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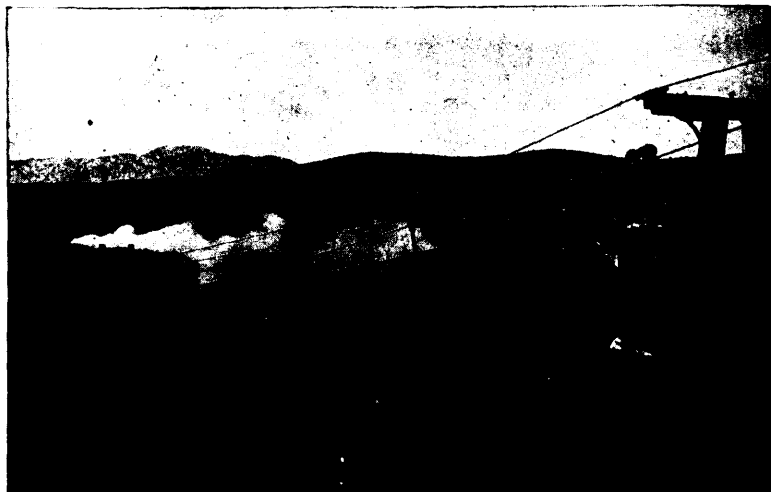
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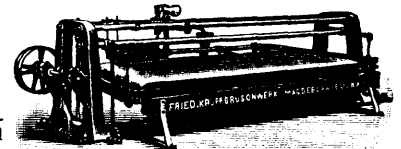
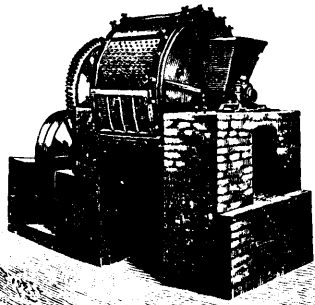
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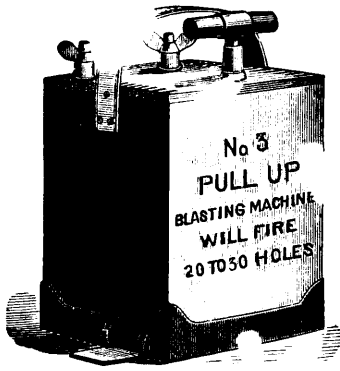
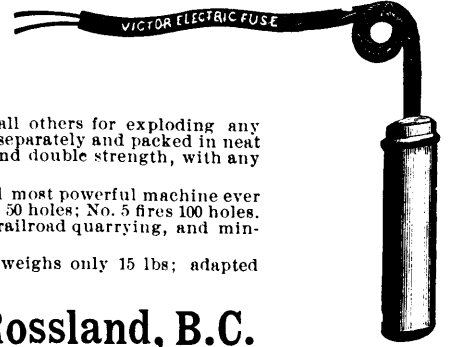
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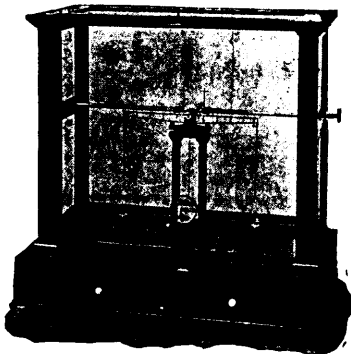
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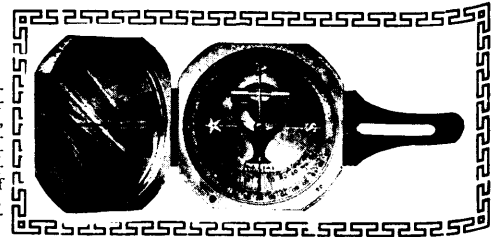
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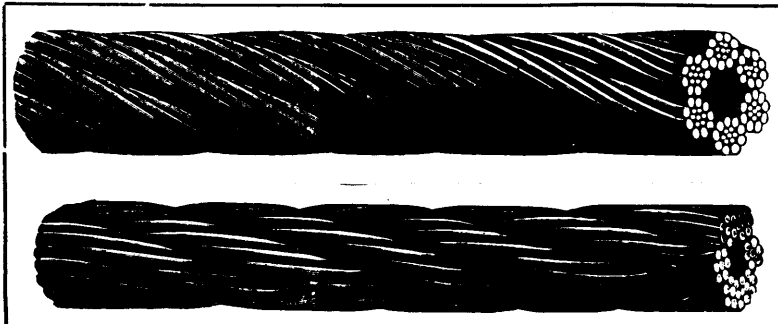
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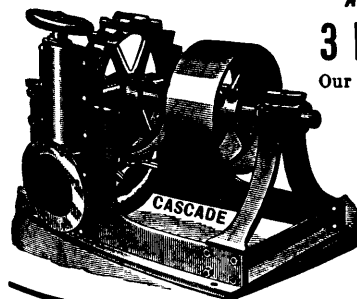
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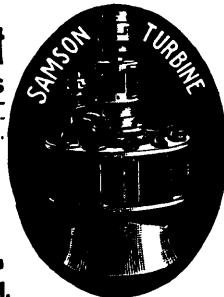


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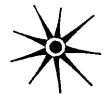
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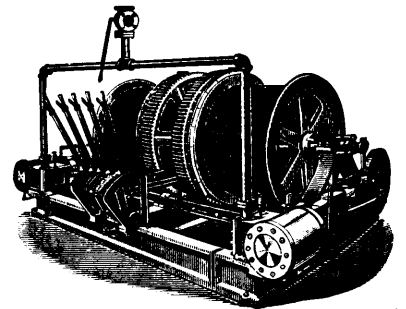
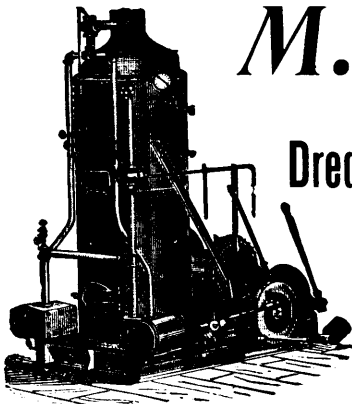
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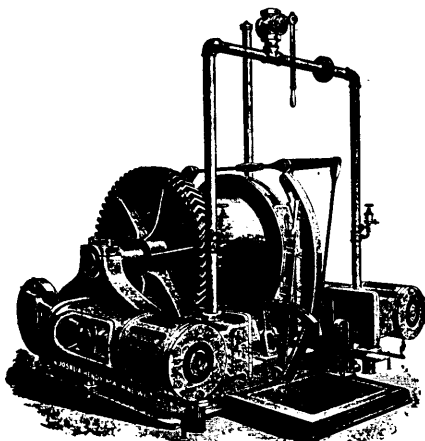
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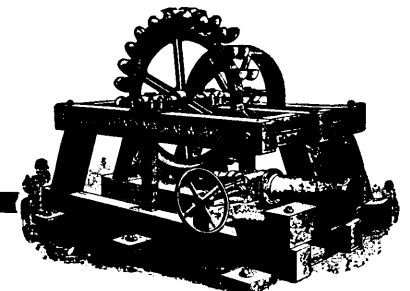
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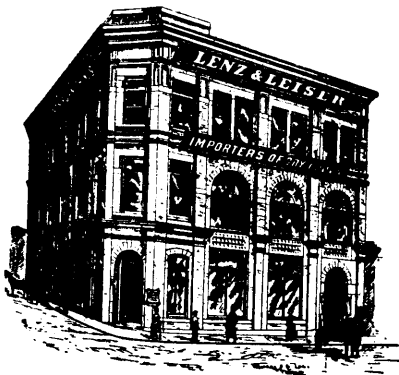
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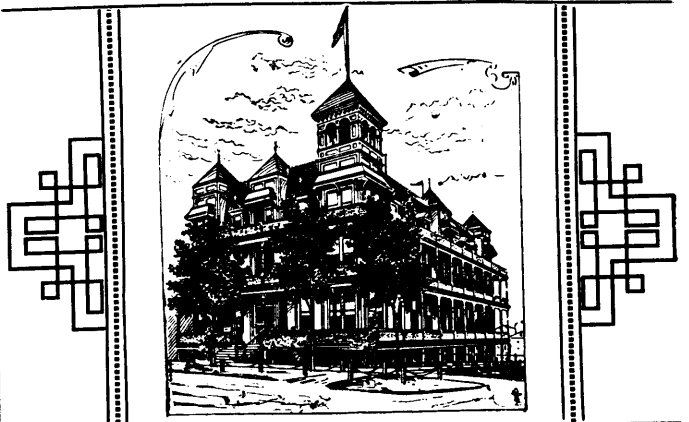
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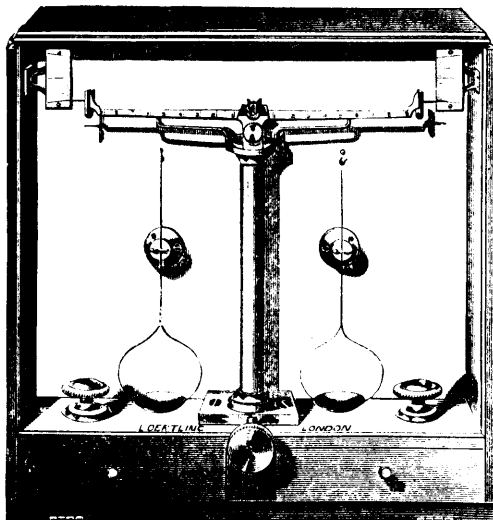
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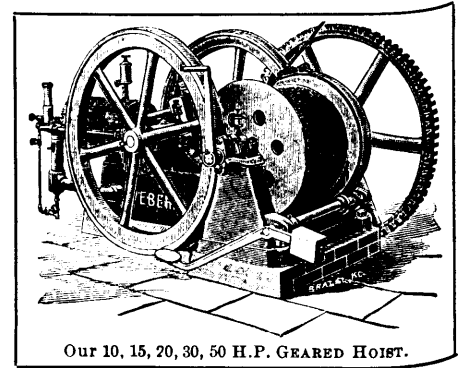
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THE MONTH.

PROPOSED CHAMBER OF MINES.

Among the happenings of the month not the least important is the movement on foot to organize a provincial Chamber of Mines on lines similar to those which have made like institutions in Witwatersrand and West Australia such powerful and useful factors in the encouragement and promotion of legitimate mining enterprise in these respective countries. We believe, therefore, that our readers will require no apology from us for devoting a good deal of space in this issue to the publication of the proposed Chamber's Articles of Association which set out very clearly in detail the scope, the objects and aims of the organization in question. These articles moreover will in all probability form the draft of the bill which will be submitted for the approval of the Government when application is made for a charter granting the Chamber necessary powers of action. At a meeting held in Vancouver on the 20th of January, a committee among whose numbers one notices the names of several prominent provincial mining men was formed to communicate with and seek the co-operation of representatives of the mining industry in every district and section of the province, and to take other such preliminary steps as will ensure the success of the project. It is hardly needful, we think, to show that it is the duty of every one who has the welfare of the provincial mining interests at heart to accord all support possible to so commendable an effort to establish a body that will be officially recognized as representative of this most important industry; but we may, perhaps, be permitted to strongly emphasize the fact that the conditions upon which the future

usefulness of the proposed Chamber rests, the influence it will command, and the position it will occupy in the estimation of those with whom in the natural order of things it will officially be brought into contact, depend entirely on the professional standing and the personal reputations of the men elected to its offices and composing its council. If from the start due precautions are observed in this respect the organization of a British Columbia Chamber of Mines is to the highest degree desirable, but not otherwise.

To our mind, apart from the service an organization such as this can render in furnishing investors the opportunity of obtaining absolutely reliable information—it must be distinctly understood that the Chamber will not propose to protect the investor except in this way—the principal argument in favour of the establishment of an institution of this kind is that the mining industry of the country will thus be represented by an official body of men of practical knowledge and ability whose views and opinions will always obtain a respectful hearing from the Government on those occasions when questions affecting the interests of the industry arise and legislation thereon is required.

SOME OF ITS FUNCTIONS.

The completion of a line of rail—RAILROADS opened for traffic not long since—AND from Slocan Crossing on the Kootenay River to Slocan City at the head of navigation on Slocan Lake, was a

noteworthy occurrence, for it marked another of the few instances where a railroad has been built in the provinces—we do not here allude to the establishment of competing lines, such as the Rossland Red Mountain road—without a demand having previously been made for Government assistance. No better evidence should be needed to indicate the rapid developments that have taken place in West Kootenay of late years, and more particularly the past twelve months. Only a very short while ago the likelihood of any railroad company proposing to construct lines in the rich mining districts of the Interior, unless assured that the project would be supported by an enormous subsidy either in the form of large areas of public land, or the monetary equivalent, was so remote that had anyone suggested that the potential resources of the country were sufficiently great to guarantee the future lucrativeness of the enterprise he would have been grievously ridiculed for his pains. Events have since proved that the system of bonusing as carried out in British Columbia is wrong and the principle economically unsound; that instead of a community being greatly benefitted by a subsidized railway it commonly happens that the discovery is ultimately made that far too heavy a price has been paid for the compensating advantages, and that the very aim—the development of the district's resources—for the attainment of which so much was sacrificed, has been defeated by the selfish and grasping policy adopted by the owners of these transportation monopolies. In past times a very difficult problem engaged the attention of the country's legislatures, and it is only just

to presume that they attempted its solution on a basis that suggested itself as being the best in the interests of the public. It was recognized as of paramount importance that the remote sections of the Interior, giving extraordinary evidence of great mineral wealth, should be opened up with railroads, and it was consequently decided that in order to offer sufficient inducement for capital to engage in enterprises of this description, it was a necessary step on the part of the Government to act in a liberal spirit in support of such projects. No possible objection can be raised to the general soundness of this view, but the form which government assistance assumed must now—with good reason—be deplored. It is admittedly a very easy matter to criticize events after their occurrence, but one may, nevertheless, profit much from the lesson of past experiences. It is now apparent from the recent rapid developments in Kootenay that the business of railroad transport is destined to become, and already is, exceedingly profitable to its proprietors, and had former provincial administrations stipulated—as we conceive would not have been beside the question—with the subsidized railroad companies at present controlling roads in the country, that in proportion to the aid rendered the Government should receive a proprietary interest in the undertakings, not only would these have afforded a considerable source of revenue, but there would have been less occasion to criticize either the Government's railway policy or the operation of the roads in question.

Matters, however, are now, in the natural order of things, righting themselves, and the bonusing of railroads or any industrial enterprise will ere long be a matter appertaining to ancient history in British Columbia. Government ownership—the great desideratum—is indeed regrettably a long way off, nevertheless competition in addition to government dictation in the matter of uniform and reasonable rate charges, the precedent of which has already been wisely established, with regard to the Crow's Nest Pass Railway, will doubtless have the effect of remedying existing abuses.

The assurance is now given that the C.P.R. will extend its system in West Kootenay by constructing a branch line from Robson to Rosland, and possibly in East Kootenay connecting by rail Fort Steele with the main Crow's Nest road. The reason for this activity can only be attributed to purely business causes. There is no necessity for subsidizing these roads because conditions are such that the remunerative nature of both enterprises is already certain. Although this can hardly be stated as the case with regard to the proposed railroad from Penticton to the Columbia River, for Boundary Creek is in much the same position as was Kootenay eight years ago, yet we believe we are correct in asserting that at least one railway corporation, the Spokane Falls & Northern, will not long hesitate, providing a charter conveying the right to cross the International Boundary can be obtained ere furnishing that promising district with railroad facilities from the south, waiving all questions of subsidy therefor.

THE
PENTICTON
RAILWAY.

Since the above was written, Mr. Corbin, President of the Spokane Falls & Northern and the Nelson & Fort Sheppard railroads, has in point of fact signified his intention of applying to the Government for a charter, purposing,

doubtless, to extend his system into the Boundary Creek district either from Northport or Marcus. However desirable this road would be as creating competition in the matter of freight rates with other projected lines, it is imperative that a Canadian road should be first in operation in the district. It is learnt upon what should be most reliable authority that Mr. Heinze, the chief promoter of the Columbia & Western Railway Company, and Messrs. Mackenzie & Mann, representing the Victoria, Vancouver & Eastern corporation, have arrived at a compromise agreement whereby the heretofore conflicting interests of the respective companies will no longer interfere with the commencement of railroad construction operations from Penticton southwards this spring, or rather, we opine, directly the concessions asked from the Federal Government are apportioned. It is also understood that the C.P.R. have a large force of surveyors in the field and may possibly also compete for the liberal bonus offered by the Provincial Legislature last session. Meanwhile it is a matter of perfect indifference to the people of Boundary Creek who builds the Canadian road so long as it is built without further delay. But while, perhaps, the question is of more immediate importance to the people of Boundary Creek, because without transportation facilities the further development of the extraordinary mineral resources of the camp is practically impossible, the construction of the projected railway from Penticton to the Columbia River concerns deeply the prosperity of the whole of southwestern British Columbia, and more particularly the Coast cities. To go further it concerns indirectly perhaps the whole of Canada, because of the increased prosperity consequent upon the opening up and operation of the mines of what will likely prove to be the greatest copper-gold producing district of the Dominion. If, therefore, the building of this road is not actually commenced before the expiration of the period (July 15th of the present year) determined, according to the terms of the Subsidy Bill passed last session by the Legislature, as the latest date on or before which *bona fide* construction operations must be under way to entitle any of the rival corporations to receive the bonus of \$400,000 for a road one hundred miles in length, we would strongly urge the Federal Government, upon the grounds that the railroad in question would be of "general benefit to Canada" to provide means for constructing a railway to be owned and operated by the State from Penticton to the Columbia River.

As the result doubtless of the visit of
THE YUKON REGULATIONS. Mr. Sifton, Minister of the Interior, to the Coast in November last, the original regulations with regard to mining in the Yukon have been amended in many very material particulars and in consequence the Minister and his colleagues have been so to speak patted on the back by Canadians from all parts of the Dominion. In fact, with perhaps the clause relating to "subaqueous" leases, there is very little room to criticize the regulations as they now stand, always bearing in mind that the policy of the Government is to so legislate that Canada will reap all the advantages possible from the Yukon gold discoveries. To Victorians it must have been very gratifying to learn that the suggestions emanating from the local press and recommended by the local Board of Trade to Mr. Sifton in the matter of the issuance of licenses

to miners were not only acted upon but the idea "expanded" by the Cabinet, so that intending miners will be obliged to apply in person for their licenses thus necessarily compelling aliens to call at a Canadian city.

YUKON
MOTHER
LODE.

So according to the Victoria daily papers the mother lode from whence all the gold of Klondyke originally came was found not long since, but alas! only to be lost again. We really forget how

many columns of closely printed matter were occupied with accounts of this remarkable discovery, but there were many; and then the head lines—how fearfully and wonderfully striking! When a day or so afterwards the truth of the report was denied *in toto* by a returned miner fresh from the scene of the alleged find the denial was chronicled, but obviously the need for "flash headings" was no longer there. Meanwhile had we accepted the description as given by the *Colonist* of the several places this accommodating lode cropped up in as correct, its "sinuosities" would have done credit to a boa constrictor in the throes of mortal agony; the performance of the greatest human contortionist would not have been in it. The Klondyke boom is all very well in its way. It will mean in all probability a great deal to British Columbia by attracting a world-wide attention to our own rich mining districts, and it is also at present a capital thing for the papers in what is generally a slack season for news, but never has the occasion required the assumption of the *cum grano salis* attitude from newspaper readers more decidedly than now when Yukon yarns of the "tall" variety are retailed almost daily and help to incite ordinarily sober-minded people to a determination to join the mad rush to the frozen north. It must be remembered that no class in the world, except, perhaps, sailors, are so imaginative as miners, and when this talent is assisted by insidious suggestions of the festive reporter, the result is not infrequently truly appalling, not to say *Haggard*. Not for purposes of argument, but merely for the satisfaction of stating a curious fact it may be pointed out that neither in Cariboo nor in Alder Gulch, Montana, districts were the phenomenal results from placer diggings followed by discoveries of rich quartz lodes. In Yukon the quartz mines must needs be extraordinarily valuable to admit of profitable working.

A MINE
INSPECTOR.

In view, perhaps, of the recent accidents to mine workers at Rossland, the tragic death of the late Captain Hall, superintendent of the Le Roi mine, being a lamentable instance, the Government's hand has been so to speak somewhat forced in the matter of the appointment of an Inspector of Mines, and the result is that this position has been temporarily bestowed on Mr. D. J. McDonald, erstwhile manager of the Galena Farm mines on Slocan Lake. The appointment is an excellent one and the Government are receiving the congratulations of the up-country papers on the choice of a capable man thoroughly fitted to perform the duties of his office in a satisfactory manner. Mr. McDonald has had a long and varied experience of all classes of mining and has earned for himself an enviable reputation for trustworthiness and reliability.

B.A.
CORPORATION

When with a great flourish of trumpets the launching of the British America Corporation, Limited, was announced

to have taken place in London, the news was received in this country with feelings of most unqualified gratification. In fact it seems that the organization in England of so big a concern with a board of really influential directors, and with the relatively speaking enormous capital of one million and a half pounds sterling, for the purpose of acquiring and operating mine properties in British Columbia, should be regarded as a very significant event in evidence of increasing confidence among British investors in the future of the province's mining potentialities. And so undoubtedly it is. London interest has been stimulated lately to a marked degree, and the day is now measurably near when the amount of British capital invested in British Columbia will be great enough to render previous American expenditures insignificant. It is for this very reason that so keen an interest is taken by those who have the welfare of our mining industry at heart, in the operations of English companies, and why so much notice is taken of the deplorable instances of London promotion swindles in connection with the mines of the province. Mismanagement and culpable misrepresentation of facts, are practices that have already unhappily resulted in loss to investors and will inevitably damn the country. With regard, therefore to the British America Corporation, it is a matter for grave regret that its career should have been commenced under the inauspicious circumstances commented upon by our Nelson correspondent. How is the incidence of an unreliable prospectus to be excused away when upon its character for reliability shares must necessarily be bought and sold. This company's prospectus, as published in the London financial papers, a copy of which we have before us, leads us to take for granted that the company had made all arrangements for the acquirement of certain valuable properties—notably the Rossland Le Roi mine and the assets and good will, as a going concern, of the Alaska Commercial Company. From the public denials of the directors of both of these corporations no such arrangement was ever effected. The deduction is obvious. Again without wishing to insinuate in any way that the company's managing director, the Hon. C. H. Mackintosh, is not a capable man, it is certainly fair to question whether he has sufficient training or experience to enable him to purchase mines to the best advantage; and some of Mr. Mackintosh's recent somewhat rash goings on seem to demand criticism. It is to be hoped that the company will at once see the wisdom of retaining the services of a thoroughly competent man as consulting mining engineer. If this is done there are the strongest grounds for believing that the B.A. Corporation will become a great factor in advertising the resources of British Columbia abroad.

A correspondent writing from Sandon EXPECTED expresses the opinion, based on his EXODUS OF numerous conversations with miners MINERS. working in the neighbourhood and elsewhere, that there will be a general exodus of this class of workmen to the Yukon in the spring. The men are from all accounts saving their earnings and some are already making their arrangements for their journey. The fear is entertained that there will be some difficulty in Kootenay this summer in securing mine labour; but this, we think, is entirely reasonless. A large proportion of the Kootenay miners have followed prospecting many

seasons, long before the word Klondyke became a familiar sound, and the only difference this year will be that their prospecting will be further afield. Moreover, where capital is there labour will follow. As to the Kootenay miners themselves, if gold is to be won in Yukon they will win it. There is no more sturdy race of men in the world and Kootenay owes much to their pluck and energy.

THE COAL INDUSTRY OF VANCOUVER ISLAND.

THE coal city of Nanaimo has long been known as the "Newcastle of the Pacific Coast," and it now aspires to be another Liverpool. Here coal is king. As an industrial, commercial and distributing centre Nanaimo yields to none, and the smelters, manufactories and works projected will doubtless sustain the ambitious claim. Aided by a short connecting line of rail to Gabriola (southeast end) the distance from the terminals of the Canadian Pacific Railway, can be abridged to almost an hour's passage by ferry. The cars that have been hauled for three thousand miles may thus be shunted to the merchant's door. Nanaimo, of course, claims a share of Klondyke trade—the coal steamers must have, and why not stores. This port is the final calling place in the province, on the northern voyage, and the first touched on the return. The advantages are obvious.

While the chief market for the famous Vancouver Island coal is in San Francisco and southern ports of California, the gradually enlarging provincial trade is a most important factor in the success of the industry. The prospects of a greatly increased local demand are the result of mining enterprises in this Island and province, and the outlook for securing the Klondyke trade.

THE FORMATION.

The avenue to the wealth of our coal beds was opened by the mighty uplifting force of the mountain upheavals, whereby large areas of the coal-bearing strata were raised from the "vast deep" and tilted up, at various angles, so that after the glacial erosion, the rocky escarpments were left in view with seams of coal exposed, and these when discovered were mined **from the daylight, down, until Dame Nature's obstacles cut off pursuit.** And thereby hangs a tale, for just as in human life the good is mixed with ill, so the first beneficent rising of the giant mountain being all good, his after shaking and lateral push were evil of the direst kind, and many a "fault," "synclinal" and "anti-clinal" crush, with "troughs" and "pockets" large and small, and total "wants," and troubles innumerable, are the coal operator's opprobria and inheritance, and the Island coal seams have their full share of these incommoding and expensive ills. Our coal barons deserve, at least, the meed of commendation, for their undaunted courage, perseverance and plucky determination, in combatting with the many difficult troubles and discouraging circumstances which they have shown in carrying on the industry underground in the face of reckless foreign competition, congested markets and tariff handicaps.

The explorations so far made on Vancouver Island have determined the existence of certain well-defined areas of the sandstone and conglomerate strata that indicate the existence of productive coal measures—proved in some instances by the exposure of upper seams of coal, good enough, which though too thin for

mining use, are favourable indications that workable coal beds will be reached at lower depths.

COAL AREAS.

The most valuable of these coal areas stretch along the eastern coast and at the northern end trend round to Quatsino on the west. Coal was first discovered on Beaver Harbour in the north in 1835, leading, in course of time, to the establishment by the Hudson's Bay Company of a coal mine at Fort Rupert. This field extends from Fort Rupert to Port McNeil, some fifteen miles to the south, and is known as the Suquash coal measure and Malcolm Island has the same measures there. From the Suquash there is a valley that reaches Quatsino Sound, a very spacious inlet from the Pacific, branching into harbours and arms, leading to all points of the compass, and nearly severing the Island by Rupert Arm. On almost all these shores the cretaceous coal-bearing rocks are in view, mainly on Winter Harbour, (Forward Inlet, where good coal has been proved, of an extensive area) and again at Koprino Harbour. That the true measures are on Quatsino Sound, and at Suquash, the prospecting by boring and other research has shown. Not long ago the Fort McNeil Coal Mining Company proved the existence of a seam of coal, of fair thickness, in their bore-hole, and the surface indications there, as on the Sound, augur well for a northern field of bituminous coal of great extent and value.

Continuing southerly the east coast is barren, so far as coal is concerned, until after passing through Seymour Narrows, the coal measures recur near Campbell River, whence they run down the coast, embracing Denman and Hornby Islands—the Comox area—in which are the celebrated Union mines of the Union Colliery Company. Thence south through Qualicum, Englishman River, Nanoose, Wellington, Nanaimo, Gabriola, Cedar and Oyster Districts—with Wellington mine extension south of Mount Benson. In these localities there are fields of bituminous coal of large area and productiveness. At Chemainus is a break until Macpherson's, where there is a promising area that will repay investigation.

The chain of islands running from Gabriola to Saturna and Tumbo are coal-bearing with indefinite continuations beneath the Straits.

On the large Island of Salt Spring the coal measures appear, and there as well as in East Saanich and on adjoining isles coal will yet be found of good commercial value.

From Quatsino Sound, southwards, on the west coast, the characteristics which denote the presence of coal-bearing strata appear occasionally along the shore. Very good prospects are said to exist at Hesquiot Harbour, until the cretaceous rocks are overlapped by the tertiary on the coast of Fuca Straits. Otherwise, in many places, the rocks are highly mineralized, the metamorphic rocks are seen, and for long stretches there are only gneissose rocks, crystalline limestones and porphyry. These realms will well repay the adventure of the prospector. Of the *terra incognita* inland of Vancouver Island it may be predicted that some of the many valleys between the mountains will, in due time, prove to be coal-bearing of the same cretaceous horizon. A drawback to exploration for minerals of any kind, is the mass of vegetation growing everywhere round the lakes and on the river banks, preventing thorough search and concealing all but exposed sections.

AN OLD ESTABLISHED COMPANY.

Of the established coal mining industries the oldest now in operation is that of the New Vancouver Coal Mining and Land Company, Limited, an English joint stock corporation, whose original charter dates from 1862. Its business has been conducted on so large a scale that during its existence of thirty-five years it is probable that the cash circulated by the company, for wages, services, machinery and supplies will foot up to as many millions. A vast concern—an honourable career.

The central works and principal shaft, or pit, of the Nanaimo Colliery, are in the precincts of the city of Nanaimo, where also the offices of the company are situated and all operations of the busy industry are carried out under the immediate supervision and direction of the company's well-known and popular Superintendent, Mr. Samuel M. Robins, J.P. The

feet in diameter and bricked where needed for safety by huge wedge-shaped blocks. The No. 2 shaft is all alike, but two feet less in diameter, and is sunk about 200 feet to the north of the No. 1, and sealed air-tight; it communicates with the ventilating fan by an underground passage through which the fan exhausts the noxious powder smoke, foul air and gases from the mine. Above the air shaft is placed, all ready for an emergency, a pit head frame with pulley, and at hand a winding engine with drum, and cable wound so that by removing part of the pit cover this means of rescue could be put in action in ten minutes and raise all men from the mine in case the other pit was blocked. A visit to the engine room of the fan house reveals the ponderous machine ever in motion, whirling round the enormous wheel thirty-six feet in diameter and twelve feet wide, that, with its air-sweeps, constitutes the fan,



SLOVAN CITY, B.C.—A VIEW FROM THE LAKE.

other colliery works and pits are at distances (miles apart) in the north, south and east coal fields of the company's broad estate of many thousand acres. Railways of standard gauge connect these works and pits with shipping wharves. The company's lines of railway also have sidings and connections with the E. & N. line for freight and other uses when required.

A description of the central pit, called the No. 1 shaft, on Esplanade, will afford a fair idea of what the rest are like.

A VISIT TO THE WORKS.

Taking the reader on an imaginary visit to the works, and having obtained from the genial manager, Mr. William McGregor, full leave to view, we seek the shaft, and there we find, not one, but two shafts, as by law required. No. 1, circular in form, eighteen

which, at forty revolutions, causes a current of air to circulate through the twenty miles of roads, ways and working places in the depths below of a volume of 150,000 cubic feet per minute. The wheel (fan) is encased in a special chamber (which looks like an odd addition to the engine room) and the impure air is forced up a conductor, where its heat causes it to ascend to heights above. This monster ventilating apparatus, known as the Guibal Fan, is an achievement of modern mechanical skill—the very shaft on which the wheel revolves is in its taper and make—to avoid the slightest tendency of warping—a model of skilful adaptation. Black, Hawthorn & Co., of Gateshead-on-Tyne, Eng., are the makers of the Guibal fan, which is doing such excellent work. The great cost of installing this fan in the first instance is outweighed by the complete

security it yields from the insidious enemies of mining—the gaseous emanations, weak and foul air, the causes of many a calamity and great destruction of life in the past history of coal mining. But no earthly good without its attendant drawback, which in the use of the fan system of ventilation, is that the “breeze of wind” passing along the working ways dries all accumulated dust, and should a blown-out shot or an isolated explosion occur, the almost imponderable dust is diffused so as to make it a dangerous, inflammable and explosive mixture. This contingency is provided against, so far as possible, by sprinkling water in the dry and dusty districts of the mine. Besides the large fan is another on the Murphy plan for use in case of emergency. In an adjoining building is the engine for this auxiliary fan and also an air compressor, going night and day supplying power for small pumps and hoisting gear in dipping places below.

On the way to the No. 1 shaft we see a forest of prop-wood of all sizes and lengths, and piles of lagging for timbering the mines, rolls of Hessians (canvas) prepared with tar, for curtains, to divide and turn the air; food for mules, and these with the numerous supplies used daily in working the mine, are loaded on cars and put on the cages at the surface landing of the shaft in the intervals of hoisting runs of coal. We ascend the steps to the pit-head of No. 1, about twenty-five feet above the ground. This pit-head or bank, is built of heavy balks of fir, 16x16, set crosswise, so as not to obstruct the flow of air and yet sustain the weight and pressure of the pit-head winding frame and gear which rises to a height of fifty feet above the platform of the bank. The pit-head is well housed, and is a snug refuge from the winter's storm. The cages are kept from swaying, by four-corner guides of wire rope stretched taut and up and down these ropes they slide—the guides use up a mile of rope. The banksmen receive the cage as it comes from the pit, and, with the celerity of continuous practice, withdraw the laden cars, replace with empties and dispatch the cage at once for more. The full cars are weighed, sent to the “tippler,” and turned over into the railway waggons. In passing over the screens the dross and smaller lumps are separated from the lump coal by the shaking of a steam jigger and thus the coal is double screened and cleaned for shipment. The operations are so rapid and almost automatic, that it takes a sharp eye to follow them. At the weighman's office the numbered tag is removed from the car, the weight marked down on the output sheet, and tag hung up, so that when the miner comes off his shift, he receives his tags and notes his daily gain. At the month's end a summary of the daily output is spread on the outside of the weigh house for the use of all. Here, also, are posted the reports of the miners' own examiners on the state and condition of the mine, as to safety and freedom from gas. The pit mouth and the surface landing are guarded by fences or lifting gates raised and lowered by the cages, and thus the unwary are protected. The chutes for townsmen's use and reception of refuse rock and dirt, and the manure from the stables below, are in constant use. The crippled mine cars are switched off to a repair shop, where they are refitted with wheels, mended and strengthened over all, until, when past all carpentry, they too increase the dump. The heap of broken wheels shows the stress laid on these cars. While on the

tippler, in a twinkling, the wheels are oiled before the return below. From the pit's mouth to the coal is 650 feet, with a sump for water lower down. The mine is relieved of the water that accumulates beyond the capacity of the sump and a lodgment by a Cameron pump of twenty-eight-inch cylinder and four-foot stroke which forces up the water to the surface in a four-inch column, discharging seventy gallons per minute. Water is not a trouble here. Leaving our friend, the chief weighman, who is Nanaimo City's Auditor we seek the motive power of this great work. Close at hand the giant lives in the engine room of a finely appointed house. The engine driver has his hand on the lever and his eye on the indicator, showing the different heights of the cages in the shaft. Looking round we see the fireman's record book—and being left open, we read—'tis for the information of all concerned, and we are on next morning shift. “Bar. 30.2. Examined all the working places and found all safe. James Price.” “Bar. 30.4 at 2 p.m. Examined all the working places at 2 p.m. and found all clear. M. Harris.” These readings of the barometer are recorded by the fireman at each shift (thrice a day) from an instrument standing in the engine room, and the report of safety is made to the officer in charge of the mine before a man can travel to his place. Four telephones decorate the ante-chamber. All branches of the works, pits and wharves have telephone connection, and with the Superintendent's office.

The powerful winding engines rest so solidly and evenly on their massive bedding that though going at tremendous pressure, and with all the force of their 500-horse power, the movement of the connecting rods, plunging away with an oily ease, causes not the least vibration. At each fresh start the immense drum over forty feet in circumference round which the steel cables coil and uncoil, speeds round so rapidly as to cause a pleasant zephyr in the heated room, and the cables to which the cages are appended, seem to leap to the top of the lofty shaft frame and to drop over the pulleys vertically into the shaft. The swift movement of the engines, and the gliding of the cables, that can lift six tons at the rate of thirty feet a second, is fascinating and leaves an impression not soon effaced. The signal, a steel spring, moved by a lever, pulled from the pit's bottom by a wire rope, and falling on a gong, keeps incessantly striking, for lowering or lifting the coal-laden cages, and at times a precious human freight, which is done with seemly care. The engines are of an improved modern type for winding; they are built by Oliver, of Chesterfield in England, are of high pressure, direct acting, with thirty-inch cylinders, have Cornish valves, and move with a sixty-inch stroke, working generally under seventy pounds of steam. The hoisting cables are of the best crucible steel wire made—over a quarter of a mile in length is used. The cables are daily inspected. An enormous cog-wheel is provided for attachment and working pumps of thirteen-inch column if ever the aid of such a power should be required. The hoisting capacity of the engines is 3,000 tons a day. The steam service for all the engines above and the pumps and engines below necessarily demands an extensive range of boilers, and the boiler house with its high brick stack is furnished with boilers of the old type, and four Lancaster double-flue boilers, four feet by twenty-five feet, supplied by heating feeder; their furnaces are

ever glowing, and the smokestacks belch forth black clouds of smoke—the sign of industry. The handsome power house is next in view, and here a Ball engine of 150-horse power exerts a powerful dynamo that generates the electric force to drive the three forty-ton motors used in the levels for hauling coal for a distance of two miles from the pit bottom, and also for supplying light where its use can be applied above and below. Our attention is drawn to the so-called “Pullman cars” for conveying miners to the No. 5 shaft, some miles towards Nanaimo River, in the south coal field. A closer look evokes a smile; while the rubber springs are there, yet all is rough and bare, but safe has been the transit for years past—no accident has happened, no life endangered or limb hurt, in the many miles they’ve run. Near by the office is the goods depot, where “everything” required is kept in store and issued on order from the proper source. The powder magazines are situated about two miles on the No. 5 railway and issues are made in kegs at appointed times.

The “stables” and their grounds are a department by themselves, and with their noble horses and well-kept rolling plant are an indispensable provision for transferring supplies for uses of the mine, and the periodic housing and treatment of the force of mules which trundle the coal cars in the dark roadways below. For want of room in the stables of No. 1 shaft some of the mules are now brought up and enjoy their shelter and rest above. The hauling of the large quantities of lumber and pit wood and the delivery of all kinds of goods, provender and machinery to various works and different parts of the company’s estate makes a service of horses and waggons a needful requisite. The animals and plant on view at the stables will satisfy even an exacting connoisseur. Then the company have a farm, of which more anon. Jumping on the locomotive “San Francisco”—again by leave of the demure driver—we take a “run” of thirty coal-laden railway hopper waggons, for shipment; we learn that each waggon carries from five to six tons of coal and the run, after passing over the scales are emptied down the chutes into a vessel’s hold. Stopping at the wharf weigh-house, we alight and observe the detail and care with which each waggon is weighed, its number, and tare weight (painted on its side) gross weight and nett, recorded. Four double tracks lead to staiths, with chutes that serve the tide levels, or, the waggons may be shunted overhead of the capacious panelled bunkers where nearly 4,000 tons of coal can be stored, ready for shipment, in short order. On both sides of the bunkers are railway tracks, and thirty pairs of chutes discharge coal from the bunkers into waggons laid in train. The company’s shipping wharves embrace a frontage of upwards of 2,000 feet, and there are roomy wharves with hopper receivers into which ships unlade their ballast, consisting generally of rock, sand or earth. It is interesting to note the various kinds and sources of the addition formed to the *terra firma* of Nanaimo, by the ballast, which, for nearly half a century, has been dumped on its shores. By enquiry we ascertained that, within a radius of half a mile, there were contributions of lava from Hawaii, sand from Japan, shingle from the beaches of Alaska and Siberia, a large portion of Telegraph Hill, San Francisco, and shiploads from most of the countries bordering upon the Pacific Ocean. We follow up

our “run” of waggons and see the simple and expeditious method used for discharging the waggons directly into the hold of the fine steamer *Peter Jebsen*, under charter for San Diego in Southern California—the full cargo of nearly 5,000 tons (including fuel) was placed on board in the short space of twenty-eight hours. Lying at the wharf was also the noble specimen of collier steamer *San Mateo*, waiting her turn to take on a cargo of 4,500 tons for San Francisco, while in the offing, and at the ballast wharf, were several sailing vessels, part of the fleet engaged in the coal trade. Near at hand, at her own landing place, is the company steamer *Mermanid*, used for towing and shifting vessels and barges, and ready, at a moment’s notice to steam to Victoria or across the Straits to Vancouver, or to proceed up the Fraser River, as the case may be. Looking again at the loading of the steamer, it appears to be carried on as rapidly as possible—no waits between waggons. As fast as one is discharged and switched off, to join a train of empties, another waggon is sent to the chute, down which the coal runs in a stream, and yet, by an adjustment of the chute, much breakage is obviated. At suitable distances off the wharves, are large mooring buoys belonging to the company; they are held in position by heavy cables and anchors. To these, vessels can moor and swing off to wharf, as at all the be needed. The water at these wharves, as at all the wharves of the company on other parts of their estate) is deep enough to accommodate the largest vessels likely to frequent these seas. The Dominion Government dredger has been doing great service during the past six months right in front of the wharves, and along the north and south channels of approach there is a minimum depth of twenty-seven feet at low tide, and the dredger is still at work.

Mr. Robins, the Superintendent, with a view to further expediting the loading and dispatch of vessels resorting to the company’s wharves, is having an elevated railway laid upon substantial trestles constructed so as to gain a height of about forty feet above high water, and about forty feet distant from the seaward staith. Here a new shipping staith with a set of chutes to serve all stages of the tide will be erected almost immediately, as a large force of men has been recently engaged to carry out the work, and the completion of this extensive structure will enable the loading of coal into two hatches of the large freighting steamers at the same time, and will also admit of two gangs of coal “trimmers” working, where now, only one can be usefully engaged at trimming in the ship’s hold. After about 1,500 tons, more or less, according to the size of the vessel, has been put on board, it is necessary to trim, or shovel, the coal that is subsequently put on board, into spaces of the hold where it will not find its way by gravity, and this service is performed by a body of stevedores who are hired and paid by the hour a liberal wage for an exceedingly laborious task—these men have formed themselves into a “union” which has hitherto worked satisfactorily, and the rapid trimming of vessels at the company’s wharves has long gone on without a hitch, which is so far creditable to their “unionism.” *Apropos* of union organization, the workmen in the employ of the New Westminster Coal Mining and Land Company, Limited, are organized and regulated according to trade union principles—the miners and mine labourers have their “Protective Association,” and the artisans have their “Club,” and for

years no serious disagreement has occurred between the company, as represented by Mr. Robins, and the large number of employees under his governance, nor is there any symptom of future difficulty likely to disturb the harmony now existing between the representatives of capital and labour in this extensive business, under the present successful management. Besides the bunkers mentioned there are spacious platforms from which filling into waggons is done, and, during the lull in the arriving of vessels, coal is piled on these platforms in heaps of thousands of tons, called "bins," so that when the bunkers, bins and the 250 railway waggons are full, there is a stock of coal of about 7,000 tons available for immediate shipment at No. 1 shaft shipping wharves. To provide waggons to hold that quantity would involve an outlay of \$350,000 at least for 12,000 waggons, and as such an outlay would be out of the question the bunkers and bins and the labour of re-loading, costly as this system is yet, proves to be the more economical means of dealing with this branch of the industry. The company have in contemplation the erection of use, and also intend to build additional railway tracks and loading staiths further to seaward, involving an extension of their wharves by some hundreds of feet in length, and these projected works will give employment to many workmen. The steam driver is already driving piles and preparing for action.

The company owns five locomotives; among them are modern engines weighing up to forty tons, and these fine engines, with the hopper railway waggons, many flat cars, and ballasting cars, form a good array of rolling stock. The locomotive round-house is a pretentious building with all adjuncts for repairing, cleaning and keeping the engines in thoroughly going order—the style of its arched windows and their length are suggestive of the old-fashioned chapels or places of worship to be found in remote Old Country towns and villages.

Entering the machine and smithing department—both branches provided with commodious "shops"—we find a busy staff of mechanics, fitting, turning, filing, cutting and punching all sorts of iron, steel and brass work. The shops are completely fitted up with modern labour-saving machinery—some of the lathes are very powerful. There are steam shears and punchers, drill presses, pipe and screw cutters, an hydraulic press of great power, planers, a massive steam hammer, steam blowers, huge cranes, etc., etc., equal to all general requirements of the colliery. There are six forges in the smiths' shop in charge of men of brawny arm and skilful touch, who handle and execute very heavy forgings, as well as the finer work demanded by the machinists. The wear and

tear of machinery and rolling stock in constant use demands of course a large expenditure, materially enhancing the cost of coal production, and consumers are apt to lose sight of these and the other heavy costs wherewith the industry is taxed, when inveighing against reasonable prices charged for the product delivered at their doors.

Near by are the carpenter's shops, for construction, reinstatement and repair of railway waggons and cars—no inconsiderable item—and for the other apparatus and fittings used in and about the mine, and the company's farm. The shop is furnished with steam sawing, planing, edging and other wood-working machinery.

The members of the brass and reed band, composed of colliery workers, are allowed by the kind permission of the manager to use the upper story of the wagon shop for practising. The Nanaimo Silver Cornet Band have recently been supplied with new instruments, and are said to be quite proficient, and able to hold their own with any band in the province. Nanaimoites are justly proud of the colliery band. All the workshops and buildings are lit with gas, and the tracks, etc., with electric light—arc system.

Retracing our steps towards the wharf, we observe numerous pieces of machinery, duplicates of important parts, sets of locomotive wheels and axles, pit cages, ventilating fans, spare shafts, pumps from hand sizes to the most powerful steam makes, hoisting trunks or enormous iron buckets made of boiler iron for shaft sinking, tanks, etc., etc., kept in reserve to meet emergencies that may arise at any moment in the pursuit of the hazardous undertaking of coal mining on a large scale. We are struck with an old apparently discarded, engine, that is evidently of primitive design—a massive iron pillar with its "walking beam" that had earned a rest, after raising hundreds of thousands of tons of coal, and millions of gallons of water, from the old Douglas pit in the halcyon days of yore—it bore the historic name of "Bolton & Watt" as makers. In the space underneath the bunkers, utilized for storage purposes of heavy supplies in reserve, are many miles of piping of all calibres, and other heavy iron goods. Alongside the track, among the dog rose bushes, are the remains of an old-fashioned staith windlass, dispensed with nearly forty years ago, but looking as strong and defiant of Time's ravages now as when first hewn out of the tough wood, and forged cog-wheels and all out of heavy bar iron in times gone by, but now cast aside to make



MOUNTED POLICE IN WINTER COSTUME—YUKON.

room for the modern machine. *Sic transit gloria mundi*, one feels inclined to murmur regretfully. Anchored in a small inlet is one of the smartest steam launches on this coast; its lines are perfect and promise speed. The graceful little craft is appropriately named the *Swan*. The launch is useful where speedy communication is urgent, and for reaching the surrounding islands where the company owns coal properties; she has also done good work in towing scows, etc., in the absence of the *Mermaid*.

From the wharf a fine view of Protection Island is obtained, and the lofty pit-head frame, gigantic wharf staiths, bunkers and colliery building of the Protection Island shaft tower up above the tall pines in the background. It is, however, difficult to realize that those works are connected by sub-marine roads with the No. 1 shaft, as well as with the workings extending under Newcastle Island and beneath Exit Passage and the harbour generally.

Evening is coming on, and by the sounding of the five o'clock steam horns of the workshops and pits, we learn the day's toil is over. Among the workmen returning to the town are several showing the signs of advancing age and we learn that not a few of the employees have been in the service for thirty years, and many for twenty years. It is not to be wondered at that a strong feeling of loyalty exists towards the management. The hours of labour of the artisans and outsiders are from 7 a.m. to 5 p.m., an hour being allowed at noon for dinner, and on Saturdays work finishes at 1 p.m.

Tired with the day's ramble round the works, and in prospect of an early rising to go down the pit on the morrow we gladly seek rest at one of the several well appointed hotels of Nanaimo, and with a feeling akin to that of one about to enter upon some desperate adventure we retire to sleep, leaving strict orders that we are to be called early on the morrow.
(To be Continued.)

THE LOW GRADE ORES OF ROSSLAND.

[BY RAOULL GREEN, B.A. SC.]

WITHOUT entering into a detailed description of the ore bodies in the vicinity of Rossland it may be said, however, that they mostly occur in the form of lenses, swelling in the centre to a considerable thickness—to sometimes as much as 100 feet. The lenses occur along certain fissure planes, and are often connected, but by the merest thread. The mineral-bearing values are generally pyrrhotite and copper pyrites associated with iron pyrites and a variety of it called marcasite. In some instances the pyrrhotite is very fine grained and in others it is quite coarse.

It is generally supposed that these veins are due to replacement, the solutions coming up, dissolving and impregnating the country rock. The gangue matter consists of quartz and calcite. In some mines the quartz predominates and in others the calcite, but in most cases both aid to form the vein filling. The best values are generally found either in the fine grained pyrrhotite containing copper pyrites and calcite or in a mixture of quartz pyrrhotite and copper pyrites. The coarse grained pyrrhotite is generally low grade. The low grade ores meanwhile predominate and the only treatment available at present is by smelting. It may be safely premised that tens of thousands of tons of ore are now blocked out in this camp, and their treatment depends entirely on a re-

duction in present treatment charges. Furthermore, owners of mines from which shipments could now be made with profit prefer waiting for the same reason.

When smelting ore reduction rates have come down to a reasonable basis I have no doubt that Rossland will be one of the busiest camps in America. For many mines the smelting process will be the best, but it is nevertheless a fact that many professional men of high standing doubt if the cost of smelting can be so reduced as to make possible the profitable treatment of some of the camp's low grade bodies. What method of treatment may be adopted is still a matter of speculation. It is found that large bodies of quartz impregnated with copper pyrites and pyrrhotite carry good values from a milling standpoint. These will probably be run through a stamp mill, as it is found that free gold is present to some extent—the tailings could afterwards be concentrated and treated with cyanide or some other like process or smelted.

The chief objection to cyanide treatment is the presence of copper, but as little of this mineral is found in low grade ores the objection here is not serious. Again some authorities pretend that Rossland ores cannot be well concentrated owing to the leafy character of the pyrrhotite, which produces slimes.

Meanwhile the foundation for a mill to treat low grade silicious ore is already laid and the works are to be started early next spring. The plan is to concentrate the ore and treat it by the Pelatan-Clerici process. It is sincerely to be hoped that the promoters will make a success of their project whereof I have no doubt. Unfortunately many people, under the impression that Rossland ore is a smelting ore only, have not given the attention that they ought to such chemical processes as are possibly suitable. There is no doubt but that with the enormous bodies of ore and the consequent reduction in the cost of handling, a chemical process would be the cheapest possible one.

The smelters which we are told will ere long be built at Robson will be in a position to treat ores of a certain grade only; ores below a specified standard must necessarily be treated on the spot if at all.

Among the newer processes I may allude to the bromine process. We have here simply a substitution of bromine for potassium cyanide. Sodium bromide in solution comes in contact with the ore moistened with sulphuric acid, this liberating the bromine, which consequently attacks the gold.

The percentage of gold saved is very high whilst ninety-five per cent. of the bromine is recovered. Limestone here would be a serious difficulty in the operation of this process.

It is certain that something will be done with that portion of Rossland ores that is low grade.

The time has now arrived when the question of the profitable treatment of the low grade ores of Rossland camp must be seriously considered. That it will be so I am reasonably confident.

SILVER OCCURRENCE IN KOOTENAY.

[BY HOWARD WEST, A.R.S.M., NEW DENVER, B.C.]

THE editor has requested me to contribute something of a semi-technical nature to the RECORD this month, and I have endeavoured to comply with his wishes as far as circumstances will allow. While his instructions probably appear plain and explicit to everybody else, I must say that to me they open up

anything but an inviting prospect, as I have found by past experience the utter absurdity of trying to cram scientific matter down unscientific throats. Unfortunately various constructions may be put upon the term "semi-technical," and that which might be so regarded by the professional man, would appear in all probability very much technical to the average reader. However, ignoring difficulties by interpreting the term in the most likely sense in which our editor employs it, I should like to say a few words on the ever-recurring subject of the Kootenay silver deposits, but before commencing let me ask those whose knowledge is far in advance of these remarks to kindly bow to the wishes of the less enlightened majority, as I wish to explain in the simplest language at my command a few of the fundamental truths in connection with the mineralogy of silver as exemplified in this district.

SLOCAN "A SILVER CAMP."

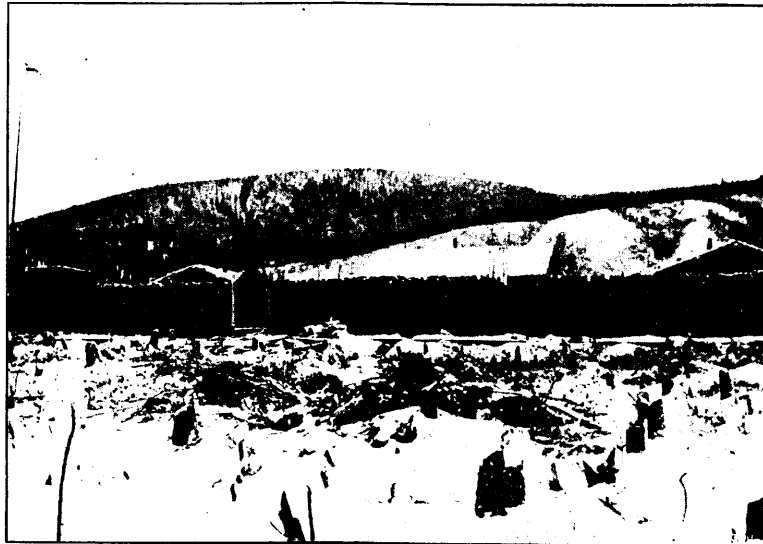
Whatever subsequent developments may disclose, there is no gainsaying the fact that at the present time and from the dawn of active mining operations in Kootenay, silver has held first place among the metals in value of yearly production, despite the comparatively small amount of capital invested in this branch of the industry. The subject will therefore be of interest not only to the prospector who ought to profit directly by increased technical knowledge, but also to all having the welfare of the country at heart; bearing in mind the invitation which we have extended to anybody and everybody to come to Kootenay and investigate for themselves. There can be little doubt that anyone doing this conscientiously will go home convinced, like the Queen of Sheba, that the half has not been told them concerning its richness.

The Slocan, as everybody knows, is referred to comprehensively as a silver camp, in contradistinction to the well-known gold-bearing quality of that other famous West Kootenay mining centre, Trail Creek. In reality gold ores are becoming increasingly evident in the former, more especially in connection with the large granite area at the lower end of the lake, while in many cases silver occurs in appreciable and even paying quantities in the mines near Rossland.

It is worthy of note at the start that in this country as in others, mining for silver is not carried on as an industry by itself, by which I mean that it is so combined, or perhaps I ought to say associated in nature with other economic and commercially valuable minerals which constitute the bulk of the ore mined, that in percentage if not in actual value it plays a very insignificant part and subordinate role.

Although mining operations in the Slocan are admittedly carried on primarily for the production of silver, it is true nevertheless that fully ninety per cent. of that obtained is derived from galena or the products of its decomposition. Now pure galena as we are all aware is a sulphide of lead, therefore, properly speaking these would be termed lead mines by the mineralogist, the silver being present merely as an accessory, the extraction of which may be conveniently relegated to the region of by-products.

To observe more fully the relation existing between bulk and value, we will instance the case of a very common ore assaying, say seventy per cent. lead and a hundred ounces in silver to the ton. The latter will, of course, exceed the lead in value, yet a hundred ounces to the ton is equivalent to merely one-third per cent. of the whole or less than one-half per cent. of the lead. The commercial man may possibly retort that this is of small moment so long as we know that the value is there in some form or other; quite true, but it must be borne in mind when we come to the consideration of the condition in which the silver exists in these ores.



YUKON—FORT CONSTANTINE.

To the chemist and mineralogist the presence of sulphur in combination with the lead naturally suggests a similar association with the silver and such indeed invariably proves to be the case to some extent, particularly in those of low grade. In the Slocan, however, where the ores average a hundred and often exceed three and four hundred ounces to the ton, other causes which we shall have occasion to refer to later on must be reckoned with.

CHARACTERISTICS OF THE ARGENTIFEROUS GALENAS.

When the entire silver value of an ore is in the form of a sulphide it is most frequently so intimately associated with the lead that it is impossible to separate the two bodies by mechanical means and they are clearly identical in origin. Sometimes, however, the silver is found deposited in thin layers between the faces of the individual crystals, no matter how small they may be, and in galenas exhibiting a distinctly cubular structure the interstices caused by the natural cleavage planes are also similarly filled. Assuming this to be correct, we should expect to find the well developed varieties of a higher grade than those of finer grain, and locally this is undeniably so. We must not, however, lose sight of the fact that the presence of receptacles for the rich mineral to be deposited in is not by any means synonymous with having it deposited there, and it is frequently the case that finer grained ores more favourably situated with regard to circulating mineral solutions will eventually become of higher grade than those which are physic-

ally better constituted, but have not been brought under similar enriching influences.

We observe, then, two facts: first, that the richness of these galenas is due to the circumstance of small crevices becoming filled with a highly concentrated form of argentiferous mineral, not necessarily silver sulphide; and second, that the deposition of this rich accompanying product is not contemporaneous with the precipitation of the galena, but is in all probability of secondary origin, having been introduced subsequently. This brings us to the next point, viz., the chemical nature of the minerals which fill these cavities. We saw just now that silver sulphide itself is frequently deposited in this manner, but there is another element which seems to have a peculiar affinity for silver and is often found in conjunction with it; I refer to antimony. Prospectors have a familiar way of ascribing the richness of galenas to their association with what they term "ruby silver and gray copper" and there can be no doubt that many of the Slocan ores owe their value largely to the presence of these minerals. Dark ruby silver or pyrargyrite is a sulphide of silver and antimony, which is to say that the three elements, silver, antimony and sulphur enter into its composition in fixed ratio. It contains when pure some sixty per cent. of metallic silver and may be readily detected in galena by scratching the specimen with a pen-knife when the part scratched will exhibit a ruby colour, or as the miners express it, will begin to bleed. The ordinary colour of this mineral by reflected light is very dark, almost amounting to black, so that it is always necessary to obtain the streak before its presence becomes apparent. In the lighter variety known as proussite, the antimony is replaced by arsenic and there is no occasion to hunt for it with a knife or anything else as it is naturally of a beautiful cochineal red which speedily catches the eye. This particular variety is not commonly met with in galena, but in a few of the dry quartzose ores in this region it is responsible for almost the entire value.

The other highly argentiferous mineral referred to, gray copper, is, on the contrary, very often associated in the same way as dark ruby. It is known to mineralogists by the name of tetrahedrite, which has reference to the geometrical outline of its crystals; the term gray copper is, however, more generally employed on account of its colour and the fact of that metal being its chief constituent.

Antimony and incidentally arsenic also enter largely into its composition. The main thing to be borne in mind in connection with this is that in the case of pyrargyrite, silver is an essential element, whereas in gray copper it is merely present as an accessory, having partly replaced one of the other constituents, to the extent sometimes of twenty and even thirty per cent. of the whole.

It is worthy of mention though that some gray coppers, like some galenas, are almost destitute of silver contents.

I do not propose to go into the subject of concentration, but I wish to remind you that these valuable minerals which accompany the galena are very often lost in that process. Not only are they of much lower gravity and therefore difficult to separate from the gangue, but being extremely friable they flour readily when crushed and pass away in the slimes.

It may possibly appear to some that I have here attempted to lay down rules which will enable them to

distinguish at sight the richer from the poorer galenas, and this is doubtless true so far as it goes; but so vain and elusive is the science of the mineralogist, if I may be permitted to express the opinion, that what is true of one district is not necessarily so of another, that I cannot therefore do better than conclude with a quotation from one of the standard English works on mineralogy which says: "There are apparently no external characters which serve to distinguish even the highly argentiferous ores from ordinary galena; the question can only be solved by analysis."

I have already occupied so much valuable space that I have perforce to end here for the present, but with the editor's permission I hope to be able to supplement this with another article at some future date.

FROM THE EDITOR'S NOTE BOOK.

PEOPLE in England will ere long have a very fine and large idea of the fabulous richness of British Columbia's mineral wealth—that is, if they will only swallow with the proper amount of credulity everything that is published in the Old Country papers. Here is a well-spiced sample with the tolerably sensational caption "Streets of Pure Gold" which recently appeared in a highly respectable Plymouth journal:

"A miner accidentally probing a hole in a street of Victoria, Vancouver, (*sic*) turned up a quantity of gold. Setting to work in real earnest, he found so much that he decided to set up a 'claim' on the spot. The civic authorities are now seeking means to prevent the man digging up the streets. Keen interest as to the result ran high, and people were greatly excited when the mail left."

The local colouring imparted to this interesting story is truly admirable and clothes the whole in a garb of probability. People have certainly been known to probe holes in the streets of Victoria, particularly in rainy weather, and have then and there sworn to "set up" a claim—for damages. Then, again, Victorians have a conservative affection for their streets just as they are, and would not have them meddled with, no, not for all the gold of Klondyke.

"Westralia" has long been a name to conjure with on the London stock exchange. It is euphonious and has a seductive sound. "But Britcolumbia!" The perpetrators of this outrageous abbreviation are, fortunately perhaps for them, unknown, but the word appears on the prospectus of another wild-cat Klondyke promotion, yclept "The Britcolumbian Exploration and Development Syndicate." The public are earnestly warned not to delay in "taking a few shares" as Mr. Ramsay, one of the directors, has already left for London, Ont., "and as soon as he commences to operate the shares will go to a high figure." The object of the syndicate is to exploit British Columbia for gold (and incidentally, of course, Great Britain for idiots) "the existence of which is" the prospectus informs us, "proved beyond question, the recently discovered Klondyke field alone being a veritable Eldorado." There is a good deal more of the same sort, but we imagine the quotation will prove quite enough for the digestion of the majority of our readers.

An extremely interesting comparative table showing the gold production of the world for the years 1896-

97 was published in the *New York Engineering and Mining Journal* of January 1st. The United States is credited with an output of 2,685,000 ounces, or the equivalent of \$53,498,950 and still heads the list of the gold producing countries, but the increased production during 1897 in both South Africa and Australia was very marked, and in the case of the Transvaal the yield therefrom last year was but 1,500 ounces less than that of the United States. Russia produced in 1897 1,572,248 ounces, and British India, fifth on the list, with 346,363 ounces, all of this gold having been taken from the remarkably rich fields of one district—the Mysore. Canada is not far behind with 328,969 ounces, an increase by nearly treble over the figures of the preceding year. This increase is accredited largely to the Klondyke discoveries, though due stress is laid on the progress of gold mining in British Columbia.

It may be worth enquiring whether the reports, official and otherwise, of the estimated gold production of the province of past years, include the yield from placer diggings operated by the Chinese in Cariboo and other districts. We are strongly inclined to think not. It is known that Mongolian miners are wonderfully reticent concerning the result of their labours and even if the required information was officially sought it is doubtful if the replies could be regarded as trustworthy. In the annual reports from the Provincial Bureau of Mines the estimates of the gold production of Cariboo are, we believe, based on the showings on the books of the express and transport companies. If this is the case the government reports would necessarily be inaccurate with regard

at least to the Cariboo output. The Chinese mining in Cariboo far outnumber the whites, and notwithstanding the large expenditures of European capitalists in the district, at the present time the Chinese, it may be safely said, are taking out the larger percentage of gold. This fact may easily be accounted for on the ground that only in a few cases of large company enterprises in Cariboo, has actual profitable mining commenced or the prospecting stage passed.

The Dominion Government is being asked by some eastern newspapers to impose an export duty on ores, but more particularly on nickel ores. The cause of the agitation is due to the fact that one of the richest nickel mines in the Sudbury district is owned by an American company. The matte from this mine is sent to refineries in the United States and the cost of its treatment amounts annually to \$1,200,000. It is claimed, not unreasonably, that the imposition of an export duty on nickel ore would have the effect of securing the establishment of refineries in Canada

and the consequent circulation here of the large sums of money now paid yearly to American industrialists and refiners. In British Columbia no objection will be raised, we think, as regards an export duty on nickel ore, it may be expedient and possibly justifiable, but it is to the interest and it also is the duty of every miner and mine owner of the province to protest at this juncture against the adoption of any such policy. It is, of course, essentially desirable that the British Columbia ores should be smelted and treated in the country, and it goes very much against the grain to hear that the product of the Le Roi mine is now being shipped to Northport, but if we can't have the whole loaf we must meanwhile be content with the three-quarters. With the completion of the Crow's Nest Railway the smelting conditions of West Kootenay will be vastly changed from what they are to-day. It will be time enough then to discuss the desirability of the export tax.

The Vancouver Island mines at Alberni are looking up wonderfully and there has recently been a very marked activity in this district. The bonding of the Alberni consolidated free milling properties for \$150,000 to a powerful English syndicate, the British Columbia and New Finds Gold Fields Corporation Ltd., is a very hopeful indication that the possibilities of the Alberni camp are becoming better recognized. Other English companies are moreover operating on a large scale in this field, notably, for instance, the Alberni Gold Development Syndicate, whose engineer is very sanguine regarding the future of the Alberni mines.

The case of the Two Friends mine is equally remarkable as that of the Fern mine but in other ways. After bonding at a goodly figure and extensive consequent working by an incorporated company having high hopes, the ore body was for a while lost and the bonders allowed the mine to revert to its original owners. And now this temporary disappointing mine is shipping carload after carload of high grade ore and is seemingly certain to yield good dividends to those who—fortunately for themselves—had the property "thrown back on their hands." A curious instance of "miners' luck."

It seems clear that the Dominion Government will make a great mistake if the present intention to call immediately for tenders for Yukon timber limits be not so modified ere this issue goes to press as to give longer time for tenderers. Some of the most certain and largest bidders are undoubtedly "snowed up" in the Yukon and cannot, without further notice given, duly tender.

It is stated in Vancouver on seemingly excellent



YUKON—DETACHMENT OF MOUNTED POLICE PREPARING TO GO OUT THIRTY MILES FOR WOOD SUPPLY.

authority that the Rothschilds are interested as controlling owners in a lease or intended lease of 900 acres of rich hydraulic gold gravel ground on Hunker Creek in the Yukon. Thereanent much comment, not all by any means favourable, is made. The great Hebraic financiers of the world usually contrive somehow to get at most of the "good things"—monetarily speaking—of this life.

The shortest route to a (in contradistinction to "the") Klondyke is *via* the C.P. R. from Vancouver to Hope and thence over the mountains to Similkameen. The distance is not much over a hundred miles, hence a return to the comforts and confines of civilization can be made at a trifling expense and without hardship amounting to anything worth talking about. Only recently some very rich placer diggings have again been found in this district, and one of the nuggets taken therefrom was valued at \$60.

We are glad to have Mr. Alexander Begg's assurance, as conveyed in a letter addressed to us and published in our correspondence column, that he is entitled to be classed as a "public benefactor," and, what is more important, to learn that his company has completed arrangements with capitalists whereby a railroad will be under construction early this spring providing communication between the Stickeen River and Teslin Lake. It would under the circumstances be rude to ask what Mr. Begg means by "arrangements" and whether he has sold his charter including the Government concessions or not.

The London *Mining Journal* of January 8th publishes an exceedingly interesting article by Mr. Edward Ashmead, F.C.A., on "New Mining Companies of 1897," from which we take the following comparative table showing the number of North American corporations, with their capitalizations registered in London last year:—

British Columbia	75	companies	£6,195,744	capita
Klondyke, Yukon	38	"	2,446,098	"
Canada	25	"	2,288,432	"
United States	38	"	5,169,500	"
Mexico	9	"	740,250	"
Total	185	"	£16,840,024	"

If the increased activity among the London promoters of British Columbia mine companies in 1897—for in 1896 but thirty-six registrations were chronicled—can be regarded as a trustworthy criterion, and to some extent we think it can, whereby the interest among English investors in the mining possibilities of the province may be accurately gauged, the foregoing statement is eminently gratifying. Among the Klondyke registrations a large proportion will, we fear, prove disappointing, and as the writer of the article is careful to say: "The reported riches (of the country) are doubtless considerably over-rated, and rest at present on very slight foundation, when (therefore) one of the newly found companies prints what it calls facts about the Canadian gold fields, and speaking of the lower banks of the Yukon says that 'gold is everywhere,' that 'the very water of the river seems to carry small particles of gold as ordinary streams carry sand and silt,' and that 'the Yukon will show a gold output beside which the production of Victoria, West Australia, or the Transvaal will altogether fade into insignificance,' it is necessary to take the proffered statement with a certain amount of reserve." Perhaps the most amusing extract from a Klondyke prospectus is one that tells of "a bank, out of which nuggets stuck like pebbles."

The result of an experiment to be tried by Mr. J.

M. Harris, of Sandon, one of the directors of the Reco Mining Company, of sending a shipment of ore containing a high per centage of zinc for treatment to Swansea will be awaited with interest. While the American smelters charge so much (fifty cents, we believe) for treating ores wherein zinc in excess of ten per cent. is present, the metal demands a fair price on the English market and it is only the question of cost of transportation to determine whether or not ores of this class, of which there is an abundance in the Slocan, can be advantageously sold to the Welsh smelting firms. It is to be hoped that the C.P.R. will go as far as possible in the matter of making concessions in freight charges to foster the growth of the market for provincial zinc ores.

Comparisons are proverbially odious and therefore it is hardly, perhaps, advisable to prophesy, even if the power was ours, the position that the once historic camps of Cariboo will occupy in the future among the gold producing districts of the province. The Cariboo output is nevertheless year by year steadily increasing and bids fair to soon equal, if not exceed, the production of '64—the record year. Several companies have recently been floated in London to acquire and exploit properties in this district. Of these, one of the most promising is the Incorporated Exploration Company of British Columbia, Limited, with a capital of £200,000, of which £55,000 is reserved for treasury purposes. This company secured after the ground had been thoroughly examined by their consulting engineer, Mr. William Thompson, A.M.I.C.E.,—an exceedingly capable man—valuable leases on Williams and Slough Creeks and on Willow River. The venture starts under the most favourable auspices and its prospects of success could not well be better.

Mr. Campbell-Johnson, whose remarkable reports on the Queen Bess and Charleston properties have gained for him a not altogether enviable notoriety, is now on his way to England to float the Bondholder on the London market. The Bondholder enjoys locally a reputation about as good as Mr. Campbell-Johnson's own, and therefore it is to be hoped that whatever the promoters may have to say in the matter the British investor will have the good sense to leave the concern severely alone. Mr. Campbell-Johnson, of course, knows all about the Bondholder from previous acquaintance with the property, but it is rather a significant fact that his last report was based on a visit to the claim when the ground was covered eight feet deep with snow.

Apropos of the proposed organization of a provincial Chamber of Mines it may be of interest to note that the Witwatersrand Chamber has now a membership of over two hundred representatives, and is in possession of a clear income of from two thousand to four thousand pounds per annum over and above expenditure. The scale of fees chargeable in the British Columbia Chamber will be practically in dollars what the South African Chamber's is in guineas, but it is expected that the large area under exploration and the numberless claims at present being exploited in the province, the membership here will be correspondingly large and the committee will hence have a very large sum to deal with.

Unhappily it cannot be said that the meeting of the British Columbia Association of Mining Engineers in Vancouver this month was quite the success it should have been. The attendance, as was, perhaps natural, owing to the distance conditions, was very meagre,

but apart from this it is only too obvious that the interest that should be evinced by professional men in the work of organization is not there or if so is expressed in so feeble a manner that it is hardly perceptible. There is, of course, a reason for this and it is best explained in the fact that several of the more prominent members of the association threatened to withdraw their names from the list unless radical measures for re-organization were adopted. To a limited degree this has been done. For example, we can congratulate the association, or rather the Mining Institute of British Columbia, for by this name it is henceforth to be known, on its choice of a president in the person of Mr. W. A. Carlyle, who if we mistake not will exert a powerful influence towards raising the society's standard of usefulness. It is also satisfactory to note that such men as Mr. Robins, of Nanaimo; Mr. Blackmore, general manager of the Crow's Nest Pass Coal Company; Messrs. Hedley and Holdich, of Nelson; Messrs. Loring and Sword, of Rossland; Mr. Bucke, of Kaslo; Mr. Waterman, of Vancouver; Mr. Cowell, of Victoria; and Mr. Hobson, of Cariboo, have been elected to either the positions of vice-presidents or to act as members of the council. With such a formidable list of influential



MR. G. O. LEASK,
A WELL KNOWN CARIBOO MINE MANAGER.

names we may reasonably hope that the association will now give a better account of itself than hitherto. Mr. Howard West, of New Denver, has been appointed secretary for the ensuing year, and here again the selection was fortunate. The affiliation a short time ago of the provincial organization with the Federated Institute was a well-considered step, and as Mr. Bell, its energetic secretary and also editor of its official organ—the *Mining Review*—pointed out, “the affiliation of the local society with other institutes throughout Canada places at the disposal of its members a fund of information gathered together from many and wide fields, on subjects of great and varied interest to mining men.” It is distinctly in the interests of the country that men representing its most important industry should have the opportunity of regularly exchanging opinions on and discussing from different points of view, the many questions that must necessarily arise in connection with mining in British Columbia, but if it is the aim of such a society as the Mining Institute of British Columbia to provide these opportunities, it is first essential that its executive should be composed of men of the highest provincial professional standing. *Verbum sap.*

There is considerable comment in provincial mining circles anent the clause in the new Yukon mining

regulations permitting the grant of “subaqueous” leases in five mile lengths at a fixed rental of \$100 a mile, in addition to the usual royalty. Many ask why the rental should be fixed and not made competitive or at least in amount conditional on the examination of the special circumstances of each case of a lease being sought.

The British Columbia shareholders of the Fern Mining Company are extremely well pleased by that company's exceptionally early dividend earning, as a free milling gold mine of the Nelson district. A return of five per cent. on \$200,000 after but three months' work and with a mill of ten stamps only as yet in operation, is unique here in British Columbia and the Fern directors state that they are well assured that the one just declared is but the first of a series of like dividends.

THE PREVENTION OF ACCIDENTS IN MINES.

[BY J. D. KENDALL, C.E., F.G.S., M.I.M.E.]

ON two previous occasions I have addressed you on this subject and did not expect—after the passing, last session, of the Act for securing the safety and good health of workmen, etc.—that it would be necessary to say anything more on it. The recent sad death of Capt. Hall, through falling down the Le Roi shaft again revives the subject. Notwithstanding that the above named Act was read a third time on the 28th of April, 1897, an Inspector of Mines—without which the Act is useless—has only just been appointed. Had his appointment taken place within a reasonable time of the passing of the Act it is more than probable that the accident to Captain Hall would not have happened; for I cannot conceive of anyone being appointed to the office of Inspector who would for a moment tolerate the state of things which makes it possible for an accident like that at the Le Roi to occur. All shafts ought to be so fenced at the top that it is impossible for anyone to fall down and this remark applies even to sinking pits. The last two shafts I put down before coming to British Columbia were, whilst sinking, fenced on three sides by an immovable fence. On the fourth side was a gate which, by a self-locking arrangement, worked in such a way with the tram on the pit top that when the shaft top was open the gate was closed and all four sides of the shaft protected. Moreover, the gate could not possibly be opened until the tram had been placed over the pit top. Then, of course, it was impossible for anyone to fall down the shaft and the gate could be opened with impunity. The device for securing this end was of the most simple character and so far as I know, had not previously been employed. So perfect was its action that it controlled the pit-top man and was not controlled by him.

I have already called attention to the long lengths of vertical ladders which are so frequently employed in British Columbian mines. These exist at the present time in open defiance of the Act and I trust the newly appointed inspector will see that they are speedily altered.

The storage and use of dynamite and other explosives need his early attention; fifty-pound boxes of dynamite are lying about in a most reckless manner in some mines.

The untamping of missed holes should also be stopped. There is not the slightest necessity for it, and it is a most dangerous practice.

OUR LONDON LETTER.

MR. PUNCH
AND
CANADA.

When *Punch* commenced its new volume for this year it felt that Canada deserved the highest tribute, so the dedication page represented the ice carnival at Montreal with the little hunch back politely taking off his polished hat to the Canadian premier poising easily on his skates. They hold a colloquy together in flattering if somewhat stilted terms. Sir Wilfrid adds, "We are all brothers, though differing in race; sons of one great mother, though parted by the unplumbed, salt, estranging sea. To this Mr. Punch replies: "You yourself, Sir, are one of the glories of our brotherhood. . . . Our ancestors sprang at one another's throats, our descendants work together in peace and harmony for the good of their country." It is curious, however, that after the drubbing received by Mr. Rudyard Kipling for his "Lady of the Snows," Mr. Linley Sambourne should have himself committed the same error, not once but twice. He places in the mouth of the Canadian premier the following words: "Our skies are gray, but our hearts are warm, and if, *Quod Dei accerant*, the need should arise, we are ready to prove our love for the Old Country by fighting." Then again, the picture which completes the tribute represents a Canadian girl tobogganing on a volume of *Punch*, as though only the ice and frost were appropriate for a Canadian scene. Fortunately it is the winter season and Mr. Sambourne can excuse himself that he is merely in keeping with the present date.

I refer to this panegyric because it in an indirect manner shows the trend of public opinion, namely that more attention is being given to Canada than to the other colonies.

The reasons for this are various; the fearlessness of the Canadian Premier is responsible in some measure for the attention given to the country and the tariff question, but the drawing card of all is British Columbia, with its potential galleries of golden nuggets. The year 1898 gives every promise of being "Canadian," but I do not know whether that will be altogether to your advantage, for a writer has declared that the people have forgotten the severe

PROSPECTS
OF THE
YEAR.

lessons of the Baring crisis and its consequences. The many glammers of finance have again come over and fired their imaginations with hopes of easy gain. "The elements which go to make a crisis have been accumulating fast during the last two or three years, and it would not surprise me if before the century closes the country should stand face to face with a far more destructive credit storm than that which was so threatening seven years ago." There is probably some salient truth in these remarks, for the good and the bad seasons for speculation are just as much recurring decimals as the wheat crops. Persons have money; want more; become venturesome; speculate; are bitten; become frightened and grow cautious. All these phases follow one another in rotation and nothing will improve the situation. The bad and the good succeed each other more quickly and sharply than before, but this is the result of easier communication between every part of the world.

If this period of gloom is to come over us, it is to be hoped that it will be postponed until the close of

the century, that is till next year, for if we are to believe, "Moses," in *Truth*, there can be no doubt that early in the new year great interest will be taken in British Columbians; but more than that, he goes out of his way to give a puff to one special company when he concludes that "there is not one of all the various companies which have been launched, and amongst which there are so many doubtful concerns, which bears in it the promise of such great success, and of such enormous possibilities as those of the new sub-company of the London & Globe Finance Corporation."

Yet it is not all smooth work finding investors for new British Columbian companies, and I have been at some trouble to find out the reason for this shortcoming on the part of the British public. I see it suggested in some Canadian papers that the fact that British Columbian Ministers have so readily accepted the positions of directors on the various boards has been a hindrance to the flow of investments. This, however, does not appear to be altogether correct. Few persons care whether the Ministers are Turners and Pooleys, or Turneys and Poolers. In fact, the situation in the Colonies and at home is somewhat different. In England the men who step across the threshold of the Cabinet have generally risen through their intellectual powers, their knowledge of the English customs, or their oratorical gifts. In the Colonies, however, I take it that the Ministers are generally chosen,—laying aside for the moment any attempt at partisanship, because they have shown themselves practical in business. The country has to be made before it can have a settled constitution, and the moral code has to be created in accordance with the circumstances of the district. Therefore Ministers have a direct inducement to foster the interests of the country if they have some capital of their own at stake. I do not for the moment wish to suggest that they are morally right,—I will keep my opinions on that score to myself, think what you may. But I do consider that the official posts in the new Colonies are but poorly paid—and must necessarily be somewhat unremunerative, for the country cannot afford to pay high salaries. It is, therefore, only fair that the Ministers should have the chance of enriching themselves by other means—so long as they do it honestly, and with no attempt to soil their reputation by ensnaring strangers. I notice that most of the attacks are made by political opponents, and cannot help thinking that the lamb's snow-white fleece is put on to hide the jackal's maw beneath. But there is a further reason why it is excusable for Ministers, I will not say justifiable, to take their share in the directorates. They are persons in authority, and the British public, knowing this, are more ready to accept a claim as *bona fide* in which a local Minister has placed his name at stake. If they are true to themselves they may bring good fortune to their province; they may have a golden statue erected to their memory; but if they show themselves reckless, careless, or dishonest, they may,—well we would then leave you to bury the corpses of the Premier, and the President of the Council.

There might, indeed, be a few capitalists in England who would be inwardly glad of the failure of the Yukon, spite Mr. Punch's euphemisms. We cannot all be friends, when the purse has to be considered.

Gold has been found in England, in Wales and in Scotland, but there is no need for Victorians to start off pell meil in order to stake their claims in the Old Country. We have had our booms and our nuggets, but they did not bring along with them that all important child, the large dividend. Indeed, from the returns issued in 1896 only one company seems to have thought about adopting one of these prodigies. In the year mentioned 2,765 tons of ore had to be crushed to secure the grand total of 1.352½ ounces—a total which swallowed its own profits. In the meanwhile British Columbians have a far more dangerous enemy nearer to them. Only to-day "Verbum Sap" in a letter to the *Morning Post* writes: "If only half the number of expeditions to Klondyke were to devote their attention to the province of Ontario instead they would get double the reward at half the cost. Ontario is undoubtedly far richer in minerals and more get-at-able, but of course, it is no good merely telling this to Klondykers." In our innocence we ask why not? and think as we peep behind the cowl of "Verbum Sap" that we see the face of a director of an Ontario mine. We may be wrong, but Klondykers can, at any rate, take heart, for the *World*, the flesh and the rest of us are enamoured with Miss Yukon. So remarks the weekly journal relative to mining markets. "The opening up of British America is full of promise, and in well informed quarters it is to this field the next boom in the mining market will be directed." Its allusion to the Canadian Pacifics is evidently based upon the trade westward. They have been a strong market, "and those presumably 'in the know' expect a yet higher level than the present. It remains an incontrovertible fact that the line is doing exceedingly well, and that great things may be not unreasonably expected of it in the future."

With regard to the field of adventure an expression of regret was raised on the announcement of the death of Charles Alleyne, within three weeks after he had left the shores of England to direct an expedition of twelve persons under the hopeful title of Helpman & Co. Their object was to explore and survey along the route proposed and to prospect for gold in the Yukon and Klondyke districts. They had carried provisions to last them for a year and a half, and were thoroughly equipped as an Arctic expedition. They had hoped to reach Fort Reliance by February, making Edmonton their base of operations. Forts Assiniboine, Dunraven, and St. John were all to be passed in turn until they reached and made Fort Selkirk, their headquarters.

With reference to the meetings of various local companies I have not the space to do more than make passing comments on each of them, but it will be seen that some of the prospectuses are very shallow, so that it is not to be wondered at if the British public are prone to be somewhat shy. It will be seen that Sir Charles Tupper has been over in England, for he presided at a gathering of the Klondyke Mining, Trading and Transport Co. He explained the necessity of finding an "all-Canadian route," and believed that it lay *via* the Stickeen River. He had no doubt that during the session of 1898 the Canadian Government would construct the railway connecting Teslin Lake and Telegraph Creek, and if the Government did not he had no doubt that the

Canadian Pacific Railway would do so. The prospectus of the British North America Corporation appears to be somewhat specious, but the names on the board are sound enough, with the Marquis of Dufferin, Lord Loch, the Hon. C. H. Mackintosh, Mr. E. A. Hoare and Mr. Whitaker Wright.

Indeed, such is the faith of the third gentleman that he has resigned his post of Lieutenant-Governor of the North-West Territories. Their intention is to enter into and carry on such financial, commercial, manufacturing, mining and other businesses as are usually undertaken by financiers, bankers, concessionaries, and contractors for public and other works. The business co-operation will be principally directed to operations in British America. Owing to the marvellous developments in the recently discovered gold fields in the Yukon and British Columbia there is in these districts a wide scope for the furtherance of these objects with every prospect of a reasonable result. Exactly so, but I feel as if I had been treated to a strawberry ice-cream, and had swallowed the whole at one mouthful. The *Westminster Gazette* sniffs contemptuously at this attractive bait, this protégé of the London & Globe Finance Corporation, which has not hitherto proved very successful in its enterprises. Here is another of those companies which seem to lay their snare in the chance of finding some golden pheasants underneath. The Klondyke Prospectors and Financiers start with a capital of thirty thousand pounds in one pound shares, of which twenty thousand have been offered. Their object is to "select and purchase mining properties, chiefly in British Columbia, and to re-sell or promote subsidiary companies. In this speculation the vendor of the property is to receive a third of the whole capital in share. The Klondyke, Yukon & Stewart Pioneers have a scheme of their own. Early this year they intend to send an expedition before the rush under Captain Maclean, whilst another would go up a route of which they had private information. So, ho for the Klondyke!

NUMMUS.

TERMINAL CITY TOPICS.

THE FERN DIVIDEND. The declaration of a five per cent. dividend by the Fern Mines Co., Ltd., a result of a realization of over \$28,000 given by two clean-ups,

has to some extent counterbalanced the depressing effect in Vancouver of the small returns for the last crushing of the Golden Cache on free milling gold mining stocks in general. As to the latter undertaking it is hoped that ere long an impartial investigation of the mine and its workings will be made by a competent expert or experts. Meanwhile, the yearly report of the Golden Cache, presented to an unusually animated meeting of shareholders incidentally admits that recent returns were greatly lessened by mismanagement, and valuable concentrates, this last by "freezing of the vanners." Such freezing should not, as experts agree, have been permitted to occur.

AN IMPORTANT DEAL. The British Columbia Gold Trust, Ltd., has purchased the assets of the Dominion Development Company on what are believed to be very favourable terms for the buyers and apparently equally acceptable conditions for the sellers, in the opinion of the directors and most of the shareholders of the vendor company. The Dominion De-

velopment Company transferred, it is stated, for 6,665 fully paid shares in the Gold Trust, Ltd., some \$22,000 in cash, an option on the Sidney Inlet copper proposition, and other options with the various other rights of the vendor company. The shareholders of the Dominion Development Company will thus receive thirty-seven and one-half cents a share for their holdings payable in Gold Trust stock, which is likely to advance in value, as the purchasing company is in strong hands and hold, it is believed, exceptionally valuable mining rights, including properties at Alberni on the Coast, in the Slocan and in the Bridge River district of Lillooet. The purchasing company has strong English capitalists behind it, and its most recent purchase has for this and other reasons, attracted much attention in and about Vancouver.

THE SMELTERS FIASCO.

There seems to be no further prospects of the establishment of the proposed Vancouver Smelter and Refinery by the London syndicate which so long since received a valuable conditional offer of civic corporation aid in the undertaking, by means of a municipal subscription to the stocks of the company and disappointment and some disgust are generally expressed by Vancouver citizens at this abortive result of negotiations, which have seemingly only served to exclude other suggested offers to build and work the much-needed Burrard Inlet smelter and refinery. At the moment no new offers are in sight though the late Mayor Templeton was, and Mayor Garden is, sanguine as to the early setting up of a Vancouver silver-lead and copper-gold smelter, combined with a small refining plant. There is no longer any doubt as to the constantly increasing need of such cheaply and easily accessible ore treating opportunities as could be afforded on Burrard Inlet to large numbers of promising properties on the Mainland coast and adjacent isles.

PROPOSED CHAMBER OF MINES.

Active endeavours are being made in Vancouver, and also your correspondent understands in Victoria, to establish a Provincial Chamber of Mines on like lines to similar institutions that have done and are doing good service to precious metal and other mining in South Africa and certain Australian colonies. Some of the Vancouver Board of Trade directors look rather askance at the project and would evidently prefer to substitute a mining and sub-committee or department of their own organization. The proposed Chamber would, however, if established, be instituted on a broad provincial basis, whereas any sub-committee or department of a Board of Trade would, almost of necessity, be more or less local in character. There are other objectors and likely opponents of the suggested Chamber as leading members of the Canadian Federated Mining Institute would prefer to have any provincial association of analogous bearing affiliated and subordinated to its own body, whilst the projectors of the Chamber are strongly of opinion that their organization should be upon a completely self-dependent provincial basis. Some of the mining men of the Kootenays are likely to claim that the Chamber of Mines should rather be inaugurated in their region and its offices there located at either Nelson or Rossland. The men behind the proposal, however, hold that in view of the great and steadily growing interests of

Vancouver Island, the Gulf isles, the Coast district, Cassiar, Omineca, Cariboo, Lillooet, and Yale, the proposed Chamber of Mines may, and this, too, without detriment to the Kootenays, be located either in Vancouver or Victoria. There are meanwhile influential mining men behind the project, their number including Mr. Pellew-Harvey, Mr. Barclay Bonthorne, and others; so too, it is said, the Hon. Col. Baker, Mr. W. A. Carlyle and other well-known Victoria men. The question, however, of the Chamber's headquarters is obviously a matter for future discussion but it is natural to suppose that the offices will be located in the district wherein the largest number of its representatives reside.

THE YUKON TRADE.

Vancouver outfitters will evidently, like their fellows in Victoria, enjoy a goodly share of the Yukon trade, and already intending northern gold seekers are many in the city and their aggregate purchases large whilst the outfitting stocks of the leading local merchants have latterly increased remarkably in size and value. Great anticipations are indulged in Vancouver over the prospect of the local outfitting and embarkation of a party of no less than 2,100 Klondyke travellers from Chicago, and already a big advance order has, it is stated, been given by its organizer, Mr. Tuttell, to the Hudson's Bay Company, involving an aggregate expenditure approaching \$500,000.

The historic company of merchant-venturers secured the contract after keen local competition, but there is no doubt that many another Vancouver firm will also benefit largely by the purchases of the Chicago party. Meanwhile, Mr. Wm. McCraney, ex-M.P. for Halton, Ontario, acting as a civic missionary of commerce, duly accredited by the Mayor and Aldermen of Vancouver, and backed by the possession of a big pile of Yukon maps and pamphlets, lately issued by the City Council, is making the most in the leading cities of eastern Canada of Vancouver's advantages as a point of outfitting and departure for the Yukon. Such successful efforts, made either on behalf of Vancouver or Victoria, seem to be by no means difficult in eastern Canada, as it is clear that there will be a big exodus of would-be Yukon gold miners, not only from the cities of Ontario and Quebec, but also from many of the rural districts. It is, however, to be feared that but too many migrants from rural villages in the eastern provinces will, unless sufficiently forewarned as to the cost, difficulty and danger of the undertaking, leave their homes, provided with far too scanty equipments in cash and kind to render probable the success of their endeavours in a far north land where, if as now reported, 250,000 adventurers will enter, must, however rich in gold the country proves, fail to make any substantial stake. However, the possibilities of making speedily a small or large fortune, heavily handicapped though the individual venturer may be, is ever an all sufficient allurements to "lands of gold" however stern their characteristics of soil and climate.

Rather more reassuring reports are to hand concerning the copper claims of FROM LYNN CREEK. The principal one is still being steadily developed by its owner, who remains quite confident of success and alleges that the recent abandonment of the bond upon it was due to lack of method on the part of the intending purchasers and not in

reality ascribable as hitherto asserted to the bonder's disappointment as to the value of the ore deposits.

A STICKEEN-
TESLIN
RAILROAD. The C.P.R.'s decision to operate a railroad between Telegraph Creek on the Stickeen and Teslin Lake should give lively satisfaction alike in Victoria and in Vancouver. It means

that the two cities will, by means of Canada's greatest railroad, command the best route to the Yukon and thus divert to British Columbia many thousands of far northern gold seekers. That the railroad will be constructed with the least possible delay is fairly assured by the fact that the contractors will be Messrs. Mann & Mackenzie, whilst the enterprise apparently secured the favourable consideration of the Dominion authorities.

The fact that Messrs. Mann & Mackenzie, who also control the Vancouver, Victoria & Eastern Railroad charter, are co-operating with the C.P.R. in the Stickeen River Railroad project goes far to show that as may some time since have been surmised, Canada's great railway company has at its command, or can have at its command, whenever desired, the Coast-Kootenay Railway charter. Few of the well-informed in Vancouver have ever believed that those behind the Coast-Kootenay scheme would succeed in floating and working their endeavour in opposition to the C.P.R.

MR. SKENE
AND THE
GOLDEN
CACHE. There is much comment in Vancouver over the changed attitude of Mr. Wm. Skene, Vice-President of the Golden Cache Company, who represents on its board the big controlling interest in the company, now held by

Mr. Mark Oldroyd, M.P., of London, England, and who is moreover considerably interested in the venture as a personal investor. Some time since on the first declaration of the disappointing results of recent crushings Mr. Skene gave vent to very pessimistic remarks concerning the future of the undertaking. He now, like others, declares himself of opinion that the mine's prospects are fair, provided only that there be good and economic management. The change of mind thus evidenced is probably, like that of the British Columbia public in general, due to fuller appreciation of the results of the fact that the later operations at the stamp mill quite failed to secure the full gold value of the ore treated, through circumstances which will in future be avoided. It is interesting to note as regards the Golden Cache, that one expert quite expects that the ore bodies will at greater depth prove to be largely composed of smelting ore, the gold being found accompanied by baser metals.

Meanwhile Superintendent Rives reports that his men have found and followed a new ledge, on which the drillings assay \$101.98 a ton in respect of two feet of the quartz and \$15.07 a ton as regards the contents of the other four feet of face matter. He regards this result as highly encouraging.

EXPERTS IN KOOTENAY.

NOTES BY A PROFESSIONAL ASSAYER.

OF late several Canadian mining journals have been adversely criticizing the men and methods employed in the acquirement of certain mining properties. Whilst the rush to form stock companies and purchase prospects continued the air was full of promises. But the time is now coming, Nemesis-like,

when the fulfilment of those promises will be demanded. But fulfilment does not appear in some cases to be near at hand, and consequent enquiry concerning the reasons thereof has brought forth the criticisms referred to.

It is pointed out by the *Canadian Mining Review* that the "open sesame" to professional engagement in the examination of British Columbia ore bodies has been "South African experience."

A visit to South African, West Australian or other far away free milling gold fields, does not serve as a very efficient preparation to deal with the smelting ore bodies of British Columbia. The origin, methods of working and manner of treatment of British Columbia ore bodies is to a great extent different from that of other parts of the British Empire. It is from the methods of mining as carried on in the mountain States to the south of the International Boundary that best object lessons are to be learnt. These ores and ore bodies are much of the same general character and are found under like conditions of a mountainous country; hence it is not extraordinary that the American miner and investor should succeed where the British investor fails. For instance, what does a Johannesburg man know of Slocan silver-lead mining and treatment? Johannesburg and up-country mining of South Africa afford no training for the Slocan. So we see Slocan silver-lead mines cited as bad investments in London. Whilst it is plainly proved that no mines in British Columbia give as large a margin of profit to those who understand how best to operate them, so let us pray that we will be delivered from the self-constituted and itinerant expert who has been over-running the country for the past three years with such deplorable results.

So much depends in the development of a surface prospect on the result of preliminary operations that "false" work may either damn a really valuable property or, on the other hand lead to a large expenditure uselessly. It may be safely premised that local men of respectable professional standing are very much less likely to be guilty of errors in judgment of this description than South African outsiders to whom responsibility carries with it no cares and the loss of reputation often is an impossibility.

THE QUESTION OF CHEAP ASSAYING.

Another question affecting, however, more especially the actual prospector is the matter of cheap assaying. One or two instances have occurred among local assayers in Southern Kootenay of "cut rate" prices coupled with unprofessional advertising. Now the conditions at present existing in British Columbian mining camps are such that the ruling prices for local assaying cannot be reduced and yet pay a fair price for careful work, hence a cut rate invariably means unreliable results. Of course I am only speaking now with regard to the moderately small assaying establishments of the mining camps. In the large works of industrial centres where labour is inexpensive and every possible appliance is provided, perhaps a reduction of the present prices asked might be made and yet leave an adequate remuneration for professional reliability. Meanwhile prospectors will do well to bear in mind that old saying about being "penny wise and pound foolish." The utility of an assay is only relatively valuable—a sort of guide generally to the possible worth of a prospect; unless, however, the assay returns are unquestionably correct the test were better not made at all. G.

FROM KAMLOOPS.

ONE of the most important considerations affecting the development of a new mining camp is the question of transportation.

TRANSPORTATION FACILITIES.

In this respect, Kamloops is highly favoured, inasmuch as good waggon roads traverse the mining area to the south of the town in such a way as to nearly encompass it, and every claim is practically connected by road with the Canadian Pacific Railway.

In addition to this, the possibilities in the way of shorter routes from the claims to the railway by means of direct roads with easy grades and wire tramways render their construction a matter of time and necessity only.

Kamloops is 1,150 feet above the sea level; the highest point of Coal Hill, the centre of the mining area, is 3,500 feet, so that for tramways and other



SHAFT OF POT HOOK CLAIM, NEAR KAMLOOPS. (Photograph by Dr. Wade, Jan. 12, 1898.)

means of direct transportation there is an available fall of from 2,400 to 1,000 feet, for there are promising claims on the flat at the base of Coal Hill as well as on the hill proper.

Nearly every claim on Coal Hill, Copper Flat, Sugar Loaf Hill and Jacko Lake can be reached by light buggy or heavily loaded truck, so open is the gentle undulating country. The Python, the first claim recorded on Coal Hill, is less than one mile from the Kamloops-Savona waggon road, which runs also within a few hundred yards of the Iron Mask claim and within a stone's throw of the Copper King near Cherry Creek. The Iron Cap is cut in two by the branch road to Sugar Loaf Hill, and the Pot Hook and Bonanza lie between this road and the highway with claims innumerable on either hand. To the eastward the Nicola road is within a half mile of the two groups of claims owned by the Pedro and Kimberley Mining Companies, and a branch road leads to a number of likely prospects near Jacko Lake, all of which goes to show that so far as transportation facilities are concerned the Kamloops camp has everything in its favour. In such a country as this prospecting is neither arduous nor expensive, and the cost of getting supplies to camp is not great; the present price paid is from \$3.00 to \$4.00 a (waggon) load.

NAVIGATION OF THE THOMPSON.

To the north, in the valleys of Adams Lake and the North Thompson River, where great silver-lead deposits await the capitalists' attention, the means of transportation will be in a great measure by water carriage. Mr. Roy, Dominion Government Engineer, has been instructed to examine the North Thompson River with the view of the removal of the few existing impediments to navigation. If, as is most probable, his report is favourable, it is to be hoped that the work will be undertaken at the earliest possible moment. There is but little doubt that if these silver-lead ores and coal could be cheaply conveyed from the producing points to Kamloops, as would be the case were the North Thompson put in shape, a smelter would soon be an absolute necessity for their local treatment.

COST OF MINING.

The cost of conducting mining operations in this section appears to be lower than obtains in other parts of the province. In the *Canadian Mining Review* for December there is published the War Eagle Consolidated Mining and Development Co.'s report. In it Mr. John B. Hastings gives some interesting figures, showing the average cost of work done on the company's properties. They are as follows:—

Tunnelling and drifting	\$20.12 per foot.
Raising	30.33 per foot.
Sinking	92.29 per foot.
Cost of ore extraction is given as \$3.25 per ton.	

In this camp the cost per foot is much less, but there has been no attempt made so far by property owners to separate the cost of the various forms of work when more than one has been pursued on the same property.

NOTABLE INSTANCES. The Python, with a 6x8 shaft, has had 130½ feet of work done on it, 55½ feet of sinking and 84 feet of drifting, at a cost of \$9.22 per foot. The Python ore is copper pyrites associated with some magnetic iron and pyrrhotite; the country rock is mainly diorite.

The Glen iron mines, situated fifteen miles west of Kamloops, and right by the side of the C.P.R. track, have produced and shipped over 6,000 tons of ore. The last hundred feet of tunnelling done cost only \$8.50 per foot, with a prospect of the next hundred feet costing even a less figure.

The Homestake mines (silver-lead) on which some 500 feet of tunnelling and upraising has been done, the tunnels being five by six and a half feet, have been worked at a cost of \$10 per foot.

On the Iron Mask 230 feet of cutting have been done. The tunnel is five by six feet in the clear after timbering, the actual rock removed being seven by seven feet. The cost of running the tunnel was \$10.78 per foot, including timbering in five feet sets with eight by eight inch hewed pine. The ore extraction cost \$2.20 per ton.

The shaft on the Pot Hook measures seven by twelve feet, and is now down forty feet. After timbering, the shaft gives two divisions of four and a half by five feet each. The cost of sinking has been \$19.75 per foot. Much timbering has been required in this shaft.

It will be seen from these figures that in this district tunnelling or sinking, with tunnel or shaft of six

by seven feet, costs on an average about \$10.00 per foot. The wages paid here are from \$2.50 to \$3.00 a day.

Fortunately for Kamloops camp such companies as the L.F.R. & C.G.F. Co. have not touched any properties here. We have no Golden Cache in the camp. There has been no attempt made to splurge, and we sincerely hope and trust none will be made at any time. The investor who is looking for



PYTHON CLAIM, COAL HILL, KAMLOOPS—THE FIRST CLAIM RECORDED. (Photograph by Dr. M. S. Wade.)

mines whose ledges present lumps of gold sticking out like plums in a pudding must seek elsewhere, for they are not to be found around Kamloops. But we believe we have what is infinitely better, plenty of good low grade ore, evenly mixed, evenly streaked, and capable of yielding a fair profit to the operators. If those properties supposed to be high grade prove to be so on further development, so much the better for the camp.

FROM ROSSLAND.

THE B.A.C. The chief thing stirring in the camp just now is the prodigious ripple which the splurge of the British America Corporation is creating. They have secured some very fine properties. The Josie is very good, No. 1 has been mentioned, despite its poor development, as one of the best six properties in camp; the Great Western and the Nickle Plate will no doubt turn out excellent investments. Options, it is declared, have been taken out on the West Le Roi and on the Evening Star. A deal was on for the Columbia and Kootenay, which, it was stated last summer when Mr. F. Aug. Heinze was working it for a short time, would itself produce sufficient ore to keep the Trail smelter going. However, when Heinze failed to come up to time with his payments last September work was stopped and the shaft allowed to fill with water. Lately a small force of men have been employed on the property with a view to expert examination. This was, however, stopped but only to go on again in connection, apparently, with the rumoured deal of the B.A.C. The management changed hands and at the time of writing work has again come to an end, the owners declaring that they do not wish to sell. However, as the pump is at the bottom of the shaft with the valve open, the water overflowing through the drift to the dump; and as the

pipes are all frozen up, it is more than likely that little can be done in any event till the spring. The B.A.C. with its huge buys, which certainly paid none too little for the properties secured, is attracting English investment and so doing the camp immediate good. Unless, however, it gets to work pretty rapidly, and such is its declaration, dividends will not come in quick enough to justify the price of the shares on the London market. In such a case there is liable to be a slump which will not come the lighter because of the fanfare with which the Mackintosh-Whitaker syndicate is being inaugurated.

Of course all this has made things quite lively for the local share market and has caused a good deal of bulling, though the C. & K. business has let in quite a few. The wild-cat broker has gone, but a few of the kerb variety is still with us. A license imposed on these individuals in common with their more solid brethren who sport an office would do no harm to the *cultus*.

Apropos of wild-cattling a good deal of \$1,000,000 the trouble results from the ease with which absurd companies are floated. Million dollar companies are as common as blackberries and any amount of stock can be bought of them at a few cents each. The public are not lightly to blame. The small investor who puts in a couple of hundred dollars and secures four or five thousand shares thinks himself a lot better off than if he had purchased ten or twenty shares issued at par of a company's stock which was obliged to have a large percentage paid up before registration. And the worst of the matter is that as the stock is not marked whether treasury or promoter's, the buyer is not in a position to know whether his money is going into the development of the mine or whether it is going into some gambling promoter's pocket.

THE NEW COUNCIL. The election business is all over and Rossland possesses a new board of aldermen and has promoted Mr. H. S. Wallace, late of the municipal finance committee, who was in opposition during the term of Mayor Scott to the office of Mayor of the camp. Mr. Wallace has a stationery and wall-paper business here and has quite a number of enthusiastic admirers evidenced by the fact that the late Mayor who was turned down for alleged mismanagement of financial affairs retired from his projected contest for the office and allowed the present incumbent to have a walk-over. A curious commentary on the election is the action taken by a Toronto loan company who were desirous of having Rossland money on distinctly their own terms and are now suing the camp because Mr. Wallace and his aldermen have agreed to decline their interested benevolence. Mayor Wallace is a plucky fellow and has fought his recent battle with a good deal of decision and *savoir faire*. He believes in his town and being largely interested in it deserves success. It is to be hoped that his administration will not splutter out like a dying squib and further overwhelm our olfactory organs.

Altogether the first month of the year shows a cheerful confidence in the issues of the camp and a ready alertness to take advantage of the era of solid prosperity drawing upon us. Klondyke is quite discounted with us, for the Rossland miner, grubbing in the pockets of his "true fissure veins," regards the reports from Circle City with calm superiority.

FROM NELSON.

THERE is not very much stirring just at this time in Nelson, the capital of the Kootenay district (with all due respect to Rossland). The "festive season" is over and gone, thank goodness, for another twelve-month, and dull heavy skies with continual snowfalls rather accentuate the feeling that we take our pleasure, far too irregularly; that a more uniform distribution of them over the year, for instance, might be better in every way. Still notwithstanding the dull weather it is not particularly cold, and has not been so far during the winter except perhaps one or two sharp nights when the thermometer probably fell nearly to zero.

THE MUNICIPAL ELECTIONS.

The latest sensation, and a very mild one at that, was the election of Mayor and Council for the ensuing year, and to the expressed annoyance of a few but to the satisfaction of the majority last year's Mayor, John Houston, was re-elected by acclamation to serve his city's interests. Opposition is all right, and a little of it no doubt very necessary and beneficial, but in this case there hardly seemed any great need of a change as things have been managed generally speaking in a very business-like way. We have a good system of water works now in going order; an elaborate system of sewers not quite completed, and a very efficient electric lighting plant that illuminates our streets at night.



THE CONCENTRATOR AND TRAMWAY—NOBLE FIVE MINE.

THE SLOCAN RAILWAY.

The completion and opening of the Slocan branch of the C.P.R. (starting at a point about half way between Nelson and Robson, and going to the end of Slocan Lake) has been of great benefit to those properties large and small whose owners wished to send ore to the Hall Mines, and its use will be more apparent as time goes on and the country gets in consequence more opened up. In is indeed to railroads that we must look to advance this country's interests, the best mine in the world will be at a great disadvantage if the ore costs all it is worth to ship and smelt it, and it is all the more to the credit of those mines that packed the ore out in the early days and stuck persistently to the work till attention was called to their wants in a practical way.

The Hall Mines smelter has been working very steadily for some time, the Silver King supplying about 200 to 250 tons of ore daily, and other incipient mines also sending their ore here for treatment. Many mines are being developed in this neighbourhood and district all through the winter, notably perhaps the Athabasca and Fern mines, together with the Delight group close to Nelson, and several very promising though as yet slightly developed claims in the vicinity of Forty-Nine Creek, a few miles west. But it certainly seems as if one of the best camps in the coming year will be at or near Ymir on the N. & F.S. Ry. south of Nelson. The Dundee mine is doing very steady and good work there, though there seem hardly sufficient grounds yet for any marked rise in the value of the shares—people will gamble, however, and they surely have a chance of a run for their money among the mines now being opened up in that locality.

Of course one hears continually of marvellously rich strikes being made—rock with gold sticking out of it on all sides, and so on, but it is well to suspend

judgment until more is known of the matter. Still notwithstanding the genuine doubts one may have about the accuracy of all these stories, there can be no question that often enough very good paying veins may be struck unexpectedly; this country is yet so new and the mines (with one or two exceptions) so very shallow that there is actually little or no experience

to guide the miner as to what he may or may not expect. Time will remedy all this, and even the fascinations extended by the far off and somewhat chilly Klondyke will allure but very few from our known riches to the more problematical ones in the North. Probably the work done during this next year will show that those who stayed at home in civilization were wisest, and it is our earnest wish that this may prove to be the case. A. H. H.

Our Vernon correspondent writes: "The Morning Glory stamp mill has brought forth its first-born in the shape of a small gold brick stated to be worth about \$190. I have heard that the plates of the mill were not properly handled. A meeting is to be convened to discuss the advisability of making a change in the management."

THE MINING INSTITUTE OF B.C.

ON Tuesday, Jan. 18th, a meeting of the B.C. Association of Mining Engineers was convened in Vancouver. The meeting was held in the Hotel Badminton, at 3 p.m., when it was decided, owing to the non-arrival of several of the up-country members, to adjourn until 8 p.m. of the same evening.

The meeting was then held under the auspices of the Federated Institute of Mining Engineers of Canada, with which the B.C. branch is affiliated. The chair was taken by Mr. William Blakemore, manager of the Crow's Nest Company's coal mines; Mr. Bell, Secretary of the Federated Institute being present. After a welcome from the newly elected Mayor of the City, Mr. J. F. Garden, and Mr. A. Williams, M.P.P., Mr. Blakemore addressed the meeting on the useful possibilities of the Association, and particularly on the advantages of affiliation with the Federated Society.

A paper by Mr. Hedley, of the Hall Mines Smelter, was then read, on "the possibilities of smelting in British Columbia." The writer declared that lead smelting offered some difficulties for any plant possible with the present production of the lead mines. He was firmly convinced that a blast furnace matting plant would handle the ores of Rossland camp very economically, and to great advantage, though the difficulties were not few. As yet they did not know what the Rossland mines were capable of producing. Wild statements had been made on this head, but he believed that a 500-ton plant, erected at such a point and run so economically that it could make a smelting rate of \$7.00 a ton, f. o. b. Rossland, would soon have to increase its capacity, as the figure would leave a profit to the smelter. There were far greater smelting possibilities in the Boundary Creek district. There the variety of ore was greater, and an absolutely self-fluxing ore was obtainable. Once transportation was provided, development would follow and reduction works would be established. Should the coal, on development, prove to be of good coking quality, and in sufficient quantity, a plant with a larger capacity would treat ore as cheaply as anywhere on the continent. Even bringing in coke at a cost of \$12.00 per ton, laid down, he had no hesitation in saying that a 500-ton plant (two furnaces), using steam power, would smelt at a cost not to exceed \$2.75 per ton of ore. This, of course, would produce matte. With East Kootenay he was not familiar, but he believed that the range between Kootenay Lake and Fort Steele would produce ores that, after concentration, would materially assist smelting operations in the country. West, again, of Boundary Creek in the Okanagan country, he had seen evidence of ores in veins of unusual size that would yield handsomely. The Coast, too, if reports be true, had its ores of character suitable for smelting, and exceptionally situated for economical treatment.

At Mr. Waterman's suggestion the discussion of this paper was laid over. Mr. Blakemore, however, first stated that as regarded Mr. Headley's statement that coke might be laid down at \$12 a ton, the Crow's Nest Coal Company hoped to give Rossland coke at a very much lower price than that.

Mr. Bell then announced that a meeting of the Federated Institute would be held in Ottawa, on March 2nd, 3rd and 4th, when these papers would be still further discussed. Mr. Raymond of New York, Secretary of the American Institute, probably the greatest authority on the subject in America, had promised his attendance. The meeting broke up at 10 o'clock.

At 11 o'clock the next morning a business meeting of the local association was held. After considerable discussion it was decided to change the name of the Association to that of the Mining Institute of British Columbia. A number of new members were elected. The accounts of last year having been passed under protest from Mr. Waterman and others to the effect that it was eminently desirable that members not paying their subscriptions should be allowed but very short grace, or else their names struck from the list of membership. The general meeting then resolved itself into a committee to discuss changes in the Constitution.

A paper on "Cyanidation of Tailings and Ores," by Mr. A. S. Edgecombe, was next read by Mr. Monckton. On the motion of Mr. Bell, the paper was filed till all the members had had an opportunity of reading it.

Several papers on the programme were printed and circulated, but will be read and discussed in Montreal in March next. Among these were a paper contributed by Mr. Howard West, of New Denver, on "Mining machinery in the Slokan;" by Mr. J. C. Gwillim, of Slokan City, on "Some West Kootenay Ore Bodies," and by Mr. A. H. Holdich, of Nelson, entitled "Odd Notes on Mining." We propose to refer fully to these papers in next month's RECORD.

A paper by Mr. Loring, of the Josie mine, Rossland, on "Mining Law and its Bearing on the Development of Mines

and Mining Districts," was read by Mr. G. F. Monckton, the Secretary, in conjunction with a paper of his own on the same subject. The substance of the two papers may be briefly summarised as follows:

Mr. Loring objected to staking by means of a centre line only. He considered that corner posts ought to be inserted, and line stakes. Locations 1,500 feet square were, in his opinion, too large. He considered that a locator should have from 60 to 90 days to prove the value of a claim, but unless he could show something then, he should not be allowed to retain it. Mr. Monckton considered the free miner's licence an unfair and unnecessary tax. He thought assessment work should be done within six months. He agreed with Mr. Loring as to the necessity of corner posts and reducing the size of claims. He suggested that some official should be appointed to make flying visits unannounced, to claims, to examine the assessment work and was in favor of compelling locators to cut down their stakes if claims were not recorded.

Mr. Waterman was of opinion that a surveyor should survey claims before they were recorded, and thought it should be compulsory that assessment work—not necessarily to the extent of \$100.00—should also be performed before recording. The surveyor should take note of the assessment work.

It was decided to form a committee of seven before the sessions of the Association closed, to report on the mining laws.

SOME UP-COUNTRY CRITICISMS.

THE BRITISH AMERICA CORPORATION.

WAS there ever such a preposterous document as the prospectus of the British America Corporation? Nevertheless it succeeded in drawing nearly five millions sterling out of the pockets of the British investor, about three times the amount of capital asked for. Why on earth the composers of this prospectus included in it the attractions of claims they did not own, other claims which do not exist and designate as gold mines a group of untried prospects passes the ordinary man's understanding. Such things tend to draw suspicion upon the *bona fides* of the people responsible for them. With such trump cards as the names of Lords Dufferin and Loch to conjure with it was unnecessary to put anything else upon the papers at all. Only let it be known that these two peers were going into a mining speculation and that they invited the public to go in with them, paying a million and a half for the privilege and the money would have been forthcoming at once.

Meanwhile the agents of the company have been freely buying up properties at Rossland. The Columbia and Kootenay was annexed for \$300,000, Mr. Heinze having just dropped his bond on it. The second payment of \$35,000 was made on the Josie, \$15,000 having been paid down at the time the option was granted. These two purchases together with the Nickel Plate, the No. 1, and the Great Western are said to involve the amount of \$1,050,000.

THAT ALLEGED OPTION ON THE LE ROI.

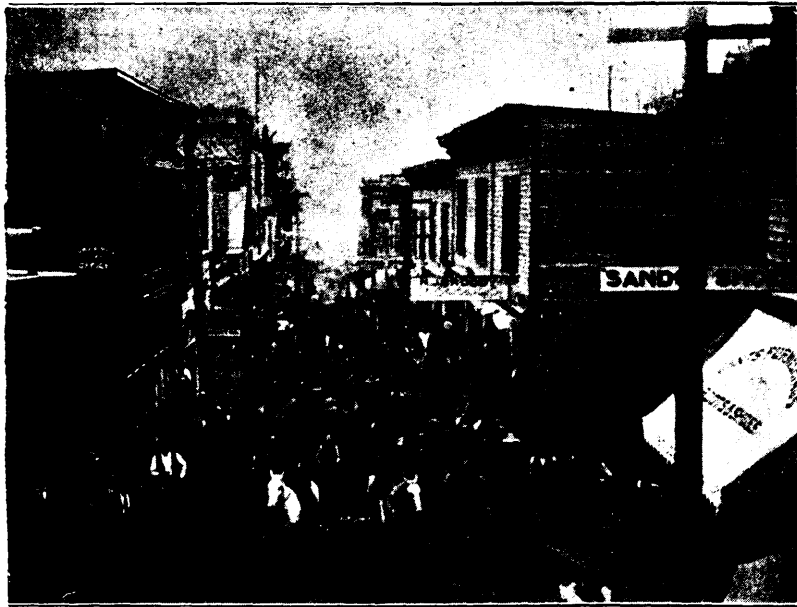
When the prospectus first reached this country and mentioned the Le Roi as one of the properties acquired, Colonel Turner, of Spokane, one of the directors and brother of the president of the company, indignantly denied that the corporation had even the shadow of an option over it. The *Spokesman-Review*, which was responsible for an interview containing this statement, now says that it is admitted that an option was given by Senator Turner and Colonel Peyton in London about the first of November. It is strange that neither Colonel Turner nor any of the officials connected with the company should be aware of this two months afterwards. It is a little thin. The price at which the Le Roi is to be acquired is said to be five millions of dollars. Add this to the price paid for the other properties mentioned above, and there

is very little left for the Alaska Commercial Company and all those other *Chatcaux en Espagne* (or rather *en Alaska*) which the prospectus alluded to. The difficulty, however, is overcome by a paragraph in which it is said that the capital asked for is not enough for all the projects in hand, but that they must be carried out in conjunction with the London & Globe Finance Company, the god-parent of the new concern.

The mysterious director who hid his light temporarily under a bushel turns out to be the Marquis of Lorne. The affair is started with a great blare of trumpets, and it is to be hoped that its future will turn out better than that of the Lillooet, Fraser River, Etc., Company, whose second annual report is just to hand.

THE LILLOOET AND FRASER RIVER FIASCO.

This document must be gloomy reading for the shareholders. They have apparently invested £140,376 in mining properties and out of this sum have so far lost £31,025. It is not therefore surprising to find that the board have been "obliged to accept the resignation of the managing director." The excuse given for this resignation is the removal of the company's office from Vancouver to Revelstoke. The late chief engineer of the company, Mr. R. Jamieson comes in for a good deal of abuse and is made the scapegoat of the business. There



SANDON—LOOKING WEST

would seem to be, however, quite a flock of these animals at the company's offices judging from two items in the expenditure account, £1,780 for directors' fees and £1,724 for travelling expenses. In quoting these figures we have left out shillings and pence. In fact with Mr. Horne Payne's bombastic speeches still ringing in our ears, it seems odd that such trifles should be mentioned at all. The company, however, still has some valuable properties left, notably the Silver Cup in the Lardeau, which is shipping ore. PICK.

FROM FAIRVIEW.

In my letter which appeared in the January number of the RECORD I made a statement regarding the result of a thirty-day run of the Tin Horn stamp mill for which I now apologize and wish to amend. The true amount of gold taken from the ore is not generally known, but was something like \$1,000, owing to the fact that over 1,000 tons of country rock was put through the mill during the thirty days' run. Everybody is wondering who is responsible for this waste of time and machinery and the directors seem to have awakened to the fact that their staff was either incompetent or fraudulent,

for at the beginning of the year nearly the entire staff of employees was dismissed and a new set engaged. The mill has been running night and day, but is working now on a fifty ton test of ore from each of the Winchester and Stemwinder mines. It is expected that a cable tramway will be constructed from the Stemwinder mine to the Tin Horn mill instead of, as was previously intended, erecting a stamp mill on the Stemwinder. The survey has been made and the route found practicable, but up to date the construction has not been made. The Stemwinder mine looks very well and holds its value right down. A double compartment shaft twelve by seven feet is being sunk on the lead and already there is a good-sized dump of ore awaiting milling. The Opulence copper claim in Keremeos, bonded by J. H. Riley & Co., is showing up well under development and the bondholders seem satisfied with their bargain.

Nearly all the Cornish miners employed in the Fairview mines were discharged in January and their places filled by others. One of the reasons offered for this is that the Cornishmen, like Chinese, shipped all of their money out of the camp. Another reason, and certainly a more reasonable one, if true, is that the aforesaid Cornishmen were cheating their employers by loafing when on shift and the whole staff of men from the overseer down were so very much related one to another

that there was no one to insist on the work being carried out properly.

THE VALUABLE PROPERTY OF THE CAMP, FOR THE SHOWINGS ARE EXCEPTIONALLY GOOD AND THE ORE HAS BEEN LIBERALLY TESTED BOTH IN THE SMELTER AND THE STAMP MILL.

A shaft of 110 feet has been sunk on the outcropping vein, and of the ore taken out four tons of selected are were sold to the Tacoma smelter for \$448 per ton and the remainder of the 490 tons was milled last summer here and yielded at the rate of \$9.90 per ton, ninety per cent of gold being caught on the plate. Last fall the company commenced tunnelling in the mountain side 186 feet below the mouth of the shaft, in order to crosscut the vein, and after tunnelling 300 feet broke through the hanging wall into a six-foot lead of ore and continuing through a "horse," struck a twelve-foot body of ore reaching to the foot wall, in which they commenced upraising. The upraise has been continued forty feet and it is intended to drift along the lead at fifty-foot levels. There are now on the dump below the tunnel about 400 tons of milling ore giving average assays of \$17, and eight tons of shipping ore averaging \$500 per ton. Mr. Carr,

THE TIN HORN RUN.

the superintendent, tells me there must be 20,000 tons of milling ore in sight at the mine.

Mr. Drummond and Captain Duncan, of Nelson, (Duncan Mines Co.) were here with their mining expert at Christmas and examined the Smuggler property with a view of purchasing the controlling interest in the mine. These gentlemen were evidently favourably impressed with Camp Fairview, but it is not yet known whether the deal has gone through or not. Should it not the company will build a thirty-five stamp mill early in the spring.

The lumber for the Joe Dandy (Fairview Gold Mining Co.) mill is now being hauled and the machinery lies between here and Vernon, so we may hope to see construction commenced before many days.

The large hotel on Fairview townsite was to be opened on the 25th of January with a ball.

Times are very quiet here, but preparations are being made for the good things the summer surely holds in store. The deep snow on the mountains prevents prospecting and hinders development work, so we may not expect much stir until spring.

RICARDO.

A RETROSPECT.

THROUGH CARIBOO THREE YEARS AGO.

(Continued from Last Month.)

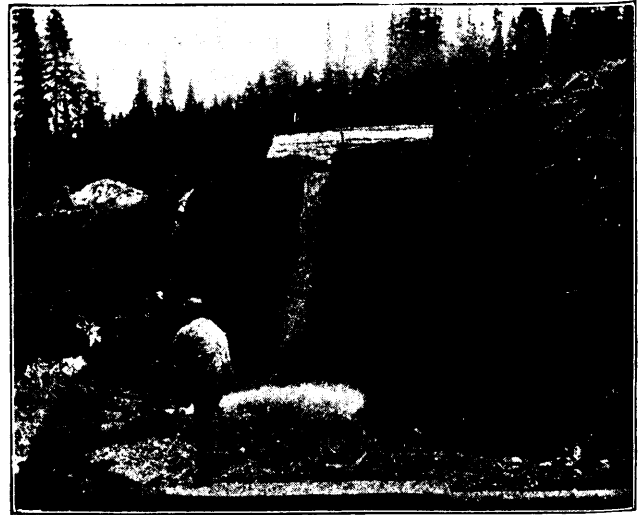
AT Quesnelle Forks we enjoyed several funny experiences. There was the Chinese restaurant where the food was served with all sorts of smells by a large Chinese lady arrayed in large blue trousers. The meal was funnier than nice; so was the lady. Then there was the old-timer, who, having expectorated copiously and wiped his beard with the back of his hand, started what we then thought a fairy tale, but have since learned to be a fact, something like this: "Well sir! Back in sixty-four I see me an' etc." Since then we have learned to respect the old-timer "for the dangers he has passed," for the experiences he has known and in many instances the exactness of his knowledge of local conditions and his close adherence to facts. There was also a gas-loaded kodak fiend, who spent the evening and yarned over the camp fire. He opened; I raised; he came back at me; I went him one better, and so on until all the sheep, horses, cows and gold mines that we had (?) owned were without any doubt much better than ever had been or will ever be owned by any person, and that had ever existed or ever will exist.

Returning to the talk of mines, leases had been taken upon Four Mile and Twenty Mile Creeks for hydraulicking and on Quesnelle River for dredging. At this date I understand that these are all in a fair way to being equipped next season. In fact the ensuing season will doubtless show a tremendous increase in the amount of equipment work over the work done in former years on the main Quesnelle hydraulics.

Leaving the Forks we followed the bank of the North Fork for half its length, crossing on a substantial wooden bridge just above Kangaroo Creek, and continuing along the north bank we reach Cariboo Lake and a little later Keithley ranch at the mouth of Keithley Creek. Here is a ranch, hotel and store. Over that bar counter have passed and in those old gold scales have been weighed many fortunes in gold dust, taken from Keithley, Snowshoe, Harvey and the surrounding creeks. Ever ascending to higher alti-

tudes we continue our way up Keithley Creek, along which is ranged an almost continuous line of sluice boxes into which innumerable Chinamen are shovelling the auriferous gravels of the creek banks. And this has been going on for very many years.

Turning sharp to the right we follow the course of Snowshoe Creek past the "Golden Gate" and "Long Tunnel" to the forks and then on up Little Snowshoe to the hydraulics. First is Veith and Knight's and on this a good deal of dead work had to be done before they could reach with their pipe the rich ground behind; further up is the Smith and Anderson, an example of what energetic and cautious management can make of a small investment. During our visit they were said to be getting back every year the amount of their original investment, although they only work for a few months in each year.



HYDRAULIC MINE UPON SLOUGH CREEK CO.'S SIDE LINES. VERY RICH GROUND.

Returning to Snowshoe we continue to climb until having scaled Breakneck Ridge (well named) we come down into Sawmill Flat, the divide between the head of Swift River and Antler Creek.

At the head of Antler is the ruin of a sawmill and further down are ruins of cabins of the miners of the more prosperous period when the creek yielded \$10,000 a day, and when three men in three weeks washed up \$83,000 and in spots the ground yielded \$1,000 to the square foot. (123 R. Mineral Wealth of B.C.) This was shallow diggings; the difficulty or impossibility of successfully contending with the incoming water did not allow of the deep ground being prospected. On the Nason claim still stand the shaft house and huge pumps erected in the vain hope of being able to reach bed-rock. Leaving Antler and touching Grouse, Canadian and French Creeks we come down Conklin's Gulch to Williams Creek and Barkerville. To tell of the past glories of the district of which Barkerville is the centre would take too much space. It is sufficient that the old times and the methods both of prospecting and mining have passed and the new science of mining and the newest machinery are finding their way in to tap the deep ground of some of the richest creeks the world has ever seen. For instance, on the Meadows is just such a place as the Kurtz and Lane Company spent years and a fortune in trying to get in sufficient pumping power to admit of their reaching bed-rock, the

Cariboo Gold Fields, at a cost of near half a million equip with ditch and pipe line giving 800 feet head to elevate by hydraulic elevator the gravel and water from bed-rock, a depth of ninety-six feet, and save the enormous deposit of gold that must have been carried to this natural sump hole by such rich creeks as Williams, McArthur and Jack of Clubs.

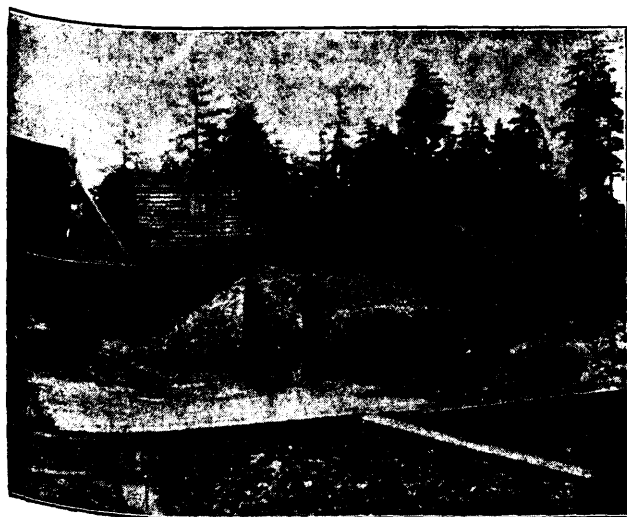
On Slough Creek was operating a Jet gravel drill, prospecting for the old channel and with such good results that the property has been bought at a good figure by an English company at the instance of Mr. Wm. Thompson, M.E., who spent the summer of '96 thereabouts. New mining on Willow River was also in the embryonic stage, and now I see that this property has also gone to English capitalists. Big Valley Creek was being prospected by Mr. Dunlevy, and this too has been sold to the Big Valley Gold Mines, Ltd. In short, everywhere we journeyed in the district, where prospecting was being carried on, a great change is now noticeable; the old slow ways are no longer satisfactory. Capital, machinery and science are pushing everywhere.

Down Lightning Creek we follow the road to Cottonwood, which has been taken up for dredging purposes; across the Cottonwood and on to the Fraser and Quesnelle mouth, when we are in a land of grist mills, pumpkin rollers and cow beasts again. Miles upon miles of the Fraser, Quesnelle and Cottonwood are taken up for dredging companies. People apparently continue to sink money in these dredging schemes although I have never heard of one paying anywhere in America. Down the Cariboo road again, but without many stops, for the season is growing late and we have struck a prospect in our wanderings and must pilot our "yellow-legs" back to look at it before snow flies.

G. O. L.

THE TEXADA ISLAND MINES.

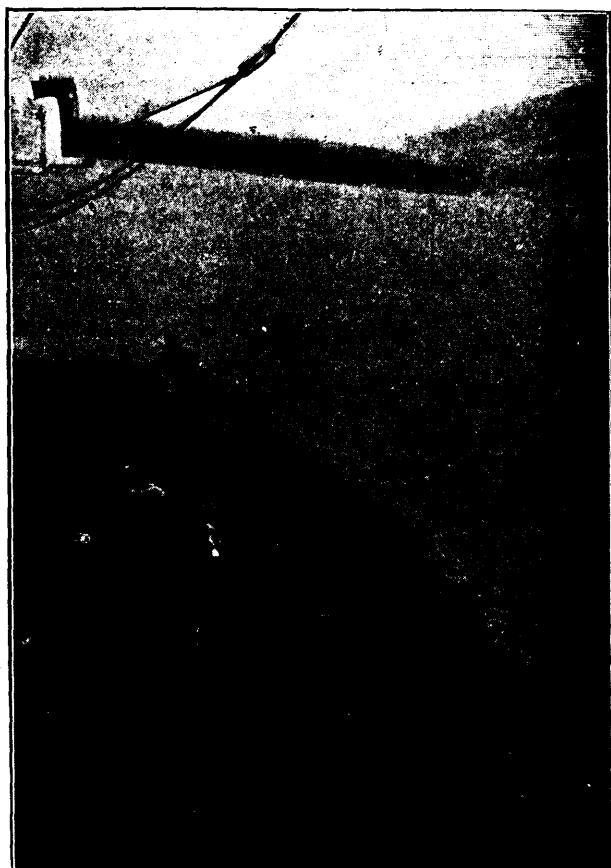
THE prospects of mining on Texada Island are becoming very bright indeed, and shipments of ore therefrom are becoming more frequent. Two shipments from the Van Anda mine were made last month; one of thirty tons was sent by the steamer *Takia* consigned to Swansea, Wales, and arrived at Liverpool on Christmas day, and another, this time



THE ORE SHEDS, VAN ANDA MINE, TEXADA ISLAND.

of 250 tons, was shipped by the barge *Gambrina*. Our second illustration shows the ore in the sacks ready to

be taken from the scows at Vancouver and put aboard the sailing vessel as ballast. The Van Anda is now



SHIPPING VAN ANDA ORE TO SWANSEA—THE SCOWS AT VANCOUVER

being thoroughly developed, the double compartment shaft being down at present 130 feet and arrangements have been made to carry this down a further 200 feet.

Just as we go to press the astounding (if true) news is received from Ottawa that Messrs. McKenzie and Mann, the well known railway contractors have been granted by the Federal Government as a bonus for constructing 150 miles of road from the Stickine River to Teslin Lake no less than 3,750,000 acres of land along the projected route, together with other valuable concessions. We shall have more to say on this matter next month. Meanwhile, it will be interesting to notice what attempt is made to reconcile the present action of Sir Wilfred Laurier's Cabinet with those fundamental principles of Liberalism wherewith it is so hopelessly at variance.

VEIN SAMPLING.

[BY GEORGE A. GUESS, M.A., GREENWOOD, B.C.]

TO thoroughly sample a vein is no light task; but in order to arrive at a definite knowledge of the value of any ore body thorough and careful sampling is a necessity.

How many claim owners can tell you how much their ore will average although they may have had many assays made? The owner may say, "I have had assays as high as \$25 per ton in gold." The only information such a statement really conveys is that there is gold in his ore. It is a very uniformly low grade property from which a \$25 assay can not be

had. If the sample has not been carefully taken the assay becomes little more than a qualitative test. There should be as much care taken in securing a sample as in the assaying.

Except in ore of nearly uniform grade pieces chipped off by a pick from different places can not be relied on as giving an accurate sample. A much better tool than the "expert" pick is a moil made of one and a half feet of drill steel drawn out to and presenting a rectangular end three-quarters by one-quarter inch. With this and a single hand hammer ore can be very readily and evenly broken from any exposed face. It is necessary to have a large piece of canvas, say five by five feet, which serves as a sampling cloth. This is placed to catch the broken ore. The amount to be broken depends on the width of the vein and the uniformity of the ore. If the width exceeds, say eight feet, it is advisable to do the sampling in sections, measuring each section and keeping the samples separate.

Several channels are cut with the moil across the face to be sampled. The material broken, varying in weight from fifty to two hundred pounds, is further broken to nut size, thoroughly mixed on the canvas by rolling, and quartered. Two opposite quarters are rejected and the remainder further broken and quartered. Care should be taken not to quarter a small amount unless quite finely broken.

The final sample should be sacked and handed to the assayer for further crushing, sampling and assaying.

The value of the ore will vary in different places in the same deposit. Therefore, at as many points as possible, such samples should be taken. The average of a number of such samples will give a very correct idea of the general value of the ore.

Intelligent mining can be done only when it is accompanied by thorough and systematic sampling. If claim owners would take sufficient trouble in the securing of samples for assays in order to learn the true value of their ore they would save themselves the money too often spent in developing worthless prospects, and would be able to give intending purchasers what they can seldom get from prospectors—a correct statement of the value of their ore.

DAWSON CITY, DECEMBER, '99.

BY D. FALCONER.

ON the 25th of December, '97, said Jock Jarvis to his mates: "Weel, lads, this is Christmas Day; what'll we hae for our denner?" and Harry Stone, from New York, whose turn it was to cook that week, replied: "Bean soup, boiled salmon, corned beef, cod-fish balls, slapjacks, stewed prunes, and all the delicacies of Klondyke. I don't know how you fellows feel about it, but I think we're blamed lucky. I wouldn't be surprised if the citizens of Dawson are dining on boiled boots and fried suspenders."

"Nae doot, nae doot, lad. Proveesions will be verra scarce there by noo. We should be thankful to Providence that we are sae weel provided for."

"Providence be blowed," replied English Jim Bevis, the third partner; "we brought a good houtfit, and now we're gettin' the benefit of it."

And so the partners dined on Christmas Day royally. And the canny Jock Jarvis, anticipating the season of rejoicing, had, with much difficulty, secretly treasured up a bottle of Scotch whiskey, which, upon

its unexpected appearance, occasioned a howl of delight. English Jim cut capers around the cabin, and repeatedly shook hands with his partners; New York Harry turned three clear back somersaults, and Scottish Jock, to the tune of "Roy's Wife," played in rapid time on an infirm mouth organ, gracefully executed a sword dance over two crossed shovel handles.

And the partners toiled on. In winter they "burned" the frozen gravel, and piled it on the dump. During the short summer months they washed out gold, fine, coarse and in chunks worth 200 and 300 dollars. As English Jim observed, they had brought a good "houtfit," and they held on, successfully working their remote claim for two seasons. * * * Late in the afternoon of the 24th of December, '99, three soiled, famished prospectors halted on a hillside fifty feet or so above the majestic Yukon. They were within four miles of Dawson City.

"Weel, mates, we're just about at the end o' oor tether. What hae ye gotten for oor supper, Jim?"

"Well 'ere's a pan o' oil-tanned larrigans, and some rawhide straps, which you can have stewed, roasted, fried or biled. Not such a bad supper for chaps in redooed circumstances, what have only a million and a half dollars cash on 'and. Oil-tanned larrigans are just the thing for parties sufferin' from loss of appetite an' weak digestion, so I believe."

"Guid bless me, is it no waefu' to think o't. Each o' us worth mair than ninety thoosand poonds, in gowd, an' yet we're obleeged to eat oor ain shoon? Aye, mon, if we were only in Glassgay, I'd show ye a supper for ane and saxpence that'd mak yer teeth water."

"Wall, gentlemen, we've had a close shave, but Dawson's only four miles away, and we can make it to-morrow, by hard dragging, grub or no grub. I think we've been playin' in uncommon good luck from the start."

"Aye, men, but we're no oot o' the woods yet, an' if a storm should come on, we'd noor see the face o' friend or foe again."

"Now, boys," said English Jim in a cheery hospitable voice, "supper's all ready. Sit down before it gets cold. Look around the table, an' if there's anything you don't see, ask for it. For what we are about to receive the Lord make us * * * Hilloa, bust my eyes if here aint a bloomin' caravan comin' along!" Whereupon English Jim kicked the supper he had so carefully cooked out over the snow and danced a hornpipe on it.

The "bloomin' caravan" proved to be George Johnson's pack train, returning to Dawson from a trip up the country.

Johnson was surprised to see the three partners. They had long ago been given up as dead men by those who saw them start out two years before. He, Johnson, at once halted his train, and in less than half an hour the famished pilgrims were devouring (not eating) a plentiful, if roughly served meal of bacon, slapjacks, and fried potatoes, washed down with strong coffee.

Then Johnson produced a portly jug of mellow old rye, and, by virtue of the festive season, and their sudden deliverance the partners indulged freely.

Let those who have toiled for two years in the frozen wastes of Alaska sit in judgment upon Jock, Jim and Harry. Suddenly delivered from intense physical suffering, by no means unlikely to end in

death, they partook recklessly; and when no longer able to take care of themselves and their precious baggage, George Johnson took upon himself the onerous position of parent and guardian. He at once set about conveying the three men, in a state of profound insensibility, and their heavy cans and sacks of dust, to Dawson City, which they reached an hour or so later. Then, having seen them safely carried upstairs and put to bed at the North Western, the finest hotel in town, he went about his own business with a grim smile. He knew what a tremendous surprise was in store for the partners when they awoke in the morning. For GOLD—the maker and destroyer of cities—had worked great wonders at Dawson in the past two years and Johnson had carefully refrained from mentioning a word of the fact.

On the following morning English Jim was the first to awake. He sat up, rubbed his eyes, took a look around the room, rubbed his eyes again, and said: "Well, I didn't expect no Arabian Nights Entertainment up in the polar regions. Last night I fell asleep singin' 'Rule Britannia' among a lot of mule drivers, with nothin' in sight but mountains an' rivers and plains o' snow an' hicc. This mornin' I wakes up in a lordly bed, chamber full o' plush furniture an' bevelled plate mirrors. I wonder if I'm crazy, or if this is t'other world? What time is it? What month is it? What year is it?" He got up, drew aside the window curtains and raised the blind. The upper sash was down about twelve inches admitting a current of balmy air. He looked down on a magnificent city street; wide, clean, and smooth as a ship's deck. The shop fronts opposite shone with varnish and polished plate glass; they blazed with silverware, jewellery, and the finest stuffs and fabrics known in the dry goods trade, and imported from the ends of the earth. Well-dressed men and women moved about or chatted in groups. An open-air street car glided noiselessly along on rubber tires. "It's not the New Jerusalem, anyhow," said Jim, "because they don't wear top hats or ride in street cars up there. An' it's not London, nor Paris, nor New York, nor 'Frisco. I can't make it out. I give it up." Turning around he caught sight of his own reflection in a toilet glass—blear-eyed, hairy as a wild man and grimed about the face and neck with the soil of a remote claim and the smoke of many camp fires. "Well, Jim Bevis, if that's you, which I suppose it is, you'r no credit to the family."

An hour later Jim Bevis called to rouse up his partners, who occupied a double-bedded room adjoining. Hot water and soap, the services of a barber and the purchase of a suit of ready-made clothes had transformed him so that he was only recognizable by a wart on his nose.

"Here, Scotty, Harry, rouse up. Do you know where you are?"

"Weel, I'm no just sure. My heed is in a maist remarkable state o' bewilderment, an' I feel as if I could go on sleepin' till doomsday."

"Sav, pardner, where have you been? What have they been doin' to us? I feel as if I'd been doin' the Rip Van Winkle act, with variations."

"Well, I'll cut it short. We're in Dawson City. It's all roofed in with glass. There's steam heaters at the street corners; grapes agrowin' and flowers abloomin' everywhere; three trains a day connectin' with all the railroads in America; banks, restaurants, theatres, Turkish baths, newspapers, a city hall, a

penitentiary an' everythink a man could wish fer. Git up an' come out to see for yourselves." * * * *

I have to stop right here because my space limit is already exceeded. I also wish to explain to readers of the RECORD that there are lots of things about this story I don't like. In the first place it is too short. To give it a chance it should have been spun out for half a year or so. The three prospectors should have been followed closely from the time they left Dawson City, and not only the scenery described, but every incident of their daily lives set down in order.

With time and space at my disposal I could begin to do this; so, if the narrative is disjointed, incoherent, and full of errors of omission, why, shove the blame where it belongs—on the editor of the RECORD.

It is also a great pity that I could not have given a full description of Dawson City in 1900. Much might have been done in the way of planting cocoa-nut palms at the street corners, and pineapples in the front gardens of residents. Band concerts in the public squares, gorgeously illuminated for the purpose, could also have been described. But what can a man do when he is cramped up within the narrow limits of two columns?—absolutely nothing.

COMPANY MEETINGS.

THE second annual ordinary meeting of the Golden Cache Mines Company, Limited, was held in Vancouver on Thursday, 17th inst., when the report for the past year was read by the secretary. The following is an excerpt therefrom:

The result of the first clean-up of the stamp-mill has not been up to the expectations of your directors. During the 30 days' run there were sent from the new workings of the mine and crushed in the mill 755 tons of ore. Five tons of this ore were of a very high grade, yielding \$211.01 to the ton. The whole number of tons crushed gave an average of \$4.45 per ton, exclusive of concentrates, which, on account of the vanes being frozen, were not saved.

From this showing it is evident that a very large proportion of the ore we are at present working in is of a very much lower grade than had been anticipated, and will not pay to run through a small mill, such as we have, or any plant operated by steam power. Further development is necessary to prove that the ore body warrants the installation of the additional machinery and plant proposed by the Board, viz.: First, to utilise the valuable water power of Oayoosh Creek already secured by the company; second, to increase the capacity of the stamp-mill; third, for labour saving in mining and milling of the most improved type; fourth, for the most approved process of treating and winning all the gold from the ore, combined with economy in operation.

The Board having decided to make a change in the mine management, in July Mr. Macfarlane gave place to our present superintendent, Mr. George T. Rives, a gentleman of the highest standing as a mine and quartz mill superintendent, as well as mining engineer.

After tenders had been received the contract for erecting a suitable building for a 20-stamp quartz mill—and the installation therein of the modern first-class ten-stamp gold quartz mill (previously purchased) was entered into with the William Hamilton Manufacturing Company, Limited, of Peterboro, Ont. In October last a trial of the mill was made in the presence of Directors Mackinnon, Robertson, Hamilton and Munsie, and several shareholders. The mill worked very satisfactorily, but the tramway conveying the ore from the mine to the mill, although finished according to plans and specifications, had to be re-arranged at the lower terminal. This occupied till November 3rd. The tramway now works satisfactorily.

Your directors are pleased to report that the lawsuit brought by the Trustee, Dr. J. T. Carroll, has been decided by the Supreme Court of British Columbia in favour of the company.

The dispute regarding the lease of the mill site is still unsettled, but your directors have assurances that a favourable issue may be anticipated.

There remains unsold 50,000 of the 100,000 shares placed in

trust with Dr. J. T. Carroll for the purposes of this company in terms of resolution of July 23rd, 1896, which read as follows: "The balance, viz., 100,000 fully paid up and non-assessable shares, to be handed to J. T. Carroll, as trustee, as between the members of the Golden Eagle Syndicate and this company. The trustee to apply the proceeds of the sale of such shares as may be sold to the credit of the company, as they may see fit. And the said trustee shall receive his instructions regarding the sale of said shares only from the Board of Directors of this Company."

Your directors are pleased to report that since the books were closed, applications have been received for 5,500 shares at par.

The expenditure of funds provided by the sale of shares, from the incorporation of the company to January 10th, 1898, was as follows: Wages, mining, \$19,929.65; mining supplies, \$3,487.35; assaying, \$484.44; surveying, \$1,215.70; trail, \$311.25; Cayoosh Creek road, \$2,000; buildings, bunk-house and cook-house, \$490.50; buildings, sawmill, \$1,857.45; mill site, \$47.80; buildings, stamp mill, \$6,940.08; plant and machinery, stamp mill, \$9,727.45; engine and boiler, \$1,767.39; wages, milling, \$1,992.62; mill supplies, \$1,183.21; engine supplies, \$49.10; tramway, \$10,572.89; ore bins, \$320; buildings, manager's house, \$521; furnishing manager's house, \$88.67; water power, \$737; travelling expenses, \$1,506.40; horse feed, \$370.50; office expenses and management (Vancouver and Lillooet), \$3,608.60; fire insurance, \$126.75; accident insurance \$59.20; law costs, (including costs of suit brought by Dr. J. T. Carroll, as Trustee, against the company), \$2,383.71; commission, \$2,393.50. This makes a total of \$74,169.21, from which has to be deducted \$4,936.92 interest and discount and bullion account, making in all \$69,232.29 as the real total expenditure.

The balance sheet places the liabilities at \$509,909.36 and the assets at the same amount. There are legal expenses to the amount of \$1,826 unpaid and the profit realised on the sale of the Moonlight fractional claim is put down as \$4,482.50. The contingent assets are 50,000 shares held under the agreement between the Company and the Golden Eagle Syndicate. The cost of acquiring five claims from the Syndicate was \$436,828, and the cost of developing the Golden Eagle claim and other claims swelled that amount to \$506,742. The supplies on hand are of the value of \$1,857, and the balance in the Bank of British North America and in the Secretary's hands is \$360.

THE YUKON MINING REGULATIONS.

A SUMMARY OF THE CHANGES.

THE Dominion Government has decided to amend the regulations governing placer mining in the Yukon. The following summary covers the changes.

Every miner and employer of a miner will require to take out a miner's certificate, the fee for which will be \$10. In case of a company it will be \$50 or \$100, according to the amount of the capital stock.

A miner's licence will confer the right to the miner to fish, hunt and cut the timber necessary for mining.

Provision will be made for obtaining mining certificates at a number of cities and towns, such as Montreal, Ottawa, Toronto, Winnipeg, Calgary, Vancouver, Victoria, Kamloops, New Westminster and Nanaimo.

The general sizes of mining claims will be 250 feet, and discoverer's claims 500 feet.

Every alternate ten claims shall be reserved by the Government of Canada.

Subaqueous mining leases will be issued in five mile sections with a fee of \$100 per annum and the usual royalty.

The fee for recording and renewing mining claims will be \$15.

Any number of miners not less than five, more than 100 miles from the office of a mining recorder, may appoint a recorder, who will record claims and within three months transfer the record and fees to the nearest mining recorder.

A royalty of 10 per cent. on the gold mined shall be levied and collected by the Government officers appointed for the purpose, but provision is made for exemption on the annual product of any mining claim up to \$2,500, so that claims that do not produce more than \$2,500 a year will not be liable for royalty. Provisions are made to prevent speculation in claims by throwing a claim open to entry which has not been worked a certain number of days, unless reasonable cause is shown, and by providing that a record shall not be issued for more than one claim to any miner in the same locality.

There are other provisions regarding the public interest and revenue, and at the same time affording the most ample facilities for mining the enormous wealth of the Yukon.

CORRESPONDENCE.

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

THE KLONDYKE ROUTES.

TO THE EDITOR:—So much has been written on the merits and demerits of the various Klondyke routes, as to somewhat confuse the prospector who intends going into that district this coming season. The inhabitants of the American Coast cities are naturally booming the ways via Dyea and Skagway, in concert with those interested in town-sites, and various transportation schemes. No doubt the greater number will go by that direction, it being so well advertised that many will not hear of the Stickine River and Teslin Lake route. For those going in early on the snow to Dawson City with the object of locating there, probably the former route would be best, but for the prospector going in with the object of locating a claim, the latter way offers decided advantages; inasmuch, as his travels will be through country known to be rich in placers; whereas via the Dyea or Skagway route the ground has been more or less prospected for the last fifteen years by miners going into the Yukon, and the waterways are dangerous, especially to the inexperienced. The practicability of the Stickine-Teslin Lake route has been established beyond doubt by the Dominion Government sending an engineer over it late last fall. He reports it navigable for deep draught steamers, from the head of Teslin Lake, down the Hootalinqua River to Dawson City. The Captain in charge of the detachment of the Mounted Police force now in the Klondyke mentions several rich finds having been made on the tributaries of the Hootalinqua River this winter, which will no doubt result in a stampede of prospectors from Klondyke next spring. This being the case, it seems rather foolish for the prospector to go in via Dyea or Skagway, over a much rougher route to Dawson, where the country has been prospected pretty thoroughly during the last two seasons, and then find that he has to make his way two hundred miles or more up the Hootalinqua River, to a point which could have been reached by the Stickine-Teslin Lake route with one-third less travel, and no dangerous rapids.

The distance to Dawson City from any point on the Pacific Coast is slightly in favour of the Stickine route, covered as follows:—From Fort Wrangel up the Stickine River to Telegraph Creek, by steamboat; from the latter place to Teslin Lake, a distance of 150 miles through a level country, and which will be traversed by stage waggons and pack trains; from Teslin Lake down the Hootalinqua River to Dawson City by a continuous waterway, free from shoals and rapids. Steamboats will run between Dawson and the head of the lake; and according to the Dominion Government reports, the waters are free from ice several weeks later in the year than any the other waterways.

It is estimated that from seventy-five to one hundred and fifty thousand people will go into the Klondyke during the coming summer. As the Dyea-Skagway route is better known than the Stickine, it is bound to be overcrowded, consequently hardships will be multiplied, and travel impeded. Parties will be obliged to build their own boats, hence the demand for lumber will place a large premium on that commodity. Although the distance of land travel is greater by the Stickine than it is by the other routes, the Stickine has many natural advantages which the others do not possess.

For economy, and better chances of locating a claim, I would strongly recommend the Stickine-Teslin Lake route to the prospector, as he can cache his supplies on the bank of the Hootalinqua River, and strike out in any direction therefrom with excellent prospects of discovering pay ground.

OBSERVER.

MANAGEMENT OF THE "QUEEN BESS."

TO THE EDITOR:—In the December number of the MINING RECORD you published an article on the lamentable unreliability of prospectuses of certain recent B.C. incorporations, referring, however, more particularly to that of the "Queen Bess." It is a regrettable feature in B.C. mining that such criticisms should be needed and that there should

be just cause for them. When misleading statements have not been deliberately made, the grossest carelessness on the part of those responsible for the wording of the prospectus seems to have prevailed, and the case of the "Queen Bess" is a notable instance. The London representatives of B.C. companies apparently ignore the fact that the public to whom they appeal will be likely to challenge the accuracy of prospectus statements, and when these statements have been prepared with due care and precision, examples are unfortunately too frequently seen of haste, exaggeration, or worse. The result is obvious. Criticism on this side when the true facts are known, and a consequent bewilderment among English investors. I have alluded to the "Queen Bess," but I should like to express, with your permission, my firm conviction that in no way was the local managing-director responsible for the glaringly over estimated reports which were published in the Company's prospectus.

Nelson, B.C.

DISINTERESTED.

[The local managing-director of the Queen Bess Prospecting Company Limited, to whom our correspondent alludes, is Mr. C. Kingsley Milbourne. No one having the pleasure of Mr. Milbourne's acquaintance would accuse him of knowingly countenancing fraud in any form. It is perfectly well known who in this case was guilty of the attempt to mislead the public, but because of his position blame must also attach to Mr. Milbourne.—ED.]

THE "WONDERFUL WAVERLEY."

TO THE EDITOR:—In a recent issue of the MINING RECORD I notice your criticism on the "Wonderful Waverley," which I think was well merited. If you will allow me space in your valuable paper I will endeavor to give you a slight insight into the management of the above mine since the commencement of the work on the Company's wagon road last summer.

The original locators of the Waverley, Tangier, etc., claims, were Messrs. Sandberg, Kennedy and Marshall. An individual by the name of John Grant perfected the sale of these claims to the Gold Fields of B.C. When this sale was consummated Mr. Grant was put in charge of the Waverley mine as manager. At regular intervals paragraphs would appear in a paper published within 100 miles of Albert Canyon, lauding the remarkable results of development of the "Waverley" mine under the management of that shrewd mining man, John Grant. Early this fall a report was published of a strike of a phenomenal body of ore, but I have failed to find anyone able or willing to corroborate this statement. I would like to get a glimpse of that "three million dollars' worth of ore" that is in sight.

A statement recently appeared in the newspaper referred to above, that a contract had been completed by the Company for rawhiding 1,000 tons of ore from the mine to Albert Canyon, which ore was to be shipped direct to Swansea. For some reason this contract has fallen through. About six weeks ago a number of miners were discharged from the mine because the Company would not keep the men supplied with powder. This, with seventy-five pack animals on the road. The cause for the shut down is said to be as follows: When the weather is good, the bosses sit around a stove and drink "Scotch," and when it starts to snow they set out with a rawhide train and take the animals up light. They don't know enough to put a load on each mule. They pack the rawhides and harness on a sleigh and drive the mules.

Why does an English mining company as a rule fail to make a success in this country? Look at the lamentable mess they made at the "Lanark" mine at Laurie, for instance. Before many moons I fear the "Waverley" will be in the same boat as was the "Lanark," and the camp consequently gets a "black eye."

As I and friends own claims in this district, I feel that it is no more than right to protect them.

Albert Canyon, B.C.

A RESIDENT.

THE STICKEEN ROUTE.

TO THE EDITOR:—An article from my pen, on the above subject appeared in the MINING RECORD of December, 1897. The Editor in a review complains that the article was disappointing, inasmuch as it failed to mention or disclose my plans of building the proposed railway and colonizing the lands granted to the company—adding metaphorically, that although asked for bread, he (Mr. Beggs) had given a stone, in the shape of "a nicely worded and seductive advertisement of patent medicine resemblance." I now append the desired information along with another small dose of "patent medicine," which, I trust, will assist in digesting the metaphorical "stone" referred to.

My proposed plans of building the Stickeen and Teslin Railway are similar to those generally used in the construction of railways—namely: to have engineers locate the proposed railway line, along the best route, from terminus to terminus, and to furnish the requisite plans. This has been done in compliance with an Act passed by the legislature of British Columbia, in May, 1897, which incorporated the Stickeen and Teslin Railway, Navigation and Colonization Company, and which along with a public Act, granted Crown Lands, at the rate of 5,120 acres per mile of railway, to aid in constructing and equipping the said railway. A similar grant was made, at the same time, to two other railway lines proposed to be built in the Cassiar District. The land grant to the S. & T. R. was not, however, made to me as "a reward or munificent gift in regard to my public services," as insinuated in the "review" mentioned, (although it could easily be shown that those services were numerous and valuable), but was passed in accordance with the Northern Railways Act, to aid in constructing those railways; which when built, as they must be before the lands granted by the Act can be made available, will prove of immense benefit to the public, and will open up the northern portion of the Province.

Further, my plan of utilizing such portions of the land grant as may be suitable for settlement, was to have it divided into small holdings of five, ten, fifteen, twenty or twenty-five acres, (or other suitable areas)—those areas to be granted alternately to *bona fide* settlers; who might also, if deemed advisable, be assisted by the Company, (which by its charter is a colonization Company), to make certain improvements on their holdings. Those improvements would not only render the alternate lots or holdings more valuable, but would enhance the value of the contiguous public lands as well. Does such a disposition of the lands granted to the S. & T. R. Co. look like the work or design of "considerate charter-mongering"?—would it not rather indicate a patriotic and progressive spirit, and incline a discerning public to class the Company as public benefactors? The Hon. Mr. Martin, Chief Commissioner of Crown Lands, appears to take a liberal view of the matter. His attention having been called to the fact that a very large number of applications were being made for land along the proposed line and termini of the S. & T. R., apparently for speculation purposes, but *not* in the interests of the province; and a protest having been made to him, the result was that on the 11th of December, 1897, an extra official Gazette was issued, reserving for governmental purposes, a belt of land, five miles wide along a portion of Stickeen River: also along Teslin Lake, as far north as 60° (the northern boundary of B.C.); and around that portion of Bennett Lake which is in the Province of B.C.

The current rumor, said to be abroad "that I will agree to sell for \$60,000, the parliamentary rights of the S. & T. R.," is incorrect, and may as well be contradicted. It concerns the public, however, to know that I have completed arrangements with capitalists, under which the Stickeen and Teslin Railway will be constructed early this spring and summer (1898). No time therefore, has been lost or wasted in having that great leading, popular thoroughfare to the Yukon region placed in running order, to accommodate the expected rush to the Klondyke gold fields, this current year, and to accomplish this *bona fide* corporation has been compelled to pay through the nose.

ALEXANDER BEGG.

THE BOUNDARY CREEK RAILWAY QUESTION.

TO THE EDITOR:—The close of the present year brings with it a feeling that in spite of the deferment of transportation facilities and the advent of the Klondike boom which diverted a great deal of capital which would naturally have been invested in southern British Columbia, and in spite of the very general indifference displayed at the coast regarding the resources of this district, Boundary Creek has made a great deal of substantial progress. The operations carried on this year on some of the best known properties in the Greenwood, Wellington, and Summit camps have at last disclosed the fact that the large ore bodies worked on are no mere "blow-outs," but are permanent veins. It has also been demonstrated that many of these ore bodies are by no means so low grade as was hitherto supposed. To sum up briefly, we can at least be sure that when transportation and smelting facilities offer, Boundary Creek will be one of the great bullion producing mining camps on the continent. The question now agitating the mind of everyone interested is *when* we can count on obtaining those requisites without which mining in this section can never be profitable. Is Mr.

Corbin to be permitted to extend his system into this section, and if so will he be forced to commence construction as soon as he obtains his charter, or are we to wait the sweet convenience of the C.P.R.? Is the next session at Ottawa to give birth to another subsidy-hunting scandal, or will some legislation be passed of some practical benefit, not only to Boundary Creek, but the whole Dominion? In this respect it is safest to follow the old adage "don't prophesy until you know"; but the general impression is that the C.P.R. is on top and will have things its own way. In the meanwhile petitions are being circulated in all the towns asking the Dominion Government to grant Mr. Corbin's charter, for which he is applying, as any further delay in obtaining transportation for this section means serious loss to the whole community.

While harping on this string I may perhaps be allowed to draw attention to the effort that is being made by the Heinze organs (notably the *Rosland Miner*) to try to delude the public into believing that if the Corbin system were extended into this district the effect would be to draw trade away from Canada to the benefit of the States, because the natural place for the reduction of the Boundary Creek ores is Trail. As regards this assertion, I may state, without fear of contradiction by anyone really thoroughly acquainted with the mineral deposits of the Kettle River District, from Camp McKinney to Christina Lake, that the idea of carrying Boundary ores to Trail for treatment is absurd, and that no matter what railroads are allowed to build into this section the ultimate result will be the establishment of local reduction works for the treatment of its ores. It is therefore sincerely to be hoped that neither Parliament nor the Local Legislature will be influenced when considering this question by the self-interested statements of hiring journals whose editors are totally unacquainted with the character of the ores of this district, even if the tin deity they worship is encouraged to extend his so-called railway system to Penticton. The people of Boundary Creek are quite capable of working out their own salvation.

In the meantime while plots and counter plots are being concocted in railway circles with a view to coralling the transportation of this region, and while nothing has so far resulted of any practical value, important mining deals are becoming a matter of every day occurrence. This in itself is encouraging, as showing that the mineral resources of Boundary Creek are of more than ordinary value.

In my next contribution I will try to give an account of some of the deals that have lately been made in the numerous camps.

Midway, B.C.

CON. CENTRATE.

OBITUARY.

The news of the tragic death, which occurred on the 5th inst. of Capt. Wm. Hall the Superintendent of the Le Roi mine, was received throughout the Province, but particularly in the Rosland and Boundary Creek districts, where he was well known and esteemed, with feelings of horror and regret. The deceased met his end by missing his footing while in the act of stepping from the west skip of the mine, his body being precipitated down the shaft, a distance of 700 feet. Capt. Hall was born in Ireland and was 63 years of age. He had a long and varied mining experience, and held many responsible positions in the great mines of the north-west.

ANSWERS TO CORRESPONDENTS.

T. W. Laidon (Portland, Ore.)—There is no newspaper published in the district itself. The *Nelson Tribune* gives the information you seek.

A. B. H. (London)—Yes, a very promising investment indeed. "Pnyx" (Liverpool, Eng.)—Apply to the Hon. Forbes G. Vernon, Agent-General for British Columbia, London.

E. M. (Montreal)—There is not much demand for the stock locally, and the price you quote is an altogether fictitious valuation. These shares are now quoted in London at one shilling and seven pence. The prospects, however, of the company are fairly good and there is no reason why the properties which are now under development should not turn out well. The assayer whose report you forwarded is a reputable person and you can therefore quite rely on the correctness of his returns. From information, we believe reliable, received we learn that on the 19th of December the shaft on the principal claim was down 229 feet and since then an additional thirty feet has been sunk. The width of the pay streak in the foot wall is said to vary between eight and sixteen inches. The last shipment of ore to the Hall Mines smelter gave a net profit of \$22.00. It is the company's intention to erect a concentrator at this property in April.

M. A. Felman (Joliet, Ill.)—Yours is rather a tall order. You had better write to Mr. R. E. Gosnell, Provincial Librarian, Victoria, B.C., for a copy of his Year Book. This gives very full information on the subject. The Edmonton route is certainly not feasible; we certainly recommend you to start from either Victoria or Vancouver and go in by way of the Stickeen. The beginning of March is the time. We are afraid a "guide" would be an expensive luxury. Prices in any of the coast cities will compare favourably with those asked in the Washington towns and you save duty (thirty per cent.) by outfitting in B.C. No, frankly, if you have had, as you say, no experience of roughing it and are doing well at your own business, in one word "don't."

C. H. U. (Baltimore, M.D.)—There is undoubtedly good ground which cannot be worked on account of distance from available water supply in both the Cariboo and Omineca districts. Apply to a firm of mining brokers.

C. Haager (San Francisco)—A company has been registered under the title you name, but we have been unable to corroborate your statement that it is "pursuing mining with a benevolent purpose." You probably misunderstood your informant. He doubtless referred to the benevolence of the promoters. No, the concern is obviously a fraud.

G. (Victoria)—Thanks; we are always glad to be told that our efforts are appreciated. It's encouraging.

JANUARY DIVIDENDS.

A DIVIDEND of \$30,000 was declared by the Whitewater Company, on the 18th inst. The mine has thus far paid \$154,000.00 in dividends, to date.

Very excellent results were obtained from the Reco mine, near Sandon, last year, the dividends paid to shareholders amounting to a quarter of a million dollars. This record will, however, be exceeded during 1898, if present indications are to be trusted. Early this month the Company declared a dividend of \$100,000, and it is given out that a second dividend of the same amount will be declared within sixty days.

A dividend of \$50,000.00 was paid by the Le Roi M. & M. Co., on the 12th inst. This is the 22nd dividend since October, '95, and brings the total paid to the shareholders to well over seven hundred thousand dollars.

Although the stamp mill at the Fern mine, (situated near Hall's Siding, on the Nelson & Fort Sheppard Railway) has been in operation for little more than three months, the directors have been able to declare a dividend of \$10,000, which was payable on the 25th inst., and it is expected that the mine will continue to yield handsome profits to the shareholders. The Company is capitalized at \$200,000.00.

NOTES FROM SHOAL BAY.

THE camp is going ahead steadily and generally prospects are vastly improved. New strikes continue to be made all round the district from Knight's Inlet to the north, down to Cortez Island to the south. Two remarkable parallel leads which have been traced for seven or eight miles each across the river which enters Ramsay Arm from Deep Valley have lately had respectively twenty-three and twenty-one claims staked on them. A very rich strike of gray copper ore has lately been made near Deepwater Bay in Discovery Passage. Seven claims are located on a sixty-foot lime dyke, or formation, capped with calcite ledge matter, on which the Ajax is the lowest and shows the gray copper referred to. This carries over forty per cent. copper with good gold and silver values as well. The extensions show bornite and gray copper carbonites all along the six claims which are called B, C, D, E, and F. Jax and the Lightning.

Another somewhat similar proposition, the Dorothy Morton, is being opened by Messrs. Laing and Ryan in Fanny Bay, Phillips Arm, and is looking very well. This will also be treated by the cyanide process on the spot. Many other properties which assay high values in gold, silver and copper are awaiting the erection of a smelter at some convenient point on the coast.

THE LE ROI.

The annual meeting of the Le Roi Mining Company was held at Spokane on January 13th. There was little business transacted. Colonel Peyton one of ten directors was appointed to act as manager in place of Senator Turner for the ensuing year, and Mr. L. F. Williams assumes the duties of secretary for the same term.

The Le Roi continues to make shipments of about 200 tons per day to the Northport smelter. Recent smelter returns show that the ore is going about 1.54 ounces in gold, four per cent. copper, and three ounces in silver. Its monetary value may be itemized as follows: Gold, 1.54 ounces at \$20, \$30.80; silver, three ounces at 57c., \$1.71; copper, four per cent. (80 pounds) at 10 $\frac{3}{4}$ c., 8.60; total, \$41.11. Estimating the product of the mine at 200 tons per day, the gross value of the ore raised daily is \$8,222 or \$246,660 per month, which in turn makes the gross yearly product of the mine \$2,959,920. The Iron Mask has two cars loaded ready for the Northport smelter, and has ordered a lot of empties so that they may be loaded with ore for the smelter. From this it is presumed to be the intention of the Le Roi people to begin doing custom work just as soon as the smelter is blown in.

Shipping Mines.

Following are the ore shipments from the mines adjacent to Rossland, from Jan. 1 to Jan. 22, 1898:

Mine.	Tons.
Le Roi	3,828
War Eagle	220
Centre Star	75
Poorman	115
Iron Mask	140
Cliff	20
Total	4,298

The ore shipments for the seven days from Jan. 15 to Jan. 22, inclusive, were as follows:

Le Roi	1,17-
War Eagle	60
Centre Star	30
Poorman	115
Total	1,278

The shipments for the same period last year, aggregated 210 tons. The total shipments from the camp since Jan. 1, 1896, aggregate 77,138 tons.

The shipments of ore from Sandon from August 1, 1897 to January 20, 1898, inclusive, were as follows:

	Tons.
Slocan Star	2,630
Ruth	3,945
Payne	8,140 $\frac{1}{2}$
Idaho Mines	426
Noble Five	519 $\frac{3}{4}$
Reco	908 $\frac{1}{2}$
American Boy	29
Slocan Boy	45
Wonderful	42
Ajax	43
Majestic	12
Freddie Lee	16
Mt. Adams	15
Last Chance	624
Goodenough	35
Canadian Group	20
Sovereign	34
Trade Dollar	15
Queen Bess	114
Miscellaneous	9 $\frac{1}{2}$
Total	16,769$\frac{1}{2}$

ORE EXPORTED FROM JAN. 1 TO JAN. 22.

From Slocan via Kaslo	1,705
" Slocan via Nakusp	380
" Rossland via Northport	1,910
Tons	3,995
Through Nelson Custom House	\$253,495.00
Average Value per ton	\$63.58

THE STOCK MARKET.

The market for Rossland stocks has been very active during the month of January, caused by the purchase of the controlling interest in a number of the mines in that camp by the British American Corporation. The most active have been the Poorman, West Le Roi, Evening Star, Great Western and Josie, also Monte Cristo.

In silver properties there has been a demand for Dardanelles and Noble Five some good sized parcels of both these stocks having changed hands.

Regarding Coast mines, a number of Victoria-Texada shares have changed hands at a price which will ensure a good profit to the purchasers in the near future. Alberni-Consolidated has been bonded to an English Company for \$150,000, and this stock has advanced from five cents to nineteen cents.

MINERS' LICENSES.

TO THE EDITOR:—I have read with pleasure your articles on the subject of exempting working miners from the obligation of taking out licenses; but why not go a step farther and exempt pioneer prospectors and trail blazers? To these men we largely owe the development of this rich country and it is fitting that there should be some recognition of their services. At the same time I do not think either prospectors or working miners have much cause to complain at being overheavily taxed. The Government is spending large sums in roads and trails to open up our mining districts and it is of course necessary that a revenue should be provided.

Burton City, B.C.

J.G.R.

PUBLICATIONS.

“MINERAL Statistics and Mines: Annual report for 1896,” by Elfride Drew Ingall, M.E., Associate of the Royal School of Mines, England, Mining Engineer to the Geological Survey of Canada. This is a detailed statistical report of the mineral industry of Canada for 1896, published under the auspices of the Geological Survey. It is regrettable, but perhaps unavoidable, that the report for 1896 should make its appearance so late in the day as January, 1898. Nevertheless the publication is of great interest to us, particularly as showing the relative progress of mining in British Columbia with other provinces of the Dominion. Thus we find that no copper was mined in B.C. until 1894 when the production was not quite 1,100,000 pounds, in 1896 it had increased nearly twelve times in quantity and the output amounted to over forty per cent. of the whole production of Canada. Again the production of lead for 1896 was entirely from B.C., no lead being produced during that year either in Quebec or Ontario. Table II, page 119, shows the gold production by provinces for 1896 as follows:

	Oz.	Value.
Nova Scotia	25,103	\$ 518,780
Quebec	145	3,000
Ontario	5,563	115,000
N.W. Territories (including Yukon district)	17,175	355,000
British Columbia	86,512	1,788,206
Total	134,498	\$2,780,000

Calculated from the values at the rate of \$20 67 per ounce. British Columbia's contribution was therefore, for the year quoted, sixty-four per cent. of the total production.

The figures detailing the production of silver in the Dominion, for a period of ten years from 1887 to 1896, are also well worth studying. In 1887 the yield of the whole of Canada was 349,330 ounces, valued at \$341,645, of which Ontario contributed 190,495 ounces; Quebec, 146,898 ounces and British Columbia, 11,937 ounces. In 1896 the position of the provinces is entirely reversed, of the total production of 3,205,343 ounces valued at \$2,149,503, British Columbia produced 3,135,343 ounces, or rather more than ninety-seven per cent. of the whole; Quebec, 70,000 ounces and Ontario nothing.

The author predicted a largely increased metal production for British Columbia for 1897, and from the figures we published last month it will be seen that he was not mistaken, the value of the total output of British Columbia mines last year being not much less than \$10,000,000, and the gold production of the province for 1897 it is safe to say would be equal at least to the production of the whole of Canada for the preceding year.

"Report on the Doobault, Kazan and Ferguson Rivers, and the North-west Coast of Hudson Bay," by J. Burr Tyrrell, M.A., F.G.S., etc. Pages 215; with maps and illustrations. The book forms part F of the annual report, Vol. IX of the Geological Survey of Canada, and is the result of two years exploratory work in the little-known region north of latitude 59° from the coast of Hudson Bay westward to Lake Athabasca, comprising an area of not less than 200,000 square miles. To geologists this report will prove of great interest. The maps are admirable and the illustrations, selected from more than 400 photographs taken during the explorations, give a good idea of the country. The Geological Survey of Canada is doing very excellent work in the interests of the Dominion, but it may not be out of place here to call attention to the fact that there is still a large area in British Columbia unsurveyed and reports thereon by official geologists would, at the present juncture, prove especially valuable.

"Mining Investments: How to Make Money and How to Lose Money in Mines". Mr. W. Thos. Newman, the author of "Hidden Mines and How to Find Them," kindly sends us the manuscript copy of a work upon which he is now engaged, bearing the above title. This subject dealing with classes of mining investment in B.C., is of course very fascinating and the public will doubtless fully appreciate a conscientious attempt to prevent the injudicious speculations, heretofore too frequent in wild-cat schemes. We use the word "attempt" advisedly, because it is questionable whether any book, however excellent in itself can be of much practical use in regulating mining investments, but here is an extract from the work:

"The commonly accepted idea that investments of a mining character are more dangerous than others, is a prejudicial fallacy. . . . The real truth of this matter is, that the dense ignorance of the investing public in regard to the business of mining, fostered as it is by the Pharaonic spirit infused throughout the various mining schools, leaves the door wide open to the unscrupulous shark of the man-eating variety, who never fails to utilize the opportunity thus afforded, and who can generally find a respectable innocent fledgling of known integrity and social standing, licensed to wear six mysterious letters at the end of his name, and the latest style of yellow leggings,—to act in all good faith and sincerity under the shark's experienced manipulation, as a decoy duck." We hope to review this book fully upon its publication.

WE have to acknowledge with thanks the receipt of the "Inland Sentinel Map of the Routes from Kamloops, B.C., to the Canadian Yukon, shewing the auriferous belts of Cariboo, Omineca and Cassiar." The drawing appears to be accurate, and the lithographing shows good workmanship. But of course the important part of the map is the trail, which is strikingly depicted in brilliant vermilion, and is shewn to start from both Savonas Ferry and Kamloops, and wind off accommodatingly enough in the direction of Klondike. We have already expressed our opinion with regard to the Kamloops route to the Yukon—as a cattle trail it is perhaps the best. For the prospector with limited capital it is to be recommended as affording opportunities for discoveries to be made in the undoubtedly rich districts of Omineca and Cassiar, but as a royal and rapid road to the present field of excitement, where cold in the head and gold on the brain are the common maladies under which the more or less hungry population suffer, well—it isn't, and that's the long and short of it. One, however, must admire the energy displayed by the people of Kamloops, and especially by the editor of its well-known paper, the *Inland Sentinel*, in setting forth in so strenuous a manner as has been done, the claims of Kamloops as a starting point for the Yukon gold fields. That to a certain extent this will result in the opening up and exploration of the vast area of practically unknown country on the northern boundaries of the Province, may be safely admitted, and in this respect the advocacy of this route is commendable.

The *Colonist* is to be congratulated upon the publication this month of an admirable special Klondike and holiday number, handsomely illustrated. The *Vancouver World* also issued a voluminous Klondike edition, showing the advantages of Vancouver as an outfitting point.

BRITISH COLUMBIA CHAMBER OF MINES.

ARTICLES OF ASSOCIATION.

1. To promote and protect the mining interests and industries of the Province of British Columbia.
2. To consider all questions connected with the mining industry, and to promote public discussion thereon.

3. To promote legislative and other measures affecting such mining industry.

4. To collect and circulate statistics and other information relating to such mining industry.

5. To communicate with and exchange information upon mining matters with Chambers of Mines or Government Departments of Mines in the Dominion of Canada and other countries.

6. To procure information as to mines, mining companies, and all matters relating thereto, and circulate the same.

7. To establish, form and maintain a library, and museum of models, specimens, designs, drawings, and other articles of interest in connection with the mining industry for the use of the members.

8. To act as arbitrators in the settlement of any disputes arising out of mining.

9. To sell, improve, manage, lease, mortgage, dispose of, turn to account, or otherwise deal with any part of the property of the Chamber.

10. To invest the moneys of the Chamber not immediately required upon such security or securities, and on such terms, as otherwise, in such manner as may from time to time be determined.

11. To borrow any money required for the purposes of the Chamber upon such securities as may be determined.

12. To obtain, whenever determined upon, an act of the Provincial Legislative Council for the incorporation of the Chamber, and any other act, which may be deemed conducive to any of these objects.

MEMBERSHIP.

13. Membership of the Chamber shall be of five classes, viz:

- | | |
|-----------------------------|---|
| (1) Representative Members. | |
| (2) Associate | " |
| (3) Honorary | " |
| (4) Foreign | " |
| (5) Visiting | " |

REPRESENTATIVE MEMBERS AND VOTING POWERS.

14. Any syndicate working a mining property, or any owner or association of owners or diggers, claim or claims, paying an annual subscription of not less than to the funds of the Chamber, shall be entitled to nominate one representative member to the Chamber.

15. Any registered mining company, paying an annual subscription of shall be entitled to nominate one representative member to the Chamber, and in similar manner to nominate two such representative members for an annual subscription of and three such representative members for an annual subscription of provided that no nomination shall exceed three representative members by any such company.

16. No member shall be entitled to exercise more than one vote.

17. Representative members shall be liable to be withdrawn or substituted by their nominor or nominors, provided that notice in writing be given to the Secretary of the Chamber by such nominor or nominors, and the name or names of the substituted representative member or members notified at least seven days before such withdrawal or substitution.

ASSOCIATE MEMBERS.

18. Any resident in the Province and directly interested in the mining industry may, subject to the following regulations, become an Associate Member of the Chamber of Mines.

19. Each candidate for Associate Membership shall sign and deliver to the Secretary, an application in the form or to the effect following:—

20. Such applications must be accompanied by a note in writing, signed by two members—the one proposing and the other seconding the candidate's election.

21. At the next meeting of the Executive Committee the nomination shall be laid on the table, and the Executive Committee shall proceed to election, and voting shall be by a show of hands.

22. The Secretary shall, before each meeting of the Executive Committee, give notice to each member of the Executive Committee, stating the name and address of the candidate to be elected, and the names of his proposer and seconder.

23. Each application for Associate Membership shall be accompanied by a payment of by way of annual subscription.

HONORARY MEMBERS.

24. The Executive Committee of the Chamber may, at any meeting thereof, upon the nomination of any two members, declare and elect Honorary Members, and any person so elected shall, during membership, be entitled to all the privileges of Associate members, and without liability to subscription.

25. Honorary Members shall be elected from persons benefiting the Chamber by donations of useful objects, contributions of money, or by any special furtherance of, or ability to further, the aim of the Chamber. All Honorary Members shall be elected for one year, but shall be eligible for re-election.

FOREIGN MEMBERS.

26. Persons residing abroad may, upon written application to the Secretary of the Chamber, be elected as Foreign Members of the Chamber. Any such Foreign member shall pay an annual subscription of payable in advance, and will be entitled to copies of the publications of the Chamber, and all the privileges of Associate Members.

VISITING MEMBERS.

27. Visitors, not being residents of the Province, upon being nominated by any two members of the Chamber, and upon the payment of a subscription of may be elected members of the Chamber by the Executive Committee as before provided, and any person so elected shall enjoy and have the privileges of an Associate Member for a period not exceeding three months, provided that they shall not attend meetings of the Chamber unless invited by the Executive Committee.

GENERAL MEMBERSHIP PROVISIONS.

28. The financial period of the Chamber shall end on the in each year, and subscriptions shall be payable for the year.

29. Failure to pay any subscription shall debar the defaulting member from exercising the privileges of membership, any teay *ipso facto*, should the Executive Committee so decide, terminate his membership, provided that thirty days notice of default in payment be posted or delivered to the member by the Secretary of the Chamber, in manner hereinafter provided for notices.

30. Any member may withdraw from the Chamber by giving one month's notice, in writing, to the Secretary, of his intention, and upon expiry of the notice he shall cease to be a member, provided that cessation of membership shall not release the member from any of his existing liabilities to the Chamber.

31. Any member infringing the rules of this Chamber, or any regulation or order of the Executive Committee, or being, in the judgment of the Executive Committee, guilty of any practice or proceeding likely to bring discredit upon the Chamber, or be inimical to the objects thereof, may be excluded from the Chamber by an extraordinary resolution. Such member shall have seven days' clear notice sent him to attend the meeting which shall decide as to his expulsion. Any member so excluded shall cease to be a member, but without releasing him from any of his then existing liabilities to the Chamber.

CONSTITUTIONS AND FUNCTIONS OF EXECUTIVE COMMITTEE.

32. The ordinary business of the Chamber shall be conducted by an Executive Committee, consisting of eleven members, to be elected by ballot by the Representative Members of the Chamber, and of the President and Vice-Presidents of the Chamber *ex officio*, and Honorary Vice-Presidents, being Representative Members.

33. At the annual meeting of the Chamber, five members of the Executive Committee who have been longest in office shall retire. As between five or more members who have been in office an equal length of time, the members to retire shall be decided by lot, at the last meeting of the Executive Committee held before the date of such annual meeting. Every retiring member shall be eligible for re-election.

34. The Executive Committee shall meet at least once a month, and at such other times as they may appoint. Five members shall form a quorum.

35. The Executive Committee may delegate any of its functions and powers to sub-committees of its own body.

36. The Executive Committee may make such regulations as they think proper as to summoning and holding of their meetings, and the transaction of business thereat.

37. A member of the Executive Committee may at any time resign by giving notice in writing to the Secretary.

38. If a member of the Executive Committee shall cease to be a Representative Member of the Chamber, or shall, without leave of absence granted by the Committee, be absent from three consecutive ordinary meetings, the Executive Committee shall declare his office vacant, and he shall thereupon cease to be a member of the Committee.

39. Vacancies in the Committee shall be filled up at the next ensuing meeting of the Chamber; such vacancies shall be reported in the notice convening the meeting.

40. The Executive Committee may act, notwithstanding any vacancy in their number.

41. Representative members of the Chamber alone shall be eligible for election to the Executive Committee.

POWERS OF EXECUTIVE.

42. The management of the business and the control of the Chamber shall be vested in the Executive Committee, who, in addition to the powers and authorities by these articles expressly conferred upon them, may exercise all such powers and do all such acts and things as may be exercised or done by the Chamber.

43. Without prejudice to the general powers conferred by these presents, the Executive Committee shall have power,—

(a) To take, buy, sell, or lease, any land or building for the purposes of the Chamber.

(b) To purchase, acquire, or hold in trust, any books, newspapers, models, plans, charts, instruments, maps, or specimens.

(c) To determine from time to time the conditions on which members may use the library or museum, and remove books, or other contents, being the property of the Chamber.

(d) To determine what persons, not being members of the Chamber, shall be allowed to use the library and museum, without removing any of the effects or things contained therein, and to make, and from time to time rescind or alter rules and conditions as to such use.

(e) To petition the Government and Legislative Council in the name of the Chamber.

(f) To enter into such contracts and do all such acts and things as they think expedient for the purposes of the Chamber.

(g) To pass by-laws for the regulation of the business of the Chamber.

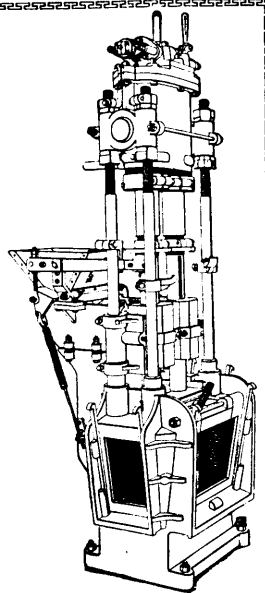
(h) To appoint or remove servants or agents of the Chamber.

44. The Secretary and Auditor, and all other employees of the Chamber, shall be appointed by the Executive Committee, and paid out of the funds of the Chamber such remuneration as the Executive Committee may decide.

ACCOUNTS.

45 The Executive Committee shall cause true accounts to be kept of the moneys received and expended by the Chamber and the matters in respect of which such receipts and expenditure take place, and of the assets, credits and balances of the Chamber.

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MEETINGS.

(46) Ordinary meetings of the Chamber shall be held at least once a month, on such day and at such place as the Executive Committee may direct, and the Secretary shall give notice of such meeting to the members, as hereinafter provided for notices, not later than seven days before the date fixed for such meeting. Ten members shall form a quorum.

(47) The Executive Committee may at any time in their discretion convene a special meeting of the Chamber.

(48) The President, or in his absence either of the Vice-Presidents, shall take the chair at all meetings, and if at any meeting neither of them be present, the members present shall choose some one of their number to be Chairman of the meeting.

(49) Questions at any meeting shall be decided by a majority of votes by show of hands, and, in case of an equality of votes, the Chairman shall have a second or casting vote.

(50) At the ordinary or other meetings of the Chamber, Representative Members alone are entitled to vote. Honorary or Associate Members shall have the right of debate, but not of vote.

(51) Members wishing to bring business before the Chamber not shown on the agenda notice, shall in all cases give notice of such motion at the previous meeting of the Chamber, or should submit notice of motion to the Executive Committee at least eight days before the date of meeting at which such business is proposed to be brought forward. In cases claimed to be urgent by the mover of the motion, the same shall be considered without notice at any meeting, providing a majority of three-fourths of the votes present are of the opinion that the matter be urgent; but in no case shall the alteration or amendment of the Constitution be claimed to be or considered urgent.

(52) The meeting of the Chamber in the month of January shall be a yearly meeting; at such meeting the Executive Committee shall submit a report and balance sheet, and five members shall be elected by ballot for the ensuing year to fill up the vacancies caused by the retirement of members, as provided for in Clause 39.

PROPERTY.

(53) All property or effects belonging to or acquired by the

Chamber shall be vested in trust in the President and Secretary for the time being of the Chamber, and their successors in office.

LEGAL PROCEEDINGS.

(54) All suits in law or in equity by or against the Chamber shall be instituted or defended in the name of the Secretary of the Chamber.

FUNDS.

(55) The funds of the Chamber shall be banked, in the name of..... with such bank as the Executive Committee may appoint, and shall be operated upon by the signature of any one member of the Executive Committee, or by such person of their body as the Executive Committee may appoint, to be countersigned by the Secretary.

PRESIDENT AND VICE-PRESIDENTS.

(56) At the general meeting to be held in January of each year, the President and two Vice-Presidents shall be elected by the Chamber. The President and Vice-Presidents shall hold office until the general meeting to be held in the following January, at which meeting the election to those offices for the ensuing year shall take place.

(57) The Chamber may also appoint for a period not exceeding one year, in addition to the President and two Vice-Presidents, an Honorary President, and two Honorary Vice-Presidents.

NOTICES.

(58) A notice may be served by the Executive Committee upon any member, either personally or by sending it through post, and in a prepaid letter, addressed to such member at his registered address.

(59) Notices of special meetings of the Chamber shall be delivered as aforesaid, at least three days clear before the date appointed for such meeting.

(60) Notices of Executive Committee meetings shall be delivered as aforesaid, at least twenty-four hours before the time fixed for such meeting.

(61) All notices of meetings shall show at foot thereof an agenda of the business to be transacted at the meeting.

(62) These Articles of Association shall not be altered or amended save by special resolution, duly carried at a general or special meeting of the Chamber.

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36 Government St., Victoria.

Mining Stocks.

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

Company.	Capital.	Par Value.	Price.
TRAIL CREEK.			
Alberta.....	\$1,000,000	\$1	\$ 10
Big Three.....	3,500,000	1	10
Bruce.....	1,000,000	1	10
Butte.....	1,000,000	1	02
Caledonia Con.....	500,000	1	05
California.....	2,500,000	1	15
Camp Bird.....	1,000,000	1	05
Celtic Queen.....	750,000	1	04
Centre Star.....	500,000	1	
Colonna.....	1,000,000	1	25
Commander.....	500,000	1	18
Deer Park.....	1,000,000	1	12
Enterprise.....	1,000,000	1	20
Evening Star.....	1,000,000	1	13
Georgia.....	1,000,000	1	15
Gertrude.....	500,000	1	10
Golden Drip.....	500,000	1	15
Great Western.....	1,000,000	1	10
Hattie Brown.....	1,000,000	1	10
High Ore.....	500,000	1	05
Imperial.....	1,000,000	1	10
Iron Horse.....	1,000,000	1	20
Iron Mask.....	1,000,000	1	36
I.X.L.....	1,000,000	5	10
Josie.....	700,000	1	31
Jumbo.....	500,000	1	70
Le Roi.....	2,500,000	1	7 75
Lilly May.....	1,000,000	1	20
Mabel.....	1,000,000	1	15
Mayflower.....	1,000,000	1	11
Monita.....	750,000	1	19
Monte Cristo.....	1,000,000	1	23
Morning Star.....	1,000,000	1	08
Nest Egg Firefly.....	1,000,000	1	05
Northern Belle.....	1,000,000	1	10
Novelty.....	1,000,000	1	05
Palo Alto.....	1,000,000	1	05
Phoenix.....	500,000	1	12
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	05 1/2
St. Paul.....	1,000,000	1	12 1/2
Silverine.....	500,000	1	05
Virginia.....	500,000	1	16
War Eagle Consolidated.....	2,000,000	1	1 20
West Le Roi.....	500,000	1	30
White Bear.....	2,000,000	1	19
AINSWORTH, NELSON AND SLOCAN.			
American Boy.....	1,000,000	1	15
Fern Gold.....	2,000,000	0 25	60
Index of Slocan.....	300,000	0 25	25
Arlington.....	1,000,000	1	12
Argo.....	100,000	0 10	10
Athabasca.....	1,000,000	1	30
Black Hills.....	100,000	0 10	10
Buffalo of Slocan.....	150,000	0 25	30
Canadian M. M. and S. Co.....	2,000,000	1	07 1/2
Cumberland.....	500,000	10	
Dardanelles.....	1,000,000	1	14
Dellie.....	750,000	1	12
Eidon.....	1,000,000	1	05
Eilen.....	1,000,000	1	07 1/2
Elkhorn.....	1,000,000	1	10
Exchequer.....	1,000,000	1	10
Godenough.....	800,000	1	25
Gibson.....	650,000	1	17 1/2
Grey Eagle.....	750,000	1	
Hall Mines.....	300,000	£1	8 50
Idler.....	1,000,000	1	12 1/2
London.....	150,000	1	25
Minnesota.....	1,000,000	1	25
Nelson-Poorman.....	1,000,000	0 25	25
Northern Light.....	250,000	1	16 1/2
Noble Five Con.....	1,200,000	1	14
Ottawa and Ivanhoe.....	1,000,000	1	12 1/2
Phenix Consolidated.....	1,000,000	1	07
Rambler Con.....	1,000,000	1	35
Reco.....	1,000,000	1	1 70
Slocan-Reciprocity.....	1,000,000	1	06
Slocan Start.....	500,000	50	2 50
Santa Marie.....	\$1,000,000	\$1	05
Silver Band.....	250,000	0 25	12 1/2
Slocan Queen.....	1,000,000	1	10
Star.....	1,000,000	1	06
St. Keverne.....	1,000,000	1	06
Sunshine.....	500,000	10	
Two Friends.....	240,000	30	17
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	05 1/2
Victoria-Texada.....	150,000	0 25	25
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	05 1/2
Consolidated Alberni.....	500,000	1	19
Mineral Creek.....	500,000	1	05 1/2
Mineral Hill.....	750,000	1	05
Quadra.....	500,000	1	10
CARIBOO.			
Cariboo Gold Fields Ld.....	£100,000		
Cariboo Hydraulic.....	300,000		
Horsefly Hydraulic.....	200,000		
Horsefly Gold Mining Co.....	1,000,000	10	2 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	50
Alpha Bell.....	500,000	1	50
Cayoosh Creek Mines.....	500,000	1	50
Lillooet Gold Reefs.....	200,000	25	25
Excelsior.....	50,000	1	50
FAIRVIEW CAMP.			
Tin Horn.....	200,000	0 25	46
Winchester.....	2,000	0 25	31
BOUNDARY.			
Old Ironsides.....	1,000,000	1	12
Golden Crown.....	1,500,000	1	25
Boundary Creek M. & M. Co.....	1,500,000	1	10
CAMP MCKINNEY.			
Cariboo.....	800,000	1	53

† Dividends declared to date are as follows: Le Roi, \$725,000; War Eagle, \$217,500; Cariboo, \$189,000; Slocan Star, \$400,000; Reco, \$250,000; Rambler Cariboo, \$40,000; Idaho, \$152,000. Payne, about \$500,000; Fern, \$10,000. Dividends paid since last returns: Le Roi, \$50,000; Fern, \$10,000.

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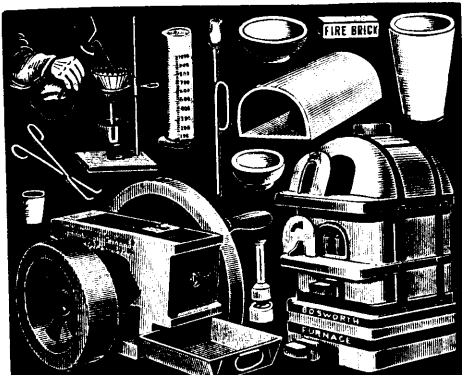
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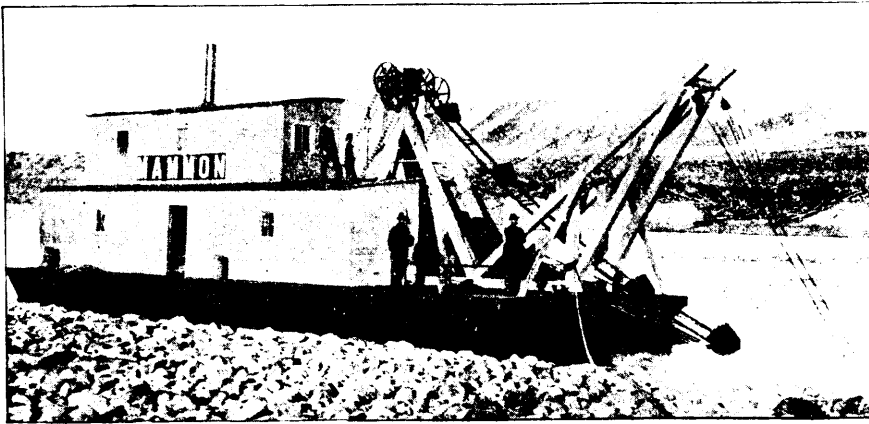
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\$100,000,000.

AMOUNT AND VALUE OF MATERIALS PRODUCED 1895 AND 1896.

	Customary Measures.	1895.		1896.	
		Quantity.	Value.	Quantity.	Value.
Gold Placer.....	Oz.....	24,084	\$ 481,683	27,201	\$ 544,026
" Quartz.....	Oz.....	39,264	785,271	62,259	1,244,180
Silver.....	Oz.....	1,496,522	977,229	3,135,343	2,100,689
Copper.....	Lbs.....	952,840	47,642	3,818,556	190,926
Lead.....	Lbs.....	16,475,464	532,255	24,199,977	721,384
Coal.....	Tons.....	939,654	2,818,962	846,235	2,327,145
Coke.....	Tons.....	452	2,260	615	3,075
Other Materials.....			10,000		15,000
			\$5,655,302		\$7,146,425

Production for 1890, \$2,608,608; for 1896, \$7,146,425.

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 \$375,000 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 higher price of lead more than compensating for the lower silver values. The production for 1897 will much exceed that of 1896, as such mines as the Slocan Star, Payne, Ruth, Whitewater and other mines increase 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 district within her own borders, a most important factor in the increasing prosperity of this country, entailing as it does, and will, the employment of much capital and many men. The extension of the railroad systems to different parts is now in progress, and the next few years will see many parts in which the prospects for good mining are excellent, made easy of access, while ores can be shipped with facility to the smelting centres, where the assembling of the various inter-fusing ores will make possible the treatment of all British Columbia ores at home.

CAPITAL.

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

MINERAL LANDS.

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

YUKON GOLD FIELDS.

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

For information, Reports, Bulletins, etc., address

W. A. CARLYLE, M.E. The HON. JAMES BAKER,
Provincial Bureau of Mines, Minister of Mines,
VICTORIA, B.C. VICTORIA, B.C.

TRANSPORTATION COMPANIES.

Canadian Pacific Navigation Co., Ltd.

TIME TABLE NO. 32.

(Taking effect January 15th, 1898.)

VANCOUVER ROUTE.

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

NEW WESTMINSTER ROUTE.

LEAVE VICTORIA—For New Westminster, Ladner's Landing 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 CHILLWACK and way landings every Tuesday, Thursday and Saturday at 8 o'clock during river navigation.

ISLANDS ROUTE.

Steamer "Rainbow" leaves Vancouver on Monday at 12 noon and Thursday at 10 a. m. for Texada, Shoal Bay and way landings.

NORTHERN ROUTE.

Steamships of this Company leave Victoria for Fort Simpson via Vancouver and intermediate ports on the First and Fifteenth of each month, and on the first of each month for Queen Charlotte Islands.

ALASKAN ROUTE.

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

BARCLAY SOUND ROUTE.

Steamer "Willipa" leaves Victoria for Alberni and Sound ports the 15th and 20th of each month, and for Quatsino and Cape Scott on 30th.

The Company reserve the right of changing this Time Table at any time without notification.

G. A. CARLETON,
 General Agent.

JOHN IRVING,
 Manager.

For Puget Sound Points

~~~~~TAKE THE FINE STEAMER~~~~~

CITY OF KINGSTON

Speed, 18 knots.	8.00 a.m. Lv M11	*Victoria	110 Ar	3.45 a.m.	Tonnage, 1147.
	11.00 a.m. Lv 38	Pt. Townsend	72 Lv	1.00 a.m.	
	1.45 p.m. Lv 82	Seattle	28 Lv	10.00 p.m.	
	4.00 p.m. Ar 110	Tacoma	M1 Lv	8.00 p.m.	

Steamer City of Kingston makes connection at Tacoma with Northern Pacific trains to and from points East and South.

*Daily except Sunday.

E. E. BLACKWOOD, Agent.

VICTORIA, B.C.

Spokane Falls & Northern, Nelson and Fort Sheppard, Red Mountain Railways.

The only all-rail route without change of cars between Spokane, Rossland and Nelson; also between Nelson and Rossland.

DAILY EXCEPT SUNDAY.

Leave.	Arrive.
7:30 a.m. Spokane	7:00 p.m.
10:30 a.m. Rossland	3:25 p.m.
9:00 a.m. Nelson	5:20 p.m.

Close connections at Nelson with steamer for Kaslo and all Kootenay Lake points. Passengers for Kettle River and Boundary Creek connect at Marcus with stage daily.

BRITISH COLUMBIA SMELTING & REFINING CO.

— BUYERS OF —

GOLD, SILVER AND COPPER ORES.

Correspondence Solicited. Smelter & Offices, Trail, B.C.

JOHN O. NORBOM, Office—
 B.C. IRON WORKS
 Consulting Mechanical Engineer.

Mining, Milling, Hoisting, Pumping, Hydraulic and Air Compressing Machinery. Power Generation and Transmission. Twelve years' experience in the United States of America.

P.O. Drawn 754.

Vancouver, B.C.

The Columbia & Kootenay Steam Navigation Co., Ltd.

TIME TABLE NO. 10.

In effect June 8th, 1896.

ARROWHEAD-TRAIL ROUTE, STEAMER "NAKUSP."

Mouth bound; read down.	North bound; read up
Son. Wed. Fri. 7 p.m. De ARROWHEAD	Ar 11.30 a.m. Wed. Fri. Sun
" " " 11 p.m. Ar NAKUSP	{ De 7.30 a.m. " " " " }
" " " 12 p.m. De	{ Ar 6 a.m. " " " " }
Tues. Thurs. Sat. 9 a.m. Ar ROBSON	{ De 8.30 p.m. Tues. Thurs. Sat }
" " " 12 noon De	{ Ar 8 p.m. " " " " }
" " " 2 p.m. Ar TRAIL	{ De 4.30 p.m. " " " " }

Connections at Arrowhead with C.P.R. to and from Revelstoke and all points east and west; at Nakusp with Nakusp & Slovan R. to and from Slovan points; at Robson with C. & K. R. to and from Nelson and Kootenay Lake points; at Trail with C. & W. R. to and from Rossland; at Trail with Str. "Trail" to and from Waneta, Northport and Spokane.

TRAIL-NORTHPORT ROUTE, STEAMER "TRAIL."

Daily except Sun. 8 a.m. De TRAIL	Ar 4.30 p.m.	{ Daily except Sun }
" " " 9 a.m. Ar WANETA	De 3 p.m.	{ " " " " }
" " " 10 a.m. Ar NORTHPORT	De 1 p.m.	{ " " " " }

Connections at Northport with S.F. & N.R. to and from Spokane and way points; at Trail with C. & W. R. to and from Rossland, and with Str. "Nakusp" to and from Robson, Nakusp and Revelstoke.

KOOTENAY LAKE ROUTE, STEAMER "KOKANEE."

Daily except Sun. 4.00 p.m. De NELSON	Ar 9.30 a.m.	{ Daily except Sun }
" " " 8 p.m. Ar KASLO	De 5.30 a.m.	{ " " " " }

Saturday, June 6th and every second Saturday following, steamer leaves Kaslo at 10 p.m. for Bonner's Ferry; returning leaves Bonner's Ferry Sun. at noon. Connections at Nelson with C. & K. R. to and from Robson, Trail, Rossland, Nakusp, Revelstoke and C.P.R. points; at Nelson with N. & F.S.R. to and from Spokane and way points; at Kaslo with K. & S. R. to and from Slovan points; at Bonner's Ferry with G.N.R.

The right is reserved to change this schedule at any time without notice. For tickets, rates, etc., apply at Company's office, Nelson.

T. ALLAN,
 SECRETARY.

J. W. TROUP,
 MANAGER, Nelson B.C.

INTERNATIONAL NAVIGATION & TRADING COMPANY LTD.

Steamers "International" and "Alberta" on Kootenay Lake and River.

TIME CARD IN EFFECT 1st OCTOBER, 1897.

Subject to Change without Notice.

Five-Mile Point Connection with all Passenger Trains of N. & F. S. R'y. to and from Northport, Rossland and Spokane.

Tickets sold and Baggage Checked to all U.S. Points.

Leave Kaslo for Nelson and Way Points, daily except Sunday, 5:45 a.m.
 Arrive Northport, 12:15 p.m.; Rossland, 3:40 p.m.; Spokane, 6 p.m.
 Leave Nelson for Kaslo and Way Points, daily except Sunday, 4:45 p.m.
 Leaving Spokane, 8 a.m.; Rossland, 10:30 a.m.; Northport, 1:50 p.m.

NEW SERVICE ON KOOTENAY LAKE.

Leave Nelson for Kaslo, etc., Tues., Wed., Thurs., Fri., Sat.	8:30 a.m.
Arrive Kaslo	12:30 p.m.
Leave Kaslo for Nelson, etc., Mon., Tues., Wed., Thurs., Fri.	4:00 p.m.
Arrive Nelson	8:00 p.m.

BONNER'S FERRY AND KOOTENAY RIVER SERVICE.

*Leave Kaslo, Sat.	4 p.m.	Leave Bonner's Ferry, Sun.	1 p.m.
Arrive Boundary, Sun.	12 p.m.	Arrive Boundary, Sun.	5 p.m.
Arv Bonner's Ferry, Sun.	10:30 a.m.	" Kaslo, Sun.	10 p.m.

Close connection at Bonner's Ferry with trains East bound, leaving Spokane 7:40 a.m., and West bound, arriving Spokane 7 p.m.

*The Alberta awaits the arrival of the International before leaving for Bonner's Ferry.

GEORGE ALEXANDER,

General Manager.

Kaslo, B.C., 12th July, 1897.

Change in Time Card

After end of October, the SS. Alberta passenger service, leaving Nelson 8 a.m. and Kaslo 4 p.m. will be discontinued.

Kaslo & Slovan Railway.

TIME CARD.

Subject to change without notice. Trains run on Pacific standard time

Going west.	Going east.
Leave 8.00 a.m. Kaslo	Arrive 3.50 p.m.
" 8.36 " " South Fork	" 3.15 "
" 9.36 " " Sproule's	" 2.15 "
" 9.51 " " Whitewater	" 1.48 "
" 10.03 " " Bear Lake	" 1.33 "
" 10.18 " " McGuigan	" 1.12 "
" 10.38 " " Cody Junction	" 1.00 "
Arrive 10.50 " Sandon	Leave 1.00 "

CODY LINE.

Leave 11.00 am	Sandon	Arrive 11.45 a.m.
Arrive 11.20 a.m.	Cody	Leave 11.25 a.m.

ROBT. IRVING,
 G. F. & F. A.

GEO. F. COPELAND,
 Superintendent.