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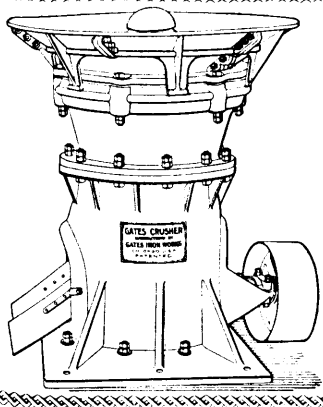
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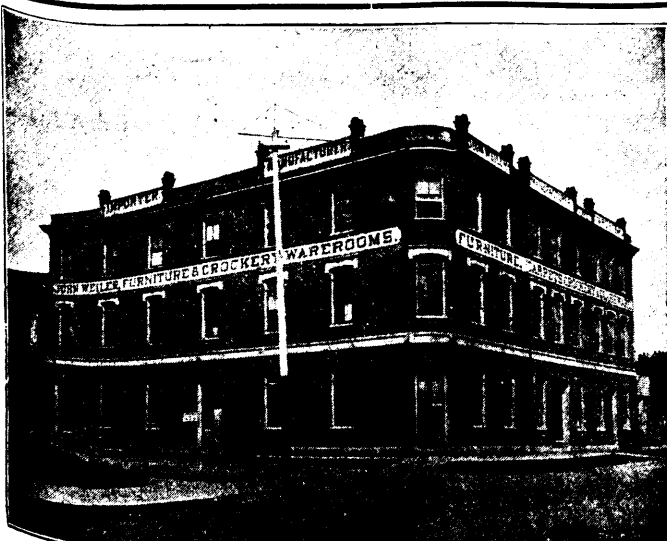
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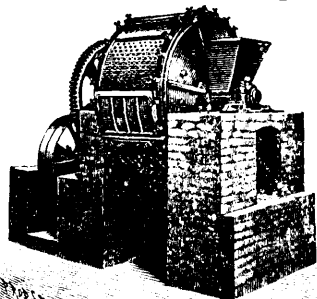
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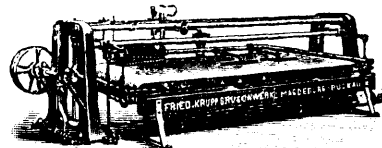
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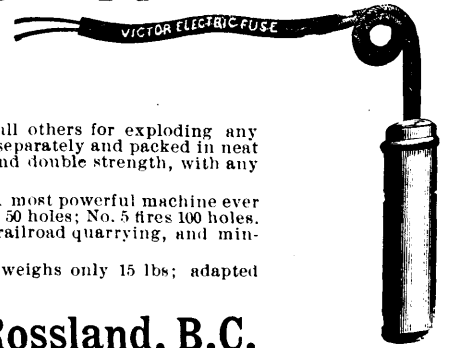
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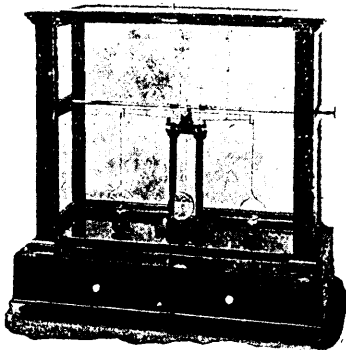
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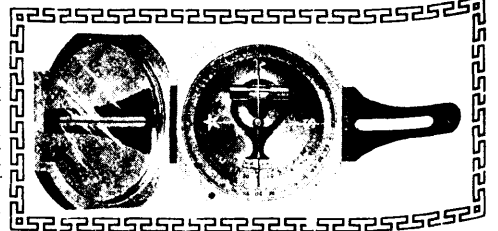
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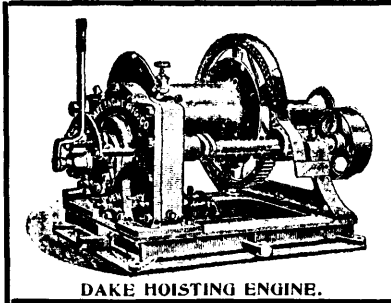
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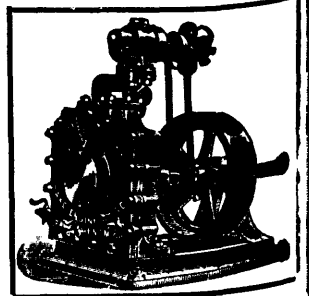
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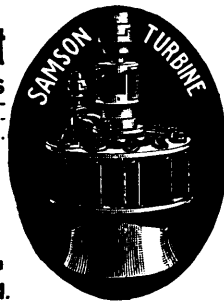
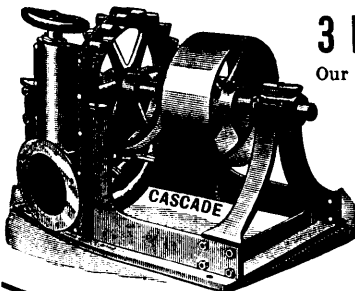
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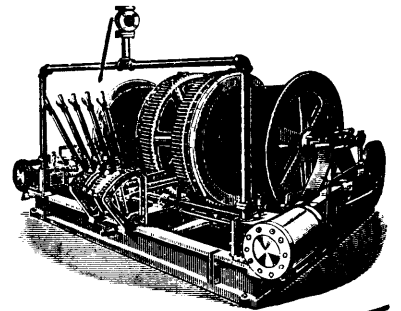
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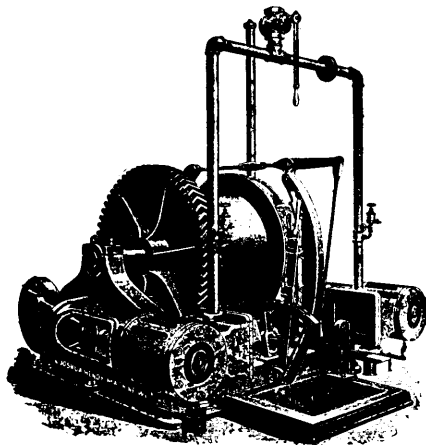
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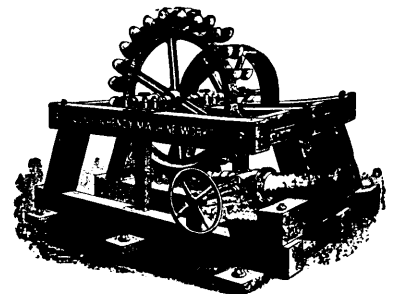
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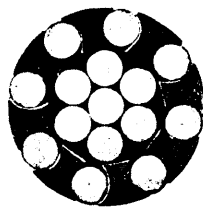
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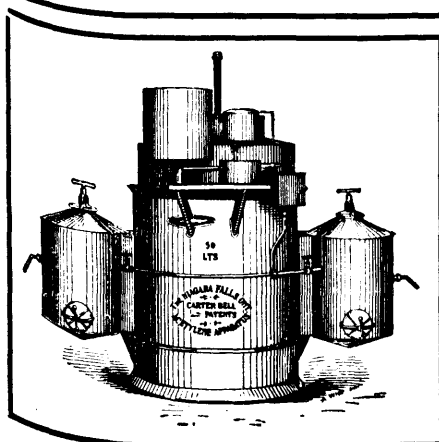
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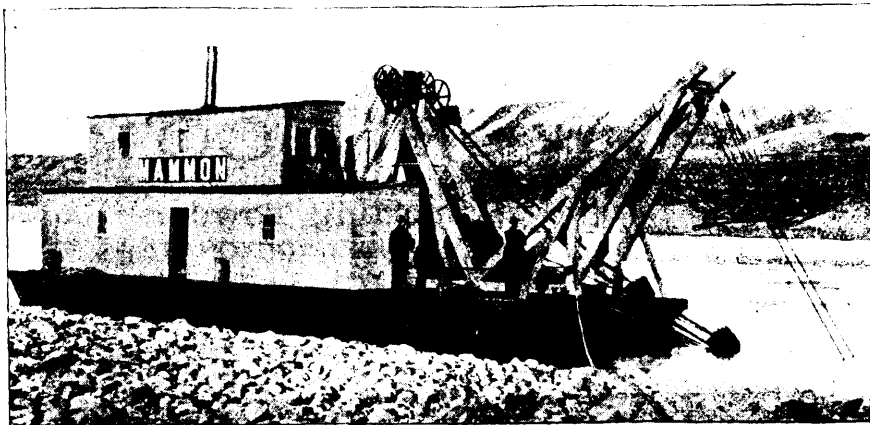
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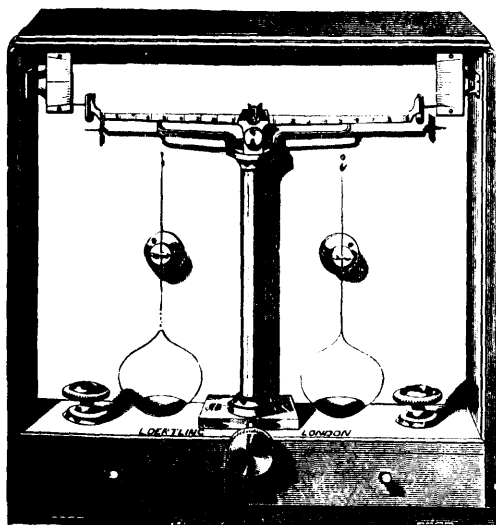
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|                      | Customary Measures. | 1896.      |             | 1897.      |              |
|----------------------|---------------------|------------|-------------|------------|--------------|
|                      |                   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

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

## GOLD.

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

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

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

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

## SILVER-LEAD.

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

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

## COPPER.

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

## COAL AND COKE.

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

## SMELTERS AND RAILROADS.

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

## CAPITAL.

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

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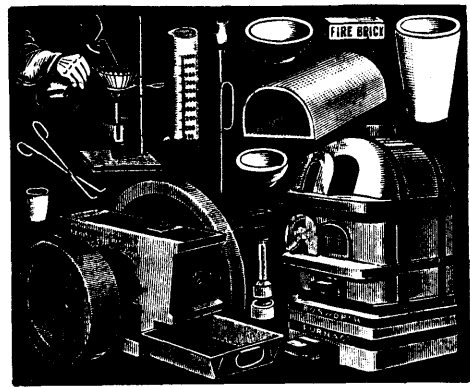
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Vol. IV.

JULY, 1898.

No. 7

## BRITISH COLUMBIA MINING RECORD.

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### THE MONTH.

IT is difficult to find language adequately forcible, in which to condemn the conduct of those responsible for the outrageous and scandalous ill-treatment of labourers employed on the Crow's Nest Pass construction work. The report recently presented to

Parliament, by the Commissioners appointed by the Federal Government last January, to enquire into the grievances of the railroad hands, and particularly with regard to the grounds for complaint

on the part of the Welsh immigrants employed by the railroad company, discloses a state of affairs that it is almost inconceivable should be possible in any presumably free and civilized country, but much less in Canada, where the evils of sweating and pauperism are practically unknown. The least grave of the charges against the railway company and the contractors, are breach of agreement in several instances; in forcing the men to sleep in the open in the dead of winter; in not providing suitable and ordinary accommodations, so that some of the camps were literally alive with vermin; in threatening employees with discharge if they dared to complain of ill-treatment; in deducting fares from Eastern Canada to MacLeod from the miserable wages paid to labourers after agents had guaranteed a free passage; in charging fares for carrying the men to their work; in exorbitant overcharge for supplies, on the part of the contractors; in the discharging of men without making provision to secure them from exposure and suffering; the refusal of food to sick employees; the illegal arrest of several, etc.

More serious, however, than these, is the responsibility of the railroad company for the death of two young Eastern Canadians of excellent character, named McDonald and Fraser, the sons of highly respected and well-to-do parents residing at Pictou, Ontario. These two men were, while in the employment of the Crow's Nest Pass Railway Company, taken ill with diphtheria. As far as can be learnt, for about two weeks they were left unattended and uncared for in any way; when in bitterly cold weather in the month of January, they were carried, in a dying condition, a distance of over

a hundred miles in an open conveyance, without food or medicine being administered to them, and at the end of the journey were placed in a box-car on a railway siding. Here a passer-by, hearing moaning, discovered them and a doctor was sent for from Pincher Creek. Shortly after his arrival one man died and the other lived an hour or so longer. This doctor, Dr. Mead, acted throughout in a most praiseworthy manner. After calling in a fellow practitioner, a Dr. Harwood, to state the cause of death, he, as Coroner of the district, held an inquest on the following day, notwithstanding that a lawyer named Wood had previously called on him and endeavoured to put a stop to the proceedings on legal grounds, and then, it is reported, by offering "improper inducements to Dr. Mead to abandon the inquest." Wood, meanwhile, attended the inquest, and was "exceedingly obstructive," throwing every difficulty he could in the way of the enquiry. Some witnesses failing to attend, the inquest was adjourned from the 24th of January to the 7th of February, but on this day the Coroner was served with a notice of prohibition, and another adjournment was made until February the 21st. On this last-mentioned date, the Coroner not hearing from the Judge, was obliged to adjourn *sine die*. The Judge, as a matter of fact, did not hand down his decision until the 20th of March, when it was obviously impossible to hold an inquest, even if the witnesses could have been found, and there are grounds for believing that steps were taken to prevent them from appearing. Such is this shameful story. Nor was the case herein described exceptional, but merely an instance of the disgraceful treatment accorded to sick men on the railroad, and for the Company's or the contractors' behaviour there is not a single excuse nor an extenuating circumstance. So much per month was deducted from the men's wages—wages much lower than are paid throughout British Columbia to ordinary labourers—for medical attendance, but the general impression is that a goodly percentage of the fund thus created, instead of going towards the maintenance of a competent medical and hospital staff, found its way into the pockets of the principal contractor, and it is certainly true that no hospital accommodation of any description was provided. At the time of writing no action has been taken by the Federal Government on the Commissioners' Report, but there can be no doubt that justice will be done, for, speaking in the House of Commons on this matter the other day, the Minister of the Interior, Mr. Sifton, made use of very decided language in expressing his indignation. He said: "I have not, so far, been able to form a definite conclusion as to where the responsibility should be placed; but I have no hesitation in saying that the railway company and the manager of construction, whatever may have been the arrangements between them and the contractors, cannot possibly escape responsibility in connection with this matter. My judgment is that when the railway company appoint a manager of construction of a great public work, having had great experience in such matters, and knowing all the difficulties that are likely to arise in connection with the employment

of large numbers of men, particularly in a practically uninhabited section of country, they are responsible for making such arrangements that the men will be treated at least with common humanity; and I state most distinctly for myself, that when the House comes to examine that report, I think it will feel that there has been gross negligence. I want, before I sit down, to say . . . that if anything the House can do to place the legislation of this country in such a position that no such occurrence can possibly happen again, the Government will see that it shall be done, without any regard to parties or politics." Meanwhile we entirely concur in the view taken by the by the *Toronto Monetary Times*, that "if the suffering occasioned by the infamy of the Crow's Nest Pass fail to awaken public attention to the folly of granting subsidies of public money to enrich private persons, a striking object lesson will go for naught. To the Crow's Nest Pass Railway the princely subsidy of \$3,000,000 was given out of the public treasury of Canada. It must have gone far towards meeting the cost of construction, if it did not wholly suffice for that purpose. Yet the men, whose labour built the road, were paid wages which in many cases barely sufficed to pay their board, and in fact some times left them in debt. The families of the married men must have been left to starve. The millions paid in subsidy go to enrich the favoured company. The same financial operation is being repeated in a score of places. It is time to call a halt and abandon this improvident system, with its resulting corruption and demoralization. The controllers of the subsidized roads, in gratitude for favours received, aim in turn to become the masters of Parliaments and Governments. Political parties crouch beneath their sway, and are willing to go on making sacrifices of the public resources to obtain their good will. And so it will be to the end, unless the corrupting system of subsidies is abolished. Until this monster evil be attacked with a force sufficient to bring about its destruction, it is idle to talk of reform or to expect amelioration in railway finance."

Remarks such as the above, emanating as they do from perhaps the highest financial newspaper authority in the Dominion, indicate that the commercial mind of Canada is growing strongly adverse to the grant of lavish state aid to undertakings, the primary object of which is to benefit bodies of private individuals, composed of promoters, directors, bondholders and stockholders. Amongst these last the promoters too often carry off the bulk of the Government subsidy, a very small portion of it—sometimes indeed none—being applied in reduction of the cost of construction work. What the *Monetary Times* says to-day, the people of British Columbia will very probably say too, in the very early future. And already the fact that a *quid pro quo* to the Province has in one important instance been asked, in return for a Government subsidy offered—we speak of course, of the Yukon direct railroad scheme that is now apparently lapsing—is significant of a growing popular antagonism in British Columbia to the grant of Government bounties to new railroad projects.

It has been given out that there is still a probability of a charter being granted to Mr. Corbin to cross the international boundary and extend his railroad system into the Boundary Creek District. On the supposition, therefore, that this report is not

wholly groundless, it may not prove unprofitable to consider what benefits are likely to follow the operation of two rival lines of RAILROAD COMPETITION railway in this promising section of AT South Yale. In the first place it may BOUNDARY be premised that the defeat of Mr. CREEK. Corbin's Kettle River Railway Bill in the House of Commons last session was chiefly the result of skillful C.P.R. lobbying, backed up by appeals to the "patriotism" of members and promises from the Company that it would itself undertake to provide the district with transportation facilities, agreeing to build a road that would naturally be entirely within Canadian territory, and which would be completed within a specified space of time. Whether the Canadian Pacific really contemplated this step or not previous to Mr Corbin's application to Parliament for charter rights, of course, must remain a moot point, but it now transpires that the first estimate of cost of construction from Robson to Pen-ticton of \$21,000 per mile was very much below the mark, and that owing to the engineering difficulties to be overcome, particularly in the vicinity of McRae Creek, the average cost of the road will not be less than \$29,000 per mile. *En passant* it may, moreover, be remarked that from present indications, certainly more than one year—the stated period—must elapse before the line is completed. Meanwhile, if when the road is in operation, the C.P.R. has no competitors for the traffic of the Boundary Creek District, it is reasonable to expect that a very high passenger and freight schedule of charges will be imposed by the Company to defray the large initial outlay, and to make a line so costly to construct and maintain, yield sufficiently big profits to satisfy shareholders. It may, however, be urged that the Government has authority to regulate the rates; this is quite true, but in justification of its charges the railway company would first enter the strong plea of the cost of the road, and if this failed to determine matters in its favour, the corporation is wealthy enough to refuse, if it chooses, to operate the line until the "bluff" had produced the desired effect. We do not say that all this will come to pass. It may not, and we trust it will not. It is nevertheless an interesting point, that while Mr. Corbin was anxious to build a railroad into this section of the country and submit to all the conditions or restrictions by which his powers would have been limited, he was refused the simple permission, and a corporation over which the Government has, as a matter of fact, little or no control, is subsidized to the extent of \$4,000 a mile to carry out practically the same undertaking. There still seems to be, as we have stated, a likelihood that the privilege of building a railroad to Boundary Creek will be accorded to Mr. Corbin, and this is the only hope that an effectual check on the C.P.R. will be supplied. As a rule, perhaps, railroad competition is little more than a name, and "mutual understandings" and "combines" take its place. But in this case the circumstances are somewhat different. Where the C.P.R. line is difficult and expensive to build, Mr. Corbin's is the reverse. He could afford to and would reduce charges to a minimum, the rival company being necessarily compelled to follow suit.

The Rothschild syndicate is making another attempt to secure Vancouver municipal aid for its long-mooted smelter project, the representative of the syndicate only asking on this occasion "civic moral support,"

(whatever that may mean) plus tax exemption of all smelter property to be erected within the city limits, after the smelter's establishment on a working basis. The City Council having however grown weary of the continuous procrastination of the Rothschild syndicate, their communication was simply filed. The Rothschild concern is not, it may just as well be explained, one of the great family of that name, or this project would doubtless long since have matured, whether the City of Vancouver aided it or not. Meanwhile the people of Vancouver are, pretty evidently, so tired of bonus hunters that they will not even accept a *bona fide* smelter offer, when accompanied by a demand for a subsidy on initial output. Thus the money by-law voters of the City declined on Saturday, the 18th inst., to support the Treat smelter project by the necessary three-fifths majority—though showing a preponderance in favour of acceptance—failing to record the ratifying quota. Twenty-eight votes were found wanting, despite a strenuous canvass made by the smelter promoters, many of the money by-law electors declining to vote pro or con. The offer was, as it may be remembered by readers of the MINING RECORD, to erect and work at Hastings, near Vancouver, a smelter of 100 tons daily capacity, in return for a bonus of fifty thousand dollars, payable at forty cents a ton on output. The promoters are not however wholly daunted, and still offer to build and work the smelter if the Provincial Government will, in return for the establishment of the industry, make them a free grant of a site on Crown land, near Burrard Inlet. The City Council has petitioned in favour of such grant, and as it would be well received in Vancouver, costing the people of the City nothing, whilst making in their district the beginning of a new industry, it is thought that the request may be favourably considered. The fact that a hard-fought and doubtful election contest is now in progress at Vancouver, will certainly not lessen the chances of favourable consideration of the request.

The Department of Mines has adopted the commendable plan for advertising the mineral resources of the Province abroad, of forwarding collections of photographic views of provincial mines, mining scenes and rock formations, enlarged to the considerable size of eighteen by twenty-two inches, to the leading industrial centres throughout the world. Thus, collections of views have recently been sent to the Imperial Institute in London, to the Omaha Exposition now being held, and elsewhere, in addition to which a large number of photographs have been supplied to Dr. Dawson, the head of the Geological Survey of Canada, for distribution in the Dominion itself. The Department promises to become a very useful and important factor in the development of the industry it represents, and we hope next month to publish an illustrated article, descriptive of the new laboratories and furnace rooms in the assayer's quarters, the lecture rooms and student's laboratories, and of the museum, which are now being handsomely furnished and equipped.

Apropos of the subject of advertising, the *Toronto Globe* suggests that nothing would more certainly promote the mining interests of Canada than an official weekly statement of the production of gold and silver. Our contemporary remarks that all the leading mining companies of South Africa and Australia publish

weekly statements of their production. With an output of gold and silver, outside of the Klondike, amounting now to about twenty millions yearly, the Government could not better attract the world's attention to our mines than by making arrangements for a weekly return by telegraph, from all producing mines, and publishing them in leading financial journals on this continent and in Europe. The suggestion is certainly worth consideration. Accurate weekly statistics of mine outputs from customs' returns are already published in the more important camps of this Province in the local papers, but what the public really want is a reliable official statement, published at regular intervals, of the Yukon production of gold. While, however, the returns from British Columbia, Ontario and Nova Scotia mines might, if proclaimed, advertise the Dominion's resources, it is just possible that promoters and the transportation companies, who have been largely instrumental in creating the Klondike boom, would rather the task of compiling the Yukon statistics was left in the hands of the present editors—the imaginative writers on the daily papers. It will be interesting to note the discrepancies that occur between the estimates made by the newspapers later on, and the Government reports giving the result of the year's mining in the far north, and it will not be at all surprising if people are led astray into including in their estimates both the worth of the gold dust brought down from the Yukon, and the amount of drafts previously issued by the banks on its value.

A departure that might advantageously be followed by the Provincial Administration has been adopted by the Australian Government of Victoria, in establishing a Bureau of Mining Information in London, the work of organizing the office having been entrusted to Mr. Lidgey, the Colony's Assistant Geologist. The Bureau is to be supplied with literature bearing on every phase of Victoria mining, and also with photographs, maps, and a complete collection of ore and rock specimens, whereby the public may become thoroughly instructed in the geological and mineralogical conditions met with in this section of Australia. But a noteworthy feature of the establishment of the Bureau is that it is not intended to advise or direct investments in the Colonial mines or districts, but to be maintained exclusively for purposes of providing general information to inquirers. The wisdom of this policy is obvious, and it is equally clear that a Governmental office of this description will serve the public very much more honestly and efficiently than any institution of the nature of a Chamber of Mines, where a majority of members are company promoters or otherwise biased. Without discussing the benefit derived by the Province from the establishment in London of the Agent-General's office, we cannot refrain from expressing the opinion that far more practical results could be obtained if the sum of money thus annually spent was devoted to the maintenance in the city itself of a well-equipped and properly managed Bureau of Mines, more or less under the supervision and control of the Mines Department in this Province.

In no part of the country has, what is known in Australia as the "dummying" of claims, reached such a pass as in the Alberni district. On either side of the Canal for many miles, ground has been staked off and held without any attempt having been made to prove the mineral showings, which at least in some localities really exist, and this practice, which has



been going on for some time past, has been undoubtedly instrumental in retarding the exploration and development of the district. We are, meanwhile, glad to note that the *bona fide* miners and prospectors at Alberni have organized a strong association chiefly for the purpose of dealing with this and other pressing local questions, and that a requisition will be made to the Provincial Department of Mines urging the necessity of steps being taken to compel the performance of annual assessment work by owners on all claims held by them and not Crown granted—one suggestion worthy of consideration, “being that any claim on which adequate development work had not been carried out during the year to the satisfaction of the Gold Commissioner should revert to the Government; the applicant for the vacant ground being obliged to prove the value of the claim by doing thereon work to the equivalent of a one hundred dollar expenditure before being granted a record. The adoption at once, however, of the late Provincial Mineralogist’s suggestion would be, we think, on the whole, a more practicable solution of the problem. Another complaint from Alberni, refers to the policy of an influential company operating in the district, of doing “false” work on properties acquired by or under bond to them, in order to depreciate the value and thus secure on easier terms adjoining claims. Other districts, notably Boundary Creek and some sections of the Slocan, during the first stages of development, suffered from like dishonest and reprehensible company methods, and unfortunately there is no way of dealing with the evil, but in the instance referred to from Alberni we are assured that there are no grounds for complaint or criticism.

Straws, it is proverbially stated, show which way the wind blows, and it is therefore interesting to note as indicating the considerable attention now being accorded to British Columbia mining affairs abroad, the space devoted in leading European and American journals and publications to articles descriptive of the provincial mines and camps. In the *Engineering and Mining Journal*, of New York, Mr. W. M. Brewer, who is also a valued contributor to the *Mining Record*, is writing a series of admirable articles on this subject, and in the London *Mining Journal* in addition to regularly publishing letters from its well-informed Vancouver correspondent, hardly allows a week to pass without commenting in a favourable strain anent the province’s mining possibilities. These two journals are the most influential authorities on mining in respectively the old and the new world, and the opinions they advance are invariably received in the highest quarters with respect. Another journal that is doing good work for the Province in England is the *British Columbia Review*, which has now been in existence rather more than a year.

The unscrupulous London promoter is again at work initiating extremely dubious Klondike mining undertakings, the latest instance in point being an attempted, but it is to be hoped unsuccessful, flotation of a concern styled the Klondyke Twenty-Mile Concession, Limited. The company is to take up dredging leases, twenty miles in all, on the Yukon, Lewis, Big Salmon, and Pelly Rivers, though as yet there is no proof whatever of substantial gold value thus to be obtained by dredging. The leases were obtained from the Dominion Government on low rentals, and though the opportunities are quite unproved, the vendor, for him-

self and the underwriting sharks behind him, asks no less than £60,000, of which no less than £10,000 are required to be in cash. What should suffice to damn the undertaking thoroughly, is the fact that a Mr. F. Wiley is the introducer of the concern to the British public, and the Wiley family is connected with the notorious New Golden Twins promotion, the scandal which still rings in the ears of the Western Canadians. It is a lamentable fact that so low is now the tone of business morality in prominent quarters connected with the London Stock Exchange, that it is apparently far easier to float a fake mine concern in England, than to introduce a *bona fide* undertaking. As a result of this it is not too much to say that here in British Columbia the lowest possible opinion is beginning to be entertained as to the integrity of the ordinary London promoter of mining undertakings.

We are glad to note that active measures are being taken to place the British Columbia Chamber of Mines upon a more satisfactory and useful basis, and that as a preliminary step it is intended by the Chamber to publish quarterly, or half-yearly, a general review and report of the provincial industry covering those periods. While at first it will doubtless be difficult to get mine-owners and managers to co-operate—for even the Provincial Mineralogist found it no easy task to secure information concerning some of the large but privately owned silver mines of the Slocan, yet with good and reliable correspondents in each camp, much valuable statistical work may be done in the manner proposed by the organization. Meanwhile, candidates desiring to fill the position of secretary to the Chamber, are invited to apply, stating special qualifications for the office, before the 10th of July. As we may have suggested already, it is highly important that this appointment should be filled by a thoroughly experienced and capable man.

Notwithstanding the somewhat sensational methods adopted by Senator Turner and two of his co-directors, opposing the sale of the Le Roi mine to the British America Corporation, it appears that the powerful English Company, having acquired a majority of the shares, will virtually have control of the property by being thus in a position to elect representatives among themselves to directorate positions. While in some ways, however, it is to be regretted that the recent negotiations for the direct sale of the famous property miscarried, it is agreed by many of the best authorities on mining in the Province that the price asked—three million dollars—was a bit stiff, even for the Le Roi. Then there are doubtless as good fish in the sea as ever came out of it, and it is quite possible that the B.A.C. will find an investment for the balance of the large sum of money that was to have been paid for the Le Roi, quite as much to the advantage and in the interests of shareholders.

The British America Corporation certainly means to make profit by floating subsidiary companies, whatever be the result of its operations in direct mining. It is forming two companies, one to take over and develop the East and West Le Roi mines, and another to take over and develop the Columbia & Kootenay. Each is to be capitalized in £500,000, rather a large sum on which to earn dividends. The transfers on the face of them, certainly look more promising, if duly

carried into effect, for the parent Company than for the two subsidiary undertakings that are to be organized in London, England.

That very dubious venture, the Klondike Bonanza, Limited, which has been very adversely criticized, here and in England, has succeeded in raising £32,287 in fully paid up shares and obtained a special settling day on the London Stock Exchange. So we shall doubtless learn, ere long, what is to be the outcome of this stock subscription, as presumably work will be done by the Company on its placer claims this season, more than one of which are stated by experts to have been misdescribed in the Company's prospectus, and to be by no means favourably situated for gold productivity.

The *New York Engineering and Mining Journal* recently contained a scathing, but well deserved criticism of the Joseph Ladue Mining, Trading & Transportation Co. of the Yukon, floated under a big nominal capitalization, on the strength of the names of the Klondike pioneer Ladue and a number of well known financial men, including Mr. Chauncey Depew, The Company, out of which vendors and promoters were, it seem, to receive at least \$3,000,000 acquired on *omnia gatherum* of property, lots, mineral claims, and other rights in the Yukon, chiefly in and about Dawson, and has also taken up the transport business. This however, proving unremunerative as the general business of the much boomed and over capitalized undertaking will be, the Company now hope, it seems, to make a good round sum by chartering one of its steamships to the United States Government for a war transport. The directors thus hope to bleed Uncle Sam in a like fashion to their manner of effecting the same process as their happy stockholders. The Journal rightly stigmatizes the Joseph Ladue concern as very much of a fake, got up for the benefit of shark promoters. There was, we believe, once at least, one British Columbian's name on the Company's board, but the gentleman in question has, we imagine, got out of it long since, as we have never heard of his doing anything in his directorial capacity.

There is almost absolutely nothing doing in stocks and shares in the Vancouver market at this period—the end of June—and mining brokers in general are probably barely making office expenses at this moment. Prices change therefore but slightly, in sympathy with Eastern Canadian demands. There is a slightly better demand for Golden Cache stock, which is quoted at fifty cents. Lillooet gold mining ventures in general are, however, temporarily under a cloud, and probably will so remain until better things are heard in actual results, either from the Golden Cache or from one or other of the remaining free milling gold mining companies that should shortly begin to show preliminary results in the Lillooet district. Meanwhile, however, Mr. W. B. Mackinnon, M.E., who has recently visited the Lillooet country, thinks the general prospect good, and as to the Ben d'Or mine in particular, expresses himself more than satisfied with the outlook. The tunnel is now in 200 feet; all, according to Mr Mackinnon, in a free milling formation.

The Channe Mining Company's manager, Mr. Willis, states that he has bonded the Company's mining properties on the coast, on Ice River and in the Golden

district, to an English syndicate for \$130,000. This will mean the making of a substantial profit for the Channe stockholders.

The stock of the much-boomed Golden Cache mine continues to be rated at a big decline on old-time inflated values, an average price for the stock being about thirty-five cents. Meanwhile it is stated that as large and necessary additions to the mine's equipment have now been made, there will shortly be further milling of ore with, as the directors hope, better results. The same hope is indulged by many Vancouver investors in this and other Lillooet free milling gold properties, as, since the temporary failure of the Golden Cache to come anywhere near the high expectations held out, investments in the Lillooet country have as a rule, been considerably discounted.

It is an open secret that Mr. T. R. Hardiman is making strenuous efforts to counteract, by inspired puffs in the local press, the bad effect on the public mind previously produced by strong and somewhat general press condemnations of his reckless assertions anent the usual assay values of B.C. precious metal and copper ore deposits.

Mr. Barclay Bonthron, of the Terminal City, is greatly annoyed by reports disseminated in and about Alberni, to the effect that the strongly financed mining companies with which he is connected, are "hogging" the district and preventing its development, by securing large numbers of claims through agents, without any intention of early working them. Mr. Bonthron declares that his companies "mean business," in the case of all likely properties which they acquire, but naturally enough select for first opening out and development what seem to be the most promising among them. He indignantly repudiates the suggestion that any "dog in the manger" policy is being adopted.

It is stated in Vancouver on apparently good authority, that the representatives of the British America Corporation are about to investigate, with a view to purchase, if found satisfactory, a number of copper properties in the Frederick's Arm coast district, belonging to Mr. John Cobeldick and his associates. The deposits in these are declared by those who have been preliminarily developing them, to be exceptionally rich in copper percentage, as well as extensive in area.

A correspondent writing from Revelstoke to a London financial paper, the *Shareholder*, commends the action of Mr. Grant Govan's company in securing the services of Mr. J. D. Graham, late gold commissioner and government agent for the division as manager of the Waverley mine. "The policy," he says, "of placing the local management of their affairs in the hands of men of undoubted position and with long experience in the country should be followed by other English companies. Departure from this policy has brought disaster upon more than one. The precedent set by the Waverley Company was observed by the British-American Corporation when they secured Mr. Carlyle's services (late Provincial Mineralogist), and those of Mr. Macdonald (late Inspector of Mines)." This is excellent advice so far as it goes, but between Mr. Graham and Mr. Carlyle there is a wide gulf fixed.

## THE MINING MEN OF THE PROVINCE.

**M**R. W. J. R. Cowell, Manager of the Victoria Metallurgical Works, was educated at Chater House, the Royal School of Mines, and Trinity, Cambridge, taking his degree in the science course. At the close of his university career he obtained an appointment with Sir Edmund Currie, at Folkstone as lecturer on metallurgical subjects, and later acted as science lecturer under the Berkshire County Council. Mr. Cowell then opened a metallurgical and assay office in London, but in 1893, deciding to go to Canada, he established a practice at Golden and Fort Steele, and for some months acted as engineer and assayer at the great North Star mine. In the face of many difficulties and obstacles, Mr. Cowell built and opened the well equipped works in Victoria, last year, the only works, by-the-way, of the kind in Canada. Last winter the works were taken over by a company, Mr. Cowell remaining in charge. Mr. Cowell has a lively faith in the future of Vancouver Island, and lately on behalf of his Company, he bonded the best known mine group at Alberni—the Alberni Consolidated—where a stamp mill has been installed, and crushing will be commenced immediately. There are at present five hundred tons of good ore on the dump, averaging well on to \$40.00, and while excavating for the mill foundations, another ledge, four feet wide was uncovered, an average assay giving \$62 in gold, so that the prospects of the Company making a success of the venture of crushing the ore on the understanding of receiving a moiety of the profits from the mine-owners, is very promising. The miners of Alberni have recognized the keen interest Mr. Cowell has shown in the development of the district, by electing him vice-President of the recently organized Vancouver Island Miners' Protective Association.



MR. W. J. R. COWELL, F. G. S.

## MINING NOTES.

**A** SPECIAL Meeting of the Athabasca Gold Mining Company was held this month at New Westminster. The total amount of shares represented at the meeting was 931,305, out of 1,000,000. The meeting

was called to authorize the sale of the property to an English Company. The meeting unanimously approved of the sale.

The agreement, which is with one of the most influential English companies now operating in British Columbia, provides for the incorporation of a new company in England, to be called the "Athabasca Gold Mines, Limited," with a capital of £200,000, to take over the property; £140,000, being seventy per cent. of the entire capital, is given to the present company as purchase money for the property; £10,000 has been put up in cash for the purchase of machinery, and for the further development of the property; and an additional £10,000 will be available for working capital if required. Provision is also made for placing

the stock on the English market, under a pool agreement with the English Company that has promoted the deal, which practically assures the present holders of stock of at least 60 to 65 cents per share, while with the increased development it is expected that the value of stock will go up far above this figure. The new company takes the property as from April 12th last. Its engineer, a thoroughly competent and experienced mining man, has been in charge of the work since May 1st. A steam hoist has been installed, and a 10-stamp mill and concentrating machinery have been ordered. A waggon road has been commenced, and a compressor and power - drills, etc., will be put in, so as to effectually equip the mine. Three ledges are

being worked, and the other will be opened up as the season advances.

The prospects of the Company now look very flourishing, and the shareholders have every confidence in the success of the mine.

A large number of prospectors have been and still are making their way into Cassiar, and it is not improbable that some rich quartz finds will be made in consequence this summer. Preliminary work has commenced on the railway, and supplies are being sent up by every steamer.

The smelter returns have just been received from a 245-ton shipment of ore sent to San Francisco from the Silver Cup mine; the gross value of the ore is given as between \$150 to \$175 a ton, and the shipment as netting the owners \$36,400 clear of all expenses. The Silver Cup is at present the show mine of the Trout Lake district, but many properties are now showing up well under development.

A correspondent from Boundary Creek writes that "in consequence of the railroad construction work from Robson, many claims and embryo mines have lately changed hands, and it is to be expected that a large amount of capital will be invested in the district this summer and autumn." Meanwhile, many of the better known properties are being steadily developed, reports from the Snowshoe and Idaho in Greenwood Camp, being especially gratifying. Work is proceeding on the No. 7 in Central Camp, and 40 tons of high grade ore were recently taken from the drift just started at the 70-foot level. On the Big Four, a claim having a large showing of pyrrhotite in the Kimberley Camp, situated between five and seven miles up Boundary Creek from the town of Greenwood, a large body of good ore has been uncovered, assays returning from \$18 to \$24 in gold.

Chamber's Journal for July, in an article headed "The Golden Kootenay in 1898," contains a most glowing and truthful account of one portion of our mineral section, that is well worthy of perusal. The following passage is selected at random:

"The present year will probably witness some of the most remarkable and successful mineral developments the world has ever seen. These mountains and valleys are, day by day, yielding up more and more of their immense riches. It is only the miner or mineralogist who has actually visited the Kootenays who can form an idea of their mineral wealth. Gold, silver, copper and lead occur here in great fissure veins, with quartz and iron-pyrites."

Some two hundred prospectors and miners are at work at the present on Texada Island, and several very promising developed prospects are being opened up. A good strike of high-class ore is reported from the Van Anda, and the Maple Bay, Silver Tip, Raven, and Iron mine are all showing up well. An interesting property is the Surprise mine, which is owned and developed by a party of eight Comox miners. These men acquired the claim two years ago, and have since worked continually upon it. An offer recently made of \$75,000 for the claim, was refused.

THE MONTH AT ROSSLAND.

NO very marked changes have taken place in the mines in Rossland during the past month. There has been a considerable flurry in some stocks, notably those of the War Eagle and Monte Cristo, and, generally, an upward tendency in the market.

The *Toronto Globe* stated with regard to the Homestake group, on the South belt, that the deal had been closed through one of a Toronto firm of brokers. This was premature, and nothing has been settled as yet, and in fact, D. M. Lennard is now in Eastern Canada, having come out from London, and will place that group of mines on some workable basis before he leaves for the Kootenays.

The smelter in Trail has started roasting, and will blow in before very long. I see that Edward J.

Howell, of London, (Eng.), and of the Vancouver Smelting Company, lately stated in an interview at Winnipeg, that British capital is merely awaiting good returns made on capital already invested, ere it begins to rush in.

This may be taken, as far as we are locally concerned, as an allusion to the British America Corporation, who represent the biggest block of English capital here invested. As I said last month, the B.A.C. is doing steady work, and is proceeding in a direction which is both intelligent and business like. It intends developing its mines and thoroughly proving their character before shipping is begun in large quantities.

The Columbia and Kootenay is the easternmost of the mines which the B.A.C. purchased on the North Belt. It has been lying idle since last August, when Aug. Heinze failed to complete its purchase. At the time of the sale some 750 feet of work had been done on No. B. tunnel, but since the manager, D. J. Macdonald, has been working this spring, it has been extended another 125 feet, besides some other new work in upraises, etc. One hundred and twenty-five feet below this tunnel, No. 4 has been drifted in 150 feet, and below this again, 150 feet down the hillside, and almost vertically under the others, No. 5 tunnel has been started. Moreover, large new bunkhouses have been erected, and the compressor plant put into thorough working order.

The Great Western is the next mine to the Westward, and is in charge of Wm. Haskins. Here the shaft has been sunk another 60 feet, and is now down 150 feet altogether. On the attainment of 200 feet in sinking, it is the intention of the management to cross-cut on that level.

Next in order is the Nickel Plate, also under the charge of Billy Haskins. Here a considerable amount of work had to be undertaken to place the mine in good condition. This is well under way, and the principal work is now being done on the 200-foot level, drifting and cross-cutting. On this ground a new 12-drill Ingersoll air-compressor has been installed, which supplies air and power to both the Great Western and the Nickel Plate.

Of course the Le Roi mine is not as yet altogether in the hands of the B.A.C., but the corporation has 130 men on development work. The main shaft is being extended down to a 700-foot level, where a large station is now being put. The management is in the hands of N. Tregear.

The Josie, lying westward of Le Roi, is managed by J. M. Long, who is employing his men drifting and cross-cutting on the 300-foot level.

Lying contiguous is the ground of the No. 1, which is under the same management as the Josie. Here the work done is practically all new. A vertical shaft is being sunk, and a tunnel is being drifted.

Altogether, the General Superintendent, Mr. Carlyle, reports good headway, and everything doing splendidly. At present there is no thought of shipping, and the B.A.C. authorities are bent on doing development work, in order to get all their properties on a good workable basis.

On the Nickel Plate flat, just above the Red Moun

tain railway depot, the Corporation is building a series of general offices, assay rooms, storehouses and machine shops. It is understood that some residential edifices for the use of the members of the general staff will also be erected. The ground has been plotted out, a magnificent site presented to the Church of England, and the municipality invited to open up the streets, which have been laid out in continuation of the plan of the city. Spokane Street and Fourth and Fifth Avenues will presently be extended out into the Nickel Plate ground, by the city authorities.

Summing up it may certainly be said that the B.A.C. has justified its existence in Rossland. If all the other properties were only equally thoroughly taken in hand, there would be, in a very few months, a population doubling that of the present.

from Nanaimo, the steamer tying up at Union wharf at about 3 o'clock in the afternoon, when it is met by a coal train, attached to which is one passenger car for those bound for the town of Union some ten miles up the line. It is a busy scene at the wharf. There are a dozen or more ships in the bay being loaded with coal for the Yukon and San Francisco markets, more of them for the latter however, as speculators are now buying in large quantities, expecting a rise in consequence of the Americo-Spanish war. By dint of skilful manœuvring I manage to button-hole Mr. Little, the Union Coal Company's superintendent, and at once transform myself into a point of interrogation. But Mr. Little's time just now is very valuable and he suggests that perhaps Mr. Work, the manager at the coke works, will give me the information I am



THE WORKS SHOWING MACHINERY BUILDING IN THE REAR.

## COAL INDUSTRY OF VANCOUVER ISLAND.

VERY few residents of British Columbia have more than a faint idea of the growing importance of the coal industry of Vancouver Island. Coal digging has not the fascination, does not afford the same interest to the public, that is the case with precious metal mining operations—at least in this quarter of the world. Nevertheless a good coal mine is a gold mine, as Messrs. Dunsmuir and Sons may possibly testify, and so later on will the fortunate shareholders of the Crow's Nest Coal Company. But speaking of the Crow's Nest coal (writes our representative) leads up to the subject to which I propose chiefly to confine myself in the bulk of this article—the manufacture of coke at the Union wharf ovens. One arrives at the wharf after a delightful journey of some fifty miles by water

anxious to obtain. Mr. Work is courtesy itself, and consents, at once, to act as my guide.

The first place Mr. Work and I visited was the building in which the coal is washed, sorted and crushed. As will be seen in the first illustration here given this

is a large three story frame erection, immediately alongside the railway track. From the ground floor where the boiler and engine room are also to be found,

the main elevator hoists the coal to a separator or revolving screen at the top of the building. Here the coal is divided into four sizes; No. 1 being about the size of a hen's egg and No. 4 smaller than a walnut. All four sizes of coal are then conveyed to the jigs. There are seven jigs on the second and ten on the lower floor, and by gravitation the refuse rock or slate is removed, the nut coal being screened and

then washed in a large Luhvig washer, built in January 1895, which has a capacity of 500 tons in ten hours, with a loss of not more than 3 p.c. of the fine coal. The nut coal is then ready for market, or if there is no special demand for it, it is crushed through sets of rollers and again washed before being converted into coke. As a fine black dust it is carried by elevators to a bunker which holds 800 tons of this dust and conveyed from this to another of the same capacity, backwards and forwards until it is thoroughly drained of moisture, and dry. In this condition it is taken by a dodge conveyor operated by an endless cable to the ovens, of bee-hive shape, an idea of which may be gained from our second photograph taken soon after the first set of ovens were constructed. After the coal has been in the ovens for seventy-two hours, the doors are opened and the process is complete. The

of which 14,500 tons were consumed in British Columbia, and 2,500 tons were exported to California.

The third photo shows the progress that has been made in the construction of the second set of one hundred ovens, which are being built on the same pattern as the first. I asked Mr. Work where his company expected to market the increased production, as when the Crow's Nest Pass railroad is completed, they could hardly expect to hold the Kootenay market, moreover, the Union Coke, although of excellent quality, is not quite equal to the East Kootenay product, the former giving an ash of over 8 per cent., and the latter less than 5 per cent. Mr. Work replied that there is a large and increasing demand for coke in San Francisco, besides this same coke is consumed by the local iron works, and there

NEW  
UNDER-  
TAKINGS.



THE FIRST SET OF OVENS BUILT.

molten coke is removed with long iron rakes and after being allowed to cool is piled up under sheds to preserve it from the influence of weather. The first set of ovens were completed during the summer of 1896. The foundations (stone) of the buildings were laid in the fall of 1895, and in the spring the company imported a large shipload of fire bricks and other blocks of the same material, as well as milled clay to complete the buildings. A large number of men were at once put to work, and in the course of time a block containing 100 ovens, having a double front, with fifty ovens on each side, was erected. Between the two sets of ovens is a flue to conduct the gas away which comes from the coal while in the course of being transformed into coke. This gas is utilized by being burned as fuel to generate steam to work the engine. In 1896 rather more than 1,200 tons of coke was manufactured, but last year the coke works turned out 17,800 tons,

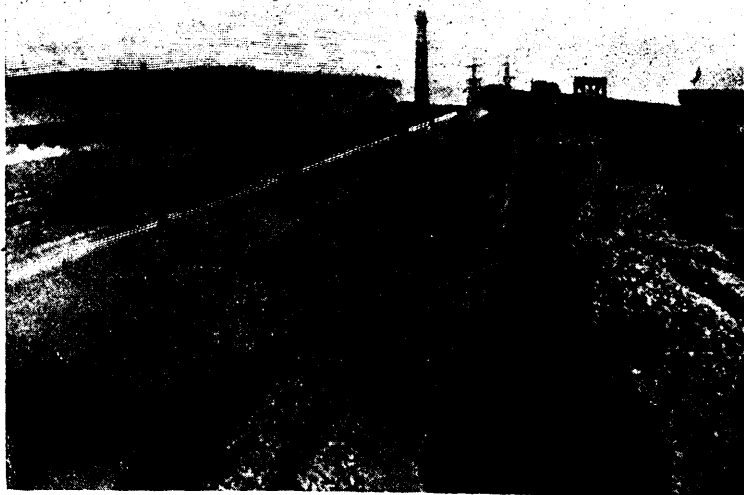
is also a probability that a smelter will be erected at the Van Anda Mine, Texada Island, in the near future. For the remaining months of this year, however, a considerable quantity of Union coke will find a market in Kootenay, and that the product may arrive in better condition, the company are building a large slip (75 feet long by 36 feet wide) to which Canadian Pacific Railway cars carried on barges from Vancouver will be transferred and then run right up to the oven doors, where they will be loaded. This will save the frequent handling and consequent breakage of the coke, as at present coke marketed in Kootenay is first loaded on cars, from thence transferred to scows, transferred again to cars at Vancouver, and handled once more when unloaded. When the slip is completed, which will be in a few weeks time, the cars will be loaded at Union and the coke will not be handled again until it arrives at its destination. The

slip will be fitted with three tracks of standard gauge rails, and each track will accommodate four cars. It will be operated by hydraulic power, and with an arrangement of heavy weights and pulleys—the weights are huge squares of cast-iron, weighing 150 tons each—the slip may be raised or lowered to suit the state of tide.

One of the most valuable products of the Union mines is fire-clay, which is found in apparently inexhaustible beds. The demand for this article in 1895

was three times greater than in 1894, and the output last year exceeded 1,600,000 tons. The brick for the first set of ovens at the Coke Works was all manufactured from this clay by the B. C. Pottery Company, of Victoria, but now the proprietors of the works at Union have decided that instead of shipping clay a distance of over 100 miles and then bringing it back again in the form of bricks they will manufacture their own brick on the ground. In the fourth photograph illustrating this article, in the wooden building to the right, not quite completed, is where the machinery for making the fire-brick will be placed. The building is, meanwhile, already fitted with elevators, a temporary engine and boiler have been installed, and some excellent sample bricks were pointed out to me by Mr. Work as having just been turned out from the moulding machine. A kiln is being built near the large flume at the end of the ovens, and the fuel will be supplied for its burning by the gas generated in the manufacture of the coke. The Company, in fact have, to use a colloquialism,

“got things down to a very fine point” Besides making their own brick, from clay obtained from their own clay-beds, near at hand is excellent building sand and gravel, a handsome building stone is brought from their own quarries, and the magnificent trees of fir, pine and cedar, are cut into planks and timber at the Company's saw-mill, the only building material which it is necessary to purchase away from home being lime. Then the machinery equipments, both at the coal mines and at the coke works, are almost perfect, and I need merely cite in proof of my assertion, that a force of three boys and one man only are employed in the large machinery building at the works. Mr. Work—an appropriate name, by-the-way, for a man so energetic and painstaking—has been in Messrs. Dunsmuir's employ for a number of years, and before taking charge of the Union Coke Works, was manager and superintendent of the firm's extensive wharf and coal-yard at San Francisco. He is pardonably proud of a fine collection of photographs, showing the wharfs, the great bunkers, and the five enormous derricks which were built under his



TRUCKS LADEN WITH COKE AND THE STORAGE SHEDS.

direction, and a yet another view of a memorable rush for coal, when over two thousand carts occupied the yard, the owner of each making strenuous efforts to be first served. It must be remembered that British Columbia exports nearly twice as much coal to San Francisco as any other country.

Union, or Cumberland, as it is now called since its incorporation a few months ago as a “city,” is situated some ten miles from the wharf, and is reached by rail, the passenger car “CITY” of being attached as I have stated elsewhere, to the long train of cars laden with coal from the mines. Union is—well, not exactly the sort of place in which one would, from choice, desire to permanently reside. It is, in fact, about as unattractive, and from a residential point of view, as undesirable a spot, as is to be found in all British Columbia. At this time of year, too, it is a veritable furnace, for the surrounding hills afford so effectual a shelter that it is a rare thing when the air is stirred with any sort of a breeze, and the summer sun beats down with its full strength on the clearing. With

the exception of the Superintendent's, Mr. Little's, residence, with perhaps two or three others, and the principal stores, the buildings at Cumberland are unpretentious in the extreme. But all this merely emphasizes the fact that the people of the town are not there for their health's sake, and notwithstanding the somewhat-squalid surroundings, it is evident that the community as a whole is contented and prosperous. In the town itself, the population numbers probably about a thousand whites, but this

estimate does not include the suburbs—I use the word advisedly, as I can explain. Armed with authority from Mr. Little, I boarded the nine locomotive, and started off on a visit to Slope No. 4. On the way thither one passes through these suburbs. They are quite distinct. There is first the suburb peopled chiefly by the white coal miners. The houses here are principally little two or three-roomed cottages, painted white, and on one side of the street raised up for several feet on piles. Next we come to the Chinese quarters, with shacks of weather-boards and battens. Every man, however, has his little patch of vegetable garden, to which he devotes constant attention. I noticed one Celestial energetically watering his patch of potatoes with a long-handled dipper, which he filled from a handy spring, scattering the water in a really remarkable manner. Besides the Chinese there is also a large Japanese settlement, and an Italian colony, and in passing by a building occupied by dark-eyed Neopolitans, I was not greatly surprised to hear a sweet, clear-toned voice singing a song familiar enough to Mediterranean tourists, but passing strange in

the depths of a British Columbia back-woods.

After a run of about five minutes, the locomotive pulls up at No. 4. This is the most extensive mine in the Union Colliery, and yields the most coal. The underground workings now aggregate several miles in length, the distance from the entrance of the slope to the face being in the neighborhood of a mile and a half. Mining is carried on upon the pillar and stall system, the pillar constituting quite two-thirds of the original area of coal. At about a hundred yards from the entrance another slope branches off in an easterly direction, and at an angle of 45 degrees. This is known as No. 2 slope, work was suspended here for a short time some eighteen months ago, but since the demand for coal increased and the market improved mining has been steadily carried on, in a coal of good quality and on the true dip. The power for running the machinery and pumps in the mine is generated by electricity, and in the power-house are two dynamos each of 250 volts, one of eighty horse-power and the other one hundred horse power.

NO. 4  
SLOPE.

The old plant was also used in connection with hauling gear seven years ago, when however, the slope was only in a distance of 200 yards. The new plant comprises a compound wound dynamo of Westinghouse make, and a Ball engine. At the No. 6 level are two Edison motors driving Gould pumps and five Jeffrey pumps. The ventilation of the mine is excellent, the motive power being furnished by a large Guibal fan sixteen feet in diameter, the air being circulated by what is known as



THE NEW OVENS UNDER CONSTRUCTION.

(In the building on the right machinery for manufacture of fire-clay brick is installed.)

the separate split system, and it is estimated that 45,000 cubic feet of air is passed down the slope per minute. It is a most delightful change to enter the cool fan-room from the heat outside. At one time Stanley machine coal cutters were used in the mine, but it is rather interesting to note that in this instance at least it was found that manual labor was preferable to machinery, and the machines are now rusting in a shed. Of the mine equipment some idea will be gained from the fifth photograph herewith produced.

Not the least interesting of the details in connection with the working of this coal mine is the system employed for weighing the coal and of crediting each miner with the amount his labour has produced. The trucks as they are pulled up from the

WEIGHING  
THE  
COAL.

slope in trains of four are automatically dumped into a railroad car standing on the large but sensitive scales. Directly this registers twenty-four tons it is hauled away and replaced with an empty car which in its turn is filled and removed. On each truck as it ascends to the surface is a little leather or tin label stamped with

a number, by which each miner is known, and the truck load is then duly credited by the tally-man on a large bulletin board to its digger. But if by any chance the label becomes detached or lost from the truck the tally-man makes a note of the circumstance and waits for the miner to complain that he has not been credited with the full amount of coal he has sent up. Then by knowing the drift from which the truck was loaded disputes of this kind can easily be settled. The tally-man, it should however be mentioned, is not an employee of the Colliery Company, but of the miners themselves, engaged by the men upon the advice of the superintendent. He works ten hours a day and receives three dollars per diem for his services, which are certainly neither light nor easy. In the present incumbent of the office the men have certainly made a wise choice. An old Northumberland coal miner, this man has in the last twenty-five years seen and worked in coal mines in almost every quarter of the globe, and he consequently knows the practical end of his business as thoroughly as it is possible to learn it.

With the tallyman I had a most interesting

conversation on the question of Mongolian labour in coal mines. This is what he said; I give it in nearly his own words: "You ask me, sir, what the feeling of the miners is with regard to the employment of Chinese and Japanese in the mines. Well, do you know the people who are making all the fuss about it are not the miners. You look surprised, but I am telling you the truth. Now in a coal mine a Chinaman is not a miner; he is simply a labourer employed by the white miner. He does the

dirty work and the finicky work a white miner objects to doing. For instance, the coal here is rather dirty, and requires a lot of picking over. This the Chinaman does. He also loads the trunks. Now if a white miner was obliged to hire a white man to do this sort of work, he would have to pay him at any rate \$2.50 per day. The Chinaman works for \$1.50. If a white miner had to pay his assistant \$2.50 a day, he would not make more than that sum himself. By employing a Chinese assistant he makes from \$3.00 to \$4.00, at the existing scale per ton paid by the Company. Now you will admit three dollars, or even four dollars a day is not too much pay for a practical coal-miner to earn, but he would not earn this pay by one-third if he could not employ his Chinaman help unless the Company raised the scale of pay per ton, and the miners have good grounds for believing that the management would refuse to do this. If, then, the Chinese or Japs were excluded, it would mean simply this: More white men would be employed, but the miner's wages would be reduced, and the result would very possibly be a strike—the most undesirable thing



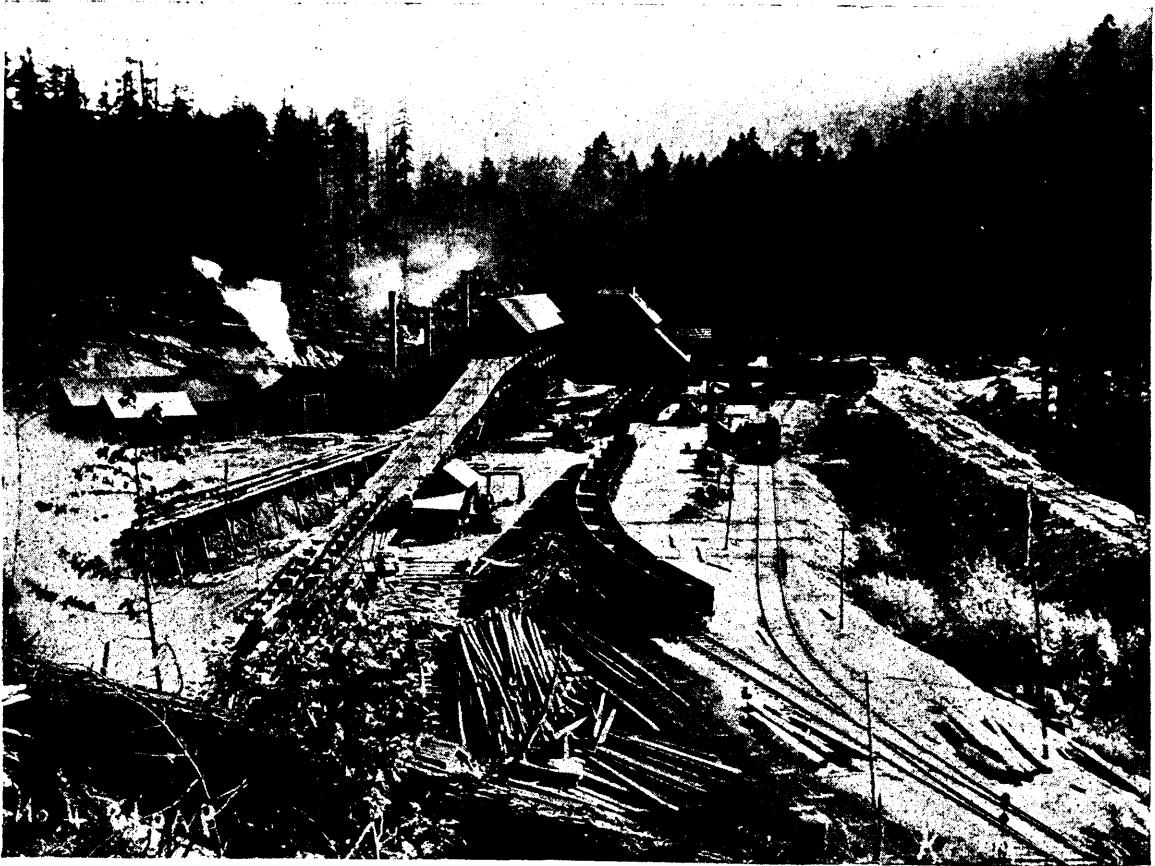
in the world. So there you have the whole matter in a nutshell."

"And the Chinese are good workers underground?" I asked.

"Yes," replied my friend, the tallyman, "they are very careful, much more so, generally, than white men, and here's an example: A miner wanted some tools that had been left in a drift where no work had been done for some days, so he ordered his Chinaman to go and get them. The Chinaman obeyed, but before starting he put his lamp down, and groped his way in the dark, returning with the tools. Now I think very few white men would observe so much caution as that. Still, the slope is remarkably free from gas, and it is very unlikely that an explosion will ever occur. You see it is very damp in the mine,

On the other hand he makes a decidedly more desirable citizen in the white man's country; he lives in some degree of comfort and decency, and he spends his money freely when he works—something no one will accuse John Chinaman of doing.

When No. 5 shaft, situated rather less than a mile west of town, was started, it was expected that good coal would be encountered at a depth of 500 feet from the surface, but, as a matter of fact, this No. 5 mine has not turned out as satisfactory as might have been wished. The coal is extremely "dirty," and faults have been constantly met with. In places, notably to the south, where the "long wall" principle of work is carried out, good coal is found where clear of faults, and it is possible, that as the mine is further developed, a better



A VIEW AT NO. 4 SLOPE, UNION.

and this keeps the dust down."

I talked with several other miners on this question of Mongolian labour, and I confess I was considerably astonished to find that they all expressed much the same opinion as the tallyman. Still, it must not be forgotten that the New Vancouver Coal Company, of Nanaimo, pay their miners good wages, and yet do not employ Chinese underground. It is rather interesting, meanwhile, to compare the respective merits of the Chinese and the Japanese as labourers. Undoubtedly from the employer's point of view the Chinaman is to be preferred—he is a steadier workman, possesses perhaps rather more physical strength than the Jap., and, as a rule, he does a better day's work. The Jap resembles more closely the inferior class of white labourer; he is, moreover, of an independent disposition, and inclined to give himself airs.

class of coal, and in uninterrupted measures, will be reached. The mine is handsomely equipped with the best modern machinery, and ventilated on the separate split system, by a large Guibal fan, worked by steam. Right on the townsite of Cumberland, a new double-compartment shaft, known as No. 6, is being sunk. During the time of my visit the men had just reached bedrock at a depth of about ten feet, and timbering was about to be started. All the ground in the vicinity has been thoroughly prospected with diamond drills, and coal is generally struck at between 450 and 600 feet from the surface. It is not difficult to see that the development of the Union collieries will add materially to the wealth of Vancouver Island, but when conditions demand the extension of the E. & N. Railway to Comox, and thence to Alberni, the output from the collieries will be considerably greater.

## A TRIP THROUGH HARRISON LAKE AND PEMBERTON MEADOWS MINING CAMPS.

By Wm. M. Brewer, M.E., Mem. North of England Inst., M & M. E.,  
and A. I. M. E.

THE discovery of the Golden Cache mine on Cayuse Creek, a tributary of Bridge river, was apparently the cause of attracting the prospector toward that section of British Columbia lying north of the Canadian Pacific Railroad and west of the Gold range.

In the early days, during the Cariboo excitement, Bridge River was known for its pockety placer diggings, where sometimes the miner would work for weeks without obtaining any desirable results, and then, in the next few days clean up a sufficient amount in coarse gold to repay him well for his entire season's work.

The streams of the west of Bridge River, however, received very little attention during these days because none of them yielded sufficient pay to warrant the working, for owing to the difficulty of getting supplies into the country at that time; placer ground which would not pay over \$10 per day to the man, could not be worked profitably.

It is not generally known by the present residents of British Columbia, except amongst the very earliest settlers, that the first route opened to the Cariboo mines

in 1858, was via the Fraser River to the mouth of the Harrison River, thence up the latter into Harrison Lake; from the lake to its head and across a smaller lake known as Douglas, to the port of that name was established. Here also a wharf was constructed by the government where light draft steamers could unload their cargoes.

### PORT DOUGLAS IN THE "EARLY DAYS."

The desirable land around Port Douglas was surveyed off into town lots, and in a short time one of the most prosperous camps British Columbia has ever known, was in full swing. Court was established and a court house built, the ruins of which are pointed out to-day with pride by the only white resident of the place, as being one of the first court houses to be built in the Province, and the scene where Judge Begbie dispensed justice and taught the California miners of those days to respect Canadian law. The

impartiality with which justice was meted out to all offenders regardless of their nationality, their reputation as "bad men," or of any other consideration, did much to prevent a repetition of the scenes of lawlessness which characterized the "days of '49." So important was this place at that time that the Dominion Government expended a large sum of money in building a waggon road from Port Douglas up the Lillooet River to the foot of Tenass Lake, a distance of about 30 miles; in order to facilitate the transportation of supplies to the new Cariboo mines. From that point small steamers plied to the head of Lillooet Lake, where is now located the Indian village known as Pemberton Meadows. From there another waggon road was built towards the Northeast, to the foot of Anderson Lake, where the freight was transferred to the boats and canoes, carried up that lake, thence across a short portage to Seton Lake, and from the head of

Seton Lake packed across the Fraser river. Thence the regular pack trail was built North-erly into the Cariboo. This route was used entirely for some years but the many transfers from boats to pack animals proved so expensive that the route from Yale via Lytton superceded the older one, which was gradually abandoned, until in 1875 all the white men except one left the town of Port Douglas, abandoning

the road ranches they had established along the route, and thus the "Noble Red Man" was again left to the peaceful enjoyment of his hunting grounds. As a majority of the old-timers who went to the Cariboo mines came direct from California, of course the camp-followers, including the gamblers, desperadoes and tough element generally, who had been reaping a rich harvest during the early days of the gold mining excitement in that state, accompanied the miners to the new diggings. In consequence, Port Douglas was a thoroughly typical mining camp from 1858 to 1875.

### THE BRIDGE RIVER EXCITEMENT.

From that date until the Bridge River excitement in 1896 and 1897, no attention whatever was given to the Harrison Lake and river districts, either with regard to their prospects for quartz mining or placer. But during the early spring of 1897 a location known as the Providence, was recorded by some loggers on



PLATFORM ALONG VEIN IN FACE OF CLIFF—GOLDEN CACHE MINING CO.



STAMP MILL, GOLDEN CACHE MINING CO., LILLOOET, B.C.

the west shore of Harrison Lake, about twenty-eight miles above Hot Springs, situated at the foot of the Lake, and which have since become a very popular resort for sufferers from rheumatism, dyspepsia and general debility.

The recording of this location was followed by a stampede in March and April of 1897, up Harrison Lake, notwithstanding that the snow at the time was from five to ten feet deep. The origin of this stampede is rather amusing, as it appears that a prospector had found some quartz on the shore of the lake which he considered sufficiently promising to carry to Westminster for assay. It is reported that at Agassiz he fell in with a party who filled him up with whisky to the delight of his heart, and surreptitiously exchanged the rock he had brought for assay for some high-grade ore that had been found at the Providence mine. Of course the analysis resulted in showing extraordinarily high values. Excited by his good fortune, he interviewed some friends in Chilliwack, one evening, and in consequence, during that night and the next morning, a small procession of canoes and row-boats departed up the lake, the occupants staking every foot of both shores to the head, a distance of about forty miles.

#### PROSPECTING EXTRAORDINARY.

The Indians, in their hunting expeditions, had found float on Fire Mountain, northwesterly from the head of the lake, which showed native gold, visible to the naked eye. This fact becoming known to the army of prospectors, they extended their expeditions across the mountain to Fire Lake, and to the summit of Fire Mountain, regardless of the fact that the surface was covered by snow, in some places over eight feet deep. Stakes were set up by squaring off the tops of trees, and the locations recorded according to these stakes. Because of this reckless locating of claims, many amusing incidents followed, later in the summer, when some of the prospectors returned to

find out whether or not their claims were worth developing. One man discovered that two recently arrived prospectors had run several feet of tunnel on a claim he had staked in the snow, and when he called their attention to his prior right, was met by the inquiry, "why in the world hadn't he left a step-ladder, so that they could have inspected his discovery notice, which was twelve feet above the surface?" The same man had a great deal of difficulty in finding one of his claims in the thick timber, and had to make a temporary step-ladder to enable him to climb high enough to read his own notice on the No. 1 stake, which was squared off at about fifteen feet above the ground.

#### COMPANY ENTERPRISE AT TIPELLA.

Meanwhile several local companies were organized to work claims on Fire Mountain, the outcrop on which yielded high values in free gold. A trail fifteen miles in length was cut by the Fire Mountain Gold Mining Company, at a cost of nearly \$5,000.00, to facilitate the transportation of machinery from the head of Harrison Lake to the Company's mine, and the same Company also laid out the town-site of Tipella, about four miles southwesterly from old Port Douglas, and placed a small steam-boat on the lake to make regular trips to and from the Hot Springs. Through lack of metallurgical knowledge on the part of the management, a Huntington mill was erected to treat a very hard quartz which was only partially free-milling. The results of this lack of foresight were two-fold: First, the hard quartz wore out the mill, and secondly, only a small percentage of the value carried by the ore, was saved by the amalgamation.

The mine is claimed by many to have value, provided it is properly worked, and it is reported that the Company now propose to erect a stamp mill with concentrating tables to receive the pulp after it has passed over the mercurialized apron plates.

#### SOME RICH ORE.

Quite early during the present spring, an Indian at Skookum Chuck, an Indian village about twenty miles north of Port Douglas, found some very rich



float on a nearby mountain, and afterward sold his claim to Mr. Ward DeBeck, of Vancouver, who, as soon as the snow went off sufficiently, set a gang of miners at work to develop the prospect. The stringer of ore was very thin, but so rich in free gold that a specimen shown to myself in March last, was practically particles of gold holding together a little quartz, 135 pounds of it yielding about \$200.00.

Naturally, these discoveries have caused several prospectors to more fully explore both lower and upper Lillooet Rivers. This exploration has already resulted in the discovery of prospects on "25-Mile" and "9-Mile" Creeks, which empty into the lower river between Skookum Chuck and the foot of Tenass Lake.

#### AT PEMBERTON MEADOWS.

Ascending the Tenas and Lillooet Lakes to the head of the latter, one reaches Pemberton Meadows, where to-day is located a prosperous Indian village, and above which, for several miles, the river valley is sufficiently wide to afford full-sized ranches for sixty occupants.

Mr. John Currin, a settler who located in this valley six miles above the rancherie, informs me that at one time there were twenty-two white settlers who pre-empted land in this neighbourhood, on the upper Lillooet River, but that owing to the fact that no good roads had been built, these settlers were compelled to abandon their homes because there was no market for their produce.

#### LILLOOET'S POSSIBILITIES.

To appreciate this fact, the geographical as well as the physical characteristics require to be fully understood. Within a distance of sixty miles salt water can be reached by way of Howe Sound, thus relieving both the miner and settler of all necessity for paying heavy railroad freight charges. A pack trail was cut several years ago, to connect Pemberton Meadows with Howe Sound at Squamish. This trail can easily be widened and made a good waggon road, open to travel and affording natural feed for stock during seven months of the year, and could be kept open as a good sleigh road during the winter months. This route could, moreover, be easily extended up the valley of the upper Lillooet some twenty miles, to the old Chilcotin Pass, and across the divide to the mines now being worked on Cadwallader Creek, a tributary of Bridge River. This old pass has been travelled by the Indians from time immemorial, and, according to history, was first used by the Fraser and Thompson River Indians in their raids on the more peaceably inclined Douglas Indians, in years gone by.

The Pemberton Meadows are of vast extent; the soil yields good crops of cereals, corn and vegetables, without irrigation, and the natural pasturage on the entire route from the head of Howe Sound to the Bridge River, is amply sufficient to afford food for large pack-trains during the open months of the year.

So far as the mineral resources of the mountains surrounding the Meadows are concerned, they are entirely undeveloped, and, in fact, only very imperfectly prospected. A great many leads of quartz yielding high values, are known to the Indian residents of the rancherie at the Meadows, and I have seen several specimens of float carrying galena, copper and iron pyrites, which I should judge were sufficiently good to warrant exploration for their source.

(To be continued.)

## NICKEL AND COBALT.

Of all the metals hitherto discovered there are none more interesting from certain points of view than nickel and cobalt. There is a scientific mystery surrounding them that has never been solved, and is not likely to be explained for many years to come. Although they possess very distinct properties, and form salts of very different colours, they have exactly the same combining number (29.5); and this number approaches that of iron (28), the commonest metal, with the exception, perhaps, of aluminum, that exists in the crusts of the earth. They are also, like iron, attracted by the magnet.

Moreover, they are invariably present in those masses of metal called meteoric iron, or aerolites, which occasionally fall from the skies upon the surface of the earth. The fall of these aerolites generally occurs in broad daylight, when the sky is clear and the sun is shining brightly. A stream of cloud, or metallic vapour, appears in the air, and a noise like the loudest thunder is heard after the whizzing of the aerolite, constituting one of the most terrifying phenomena it is possible to behold.

It is not yet known whence these iron masses come. They have been seen to fall upon the earth from the most remote periods of antiquity up to the present time; mention is made of them by the oldest Greek and Latin authors. Some writers suppose them to be shot out of volcanoes in the moon, others think they come from the sun. Among modern authors we find it suggested that meteoric iron may be launched from volcanoes on the earth; some believe that aerolites form a circle round the globe like the ring of the planet Saturn, fragments of which, from time to time, fall to the earth's surface; and many profess that they are minute planetary bodies which revolve in elliptic orbits around the sun, and that, when our planet happens to approach near these orbits, metallic fragments varying in size from the dimensions of a hazel nut to those of a wheel-barrow or a cart are suddenly attracted to the earth and fall through the atmosphere with the terrific phenomena already mentioned.

Fortunately such events are very rare; but it has been computed that at least one of such falls occurs every year upon some part of the globe. When one of these pieces of iron is picked up, or dug up (for they are generally forced to a certain depth into the soil by the velocity of their fall), it is always possible to discover that it is a piece of meteoric iron, even when it is not seen to fall; for, on being submitted to analysis, it is invariably found to contain nickel, the amount of which may vary from about one to ten per cent.; but whatever the proportion, it is always there, and is never found in any other kind of iron.

The discovery of the metal nickel was made in a very curious manner. In the numerous mines of copper worked for ages past in various parts of Germany and Bohemia, a heavy mineral of a reddish-brown colour, somewhat like that of copper, is frequently met with; and the old miners were much disappointed when they came upon it, for they knew by bitter experience that it yielded no copper, and they were obliged to throw it away as waste. Hence they gave it the name of kupfer-nickel or "false copper." It was an old Swedish chemist, named Hjerne, who first described this disappointing mineral in a book on the Art of Detecting Metals, which he published

in 1694. But long after this it was generally considered to be an ore of copper, but an ore which no one knew how to treat in order to get the copper out of it. The fact is that, in spite of the fine coppery appearance, this kupfer-nickel contains no copper at all. It was reserved for Cronstedt, an eminent Swedish mineralogist, to discover, in 1751, that it contained a new metal, to which he gave the name of nickel. And a most interesting metal it has proved, destined not very long after its discovery to give rise to the important trade in German silver which has employed and still employs thousands of hands and millions of money. The "false copper" was found to consist of this new metal nickel and of arsenic in nearly equal proportions.

In the days of Cronstedt analytical chemistry was not so far advanced as at present, so that it is not astonishing to find that two well-known French chemists, Professor Sage and M. Monnet, denied that kupfer-nickel contained any new metal; and they openly asserted that it consisted only of ordinary substances that could be perfectly well separated by proper methods. This denial aroused the curiosity of another Swedish chemist, the illustrious Bergman, from whom the great Berzelius derived much of his chemical knowledge, to examine this kupfer-nickel with the greatest care. This was done in the year 1775. He successfully refuted the assertions of the French chemists, and confirmed in every respect the views of Cronstedt. Moreover, he first obtained the new metal nickel in a comparatively pure state, and described its curious properties, its white colour, its hardness, its difficult fusion, its magnetic attraction, and its beautiful green salts. It then attracted a great deal of attention, and many treatises were written upon it, one of the best and most exhaustive being that of the German physicist Richter, in 1804.

Such is the brief history of the discovery of nickel, which is very similar to that of cobalt. This was achieved by another Swedish chemist, Brandt, in 1733. Here also the new metal was extracted from a mineral called "Kobalt"—an "evil spirit" of the German miners—a gray metallic, heavy mineral, that was very annoying to the miners when met with in their copper lodes, as, in spite of its great weight and metal-like appearance, it yielded no copper, nor anything else. Here, again, the celebrated Bergman, in 1780, confirmed and extended Brandt's discovery, and this new metal cobalt finally came into prominence by the large number of investigations to which it gave rise. As in the case of nickel, the ore was found to consist of cobalt and arsenic. Ever since the fifteenth century, however, this ore of cobalt has been used in different parts of Europe to give glass and porcelain a beautiful blue colour which has never been surpassed. These two metals usually accompany each other in the mines; in some lodes the nickel predominates, in others the cobalt, and the ores are separated and treated accordingly.

Iron, nickel and cobalt are the only three metals that can be converted into magnetic needles such as that used in the mariner's compass. Of these, iron appears to be the best suited for this purpose, and if either of the other two contains any admixture of arsenic its magnetic property disappears entirely. When pure, both nickel and cobalt will form horseshoe magnets little inferior to those of steel. The com-

plete separation of nickel and cobalt has always been looked upon as a very difficult process, on account of the similarity of their properties, and a great number of more or less complicated methods have been described for this purpose; but the writer showed some years ago that it can be accomplished with ease by means of a salt called xanthate of potash. The process would be too expensive, perhaps, on the large scale, but it is excellent in the laboratory.

Some time back a new ore of nickel, a silicate of nickel and magnesium, was found in New Caledonia, and latterly the same ore has been discovered in Canada. It is called Garnierite, from the name of its discoverer, and is now actively worked as an important source of this valuable metal which is now being used with great effect, combined with the steel, to harden the armour plates for warships.

For ages past the Chinese have produced an alloy of copper and nickel, called in their language "white copper," the exportation of which was always strictly forbidden, and its process of manufacture kept secret. A curious property of this alloy is that when a small bar of it is suspended by a string and struck with the finger, the sound emitted can be heard for more than a thousand yards. By some means a specimen of this curious compound metal was obtained by a Scotch chemist, the late Dr. Fyfe, Professor at Aberdeen, who made an analysis of it, showing that it contained more than half its weight of copper, a large amount of nickel, with some zinc, and a very little iron. The Chinese evidently obtained it by smelting together a mixture of copper ore and nickel ore. The same practice was put in operation in Germany, and gradually led up to the production of "German silver," which is now a very important branch of metallurgy. There are many kinds of German silver—which the Germans themselves still call China-silber—but they all contain rather more than half their weight of copper and about a quarter of their weight of nickel with the same amount of zinc. The eminent chemist Pelouze, when Master of the Mint at Paris, found that if the latter metal is omitted entirely the product is much finer, but far more expensive. Many inferior kinds are made for the commoner purposes. The best kind takes a high polish, and tarnishes less readily than silver; it is a white metal with a shade of blue. It contains eight parts of copper to four parts of nickel and three and a-half parts of zinc. But probably all has not yet been done in this direction; an alloy of this kind is known which contains fifteen per cent. of nickel, and is remarkable for its malleability and whiteness. It may be drawn into wires or rolled into sheets of any thickness, and is well adapted for ornamental work of every description.

Nickel is difficult to obtain in a perfectly pure state, and the metal as found in commerce sometimes contains less than sixty and seldom more than eighty-eight per cent. of pure metal. Of late years absolutely pure nickel has been successfully deposited from its solutions by means of electricity, and is now largely used in electro-plating.

The metal cobalt is not put to any use at present; the beautiful blue colour (cobalt blue, or smalt) which we all know so well, was long ago discovered by calcining cobalt ore with sand (silica). It is a silicate

of cobalt, extensively used for colouring glass and porcelain, for tinting newly-washed linen by being mixed with the starch, for the preparation of artists' colours, for destroying or effacing the yellow colour of whitening paper, etc. The salts of cobalt possess a curious property; in solution they are a beautiful pink, but when dried up and quite devoid of water they are blue. The little "weather prophets" sold in the shops, representing the figure of a young lady, the skirt of whose dress turns pink or blue according as the weather is going to be wet or dry, are made by soaking the material of the skirt in the solution of a salt of cobalt.

About the latter end of the last century people used to amuse themselves by writing with what was called "sympathetic ink." This was a dilute solution of chloride of cobalt; the writing disappears when cold, but returns with a greenish tint every time it is warmed. The writer recollects an old professor of chemistry showing him a landscape drawn in ordinary ink which represented a dismal water scene; but when placed before the fire and heated, the leaves of the trees and the grass all turned green, and then it represented a bright picture of summer. This little artifice appears to have been known as early as the days of Paracelsus, and is realized by painting over the leaves and grass with a weak solution of chloride of cobalt. In olden times this pink solution used to be obtained by heating cobalt ore with *aqua regia*, long before the metal cobalt was discovered.

To give some idea of the intensity of the rich blue colour given by cobalt, we should state that pure white glass is coloured blue by the addition of one-thousandth part of oxide of cobalt and that as little as one twenty-thousandth part will impart a perceptible azure tint.

For a long time it has been thought that the beautiful tint of the ancient Roman tessellated pavement was due to oxide of cobalt, and though this has been doubted, because cobalt is said never to have been detected in them, yet we have just seen how extremely small a quantity will suffice to produce this colour, and its detection in ancient glass and enameled tiles is no easy matter. Though some of these blue tints may perhaps have been obtained from iron and copper ores, there is great probability that many of the finest of them were really got with cobalt ore. Such, for instance, are the blue enameled figures of Egyptian deities in the Dresden Gallery, and the blue ornaments found on some mummies, which after so many centuries have lost nothing of their brilliancy. The ancient Chinese gave to their porcelain the same fine blue colour long before cobalt ore or the art of preparing smalt became known in Europe. The blue colour of the beautiful Portland Vase is positively known to be due to cobalt. This ancient Roman cinerary urn of transparent dark blue glass, about ten inches high, was long in the possession of the Barberini family in Italy. It was purchased in 1770 for a thousand guineas by Sir William Hamilton, British Ambassador at Naples, and came afterwards into the possession of the Duchess of Portland. In 1810 the Duke of Portland, one of the trustees of the British Museum, allowed it to be placed there for exhibition; but in 1845 a man named William Lloyd smashed it to pieces. It has since been most carefully repaired, but it is no longer exhibited to the public.

## MINING IN NEW ZEALAND.

(By W. Oliphant Bell, F.S.W.)

THE past history of gold mining in New Zealand contains many points of interest in common with that of British Columbia, including as it does the rich alluvial discoveries pertaining to the early days, the subsequent vicissitudes incidental to the inauguration of lode mining which generally follows as a matter of course the gradual exhausting of the placer deposits. Any comparison therefore or general statement of facts concerning this most important industry, must prove of interest to a mining community which exists and has its being in the successful development of its mineral resources. The alluvial finds in the province of Otago, Westland, in the South Island first attracted attention to New Zealand, and in a short space of time the country was flocked with miners who left the Australian diggings—then on the wane—to seek another El Dorado in the southern islands. The results probably exceeded their expectations for the country which is of a typical mining nature, a network of mountainous spurs and ranges, abounded in gullies containing rich alluvial flats. These were soon in full swing and the fact that after forty years they still combine to yield the precious metal attests their extraordinary richness. Probably the most productive locality was known as Gabriell's Gully and from this source several million pounds worth of gold were taken; indeed so phenomenal was the find that the name has passed into history. Altogether, including the other long and prosperously worked diggings on the West Coast and elsewhere, alluvial mining has been responsible for about \$150,000,000 worth of gold in New Zealand.

It is obvious however that alluvial diggings are not permanent, therefore it is to be to the lodes—the supposed source of all drift gold—that we must look for the steady extension of the industry. This branch of mining is steadily increasing in importance in New Zealand; the returns from the lode mines for the past year, more particularly on the Thames peninsula in the North Islands shew a marked increase, with the prospect of a still further considerable augmentation. The Thames has been mined for thirty years past and in its turn holds the record for richness in quartz lodes, but of this, more anon.

### THE PRESENT CONDITION OF MINING.

The increased returns alluded to above are only to be expected, for New Zealand has had the benefit of English capital during the past three years. Before that date mining struggled along with the assistance of local capital, which meant that unless gold in payable quantities was almost immediately struck the mine collapsed without an adequate exploitation for mere lack of funds. Moreover the system of treatment had to be simple and only free-milling ores could be operated, for the money was simply not available for more complex machinery. Now thanks to the influx of English capital all this is changed and any complexity of treatment or extensive development offers no bar to the thorough exploration of a genuine property. The exact cause of this sudden acquirement of prominence from the English public is due to a combination of three circumstances: First, Jamieson's raid into Transvaal, which shook confidence in South Africans; second, the continued and increasing prosperity of the Waihi—an English owned mine—third, the wonderful discovery of a specimen lode in the Houraki mine, which in the short intervening space

of time, has yielded nearly \$1,500,000 worth of gold. The result of the immediate inquiry for New Zealand properties was of course, that the local people worked up a boom for themselves, thousands of acres of supposed auriferous country were pegged out and afterwards floated locally into small companies. The stock was soon quoted on 'change and regardless of the genuineness or otherwise of the mine, the public invested and so the mining fever quickened. Some few of the claims were disposed of to English Syndicate representatives, but the others as time advanced and no results were forthcoming simply collapsed and with them the boom. In this matter local people were hard hit. It gave rise at the time to an immense amount of jobbery fraud, downright misrepresentation, the effects of which will require a long time to efface. So much good however has been the outcome, that to-day the industry is on a sound basis and will only prosper on its merits. Possibly results up to date are not commensurate with the capital invested, but in a general sense this applies everywhere. The boom of '95 and '96 gave birth to certain new companies however which must contribute materially to the benefit of the whole industry throughout the colony.

#### GENERAL CHARACTERISTICS.

New Zealand possesses many natural advantages in the successful pursuit of mining which are invaluable in many ways. In the first place the country is mountainous and mining can be economically pursued for a long time without having resource to expensive shaft sinking. Then the climate is good, water for native power and other purposes is plentiful, and splendid mining timber exists everywhere. The greater portion of the various fields are moreover easily accessible by water, so that machinery and supplies can be readily transported. The standard wage is \$2 per day of eight hours, and plenty of skilled miners are available. The miners have a union but fortunately no friction whatever has yet arisen with the companies; in any case its power could not constitute a real danger.

The lode system throughout New Zealand must unfortunately be termed inconsistent. This is virtually its most serious defect, but in order to explain the use of the term I should say that owing to the broken and disturbed state of the country, resulting from volcanic disturbance, no confidence can be placed in the regularity or continuity of the lode reefs; consequently in drifting on a lode it will be found that it has no regular strike generally, while it varies in size continually, and is subject to being completely faulted at a moment's notice. Owing to this and the fact that these physical changes oftentimes have a most injurious effect on the quality of the lode itself, confidence is not unnaturally weakened and anything approaching enthusiasm is likely to receive a sudden check. The gold usually occurs in the free state in the stone, but under widely differing conditions and of different qualities. For instance in the South Islands it is obtained in practically the pure state, worth nearly \$20 per ounce, but on parts of the Thames field owing to the large proportion of silver existing in the ore its value sinks to \$15 and under. Then again it may exist in the very coarse state in the lode, where in places it may form a pocket of specimen stone worth from one to eight ounces of gold per pound, or it may be so fine as to be invisible to the eye. These characteristics all have to be taken into consideration and arranged for in developing a mine, though fortunately the above peculiarities are confined to separate districts, though

all are located on the same peninsula. This will be better understood by a special reference to the latter fields—itsself literally the home of the lode mining in the colony.

#### THAMES FIELDS.

This peninsula of auriferous formation is about one hundred miles in length by twenty-five in breadth, and for general purposes it may be divided into three districts, viz: Coromandel, Thames proper and Ohinemuri. The former is purely a patchy or specimen locality, where reefs are innumerable, but the gold scarce. Therefore the mere possession of a lode does not mean that it carries gold and many thousands of dollars have been fruitlessly spent in working these leads and reefs in the vain hope of striking a patch, when these do make however, they are usually of a very rich nature and quickly recoup the owners. The small veins are very often richer than the larger bodies. The Thames proper district though similar to the one above mentioned in many ways has this distinct difference, that the gold is more widely distributed through the reefs. Consequently it may be quite possible to mill a large quantity of general ore profitably and at the same time prospect the mine for a rich pocket. The Thames has produced over \$25,000,000 worth of reef gold to date and one mine the Caledonian, earned the distinction of being the richest in the world in proportion to its size. It yielded about \$5,000,000 in eighteen months and all from one patch. At present the gold production here is very small as most of the old claims have been amalgamated and taken over by English Syndicates, who have suspended surface works or shallow workings generally, and are preparing to open up deep levels in virgin country. In fact it is to the deep levels the Thames must look for another prosperous era. To this end the Government have granted a subsidy of \$125,000 to the Thames-Haurake Co. to assist them in sinking to 2,000 feet—the present deepest workings are under 600 feet, virtually the existing water level. A magnificent pumping and winding plant—the largest in the colonies—has been erected and in a short time sinking will be recommenced. The step altogether is a most important one, and bears directly on the future prosperity of the district. The Ohinemuri district is the largest on the peninsula and within the last six years has assumed the leading position as a bullion producer. The peculiarity here is, that the gold exists invariably in the fine state, so fine indeed that none is visible to the naked eye and in consequence it requires special treatment. The lodes also in this quarter are larger and where payable carry the gold in long chutes, which admit of very extensive works and an almost inexhaustible supply of ore. One mine in this district has during the last six years yielded \$3,500,000 worth of bullion and with the extra 100 head of stamps recently started the yearly returns are expected to exceed \$1,000,000. This is the famous Waihi mine. There are in all about eight mines in Ohinemuri all English owned, which will prove payable and permanent gold producers and as time proceeds this number should be increased.

#### SYSTEMS OF GOLD SAVING.

Owing to the diversified character of the various reef systems in the respective districts, the means which require to be adopted to suit the different conditions, are many and complex. We have of course the ordinary amalgamation process in all its antiquarian simplicity, passing the crushed ore over the

copper tables and ripples etc., and berdaning the the accruing tailings. This system does all very well for an ordinary free-milling clean ore which contains the gold in the coarse state; where the gold however is so fine as to be invisible the above treatment utterly fails and the metal is lost beyond recovery. To overcome this difficulty a chemical process has been introduced, I refer to the use of cyanide of potassium. This solvent has been found to answer the purpose admirably, and in Ohinemuri the results so far obtained are entirely due to its agency. The process is simple and where systematically worked and with the right class of ore most effective, an extraction of over 90 p.c. being easily attainable. We have the wet and the dry system of cyanide treatment now in vogue, but it is rather premature yet to say which is actually the most effective. The advantages claimed for the wet method are very practical, whilst the cost of treatment should be less, but all this in any case must be regulated by experiment before adopting it on a working scale. Some of the mills in this district (Ohinemuri) are costly and very complete structures, with every modern improvement for economy in handling and treating the ore. Heavy stamps 1,050 pounds each are mostly used and as water power in most instances is available, the first cost of actual crushing is naturally low. The average cost of mining and milling ore is between \$5 and \$7 per ton. Certain localities are noted for the refractory nature of their lodes, which up to the present have absolutely defied treatment. The ore which contains much base mineral is not amenable to cyanide which it decomposes and otherwise neutralizes and any mechanical process is ineffectual. Attempts have been made in the past to smelt the ore, but owing to the absence of suitable fluxes it was found impossible to make such a process successful. What the future of the refractory ores will be, is now undoubtedly hazy, but it may be said that so long as the free gold and clean ores do exist in such quantities, refractory ores will not receive a great deal of attention.

#### GRAVEL MINING IN WESTERN CANADA.

(By J. M. Buxton.)

**W**HEN a man deliberately assumes the role of a prophet he lays himself open to very dreadful consequences, and hence the wise saying to the effect,

"never prophesy unless you know." Perhaps, however, the success—I use the word in no boastful spirit—that attended my previous amateur efforts in this particular line, gives me courage to again express my opinion regarding the future of gravel mining in British Columbia, and I will begin by asserting that this important provincial industry is at the present time but in its infancy, in a thriving and growing condition, be it granted, but nevertheless demanding the assistance of enterprise and capital ere it can attain to fair proportions of development and prosperity. I will not deny the soft impeachment, if any one so maliciously disposed dare bring the charge, that in discussing this subject as I have done in various recent papers contributed to the press and mining associations, that I am actuated by the desire to interest capitalists in the enormous area of country stretching from the 49th parallel to the Arctic circle and from the shores of the Pacific to the Rocky Mountains, in almost every section of which gold maybe found, and the vast opportunities for the profitable investment of money both in exploratory and development work. I well remember some eight years ago making certain predictions concerning the possibilities of British Columbia's rock and gravel mining, and how I was laughed at, even by British Columbians, for my pains, but since the laugh has been upon my side, and I have had the satisfaction of seeing western Canada take her position among the great metal producing countries of the world. I will therefore venture further to say—at the risk of being held up to ridicule—that Northern British Columbia and the adjacent territories will produce within the next decade, from the gravels alone—I leave out of consideration the question of lode mining—more gold than any other locality in any other part of the globe produces or has produced in the same period. I was on the point of adding or will produce but from information in my possession, I have arrived at the opinion that Siberia and Northern



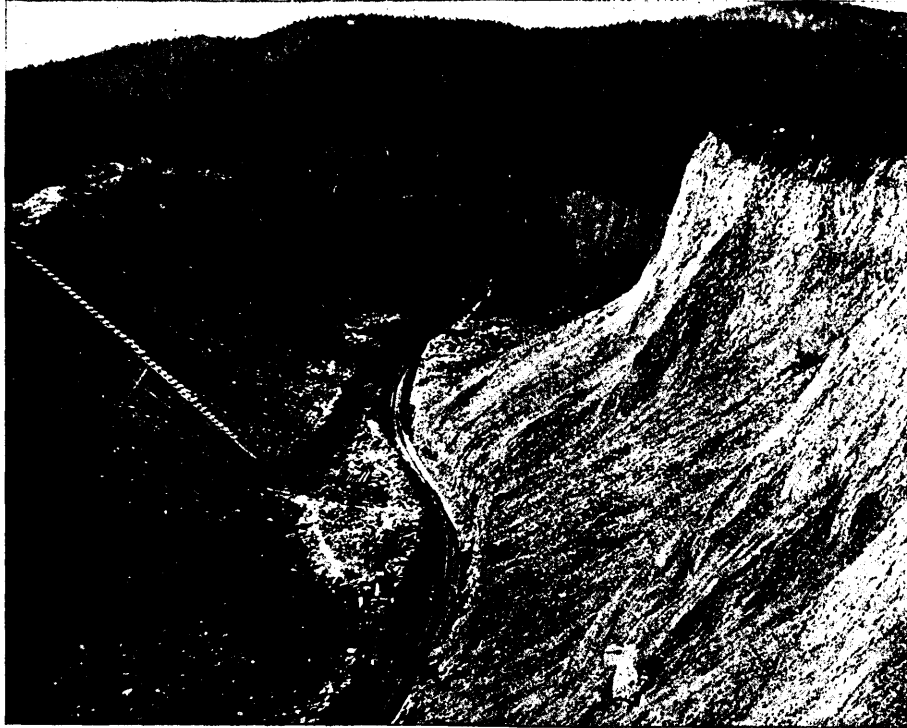
SIX-INCH MONITOR, CARIBOO CONSOLIDATED.

China will ultimately be close rivals for the greater distinction. I suppose that the outside public—except perhaps some few fortunate or unfortunate shareholders little know that we have spent hundreds of thousands of dollars in the attempt to win the gold from the gravels. In many instances these efforts have been rewarded



with success, but when the reverse has been the case, failure has generally been occasioned by either ignorance or lack of money. The time if it has not already arrived, will very shortly, when British capital will be largely sunk in Klondike or British Columbia gravel mining operations and it may not then be out of place to point out that while the opportunities for investment as I have already said are excellent, the utmost precaution should be observed by investors in choosing their investments. A "boom" is invariably followed by a period of depression, but the Klondike "boom" if it assumes the anticipated proportions, and providing the output of the mines this year comes up to expectations it will certainly be a very considerable "boom" — may leave less damaging after-effects than usual if the press will do its duty and discountenance every wild-cat or doubtful scheme whenever occasion arises. Meanwhile the interest that has been awaked the world over by the richness of the auriferous gravels of the Yukon must necessarily exert a bene-

ficial influence in diverting attention to British Columbia gravel mining, and indeed already companies and syndicates are being formed abroad to acquire properties in Cariboo, to explore in Omineca and to develop Cassiar. In Cariboo the mines of the Cariboo Consolidated and other companies will ere long be developed sufficiently to admit of their being worked on a much more profitable scale than at present, and an eminent and independent engineer has stated that in his opinion Cariboo will become one of the greatest if not the greatest hydraulic mine in the world. Of Omineca and Cassiar of course one cannot speak very definitely, but it is known that large quantities of gold are being recovered annually, particularly from the streams of the latter district, by miners, using the most primitive appliances. Much may be expected from Cassiar within the next few years, when the country will be opened up with railroads and the present difficulties of exploration will be relatively minimised. Dredging in various sections of the country promises to develop into an important industry. In the past we have made many costly mistakes but we are beginning to learn the lesson of experience and the methods which have been successfully adopted in New Zealand are now being introduced into British Columbia. Improved bucket dredging devices are being employed



WAVERLY PLACER MINE, BARKERVILLE.

on the Fraser, Quesnelle and other rivers of the Province and as there can be no question at all that gold in paying quantities exists in the river bottoms it is to be expected that this year the result of these operations will be eminently satisfactory and sufficient to induce others to embark in enterprises of the same nature. It can only be a question of time when capital is largely invested in British Columbia gravel mining and I then expect to hear "Our Lady of the Snows" described among the nations of the world as "Our Lady of the Golden Snows."

In conclusion a word about those who have already gone as prospectors to the Yukon from England and Eastern America. Some will no doubt, Aladdin-like find there a hidden treasure, but a large majority I fear have gone to their ruin and perhaps to their death. I would not have made this statement had I not seen the poor specimens of humanity which have been inveigled into paying money to the transportation companies for their passage north. I often

wonder how these poor fellows who have never spent a night in the open and who have lived if not in luxury in comparative comfort, will bear up against the hardships of the life existing on beans and bacon; enduring the intense cold and the equally intense heat of the variable northern seasons. But if one has stamina and robust health and perhaps a little money to start with, the life has many charms. There is no place in the world where a man can enjoy a more independent life than in gravel mining districts of our western possessions. He is his own master, he can work when he likes, he can be idle when he chooses, and on average ground is pretty sure of his \$10 in dust per working day by rocking or shovelling. There are few laws to obey or to break, game and fish in their seasons in abundance, and if the fancy should seize him a quick return to civilization with enough dust to "blow in" for winter amusements and to secure an outfit for the following spring. Captious moralist may criticise this manner of life, but tell me to whom does this prospector's action cause injury. His money is cleanly gained from mother earth and not from trading on the foibles and weaknesses of his fellow creatures, and if he spend it lavishly you will find that the poor, weak and helpless will gather from him a larger subscription than they will from the sleek and church-going citizen.

## THE ELECTRO CHEMICAL ORE REDUCTION WORKS AT ROSSLAND.

THE works of this Company are now nearing completion at Silica, a point three miles from Rossland on the Red Mountain Railway, south of the late O.K. mine, on Little Sheep Creek. These reduction works will treat fifty tons daily, of ore sorted on a special dump, varying in value from \$6 to \$12, from the War Eagle mine.

The British Columbia Bullion Extracting Company, of whose intentions I advised you last summer, is a

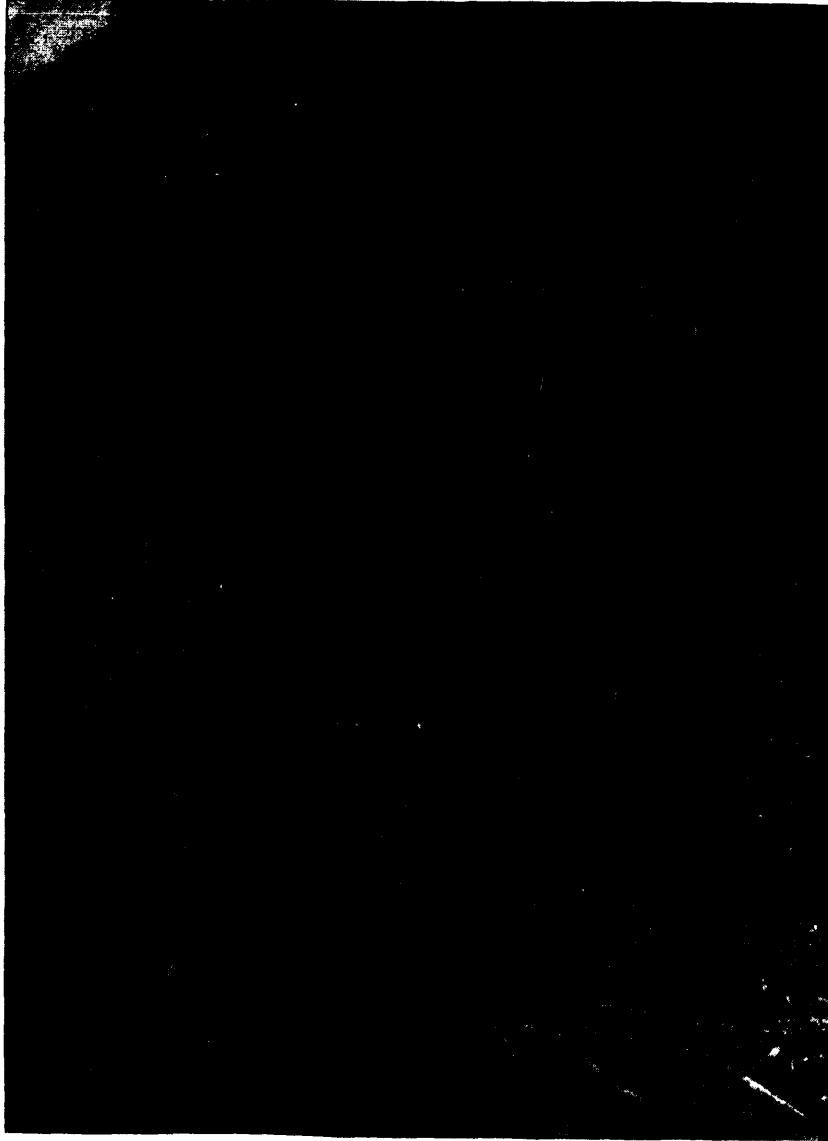
private company with a capital of \$200,000, under the management of Lionel H. Webber, who has, in the testing of ores in the Rossland Camp, obtained the valuable assistance of Mr. E. G. Warren, an honor Graduate of Trinity University, Toronto. The Company is the sole owner of the Canadian patent rights in British Columbia and Ontario, of the system of ore reduction known as the Pelatan-Clerici Process. This process, which in the last four years has gained a world-wide reputation in the treatment of certain classes of refractory ore, has been tested to its fullest extent upon the ores from nearly all the shipping mines of the Trail Creek district; this preliminary experimental work having been carried on since the

spring of 1896. The Company's works, which were begun last fall, are situated on a bluff, contiguous to the Red Mountain Railway, overhanging Little Sheep Creek, from which it obtains its water supply, by means of a box flume, 4,500 feet long; thus, by conducting this supply of water to a large storage tank on the bluff at the head of the mill, each part of the building can be reached, besides supplying an efficient head for the protection from fire. At present it has been determined to obtain power from the West Kootenay Power & Light Company's works, situate on Bon-

nington Falls, 38 miles distant. A private line from the Company's works to the distributing station of the W. K. P. & L. Co. carries an alternating current of 2,000 volts. This is distributed in the mill as follows: 1. To a 75 h.p. synchronous motor. 2. To a 50 h.p. induction motor. 3. To a lighting transformer. The synchronous motor supplying power for the treatment vats and lower part of the mill, the induction motor for the rock crusher and two sets of rolls. The Company intends to make a further addition to its power plant by the installation of a water power, which can be obtained from the creek known as Spokane

Creek, lying between the O.K. mine and Spokane Mountain, a survey line for which has been completed from the point of intake—2,300 feet above the junction of Spokane and Little Sheep Creek, to a point on Spokane Mountain, 1,500 feet directly above the works—whence the water will be conveyed by a riveted steel pipe.

The photographs here shown were taken in April last, and considerable progress in the erection of the building has been made since that date. It will be seen that the mill is being erected on the face of a bluff; this, while entailing considerable expense in its construction, will render it economic in the saving of labour. From the ore bins into which the ore is



THE NEW MILL IN COURSE OF CONSTRUCTION.

dumped from the railway cars, trained from Rossland on to the Company's own siding, the ore descends by gravity into a rock-crusher and two sets of rolls, the first belted, the next geared, whence the material, which has by this time been reduced to a fineness of 30-mesh, passes through a Constant and a Brunton sampler, and on down to the three storage ore-bins; it is here held to feed with automatic feeders, three Chilean crushing mills, which further pulverize it to a fineness, with the aid of water, of between 60 and 80-mesh. The Chilean mills, which are made by

Messrs. Trent & Co, especially for the Pelatan-Clerici Process, embrace an old but extremely effective method of pulverization. From the mills the pulp passes into settling-boxes made in the form of inverted pyramids, and discharge continuously at the bottom into four agitating vats, where it is stored and kept in a state of constant motion to prevent settling. Twelve 5-ton treatment vats finally receive the pulp in 2½-ton charges. On the bottom of each of these vats is placed a copper plate, covered with quicksilver; above are the revolving arms of the agitator, the former forming a cathode—the latter an anode. The process consists of agitating the fine pulp with the addition of lime or caustic soda to give the solution an alkaline reaction, with common salt to form an electrolyte. A weak solution of cyanide is also added to attack the precious metals in the pulp, the whole being agitated for about

that the B.C.B. Ext. Co. have completed a contract for the establishment of an appliance of their process at the Fern Mine, near Nelson, and although installed in the first instance in the nature of an experimental test on their slimes, it is confidently expected that, should the character of their ore remain the same as that which has been found amenable to the Pelatan-Clerici Process, the present installation will be increased to one of twenty-five tons per day, at that mine. Besides many plants of this system in operation in the United States, it will be noted that so near home we have already a demonstration on the basis of thirty tons per day, at the Republic Mine, in the State of Washington.

The reduction works of the B.C.B. Ext. Co., near Rossland, while purchasing the low-grade siliceous ores of the camp, do not enter into competition with



A GOOD VIEW OF THE WORKS.

ten hours; an electric current passing steadily during this time, causes the decomposition of the K.A.U. Cy. 2, precipitating the gold on the quicksilver, where it immediately forms an amalgam. This is drawn off at regular intervals, strained and retorted in the usual manner. The tailings from each vat, after an operation, fall to another and a lower level, where they are treated for their mineral contents by a separate method.

The advantage of the Pelatan-Clerici system of ore reduction is, that, whereas under zinc precipitation quite a sensible percentage of precious metal is lost, the recovery in the case of the quicksilver method is more complete, less troublesome and less costly.

It will be noted with gratification amongst the mine owners in the Province, who are ever on the lookout for a simple and economic method of treating their low-grade ores, and tailings from their stamp mills,

the smelters. They thus afford a means by which the mine-owner can avail himself of considerable profit on a class of material which is necessarily sorted from the higher grade; and would otherwise remain to accumulate for years on their dumps, to the great inconvenience of themselves and surrounding mines.

#### OUR LONDON LETTER.

NOTWITHSTANDING the preparations of the promoting community for the long-expected "B.C. boom," and the efforts of certain journals to direct public attention to the opening afforded by British Columbia for the profitable employment of British capital, English investors have so far betrayed none of that feverish interest in the doings of your various mining districts, as was characteristic of both the

affir and Westralian "booms." It is true that certain enterprising firms in the London Stock Exchange, last summer, impressed with the brilliant record of our lode mines, and perhaps more so by the wonderful stories regarding the potential wealth of the Klondike, and the flotation of a number of companies to exploit that region, inaugurated a market to deal in Canadian mining securities, but for a long time there was a good deal more shouting than actual business, and although the event proved an excellent advertisement for B.C., the new section of the Mining Market was for a long time a butt for the jokes of the dealers in

PRESENT  
POSITION  
OF B.C.  
IN  
EUROPE.

the older established markets. Even now, after the lapse of nearly twelve months, you can practically count the dealers in Canadian mines on the fingers of one hand, and buying and selling in the shares of the majority of the companies quoted in the market in question, is, to a very large extent a matter of negotiation. There was to have been a wonderful boom in Canadian mining shares in the merry month of May, but the month has passed and there was not a jot of the excitement we had all been looking for, and the prophets are hiding their diminished heads. What would have happened to such a movement belongs to the domain of speculative theories. I am inclined, myself, to think that we have all been a little premature in our opinions, and that, although the public here are very willing to finance your efforts to extract both the precious and base metals from their hiding-places, they are not yet prepared to lose their heads about Canada as they did over South Africa and West Australia. In proof of this desire to liberally finance the various mining districts of the Dominion which have come into prominence during the past two years, one may point to the large number of companies formed with the object of carrying on financial, exploration, mining and trading operations in Canada. It is difficult to say how much capital has been actually subscribed, owing to the secrecy observed upon the subject by officials, but it cannot be far short of £2,000,000 or £3,000,000, while the nominal amount, as separate from the subscribed total, will probably aggregate £6,000,000 or £7,000,000. If we add to this the nominal amount of the capitals of the many concerns which have been registered at Somerset House, but have not yet materialized, owing to the unfavourable conditions of the stock market, for the past six months, and the general inability of promoters to carry through such operations, the total cannot be far short of £10,000,000. That the nominal total of Canadian mining companies will, at all events, soon reach this figure is assured, and although probably only one-third of this be actually subscribed, and even a large proportion of this third will be retained by the promoters, a considerable sum will be devoted to the objects for which it was primarily raised. The capital already placed at the disposal of the Dominion's mining districts, has been subscribed by nearly 20,000 investors, the majority of whom are British, but a by no means inconsiderable proportion of whom are Continental capitalists. This latter total may seem to you a very large one, but if you cared to publish the statistics in your columns, I could, I have no doubt, prove the correctness of the statement by furnishing you with a list of the principal British Columbia and Klondike companies, together with the number of shareholders in each, so that Canada has in Europe at the present moment an army of 20,000 people, all in-

terested in some part of her vast dominion, and all anxious to advertise her resources, of forest, field and mine, and the point to bear in mind is that this strong financial constituency has been secured upon mere promissory notes, for so far, out of the large number of companies formed, only a small percentage have had time to prove their ability to honour the promises put forward by their promoters, and these latter have in one or two cases, represented simply the paper profits realized by the flotation of subsidiary concerns, —notably in the case of the Klondike & Columbian Goldfields, one of the Turner-Pooley group—which paid, soon after its creation, a two per cent. dividend out of the promotion of an Ontario mining concern known as the "New Golden Twins." If then investors in this country and on the Continent are so ready to subscribe capital to develop your mines—it does not matter whether in Klondike, British Columbia, Ontario or Nova Scotia—on mere promises, you need not vex your souls because they do not get into a white heat about the prices of the shares of the companies in which they have invested. That keen interest which is the forerunner of the excitement which generates a boom will come in due course, and will be materially hastened if performances only come up to fifty per cent. of the promises made in the prospectuses which have been adorning the columns of the financial press during the past twelve months, but on and off for nearly two years. As it is, investors in this country have been so badly bitten over mining enterprises in the past, not only in South Africa and Westralia but also in New Zealand, and earlier in the American mining craze of the 'eighties, but they are to be commended for their desire to exercise considerable restraint upon their natural disposition to accept as gospel all that is told them by unprincipled promoters, of whom I need not assure you, we have a plentiful supply—sharks, some of them might be called, without in any way over-estimating their particular abilities. To them, no doubt, this coyness on the part of the public regarding Canadian mines may be exasperating. To the Dominion, if this shyness be maintained for any length

THE  
WILD CAT  
PROMOTER.

of time, it will spell salvation, for it will prevent large sums of money being extracted from the pockets of the British public and the Continental investor, ostensibly on behalf of British Columbia, the Klondike and Ontario, a very small proportion of which will ever be sent out to Canada, most of the proceeds being swept into the capacious maw of the insatiable promoter. Of wild-cattling in regard to B.C., we have already had an example or two, but happily the times have not been favourable to the successful flotation of these dubious schemes, and so for the present the profitable occupation has been deserted by its votaries. Let us hope that it will be a long time before the time is ripe for the wholesale plundering of the public which generally accompanies a boom, and that in the meanwhile Canada in general and British Columbia in particular, will only be asked to provide profits upon capital, a certain proportion of which, at all events, has actually been put to the use for which it was subscribed.

The following is a list of the chief groups responsible for the flotation of a number of B. C. Klondike Companies, good, bad and indifferent. It does not pretend to include the whole of the promoters who have associated themselves with Canadian mining matters, but simply the leading companies engaged in the formation of concerns, the object of whose

creation is to carry on exploration, financial or mining business in your part of the world :

The Vancouver Syndicate promoted the Galena Mines.

The Goldfields of British Columbia promoted The Waverly—The Tangier.

The New Goldfields of B.C., (The Tupper Group), promoted the New Fraser River Mines—The Klondike Mining, Trading and Transport Company, and the Klondike Gold Fields.

The Klondike & Columbian Goldfields, (the Turner group), promoted The Dawson City Trading Corporation—New Golden Twins, (Ontario)—Rainy River & Ontario Exploration Company.

The London & B.C. Gold Fields promoted The Yukon Goldfields—The Ruth Mines—Whitewater Mines.

B.C. Development Company promoted Fairview.

B.C. Development Association promoted Incorporated Exploration Company of B.C.—Lake Bennett & Klondike Steam Navigation Company.

Klondike & N.W. Territories, promoted B.C. Mineral Properties.

Duncan Mines, promoted Queen Bess Proprietary;—The London & Globe Finance Corporation, (the Whitaker-Wright group)—The British America Corporation.

Although this is, I believe, the first attempt to collate a list of B.C. promoters, the above is a fairly complete record of the work done to date by the principal groups in this country. As I have already remarked, the list does not include all the names of the individual companies brought out during 1897 and 1898, but it certainly gives you a good idea of the results of the efforts of those who, if we may rely upon the statements made in the prospectuses issued under their authority and auspices, believe implicitly in the future possibilities of B.C.'s mines.

The shares of a number of locally registered companies, such as the Le Roi, War Eagle, Athabasca, Dundee, Wild Horse Creek, have been introduced to English investors, and even a few of the "wild cats" have been brought over and peddled out to ignorant country investors. This latter is regrettable in the

extreme, seeing that they will, some day, when their unfortunate possessors have their eyes opened to their true value, set hundreds of English investors against really good properties, simply because they hail from B.C. Luckily

not much mischief has been done at present in this way, but it is more due to lack of opportunity than to absence of effort on the part of the crowd of brokers, directors and secretaries who have been paying us visits during the past twelve months, with the avowed object of display of large quantities of treasury stock. Only a few of these locally registered companies have obtained the dignity of a quotation in the Stock Exchange, and dealings in them have been very limited. They have indeed been, to a large extent, what we call "one-man markets," *i.e.*, dependent for their existence on the caprice of a single jobber or dealer in the market, and who in turn looks for instructions from his principals, the promoters of the particular company or, in such cases as these I am referring to, the individuals controlling the shares it is required to sell. It is found that by making arrangements to quote these shares in the market and in the press, the task of disposing of large blocks is facilitated, for the average investor seeing the price of say the Bonanza Boulders

of B.C. quoted day after day in the price lists at 9d. to 1/3, and having his interest aroused by one or other of the methods in vogue in this country, thinks he cannot do much harm in buying a few, say on the recommendation of a friend—who may himself be a victim—at 1s. od. Of course, when the shares required to be sold have all been peddled out to the public in this way, dealing becomes quite a different matter. The jobber, if his arrangements with the responsible parties have concluded, no longer has "a book" in Bonanza Boulders of B.C., and when he is approached intimates as much to the broker who may subsequently have received instructions from one or other of the dupes to dispose of his holding.

The market in which dealings in Canadian mining shares take place, is a very small one, but so far it has not been overworked, and I am afraid those gentlemen to whose enterprise it owes its creation, have found it rather dull work of late. Trying to make turns in these days may furnish ample proof of the particular dealer's energy and enterprise, but cannot prove very profitable. However, when things wake up, these gentlemen who have pinned their faith to B.C.—and Klondike—will reap the reward of their patience and perspicuity.

Probably the first jobber to start dealing last year in B.C. things, was Mr. Clement Pand, but I think Mr. Douglas, Junior, claims to share the distinction with him. Messrs. G. L. Wood & Son were early in the field, and some of the big firms in other sections of the Mining Market soon had representatives helping to swell the chorus of the new group of shouting dealers anxious to find people ready to do business with them. These latter included, I believe, Messrs. Stoneham & Messenger, and Burdett & Harris, both closely connected with the West Australian market. A late recruit is Mr. Harry Mosenthal, who joined the ranks of the new market about six weeks ago. Other firms than those named are interested in the success of the new section, and on the mere sign of activity therein, there would probably be a swarm of dealers from other markets, anxious to pick up any of the plums. At the present moment business both in B.C. and Klondike shares, is very dull and extremely limited, but it is thought to be very likely that we shall see a spasm of activity when intelligence comes down from Klondike as to the result of the winter's work. I need hardly tell you that B.C., to a very large extent, indeed, owes the prominence she has already obtained, to the splendid advertisement she secured owing to the publicity given to and the excitement created by the news regarding the Klondike discoveries. If Mr. W. Ogilvie's significant warnings—conveyed to the audiences who have been listening to his views upon the far Northern goldfield—have a little damped public ardour and interest in the stories of the enormous riches hidden in those Arctic regions, his expressions of confidence in the profits that await the efforts of the scientific miner have gone far to reassure warnings. those who feared that the whole of the wonderful castles in the air which they had been building up out of the marvellous cables from the United States and Canada, would have to be demolished. Mr. Ogilvie has done splendid work while here, and the Canadian Government is to be complimented upon the possession of such a high-spirited public official. His advice and warnings to investors in this country should bear good fruit in the future, although it is to be feared that many unscrupulous

pulous financial agents had been too quick for Mr. Ogilvie, and had gathered in their harvest of wild cat promotion profits before he had a chance to tell us that in using garbled extracts from his reports as a bait, they were exposing the weakness of their own position. But, luckily, quite a number of these schemes met with but a poor response to their appeals, and it is to be hoped that future attempts to pick the pocket of the investor will be in a measure checkmated by the lasting effect produced upon the minds of his listeners by Mr. Ogilvie's indignant exposures of the unscrupulous methods adopted by a number of shady promoters.

#### A DESCRIPTION OF FAIRVIEW AND THE SURROUNDING COUNTRY.

(By "Ricardo.")

TO those readers of the MINING RECORD whose eyes have never yet rested in delight upon the beauties of the Okanagan Valley, a descriptive

and you sail forth upon the bosom of one of the most beautiful lakes in Canada. Okanagan Lake is a magnificent sheet of water, about sixty miles long and varying from three to five miles wide. It is surrounded by hills covered by luxuriant bunch grass, and sparsely timbered with pine trees. The steamer calls in at several way ports, of which the chief is Kelowna, a beautiful village, situated at the mouth of Mission Creek, and one of the finest fruit-growing districts in the Province. About 6 p.m., the Aber-

BEAUTIES deen reaches the end of a delightful trip, EN ROUTE. and lands you at Penticton, where you find yourself comfortably provided for in the Penticton Hotel, a large and well appointed building. At 7 o'clock the next morning the stage coach picks you up, and trots you along the shores of Dog Lake, and up on to the higher benches, gratifying your sense of beauty by the vast and ever varying view of lake and mountain scenery. Then reaching Myers' Flat, the hills gradually close in to the road till just before you reach Fairview you are driving



VIEW OF THE TIN HORN MINE.

account of the surroundings of Fairview may prove acceptable; and especially to those who are interested in mines and mining here. First of all let me carry you to the spot whence you may obtain the fair view I have to show you. At Sicamous Junction you leave the main line of the C.P.R., and travel on its branch road, via Vernon, to Okanagan Landing, which is a small but beautifully situated village at the head of Okanagan Lake. Here, unless you have carefully consulted your time table, you are very likely to spend a day fishing and bathing in the lake, as the steamer Aberdeen only runs on alternate days.\* If, however, you make good connections, you have just time to cross the platform and establish yourself comfortably in a deck-chair, before the warning whistles sound

through a narrow gorge, the steep sides of which give you the first direct evidence that you have entered a mining country, for tunnels and ore-dumps are to be seen on either side of the road for a considerable distance. Driving out of the gorge you ascend a gentle slope, from the summit of which you get the first glimpse of Fairview and the lower Okanagan Valley. Away below you, about 700 feet, the Okanagan River winds its serpentine course southwards, through a wide and lovely valley, till it reaches Osoyoos Lake, eight miles from Fairview. Here the waters spread out half way across the valley, and the lake stretches on well into the territory of our neighbour, Uncle Sam. The southern horizon is bounded by a group of irregular mountains, of which the highest, Mount Bonaparte, rears his hoary cap of eternal snow with tantalizing clearness before the hot and thirsty trav

\*The Aberdeen now makes daily runs from Vernon to Penticton, Sundays excepted—Ed.

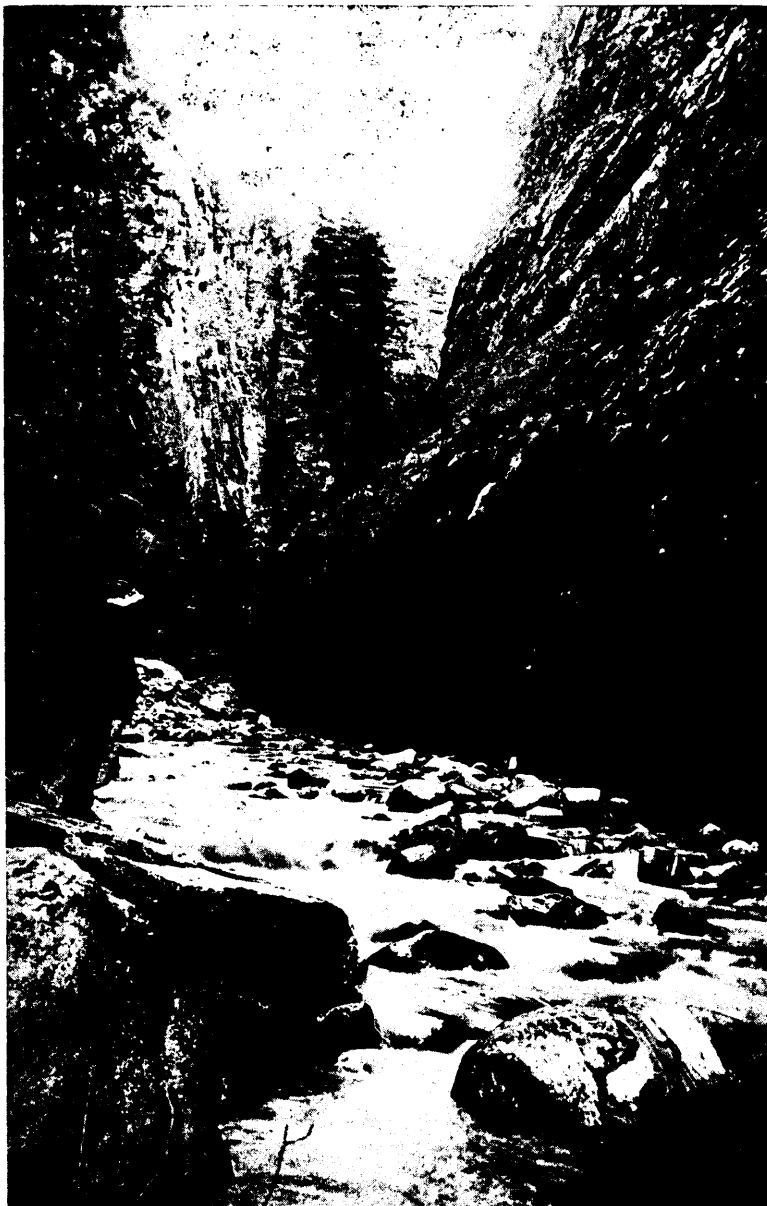
eller. To the left and eastward across the valley, the mountains rise in ridges and shoulders of charming irregularity, till they reach their highest endeavour in the snow-capped summit of "Baldy," a mountain about thirty miles east of Fairview, and 7,000 feet above sea level. Camp McKinney, the home of the celebrated Cariboo mine, lies on the foothills of Baldy, and has direct wagon road communication with Fairview via McCurdy's, where the B.C. Lumber Company, the chief source of the Fairview lumber supply, have their mills.

To the west the mountains rise in steep slopes to a height of 2,000 feet above the town, and extend southwards in a rugged, broken chain, cut by ravines and gorges till they terminate at Kruger Mountain, about fourteen miles away. While you are drinking in this scene of beauty, the stage has reached the townsite, a wide bench, sloping gently to the valley. Near the lower end of the bench the Hotel Fairview stands, a genuine surprise to most of our visitors, for few would expect to find an hotel of such proportions in a mining camp, so far, apparently, from civilization. Circumstances seem to justify the large expenditure which this hotel necessitated, for already it is well patronized, and no doubt in the near

future it will be a paying concern. Opposite the hotel is the office of Messrs. Dier, Davidson & Russell, a firm which directs several of the mining companies operating here. Near the hotel are several other buildings, such as stores, livery stable and blacksmith shop, which, with a few small dwelling houses, constitute the lower town of Fairview. The upper end of the townsite, at the mouth of Reid Creek Gulch, is where the largest number of our citizens are gathered together, presumably in order to be near the mines, which are mostly situa-

ted on the slopes above the town. Altogether I think we have a population of nearly four hundred, catered for by four general stores, one druggist, one news agent, five licensed hotels, two blacksmiths, and a full complement of mining brokers, notaries, assayers, and engineers. Of course the entire population is directly interested in mining, and every man wears out his pockets by carrying samples of ore in them.

Of the mines here probably the best known to the outer world is the Tinhorn, and it would seem that very little is really known yet of that property. Of course the mill test last winter, was not all that could be desired, but the present operations seem to be showing up richer ore than has been discovered hitherto. The Tinhorn mine lies nearly three miles south of the town, and is a model of equipment, as regards tramways, ore shutes, etc. It is ideally located for mining, also, as the ledge runs slanting up a steep hillside, so that the ore may be worked by a series of tunnels, each having its own shute leading to a common tramway. This tramway carries the ore to an ore-bin at a convenient height above the grizzly of the mill, to which the ore is carried in cars by gravitation. The mill itself is one of Joshua Hendy's best, and is equipped with triple dis-



CARPENTER CREEK, FAIRVIEW.

charge stamps and concentrators, operated by a splendid Corliss engine of 120 hp. Although there is ample steam power for working both the Tinhorn mine and mill, the directors of the Tinhorn Quartz Mining Company have recorded the water of Saw Mill Creek, for electrical power and light. As soon as the progress of the camp is sufficient to warrant the expenditure, these enterprising citizens propose to erect plant on Saw Mill Creek, which will generate enough electricity to light the town and mines, and to operate a tramway system, besides providing

power for such mines as require it. Saw Mill Creek is one of the beauty spots of Fairview, and lies on the east side of the valley, about five miles away. It rises on Mt. Baldy, and comes over rock and cliff, through gorges and canyons, in foaming cascades and roaring waterfalls, grand, beautiful and awe-inspiring, and yet its majesty will be controlled, and its furious power converted into a more ductile form, and carried away on wires, to bring light, luxury and ease to the householders of Fairview and the toilers in her mines.

(To be continued.)

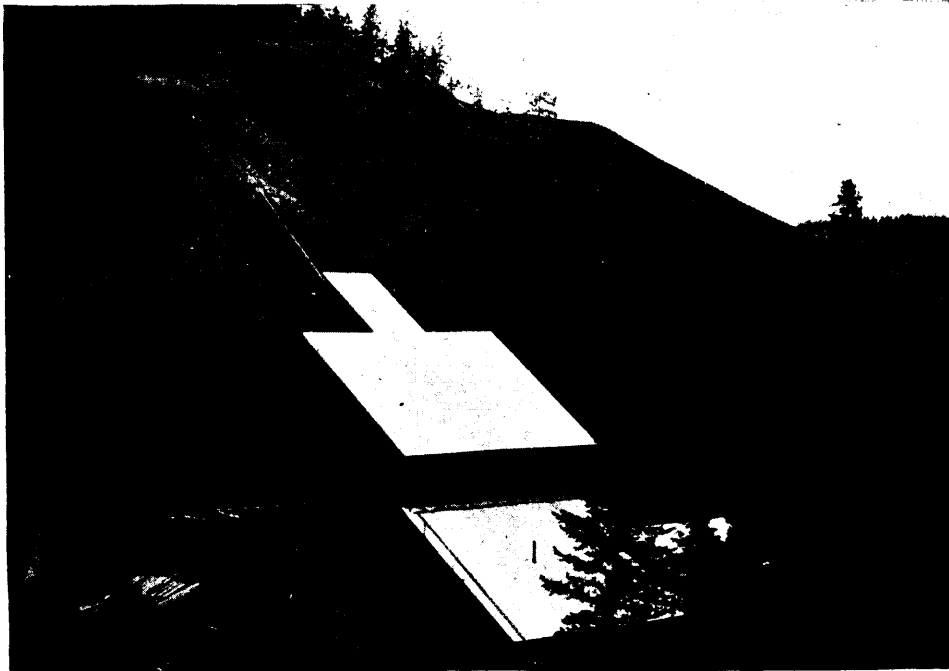
stock Mountain rises to an altitude of about 2,500 feet, and down this mountain Canyon Creek, a considerable stream, flows into the Sound. Upon either side of this creek are located the different properties comprised in the new Quatsino Mining District, now numbering perhaps forty claims. The first of these locations were made early in the summer of 1897, and were recorded at Nanaimo, which is at present the nearest Recorder's Office.

TOPOGRAPHY OF THE DISTRICT.

The mountains rise more or less abruptly from the waters of the Sound, and their sides are covered by a dense growth of valuable fir, spruce, hemlock, red and yellow cedar, and other timber, the surface being covered by decayed vegetation, moss and undergrowth, which renders prospecting difficult. Upon the higher altitudes only, does snow fall and lie during the winter. The rainfall during the winter season, in common with the rest of the coast, is rather heavy, though not as excessive as further up the coast, in Alaska.

COMSTOCK MOUNTAIN.

Nearly all the locations made in the dis-



THE TIN HORN STAMP MILL

THE QUATSINO MINING DISTRICT.

QUATSINO Arm is situated about 250 miles northwest of Victoria, near the upper end of Vancouver Island, extending to the east about twenty-two miles, where it forks, forming three arms, known respectively as the West Arm, Rupert Arm, and the Southeast Arm. The Sound proper and its different arms, vary from one-half to three miles in width, forming, with perhaps the exception of Puget Sound, the most commodious, the safest, and the most magnificent natural harbour on the North Pacific Coast.

Upon the west shore of the Southeast Arm, and about three miles from the forks, Com-



THE NEW HOTEL AT FAIRVIEW.



trict, up to the present time, lie upon Comstock Mountain. The formation here consists principally of diorite, quartzite, crystalline limestone and porphyritic dykes. This mountain lies upon the west side of, and parallel to, the Southeast Arm of the Sound, the locations extending along this mountain for a distance of two and a half to three miles. The mountain is cut by numerous strong fissure veins, varying from several to fifty feet in width—in some places the showings are as much as one hundred feet wide—with croppings of iron sulphides, carrying copper, and also a considerable percentage of silver and gold. Some of these ledges have been traced for an unbroken distance of over 2,000 feet. Some galena and lead is found mixed with the copper in one or two instances, but only one assay for lead has been made, yielding a return of 10.5 per cent. Other veins of almost pure iron sulphides, which will prove valuable for fluxing purposes, are also found. These sulphides closely resemble the best ores from the Trail Creek district. Although but little development work has yet been performed, numerous assays taken from surface ores have given values varying from 2.6 per ct. to 16 per ct. copper, and from trace to \$7.00 in gold, with from one to twenty ounces silver. The result of a number of these assays are as follows, the copper being figured at 11 c., although the market value is \$12.20 per cwt.:

| No. | Copper.     | Gold.  | Silver. | Lead.       | Total.  |
|-----|-------------|--------|---------|-------------|---------|
| 1   | 2.6 per ct. | \$1.20 | .....   | .....       | \$ 5.82 |
| 2   | 3.2 "       | trace  | .....   | .....       | 7.04    |
| 3   | 3.2 "       | "      | 77 c.   | .....       | 7.91    |
| 4   | 4.3 "       | .....  | 1.1 oz. | .....       | 10.11   |
| 5   | 4.9 "       | trace  | 1.4 "   | .....       | 12.55   |
| 6   | 3.0 "       | \$2.48 | \$ 2.00 | .....       | 11.08   |
| 7   | 5.2 "       | trace  | 1.4 oz. | .....       | 12.23   |
| 8   | 5.7 "       | "      | 3.04 "  | .....       | 14.41   |
| 9   | 5.6 "       | "      | 11.00 " | .....       | 18.37   |
| 10  | 5.9 "       | \$2.06 | 5.2 "   | .....       | 18.00   |
| 11  | 5.0 "       | \$7.01 | 1.6 "   | .....       | 18.93   |
| 12  | 2.0 "       | \$1.03 | 1.9 "   | 10.5 pr ct. | 24.11   |
| 13  | 6.5 "       | \$4.12 | 5.2 "   | .....       | 21.44   |
| 14  | 8.8 "       | trace  | 9.2 "   | .....       | 24.70   |
| 15  | 8.3 "       | \$5.50 | 3.3 "   | .....       | 25.50   |
| 16  | 9.1 "       | \$3.10 | 5.4 "   | .....       | 26.19   |
| 17  | 12.5 "      | trace  | 5.6 "   | .....       | 30.58   |
| 18  | 9.1 "       | "      | 19.6 "  | .....       | 30.80   |
| 19  | 14.4 "      | "      | 9.0 "   | .....       | 36.63   |
| 20  | 16.0 "      | \$1.00 | 6.0 "   | .....       | 39.62   |
| 21  | 12.1 "      | trace  | 9.6 "   | .....       | 31.90   |
| 22  | 10.6 "      | \$1.03 | 5.0 "   | .....       | 27.10   |
| 23  | 13.7 "      | \$4.13 | 11.6 "  | .....       | 40.99   |

This gives an average of \$21.52 on twenty-three assays, all from surface rock, the first half dozen being made before any prospecting had been done, and previous to the discovery of the stronger ledges, which have shown a uniformly higher value, especially in the copper returns.

Tunnel sites are plentiful, where depth can be obtained running upon the veins at the rate of foot for foot, in this manner approximating 2,500 feet in depth in some places on the mountain.

#### CONDITIONS FOR MINING AND SHIPPING.

On account of the numerous outcrops, development work could be commenced at a number of very favourable points, where tunnels could be driven or shafts sunk in pay ore from the surface. There is an abundance of water in Canyon Creek and its tributaries to

furnish power for drills and other machinery, and the dense forests upon the claims solve the question of timbering for all time. The configuration of the ground is such that a gravity system can be utilized for carrying the ores to tide-water, where deep-water vessels can lay close to the shore at any point desired. At the mouth of Canyon Creek there is sufficient open and comparatively level ground upon which to erect extensive concentrating and reduction plants, with a sufficiently large town-site to accommodate all the business likely to be developed, and where wharves, and all facilities for shipping can be advantageously erected. The most remote locations are not further distant than a mile and a half from tide-water, and the majority of them are within half a mile.

From the shore, water transportation to the smelters at Tacoma and Everett, should not exceed, on ten-ton lots, \$1.00 per ton, and for heavy shipments a material reduction of these figures should be made. Transportation rates from this district to Swansea, Wales, have been quoted at \$5.00 per ton, and the smelters at that point have offered to pay \$1.50 per unit per ct. for copper, and full value for gold and silver.

From tests made and figures obtained, the ores of this camp can be reduced at Tacoma or Everett, Wash., at a rate averaging \$6.00 per ton. However, should this district develop as expected, and as present indications imply, the ores will be smelted upon the ground, as all the necessary fluxes are in the immediate vicinity, coal of an excellent coking quality existing upon Rupert Arm of the Sound, and large deposits of limestone in the immediate vicinity of the camp, and the district itself, according to assay returns, will produce plenty of iron, silica, lead, etc., for all purposes.

The absence of ice and snow greatly facilitates mining and smelting operations, and supplies can be laid down here from Victoria, at the present time, at from \$4.00 to \$6.00 per ton, in small quantities.

#### TRANSPORTATION.

The Canadian Pacific Navigation Company is now operating a boat line between Victoria and Quatsino, leaving the former place on the 30th of each month, and making the round trip, touching at various other places along the route, in from eight to ten days. We are assured that as soon as business justifies it, this service will be increased and extended, and that more favourable rates will be established when the quantity of business warrants. In fact it is stated that hereafter the service will be a semi-monthly one, as the Coal Company has recently sent in two shiploads of machinery, and are preparing for extensive improvements, which will require a better service than has obtained heretofore. It is also stated on what seems good authority, that a saw-mill of from 50,000 to 75,000 feet daily capacity, will shortly be installed on the Sound, which alone would necessitate a weekly service.

The Sound can also be easily reached from Vancouver via the inside channel, by rounding the upper point of the Island, thus making an optional route of about equal length to that from Victoria.

The machinery for the dredges to be operated on the Quasnel River, and built by the Olson Dredge Co., of Tacoma, Wash., has arrived at its destination. The scows are meanwhile being constructed on the bank of the river at the scene of operations, and it is expected that next month dredging will be in full swing.

## THE MONTH'S MINING.

## ALBERNI CAMP NEWS.

(From our own Correspondent.)

VERY satisfactory reports have been received of the condition of affairs at Alberni. Exploratory mining operations on a large scale are contemplated by several companies and syndicates who have lately secured options in the district. Mr. Armstrong, of the Alberni Development Company, has returned from a visit to England, and work is to be vigorously prosecuted on the Regina group. The Alberni Mine is again in operation, having over 100 tons of good quartz on the dump, averaging \$30 per ton.

The Victoria Metallurgical Company are fitting up their six-stamp mill on the ground, and it is expected that within the course of a week or so it will be in operation.

Mr. Newton is again resuming work on the Golden Eagle.

On the Pansy Blossom, Judge Keeney's property, at the head of the Alberni Canal, considerable work has been done. The ledge now proves to be about seven feet in width, three feet of solid pay ore, termed the pay-streak, with one foot six inches of decomposed ore on the foot wall.

Assessment work is being performed on the Copper King, on Copper Mountain.

The B.C. Agency, (Mr. Bonthron's Company) have opened out some of their claims on Anderson Lake, which are showing up remarkably well. The Superintendent, Mr. Cameron, being asked how much ore he could turn out per day, replied that 500 tons of pay ore would be a low estimate. They have traced and prospected the vein for two miles along the mountain side, and where work has been done it all proves to be shipping ore.

## TRANQUIL CREEK.

Col. Ashton, of Tacoma, is busy on Tranquil Creek. His men are at present engaged putting up boarding houses and sleeping accommodations on the respective claims. Mr. Going, P.L.S., in company with other surveyors and fourteen men, went down on the last steamer to survey sixteen claims and three proposed tram lines, to carry ore to the waterfront here.

Mr. Jacobsen's claim, the Iron Cap, is turning out rich enough ore to pay for development work, even at this early stage.

On the Seattle group, on Bear River, work is being satisfactorily prosecuted. An ore vein of high-grade chalcopryrite ore, of seven feet in width is being exposed. Work is also being done on a good many other properties in this section.

Messrs. Redford & Talbot went down recently on the steamer, to commence development of the Cat Face Mine on Cat Face Mountain, Ahousaht Sound, a very large vein of quartz and copper ore mixed. Indications look highly promising, indeed, but some work will have to be done to prove its true value.

Work and prospecting is also going on at Trout River, Sydney Inlet, Aesquoit and Nootka.

No sales of any great importance have taken place within the last few weeks, some prospects on Nootka Sound being sold, however, at the price of \$1,500 for each claim, while some were sold as low as \$250.

## CLAYOQUOT.

There is much activity on Clayoquot Sound. The Clayoquot, on Tofino Inlet, is being opened up, the quartz stringers on the surface showing from \$600 to \$700 in free gold.

Much assessment work is being done in the vicinity of Deer Creek and it is expected that Mr. P. Clarke, of the War Eagle, Rossland, will arrive by the next steamer, to look at the Crow group, with a view to its purchase.

Work is again to be resumed on the Hetty Green property shortly.

## SHOAL BAY.

(From our own Correspondent.)

WORK on the Dorothy Moreton is proceeding satisfactorily. The excavations for the foundations of the stamp mill is nearly completed, and the steam engine and Rand drills are on the spot. The pipes for the air compressor are laid up the mountain to the mine, and as soon as the engine and boiler are fitted machine drilling will commence. The total cost of the whole plant now being installed will be in the neighbourhood of fifty thousand dollars, and it is expected to have it in running order by the end of October. The whole concern is on the mountain side

and is arranged conveniently. At the top is the crusher fed from a wire rope aerial tram from the mine; below the crusher is a ten-stamp mill, and below the mill a cyanide plant consisting of twelve tanks or vats, in three series of four each, one below the other. Power will be supplied from three sixty horse power boilers. Sixty-five per cent of the gold is free milling, it is said, so it is to be hoped that the stamp mill will be a success, but the ground where the foundation is being dug is very rotten, being broken and shattered limestone. Perhaps however solid rock will be reached with more work. As soon as the power drills are got to work the lead will be proved to a much greater depth. There is however sufficient pay ore in sight, it is said to justify the erection of the plant now being installed, and if and when the lead is proved at the lower level the capacity of the plant can easily be doubled. The Champion and Commonwealth claims have been closed down. No one seems to know why, but it is generally surmised that there is some difficulty between the parties themselves, and that some of them are trying to freeze out others. It would probably be a good thing for the original owners if the bond were thrown up, as they would undoubtedly get a much better price for their property. Work of a more or less desultory character is still going on on the Blue Bells, and I hear that a diamond drill, to be worked by hand, is going to be used. At Cobeldicks in the lagoon in Fredrick Arm, all the miners quit work recently, and there is no one there but the cook and packers. This is owing to the small wages paid by this concern, and the general objection which seems to be entertained against the foreman and his methods. Several experts have been visiting properties in the neighbourhood including the Dorothy Moreton, Blue Bells and Ajax, and I hear nothing but encouraging opinions from all. A new trading post and hotel have been established on what used to be "Bill" Ellis's ranch in Loughborough Inlet by the Loughboro Trading Co., which is run by Mr. S. Gifford-Hart.

## CARIBOO.

The gold output from Cariboo this year should, if indications are to be relied on, greatly exceed any annual yield since the most profitable days of the placer mining excitement in the sixties. The mining season is now in full swing, and where, in many instances last year preparatory work, such as fluming and ditching was carried on, actual mining is in progress. A Miller and an Evans elevators are in steady operation on the Horsefly (Horsefly Gold Mining Co.) under Mr. Hobson's direction and a large clean-up is anticipated. In the same locality a number of other properties are being worked, among others the Miocene Company, being engaged in driving from the bed rock at the foot of a 275-foot shaft, to explore the channel. At the Cariboo Hydraulic, on Quesnelle Forks, the large ditch for bringing water down a distance of 12 miles from Narrow head Lake, is well under way. This ditch will afford an adequate water supply for the entire season of seven months, and previously it was only possible to work the mine for a period of three months in the year. Notwithstanding this the clean-up last year yielded over \$120,000. A large wash-up is also likely to be made this season from the claims being worked by Senator Campbell at Barker-ville. The Campbell elevators, a description of which was published in a former issue of the *Mining Record*, are now in successful operation.

On Slough Creek, a strong English Company, having acquired the properties formerly exploited by Mr. Laird and Mr. Sargent, has sent a very prominent hydraulic engineer, Mr. H. Thompson, of London, to carry on operations. Mr. Thompson, by-the-way, reported favorably on the ground last year. Mr. G. O. Leask, has also, we understand, re-organized in England, the Cariboo Company he represents.

## VERNON.

(From our Special Correspondent.)

THERE are at last justifiable grounds for expecting some important movements in mining properties in this district. The Bon Diable has been visited by influential men with a view to its sale, and a few of the properties on the lake, in the vicinity of the Densy, have also received attention, especially the claims belonging to the Ruby Gold Mining Company. The Monashee mine has been thoroughly inspected, by Dr. Hatch, who is visiting this country in the interest of his company in London. Dr. Hatch came in from the mine on the 16th, and left the same day for Rossland, where he has other properties to report on, but he intends re-visiting this district in August next.

## NOTES FROM THE SLOCAN.

(From our own Correspondent.)

THE upward tendency of the silver market has a stimulating effect on local conditions, although the present course of the war is known to be disastrous to investments from London. Notwithstanding this, representatives from that great money centre are in the field, ready to take advantage of anything which offers. The experiences of the companies now operating in the Slocan, including the Ruth, Whitewater, Queen Bess, Idaho and Comstock, are all of a very hopeful character, and the one bug-bear to the district so far, the Galena Mines, is reported to have made a highly important discovery of ore when just about to abandon the cross-cut at the two hundred foot level. The season of danger from snow-slides and bad roads being over, many mines, including the Ivanhoe, Canadian Group and Arlington are resuming work for the summer, while others are considerably increasing their forces. Among the latter we note three very important mines in the Payne, Slocan Star and Whitewater. Machinery is being installed at the Noble Five in order to facilitate development and enable them to resume shipments within a reasonable period. Important developments have taken place on the claims adjoining the Fidelity. The original vein has been traced on to the Tyro, and from three to nine inches of clean galena exposed in several places, along its length. An option has been taken on the property by Mr. Sandiford, representing the Northwest Mining Syndicate, which also has the Molly Hughes under bond, and by all indications will be taken up without fail. Work has commenced in earnest on the California, and adjacent claims, which give promise of soon adding one more to the already long list of shipping mines. Phenomenal assays in both gold and silver are being obtained from a new strike on the Molly Hughes, but we shall be able to judge better of the value of the mine when the returns are obtained from a car-load shipment which is now en route.

A good impression still prevails on the Whitewater Deep, so fraught with interest to the mining community. A slight conflagration a week or so ago, temporarily delayed matters, but work is now being resumed with all the old-time vigor. Without desiring to enter the domain of politics, I may be excused for saying that the coming election is proving an excellent thing for the Slocan; the recent appropriations for waggon roads, etc., are now being applied in their respective directions, and promises for the future are flying around in much greater profusion than is their wont at ordinary times. New Denver is to have a Gold Commissioner who will in all probability combine the offices of Assistant Commissioner of Lands & Works, Government Agent, Stipendiary Magistrate and County Court Registrar, which will doubtless be appreciated by those who have had to go to Nelson in the past, in order to transact business.

KASLO.

(From our own Correspondent.)

The Whitewater Mine is preparing for a concentrator of 100 tons capacity, to be erected at the mine on Whitewater Creek, where an ideal site for the same is obtainable. Mr. Bucke has resumed work on the Arlington, near Erie, B.C., and a gold property on the North Fork of the Salmon River. Up this river a road will be built this year, some twelve miles, to the Relief and Big Bump properties, in which J. A. Finch and associates are interested, and the Arlington owners are building a two-mile road to connect.

The True Blue Group, near Kaslo, has been bonded by the Hall Mines, Limited, of Nelson. The property consists of the True Blue and Peacock claims, situated in sight of town, and about two and a half miles Southwest. It is a gold-copper proposition, assays running 15 to 53 per cent. copper, some gold and silver. The development thus far is small, consisting of a 20-foot tunnel, which has thus far gone through eighteen feet of clean ore, which can be traced a considerable distance on the surface. Work has begun with a force of fifteen men to build trails, bunk-houses, etc. At the mine ten men will be set to work as soon as possible. Operations will be vigorously pushed to prove the extent and value of the property. It is believed that the lead on this property is permanent ore. It closely resembles that of the Silver King. It has excited great interest in Kaslo, many believing it to be the forerunner of extensive gold-copper mining in this hitherto silver-lead camp. Men are going out every day, and locating all over True Blue mountain.

## PUBLICATIONS.

“MINING in British Columbia: For the Investor Emigrant and Engineer.” By David B. Bogle, Managing Director of the Kootenay Goldfields Syndicate, Ltd. Canadian Press, London, 1897. Pages 24, dmo. Price, 6d.

Anything that Mr. Bogle writes is generally worth reading, and this little pamphlet forms no exception to the rule, the fact that it is not quite free from inaccuracies, notwithstanding. In the first chapter, for instance, it is erroneously stated that Klondike is in British Columbia, and although we are told “this fact gives no valid excuse for coupling the two as in any real sense connected,” the author seemingly has done so in estimating the gold output of the Province for 1897, which he places at £1,000,000, whereas the production was scarcely £600,000 or \$3,000,000. But these are not very serious errors, and in the pages that follow, the graphic and lucid description of the conditions prevailing in Rossland and the Slocan, fully make up for any shortcomings met with elsewhere. Particularly good, too, is the comparison of English and American financial methods in the acquisition of mineral claims, and we must ask the author's pardon if we quote too much in extenso. He says: “The explanation of how much has been accomplished with so little is very interesting. When an American mining man goes into a new mining country he never buys property outright. He bonds it. A prospect has a good surface showing. Without development it is worth little or nothing, but he is not content to sell it for little or nothing. So he puts a price of, say, 100,000 dols. on it. The American takes it at that under a working bond with shipping privileges. He never haggles over the ultimate price; he does over the amount down. He says in effect: ‘I will pay you a few thousand down, I will perfect your title and open your property, and if at the end of a year it is worth 100,000 dols. or over, I will give you that for it. If not, I have lost what I have spent, and you have your property back.’ What the Englishman says is quite different, and not nearly so attractive: ‘You say you want 100,000 dols. for this. It is not worth it. It may never be. Make it worth 100,000 dols. and I will give you the money.’ And so he sets the prospector to make bricks without straw, and reports in London that no business can be done because the British Columbia prospectors want too much for their property.

An American exploration company never bonds only one property, but six or ten. If one is good they are amply recouped. The merits of this system are obvious. It secures the development of every promising showing at the least possible aggregate cost. And it means the rapid development of a country without the expenditure of much capital; because not infrequently the bond is taken up out of the proceeds of the mine. Until English exploration companies take a leaf out of the books of American enterprise in this respect, they will continue to be outstripped by their nimble competitors.

The bonding system succeeded splendidly in the Slocan where the ore was very rich, and little shaft mining had to be done to get it out. But it broke down utterly in the Trail Creek district. There, after the development of the War Eagle, Le Roi, Centre Star, and a few more, the prospective value of mines was so enormous, while the rock was so hard, mining so expensive, and the ore so low grade on the surface, necessitated such a lot of dead work before returns could be realized, that there were very few people who could as individuals go into mining there. As a result, the development has been carried on by joint-stock companies, the method of whose formation in America is entirely different from what it is here. The nominal face value of the stock has not the smallest connection with the price paid by the original investor. A certain amount is put aside, which is sold at the discretion of the directors to provide working capital. As the mine improves the price of the stock improves. Thus there is a correspondence established from the very first between the value of the mine and the price of the stock, and the merest prospect can be as legitimately incorporated as a developed mine. This system is a very handy one for securing capital to open up a new country. But its success in Trail Creek has been modified by certain circumstances. The public, arguing from the particular to the general, as they always will, were so inflamed by the success of one or two mines that they bought everything—good, bad and indifferent. There are sixty-one companies listed in Rossland, with a nominal

MINERAL PRODUCTION OF THE UNITED STATES IN 1897-8.

(PRELIMINARY STATEMENT.)

Compiled for THE MINERAL INDUSTRY, Vol. VI.

By Richard P. Rothwell, editor of the Engineering and Mining Journal.

Table with columns for Number, Products, Customary Measures, Quantity, Value at Place of Production, and Quantity, Value at Place of Production, comparing 1896 and 1897 data.

capital of over 60,000,000 dol., and the number unlisted exceeds this. Many of those are pure rubbish, and when the public found that out they refused to buy anything. The result was that the good mines could not get working capital any more than the bad ones.

Through the kindness of the publishers, \* we are able to reproduce a table showing the mineral production of the United States in 1897, as compiled and arranged for Volume VI. of The Mineral Industry, to be issued shortly from the press.

It is easy to see from the above that Mr. Bogle is of an closely observant turn of mind. But few have had better opportunities for observing the drift of things in this country than Mr. Bogle, who for many years was a pioneer journalist in Kootenay, and the founder of the Rossland Miner, which under his editorial management became one of the most influential papers in the country.

Alaska: Its History, Climate & Natural Resources; with Map & Illustrations. By the Hon A. P. Swineford, Ex-Governor of Alaska.

In reading Mr. Swineford's admirable description of a territory that until recently was thought to be worthless and barren and ice-bound, but which is here shown to be valuable in natural resources, one can only once again bemoan the egregious and irretrievable folly of the British Government in allowing this country, which geographically should form a portion of the Dominion, to pass into the possession of the United States. If it is, however, any

(a) Barrels of 300 lb.; (b) 400 lb.; (c) 200 lb.; (d) 42 gal.; (e) 280 lb.; (f) Troy ounces. (g) Flasks of 7 1/2 lb. (h) Bituminous coal includes brown coal and lignite. The anthracite production is the total for Pennsylvania, Arkansas, and Colorado. (i) Estimated. (j) Kilograms or per kilogram. (k) Including bitumen from Texas. (m) The value of the copper production is calculated at 0.25c. per lb. less than the average price of Lake copper at New York. (n) Value per square. (o) Value per cubic foot. (p) This figure is only approximate and will be revised. Abbreviations: S. T., short tons (2,000 lb.); L. T., long tons (2,240 lb.); M. T., metric tons (2,046 lb.); Sq'es, squares (100 sq. ft. rounded and 1 id).

consolation to know that public opinion in the States was against the acquisition of the territory, we have Mr. Swineford's word for it that when it was announced in 1867 that the Hon. W. H. Seward, then Secretary of State, had negotiated the treaty for the purchase, "the proposition not only failed to elicit any considerable manifestation of popular favour, but was quite generally condemned and denounced as a reckless and wholly indefensible expenditure of the public money in the purchase of what some of the leading journals of the day denominated a 'great national refrigerator.'" How in the face of this opposition the treaty was ratified, and Alaska formally transferred to the United States by Russia, possession being taken by the representatives of the former country on the 10th of October, 1867, is, of course, a matter of history, but, we think, it is not generally known that "the men who were instrumental, through the means of a strong and influential lobby, in securing the favourable action of Congress" to the treaty, "profited largely by the purchase," and that really the valuable possessions of the United States in the North were secured to the country chiefly by the purely selfish wire-pulling of San Francisco speculators. After describing the boundaries—from the point of view of the American contentionists—and superficial area of Alaska, Mr. Swineford in subsequent chapters relates the history of the Russian possession of the country from the year 1849, and later entertainingly writes of the natives, their customs, habits and manner of life. In fact, the book is full of valuable and interesting information, and of a kind that is not procurable in our ordinary works of reference. Valuable deposits of coal and mineral have been found at different spots on the Alaskan coast, and we are told on the Fish River is "located perhaps the most remarkable mine in the world. It is a vein of practically pure galena, carrying from 75 to 85 per cent. lead, with some gold, and from 180 to 250 ounces of silver. Meanwhile, if the resources of the country are to be developed, the United States will be necessarily obliged to pursue a wiser policy than heretofore. Mr. Swineford, when Governor of the Territory, was not afraid to express his mind on this point, for we find in an official report addressed by him to the Secretary of the Interior, he speaks with the greatest indignation of the manner in which the country is legislated, and of laws which "hinder and retard rather than encourage and promote" natural resources.

## SHIPPING MINES.

## ROSSLAND.

The following are the ore shipments from the mines adjacent to Rossland from Jan. 1, to June, 18th, 1898:—

|                   |        |
|-------------------|--------|
| Le Roi.....       | 22,970 |
| War Eagle.....    | 9,473  |
| Centre Star.....  | 910    |
| Poorman.....      | 453    |
| Iron Mask.....    | 1,673  |
| Cliff.....        | 140    |
| Velvet.....       | 350    |
| Monte Cristo..... | 185    |
| Total.....        | 36,265 |

During the month of May the value of the mine exports through the part of Rossland (3,760 tons) was \$90,816.00, divided as follows:—

|             |              |
|-------------|--------------|
| Gold.....   | \$ 75,200 00 |
| Copper..... | \$ 11,580 00 |
| Silver..... | 3,036 00     |

Total..... \$90,816 00

The Collector of Customs at Nelson kindly sends us the following returns:—

## PORT NELSON.

The mine (copper matte) 99 tons, value \$70,679.

The Collector of Customs at Kaslo kindly sends us the following returns:—

## SLOCAN.

Total customs returns for the month were \$3,715, being: Kaslo, \$3,091.56; Nakusp, \$478.16; Rykerts, \$145.48.

For the month of May there were cleared at the Kaslo Customs office 1,860,857 pounds of ore valued at \$67,735, containing 696,086 pounds of lead and 94,052 ounces of silver.

Of this amount the port of Nakusp is credited with gross pounds of ore, 540,000, valued at \$15,498.00 containing 54,000 pounds of lead and 24,300 ounces of silver.

The shipments by Kaslo were as follows:—

|                  |           |
|------------------|-----------|
|                  | lbs.      |
| Ruth.....        | 520,000   |
| Whitewater.....  | 74,000    |
| Slocan Star..... | 480,000   |
| Antoine.....     | 37,000    |
| Coin.....        | 25,000    |
| Total.....       | 1,144,000 |

Ore shipments from the Slocan for May were low owing to the breaking up of the roads, the burning of the Payne tramway, the shutting down of the Slocan Star on account of the scarcity of water, and the alterations going on at the Whitewater.

## COAL SHIPMENTS.

The New Vancouver Coal Mining & Land Co. Limited.

## FOREIGN SHIPMENTS, MAY, 1898.

|  | Tons.  |
|--|--------|
| 2—S.S. Peter Jebesen..... San Deigo          | 4,781  |
| 5—S.S. Burma..... San Francisco              | 4,491  |
| 6—Amur..... Alaska                           | 185    |
| 9—Str. Pioneer..... Port Townsend            | 17     |
| 10—Str. Victorian..... Alaska                | 44     |
| 12—S.S. Titania..... San Francisco           | 5,315  |
| 13—Schr. W. H. Talbot.. St Michaels          | 1,226  |
| 14—Str. Wanderer..... Port Townsend          | 22     |
| 14—S.S. Manauense..... Alaska                | 573    |
| 17—S.S. Burma..... San Francisco             | 4,448  |
| 18—S.S. Amur..... Alaska                     | 163    |
| 19—S.S. Peter Jebesen..... San Francisco     | 4,765  |
| 23—S.S. Alton..... Japan                     | 651    |
| 24—S.S. Titania..... San Francisco           | 5,394  |
| 24—Str. Capilano..... St. Michaels           | 176    |
| 28—Schr. Muriel..... Kahului, H. I.          | 900    |
| 28—S.S. Roanoke..... Seattle, Wash.          | 350    |
| 28—Str. Iskoot..... Ft. Wrangel              | 81     |
| 29—S.S. Burma..... San Francisco             | 4,485  |
| 30—Str. Spratts Ark..... Mary Island, Alaska | 489    |
| 30—Str. Mystery..... " "                     | 28     |
| 30—Str. Wanderer..... Port Townsend          | 36     |
| Total.....                                   | 38,650 |

## FOREIGN SHIPMENTS TO JUNE 20th, 1898.

|                                      | Tons.  |
|--------------------------------------|--------|
| 2—Str. Wanderer..... Port Townsend   | 40     |
| 2—Str. Tyee..... " "                 | 70     |
| 4—S.S. Titania..... San Francisco    | 5,379  |
| 6—Str. Pauline Warner.. Alaska       | 10     |
| 6—Str. Dorothy..... " "              | 7      |
| 8—Bark Seminole..... Honolulu, H. I. | 2,024  |
| 9—Str. Wanderer..... Port Townsend   | 50     |
| 10—S.S. Burma..... San Francisco     | 4,522  |
| 12—Manauense..... Alaska             | 219    |
| 13—Str. Columbian..... " "           | 102    |
| 15—S.S. Titania..... San Francisco   | 5,394  |
| 15—S.S. Amur..... Alaska             | 178    |
| 15—S.S. Canadian..... " "            | 150    |
| 15—S.S. Tordenskjold.... " "         | 581    |
| 16—Str. Earnest A. Hamill " "        | 94     |
| 17—Ship Tacoma..... San Francisco    | 2,600  |
| Total.....                           | 21,421 |

## THE METAL MARKET—JUNE.

Special Telegraphic dispatch to the B.C. MINING RECORD, from *The Engineering & Mining Journal*, New York.

## SILVER.

The first week of the month silver advanced rapidly, owing to large purchases on Spanish account, the Government finding it necessary to meet the drain of silver coin. For the week ending June 8th, the market opened at 57½ and closed at 59½, but Spanish orders failing to materialize, prices from the 4th to 17th of the month fluctuated between 59½ on the 8th, and 57½ on the 17th. Our telegraphic quotations to-day (June 24th) are for Thursday and Friday 57½ and 59½ respectively.

## PIG LEAD.

The market has been very brisk. A very large business was done in the early part of the month with prices ranging from 3.57½ to 3.70. Prices since have risen from 3.75c. on the 10th and 3.90c. on the 18th, to 3.90c. and 3.92½ on the 23rd and 24th, respectively. The average price for May of this year, was 3.64, as compared with 3.26 last. The average price for June, 1897 being 3.33.

## ZINC.

Spelter has been in phenomenal demand, and prices have advanced considerably in the last two weeks. Prices for ores have advanced, and refiners find themselves in a not very enviable position, as no sales can be made at anything like present prices for future delivery, while they are unable to buy ores, unless they pay for them the parity of spot prices for spelter. Our quotations for metallic zinc for June 22nd, 23rd and 24th are 5, 5½ and 5¼.

## TIN.

Following the London market, prices in New York have advanced, the latest quotations being 15¼, 15½, 15¾.

## COPPER.

Since March copper has been on the rise, although the market has been somewhat disappointing this month, and prices have consequently slightly fallen during June. The average prices in May for metallic copper was 12.00 as compared with 11.03 last year. The closing prices for the week ending June 26th were 11¼, 12 and 11¾.

## JUNE DIVIDENDS.

A DIVIDEND of 1½ cents per share, or \$30,000, was declared by the War Eagle Mining Company of Rossland, this month. This is equivalent to 18 per cent. per annum on the par value of the stock, or about 7½ per cent. on the present market quotations of shares. A further dividend, it is expected, will be declared in October next. In the last four months shares have risen from 90 cents to \$2.43, which would place the value of the property at nearly five million dollars. The mine was purchased by the Gooderham-Blackstock Syndicate, for \$700,000.

## A PROMISING COAST COPPER PROSPECT.

MR. John Cobeldick sends us the assay returns recently received, of sample specimens of ore from a claim being opened up by the B.C. Exploring Syndicate, of London, at Estro Basin, Frederick's Arm. These show that the gold value in the ore is inconsiderable, the best assay result showing 0.13 oz., but the copper average is very fair, some specimens assaying 27 per cent., although the general ore will probably not yield more than five per cent. The showing on this property is enormous, the outcropping being quite 150 feet wide, but whether this is a true lead or merely a large overflow must yet be definitely determined. We are, meanwhile, told that an expert—name not stated—after spending two weeks on the property, in examining and sampling it, early in 1897 (when it was only a surface prospect), concluded the report to his principals by saying:

"This property has all the surroundings that go to make a very valuable mining industry. The fact of the ore occurring in such large quantities, massive, clean and healthy, at the very original surface, together with the solid character of the formation, impresses me to say, in my opinion, this property in the near future will make a national reputation as one of the large producers of dividends."

It is meanwhile interesting to note that the gold values are increasing as development proceeds, and it is therefore probable that a pay-chute carrying a larger percentage of this precious metal may be encountered.

## CORRESPONDENCE.

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

## THE B.C. CHAMBER OF MINES.

TO THE EDITOR:—Your Coast advices have probably informed you of the recent incorporation of the B.C. Chamber of Mines. Head offices have already been established in Vancouver, and branch offices will be opened as soon

as circumstances permit. The Chamber has decided that one of its initial labours will be the compilation, in pamphlet form, of a general review of the mining industry of B.C. during the half year ending June 30th, 1898.

It is hardly necessary to point out that the work of making known to the world the exact condition of our mineral resources through an organized Chamber of Mines, is one in which all the business men of the various sections are vitally interested, and that a small amount of "missionary work" will materially assist towards the desirable end.

Yours faithfully,

FRANK S. TAGGART.

## CYANIDE EXHIBIT AT OMAHA.

TO THE EDITOR:—As there has lately appeared several articles in your paper about the Cyanide Process, and some of your countrymen may visit the Trans-Mississippi & International Exhibition, now being held here, I would call your attention to an exhibit of cyanide we are making here.

I have just finished the installation of the exhibit, and it will interest you to hear that the exhibit is on the ground floor of the Mines and Mining Building, and includes besides our 98-99 per cent. make of cyanide in a very large jar, containing over net. 100 lbs. of cyanide, such other chemicals, used in mining, as peroxide of sodium, zinc dust, permanagnate of potash, red and yellow prussiate of potash, chloride of lime, sulphide of sodium, etc.

Very truly yours,

Omaha, Neb.

LOUIS RUHL.

## "THE SILVER CUP" AND MR. BUSH.

TO THE EDITOR:—There is a reference in the June number of your paper to a report—"from information collected by careful investigation and personal examination,"—by a Mr. Harry Bush, M.E., on the "Lardeau and Cariboo Creek Mining Divisions of West Kootenay," and to Mr. Bush's opinion of the Silver Cup Mine, which, together with numerous adjoining claims, is the property of the Sunshine Limited.

I should like to state through the medium of your paper: First—That I am informed by this Company's Superintendent at the Silver Cup Mine, that Mr. Bush has never visited or examined such property. Second—That during the last few months about 800 tons of ore have been sacked at the mine, of which about 470 tons have been shipped to smelters in the United States, the value of such, (upon which returns have been made), being about \$146.00 per ton.

Revelstoke, B.C.

EDGAR A. BENNETT, Gen'l Manager.  
For Sunshine, Limited.

## ANSWERS TO CORRESPONDENTS.

R. S. C. (Mabel Lake Valley). This is the additional information promised you: The west drift at the 200-foot level, now in 18 feet, is in high-grade galena, from which three different assays were taken, viz.: \$68.05, \$65.24 and \$31.13. The tramway is being pushed with all possible speed, and should be ready not later than the end of June. The machinery for the concentrator has arrived, and, roughly speaking, it will take about six weeks being installed, and will be ready for crushing not later than the end of July. The mine is looking exceedingly well, and any holders of this stock will see a good advance on their purchase price within a very short time now. The mine has 36,000 tons of shipping ore in sight, which will net the company \$22 per ton, after deducting transportation, freight and smelter charges. The company are at work on the concentrator and tramway, costing nearly \$20,000. It is to be expected that the price of shares will shortly rise to at least par value, and if your friend can buy at 1s. 6d. in London, advise him to do so.

S. S. (London, Ont). It is clearly a bogus scheme. No such company is known to exist in Rossland.

J. S. (Marmosa, Ont.) You will find most of the information you require in our Fairview correspondent's letter. We still hold the same opinion in regard to this property. It is quite a toss-up whether it turns out well or otherwise, and there is this against it, that the men in charge are not professionally trained engineers, nor even practical miners. No, decidedly not a good investment. Rossland and one or two of the listed Boundary Creek mines offer far better chances. Of the latter we recommend Old Ironsides at 10 cts., or Golden Crown at 25 cts.

W. S. (Toronto). By all means buy Crow's Nest shares if you can get them. They are largely held in Ottawa. About \$20.



cost of \$40,000, with new machinery has just been completed, the new engines giving a much higher horse-power, and the speed of the boat being furthermore considerably increased. Included in the new work now in hand is a large gold dredger, of about 3,000 yards capacity, to be operated on the Fraser River; a large guano plant to utilize the offal from the canneries below Westminster, and a complete plant for the English Bay Canning Company. Several improvements have recently been made in the factory, and increased facilities provided for executing work.

A correspondent writing from Ottawa informs us that the work of constructing coke ovens at the Crow's Nest Pass mines is to be commenced at once, and it is hoped that before the close of the year the Company will be in a position to supply the local smelters with fuel.

The Jenckes Machine Company, of Sherbrooke, Quebec, are beginning to do a large business in British Columbia. On the 5th inst., this firm shipped a complete ten-stamp mill to the Cariboo M. & M. Co., Camp McKinney. They are also supplying a twenty-stamp mill, with a Corliss engine, vanners, and four miles of aerial tramway to the Smuggler Gold Mining Company, for the mine at Fairview.

Special pumping apparatus for the Nickel Plate, and Columbia & Kootenay Mines, owned by the B. A. C. at Rossland; a hoist and boiler for the Athabasca mine, Nelson; a hoisting plant to Messrs. D. S. McArthur & Co., Nelson; a 6x8 special hoisting engine, and a 40-horse-power locomotive boiler to the London & British Columbia Gold Fields, and a No. 6 Cameron vertical pump for the Monte Cristo at Rossland, have been recently furnished by this large Eastern manufacturing establishment.

The Pelton Water Wheel Company have under construction a power plant for the British Columbia Railway Company—the most notable installation of the kind in the Northwest. The power station is located at Goldstream, some twelve miles from Victoria, and the water supply is furnished from the Esquimalt Water Works system. The plant consists of two 38 in. D. N. Pelton Wheels, 600-hp. each, running at 600 revolutions, under 590 ft. head. The wheels are directly connected to Canadian General Electric Generators, by insulated couplings.

The power thus generated is to be transmitted to Victoria at a pressure of 10,000 volts, and then used for running the railway system of this city, lighting and general power purposes.

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Classes in English and in French are being formed weekly, in which pupils will be taught to distinguish the various minerals, how to find them, how to make quick camp assay tests, how to pan and how to outfit for the field. For a personally attended course of six lessons \$5.00.

For those unable to attend personally, a correspondence course has been arranged, which can be made as useful and profitable as a personally conducted course. Terms, \$10 for the course, including a testing outfit and a set of mineral specimens.

Its aims is, as far as possible, to give a demonstration of the mineral wealth of Canada, from the Atlantic to the Pacific, from Nova Scotia to the Yukon.

**A College Course not Necessary.**

The Company requests prospectors and claim-owners to send samples of their minerals, with full details and price of location.

It makes assays by its own assayer, and provides confirmatory assays by any of the best-known assayers.

It supplies Camping Outfits, Tools and the latest appliances in Mining Machinery.

It conducts training classes for intending prospectors and a Correspondence Course for those unable to personally attend in the city.

Write for further particulars and start at once.

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## TRANSPORTATION COMPANIES.

## Canadian Pacific Navigation Co., Ltd.

TIME TABLE NO. 33.

(Taking effect March 1st, 1898.)

## VANCOUVER ROUTE.

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

## NEW WESTMINSTER ROUTE.

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

## NORTHERN ROUTE.

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

## KLONDIKE ROUTE.

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

## BARCLAY SOUND ROUTE.

Steamer "Willapa" leaves Victoria for Alberni and Sound ports the 10th  
20th & 30th 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.



## PROVINCIAL SECRETARY'S OFFICE.

**H**IS HONOUR the Lieutenant-Governor has been pleased  
to make the following appointments:—

25th May, 1898.

W. F. ROBERTSON, of the City of Montreal, Esquire, B.A.,  
Sc., to be Provincial Mineralogist vice William A. Carlyle,  
Esquire, resigned.

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## British Columbia Chamber of Mines.

APPLICATIONS for the position of Secretary  
to the British Columbia Chamber of Mines  
will be received up to and including July 18th,  
1898. Applicants will please state qualifica-  
tions, remuneration expected, references, etc.

Frank S. Taggart, Sec. pro. tem. Vancouver, B.C.

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also be had at this office.

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## PROVINCIAL SECRETARY'S OFFICE.

**H**IS HONOUR, the Lieutenant-Governor, has been pleased  
to make the following appointments:

30th June, 1898.

ALEXANDER SPROAT, of the town of New Denver, Esquire,  
to be a Gold Commissioner at New Denver, a Stipendiary  
Magistrate within and for the County of Kootenay, and a  
Deputy Registrar of the County Court of Kootenay, holden at  
New Denver.

JOHN KIRKUP, of the City of Rossland, Esquire, to be a Gold  
Commissioner at the said City, and a Stipendiary Magistrate  
within and for the County of Kootenay.