miner's certificate unexpired. And that on the expiration of a free miner's certificate the owner thereof shall absolutely forfeit all his rights and interests in or to any mineral claim * * * and water right which may be held or claimed by such owner of such expired free miner's certificate, unless such owner shall on or before the day following the expiration of such certificate obtain a new free miner's certificate:

Provided that this section shall not apply to mineral claims for which a Crown grant has been issued.

And whereas the above proviso fails to clearly protect the owners of water rights on Crown granted mineral claims, without the necessity of keeping up a free miner's certificate, which in the case of a company, costs \$100.00 per year:

And whereas the said provision ought to be amended so as to protect the said water rights on Crown granted mineral claims, as well as the mineral claim itself:

Be it resolved by the Executive Committee of the Provincial Mining Association of British Columbia, assembled at Rossland by special call of the President, that the said proviso in Section 9 of the Mineral Act ought to be amended by adding thereto the words: "Nor to any water right or record, mining ditch, drain, tunnel or flume, held or used, or intended to be held or used, upon or in connection with the development of any such claims."

Re WATER CLAUSES CONSOLIDATION ACT.

That whereas the Water Clauses Consolidation Act, 1897 (R. S. B. C., Chap. 100), has been found to be ambiguous, defective and inequitable in many respects, and requires amendment speedily in the following particulars:

(a.) To remove the ambiguity created by the definition of "unrecorded water" in Section 2 when read in connection with Section 18:

(b.) To repeal Sub-section 2 (b) when the applicant is the owner of a Crown granted mineral claim and the water is to be used to develop such claim:

(c.) To require applicants for water to advertise their application in some local newspaper in addition to posting the notices required by the Act:

(d.) To abolish the existing dual jurisdiction conferred upon Gold Commissioners and Assistant Land Commissioners, and to vest the sole jurisdiction in the Gold Commissioner of each district:

(e.) To provide for the payment of the costs of successful party or parties, in disputed cases, by the unsuccessful party or parties:

(f.) To amend the provisions of the Act relating to Power Companies, so as to remove several doubts which exist:

(g.) To amend the heading and arrangement of Part VI. of the Act, so as to remove certain glaring anomalies from it:

Be it therefore resolved by the Executive Committee of the Provincial Mining Association of British Columbia, assembled at Rossland by special call of the President, that the said Water Clauses Consolidation Act, 1897, and amending Acts require careful revision and amendment, and that the said Act ought to be promptly amended as above set forth:

It was proposed in amendment by Mr. Taylor, K.C., that the resolution should be amended as follows:—

1. By striking out paragraphs (a), (c) and (e) thereof:

2. By providing that in Section 23 of the Water Clauses Consolidation Act the Gold Commissioner shall determine the questions covered by the wording of the last three lines of said section, at the instance of any person or company interested in any water record or water rights respecting the same brook, creek, stream, river, or lake, whether said records or water rights were obtained before or after the record complained against, or by any person or company applying for water on the said brook, creek, stream, river or lake:

Re ASSESSMENT ACT—TAXES ON CROWN GRANTED CLAIMS.

Whereas, under the provisions of the Assessment Act Amendment Act, 1903, a tax of 25 cents for every acre and fractional part of an acre of land conveyed by a Crown grant of a mineral claim is directed to be levied, payable on the 30th day of June immediately after the date of the Crown grant, and thereafter on the 30th day of June in each year:

And whereas, under the terms of this Statute taxes for a whole year at the rate aforesaid are leviable and must be paid, even in cases where the Crown grant has issued only a day or two before the said 30th day of June in any year and without taking into account the assessment work (or fees in lieu thereof) performed or paid:

And whereas the said provision inflicts a great hardship upon prospectors and others interested in the development of mineral claims and in obtaining title thereto:

Therefore, be it resolved, that the said Statute ought to be so amended as to make the said tax apportionable, and that no person should be taxed for any period of time prior to the date of the Crown grant:

Re COAL LANDS.

Resolved, that this Executive of the Provincial Mining Association of British Columbia urge such Government as may be in power after the pending Provincial Elections to formulate without delay a policy for the opening up and development of all coal lands:

And further resolved, that this Executive suggests that, with respect to coal lands in South East Kootenay (not affected by any valid existing legal claim or right of any person or company) the Government retain the title to all such, and develop the coal measures therein contained by a system of leasing to actual operators, such leases to contain stringent conditions for proper equipment, development and continuous operation, and for the full protection of the British Columbia consumers of coal and coke as to supply and price:

And further resolved, that the policy above suggested be extended to all coal and petroleum lands of the Province.

Senator Levi Ankeny, Senator A. G. Foster, Congressman W. J. Jones, and several others, made up a party from across the line who, after visiting the Northport smelter, were shown through the Le Roi mine, Rossland, by the general manager, Mr. S. F. Parrish. At Northport the visitors were entertained at dinner by the superintendent of the smelter, Mr. E. J. Wilson.

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CAMPANY MEETINGS AND REPORTS.

HASTINGS EXPLORATION SYNDICATE.

AT the sixth ordinary general meeting of shareholders held in London last month, the chairman in moving the adoption of the report and accounts, said: "The statements before you contains as good a summary of the situation as it is possible for me to give. The pessimistic views expressed by Mr. Leslie Hill upon taking charge of your gold mining properties a year ago, although quite justifiable at the time, have, I am pleased to say, not been altogether realized; for although he reported quite truly that the Arlington Mine appeared at that time to be gutted, and that also by wasteful treatment of the remarkably rich ore extracted we had lost much of the profit we should have derived from it, yet you will see by the accounts before you that, thanks to Mr. Leslie Hill's wise and careful administration, we stand in a better position to-day than we did a year ago.

"By shutting down the mill and carefully selecting the ore best suited for the smelter, by a judicious system of prospecting what appeared to be an exhausted mine, and by strict economy in administration, he has won for us over \$44,000 of net smelter returns, and by letting out on tribute a prospect discovered when I last visited the property a further \$22,000 has been won by the lessor, 25 per cent. of which falls into our treasury without any risk or expenditure on our part. The working expenses in British Columbia have been considerably curtailed, by largely reducing the number of men employed at the mine, so that as a result the total expenditure is more than covered by the receipts, which in itself is a matter for no small congratulation by the shareholders, and one for which Mr. Hill deserves our best thanks. For his views as to the future prospects before you I cannot do better than refer you to his own words, which are embodied in our report.

"I regret that it has not been possible as yet to deal with the Syndicate's interest in the Blairmore Coal Lands, of which Mr. Hill, who is an expert in such matters, speaks most highly. The Board, however, are satisfied that you have a property that it would be most foolish to sacrifice, and hope that when the financial cloud that has of late been hanging over the United States shall have disappeared, some profitable means of dealing with your holding will present itself."

NORTHWESTERN DEVELOPMENT SYNDICATE.

A meeting of shareholders was held during the month at Houghton, Michigan, to receive a report of the condition of the undertaking. The treasurer presented the following statement of accounts:—

RECEIPTS.

Balance, October 20	\$18,641 87
Mine yield to August 27	5,400 05
Loans from banks	12,500 00
Sales of stock, etc	43,758 56
Notes for stock	\$16,640 00
Outstanding	6,205 35
Paid on notes	10,434 65
Total	\$60,763 03

DISBURSEMENTS.

Labour and supplies	\$30,340 50
Property payments	37,000 00
Loans repaid	8,500 00
Goldworthy personal	360 71
Brock personal	750 00
Floeter personal	220 05
Attorney fees	704 45
Machinery account	1,565 20
Sundry expense	2,265 03
On hand September 3	30 00
Total	\$60,763 03

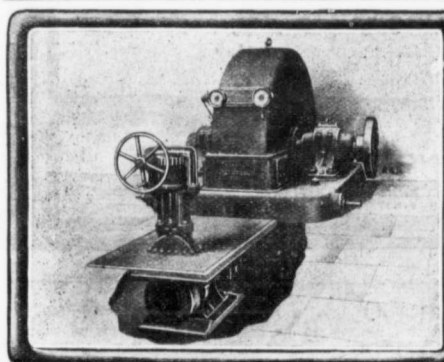
It was stated there was an indebtedness for which the company is liable to the extent of \$14,000, of which \$5,000 is owed in the copper country for borrowed money and \$9,000 in British Columbia for labour. It was further stated that eight claims, exclusive of the Goldfinch, held under bonds, which matured in December, represent an investment of \$130,000. The vice-president and other members of the executive board spoke in most condemnatory terms of the manner in which the late manager, Mr. Brock, had expended the company's funds, by erecting mills and building hotels and stores before sufficient ore had been developed in the mine to justify such outlays. It was also charged that Mr. Brock had failed to furnish the directors with precise accounts of moneys expended by him. Mr. A. F. Rossenberger said that if he would be given absolute assurance of a thoroughly complete business management, made up of people whom he approved, he would put forth his best efforts to save the investment of the stockholders. He thought that with proper assurances about the management, he would be able to secure reasonable terms from the owners, by which the stockholders would be able to furnish the funds necessary for payments and development in small monthly installments, thus arrang-

ing matters so there would not be a heavy drain on any one at any time. He declared the property to be a network of free milling gold veins and what he represented it to be two years ago—a big low-grade free-milling prospect. He recommended a systematic prospecting.

At Mr. Rossenberger's suggestion a committee was appointed to investigate, and report on the condition of the mine.

NORTHWEST COAL AND COKE CO.

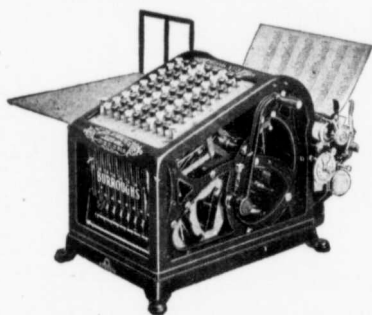
An extraordinary general meeting of the Northwest Coal & Coke Company was held yesterday afternoon at three o'clock for the purpose of increasing the capital stock of the company from \$3,000,000 to \$10,000,000, and the number of directors from six to eleven, and of authorizing the directors to issue debentures of the company to the amount of \$1,500,000. There was a good attendance of the shareholders at the meeting, and a resolution embodying the above provisions was passed unanimously. The new directors are: Colonel Turnbull, H. Lodge, Colonel Brend, R. Furfur and G. Ellis, all of London, Eng. A cablegram was received during the meeting from L. Ernst, announcing the terms of certain arrangements made with the new English shareholders which gave the local shareholders much satisfaction.



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