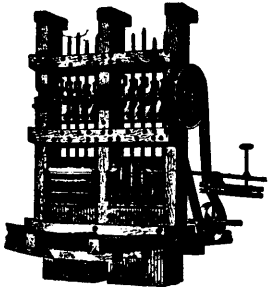


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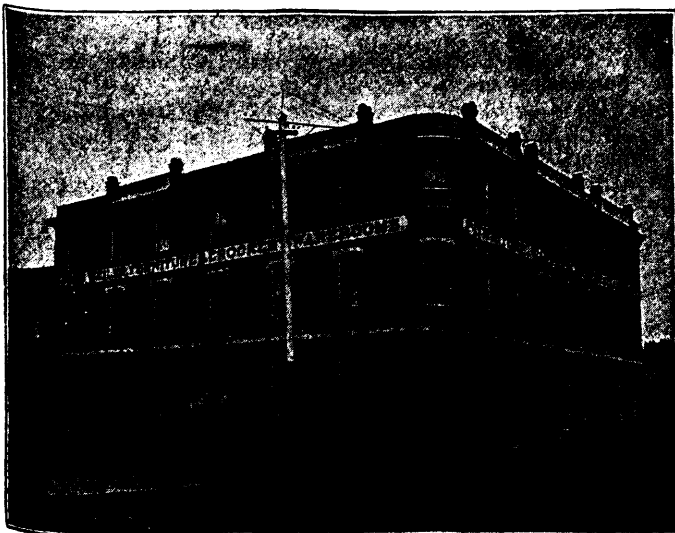
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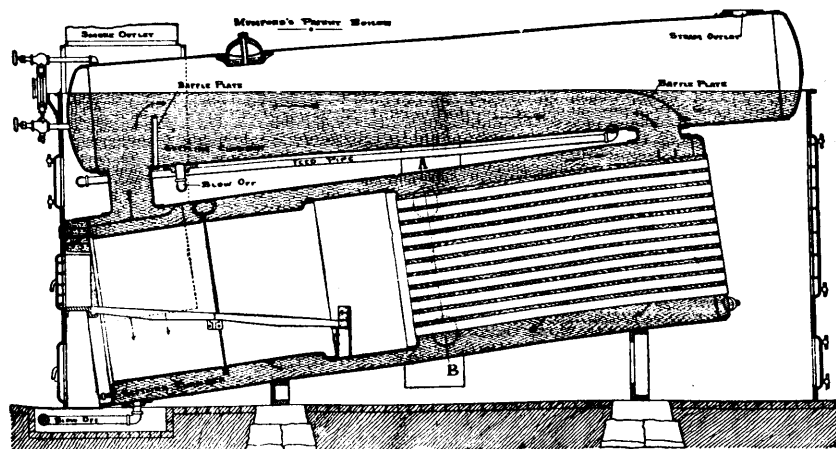
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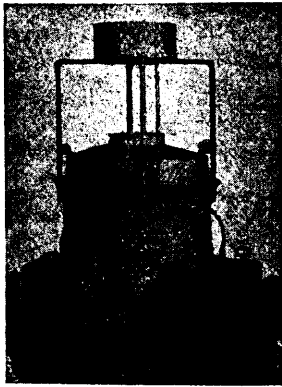
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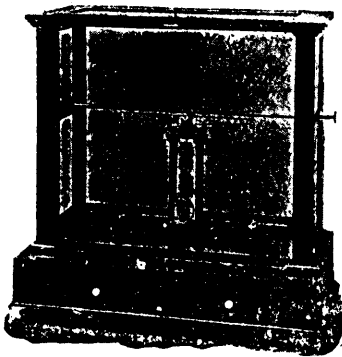
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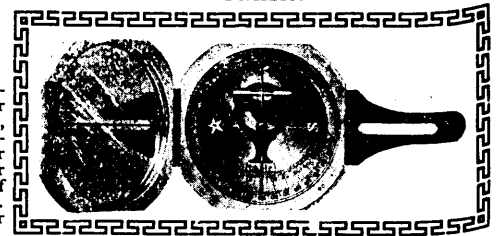
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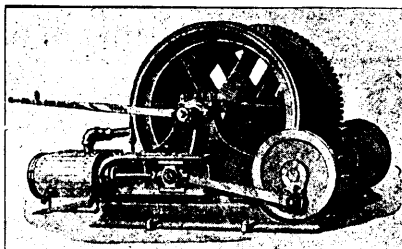
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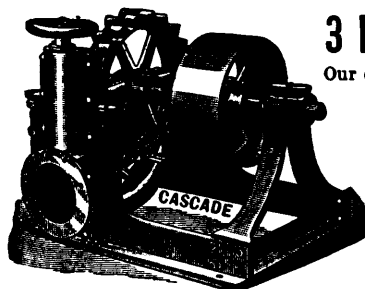
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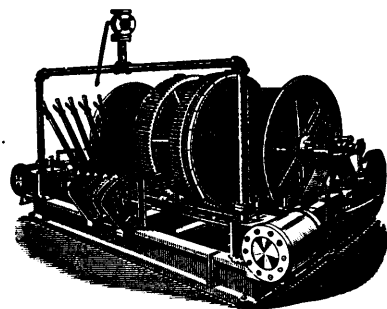
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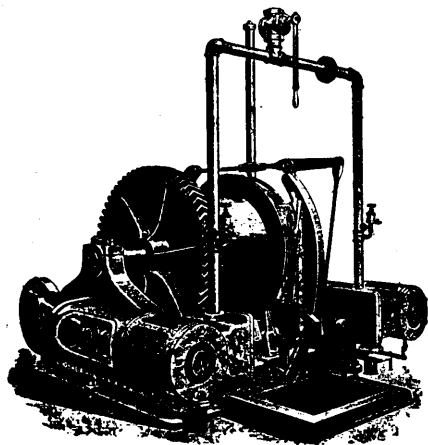
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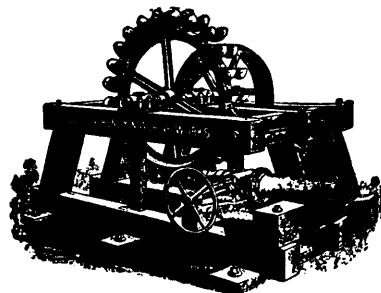
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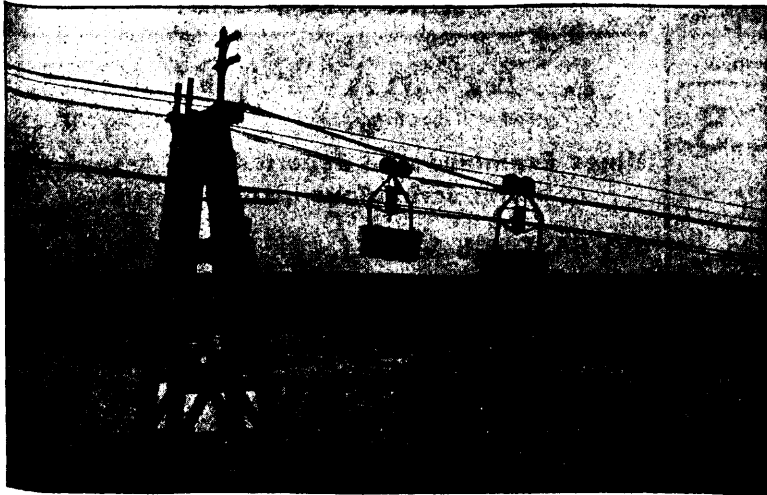
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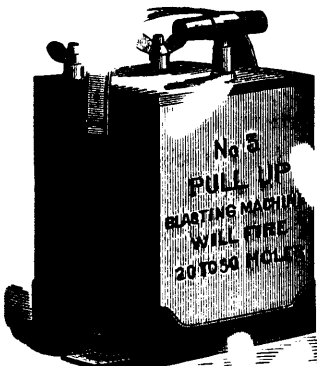
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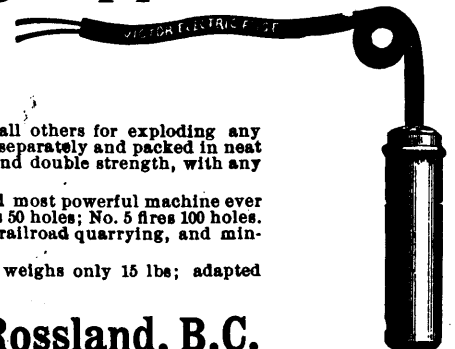
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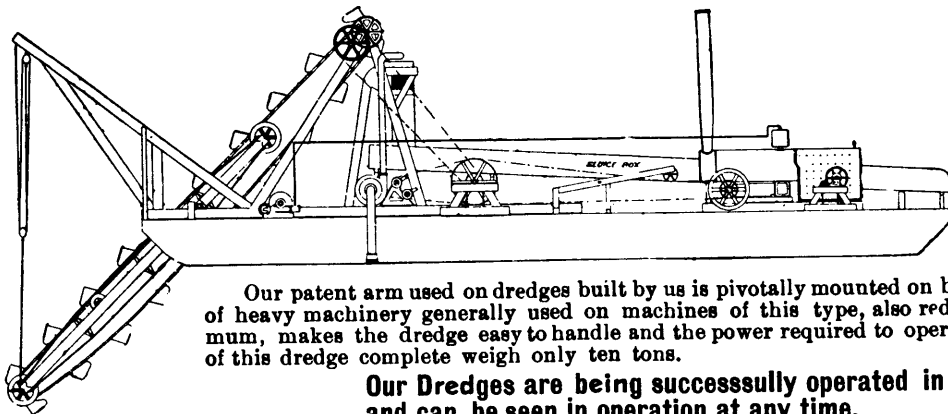
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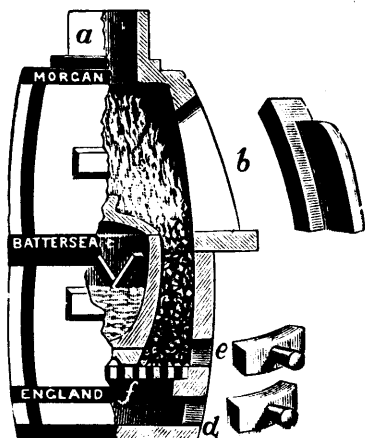
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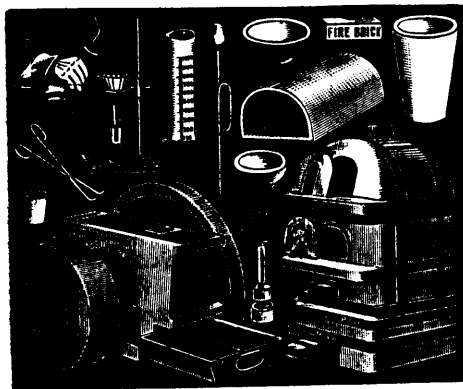
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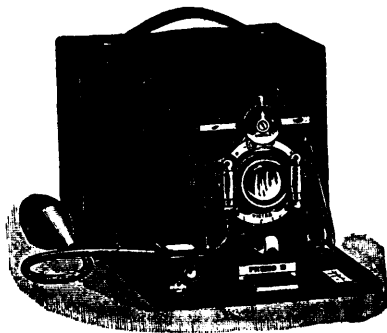
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THE MONTH.

LABOUR Day, which was observed this year with more than usual fervour, by the provincial trades unions has been the means once again of bringing prominently before the public the question of Mongolian immigration and competition in the British Columbia labour market. Of the speeches made on the subject lately the most noteworthy was an address delivered in Nanaimo by the Attorney-General, Mr. Martin, who allowed his listeners to understand that he would do his utmost to protect the white worker against competition of this character and assured them that the present law prohibiting the employment of Chinese in coal mines would be strictly enforced. Mr. Martin, of course, was at the time aware that the constitutionality of the statute he referred to had been challenged and that the Judicial Committee of the Privy Council would shortly render a decision upon this important point, and it is therefore to be presumed that in making the statement accredited to him the Attorney-General merely seized this opportunity of officially intimating the position his colleagues and himself were prepared to assume with reference to a general policy of Mongolian restriction or even exclusion. At the rapid rate at which our white population is increasing the pressing necessity for the enactment of measures for regulating more strictly than at present the influx of Chinese into the country is becoming sufficiently manifest, and a government failing to recognize that such a need existed would not be in accord with the sentiments of the masses of the people. But it is one thing to confront a problem and quite another to find the correct solution thereto, and assuming that the Privy Council determine that the British Columbia statute prohibiting the employment of Chinese in coal mines is constitutional are we therefore to suppose that the same means will be adopted to exclude Mongolians from

working at all other callings? If not, only a small proportion of the white working classes will be afforded protection, and manual labourers in Cariboo and other districts of the Province where Chinese competition is keenly felt will have just cause for demanding that their interests should be, at least, as adequately regarded. Were this appeal, which would certainly have a just foundation, recognized, it would to all intents and purposes mean the absolute exclusion of Chinese. Such a course would, however, be in distinct opposition to that policy of which the Empire is so justly proud, and furthermore, might raise international difficulties of a momentous character. Again the imposition by the Dominion of a higher per capita tax on Chinese entering the country would necessarily have to be almost prohibitively heavy to be effectual. This plan was followed, it is true, by the Australasian colonies and produced the desired effect, but meanwhile it may be asked if a more beneficial way of dealing with the matter could not be devised. At the present stage of our development the Chinaman is in certain lines of employment a convenient member of society, and here his exclusion would be possibly looked upon as an evil. To possess, therefore, the advantages of coolie labour without injury to the manual workers in the Province is the point to be arrived at. Is it possible to attain this object by a government regulation of wages earnable by Chinese for certain classes of labour? If, for example merely, a Chinaman can earn but twenty-five cents a day in Hong Kong, allowing for difference in cost of subsistence here, would it not be practicable to enact that he could not legally be paid more than thirty cents in British Columbia? The effect of such legislation would at once, we believe, tend to check Chinese immigration by doing away with the profits of labour contractors in China and at the same time a limited number of Chinese would continue to reside in Canada for the simple reason that even under these restrictions they would be better off here than in their own country.

It has long been a source of much disappointment and regret to residents of Vancouver Island that better results have not followed from mining enterprise in the Alberni and other districts of the west coast, and that whilst West Kootenay in the last few years has undergone so remarkable a development little, if any, advance has been made during the same period in the opening up of mine properties in the Island districts. To those improperly informed on local and varying conditions it would doubtless at once appear as a simple and obvious reason accounting for this state of affairs that Nature had more richly endowed the one part of the country with mineral wealth than the other; but such an explanation would be very wide of the mark, and although we do not propose, and it would be clearly absurd to attempt to draw comparison, it can yet be said that the surface indications, particularly of copper bearing ore, in the Alberni and

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ON
VANCOUVER
ISLAND.

Clayoquot districts are as fine as any to be met with in other sections of the Province. But if this is the case, that outside capital should have been already invested to a much greater extent in districts such as Boundary Creek in South Yale, or even Bridge River in East Lillooet, not nearly so advantageously situated as regards shipping and other facilities is a matter for which people of Coast residence are at a loss to account, and this, together with the unfortunate mine fiascos which have from time to time occurred in the Alberni district, due too frequently to incapable management, has had the effect of discouraging those even who have heretofore been most sanguine concerning the future of lode mining on the west coast of the Island. It is, therefore, with some degree of satisfaction that while offering what we believe to be a true explanation of the past inactivity that has prevailed in Alberni district, we can at the same time show excellent grounds for believing that the outlook is now decidedly more favorable than at any previous period. The present flourishing condition of the mining industry in Roseland and the Slocan is undoubtedly due primarily to the class of trained and experienced prospectors who bred in the mining camps of the Western States, brought their intelligence and knowledge to bear in the exploration of Southern British Columbia. These men having succeeded in discovering promising mineral prospects, proceeded to develop their finds as far as their means would allow, and then in the majority of cases were able to sufficiently interest wealthy countrymen of their own to provide the necessary capital to open up the prospects and place them upon the footing of profit-yielding mines. A considerable number of mines thus developed are still in American hands, but gradually the best properties are being acquired by English companies and syndicates with larger available capital wherewith to operate upon a yet greater scale. This briefly is the history of the progress and prosperity of the West Kootenay mining industry. Year by year the returns have increased at a ratio that can only be regarded as phenomenal, and all this is in the first instance attributable to, not Canadian, but to American enterprise. The Island mining districts on the other hand have been explored, generally speaking, only in amateur fashion, by men having absolutely no mineralogical or stratigraphical knowledge; when claims have been staked out it has apparently been the object of the locator to acquire territory rather than valuable mineral, and the whole country side has been consequently tied up, the owners having had, it is to be presumed, no troublesome qualms in committing perjury when it became necessary to swear that the legal work requirements had been faithfully fulfilled. Again, as we have already mentioned, conspicuous instances of mismanagement have been responsible for the respective failures which have so unfortunately been the result of the few cases when mining has been attempted on any sort of scale both by small Victoria syndicates and the one or two more pretentious concerns promoted abroad. Under such circumstances it is surely of little wonder that this undoubtedly promising district has received so many serious set-backs, and should be so suspiciously regarded by British Columbians generally. Meanwhile, the fact that the Americans, both prospectors and speculators, are beginning to be attracted by the opportunities for successful mining offered on the West Coast, may be accepted as a most happy augury, and it is indeed already thus recognized by claim

owners and mining men themselves in these districts. Opinion on this point being well expressed by a prominent Alberni engineer, who thus writes to this journal: "We are still in the background, so far as actual mining is concerned, but our people comfort themselves with the assurance that Kootenay was in this embryonic stage for several years, until American speculators came on the scene, and carried on practical mining work, with practical results. This is our position to-day. We are pretty well through with kiteflying, and are now on with the riddling process. The indiscriminate bonding business is nearly played out. English and Scotch capitalists are sick of it, and one English company has apparently succumbed to its influence. A better system of inspection will inevitably result. The cute Yankee is with us and he is here to stay, he takes his choice of "prospects and territory" offering, and at reasonable figures. The miners have confidence in him, for though he drives a hard bargain, he means business and pays promptly." Without in any way desiring to disparage Canadian and British enterprise in the districts of the west coast of the Island and admittedly hitherto it has not been rewarded with success—although we are glad to note that at the present time more than one reputable company is now operating in these districts under properly skilled management—it is necessary nevertheless to recognize the somewhat deplorable fact that the west coast of Vancouver Island depends on the assistance of American operators for its future importance as a mining field, and that aid is at last to be accorded.

That in the interests of the country it will be found necessary to re-organize the Canadian Civil Service upon a more satisfactory system than that at present in vogue, seems to us THE CIVIL SERVICE IN CANADA. extremely probable, for although morals is decidedly higher in this country than in the United States, so long as civil service appointments in the Dominion may be held out by politicians as rewards or bribes to their personal supporters irrespective of fitness or ability, or so long as men employed in the public service have no surer guarantee of the permanency of their positions than the possible return of the same political party to power as the result of each successive general election, then not only will the efficiency of the civil service itself be lower than it might otherwise be, but there will always be the constant menace to public interests by the opportunity thus afforded for the exercise of gross abuse of political power and the introduction of all the worst forms of favoritism. That we have been generally speaking singularly free from political vices of this description in Canada in the past may be at once thankfully admitted, but this certainly cannot be advanced as an argument in defence of our present civil service system, nor does it afford any promise for the future; indeed, while we have proudly, and at times somewhat pharisaically, contrasted the probity of public men generally in the Dominion with the corrupt governmental officialdom of the States, we have invariably omitted to take into consideration certain economic factors which render these practices so much more conspicuous, and yet safer and easier of accomplishment in the country of the larger and more complex population. But a point of decided significance is that the deplorable condition of a corrupt and inefficient civil service in the

United States is ascribable to a system which we have more or less nearly imitated in Canada, and if other reasons were wanting this should almost be sufficient warrant to demand for the institution of our public service upon a less questionable basis. We would therefore desire to be allowed to point out to the present Government of British Columbia the honour that would certainly be given to the Administration first instituting a reform in this direction, and the benefit the Province would derive if its civil service were modelled somewhat after the admirable system which has proved so successful in Great Britain. Competitive examinations not only insure the filling of public posts of trust and responsibility by the most capable men, but they practically preclude, or at any rate greatly lessen the practice of political favoritism, and like evils. In the mining districts especially it is necessary that officials holding positions under Government should have received suitable educations to fit them for their duties, and no better testimony in support of this contention could be advanced than that afforded by some of the wild and unscientific statements that may be found contained in the published reports from Gold Commissioners and Mining Recorders to the Minister of Mines. On more than one occasion, too, extracts from these reports have appeared in company prospectuses of exceedingly dubious semblance for the purpose of bolstering up wild-cat concerns, and it is to be feared that unintentional but grave wrong has resulted therefrom. With a civil service, an entrance to which could only be gained by special ability displayed under conditions of competition; the payment of adequate salaries and the creation of a pension fund for the reward of long and meritorious service, it would be rare indeed when disgraceful charges would be preferred, as they lately have been, against members of the Canadian Civil Service of dishonesty or mal-administration of their offices.

The formation in London last month of the Kootenay Railway and Navigation Co., Limited, with an authorized capital of £500,000, and a five per cent. debenture issue of £480,000 will

A PROMISING LONDON FLOTATION AT LAST. represent the heaviest investment of British capital as yet made in a railroad and steamship navigation company enterprise in this Province. The directors include Mr. Lubbock, the well-known London banker and director of the Bank of British North America; Mr. Henry William Foster, M.P., another well-known English capitalist, and as the bankers of the undertaking are Messrs. Glynn, Mills, Currie & Co., and the solicitors, Messrs. Kenshaw, Kekewich & Co., and Freshfield and Williams are amongst the most noted and best reputed in the British metropolis, there should be little doubt of the success of the promoters of the new company in securing their capital.

The company is to acquire the Kaslo & Slocan Railroad and also the undertaking of the International Navigation and Trading Co., Limited, which runs connecting steamers on Kootenay Lake. It will also take over and construct the Nelson & Bedlington Railroad to the international boundary and the connecting line on the American side to Bonner's Ferry, where the line will join the Great Northern system. The Kaslo & Slocan Railroad runs over a course of thirty miles and is stated to be now making

profits of \$93,000—or about £19,000 a year—and it is estimated that the two new connecting lines of 53½ miles in length that are to be constructed should realise £25,000 a year of additional profit, as they will open up a further stretch of fine mineral country, and connect not only as above stated, with the Great Northern at Bonner's Ferry, but also on the Northern Pacific at Sand Point. The steamers and a land ownership of 220,000 acres in the Slocan country should also yield additional profits.

Having regard to these facts, it would seem that the issue of £480,000 five per cent. debentures, as a first charge on the joint undertaking and all its profits, should be a safe enough investment, as profit-earning power of the concern should certainly yield far more than the £24,000 of interest required on the debentures. As regards the ordinary stock of the company, the investment is open of course to more risk, as in respect of the system generally, there will be determined competition, no doubt, from the C.P.R., which by its Nakusp and Slocan branch already very keenly opposes the Kaslo & Slocan undertaking. The payment of an average five or six per cent. dividend on the £500,000 of ordinary stock of the Kootenay Railway and Navigation Co., is therefore less assured than the payment of the interest on the debenture issue, though it represents a fair speculative investment, which, whilst it cannot be reckoned as an absolutely safe five or six per cent. payer as ordinary stock, may yield even more thereon, if the new country that is to be opened by the railroad should prove as good as large numbers of South Kootenay men anticipate. The line will be worked by a strong management in the persons of the Great Northern Railroad Company's directorate and managing staff of this and the fact that the promotion is in good and capable hands, and the undertaking one that will take over successful profit earning ventures distinguish the endeavor very markedly from many of the B.C. joint-stock ventures recently floated in London.

In a speech to his constituents at Greenwood City the other day, Mr. Hewitt Bostock, M.P., referring to the defeat of the Kettle River Railway Bill at the last session of the Federal Parliament, expressed very strongly his opinion that notwithstanding the fact that by the extension of the Columbia & Western Railway the Boundary Creek District would now ere long enjoy the advantages of rail transportation facilities, the lack of which had so long retarded the development of this rich mineral area, still mine-owners here would fail to experience the full benefit of improved conditions in this respect until the time arrived when rates would be regulated by the wholesome restrictions of competition following the introduction of a rival system into the district. While recognizing that the Canadian Pacific Company has of late adopted a very much more liberal, and therefore in our judgment a wiser, policy in regard to the operation of the Kootenay sections of this road, few we imagine, directly interested in the question will be disposed to quarrel with the position assumed by Mr. Bostock. As we have before pointed out the engineering difficulties of the Columbia & Western construction work and the consequent costly nature of the undertaking may and very likely will be used as an argument by the railway company in defending their right to impose a high scale of hauling charges should any appeal be made for government interference or regulation, and although, of course, no one

will desire that the promoters of the enterprise should receive less than a fair and legitimate return from the earnings of the railway it is nevertheless somewhat disturbing to have no positive assurance that a check may be successfully exercised if needful for the protection of the public against the imposition of unduly heavy charges over this line. A further cause of uneasiness—but perhaps less well-founded—is the possibility that the C. P. R. having now by the acquisition of the Trail smelter identified the company with this industry in Southern British Columbia, will be inclined to place obstructions in the way of private or independent smelting enterprise in the Boundary Creek district. And it is argued that even if the railway company establish reduction works in the district itself and charged the same rates for the treatment of copper ore as are paid by the Rosslund mine-owners at the Trail smelter, many of the larger properties on Boundary Creek if operated would be worked upon a very small margin of profit, because in a large majority of cases here copper constitutes the more valuable contents of the ores which differ in this particular from that of the Rosslund camp, where gold values predominate and where consequently the fixed treatment charge of \$7 per ton is rarely exceeded. While not ourselves inclined to think that the C. P. R. will pursue a policy which would be suicidal to its own interests we still hold that under the peculiar circumstances of the case, competition alone provides the necessary guarantee that the Boundary Creek district will receive absolutely fair treatment at the hands of the railway company. Mr. Corbin has now, by the recent disposal of his interests in the Spokane Falls & Northern line, ample funds at his command to open a new line of railway into this section, and it has already been announced that application for charter rights will be again made to the Federal Parliament. It is therefore to be hoped that now the facts of the case are better understood the mistake of last session will not be repeated. Meanwhile some idea of the obstacles heretofore in the way of progress in the Boundary Creek district, may be gathered from the statement that a New York mining company owning a valuable property in this camp were recently called upon to pay out over three thousand dollars in haulage charges on seventy tons of machinery which was conveyed on waggons for a distance of between sixty and seventy miles from Marcus, the railway terminal to the property in question. Other cases have been brought to our attention were freight rates on such material as fire-brick, actually exceeded by nearly double the first cost of the article.

English correspondents who make flying visits to British Columbia in the interest of well-known papers, don't seem to take very much trouble in seeking readily available answers to points which they raise in their communications sent home. Thus Mr. Julius Price, who recently wired to the Illustrated London News an account of his visit to Klondike via B.C., expresses much surprise at finding that Rosslund and other mine towns in the Province are, despite the risks of fire, wood-built, though the home supply of building stone is superabundant. It never seems to have occurred to Mr. Price to ascertain the reason for this fact. Had he enquired anyone, we think, could have told him that the cost of working stone and building with it is usually several times greater than that of building in wood, so that it is only when

a place in this Province attains a very substantial and permanent measure of growth with a considerable amount of capital available for the erection of more costly buildings, that a beginning is made of rebuilding one of our young cities, in whole or in part of brick and stone. The first decennium of the life of a B.C. "City" is therefore, with due regard to economic considerations, marked by building in wood rather than stone. Rosslund's stone age will, however,—now that the city's permanent future is so well assured—begin no doubt very shortly, in fact it is well advanced already, as regards property in the business sections. But so long as pleasant and attractive homes, capable of habitation for from twenty-five to thirty or forty years at the cost of occasional repairs only, can be cheaply built of the celebrated fir and cedar of the Province, private residences of brick or stone will continue to be the exception rather than the rule in the towns of the Province. Quarrying in British Columbia will come in due course, but not yet, though our home supplies of marble, granite, freestone and other like building material are so rich as to be virtually inexhaustible. In the meantime, however, the increasing demand for good building stone in business centres should make profitable efficient work done at several of the best quarries.

At a London dinner given by Mr. Morris Catton, the notable, if not notorious Klondike company promoter, Sir James Grant, K.C.M.G., of Ottawa, made, as the chief guest of the evening an extraordinary "speech," full of most misleading statements and figures concerning the season's output of the Klondike gold fields. It would almost seem, as if for the nonce, Sir James had unwittingly caught a romancing contagion from his host, who will be remembered by our readers, as a gentleman, who, amongst many other remarkably false assertions concerning Klondike travelling and Yukon opportunities once compared boating on the Yukon rivers, rapids and lakes with canoe picnic excursions up and down the sunny Thames in summer in the fair district that adjoins the old university town of Oxford. Sir James, at any rate, delighted his host by nearly quadrupling the season's gold yield of the Yukon, estimating this at no less than \$40,000,000. He added that this big figure would be far surpassed in the next few years, and declared that Dawson would become the Johannesburg of North America. The last complimentary reference, though doubtless well intended, was, however, of very doubtful omen, as the latest accounts from Johannesburg describe the South African city as the temporary abode of thousands of half-starving Europeans and Americans, who would gladly get away if they could, the state of Johannesburg, notwithstanding the recent record gold yields of the Transvaal being one of intense depression. Speeches like that of Sir James Grant, who spoke of course from the standpoint of an Eastern Canadian, who has never been within several thousand miles of the Yukon, do far more harm than good. It was unfortunate, too, that so distinguished a Canadian was induced to lend, by implication at least, the weight of his authority in support of Mr. Morris Catton and his very dubious Klondike and Western Ontario company promotions. No doubt Sir James asserted what he believed to be correct, but it is a pity he did not inform himself more accurately concerning his subject before attempting to discuss it.

It is, we suppose, because up to the present time dredging for gold has relatively speaking received so little attention from mining men in British Columbia that the Provincial laws dealing with this branch of industry are so lax and inadequate. But whatever the reason it is certainly high time that radical and intelligent changes should be made in the law as it now stands and particularly in regard to the conditions now in force and decidedly open to objection governing the granting of leases. Reasonable cause for complaint is also based upon the difficulty of procuring definite information at headquarters concerning the location of leases granted therefrom and the availability of certain areas for application. In the Department of Mines at Victoria, the only record kept of dredging leases is a register in which every kind and description of lease granted by Government is entered without any attempt at classification, and to the enquirer fresh from a country like New Zealand where these matters are more systematically looked after and such necessary departmental equipments as maps properly corrected to date at his immediate service, so slipshod a method of conducting official business appears all the more inexplicable. That dredging may become a very important branch of mining enterprise in this country is easily imaginable, when once conditions are understood, proper appliances are introduced and operations are carried on under skilled and experienced direction. Indeed the success that has been already attained under these favorable auspices is a sufficient warrant for high expectations in this respect, but it may be of interest to many readers of the MINING RECORD to learn that recently a New Zealand mining engineer of considerable repute as an authority on river dredging pronounced the opinion that gravel beds and sand bars of Fraser River would yield as good results to dredging as some of the richest deposits in the streams of his own country.

The opinions we expressed some months ago with regard to the impracticability of both the Ashcroft and Edmonton trails as routes of travel to the Yukon gold fields, have proved only too correct, and there gold fields, have proved only too correct and there can be no doubt that a majority of the adventurers who attempted to make the journey by either of these once highly extolled trails have undergone appalling hardships. That those who advocated the advantages of the Ashcroft and Edmonton routes were honestly convinced of the correctness of their allegations may however, be allowed, and perhaps the inexperience of the men who set out is responsible for most of the evils that befell them. As an instance, we are informed that men starved on the trail, but none but the inexperienced would have started on such a journey without carrying with them supplies sufficient for at least a year's need.

The prices of the chief Lillooet mining stocks have been greatly depressed by the recent news of the amalgam robbery from the Golden Cache, but it is nevertheless stated, that the new stock of the Ben D'Or Company, which was but recently placed on the market is being quietly sold to a considerable extent, as a result, mainly, of promising preliminary reports by Mr. Pellew-Harvey.

The Provincial Government in reply to a requisition from the Vancouver and Victoria Boards of Trade, has signified that without consent of the Assembly no steps can be taken by the Department of Mines in the way of purchasing gold dust or nuggets from returned Yukon miners this year. As, however, by far the greater proportion of this season's Yukon yield has already been brought out and has found its way into the United States, the benefit to this Province even had the Government been in a position to give a more satisfactory answer to the Boards of Trade would have been, if any, very trifling. But next year some provision should certainly be made for dealing with the matter, and even if the government does not wish to assume responsibility directly, some arrangement could without difficulty be entered into with the banks to purchase the gold after it had been run into bars and stamped by the provincial analyst.

We are glad to learn on very good authority that some slight but nevertheless important amendments to the Mineral Act are likely to be considered at the next session of the Provincial Legislature. Briefly one of these changes will provide that all mineral claims, the locators of which failed to comply with the regulations in regard to annual assessment work or otherwise, will not be open to re-location, but will revert back to the Crown and after being advertised for a certain length of time will be sold by public auction. Another reform will compel owners of claims to purchase, after completing each annual assessment work- requirement for five years, a metal plate with all necessary information of ownership, location and date stencilled thereon. We have had the satisfaction in the MINING RECORD of advocating the adoption of both of these proposed measures.

A large number of prospectors have found their way back from the Cassiar district this month thoroughly disgusted and disheartened after a fruitless season's work in this once famous gold-producing section of the Province. Of the men who have returned many complain, with what degree of truth we are not in a position to say, that while good placer ground is still to be had in Cassiar, wherever good diggings are found, there, too, will be prominently displayed a sort of "Trespassers will be Prosecuted" notice signed by an officer of the Cassiar Central Railway Co. warning the unfortunate prospector off. If these stories are true and granting that the Cassiar Central has the legal right to corral the choicest parts of the country its policy will be very decidedly open to criticism.

The generous assistance rendered by Rossland, Nelson and other up-country mining towns to the sufferers from the recent disastrous fire at New Westminster will not be forgotten by the people of the "Royal City" who are so pluckily rebuilding the homes that were destroyed. Although Westminster is not now as it once was very closely identified with the mining industry of the Province, yet a large number of its citizens have large sums invested in Cariboo and Kootenay mines, and that interest in mining is reviving there may be deduced from the fact that an effort has been made by the managers of the Agricultural Exhibition to secure a display of mineral specimens from different parts of the country for the annual fall show, which, notwithstanding the fire, will still be opened as usual in October.

War Eagle stock has recently been selling in Toronto at prices approaching \$3. At such prices the stock affords a return at present dividend rates of 6 per cent. As an investment the securing of a return of 6 per cent. on a copper-gold mine's stock, is somewhat inadequate and hardly justifies the present market price of this stock. It must be borne in mind in making an investment of this nature that the productive life of a mine, such as the War Eagle, may not and very likely will not exceed twenty years. Hence, unless the management provides for the ultimate return of the invested capital by the setting aside of a sinking fund, a thing that is not as a rule being arranged in regard to British Columbian metal mines, an investor therein must in purchase regard part of his dividend returns as a gradual repayment of capital and make a deduction accordingly in calculating the rate of interest really accruing to him. A six per cent. return on present prices of War Eagle stock cannot therefore safely be considered as a real return of more than about 4 per cent. Hence, the stock, in our opinion, sold rather high when priced in the neighborhood of \$3.

Dr. Dawson, the eminent director of the Dominion Geological Survey, speaks most enthusiastically, yet with authority, as to the early future of the Crow's Nest coal fields. They are certain, in his opinion, to become very big producers, both of coal and coke, in anticipation of which no less than 100 cooking-ovens are now being built at Fernie. The development of the new coal fields must have enormous effects, all beneficial, on the development of mining and smelting in the Kootenays, and we may as a further result expect that in less than five years this Province will rank and thereafter remaining easily first amongst the coal-producing regions of Canada.

The gold output of the world, to which our own Province as yet contributes but a moderate though a growing stock, is estimated by the Director of the United States Mint Bureau as reaching \$240,000,000 for 1897, showing an increase of over \$36,000,000 on the yield of 1896. Dr. Preston, the authority for the above figures, reckons of course an advance calculation based on data obtainable for the first seven months of the year. If his estimate should prove correct, the result will be another record gold yield for the world, showing a further advance of production, almost as great as that which marked last year's output. The United States last year came first amongst the gold-producers of the world, with a yield of \$58,000,000 in value, but it is quite likely that the pride of place may in this respect be keenly contested this year by the Transvaal, which is so steadily enlarging its gold output, although, as it would seem, with far from relatively correspondent advantage to the welfare of that unfortunate country.

We are strongly of the opinion—and our views in this respect are very generally shared throughout the country—that the Provincial Government will fall into a very grave mistake if, as is stated to be the case, the vacancy created by the dismissal of Mr. Vernon, who has acted as the Province's representative in London for the past four years, is allowed to remain unfilled and no appointment made of a suitable man to act in this important capacity. We do not propose to discuss the question of the justifiability of Mr. Vernon's dismissal, but it may perhaps be remarked that

if on no other grounds than that this gentleman had while holding office allowed his name to become associated with promotion enterprises and accepted directorate positions in connection with new British Columbia companies, the step that has been taken by the present administration in asking Mr. Vernon to place his resignation in their hands would be received with approval. But it certainly is not reasonable that because an office has been badly administered—providing always, of course, that its utility in the abstract is well recognized—that it should be abolished, and in the case in point it is at the present time of paramount importance that British Columbia should be represented in Great Britain by a man of known ability, energy and judgment. As, however, it is through drawing attention to the mining potentialities of the Province that the best results are likely to be attained, in the appointment of a successor to Mr. Vernon this fact should receive due consideration, and some technical knowledge of mining and an extended residence in one of the Kootenay districts should be a strong recommendation in determining the appointment of our next "Agent-General."

The appeal of the British America Corporation in the Le Roi mine case will come up for hearing in the course of the week, when the corporation hope to obtain a reversal of Mr. Justice Irving's partially adverse decision otherwise, pending a friendly settlement it would appear likely that the American directors, representing now but a minority of the Le Roi stock holders, will continue in command of the mine for several months and forward the present policy of straining every nerve to get out, with the aid of nearly 300 workers, all the ore they can, as speedily as possible. This course directly contravenes the policy of steady further development instead of rushy output, which Mr. Carlyle recommended and for the brief period, when he was in charge of the mine, put in force, as representing the B. A. C. interest. The Le Roi has lately been averaging an output of about 2,500 ton a week and it remains to be seen whether or not this rushing of shipments will in the end rather retard than develop continuously productive work at the famous mine. Mr. Carlyle, of course, holds that in the end the policy of present rush must be repaid by later retardation of progress, as a result of lack of well considered methods. And up to date the policy of rush has not resulted in the declarations of a further dividend, though this may perhaps be partly prevented by consideration of the cost of the present litigation, the end of which is not yet. A good dividend may be easily be lost, as a result of the expensive litigation now in progress.

Our Greenwood correspondent "Concentrate," draws attention to a very important matter touching the rights of claim owners to timber on their ground for mining purposes. He writes as follows: "Judging from what has been going on in the McRae pass it is pretty evident that the contractors for bridge timbers and ties on the C. & W. evidently intend to utterly disregard claim-owners' rights to mining timber. It is asserted that the owner of a mineral claim has no legal right to the timber on the property until he has obtained a crown grant. If this means that railway contractors can strip mineral claims of all the timber on them it is a poor lookout for the struggling prospector. It is about time the Department of Mines looked into this matter."

Rather more than a year ago the following remarks were published in the MINING RECORD among the editor's notes:

"There is a strong feeling among prospectors and miners in the province that Government officials, such as Mining Recorders and Gold Commissioners, should not be allowed to own mineral claims or interests in their official districts at all, and we are inclined to hold the same opinion. It is a well-known fact that in the older camps prospectors are always on the lookout for claims that have 'run out'; in other words claims on which the locator has failed to do the annual assessment work required by law. We are informed of cases where Recorders, who by virtue of their special opportunities can obviously keep themselves better informed in these matters than others, have either re-staked claims themselves, or have given special information to particularly favoured friends, who afterward would demonstrate their gratitude by deeding the official an interest in the property thus secured." Since this paragraph appeared in September of last year several instances were made public of malfeasance on the part of officials in mining districts, and we are, therefore, very much gratified to learn that Mr. Hume, the Minister of Mines, has lost no time in issuing regulations which will effectually deal with the matter. These regulations, which have already been approved by the Executive Council are as follows:

"Gold commissioners, mining recorders, and clerks and employees under them, connected with the administration of mineral claims, shall not be allowed, under any circumstances, to take out free miners' certificates, or to acquire, directly or indirectly, in their own names or in the name of any person for their benefit, any mineral claims, or any interest in any mineral claims of any kind whatsoever, under the provisions of chapter 135, 136 or 137 of the Revised Statutes of British Columbia, or any amendments of the same.

"That forthwith every such person shall make a statement to the Department of Mines, showing what interest, if any, he has in any such mineral claim; and such person may, under the direction of the undersigned, be allowed to take out a free miner's license, for the purpose only of protecting such interest already acquired.

"Under no circumstances shall any gold commissioner make any ruling or order with regard to, or take any action in connection with, any mineral claim in which he or any mining recorder, clerk or employee under him has, to his knowledge, any interest; or with regard to any incorporated company in which such gold commissioner, or mining recorder, clerk or employee under him, has any shares or stock.

"All such matters requiring any action shall forthwith be reported to the Minister of Mines."

This wise decision arrived at by the Provincial Minister of Mines, affords a precedent that may well be followed by Canada's rulers of the Yukon country. And it is rightly held that state mining officials should like Cæsar's wife—be placed so far as possible beyond suspicion. The Hon. Mr. Sifton may well take note of the British Columbia restriction, even though its imposition in the case of Yukon officials should call for some compensatory addition in their salaries. It were better thus to add to their remuneration, if found necessary, than to permit them, to the manifest public detriment, to eke out their earning "on the side" by dabbling in gold claims.

The Marquis of Dufferin has, as chairman of the London & Globe Finance Corporation, taken note of the Hooley disclosures which in part involved that company—the parent of the British America Cor-

poration amongst other various offspring—and stated that he believed directors received nothing for services rendered in connection with the corporation, beyond their respective directors fees. The announcement does not, however, seem to have so good an effect on the London market as was anticipated. Meanwhile Mr. Hess' paper, the *Critic* of London, has published a list of peers whose names are to be found on the boards of numerous profitless companies. Conspicuous among them are Lord Donoghmore and the Earl of Essex. The former, whose name on a mining company's board may well warn off investors is chiefly responsible in connection with Westralian ventures of a profitless kind, but the Earl of Essex has, through Mr. Grant Govan, connections with British Columbia mining companies, as yet in an inchoate development stage.

The French Government, whilst eminently unsuccessful as regards promoting effective colonization, does excellent work in informing the home investor as to his opportunities abroad and in the colonies. Thus it is stated, that the French consular agent in the Yukon has sent home as accurate reports as he can obtain in regard to all the creeks yet worked or prospected for gold in the Klondike country. He has, moreover, abstained carefully from "booming" and where deemed necessary warned.

It is now possible to estimate approximately the value of the season's mill run at the Golden Cache, a gold brick worth \$2,600 having reached Vancouver, representing such portion of the amalgam recently produced which was not stolen. If to this there be added the company's estimated value of the stolen amalgam, rather under \$5,000, the total result approaches \$7,500. The outcome is disappointing as indicating that the mine still fails to reach the dividend earning stage, as it is clear that the season's results would, even if left intact, leave no margin beyond working expenses. The mine's present production of gold will, however, be sufficient doubtless to encourage further development operations, in hopes of striking more productive ledges.

Meanwhile Messrs. Mackinnon & DeBeck—now considerably interested in the Golden Cache are reported to entertain high hopes of their coast claims of copper and gold on Theodosia Arm, on which preliminary work is being done. The claims, eleven in number, are stated to have large outcroppings and are very conveniently situated for treatment and shipping, being within easy reach of the Theodosia River and the sea.

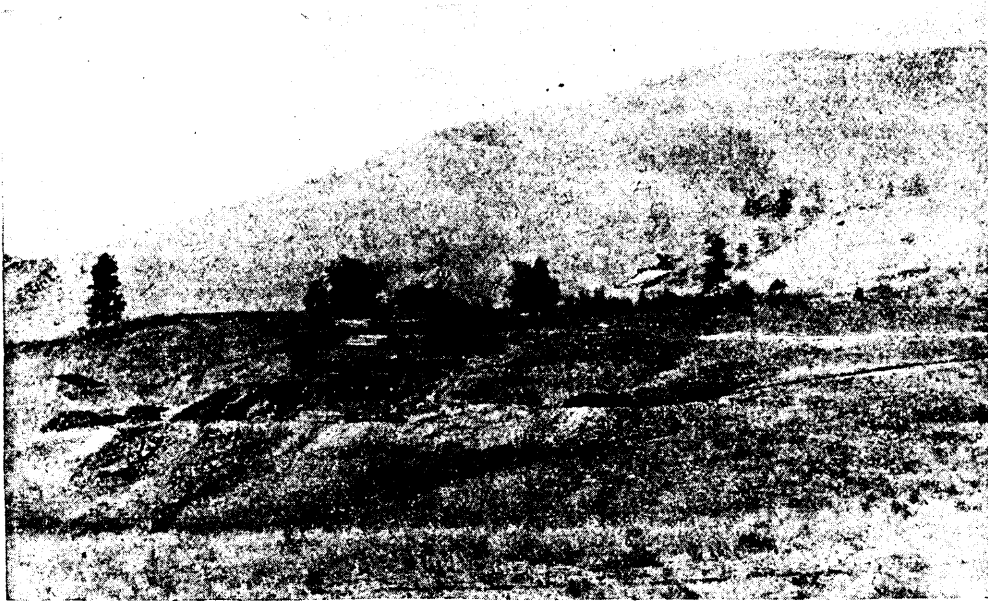
Another effort is being made to establish a stock exchange in Vancouver, chiefly with a view to facilitate mine stock transactions. Some suggest that a half hour be set apart daily for calling stocks in the Board of Trade rooms, as a tentative effort. Others who speak with considerable weight, however, believe that the time is not yet for the establishment of any kind of a stock exchange in Vancouver. In all probability another year will at least elapse ere such an institution is solidly founded in the Terminal City. There is apparently no sufficient volume of business to justify as yet the establishment of a stock exchange in Vancouver.

Although little progress is seemingly being made in regard to smelter establishment in Vancouver where abortive proposals of the kind have long wearied the

local pulic, the case of Trail with its well established smelter in the hands of the C. P. R., is one of most satisfactory development. The great company has, since February, expended no less than \$100,000 on improvements at the smelter, which have, by indicating a big growth of capacity and consequent opportunity of labour employment, caused quite a boom at Trail. It is stated that the smelter will there shortly employ at least 500 workers.

The clean up of the mill run in connection with the Stemwinder gold quartz mine, at Fairview, is reported to have realised a total \$1,500 in respect to 200 tons treated at the Tin Horn stamp mill, the result, therefore, showing a yield of \$7.50 per ton. Messrs.

the great advantage of adjoining the townsite of Fairview, so that the necessity of boarding and lodging the mill hands is done away with. The photograph which accompanies these notes shews the early stages of work in the mill erection. In the foreground is to be seen the excavation for the levels of crusher, battery and concentrating room, while to the right marked by a cross, is the mine and ore dump. The company intends to install an aerial tramway in the near future; the difference in elevation between mine and mill being sufficient to work this line by gravitation. When the reader considers that the ore dump, in the photograph, was about a mile away from the camera he will be able to form some idea of the great quantity of ore now awaiting completion of the mill.



THE SMUGGLER MILL-SITE AND MINE, KAMLOOPS.

Dier & Davidson and other well-known Vancouver and Victoria men are large holders of stock in the Stemwinder and other Fairview mines. The result of the Stemwinder operations to date, though not showing more than an average free milling value, should apparently suffice, if continued, to show a fair margin of profit on working.

DESCRIPTION OF FAIRVIEW AND THE SURROUNDING COUNTRY.

THE SMUGGLER MINE.

(By "Ricardo.")

IN the continuation of this article as contained in the last number of the MINING RECORD I spoke in somewhat condemnatory terms of the Smuggler Gold Mining and Milling Company's management. Since then, however, a great change has come over the policy of the company and vigorous action now characterizes all their efforts. The managing director, Mr. G. H. Maurer, arrived in Fairview early in August and since then has made several most beneficial changes in the plans of his company. The most important of these changes being in the site for the new 20-stamp mill formerly planned to be erected on the banks of the Okanagan River, about two and a half miles from the Smuggler mine. The present mill-site is but 3,000 feet from the mine and has, besides

Since the photograph was taken work has progressed very rapidly and the buliding is now finished and painted and part of the machinery is already in place. It is hoped and expected that the results of the first mill run will prove beyond doubt the paying qualities of Smuggler ore, and this in conjunction with the results of the recent test of Stemwinder ore should go far to induce the investment of capital in Fairview mines. The photographs are by Mr. J. F. Campbell, supplied with the consent of the respective mine owners.

The quantity of steady work which has been done in this mine shews beyond doubt the fact that the directorate is firmly convinced of the ultimate success of their property. For the last eighteen months the mine has never been idle for more than two or three days at a time, and under the superintendency of Mr. F. C. Carr this perservering work has had the result of bringing into sight such a large body of good grade ore as will keep the new mill busy for many months to come. Almost the whole of the large dump at the mouth of the tunnel is paying ore, and a waggon road has been constructed which will be used for transportation purposes until the aerial tramway is completed. In the mine the drifts at each fifty foot level of the upraise, from the head of the tunnel, are particularly satisfactory in proving the stability of the ledge both in point of size and value.

ODD NOTES FROM SKAGWAY.

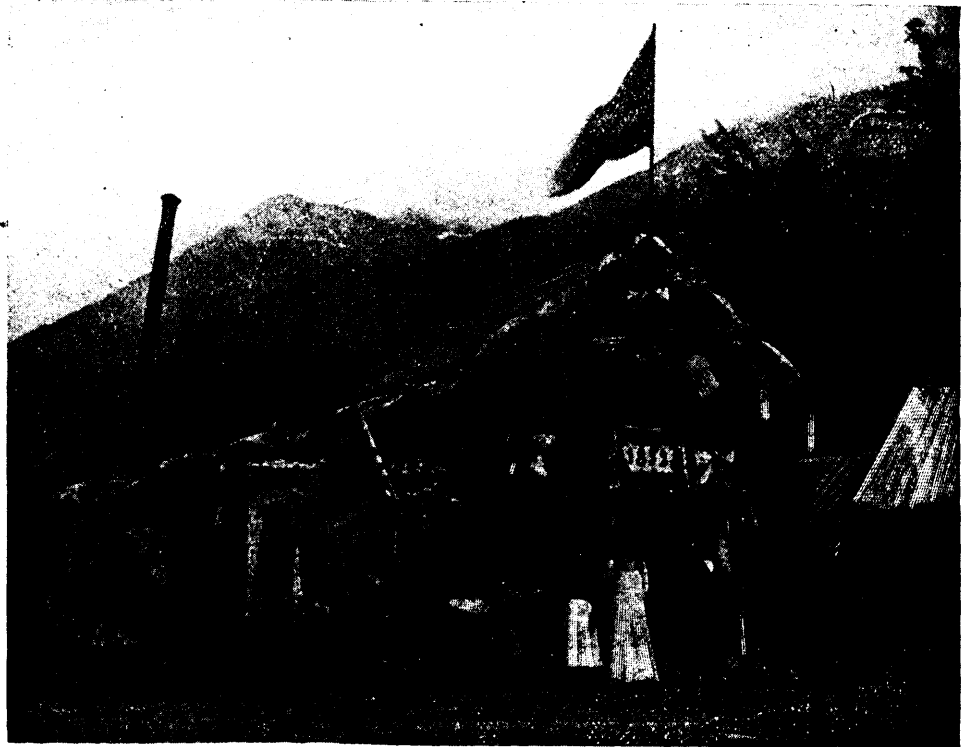
ONE would hardly expect to find the son of a prospective millionaire occupying the position of a purser in the employ of a local navigation company, yet such is the case in the person of Mr. J. W. More, who fills the above mentioned office on the *Islander*—plying between Victoria and Vancouver. Mr. More's father, Mr. Bernard More—the name was originally spelt Mohr, for the family is of German extraction—is no less a person than the original locator of the present townsite of Skagway, which is even now a thriving "city," and, owing to its favourable location, promises to attain a much greater growth in the next few years, as, being the terminus of the first railway built in the country, it indeed should. Notwithstanding the fact, however, that Mr. More had been in tranquil and legal possession of this property for a number of years, he has had the greatest difficulty in securing a title from the American authorities, who, pending the settlement of the international question of boundary demarcation, administer the affairs of the territory. But the American officers have, according to a report which is to be found in a "special extra" edition of the *Skagway News*, at last rendered their decision, and this in favour of Mr. More, who now finds himself in the proud position of "lord of all he surveys," in this case a very cheerful, not to say a valuable prospect. Mr. More meanwhile displays a very kindly disposition, not unmixed with a certain shrewdness, for, to quote again from the "extra-special" alluded to, we are told that when he became aware of the success of his suit, he remarked: "Well, it is only just; but now that the property has been located upon and improved by others, I will not be hard on them. They will find me lenient and amiable. I have no desire to become a millionaire. Skagway is now a great city, but there is lots of room here, and we should live together in a spirit of perfect har-



"NELLIE" AND "DAISY," THE FIRST TEAM TO CROSS THE WHITE PASS.



MR. BERNARD MORE, PROPRIETOR OF SKAGWAY TOWNSITE, TALKING WITH AN OFFICER OF THE "ATHENIAN."



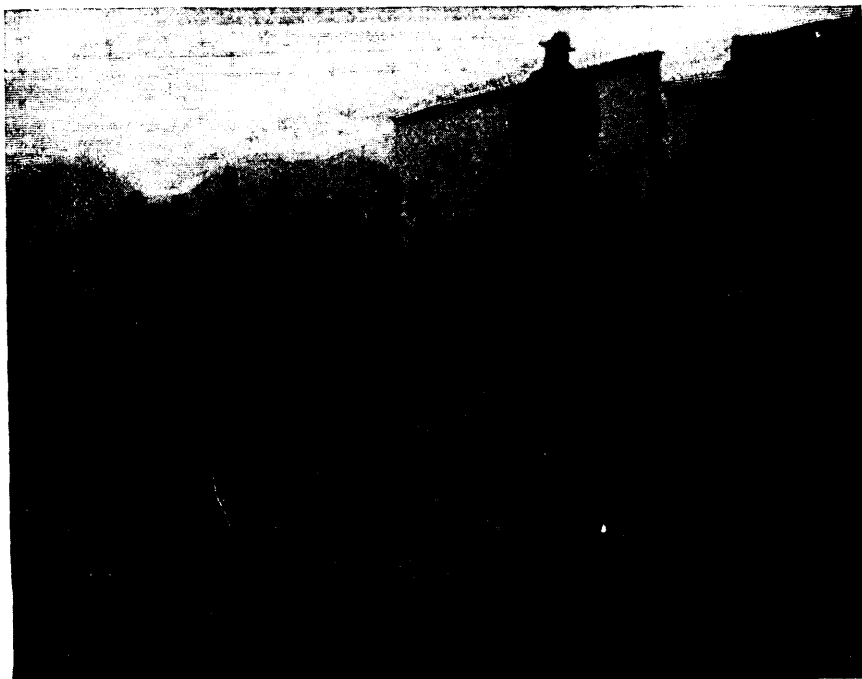
ONE OF THE FIRST BUILDINGS ERECTED IN 1892 BY MR. MORE ON THE PRESENT SITE OF SKAGWAY.

mony and brotherly love. No, I will not be hard on those who have located and are living on my land." Nevertheless, I venture to say that Mr. More did not always entertain so amiable a view of matters. Once for instance—it was in the beginning of the boom—he returned from a trip over the Pass to find his own private house full of strangers, who were making themselves extremely at home with his household gods. "Hullo!" cried the strangers in chorus, when the rightful owner appeared, "what are you doing here?" "What are you doing?" replied Mr. More, elevating his rifle (I am not sure whether he found it necessary to fire), and the hint was sufficient, for the uninvited guests departed hurriedly. On another occasion "jumpers" erected some buildings on a cleared plot of ground, owned by one of Mr. More's sons, who is somewhat proud of his physical powers. Like a modern Sampson this gentleman entered the hastily constructed dwellings of the intruders, and, bracing himself for the effort, actually pushed the walls down. But once the "jumpers" were too strong to be resisted, and this was when the civic authorities took forcible possession of Mr. More's blacksmith shop, a well-built construction of logs, and turned it

into a sort of town hall, court house and jail combined. But again Mr. More has defied these same city functionaries to remove an obnoxious building, the photograph of which is reproduced here, which stands right in the very centre of the principal street of the town. The photograph, by the way, was taken during a Fourth of July celebration, and represents Mr. More with his hands in his pockets in the foreground. But numberless anecdotes could be told of the strange state of affairs that prevailed in Skagway during "boom" time of this spring did not space limitations forbid.

Of the remaining photographs accompanying this article, one shows the first team of horses making the then hazardous journey over the White Pass, with their driver, O'Hara. O'Hara is further described as the most skilful Jehu in the whole of the Yukon; and it is said of him that he never by any chance uses a whip, but always addresses his "gees" in gentle, conversational tones, and it is wonderful to witness the way in which the animals obey his orders. Notwithstanding this, Mrs. More, the wife of the *Islander's* purser, who recently made one of a party driven by O'Hara over the White Pass, had a remarkably narrow escape, the waggon in which she was riding actually being dragged where part of the road had been washed away, for

experienced. The two photographs show the first railway excursion leaving Skagway, the "observation" cars, quite rivalling those provided for tourists by the C.P.R., and the little locomotive engine as it appeared when landed from the scow on which it was brought



FIRST EXCURSION PARTY LEAVING SKAGWAY.

all the way from Seattle.

THE MINING OUTLOOK AT KAMLOOPS.

(By M. S. Wade, M.D.)



LANDING OF LOCOMOTIVE AT SKAGWAY.

some distance on two wheels only, the other two being in the air, overhanging a precipice two hundred feet high. Now that the railway has been built to the Summit, dangers of this sort will not often be

that can now be had for the asking, and yet the district is at the present time in a far healthier condition than it was in the rosy days of the first excitement. The glamour has worn off; the ardour of the

POSSESSED of capital transportation facilities, with good roads traversing the mineral belt, all that was required to bring this camp to the front was the finding of ore in quantity and the influx of capital to prosecute development. The presence of ore in quantity is fairly well proven by the work done on several of the properties; work has been persistently prosecuted on the Pothook, the Erin and the Charlotte (of the Kimberley group) for many months past, and the results of this expenditure of labour are now becoming apparent, and the fact of there being extensive ore bodies in this district will soon be demonstrated beyond peradventure. It is two years since the first claim was staked on Coal Hill, and since then hundreds of claims have been located, scores have had assessment work done on them, but many have practically remained untouched, have been abandoned and restaked, the respective owners never having had the slightest intention of proving the value of this ground. In the first few months of the existence of the Kamloops camp fancy prices were asked for claims

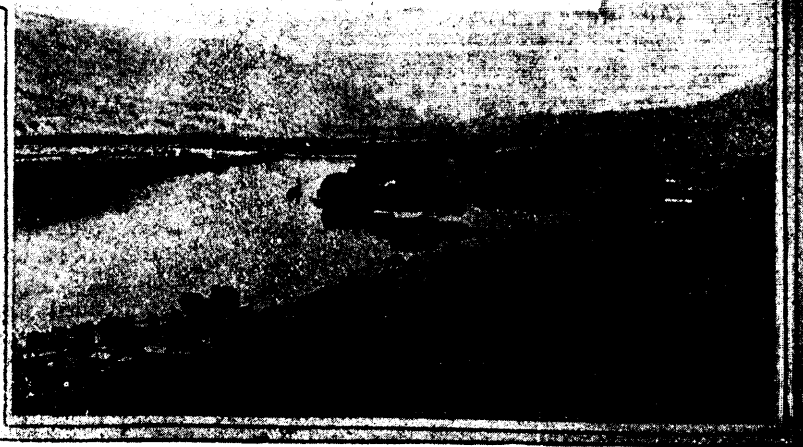
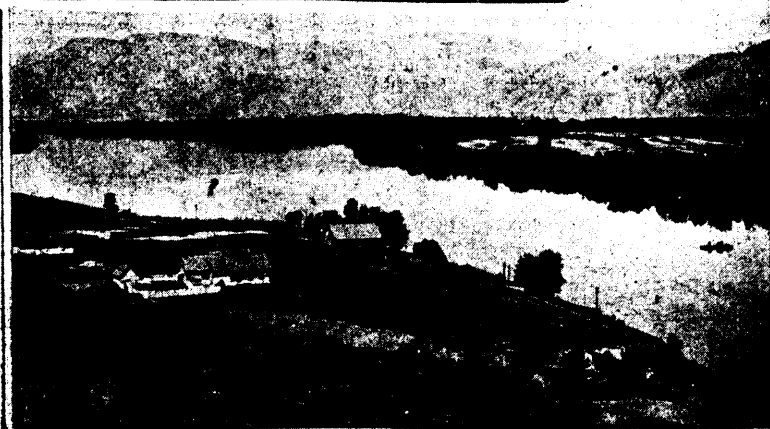
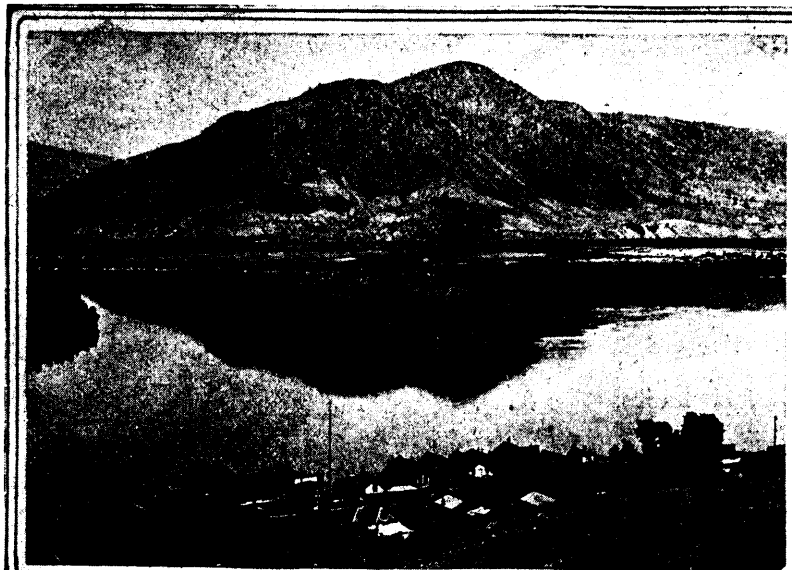
amateur prospector has cooled; and the business of mining has settled down to the matter of fact level of hard work with drill, pick and shovel.

There are many promising prospects that invite further work, and it is a great pity that capital has been so tardy in making its way here. So far as

operating machinery can be obtained, will be of valuable assistance. The water rights of this creek, and also of Lewis Creek, some miles higher up the North Thompson, have recently been acquired by a local company for power and irrigation purposes. There are a number of streams in this district whose waters might be turned to good account, if properly handled, either for irrigation requirements or for generating power. For the latter purpose, as the power would in most instances have to be transmitted for some distance, the installation of electric power stations, or the establishment of the Taylor system for the supply of compressed air, could be readily achieved.

This question of power will be an important one should the expectations regarding the future of Kamloops mining district be realized.

It would appear that the Taylor system of hydraulically compressing air is particularly applicable for the utilization of the force of small mountain streams, streams that would not be sufficient, perhaps, to provide, without prohibitive expense, the power necessary for the successful and



surface indications go, Kamloops camp shows up as well as many more talked of localities and better than most, and the deeper work performed on the claims mentioned (the deepest shaft, however, is only some 160 feet down) is demonstrating that these superficial showings

are well worth investigating, but capital is badly needed. Coal Hill is the nearest mineral district to the town, but near at hand are iron, cinnabar, silver-lead, gold (placer and quartz), and coal deposits, in addition to the copper-gold ores of Coal Hill and elsewhere. While Coal Hill will in all probability be the first to make a good showing, the fact must not be overlooked that the North Thompson country is a very promising field. A number of claims near Jamieson Creek have been prospected to some extent, though not with sufficient thoroughness to demonstrate their value, though, so far, the result is encouraging. The ore is a mixed low grade, bearing copper, gold, lead, silver, antimony and zinc. Here, again, capital is needed in order to prove the value of these prospects, and if this is provided, the proximity of Jamieson Creek, from which stream enormous water-power for

economical working of an electric plant. Should neither of these means—electricity or compressed air—be utilized as sources of power, there still remains steam, which is a lower stage in the plan of the

1. Old Town of Kamloops Showing Mount St. Paul and Junction North and South Branches Thompson River.
2. Old Hudson Bay Buildings and Ferry, West End Kamloops.
3. East and Upper End Kamloops.

(From Photographs by Canning, Kamloops.)

evolution of power production. In the event of steam power being used, the matter of fuel comes up, and as cordwood and coal can be delivered at Kamloops, the former by water, the latter by the Canadian Pacific Railway, and as the same means used for the transportation of ore from the mine to the railway could be employed for conveying the fuel from the railway to the mine, this does not present any insurmountable difficulties.

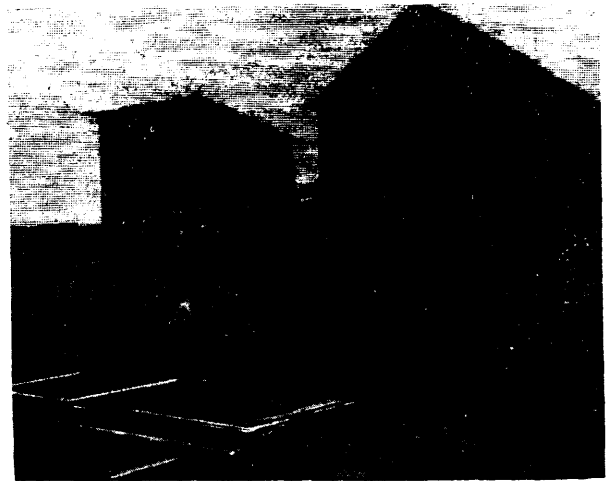
Although it may be some time ere this question of sources of power need be seriously considered in this camp, it is as well perhaps to give the subject some preliminary attention. For the present the drill and hammer with muscle and brawn do the work in shaft and tunnel, while the primitive hand power windless, or the whim suffice for the upraising of the products.

Perhaps the most promising copper-gold prospect in the Kamloops camp, judging from the present indications, is the Copper King. It is within three-quarters of a mile of the C. P. R. track, and about seventeen miles from Kamloops by waggon road. The ore is mixed bornite, peacock and pyrites, and assays from 40 to 50 per cent. copper, with high gold values, some specimens going as high as four ounces to the tons. The inclined shaft is down some 45 feet in ore all the way, with a 20-inch streak of high-class ore and five feet of low grade, yielding assays of from 8 to 12 per cent. in copper, with but little gold. Ore is being sacked for shipment, and the owners expect big things of their property when it is properly opened up. Negotiations are now on foot for the bonding of the Copper King and the adjoining claim (with the same owners), and notwithstanding the attack these claims have received, a good figure will be the price agreed upon. The set-back alluded to is the throwing up of the bond lately given on the Copper King on account of the inability of the holder to find anything warranting further expenditure. The expert who had the matter in hand missed the ore, leaving it by sinking vertically through and beyond it, threw up the bond, and so missed the opportunity of developing the property.

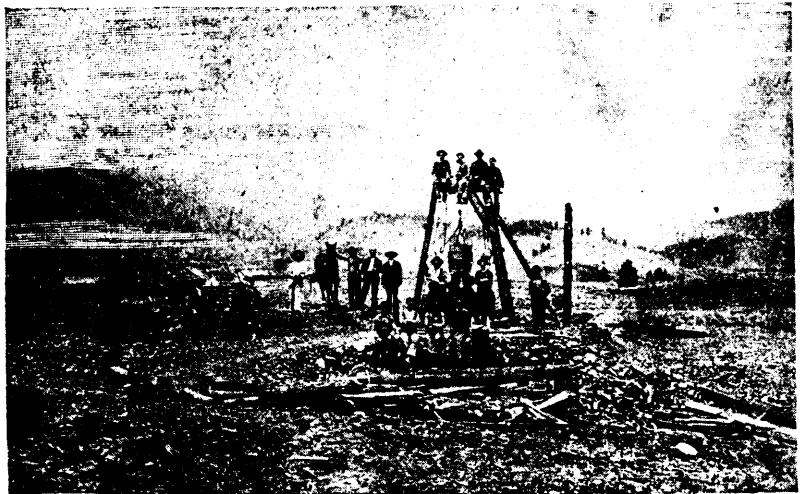
BOAT BUILDING AT LAKE BENNETT.

THE first photograph with this article was taken early last spring when the Klondike rush was at its height and represents "a boat camp at Lake Bennett" where men having successfully crossed the passes set to work to construct such craft to convey themselves and their supplies down the lakes and the Yukon River to the heart of the gold fields at Dawson. Many of the adventurers have never before in their lives handled saw or axe and it may be quite easily imagined that some of the constructions—we can hardly describe them as boats—thus turned out, were of most bizarre design and of the flimsiest character, and very possibly the loss of life and the number of wrecks in the canyons and rapids may be accounted for on these grounds. Soon afterwards, however, a local company, incorporated in Victoria in January and known as the Victoria, Yukon Trading Company, sent 30 men, in charge of one of their directors, Mr. M. King, a well-known and experienced coast logger, to Lake

Bennett and in the face of most tremendous difficulties a complete saw-mill equipment, weighing altogether in the neighbourhood of 200 tons and including a forty horse power engine and boiler was transported over the pass—a really remarkable feat considering the then conditions of the trail, horses and men having to make their way through soft snow



SORTING ORE, POTHOOK MINE, KAMLOOPS, B.C.



THE POTHOOK MINE, KAMLOOPS, B.C.

in many places many feet deep and up-hill at that, dragging and carrying loads which would be trying enough on the level. At length, as is generally the case, pluck, perservance and patience was rewarded and by the middle of March the party arrived at Lake Bennett. The work of installing the machinery was commenced forthwith, and within two weeks from that time the steam whistle startled the silence of that grim north country, and a steam saw-mill was in full operation on the shore of Lake Bennett. Needless to say the mill could hardly keep pace with the enormous demand for lumber that immediately followed, for although prices would seem terribly "steep" to coast builders, to the prospectors, who with enormous labour had previously been obliged to whip-saw every foot of timber required for their boats, the saw-mill charges appeared wonderfully moderate. Many, however, preferred to purchase boats or barges ready built at the mill, and so the company found it necessary to send from Victoria a small army of competent ship's carpenters and boat builders,

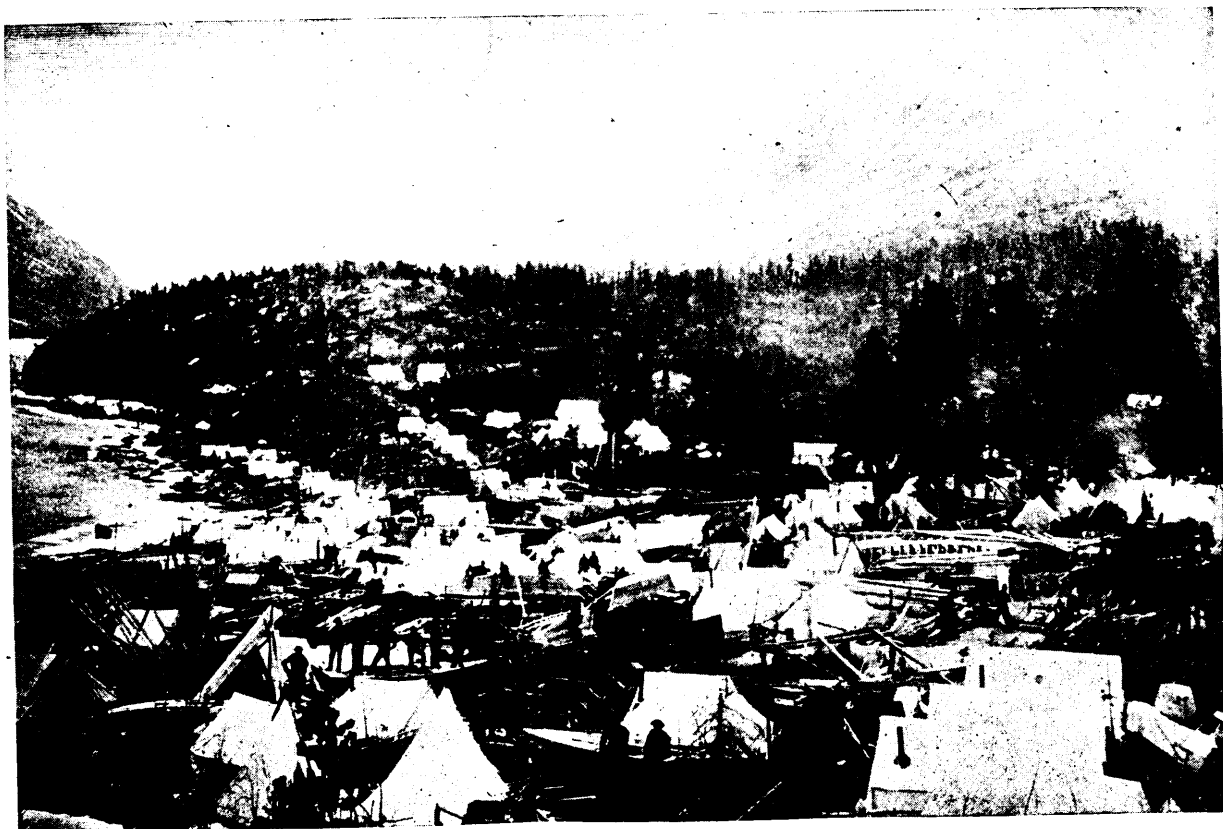


Photo by

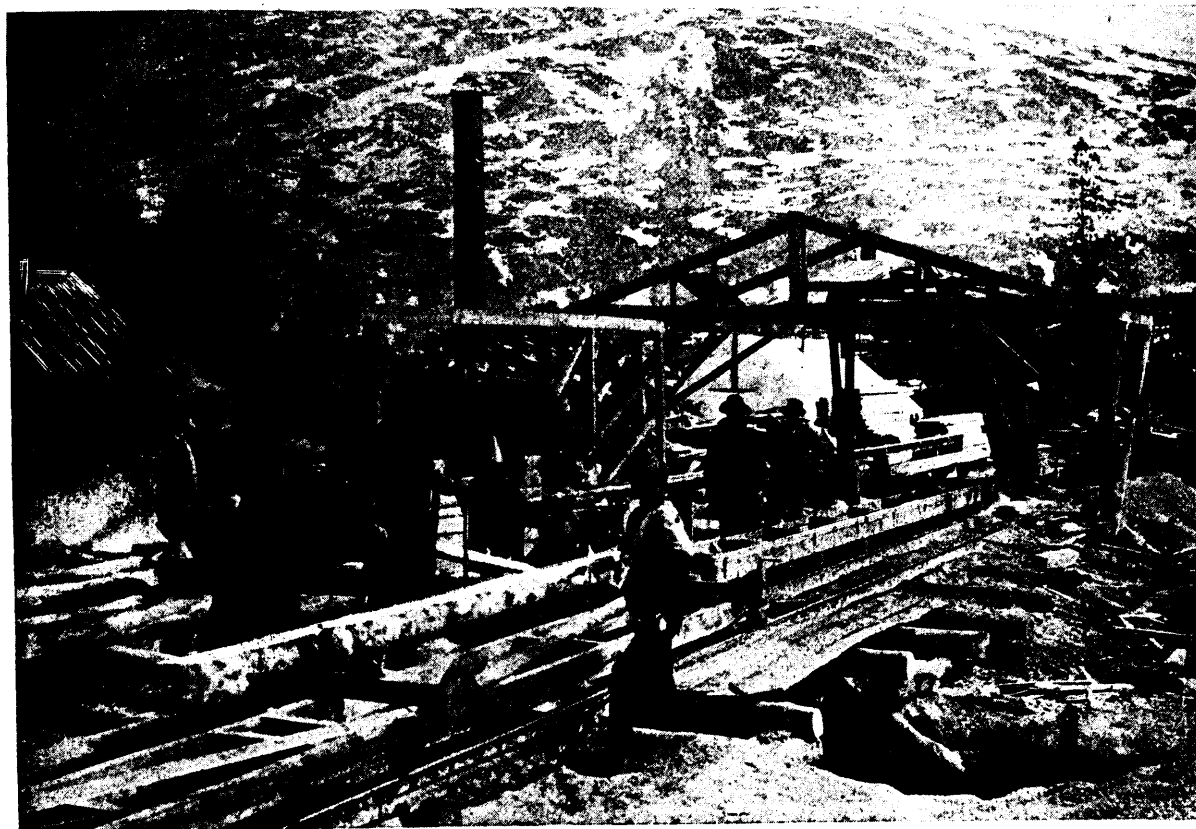
THE BOAT BUILDERS CAMP AT BENNETT.

Edwards Bros., Vancouver.

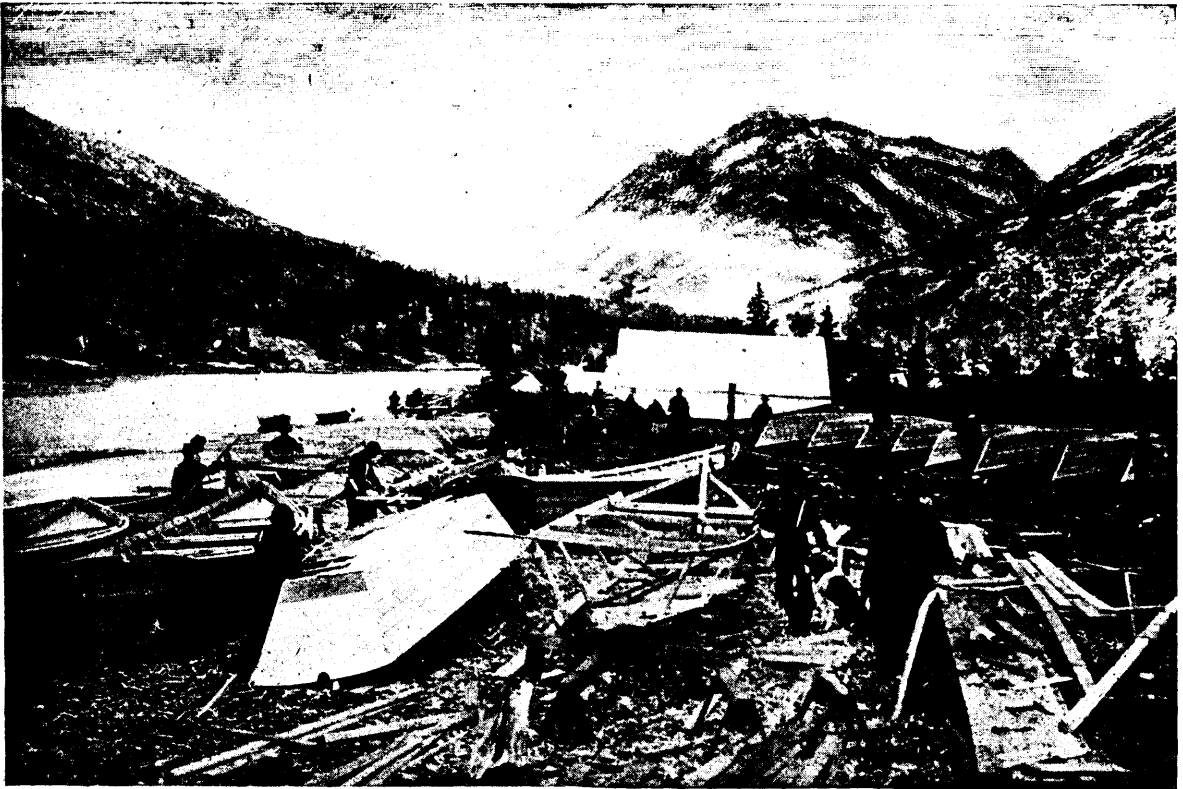
who received as much as fifteen and twenty dollars a day wages for their work; but then boats fetched prices never far short of a hundred dollars. This year already hundreds of crafts of all sizes and shape

have been turned out from the Lake Bennett mills, and the industry promises to become a very important one.

Another of our illustrations shows three scows



THE SAW-MILL AS IT APPEARED IN MARCH LAST.



BOAT BUILDERS AT WORK.

with fifty tons of freight on board en route for Dawson city. This journey was made in twelve days and demonstrated that freight could be as safely and cer-

tainly more cheaply transported in this way than by steamer, the cost per ton being from \$160 to \$200, which estimate includes the purchase of the barge.



TRANSPORTING FREIGHT TO DAWSON ON BARGES.

THE MINING MEN OF THE PROVINCE.

MR. S. S. FOWLER, whose photograph we reproduce this month, was educated at Columbia University, New York, where after graduating in arts he entered the school of mines and received, in 1884, the degree of E.M. Upon leaving the university Mr. Fowler commenced his professional career as instructor in the Summer Schools of Mining and Surveying, and for a period of a year and a half was associate in a work of extensive property improvement, civil engineering and contracting, in New York city and vicinity. His first practical experience of mine management, however, was gained while acting as assistant superintendent at the Iron Hill Mine near Deadwood, in the Black Hills, South Dakota, in the year 1886. This property, by the way, afforded a now somewhat rare form of experience, because the ore was a raw-milling horn silver; later a smelting plant was installed and large dividends were maintained from the operation of both processes. The following year saw Mr. Fowler acting as assistant superintendent of a custom smelting plant at Galena, twenty-six miles or so south-east of the Iron Hill Mine, and having served in this capacity for some length of time, he built and operated by contract a small lead smelter at El Paso, Texas, on the Mexico border, making, meanwhile, many mine examinations in Mexico, Arizona, New Mexico and Colorado. Towards the close of 1888 he became engineer and assayer at the well-known Bunker Hill and Sullivan mines in



MR. S. S. FOWLER, B.A., A.M., OF NELSON.

the Cœur d'Alene, Idaho, and while acting in these capacities received and refused several tempting offers of engagements in South and Central America where he had already established a reputation for professional ability. Paying British Columbia a brief visit in 1889 Mr. Fowler returned the following year and built the little smelter at Golden, and it was while engaged in this work that he found an opportunity of forming an opinion of the mineral resources of the province, the future appeared, to him, so promising that he decided to cast in his lot with the country. During the past eight years Mr Fowler has examined and reported upon many of the most important of our producing mines, and a goodly number of non-producing proper-

ties in every part of the country extending from the Rockies to the Cascades. He has also prepared several reports on districts for the Provincial Government, his admirable paper on the Boundary Creek district, published in the Minister of Mines' Report for 1896, being especially deserving of mention. In the spring of 1896 Mr. Fowler became associated as mining engineer with the London and British Columbia Gold Fields, Ltd., and later, upon the formation of the Whitewater Mines, Ltd., he received a like appointment at the Whitewater Mine. For the former company he is now engaged in erecting a 40-stamp mill at the Ymir mine, and the Whitewater is being equipped under his direction with a 100-ton concentrating plant.

A GOLDEN MINERAL DISPLAY.

WE are indebted to Mr. E. A. Hagggen, of Golden for the photograph reproduced here of the well arranged and comprehensive mineral collection at the Government offices at Golden. This collection is said to be the finest in British Columbia, with the exception of that in the Victoria museum. Mr. Frank C. Lang, mining recorder for the Golden mining division, is to be congratulated on the success of his efforts in getting so handsome a mineral exhibit together. Mr. Lang began the collection of the specimens which go to make up the display some four years ago, and last year on Col. Baker's authority the offices were fitted with appropriate show cases. Since then the exhibit has been inspected by hundreds of visitors who have been unani-

mous in their admiration of this display of the mineral resources of the district. By this year the collection had much out-grown the space allowed for it last year, and Mr. Lang was compelled to ask for further showcase accommodation. This being readily granted by the Minister of Mines the entire side of the recorder's office was devoted to the purpose. The handsome showcase shown in the illustration is fifteen and a-half feet in length and ten feet in height. Four rows of wide shelving run along the bottom for the larger samples of ore. Above these the frame of the case recedes, covering five rows of narrow shelving for the smaller samples, while the upper portion of the showcase is reserved for the rarer specimens. The centre

contains miscellaneous mineral specimens as a reference for prospectors who may find and wish to classify ores not at present known in the district, but which they may be able to recognize by comparison with similar ores from other points. The collection will thus be made of practical value to the prospector, as well as being a comprehensive exhibit of the mineral resources of North-East Kootenay.

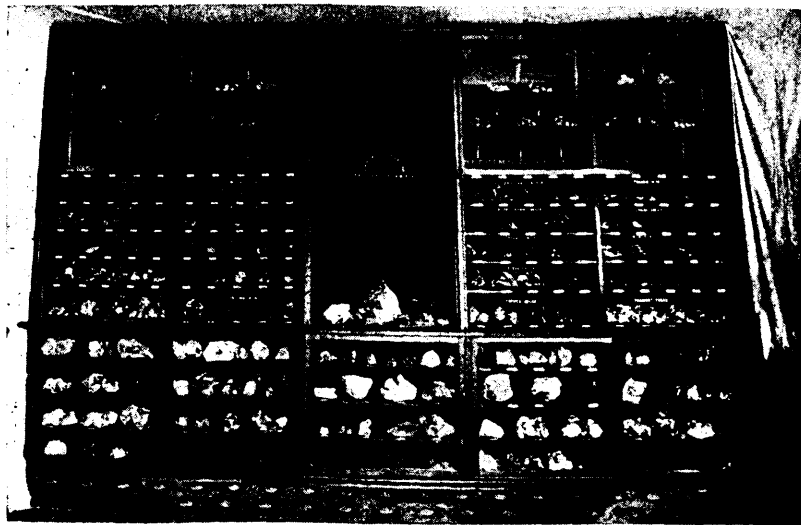
The trouble to which Mr. Lang has gone in this matter is most creditable to the interest which he takes in his duties as recorder. The specimens are at present confined to representative ores of the Golden and Winderemere mining divisions, with the addition of some outside free milling gold ore and specimens from the Hall Mines smelter of ore in various stages of smelting.

SOUTHERN BRITISH COLUMBIA.

By J. D. Kendall.

(Continued from last month).

NO matter whether we take up a geological map of British Columbia, of California, or of Great Britain it is found to be little more, from the miner's standpoint, than a sheet of rock areas, or of areas containing rocks of the same geological age. Such maps can never be of any value to either the miner or prospector. As now prepared geological maps are, for the purposes of the miner or prospector somewhat like the so-called prospectors' hand-books, containing little that is needed and much that is useless. And yet it would be a simple matter to make them almost indispensable. To



DISPLAY OF ORE SPECIMENS AT GOLDEN.

give only one for example: if it could be shown in any country that the deposition of vein-gold took place in late Jurassic times it is quite clear that it would be useless to search in that country for gold (except as placers, or in other redeposited forms) in Cretaceous or Tertiary rocks. Similar remarks might be made about the other metals. If therefore, geological surveys would—inter alia—fix by observation, or otherwise, the time or times at which the different metallic minerals were deposited in the rocks, a series of maps might be produced which would be of the greatest practical value to the prospector. A similar service might be rendered to the miner by more detailed stratigraphical work, of a particular kind, but to-day in British Columbia, as elsewhere, the miner, i.e., the mining engineer, must be his own stratigraphist, or lose the invaluable aid a knowledge of that branch of geology affords him in the important operations of exploration and development.

So far as ascertained the relative ages of the principal rocks, constituting what is called the solid geology, in British Columbia, are as shewn in the following table:*

Tertiary.....	Miocene.....	Lignite and Basaltic series Unconformity.	Volcanic Rocks mainly Sandstones, Con- glomerate and
Mesozoic...	Cretaceous....	Fraser River and Ashcroft beds. Unconformity.	Argellites
	Trias.....	Nicola formation. Unconformity.	Volcanic Rocks and Limestones Limestones
Palaeozoic...	Carboniferous.	Cache Creek formation. (Chiefly) Unconformity.	Quartzites Serpentines and Volcanic Rocks
	Cambrian..... (Chiefly)	Adams Lake series	Volcanic Rocks Quartzites and Argellites
		Nisconlith series.	Limestones Mica Schists and Marbles
	Archa'ean.....	Shuswap series.....	

In addition to the contemporaneous volcanic rocks referred to in this table, there are numerous and extensive intrusions or igneous rocks, consisting largely of granites, syenites and diorites, etc. Many of the so-called granites are, however, found on microscopic examination to be quartz-diorites. The age of many of these intrusive igneous rocks is probably late Jurassic. A few others are of post-cretaceous age.

It is impossible to give an approximate idea of the distribution of the above named rocks, except in a

few small areas, as a large part of the country, even in the fraction of British Columbia now under consideration, has never been examined. It may be said, however, that the Tertiary basalts occur on the Interior Plateau, where they occupy a very large area, more or less interrupted by older rocks. The old palaeozoic rocks have been found chiefly in the Gold range and Rock-

ies; they may, however, exist in the Coast Range, as but very little is known about that area at present. The younger Palaeozoic rocks, and those of Mesozoic age, are known to have a wide distribution, occurring in areas more or less extensive from the Rockies to the Pacific.

It may be interesting here to note the corresponding particulars of the rocks that are found, in the solid, along the gold belt of California: †

Eocene.....	Tejon.....	Sandstones and Conglomerates
Cretaceous....	Chico formation. Unconformity.	Sandstones and Conglomerates
	Mariposa Slates. Unconformity.	Clay Slate with Interbedded Greenstones and some Conglomerates
Carboniferous.	Calaveras formation.	Argellites Limestone Quartzites Mica Schist and Interbedded Greenstone

*Reports of Progress.
†Geological Atlas U.S.A.

The cretaceous and carboniferous rocks are both severely broken up by igneous intrusions of late Jurassic age. The carboniferous strata are the oldest yet detected in California, but from that period onwards there is a striking resemblance in the geologic changes that have taken place in the two countries. In British Columbia a greater range of the geologic scale is exposed, as compared with California, and therefore it might be expected—as is the fact—that the metallic minerals would be met with in a greater number of rock systems in the former country.

6. MINING LAWS.

The mineral laws of British Columbia have been framed almost entirely in the interests of the prospector and miner and are probably not exceeded in liberality by the mining laws of any other country in the world. They admit of improvement, however.

The time allowed for the first year's assessment work is much too long. Sixty days would be quite sufficient. In the case of claims located in the fall a "lay over" might be obtained provided it could be shewn, to the satisfaction of the gold commissioner, that the work could not be done without, on account of the weather. This would prevent the staking of claims that are not intended to be worked forthwith and the locking up, in idleness, of a large extent of country that may contain much mineral wealth. The assessment work of the second and subsequent years should be done before the end of July—so that if a claim be abandoned it can be re-staked by anyone so disposed, and the first year's assessment work, of the new locator, done during the remainder of the prospecting season.

The name of claims that are abandoned before the end of the first year should be posted in some conspicuous place at the Record office, for at least fourteen days, before they can be relocated. This would prevent collusion to avoid assessment work.

It is not necessary here to describe the process of locating and recording a claim, but a few remarks will be made on the mineral rights conferred by the different acts which are, to a greater or less extent, in operation at the present time.

The oldest locations existing to-day were probably recorded under the Mineral Act of 1884, which related to both placer and quartz mines. Section 50 of that act provided that "Mineral claims—that is claims containing or supposed to contain, minerals precious or base (other than coal) in lodes or veins, or rock in place—shall be 1,500 feet long by 600 feet wide," and section 64 provided that "the lawful holders of mineral claims shall have the exclusive right and possession of all the surface included within the lines of their locations and of all veins or lodes, and ledges, throughout their entire depth, the top or apex of which lies inside of such surface lines extended downward vertically, although such veins, lodes or ledges may so far depart from a perpendicular in their course downwards as to extend outside the vertical side lines of such surface locations; but their right of possession to such outside parts of such veins or ledges shall be confined to such portions thereof as lie between vertical planes drawn downwards, as above described through the end lines of their locations so continued in their own direction that such planes will intersect such exterior parts of

such veins or ledges; nothing in this section shall authorize the locator or possessor of a vein or lode which extends in its downward course beyond the vertical lines of his claim to enter upon the surface of a claim owned or possessed by another.

This act was amended in 1886 and 1888 but the amendments did not affect the parts just quoted.

In 1891 two acts relating to mines were passed, one entitled "The Placer Mining Act, 1891," the other "The Mineral Act 1891." By section 31 of the latter act the above quoted section (64) was amended by the addition of an important proviso. A few immaterial verbal alterations were also made in the section. The added proviso is as follows: "Provided always, that a prior location on the dip of a vein or lode shall have priority over a subsequent location on the same vein or lode, though such subsequent location may be upon the apex of the vein or lode; and provided always that in cases where the land in which such claim is situate is lawfully owned or occupied for other than mining purposes, the above section shall be read subject to the rights and interests of such owner or occupier. And it is hereby expressly declared that a location laid crosswise of a vein or lode, so that its centre line crosses the same instead of following the course thereof, will secure only so much of the vein or lode as it actually crosses at the surface, and the side lines of the location will become the end lines thereof for the purpose of defining the rights of the owner. A location shall be deemed to have been laid crosswise when the smallest angle made by the centre line falling on the general course of a vein or lode is greater than (45) forty-five degrees."

The rights conferred by the acts of 1884 and 1891, it will be seen are very different. Intending purchasers of old locations will therefore do well to satisfy themselves whether a claim, held under the latter act has or has not been located crosswise or they may be seriously disappointed afterwards. In this connection it may be mentioned that the course of a vein on the surface may be very different from its general course, and the non-recognition of this fact has often led to location being improperly staked so that their end lines are in reality side-lines.

By "The Mineral Act (1891) Amendment Act (1892)"* the last quoted section was repealed and the size of claims made 1,500 feet square. The mineral title conferred by that act was the same as in the act of 1896 to be presently quoted. The repeal of the act giving extra-lateral rights was doubtless a great boon to the miners of British Columbia, as it will spare them the trouble and costly lawsuits that afflict the miners of the United States, where a like law prevails.

In 1896 the mining laws assumed somewhat of their present form. Section 15 of the act passed in that year says: "Any free miner desiring to locate a mineral claim, shall subject to the provisions of this act with respect to land which may be used for mining, enter upon the same and locate a plot of ground measuring, where possible, but not exceeding, 1,500 feet in length by 1,500 feet in breadth in as nearly as possible a rectangular form." Section 16, sub-section (a), of the same act declares that "the holder of a mineral claim shall be entitled to all minerals which may lie within

* Amendments were also passed in 1893, 4 and 5, but they did not alter the size of the claims, or the title to the minerals.

rectangular form, "Section 16 sub-section (a) of the same act declares that "the holder of a mineral claim shall be entitled to all minerals which may lie within his claim but he shall not be entitled to mine outside the boundary lines of his claim continued vertically downwards, and sub-section (b) provides that the "Act shall not prejudice the rights of claim owners nor claim holders whose claims have been located under former acts." This act was amended by "The Mineral Act amendment Act 1897" but without altering the words just quoted.

Other acts affecting vein miners are:

Employer's liability Act, 1891.

Employer's liability amendemnt act, 1892.

Inspection of metalliferous mines Act 1897.

This act needs amendment before it can accomplish the purpose for which it was passed.

An Act to assess, levy and collect taxes on property and income.

Section 9 of this act provides that "There shall be assessed, levied and collected, from every person owning, managing, leasing or working a mine, and paid to Her Majesty, her heirs and successors, the sums following, that is to say:

"One per cent. of the assessed value of all ore or mineral bearing substances raised, gotten, or gained from any lands in the province, the assessed value to be based on the market price of the ore or mineral bearing substances at the mine, as determined in case of dispute by smelter, reduction or refinery works or other satisfactory returns, as the case may be; provided that no ore or mineral bearing substances shall be taxed which are not sold or removed from the mining premises."

7. TRANSPORTATION.

As already pointed out the southern portion of B. C. is intersected by numerous lakes and rivers, which give access to much of its interior, but no one, unfamiliar with the country, can form even a vague idea of the difficulties facing the prospector and miner until these water-ways had been supplemented by railways. The first shipment of Slocan ore was from the Whitewater mines. It had to be "packed," on horse back, through the forest, a distance of seventeen miles, to Kaslo, at a cost of about \$40 per ton. Then by boat and rail, to United States smelters, at a further cost of about \$20 per ton. Ore was packed in a similar way from the Idaho and Mountain Chief mines, at a cost of \$45 per ton, to Kaslo and from other mines at somewhat similar rates. It will readily be seen that only high grade ore, like that of the Slocan, could possibly bear such costs for carriage alone.

The difficulties of transportation have, more than anything else, hindered the development of British Columbian mines. In fact, so far as can be now seen, that is the only reason why British Columbia was not, years ago, what it is to-day. These difficulties are, however, being gradually reduced by the introduction of railways. The lines already made, on the mainland, and the dates they were opened for traffic may be gathered from the table below. A study of this table in conjunction with a map of British Colum-

bia will explain why the now known mineral wealth of British Columbia lay so long unnoticed :

	Opened.	Length. Miles in B. C.
Transcontinental Line (C.P.R.)....	1886	502
Columbia and Kootenay.....	1890	28.5
Nelson and Fort Sheppard.....	1892	59.4
Shuswap and Okanagan.....	1892	51
Nakusp & Slocan—to Three Forks.	1894	32.9
Three Forks to Sandon.....	1895	4
Kaslo and Slocan.....	1895	31.8
Revelstoke to Arrowhead.....	1896	28
Columbia and Western.....	1896	21
Red Mountain.....	1987	6
Robson and Trail.....	1897	10.97
Slocan Crossing to Slocan City.....	1897	26
Railways open in May, 1898....		806.6

The Crow's Nest Pass railway (210 miles long), in British Columbia, which passes over extensive coal fields, is in course of construction and expected to be completed by the autumn of this year. The cheaper coal and coke which will be available by the British Columbia smelters on the completion of this railway must bring about considerable reduction in the cost of smelting and presumably the miner will receive some consideration on that account.

A railway through the Boundary district is also in contemplation and may be commenced very soon. The construction of both these lines will open up to the miner districts that have already been prospected and are known to be rich in minerals, but the lack of transportation facilities has prevented the development of the deposits found, as many of them are smelting ores.

Most of the mines are connected with river, rail or lake by means of rawhide trails, wagon roads, aerial or other tramways. Rawhiding has been extensively practised in the Slocan, where the mines have mostly been opened up by men of small capital, and who could not, therefore, afford to stock the ore worked, until their mines were so far developed that a more efficient means of transportation could be introduced with safety. In rawhiding the ore is first sacked, then wrapped in raw cow-hides and drawn by horses over the snow. It can only be conducted in winter, when snow is on the ground, so that the output by it is limited, and, therefore, as soon as circumstances permit, the system is replaced by wagon and sleigh, rope or other haulage. But it is a convenient system for small outputs, as very little need be spent in making the trail.

Haulage by sleigh and waggon although permitting of more continuous work than rawhiding, is liable to interruption, every spring when the snow is melting. The shipment of ore, from the mine, may be stopped at such times, for four or five weeks. In order, therefore, to secure uninterrupted deliveries to the smelter, at that season, a stock of ore must be kept at the lower end of the road.

Rail or rope haulage is the most satisfactory, either being capable of continuous working and of large deliveries, at a much less rate per ton than rawhiding or haulage by wagon or sleigh. But their first cost is greater and therefore larger bodies of ore must be blocked out before these more costly works

are undertaken. Already one English company has made the mistake of building a costly rope tramway (and mill) without having first ascertained that they had sufficient ore to warrant the expenditure. Four months sufficed to run through the mill all the ore known to exist in the property and then the tramway (and mill) were idle and useless—unless other ore be found, which may, or may not, happen. A conspicuous failure like that, however, does not appear to afford sufficient warning to inconsiderate rashness, for rumors have recently been rife of even a much more costly tramway being built to another mine where there is still less development. For such foolishness—because it deserves no other name—the mining reputation of British Columbia must suffer, notwithstanding that British Columbians, who know, are strongly opposed to such ill-timed and unwarranted expenditures.

A few remarks may here be made upon the important subject of "Ore in sight." Figures, it has often been said, may be made to prove anything, but that is only when the premises are unreliable. A lively fancy, unrestrained by experience, is one of the most dangerous qualities a miner can possess, especially when he comes to estimate the quantity of ore in sight. Most glaring errors are committed, in this connection, again and again, for which the capitalist has to suffer. When quantities are stated it should be made perfectly clear what is included. A mine may shew a large superficial extent of ore and yet it may be quite impossible to estimate the quantity of it. Ore "blocked out" is the only ore in sight that can be cubed with any approach to accuracy. The remainder can only be dealt with as a factor in fixing the price which may safely be given for a mine.

The cost of hauling ore by wagon and sleigh ranges from about ninety cents to \$3.25 per ton, according to distance.

The freight rates on ore to U. S. A. smelters range from about \$11 to \$19 per ton. To British Columbia smelters they are much less but this advantage is mainly nominal as the increased local smelting charges absorb a great part of the difference.

8. PROSPECTING AND LOCATING.

No one who has ever had any experience of prospecting in British Columbia will ever begrudge the prospector his hard earned success; for prospecting is often most toilsome work and can only be pursued successfully for any length of time by men of great determination and with strong constitutions. The thick underbrush and fallen timber often render the forests impenetrable, and it is this fact which leads to so many forest fires. The latter are, however, only partially successful in their object and the prospector is often compelled to make his way through miles of thick forest towards timber-line, where he can work with greater freedom; partly because there is less timber to contend with, but also because the rocks are more exposed, there being less detrital matter on them. The "packing" of sufficient food and other necessaries for an extended excursion of this kind is no easy matter and the hardy prospector in order to minimise the weight to be packed occasionally has to sleep for weeks at a time, in the open, without even a blanket.

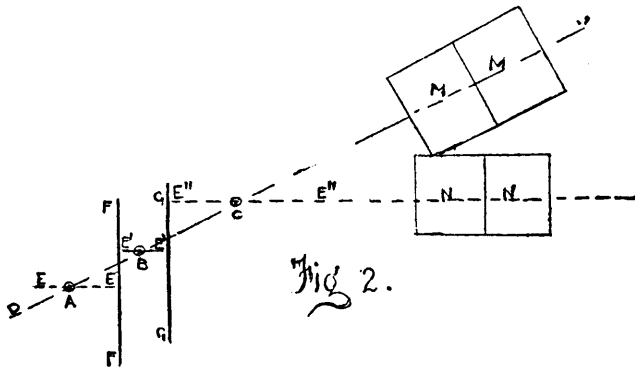
That prospecting should be more successful, other things being equal, among the more exposed rocks near the mountain tops, than at lower levels, where the rocks are hidden by drift and underbrush, is very evident, and, therefore, there is nothing surprising in the fact that almost all the more important mines in British Columbia are at considerable altitudes. The following table shows the height, (Barometric) above sea level, of some of them:

MINE.	DISTRICT.	Feet above Sea
Payne	Slocan	7100
Idaho	"	6700
Alamo	"	6700
Ruth	"	4700
Slocan Star	"	5000
Whitewater	"	5000
Reco	"	6200
Silver King	Nelson	6000
Le Roi	Rosland	3600
War Eagle	"	3700
Cariboo	Camp McKinney.	4600

Prospecting to be done intelligently, however, requires something more than great energy and endurance, and that something the ordinary prospector almost invariably lacks. Like the ordinary miner he is frequently imbued with ideas such as might arise from a misconception of the doctrine of uniformitarianism. The behaviour of deposits and the nature of the country rock in the district where he was trained, unless he has since worked in other districts are apt to have an undue influence on his actions, so that instead of seeking to learn the real geologic character of any new area he may be exploring, he plunges into it with a variety of preconceptions which may, or may not, agree with the facts as there presented. One of the consequences of such a mode of procedure is often seen in the staking out of claims crosswise, even on comparatively level ground. With the present square claims it is not so important that a vein should be parallel to the location line, but prior to 1892, when the claims were 1500 feet by 600 feet and had extra-lateral rights, which might be very greatly reduced by improper staking, it was most essential that the prospector should ascertain exactly the course of every vein on which he proposed to locate. Yet many of these older claims are wrongly laid out, some being at right angles to the course of the vein on which they are placed. Instances of this kind are found at the Payne mine in the Slocan, at the Cariboo gold mine in Camp McKinney and elsewhere. Other claims form a less angle with the vein but yet they are so far astray that they lose, equally with those at right angles, a large percentage of their extra-lateral rights. In some cases the errors doubtless arose from ignorance of the principles of stratigraphy but often, more probably, resulted from assuming the direction of the veins instead of ascertaining the actual facts.

In staking extensions mistakes may very easily occur, unless the prospector has some knowledge—which he seldom has—of stratigraphy. An actual case of this kind may be here described. A vein of great promise having been found and partly traced on the surface, as shown in figure 2 other prospectors proceeded, as is usual in such circumstances, to stake out extensions.

Some shallow pits having been made, on the back of the vein at the points A, B, C., figure 2, it was assumed that the vein had a direction corresponding with that of the fine dotted line D D, and locations were accordingly made at M and M. A stratigraphical study of the ground would have shewn that the



vein really had the direction of the lines E. F.; E. E. E., E., having been shifted by the faults F, F, and G, G, so that the extensions should, properly, have been staked at N, N. A possible success would then have been recorded, instead of a certain failure, so far as relates to the vein supposed to have been staked.

The staking of "position" claims is frequently resorted to. Such claims are not known to have any merit of their own, and usually do not comply with the requirements of the law, with regard to "mineral in place"; but in the eyes of "suckers" they are frequently supposed to be of great value because they adjoin some property either of ascertained value or of **great promise. The location of claims in this way is very detrimental to honest mining and their purchase is the purest kind of gambling.** If the position claim happens to be on one side of a vein already located the most it can hope for is the dip extension, which must be at a great depth, if the claim on the apex has been properly located. Should the position claim be endwise of another, known to be a vein, the former may, or may not, have the extension of that vein. It may have nipped out, or been shifted sideways, for some considerable distance, by one or more faults.

Prospectors frequently loose much time, and induce others to waste money, in working deposits of very low value, on the assumption that they will improve in depth. If a deposit is low grade everywhere on the surface, and there is no evidence of leaching, experience does not justify the assumption that such deposit will improve downward. It may do so, but such a possibility cannot be inferred from the behaviour of ore deposits generally.

Prejudice in favor of, or against, a particular kind of country rock, or an implicit reliance on associated minerals, frequently interfere with the prospector's success. If it could be shewn, for example, that in Montana or California or elsewhere certain metallic minerals always occurred in a particular kind of country rock, or along with certain other minerals, such associations could not be assumed to prevail in British Columbia. Here, as in every other district or country, petrological and mineralogical relations must be worked out independently and without regard to anything but facts. These "archiels that winna ding."

A great deal of nonsense is frequently talked about

veins being capped over (not by drift which is usual, but by solid rock) when they cannot be followed on the surface. In the great majority of cases the real explanation is either that the vein has pinched out or been shifted by a cross fault. In the latter case its continuation may be found by a careful examination of the ground and this should be done, before staking, if possible.

(To be Continued).

THE APPLICATION OF CYANIDE TO THE RECOVERY OF GOLD.

(BY W. OLIPHANT BELL T.S.M.)

CYANIDE—the abbreviated name for the chemical compound known as K. C. N., or cyanide of potassium is now widely recognized throughout the world as an invaluable agent for the recovery of gold, (existing under certain conditions) which would otherwise be lost or at least would not pay to extract, by any complex process. Virtually it is only within the last eight years that any practical application has been made of this solvent, but already it is considered of the greatest importance and no plant for the treatment of free-milling ores is complete without the cyanide department. In South Africa, Australia, New Zealand and America great results have been obtained through the adoption of this process and it is safe to say that it has been instrumental not only in vastly increasing the gold returns, but in literally saving mining companies and districts from failure and disaster. Such a potency for good must necessarily be received unreservedly and it is small wonder that to-day there are many in British Columbia who look forward to a similar record following the use of cyanide on our fields. At the present time there is no actual working of the process here on any other than the mere experimental scale, but preparations are rapidly going forward in more than one quarter and ere long we may hope to see several plants in full swing. It will then be by actual results that we can judge of its suitability for British Columbia ores and if proven satisfactory the possibilities for the future are great. A few facts concerning the working of cyanide are gleaned by experience in countries where it is an indispensable factor may be of interest now, when local interest has been deeply touched and may very possibly be concerned in its introduction here.

Cyanide was known to the chemists many years ago to be a solvent for the precious metals, but then, as now, the utility of many common place facts connected with science was not appreciated and so it was left for Drs. McArthur and Forrest, in recent years, to achieve fame and fortune by demonstrating the commercial use of the chemical in its application to the treatment of gold and silver ores. In the first instance there can be no doubt but that its use was restricted to clean ores i.e., containing little or no sulphurets and even to-day best results can be obtained from ores of this description. It was some time, however, before any substantial headway was made, on account, of course, of the many little details which required perfecting, both in the direct use of the solution and the arrangement and design of the plant itself. The first great advance made by the new lixivation process took place on the Rand-Transvaal, where the many thousands of tons of tailings accumulated from the batteries of small value in gold, were successfully treated. The effect was profound, for the lodes in that country are mostly of low

but average grade value, the saving to the different companies of even a shilling or two per ton was of the greatest importance. This practicability of raising the ore value through the tailings, therefore, meant that the scope for profitable operations was vastly increased, and we may be sure that the wide prosperity which mining has attained in South Africa, in spite of many restrictions imposed by a hostile government, has been due in no small degree to the agency of cyanide. There everything was in its favour and its success was instantaneous and permanent. The ore, which throughout is of the eminently free-milling character and devoid of base mineral, presents no difficulties other than mechanical and connected with the forming of slimes, for treatment. The coarse gold is caught in the old-time fashion on the tables and the firmer metal or float portion is held in the tailings, which are caught in scuttling pits and afterwards made to yield up about ninety per cent. of their small value by undergoing treatment in the cyanide vats. In South Africa wet stamping only is in vogue and only the tailings are all the coarse quality gold is easily caught on the plates. In Australia very much the same conditions obtain in respect to the actual use of the solvent. In New Zealand, however, we find that probably more progress has been made in the use of the cyanide process than in any other part of the world, that is to say, in its direct application to the raw ore. Here there is a wide field to operate on in the matter of diversity, from the pure white free-milling quartz to the almost solid mineral sulphurets and it is safe to say they have all been practically tried with various results. One district alone called Ohincinvri—of large extent—owes its existence entirely to the agency of the solving process and it is already the largest gold-producing district in the colony. The gold in this part invariably exists in the ore in the fine state of sub-division so fine indeed that when seen it looks like a mere stain in the stone. To attempt to save it by any ordinary amalgamation proved utterly futile as many local companies knew to their cost, and it was not till the Cassel Gold Extracting Company demonstrated their ability to save it by cyanide—they having secured the patent rights—that any hope was held out for the successful development of this field. To-day there are over 500 stamps continually at work and the number is increasing. Of these, 200 head belong to the famous Waiki Company, which produces about \$100,000 of bullion per month and is the most prosperous mine in the colony. The treatment here is direct operation, on the dry stamped ore and this is probably the largest mill in the world adopting such a process, some particulars of the modus operandi may prove interesting. The ore as it arrives from the mine is dumped into drying kilns, ten in number, each capable of holding 500 tons, where it is thoroughly dried, preparatory to crushing. Drives into the hill side connect with the bottom of each kiln and as the ore is wanted it is drawn off and trucked out by cable haulage to the rock breakers. These are exceptionally powerful and can each crush 50 tons of ore per hour. After passing through the ore falls into a bin from whence it is conveyed in self tipping cars to the mill hoppers, also by cable haulage. The stamps weigh 1,000 pounds each of the latest design and are driven in batteries of five head, ninety drops per minute. They are fed by challenge ore feeders and are fitted with double discharge motor boxes. Thirty mesh screens are used and it is

found that ninety per cent of the pulverized ore will pass through an eighty mesh so fine in the dry crushing. The dry pulp falling into a covered trough on either side of the stamps is conveyed along a revolving screw conveyor which dumps it into a bucket elevator which in turn lifts it to the desired altitude for proper distribution to the leaching vats in that quarter of the plant. The whole work is done automatically and everything works smoothly and well. The leaching vats are built of concrete and each contains a charge of 250 tons ore and solution combined. The actual time occupied in treatment varies from two to three days, and upon completion the ore is practically worthless. A five per cent. strong solution of cyanide is used, and the extraction is over ninety-five per cent. of gold and about seventy-five per cent. of silver. All the ore treated so far has been free-milling, but as the workings go down the sulphide zone is coming in and it can be seen that modification in treatment will be necessary. So far they have not been able to make a success of mineralized ore treatment by cyanide in New Zealand, and this fact leads us to a general consideration of the process.

The merit of cyanide is based upon its action on the precious metals which in the extremely fine state it readily dissolves—more particularly gold—forming cyanides of gold and silver respectively. When these metals exist in different degrees of fineness in an ore some other method has to be employed in conjunction with the above in order to save the coarse gold—which under any circumstances will not be affected by the chemical. Thus it will be seen that fineness is an absolute essential to successful treatment. The great virtue in dry crushing is that much fine pulverization can be secured, thus rendering the ore thoroughly susceptible to the action of the solvent while the tendency to make slime is obviated, because there is an even reduction and a perfect intermingling of the particles composing the pulp. It is well known that in all settling pits connected with wet crushing mills regular layers of slimes are formed. These constitute one of the most obstinate difficulties to be overcome in using the wet extraction process. Some ore of course do not form slimes so readily as others, but in all cases they occur to a greater or less extent when brought into conjunction with water.

Cyanide has little effect on iron and copper or even the sulphurets of the metals, but their salts have a most pernicious effect on the solvent when existing in an ore, rendering it perfectly inoperative. Now all ores containing much minerals, even copper and iron pyrites or other combinations of these metals will be bound to make sulphates of the same. These latter are soluble and are particularly destructive to the cyanide solution. The other sulphurets of arsenic, antimony, lead and zinc are by no means favourably disposed to cyanide either, and have a decomposing effect upon it, but happily they are never present in an ordinary ore in very large quantities. It is proposed to treat the low-grade Rosslund ore by lixivation and a plant is now nearing completion for carry-on of the same. Cyanide will be the principal agent used, but agitation will be employed instead of the stationary percolation and the gold instead of being deposited in the zinc extraction boxes, will be precipitated direct from the charge by means of electrolysis. This will obviate any slimes and percolation troubles and will, if successful, lead, I should think, to

a general adoption of the process. Whether, however, cyanide is capable of leaching out the precious metals when contained in mineral sulphurets like pyrrhotite and copper pyrites is a moot point. We know its capabilities when dealing with free gold, existing alone or associated with minerals in an ore, but when combined with them, as it seems to be in these smelting ores, it naturally suggests itself that the dissolution of the mineral itself would be necessary in order to secure the desired extraction. This latter point is most certainly not to be wished for. The present experiment at Rossland is a sound object lesson and one which must guide us very much in the application of cyanide to our ores in British Columbia.

THE GOLDEN CACHE MINES PLANT.

BY A. C. MACCALLUM.

(Continued from last month).

THE vanners are of the "Frue" type and possess every modern improvement, recommending themselves as machines well adapted to the work required of them.

A 10-inch by 16 inch slide valve engine is employed to drive the stamps and rock crusher, the vanners being driven by a small upright engine.

Attached to the mill is a small portable saw mill, by means of which all lumber and timbers required for the mill and adjoining buildings was sawn.

Water for the mill is supplied by means of a duplex pump of Northey, Toronto, make, and is placed upon the banks of Cayoosh Creek, some 200 feet from the mill, thereby water is pumped up to a large circular tank erected upon the crusher floor, a steady flow of water being ensured to the stamps and vanners from this source.

There is the usual boarding house superintendent's dwelling place, assay office and cook house, adjacent to the mill.

The entire plant is driven by means of compressed air, the compressors having recently been installed. The compression plant is driven by means of water power, a method which certainly recommends itself, for utility, compactness and low running cost, in fact where water is available this is undoubtedly the best method for developing power for mine and mill.

The power house is situated above three-eighths of a mile below the mill of Cayoosh Creek, where a head of fifty feet is utilized to generate power. A dam was constructed at the head of the rapids here, upon one

end of the dam was constructed the inlet to the flume built upon the side of the canyon walls and carried some 250 feet down stream where the flume is led into a vertical penstock at the bottom of which is placed the turbine water-wheel; the turbine is placed horizontally, the water being discharged through a draft tube of some twenty feet long, into the rapids below.

The building into which the compressor is placed is some forty feet square, and this was erected with a view to the installation at an early date of an electrical lighting plant.

The compressor is of the duplex type, belt driven, the cylinders being 14 by 22. The compressor is run at a speed of ninety-five revolutions per minute against a pressure of ninety pounds air. This compressor is of the "Rand" type by the Canadian Rand Drill Co.; the wheel shaft extends through the penstock and into the compressor room, belt connection to the compressor being made from this shaft, from the same shaft power will be taken to drive electric light plant when installed, grip clutch pulleys being supplied, thereby providing facilities for cutting off either compressor or electric light machine, as the case may be.

The turbine is the well-known "McCormick" wheel, and under a fifty foot head will develop over 300 horse-power at 350 revolutions per minute. The water power plant here is controlled by means of one of Repogle's "double acting" relay governors. The fineness of regulation of governing as performed by this governor is worthy of more than passing remark.

This type of governor embraces the relay principle, that is, it works by instalments, cutting itself out automatically every time it operates. This is to prevent "hunting" or "racing." It is now an accepted fact amongst turbine wheel experts that water-wheel regulation of a reliable character can be provided only by the use of this relay principle in the governor.

The compressed air from compressor is conveyed by piping to the receiver placed overhead above the compressor and from there the air is conveyed in pipes to the mill and mine. The pipes are carefully boxed in and

covered. At the the mine has recently been set in operation five Rand Drills, driven by means of the compressed air; it is anticipated that by means of this outfit at the mine much work will be accomplished.

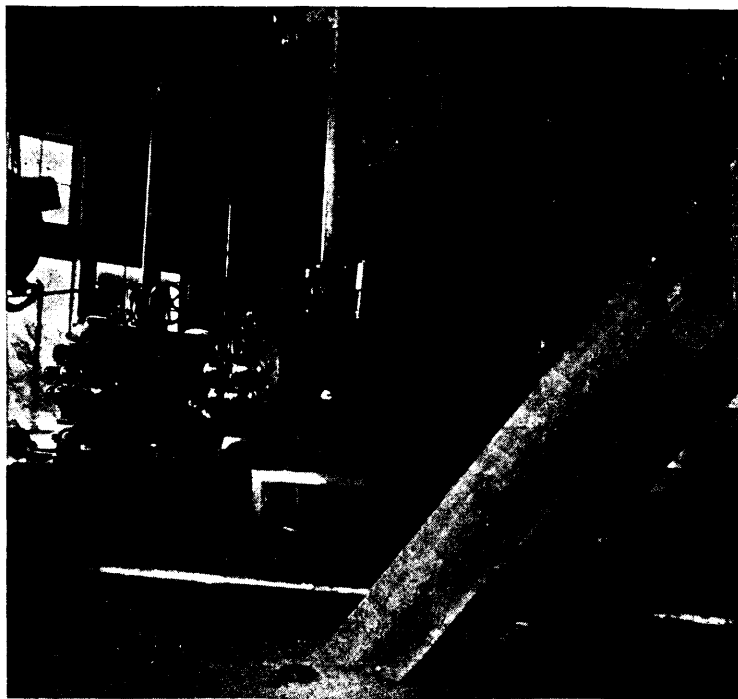
The entire plant, namely, the stamp mill and com-



1. THE DAM AND FLUME.
2. MILL AND OTHER BUILDINGS.

pressor plant was built and installed by the Wm. Hamilton Mfg. Co., Ltd., of Peterborough, Ont., and Vancouver, B. C., they having contracted for the erection of the complete outfit. Credit is due to Mr. Robert Wood, of New Westminster, who, as foreman of this work, which commends itself, had much to contend against in the shape of natural difficulties, to overcome which required much skill and perseverance. The interests of the contractors were carefully looked after by Mr. Robert Hamilton of Vancouver.

The superintendent of this mill is Col. G. T. Rives,



THE COMPRESSOR PLANT—INTERIOR VIEW.

lately of San Francisco, a man of undoubted engineering ability, and upon whose shoulders now rest the responsibility of making the Golden Cache give a better account of itself than heretofore. Much free-milling gold is in sight and with the plant now installed work should be steadily prosecuted with good results. The mine is in charge of Mr. Geo. Martin, late of Rossland.

B.C. AND THE YUKON FROM THE POINT OF VIEW OF THE ENGLISH INVESTOR.

(From our London Correspondent).

IT is just a year ago that the discoveries cabled from Klondike were stirring the pulses of the class of men in this country who make excellent pioneers. Many of these energetic tenderfeet are probably by now realizing that London is a good place to live in, and that gold is not so plentiful in Klondike as those imaginative Yankee and Canadian newspaper correspondents would have us

believe. Although, however, these young stalwarts may by this time be wishing themselves home again and earning their modest but certain £150 or £200 a year instead of a prospective £10,000 or so for a season's work. All the same, many of them will probably eventually settle down in British Columbia when they have had enough of Klondike and its vigorous climate. After the extreme North, with its Arctic winter, British Columbia will be comparatively a haven of rest, and there is little doubt that those—especially the moneyed class—who are up in Klondike, either from choice or necessity, will help to swell the population of the Province. I am, of course, now referring only to the really earnest seekers for mineral wealth who have left this country during the past few years for Canada. To such as these British Columbia can readily accord hearty welcome, for, as a general rule—and I can review in my mind's eye quite a number of them—they did not leave this country empty-handed, and if their education upon or knowledge of mining matters is of the flimsiest character, they are endowed with that Anglo-Saxon persistency in perseverance which has so often gained for the British Empire territory, and more substantial reward, and should be a marketable quality in your part of the world. During the past month we have been experiencing an antithesis to the spasm of activity which characterized the summer of 1897, and which resulted in the creation of a market to deal in British Columbia and Canadian mining securities. The papers have been full of cables from the other side—excuse this rather vague way of putting it—telling us that the Klondike gold output for the past season has been much exagger



THE PENSTOCK AND FLUME—GOLDEN CACHE.

ated, that many disappointed men are leaving the fields, and that trouble is apprehended from the collection of the Dominion's percentage of gold produced. The *Pall Mall Gazette* came out one evening with a big poster telling us to prepare for the

"DISSILLUSIONMENT OF KLONDIKE,"

and there has been a general disposition to go for Klondike. To a certain extent this tendency is not by any means to be deplored for it effectually prevents the wild-catter from further fleecing the public.

At times like these new companies are difficult to underwrite, and the public will not respond readily to the invitation to put up their money, even if the board scintillate with titles and gingerbread affixes which have for years been the chief stock in trade of the promoting fraternity. At the same time, legitimate enterprise also suffers, and capital being shy,

classify under the same reading. Klondike, British Columbia, Ontario mining companies are quoted in the same section and dealt in in the same market, and the influence of one group upon the other is considerable. Luckily we have never had a real boom in Canadian mining shares yet, and consequently the public have not been let in for shares in dubious concerns at inflated quotations. There are groups only waiting for some such opportunity to unload their scrip plunder, but so far their every effort has been frustrated by the dulness of markets and the indisposition of the public to go in for mining speculations. On paper Canada has already taken an enormous amount of capital. In an interesting article upon the subject the London *Statist*, one of the leading financial journals, estimates that the nominal capital of the companies formed in this country from July 19th, 1897 to July 30th, 1898, is £8,332,485. Running my



MOUNTED POLICE ON THE TRAIL.
(From a Photo by Edwards Bros.)

many excellent propositions have to be shelved to a more convenient or propitious season. Klondike and British Columbia have been so closely associated in the minds of the public that what affects one affects the other. A large number of the companies formed last year had composite titles in order that the different concerns might not be limited to either region. It is this which makes us hope that the well-wishers of Klondike are not over-estimating the value of the district, for the downfall of Klondike would in my opinion spell the ruin of B.C. It is all very well to say that the two are in no way connected, and that Dawson City and Victoria are separated by many miles of intervening barriers. The public do not draw these fine distinctions, and promoters do not help them to do so either. Both talk of B.C. and Klondike in the same breath, and the latter encourage the former to

eye down this list I recognize a number of companies that have not been brought out at all, some failures, and many others which might as well have been failures. But although up to the present the English investor has not put up much for the development of Klondike, and has not been loaded with boom scrip at boom prices. A lot of wretched concerns were launched during the excitement which ought never to have been allowed to live, and which were conceived in fraud. It is the collapse of these wretched conspiracies which will hurt the legitimate companies, and once more convince the public that mining booms are a delusion and a snare and only profitable to those who promote the companies. As I have said luckily the public has not yet been landed with much of this worthless scrip. Vulgarly speaking, mining investors are "off the feed." They are looking with rather

more interest at West Australians, but Krugerism, the Raid, and South African politics have effectually killed all vitality in the Kaffir market. If British Columbia can be left alone a little while she may work out her own salvation. What we want here are well-known British Columbia companies, which have a reputation behind and in front of them like the Le Roi, and which could be trusted to go on paying dividends to English stockholders as in the past to Canadian stockholders. Half a dozen highly respectable dividend-paying companies would be the very finest advertisement in the world for British Columbia. So far we lack them. The B.A.C. promised us the Le Roi, and the London *Globe* and B.A.C. stockholders a big dividend this year. But the minority have apparently drawn down the curtain on this cheery prospect, and instead there is a vista of endless litigation, and disappointment. No doubt the lawyers will have a good time; but their good time will be at the expense of British pockets, and every disappointed shareholder in the group which floated the B.A.C. and in the latter will feel that it is British Columbia which has caused the hitch, and not a section of dissatisfied Yankees.

Another disappointment has been furnished by the Klondike Bonanza, a company formed by a Mr. Ironmonger Sola and presented as a Christmas box, or New Year's gift—I forget at the moment exactly which. This company seems to have got into difficulties at the very outset, and the company's agent who went out to complete the purchase was advised by the Canadian officials not to do so, pending further developments. Mr. Sola wrote a book, or pamphlet, over here which was rushed out in front of his company and formed an excellent advertisement for it. The firm who published it, the Mining and Geographical Institute, has also done a little promoting on its own account in order to help to make both ends meet. Sola seems to have been arrested, examined and then released. The company's agent cabled home asking for instructions, and Sola is also reported to have cabled very briefly his views. A meeting was held to consider the position last week and the proceedings were lively. Ultimately the meeting was adjourned for two months. I do not pretend to deal with the merits of the case. Mr. Sola may have been unfortunate, and he may yet be able to complete the transactions, but experiences such as these are not likely to make the public more in love with an inaccessible district, nor unfortunately do British Columbia any good seeing that the prominence given to the one region is shared for good or evil by the other. Failure for Klondike would be tantamount to temporary eclipse of British Columbia, and although leading authorities do not apprehend such an unpleasant denouement for either the Yukon territory or your Province. We who believe that mining in British Columbia will by and by rival the Rand in both its permanence of product, and profitable results upon the capital employed, hope that before the long-talked of boom—predicted for May last—arrives the recent scandals in connection with company promotion on this side will have forced the Government to once and for all take in hand the question of the amendment of the Companies' Acts. They should at once frame such measures as will secure as far as may be possible the over-confiding country investor from the snares—"snare-certificates" the *Critic* somewhat wittily described them the other day—of the blood-suckers whose ferocity and rapacity have impaired the vitality

and strength of the home investor during the past few years. B.C. does not want a boom until the results of her leading lode districts prove beyond all possibility of cavil her claim to be regarded as the equal of the Rand. When dividends are in sight—dividends earned from mining and not from joint stock company flotation in London—people can begin to estimate the possible value of their share certificates. Until such time as this a boom would only benefit the few, promoters, stock-jobbers, etc., at the expense of the Province, and the home investor, and both the latter would suffer bitterly from inflation and the subsequent reaction.

A NEW DREDGE.

TESTS made recently at False Creek, Vancouver, with the model of a pneumatic caisson and air-lock elevator, invented by Garrison & Wood, have been remarkably successful, and we understand, in consequence, a company is shortly to be organized by Major Bennett, of Vancouver, to dredge on a large scale with this device on the Fraser



MODEL OF PNEUMATIC CAISSON AT WORK ON FALSE CREEK, VANCOUVER.

River, near Chilliwack. The model of the caisson and elevator are built into a scow for temporary purposes, but the permanent machine is to be placed on a stern-wheel steamer. The model itself has a caisson 5 feet by 8 feet, but the complete machine will be built of steel, and the caisson will be 10 feet by 20 feet, so as to allow six men to be at work at one time. Entrance to the upper air-closed chamber is obtained through an opening in the top, and when the workmen are all in, the opening is sealed up and the clamps over the opening to the lower chamber are removed, and the bed of the river is reached by means of a ladder. Before the workman goes on board, however, all the water will be removed from all the chambers by air pressure, which will vary from 2½ lbs. to 15 lbs. per square inch, according to the depth to be reached. On reaching the river bed, clamps are removed from the elevator shaft and the workmen begin excavating, and shovel the dirt into a bucket in the elevator.

THE MONTH'S MINING.

ALBERNI.

The only notable development work now being carried on is by the following companies: 1st. The Forfarshire Mining Company, under the supervision of Mr. Bonthron, M. E., at Anderson Lake. This Company holds a large area of ground, and are doing good development work on immense bodies of ore, the surface work disclosing a succession of seven or eight short lodes running parallel to each other and forming a mineral zone of 1,000 to 3,000 feet in width. Some of these lodes have been stripped on the side of the mountain, showing their continuity for a depth of 150 feet or more. A tunnel has also

been driven into one of these lodes for a distance of eighteen feet in a solid body of ore. This Company do not publish their assays, but judging from the quality of ore I should say that they are satisfied with the gold and copper contents. The mine is under the management of Mr. Cameron, a skilled and practical man from Colorado. 2nd. The next in importance is the "Three Jays" mine, situate about fifteen miles down the Canal. This mine is owned by Mr. Hayes and partners, (all Americans). Mr. Hayes, as a practical man, has supervision, and the developments in progress have proved some very rich gold and copper ores. Three gangs of men are at work driving tunnels 75 to 100 feet in, and sinking a shaft, present depth nearly 150 feet, on the dip of the lode, all of them looking well and large bodies of ore in sight, some of which is being packed to canal for shipment to Tacoma smelter. A loading wharf is now being constructed, also a tramway to connect the mine with the wharf. This mine is a very promising one for the lucky owners. 3rd. The Alberni Consolidated Gold Mine has had a very chequered career. Managed from Victoria, every step seems to have been in the wrong direction, but a new era has dawned upon its existence. In May last Mr. W. J. R. Cowell, metallurgist, of Victoria, (on behalf of the United Canadian Gold Fields Co.) placed before the Company a practical proposition for the purchase of their mine. Terms were arranged giving Mr. Cowell sufficient time to get a battery test of its value. A proof of Mr. Cowell's energy was given by the erection of a stamp battery capable of treating fourteen tons of ore per day, in an incredibly short space of time. Several clean ups have taken place, but the result is not publicly known, but should the lode stuff yield on an average \$15 to \$20 per ton, arrangements for economical working on a large scale might be made to treat it profitably and prove an object lesson for the district. 4th. The Golden Eagle Company in the same locality, have done a very considerable amount of work in proving their mine, with very promising results, and they are now petitioning the Premier to assist them with better access to the mine. 5th. The latest purchase under bond in the district has been made by Americans from Salt Lake, Utah, of a mine named the Thistle, situated about eight miles down the Canal, and about eight miles by trail from it. Mr. Kingsbury, their engineer, is supervising the work of development by proving the continuity of the three outcrops to a depth, by means of tunnels. Work is being pushed forward vigorously and should the deposits prove to go down and prove anything like equal in value to the surface show, the success of the mine is certain. The developments now proceeding will soon prove if the lodes or deposits exist at a depth. This latter problem is the one disturbing element in this district, and effects a number of properties on the market. Any new discoveries made are being carefully noted by silent observers, and as soon as promising shows can be purchased at a reasonable rate, so soon will actual mining take the place of mere assessment work and relocations.

TEXADA ISLAND AND WEST COAST DISTRICTS.

There is much mining activity in all the West Coast mining districts. On Texada Island drills are being installed at the Van Anda mine, and development is proceeding apace. One hundred tons of hand sorted ore are being sacked for shipment to Vivian & Son, Swansea, the ore having been purchased for that well known firm by Mr. W. Pellew-Harvey, Vancouver representative. The Raven near to the Van Anda is a promising prospect. The Marble Bay mining property has a lot of splendid ore lying on the dump. Some high grade ore has been taken from the Surprise, which has a shaft down 300 feet and a good ledge showing. Another fine looking proposition on Texada Island is the Silver Tip. Going further up the Coast the Shoal Bay district is reached. Here high grade copper ore carrying gold and silver is taken out. Within forty-five miles of Nanaimo there have been 140 claims recorded within the last three months. Trails are now under construction from Nanaimo.

HARRISON LAKE.

(From our own Correspondent.)

In my last letter I stated that everybody in this district was waiting for the first clean-up in the Fire Mountain Company's mine to enable them to realize, "in many cases, very high prices on their prospects." And when the clean-up did not come up to expectations they left, most of them going to Klondike, so that, at the present writing, not over half a dozen claims are being worked, and these, with the exception of Providence and the Money Spinner, on a very limited scale. This however, I suppose, is to be expected in a new mining

district, most of the prospectors in which are farmers, or people who have never seen ore before in their lives, and only held the claims on the chance of selling. Fire Mountain, for instance, is a network of quartz veins, most of which on the surface show free gold. The ore, however, turns base as depth is gained. That the result of the Money Spinner clean-up was unsatisfactory may be attributed partially, if not wholly, to the fact that proper investigations with regard to this phenomenon had not been carried out, the machinery erected having been solely designed to treat free-milling quartz, such as was met with on the surface of this property. The company also shewed want of foresight in not engaging an experienced man to superintend the crushing. Meanwhile, since shutting down the mill, the company have continued development work, the main tunnel being now in about 500 feet, and there is a very large amount of ore in sight. The Government is at present bridging the Lillooet River, five miles from Tipella, thus bringing the waggon road to this point, it having been demonstrated that owing to the mouth of the river at Douglas filling up it is utterly unfitted as a shipping point; besides, the steep grade on Gibraltar Hill renders it impossible to haul ore there.

CARIBOO—BARKERVILLE AND VICINITY.

(From our own Correspondent.)

There seems to be new life dawning upon this once famous and rich placer mining district. Williams and Lightning Creeks are now having the long needed capital brought to bear upon them, while Slough Creek, Willow River, Burns and Nelson Creeks are not to be neglected.

At Lightning Creek there is much activity. An English company have secured nearly three miles of the creek below the town of Stanley, where, years ago, shafts were sunk and found the gravel to be very rich, but the large quantity of water to pump beat them. The miners in those days used primitive appliances and were unable to control the water. The present company have abundance of means and will employ the most modern manufacturing machinery. They will also construct a drain tunnel for draining the deep wet portions of the creek bed.

There is also another company (American) from Baltimore, that have begun the construction of a drain tunnel below Beaver Pass, which, when completed, will open a large portion of main Lightning Creek; so it will be seen that Williams and Lightning Creeks are again to be made large producers of the yellow metal.

On Slough Creek the company bearing its name are about to resume work on their property by sinking their main shaft to bedrock. This company has not been operating their main shaft for the last two years, but have been exploring some bench or higher levels near the mouth of Nelson Creek. This creek having been so fabulously rich, producing nearly three millions of dollars in gold, the company were in hopes to get on the Nelson Creek channel, but have found it too deep and will have to open it up from their main Slough Creek shaft when that has been put down to bedrock. It is now almost an established fact that Slough Creek is the main deep channel that drains all this rich district of Cariboo. The borings prove it to be the deepest by hundreds of feet than Lightning or Willow River, and when bottomed something wonderful in the way of a rich ancient river channel may be expected.

On Burns Creek there are two large hydraulic plants going in to work the bench ground, of which there are miles in extent. It is understood that this company have ample means, and from the manner in which they are equipping their mines, they understand their business. There is a large force of men at work here constructing the ditches, of which there are two, the main one being taken from Jack of Clubs Creek, the other from New Creek. The piping, giants, etc., are *en route*, and the company are erecting substantial buildings at Burns and Nelson Creeks.

On Willow River, Mr. Laird, who has been closed down on account of the burning of his hoisting and pumping plant, is now on the way from the East with a new plant. It is said to be one of the best pumping and hoisting plants ever taken into Cariboo.

The Government is now constructing a new wagon road over the divide from Barkerville to Summit Creek. When completed the Hamshaw Mining Company, which has a complete hydraulic outfit now laying at Barkerville, will be equipped ready for water the coming season.

The present water season has been a fairly good one, and the numerous small creek and gulch mines in the district have done better than usual. The clean-ups are just now beginning to come in. Taking it all in all, this old mining district is

surely coming solidly to the front again without any booming, and you may expect to hear excellent results in the next year or so, for it is certain that there is plenty of gold here, which, with the capital and skill now being employed, is sure to give good returns to the investors.

VERNON.

Our Vernon correspondent sends us the following important intelligence: "I have just learnt that Mr. J. E. Banks, while in San Francisco lately, disposed of two-thirds of his interests in the Grand Times, on Six Mile Creek, west of Okanagan Lake, and some other claims, for \$21,000, cash and guarantee that \$12,000 worth of work shall be done on the Grand Times at once. This sale will most probably lead to others in the vicinity of Vernon, and may be the beginning of busy times in the various camps,

CAMP MCKINNEY.

(From our own Correspondent.)

Since I last wrote a very rich strike has been made in the Waterloo Claim, 2,000 feet east of the Cariboo. During the winter a 50-foot shaft was sunk and good ore obtained, but owing to the influx of water caused by the melting snow, work was discontinued during the spring. About a month ago Mr. J. Murphy, one of the owners, made an opening some 300 feet east of the shaft and uncovered a fine strong ledge, about five feet wide, the ore showing fine gold, some of the specimens being as rich as any from the famous Cariboo. The character of the ore is similar to the Cariboo, and the compass bearing makes the find due east from the hoisting shaft of the claim. This strike is likely to lead to considerable development work being done, as the ground for two miles further east is located, and the owners are now busy prospecting. The adjoining claim to the Waterloo is the Fontenoy, owned by Mr. Hugh Cameron. There is already an 80-foot shaft on this claim on a north and south vein, but as the strike in the Waterloo is only sixty feet from the line of the Fontenoy, Mr. Cameron will doubtless catch the vein on his claim. He is now cross-cutting for it, and should he strike it the value of his property will be very much enhanced. Another good strike has also recently been made west of the Cariboo, in the Donald Ben Claim, known as the Annie L. This claim lies between the Maple Leaf, recently purchased by Mr. G. B. McAuley, and the Sailor, owned by Mr. Chas. Dietz. Some free gold was found at the depth of a few feet, the body of the ore assaying, I understand, about \$15. A shaft is now being sunk on a four to five-foot vein. It is the intention of the owners to give their property a good test. On the Pandu Claim belonging to Messrs. James & Ruby some very good ore has been struck, several of the specimens showing fine gold. The vein runs northerly and southerly, and is situated east of the Douglas or Eureka Claim, adjoining the Almora Claim. The vein is from a foot to eighteen inches wide, but as this is near the surface, it will in all probability increase in depth. The work of putting in the ten additional stamps for the Cariboo Company's mill is now completed, and on the arrival of some necessary belting the twenty stamps will be running. The re-organization of this company is nearing completion, and some time this month the new company will take over the property. I see that the twentieth dividend has just been declared, making nearly a quarter of a million paid in dividends, add to this another quarter of a million for wages, plant, etc., and it gives the respectable sum of half a million produced by this mine in four years and a-half, not a bad showing for Camp McKinney. The Minnehaha has not been doing much work during the last few months. The president of the company is daily expected, when work will probably be resumed. The Victoria mine has also been closed down during the spring and summer, the company, I understand, ascribing lack of better transportation facilities. The outlook of the camp for the fall is very encouraging. The reorganization of the Cariboo means a more progressive policy, and the strikes above mentioned will doubtless attract purchasers and encourage other holders of properties to further development work, one satisfactory feature of the claims so far opened being the greater depth the greater richness.

H. N.

Later.—The reorganization of the Old Cariboo M. & M. Co. has caused much excitement in Camp McKinney, raising expectations which it is to be hoped will be realized, that the old camp will receive a fresh impetus and take a place with some of the foremost camps of the Province. The new company is composed of wealthy Toronto men, and the organization is incorporated in our own Province, having its registered

office here, a fact in every way more beneficial to our camp than under the old regime. Further, the "Cariboo Consolidated" will embrace several adjoining claims, which means more extensive working and possibly in the near future the purchase of other properties, as Toronto mining men have already gained among their American confreres a reputation for pluck in mining ventures when they considered they had a good thing. The strike on the Waterloo could not have been made at a happier moment. Being in the same lead as the Cariboo it demonstrates the continuity and richness of that vein, and every prospector in camp is hunting for the now famous blue quartz of that claim. A 7x9 shaft is now down some 16 feet, showing a solid 6½-foot vein. A cross-cut is being run on the adjoining claim, the Fontenoy, and the ledge exposed, its value as yet not having been determined. Some buyers have already visited the camp and several deals are on the tapis, so that the outlook for a busy fall is very promising, but until the new Cariboo Company get fairly to work, it is improbable that there will be any material change.

FAIRVIEW.

[From our own Correspondent.]

The camp is unmistakably quiet at the present time, notwithstanding the fact that a steady progress is being made. The history of Fairview has been a remarkable one, and is worthy the careful study of everyone interested in scientific mining or company promoting. It demonstrates that only legitimate mining is going to succeed in this age—that is to say, given a good mineral prospect, you must have good men in charge and adequate capital to enable good work to be carried on. Unfortunately for Fairview, heretofore generally one of those important factors has been conspicuous for its absence, and it is only recently the outlook has become clearer. The past, however, is beyond recall, and little is to be gained by reciting its mistakes. Suffice it to say that its lessons are appreciated by those now operating in Camp Fairview. Meanwhile there are two mining companies actively operating properties here, and upon the success or failure of these depends the future of Fairview. They are the Winchester Gold Mines Company and the Smuggler Gold Mining Company. To Mr. Richard Russell and Mr. Geo. H. Maurer, a great deal of credit is due for the services they have rendered their respective concerns. Few are aware of the almost insurmountable obstacles they have overcome to achieve the present results for the company each one represents.

No one can visit the Stenwinder, examine the surface showings, the shafts, drifts, tunnels and machinery, without feeling favorably impressed.

A large amount of development work has been done and a very satisfactory mill test of some 200 tons just made. The work consists of an inclined shaft 125 feet deep, and at the 75 foot level a drift has been run nearly 200 feet, all in vein matter more or less mineralized. The end of the drift is all vein matter. At the 75 foot level a cross-cut was successfully run to tap a parallel vein, and the present showing there could hardly be surpassed so far as appearances is concerned. The ore is heavily mineralized with galena, iron pyrites, and some zinc, and carries good gold values. Other work consists of approximately 200 feet of tunneling, also all in ore. If this ore will average \$5.00 and a large mill can be erected near by, with chlorination plant attached, the Stenwinder cannot fail to have a great career. Numerous assays have been taken and gold panned, giving various returns, from \$3 to \$150, a fair average being, however, about \$7. It is probable that the Company will lease the Tin Horn mill for a considerable time, owing to the satisfactory result of the mill test.

The Smuggler mine is another instance of perseverance rewarded. Development work has been going on steadily for more than a year, and the mine has now been opened with a tunnel 300 feet long, a shaft 200 feet deep, and various drifts. The work has discovered a large body of ore, some of which is very rich, showing free gold. The building of a twenty-stamp mill is now almost completed. This mill is situated within 3,000 feet of the mine and a road has been constructed thereto over which the ore will be hauled. I am informed that some time in December the result of the first month's run will be made known, barring accidents or delays. Of other matters, Oro Fino Mines Company is carrying on development work some ten miles from Fairview and the Morning Star owners are sinking a shaft and are down some 80 feet in good ore. They recently received a good round offer for this property, but decided not to accept.

Some little assessment work is being done all around, and a large store is being erected by a local man on the Ellis Township, besides which a few private residences are in course of building.

BOUNDARY CREEK.

Steady progress in the district record for the past month, with one or two incidents to encourage mining companies to continue and extend development operations. Greenwood, Wellington and Deadwood camps are making a good showing as regards work, and, what is still more satisfactory, are further proving the existence of ore in such quantity and quality as makes for permanence. Taking these camps in the order named, work is being pushed on the Stenwinder, Old Ironsides and Knob Hill. The latest report is that the ledge has been again cut on the Old Ironsides, this time at the 200-foot level, at which depth a cross-cut entered the ore at a distance of forty feet from the main shaft. Both on this claim and the Knob Hill, which adjoins it and is being worked jointly with it, the prospects improve as the ore bodies are opened up, and plant and facilities for more expeditious working are being increased as the conditions call for additional appliances and power. The Stenwinder and Brooklyn are also developing well as their massive deposits of ore are further explored. Work has not yet been resumed on the Snowshoe, which is under a \$65,000 bond to the Kootenay Development Company, of London, England. It is stated though that a steam plant will shortly be put in. The underground work to date on this claim consists chiefly of an incline shaft sunk 159 feet, with a 40-foot cross-cut at the 70-foot level, and another 115 feet at the 120-foot level. From the latter a drift has been run about forty feet. There is plenty of ore showing in these workings and values are satisfactory.

The principal work now being done in Wellington Camp is on the Winnipeg and Golden Crown. Drifts are being run on the bigger ledge crossing the Winnipeg claim, and the more work there is done the better the showing. The sinking of the main shaft, already 100 feet in depth, will probably be resumed shortly and be continued down to the 200-foot level. The work below the surface already done on the Winnipeg includes nearly 600 feet of drifting and cross-cutting at the 100-foot level, and less extensive exploration at the 50-foot level. Besides the main working shaft, sunk since the steam plant was installed, there are three or four prospecting shafts, varying in depth down to fifty feet. On the Golden Crown, which adjoins the Winnipeg, the cross-cut tunnel, now in more than 320 feet, has intersected seven distinct leads occurring in a big dyke of diorite. Lately men were put on to continue sinking the main shaft, which, at the time of writing, is nearly 100 feet in depth. This shaft will be sunk to the 150-foot level, and then a cross-cut will be run to cut the Winnipeg ledges which cross this claim.

In Deadwood Camp the Sunset, Mother Lode and Morrison claims are all actively at work. The Sunset tunnel is in 400 feet and is now connected with the surface by an upraise. As exploratory work goes on developments are more and more encouraging. Near by the big plant on the Mother Lode is about ready for work, so that before this appears in print work will have been resumed in the main working shaft, already down forty feet. This shaft has two compartments, each 4 feet 6 inches by 5 feet in the clear, and it is intended to sink it to a vertical depth of 500 feet. With a big ore body, a powerful plant and plenty of capital behind it, the Mother Lode should eventually justify present great expectations. A steam plant will shortly be placed on the Morrison claim, it being now on the way in. For a comparatively long period nothing was done to continue the development of this claim, but now a new shaft is being put down all in ore. More will, doubtless, be heard shortly of the Morrison, which has a very extensive surface showing and which returns good assay values.

The Golconda, in Smith's camp, is developing well. Water proved too heavy at sixty feet to admit of the shaft being sunk deeper without the aid of a power pump, so a crosscut tunnel was run in from a lower level. At fifty feet in the ledge was entered, so a drift was commenced. It is now in fifteen feet with a full face of ore—arsenical and iron pyrites in a silicious gangue, assay values being good. It is expected that work will shortly be resumed on one or two of the claims comprising the Republic group, also in Smith's camp.

A dozen men have lately been put to work on Mr. D. C. Corbin's King Solomon claim in Copper camp. After the necessary buildings for the housing of the men have been completed, sinking will be commenced on the enormous copper ore showing that on the surface occurs over a width of about 300 feet. It is about two years since any appreciable amount of development work was done in Copper camp, so this new beginning by moneyed men is giving claim holders fresh heart.

The cross-cut tunnel to cut the big quartz lead on the City of Paris in Central (White's) camp is now in about 300 feet. The

compressor, plant and machine drills will be installed here shortly. Work is being done on the Oro Denero, in Summit camp, but no particulars are just now available. The same may be said of the Boundary Creek Mining and Milling Company's D. A. and G. A. R. claims near Greenwood. Mr. C. L. Thomet, of Midway, reports a considerable improvement on the Lake View in Long Lake camp. At a depth of fifty feet the quartz lead, which had pinched to a few inches, has widened to about two feet, and the last assay return gave \$68.00 gold and 39 ounces silver. Things are looking more and more promising for soon encountering the ledge on the Bruce, in Graham's Camp, near Midway. The granitic formation has been passed through, and the face of the drive is now in a dolomite and lime similar to that in which the big outcrop occurs above. The rock now being taken out shows iron freely, and a little copper is to be seen occasionally. It is expected that good ore will be met with before these notes are published.

The C.P.R. smelter man, Mr. W. H. Aldridge, of Trail, was in the district two or three weeks ago. It is generally understood that he favored Midway for a smelter location, and this conclusion has since been strengthened by a representative of the company requesting the owner of land adjoining the Midway townsite to give him an option on the land for a smelter site. The railway surveyors have lately been running trial lines from nearly all of the district mining camps to the route of the main line. Branch lines from Pass Creek, Long Lake, Summit, Greenwood, Wellington, and Central camps have been run to converge at a point on the summit of the Eholt Pass, about nine miles north-east of Greenwood. The line from Copper and Deadwood camps will probably join the main line at Anaconda, whilst that from Kimberley Camp will make a junction near the confluence of Boundary and Eholt creeks.

PERCY VERENS.

ROSSLAND.

Good reports are made from the Virginia, where development is proceeding steadily; the Iron Mask, which is now making small shipments; the Monte Cristo, White Bear, No. 1, Victoria, Triumph and Keystone. In fact, mining in Rossland was never in a more flourishing condition.

Shipments from the Rossland camp are increasing at a very rapid rate, the weekly output during September averaging considerably over that of the preceding month. The tactics of the Le Roi management in making unduly large shipments since the restraining order of the Courts was removed are criticized very severely in some quarters, but an amicable settlement of the dispute between the B. A. Corporation and the minority shareholders is now anticipated. The War Eagle continues to make heavy and regular shipments, and drifting is in progress at the 625-foot level. Four thousand tons of silicious ore from the dump is to be shortly treated at the B. C. Bullion Extracting Company's Works, and the result will be received with much interest. A very fine body of ore, containing tellurides and free gold, has been encountered on the Jumbo in the lower tunnel, at a depth of 350 feet, indications of this lead being traceable on the surface of the property. An excellent strike has also been made during the month on the Columbia-Kootenay. The discovery was made in No. 4 tunnel, 380 feet from the mouth and 200 feet from the surface, where cross-cut entered the vein from the hanging wall. Although the tunnel has been continued over 14 feet, nothing except solid mineral is exposed. Nine feet of this is high-grade ore, which assays from \$17.80 to \$112 in gold and copper. The ore has a fine appearance. It shows more quartz than has been traceable heretofore in rock from the Columbia-Kootenay, and the percentage of copper is higher. This mine at present is not numbered amongst the ore shippers of the Rossland camp, as the Company, for this winter, have determined simply to proceed with blocking out the ore and developing the mine, preparatory to entering the active shipping list next spring. The mine is at present opened by five adit levels, all driven on the ledge, and numbered consecutively from 1 to 5. Number 5, the lowest level, is in a distance of about 450 feet, and gives a vertical height of 600 feet upon the lode above this point. Number 4 is in about the same distance. Number 3 is in over a thousand feet. The former owners of the claims sank a short surface shaft, which connects with Number 1 level, but the present Company do not intend to use the shaft, as it possesses no economic advantages. The air compressor, which supplies motive power for working the rock drills, is situated about half a mile below the lowest workings. The drills used are of the Ingersoll type. The ore is pyrrhotite and chalcopyrite.

and is not of a very high grade, although, if Rosslund reports speak true, it is much richer in the Number 4 level. The situation of the mine, overlooking as it does the Columbia River, is remarkably pretty, and the smelter and town of Trail can be seen in the distance about six miles away. The Company have studied the comfort of the employees by erecting commodious bunk houses and boarding establishment. The energetic manager of the B.A.C. in the Rosslund camp, Mr. Edwin Durant, is pushing ahead with all rapidity the various improvements in the mines under his charge here, and it is safe to assert that the B.A.C. will exercise a potent influence on the future of this district.

Following are the ore shipments from the mines adjacent to Rosslund from January 1 to September 17, 1898.

	Tons.
Le Roi.....	34,019
War Eagle.....	26,601
Centre Star.....	2,657
Poorman.....	453
Iron Mask.....	2,569
Cliff.....	140
Velvet.....	350
Monte Christo.....	416
Sunset No. 2.....	30
Deer Park.....	6
Giant.....	114
Total.....	67,255

The ore shipments for the seven days from September 10 to September 17, inclusive, established the following record:

War Eagle.....	1,412
Iron Mask.....	66
Le Roi.....	2,563
Total.....	4,043

The total shipments from the camp since January 1, 1897, aggregate 140,095 tons.

REVELSTOKE.

(From our own Correspondent.)

Reports from the scene of the operations of the French Creek Company in Big Bend continue to be most satisfactory, and it is estimated that the clean up will approximate \$100,000, and this, considering the short period the company has been at work, will be a remarkably good shewing. There are two other companies waiting the result of the French Creek people's work to go in on other leases in the vicinity with large hydraulic plants.

The Carnes Creek Consolidated is prosecuting work steadily on the Roseberry with excellent results. The ore is increasing in value as development proceeds, and as high a return as \$230.00 has recently been obtained from the pay streak. The shares of this company are nearly all held in Revelstoke, and the shareholders are naturally elated over the success of their venture. Negotiations are in progress which are likely to send the shares up in value very considerably.

The Adair group on Laforme Creek, about twenty miles north of town, is shewing up well under development. This group of claims presents one of the most remarkable surface shewings in North Kootenay. With development the ore, when exposed, is shewing up like that of the Roseberry, which is remarkable as carrying no copper at all and only a trace of silver.

At the Waverley the work of getting the machinery into place is still in progress. Col. Ansby is superintending operations. The company is going in for solid work without any fuss or sensationalism. They have a fine property, which, under judicious management will, no doubt, develop into a big thing.

There have been several mining men in town recently looking up properties in this vicinity and in the Lardeau, and several deals are being negotiated.

TROUT LAKE.

(From our own Correspondent.)

Reports from the Silver Cup mine, in this district, the property of the Sunshine, Limited, a subsidiary company of the Lillooet, Fraser River and Cariboo Gold Fields, Limited, are most favorable. During the last few months about 650 tons of ore have been shipped to smelters in the United States and to the Hall Mines smelter at Nelson, and such shipments have

produced (freight, treatment and duty charges deducted) about \$70,000. The last shipment returned as high as as 225 ounces of silver to the ton, besides good values in gold and lead. Our correspondent advises us that there is now sacked at the property awaiting shipment about 160 tons of ore, of the same high grade quality as that previously sent forward, besides a very large quantity of concentrating ores on the dump of the value of about \$25.00 to the ton, which is held for future treatment. In addition there is a very large quantity of clean ore and concentrating ore in sight in the mine. We understand development work is now being vigorously prosecuted with a view to shewing up the ore bodies already exposed at further depth.

As the Sunshine, Limited, owns six other properties surrounding the Silver Cup, there is every prospect of its operations proving very successful.

NELSON.

(From our own Correspondent.)

Great excitement has been caused in this city by the recent discovery of gold on Rover Creek, some twelve or fourteen miles down the river, and many of the inhabitants have gone there in the hopes of making a fortune as easily as others have found wealth in the Klondike. As a matter of fact gold has been known to exist in all the creeks that assist to feed the Kootenay River, for many years, and while Rover Creek itself shows signs of old sluice boxes, etc., we can point to '49, Eagle, and a few more that have been pretty thoroughly prospected in the old days.

On Eagle Creek is the Poorman mine, lately transformed into a stock company, which has a good large stamp mill and has paid its owners very well ever since they first took hold of it, and on a branch of Rover Creek is still to be found machinery that was erected to work a gold bearing vein on the Whitewater claims, but was abandoned some years ago.

There is no doubt whatever about the existence of the "yellow metal" on the creek, but it may be difficult to extract it with profit. Fine weather for some weeks now has materially helped the prospectors all round here, and the results of so much searching and of such a mass of development work should be forthcoming in the course of the next month or so. Many new locations are being recorded daily, though of course all will not of necessity prove valuable, but the chances are that a good proportion will do so.

The Hall Mines smelter has been and still is busy with custom ores, as well as with that from their own mine, the Silver King, and it is not at all improbable that the lead stack will be blown in shortly, as several consignments of rich lead ore have been received at the works.

Speaking on this point it certainly does seem a pity that some arrangement cannot be made with our neighbors across the line whereby the smelting of lead ores can be made the profitable business in Kootenay that it should be, and it is sincerely to be hoped that the present more than usually friendly feeling between the two great nations may at least pave the way to the making of some bargain that will build up this local industry.

The other chief mines in this district are all in good shape, the Fern being busy erecting a cyanide plant, and the Athabasca putting in additional machinery. South of us, towards Ymir, great activity prevails; stamp mills, concentrators, tramways, and all such incidents to the mining business are being installed, so that the camp is a particularly lively one just now. Ainsworth also is very much more busy than it has been for the last year or two, several of the mines shipping ore steadily, and contracts being placed for a very considerable amount of tunnelling and shaft sinking, all of which incurs the expenditure of money. In short this season is showing up more hopeful properties, and so causing much higher expectations for the future than has been the case for some time. Long may it continue.

YMIR.

(From our own Correspondent.)

There is great activity at present in this camp owing to the great number of companies, syndicates and prospectors that are doing development work, and upon the average about two dozen pack animals a day leave the town laden with supplies from the different camps. The Ymir and Porto Reco companies are installing plants on their respective properties, and this furthermore gives employment to a large number of mechanics and laborers. Ymir is very wisely sending, under the capable charge of Mr. D. Cameron

a fine display of minerals to the Spokane Fruit Fair, Spokane, Washington, and Mr. Arthur B. Buckworth, J.P., is also making a collection of minerals for the Canadian Pacific Railway Company, which will be forwarded to the Boston Mechanics' Fair. There could be no better way of advertising the wealth of the Ymir camp.

The Kenneth Gold Mining Company, owning the Tamarac, reports having disposed of 350,000 shares of treasury stock. I shall be pleased to see work commenced on this property, as I feel confident that there is good material here for the making of a valuable mine.

Some of your readers will, perhaps, be interested to learn that Professor J. Garvin has returned from Douglas Island, Alaska, where he has been reporting for the Walters Company, Spokane, on a large low grade proposition similar to the property now being operated by the Treadwell Gem Company, Juneau. Another somewhat important piece of intelligence is that the Dominion Geological Survey are at work on the North Fork of Salmon River, the party being in charge of Mr. W. G. Miller, B. A., of School of Mines, Kingston.

Midge Creek, or better known on the map as Sixteen Mile Creek, has some very fine showings. The ledges are large, being rarely less than fifteen feet in width, and in the majority of cases containing good ore from the grass roots. I venture to predict that, as a result of development work, this section will be proved to be exceedingly rich.

FORT STEEL MINING DIVISION.
(From our own Correspondent.)

The great event of the past month was the discovery by Mr. J. Higby and others of a large free milling gold ledge, the assays therefrom being astonishingly high, and as it was struck above the placer ground on Boulder Creek, Wild Horse, it is supposed by some that this is the mother lode of the country. The assay returns vary from \$300 to \$2,500 in gold. It is to be hoped that this is a "true bill," for if so it will mean a great deal to Fort Steele. Another strike was also recently made at Moyia, where fifteen feet of solid galena was exposed in the Boissy tunnel on the Moyia claim. On this same claim two or three good showings have lately been made. The galena averaging about sixty dollars per ton. Yet another important discovery was made not far from Moyia City, in a find of a foot of asbestos of good quality.

Throughout the district a good deal of development is now being carried on. The Hall Mines Company are going in for prospecting and bonding on a somewhat extensive scale, their tunnel on Big Three and Mammoth being in over 100 feet. At the North Star mine an extra crew of men have been put on. The discovery this month at the Sullivan group of an ore body of over 100 feet in width, consisting of massive galena, may also be regarded as of importance. The ore is of a somewhat lower grade than that at the North Star, but the quantity seems illimitable. This improves the chances of Kimberley becoming a mining centre, the little town being situated between these mine groups. There are several other reported strikes, but they require confirmation.

The St. Mary's country is being well prospected this year, with the result that several large copper lodes have been discovered. The copper in this section is generally in the pyrite form, carrying gold and silver, sometimes associated with mispickel (assanopyrite) and pyrrhotite. With adequate transportation facilities, St. Mary's will doubtless develop into a first class copper camp.

SHIPPING MINES.

SLOCAN—JULY.

The Collector of Customs at Kaslo kindly sends us the following returns from that port for the month of August:

	Pounds.
Payne.....	1,300,000
Ruth.....	1,030,000
Last Chance.....	400,000
Slocan Star.....	390,000
Whitewater.....	175,000
Antoine.....	90,000
Rambler.....	30,000
Coin.....	13,000
C. M. Wilson.....	5,415
Carbonate No. 2.....	2,800
Fletcher Mine.....	1,000
Wonderful Bird.....	425
Total 2,718½ tons or.....	3,437,640

The destination of the various shipments during August was as follows:

Pueblo.....	2,230,000
Everett.....	1,065,000
Kootenay Ore Co., Kaslo.....	112,640
Tacoma.....	30,000
Total 1,718½ tons or.....	3,437,640

The ore exported from the port of Kaslo was as follows:

Gross pounds ore.....	3,423,500
Value.....	\$138,086
Pounds lead, contents.....	1,677,675
Ounces silver, contents.....	156,895

NAKUSP (REPORTING TO KASLO.)

Gross pounds ore.....	1,529,667
Value.....	\$58,716
Pounds lead, contents.....	624,461
Ounces silver, contents.....	71,254

KASLO AND NAKUSP.

Pounds ore.....	4,953,167
Value.....	\$196,802
Pounds lead.....	2,302,116
Ounces silver.....	228,149

COAL SHIPMENTS.

The New Vancouver Ooal Mining & Land Company, Ltd,
FOREIGN SHIPMENTS, AUGUST, 1898.

	Tons.
2—S.S. Titania..... San Francisco	5,414
5—S.S. Burma..... " "	4,446
8—S.S. Rosalie..... Port Townsend	43
9—S.S. Siam..... San Francisco	4,497
12—S.S. Amur..... Alaska	173
15—S.S. Titania..... San Francisco	5,424
16—S.S. Burma..... Port Los Angeles	4,580
19—S.S. San Mateo..... " "	3,874
19—Str. Sea Lion..... Port Townsend	40
20—S.S. Horsa..... Alaska	176
22—Str. Sea Lion..... Port Townsend	29
21—S.S. Siam..... San Francisco	4,502
26—Ship J. B. Brown..... Honolulu, H.I.	2,404
26—Str. Sea Lion..... Port Townsend	29
26—S.S. Amur..... Alaska	184
26—Str. Mystery..... " "	61
28—Ship Henry Villard..... Honolulu, H.I.	2,492
30—S.S. Titania..... San Francisco	5,434
31—Str. R. Holyoke..... Port Townsend	25
Total.....	43,827

FOREIGN SHIPMENTS ENDING SEPTEMBER 20, 1898.

	Tons.
1—Bark Grenada..... Honolulu, H.I.	3,691
2—S.S. Roanoke..... Seattle	445
3—S.S. Burma..... Port Los Angeles	4,544
8—S.S. San Mateo..... San Francisco	4,398
10—S.S. Siam..... Port Los Angeles	4,495
10—S.S. Horsa..... Alaska	151
11—S.S. Amur..... " "	177
13—S.S. City of Grand Rapids..... " "	50
15—S.S. Titania..... San Francisco	5,434
19—S.S. Fastnet..... Alaska	70
19—S.S. Burma..... Port Los Angeles	4,576
Total.....	28,031

PUBLICATIONS.

The Hudson's Bay Company's Land Tenures* and the Occupation of Assiniboia by Lord Selkirk's Settlers, by Archer Martin, Esq., Barrister-at-Law.

ALTHOUGH to most of the people of the Dominion of Canada, and probably to many of the settlers in Manitoba, that land of cattle and cornfields may seem too new to have a history, yet Mr. Archer Martin, under the

above title has collected such a variety of interesting facts and documents as shall carry the reader back—in imagination—to the days when, under the name of Fort Garry, Winnipeg was but a trading station of the Hudson's Bay Company—to the days when "The Governor and Company of the Hudson's Bay Adventurers were made, created and constituted the true and absolute lords and proprietors of Rupert's Land, and held that plantation in free and common socage, * * * * * yielding and paying yearly to us, our heirs and successors, for the same, two elk and two black beavers * * * as often as we, our heirs and successors shall happen to enter into the said territories." Mr. Martin has endowed his work with a dual interest, for while the average reader or the historian will find much to interest him in the quaintly worded grants to the Hudson's Bay and kindred companies, in the story of the Earl of Selkirk's purchase of 116,000 square miles of territory, of his disastrous and futile attempts to settle the colony, of the hardships of the settlers, and of the final resumption of possession of the colony by the Hudson's Bay Company; while these and many other features of the book will prove to be of general interest, yet to the lawyer there is matter for close and profitable study in the carefully compiled documents, maps and lists of original grantees with which Mr. Martin has liberally interlarded the pages of his book.

No reader will be able to lay down this work without forming some slight conception of the vast amount of study and research that must have been pursued in preparing those pages for the press. The research was conducted in the face of apparently insurmountable difficulty, and the following extract from the author's preface will convey some idea of the many stumbling blocks which retarded his efforts: "No one who has not searched for comparatively old documents in a new country can appreciate the difficulties to be overcome; especially in the face of such a destruction of public records as has occurred at Red River; first, by the iniquitous act of the Governor of Assiniboia, in 1822 (he destroyed documents when leaving the country); second, by the burning of the house of the Roman Catholic Bishop of St. Boniface, with all its archives, in 1861; and third, by the half breeds during the occupation of Fort Garry by Louis Riel, in the Red River rebellion of 1869-70."

We can with confidence assure Mr. Martin that his extended residence in the Prairie Province has brought forth good fruit, and we trust that his able pen will soon be devoted to the preparation of a similar work in our own Province, where the need of a lucid interpretation of our own complex land and mining laws has been strongly realized, both by lay men and those "learned in the law."

CORRESPONDENCE.

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

HEROIC MINING, OR MINE EQUIPMENT EXTRAORDINARY.

TO THE EDITOR:—Doubtless many good mines have been wasted through the timidity of their owners and the constant failure to provide proper equipment. Ore bodies that if, properly worked, would have yielded enormous profits, have, for the lack of suitable machinery and efficient management been exhausted by hand to mouth methods which barely returned the cost of operation. Once the extent of a deposit has been established or can reasonably be inferred from the known facts, the duty of a mine owner is clear. If he would make the most of his property, the best and most suitable machinery should be at once erected on a scale corresponding to the extent of the deposit. Such a method of procedure appeals so forcibly to the common sense of a miner that, *a priori*, it might be predicated as the invariable course to be adopted. But experience—especially in the West—shows that there are other determining factors. The erection of machinery at mines seems to be undertaken by different persons for different reasons; usually it is to facilitate the working of ore that has been proved to exist. Sometimes it is to work ore that is expected to exist, or again it may be for the illegitimate purpose of booming shares.

I am curious to know for which of these purposes the proposed railway (twenty-five miles in length) and concentrator, etc., are to be made by the company owning the Waverly and Tangier mines, north of Albert Canyon. Perhaps you, sir, can tell me:

1. Is it a fact that the only mining work done on the Tangier mine is a shaft about twelve feet deep?

2. Is it a fact that in driving the only tunnel which has intersected the vein in the Waverly mine, the ore pinched out in all directions, and was only about fifty-two feet long and about thirty-seven feet deep, and only concentrating ore at that?

If these are facts it would interest the public to know:

(a) Whether the above mentioned works have been recommended by any reputable engineer? If so, his name.

(b) Whether as much ore has been blocked out as would keep the proposed concentrating machinery going for a fortnight?

In view of the extent of the surface works proposed by the Company, the enormous staff employed by them in B.C., consisting of General Manager, Mining Engineer, Mine and Transportation Superintendent, Clerks, etc., may be justified. It cannot be the mining the Company is carrying on which needs such a staff, for I understand that only six miners are employed, and they are working in dead ground.

For the sake of the mining reputation of B.C., I hope you will be able to clear away some of my difficulties in connection with this Company. Perhaps you will also be good enough to tell me at the same time, what has become of the very valuable claims on the Coast, purchased by them from the Channe Mining Company?

Another Company's operations which trouble me not a little are those of the Whitewater Deep. The statement recently issued by that Company to the public, related very much indeed to the Whitewater, and exceedingly little to the Whitewater Deep, whilst a most important part of it dealt with the output of a mine which existed only in imagination. A millionaire's neighbour may be a very poor man, and a property adjoining a bonanza may be incapable of profitable working. Would it not have been better to show exactly what had been done on the Whitewater Deep? Perhaps you, sir, can tell me:

1. Whether it is a fact that at the time the aforesaid statement was issued, the only ore found in Whitewater Deep was a vein about six or seven inches wide, and occurring as bunches?

2. Whether the vein where cut is several hundred feet below the lowest workings in the Whitewater?

3. Whether fifty tons of ore has yet been found!

4. What is the justification for driving a tunnel 1,400 feet long, erecting powerful machinery, extensive buildings for offices, etc.?

If the two cases cited by me are not instances of Heroic Mining, what are they? They clearly come within the category of mine equipment extraordinary, from my point of view, but I may be wrong and would like to be put right, and be satisfied that they are not cases of share-booming.

ANTI-BOOMER.

MAIL FACILITIES IN OMEICA.

TO THE EDITOR:—In your June number just to hand, I notice, on page 16, "There is a hope that the Postmaster General will provide a mail service to the Omeica district; mail to be carried by the Hudson's Bay Company's steamer up the Skeena, etc."

It is to be sincerely hoped that the Postmaster General will provide a mail service to this district at an early date, but by the most serviceable route which is by way of Ashcroft and Quesnelle.

The Hudson's Bay Co's steamer makes only two or three trips up the Skeena in the summer or while the water is high, and if any mail was sent to Hazelton, it might possibly lie there for weeks waiting for transport to Manson's Creek, while by the Quesnelle route there is more frequent travel as far as Fort St. James, on Stuart's Lake, from which point the mail is easily reached from this end.

This season the travel from Quesnelle to Manson's Creek has been great, over 300 pack horses have passed going north etc., to one pack horse coming this way from Hazelton then again the trip in winter is frequently made but always by Quesnelle.

The British Columbia Government, in the past two years, has spent more money—something like \$4,000, I am informed—on the trail from Hazelton to Babine, which only

benefits the Hudson's Bay Co., than has been expended on the Quesnelle in 10 years.

So far this season, we have had *mails, only* by the 43rd Mining & Milling Co's pack train, and in past seasons the Manager, Lt.-Col. Wright, has always had our mail brought in; there is no reason why a monthly mail service should not be established and operated from Quesnelle to Fort St. James, and thence to Manson's Creek for at least five months—say May to September. Thanking you for the space,

A PROSPECTOR.

Manson's Creek, B.C., Omenica Dist.

"MINES AND METHODS." REPLY TO MR. HOLDICH.

TO THE EDITOR:—Noticing the article by A. H. Holdich in your September number, dealing with "Mines and Methods," and in support of his contention quoting from a list of assays given on page 40 of the July number of the *Mining Record*, we believe that he has hardly taken a fair example upon which to base his argument. These assays were not quoted with the idea or intention of misleading anyone as to the values of the ore at the smelter, but were given as showing assay values only, and nothing in the article claims that these values can be obtained at the smelter. Mr. Holdich has apparently overlooked the fact that transportation from the district in question to Swansea, Wales, is quoted at \$5.00 per ton, and the smelters at that point pay \$1.50 per unit for copper and full value of 100 per cent. for gold and silver. Taking the same assay quoted by him, and throwing off the half per cent. copper, the 12 cents over and above the \$4.00 in gold, and the 2.10 once silver, this would give \$9.00 for the copper, \$4.00 for the gold, and \$3.00 for the silver, making a total of \$16.00. Deducting \$5.00 freight and \$5.50 for treatment quoted by the smelter people, leaves \$5.50 for cost of extraction and transportation to the beach, which will more than cover this expense as soon as such transportation has been provided, as it is a known fact that the Le Roi mine, with its elaborate system of hoisting and pumping, are extracting ore at about \$2.00 per ton. This proposition being susceptible of tunnel development, thereby eliminating the expensive process of hoisting and pumping, should certainly be expected to produce ore at an even less expense. This justifies the contention of the owners of the properties that they can be made to pay the cost of development from the beginning, as the values can be reasonably expected to increase as development extends beyond the influence of the elements. Taking the later assays given in the list—and they are all strictly from surface outcrops—it is not difficult to see that there are ore chutes in the Quatsino properties that will more than pay the cost of extraction, development and treatment. These assays are not from picked samples, but are the averages of the different ore chutes sampled, and the solid ore, of a uniform character, shows upon the surface in chutes a number of feet wide, and in some instances approximating 300 feet in length.

The great advantage the Quatsino district has over, say Boundary Creek and other copper camps, is its magnificent transportation facilities and accessibility. It is not dependent upon, or subject to, the caprice and extortion of any transportation company, but the field is open to all; and since the decline of the Klondike excitement it is easy to make contracts with any number of vessels capable of handling this business, at very moderate figures, provided the tonnage is ready to move to the smelters at Tacoma, Everett, or San Francisco; and it is a known fact that agents of the Swansea smelters are prepared to take ores from the coast properties, arranging for their own transportation to their smelters in Wales. Of course, the prospect for a smelter in that immediate vicinity is one that must be relegated to the future, until the mines there have been sufficiently developed to justify the erection of such a plant, which, on account of the immediate proximity of a number one article of coking coal, iron and lime, can treat this class of ore at a very low rate. With the proper investment of capital in these properties that time should not be far distant.

It is, perhaps, unfortunate that the owners of the properties in this district are not financially able to develop them upon the scale justified by the surface indications. Comstock mountain rises directly from the sea to an elevation of 2,500 feet, and is densely wooded and exceedingly rugged, and although the most remote claim is not to exceed a mile and a-half from tide-water, trails and waggon roads must

be constructed at considerable expense before these properties can begin shipping ore.

There is no question but that with the present great demand and favorable outlook for copper, this camp is absolutely certain to attract attention, as, to the best of our knowledge and belief, few districts can show as high averages of copper values with as little development as can this, and no exorbitant prices have been asked for these properties, the terms so far quoted by the owners having been most liberal as to time bonds and payments. Of course the camp is yet comparatively new and does not aspire to make a position for itself by detracting from the advantages of any other district. It only desires to become known, and asks nothing more than a fair and impartial investigation by men competent to judge of its possibilities. Point by point, and feature for feature, however, the Quatsino district will not concede precedence to any other in British Columbia, and it will take but a reasonable length of time to demonstrate the truth of this assertion.

W. H. FORTIER AND
H. WARNER.

Spokane, Wash.

"A SIGN OF THE TIMES."

TO THE EDITOR:—Many and various have been the sketches and descriptions of Canada, but I have failed to come across a better and more truthful article on the subject than that contained in the issue of the *British Columbia Review* of the 27th of August last, under the heading "A Sign of the Times," and I look forward to much good resulting therefrom. Why does not Mr. Cooke, who has done so much for tourists, do more to direct travel of this description to a land more beautiful than Switzerland, offering opportunity for finer sport than the Urals, and presenting chances for investment greater than any country under the sun. For the *blase* tourist here is something entirely new—a country where a man can combine business with pleasure at one and the same time.

Of course when once the beaten tracks of travel by rail or steamer are left behind, the many luxuries of old world civilization cannot be obtained, but the more exciting incidents of camp life will amply reward the pleasure seeker.

Much has been said of late about the hardships and danger of travel in the North, and our papers teem with letters and reports of experiences in those regions by gold-seekers; but why go so far and risk so much when equally good chances may be met with in portions of this Province, and without the occasion of undergoing a tithe of the discomforts. Once, for instance, capital is introduced and applied in a business-like manner, the Okanagon Valley will become a real Eldorado.

We were recently honoured by a visit from the Chief of the Geological Department of the Dominion, Dr. Dawson, who inspected some of the claims near Vernon, and he was exceedingly pleased with what he saw, strongly advising the continuance of work at the Blue Jay and on the Bon Diable Co.'s claims, on which properties considerable work has been already done. But these properties by no means complete the list of good prospects in the vicinity.

F. ADRIAN MEYER.

Vernon, B.C.

ANSWERS TO CORRESPONDENTS.

OWING to pressure on space this month, enquirers will receive replies by letter, instead of under this heading as usual.

THE METAL MARKET.

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

BUSINESS has this month been generally good, and activity has been displayed in nearly all departments.

SILVER.

The rise in silver has been a particularly pleasing and notable feature. The market has been steady and the demand good, the East principally taking the offerings. On the 1st of the month prices advanced from 59½ to 60, reaching 60½ by the 10th. Our quotations to-day (September 25th) are 60½, 61. Prices have not been so high since May, 1897. The average price of silver for August of last year was 54.9, and for last month 59.54. The rise has been steady since March when the average monthly price was 54.90.

LEAD.

Lead has been somewhat unsatisfactory, unsettled advices from the seaboard having somewhat demoralized the market and dealings have been chiefly of a retail character. The first week of the month sales were made on a basis of 3.92½c. in St. Louis, 4.05 New York, and the following week prices further declined to 3.85, 3.87½ St. Louis, 3.97½ c. New York. By the middle of the month a better tendency however prevailed, and rather a better business was done at 3.85c. St. Louis, 4c. New York for common lead. Our latest quotations are 4c., 3.97c. New York. The average price for August (New York) was 4c. as compared with 3.84c. for the same period 1897.

SPELTER.

This market has been very brisk and consumption has been remarkably good. A fairly large business has been done for both September and October shipments at 4.65c. St. Louis, 4.85c. New York, the latest quotations being 4.61 New York.

COPPER.

Although the copper market has, in marked contrast to last month, been dull, prices have remained firm and producers have not shown any willingness to give way in prices, Lake copper fluctuating between 12¼ to 12¾, and electrolytic 11.90, 12. It is not likely that there will be any further decline and next month should show a better tendency. The average price last month, 11.89.

The value of British Columbia exports to the United States for the year to September 1897, is placed at \$147,637.

THE STOCK MARKET.

DURING the month of September mining stocks have been active, but in many cases western brokers have been unable to fill orders as eastern brokers bid figures at which sellers did not feel disposed to sell.

In the Rossland district Jumbo shares went up from thirty cents to sixty cents in twenty-four hours, owing to a rich strike in the tunnel at a depth of 350 feet from the surface. Grand Prize has been very active as the company is almost to resume work and the shares advanced in a week from two and a quarter cents to five cents. The company has sold 100,000 shares of treasury stock and

work on the mine will begin at once. This property adjoins the Deer Park and has, it is asserted, the Deer Park vein. Virginia has fallen from \$1 to seventy-five cents, and Iron Mask from \$1 to eighty-five cents.

White Bear and Silver Bell shares have been in good demand, and there has also been good enquiry for Deer Park and Iron Colt.

Other stocks moving have been Gopher, Home take, R. E. Lee, Novelty, Giant and Alberta.

In Lillooet district the feature has been the great drop in price of Golden Cache shares, and we hear of stock being offered as low as eighteen cents and of sales having been made at twenty-five cents. This is in part due, of course to the alleged theft of 800 ounces of amalgam from the safe at the mill, the loss forming the greater part of the clean up recently made. However, the fact of the robbery in itself would not be sufficient to cause the present withdrawal of confidence in the property and that there is something beyond to account for the big Golden Cache slump is very apparent.

In Coast properties Van Anda shares have been active, and all the cheap blocks have been bought up. There are very few parcels that can now be purchased under 5½ cents, and most of the Victoria shareholders would not sell under 10 cents. The mine never looked better than it does to-day, and important developments are expected to take place in the near future.

Albarni Consolidated shares have been selling more freely again, and it is generally believed that the deal will be made with the English Company holding the option. If so, the present shareholders will receive 10 cents per share in cash and a quarter interest in the new Company's stocks.

In the Fairview Camp Smuggler shares have been active, and there has been considerable enquiry for Winchester scrip.

Slocan stocks have been quiet, with some enquiry for Dardanelles, work at this mine having been resumed. Noble Five has also been enquired for.

In Nelson Division many large sales in Athabasca, Dundee, Tamarack and Nelson Poorman are reported.

In Revelstoke District considerable enquiry has been made for Carnes Creek shares, owing to the excellent reports from this property, assays running \$230 per ton in gold.

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Rossland.

36 Government St., Victoria.

Mining Stocks.

Prepared by A. W. Morro & Co., Mining Brokers, Victoria, B.C., Aug. 25, '98

Company.	Capital.	Par Value.	Price.
TRAIL CREEK.			
Alberta.....	\$1,000,000	\$1	\$ 5
Big Three.....	3,500,000	1	9
Bruce.....	1,000,000	1	10
Butte.....	1,000,000	1	02
Caledonia Con.....	1,000,000	1	5½
California.....	2,500,000	1	15
Camp Bird.....	1,000,000	1	05
Celtic Queen.....	750,000	1	03
Centre Star.....	500,000	1	
Commander.....	500,000	1	15
Deer Park.....	1,000,000	1	21
Enterprise.....	1,000,000	1	20
Evening Star.....	1,000,000	1	06
Georgia.....	1,000,000	1	15
Gertrude.....	500,000	1	11
Golden Drip.....	500,000	1	15
Hattie Brown.....	1,000,000	1	03
High Ore.....	500,000	1	05
Imperial.....	1,000,000	1	10
Iron Horse.....	1,000,000	1	17½
Iron Mask.....	500,000	1	10
I.X.L.....	1,000,000	5	10
Iron Colt.....	1,000,000	1	10
Homestake.....	1,000,000	1	05
Gopher.....	1,000,000	1	05½
R. E. Lee.....	2,000,000	1	04½
Jumbo.....	500,000	1	62
Le Roi.....	2,500,000	1	7 00
Lilly May.....	1,000,000	1	20
Mabel.....	1,000,000	1	15
Mayflower.....	1,000,000	1	10
Monita.....	750,000	1	19
Monte Cristo.....	1,000,000	1	29
Morning Star.....	1,000,000	1	04
Nest Egg-Firefly.....	1,000,000	1	10
Northern Belle.....	1,000,000	1	10
Novelty.....	1,000,000	1	05
Palo Alto.....	1,000,000	1	05
Phoenix.....	500,000	1	13
Poorman.....	500,000	1	13
Red Mountain View.....	1,000,000	1	11
Rossland, Red Mountain.....	1,000,000	1	22
St. Elmo.....	1,000,000	1	06
St. Paul.....	1,000,000	1	12½
Silverine.....	500,000	1	06
Virginia.....	500,000	1	75
War Eagle Consolidated.....	2,000,000	1	3 00
West Le Roi.....	500,000	1	28
White Bear.....	2,000,000	1	09
AINSWORTH, NELSON AND SLOCAN.			
American Boy.....	1,000,000	1	15
Arlington.....	1,000,000	1	10
Argo.....	100,000	0 10	10
Athabasca.....	1,000,000	1	32
Black Hills.....	100,000	0 10	10
Buffalo of Slocan.....	150,000	0 25	—
Canadian M. M. and S. Co.....	2,000,000	1	07½
Cumberland.....	500,000	10	
Dundee.....	1,000,000	1	35
Dardanelles.....	1,000,000	1	08
Dellie.....	700,000	1	12
Eidon.....	1,000,000	1	05
Ellen.....	1,000,000	1	07½
Elkhorn.....	1,000,000	1	10
Exchequer.....	1,000,000	1	10
Fern Gold.....	200,000	0 25	75
Goodenough.....	800,000	1	25
Gibson.....	650,000	1	17½
Grey Eagle.....	750,000	1	
Hall Mines.....	300,000	£1	7 00
Idler.....	1,000,000	1	12½
Kaslo-Montezuma.....	1,250,000	1	12
London.....	150,000	25	25
Minnesota.....	1,000,000	1	
Nelson-Poorman.....	250,000	0 25	50
Northern Light.....	250,000	1	16½
Noble Five Con.....	1,200,000	1	18
Ottawa and Ivanhoe.....	1,000,000	1	12½
Payne.....	2,500,000	2 50	
Phoenix Consolidated.....	1,000,000	1	07
Rambler Con.....	1,000,000	1	16
Reco.....	1,000,000	1	1 30
Slocan-Reciprocity.....	1,000,000	1	06
Slocan Star.....	500,000	50	1 50
Santa Marie.....	\$1,000,000	\$1	05
Silver Band.....	250,000	0 25	12½
Slocan Queen.....	1,000,000	1	10
Star.....	1,000,000	1	07
St. Keverne.....	1,000,000	1	03½
Sunshine.....	500,000	10	
Two Friends.....	240,000	30	13
Washington.....	1,000,000	1	25
Wonderful.....	1,000,000	1	05
LARDEAU.			
Consolidated Sable Creek Mining Co.....	1,500,000	1	10
TEXADA ISLAND.			
Texada Proprietary.....	250,000	25	25
Van Anda.....	5,000,000	1	05½
Victoria-Texada.....	150,000	0 25	10
Texada Kirk Lake.....	600,000	1	1 00
Raven.....	1,000,000	1	10
Gold Bar.....	100,000	0 10	10

VANCOUVER ISLAND.			
Alberni Mountain Rose.....	250,000	1	05½
Consolidated Alberni.....	500,000	1	20
Mineral Creek.....	500,000	1	05½
Mineral Hill.....	750,000	1	05
Quadra.....	500,000	1	10
CARIBOO.			
Cariboo Gold Fields Ltd.....	£100,000		
Cariboo Hydraulic Consolidated.....	\$5,000,000	1	85
Horsefly Hydraulic.....	200,000		
Horsefly Gold Mining Co.....	1,000,000	10	1 50
Cariboo M. & D. Co.....	300,000	1	25
Golden River Quesnelle.....	£350,000	£1	
Victoria Hydraulic.....	300,000	1	85
LILLOOET DISTRICT.			
Golden Cache.....	500,000	1	20
Alpha Bell.....	500,000	1	50
Cayoosh Creek Mines.....	500,000	1	50
Lillooet Gold Reefs.....	200,000	25	25
Excelsior.....	500,000	1	50
FAIRVIEW CAMP.			
Tin Horn.....	200,000	0 25	15
Winchester.....	2,000,000	0 25	21
BOUNDARY.			
Old Innesides.....	1,000,000	1	25
Golden Crown.....	1,500,000	1	25
CAMP MCKINNEY.			
Cariboo.....	800,000	1	75
Minnehaha.....			17
REVELSTOKE.			
Carnes Creek Consolidated.....	1,000,000	1	10

† Dividends paid to date are as follows: War Eagle, (new company) \$90,000; Trail Creek District—Le Roi, \$825,000; War Eagle (old company), \$217,000; Camp McKinney—Cariboo, \$221,000; Nelson District—Hall Mines, \$226,750; Fern, \$10,000; Slocan District—Payne, about \$1,000,000; Slocan Star, \$400,000; Reco, \$287,000; Idaho, \$240,000; Whitewater, \$151,000; Rambler-Cariboo, \$40,000; Last Chance, \$40,000; Two Friends, \$6,000.

NORTH KOOTENAY.

For information about the Big Bend, Lardeau, Fish Creek and Illecillewaet mining camps round Revelstoke, address

GROGAN & CO., Revelstoke Station.

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AMOUNT AND VALUE OF MATERIALS PRODUCED 1896 AND 1897.

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

Production for 1890, \$2,608,608; for 1896, \$7,146,425; for 1897, \$10,455,268.

GOLD.

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

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

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

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

SILVER-LEAD.

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

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

COPPER.

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

COAL AND COKE.

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

SMELTERS AND RAILROADS.

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

CAPITAL.

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

MINERAL LANDS.

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

YUKON GOLD FIELDS.

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

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TIME TABLE NO. 36.

(Taking effect September 1st, 1898.)

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

NEW WESTMINSTER ROUTE.

LEAVE VICTORIA—For New Westminster, Ladner and Lulu Island Sunday at 23 o'clock; Wednesday and Friday at 7 o'clock. Sunday's steamer to New Westminster connects with C.P.R. Train No. 2 going east, Monday.
FOR PLUMPER PASS—Wednesdays and Fridays at 7 o'clock.
FOR MORESBY AND PENDER ISLANDS—Fridays at 7 o'clock.
LEAVE NEW WESTMINSTER—For Victoria Monday at 13:15 o'clock. Thursday and Saturday at 7 o'clock.
FOR PLUMPER PASS—Saturday at 7 o'clock.
FOR PENDER AND MORESBY ISLANDS—Thursday at 7 o'clock.

FRASER RIVER ROUTE.

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

NORTHERN ROUTE.

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

KLONDIKE ROUTE.

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

BARCLAY SOUND ROUTE.

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

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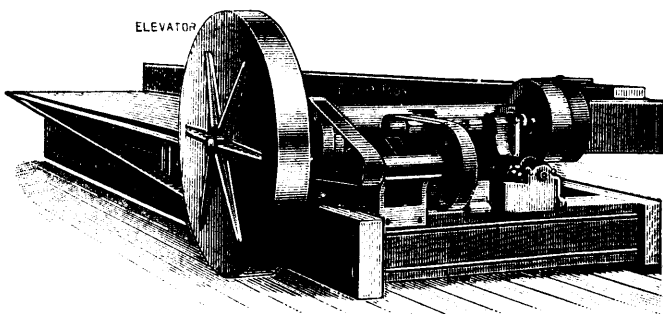
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