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THE MONTH.

THE labour conference at Rossland which has so fortunately resulted in the re-opening of the mines of the district should become historical in the industrial history of the province. It terminated a long period of mutual distrust, it prevented a more than threatened outbreak of industrial war, and it set a valuable precedent for the settlement of difficult matters in the future. The first cause of the strained relations between labour and capital was unquestionably the eight-hour law. The conditions under which mining was carried on were suddenly changed. The mining companies felt they had been wronged, not so much by the adoption of the eight-hour system, but by the fact that it was sprung upon the country without warning or consideration. They felt as though a challenge had been issued to capital, and that the dictum had been pronounced that capital was to be completely ignored in the legislation of the province, that it was merely introduced into the province to be placed at the absolute disposal of elements, more ignorant perhaps than hostile, but, at all events sufficiently dangerous. The unrest thus engendered was intensified by the actions of a class of people the most malignant in modern life. Those who have nothing to gain save by fishing in muddy waters have a natural interest in stirring the waters up. Nor are such agitators to be found only on the side of labour. They exist on both sides. Wild rumours flew about of dynamite, destruction and violence and became so all-perversive that the Rossland mines were paraded with police to the heartfelt astonishment of the working community. Every thing was ripe for a struggle of protracted duration, and much bitterness. The men on the other hand saw in the eight-hour law a tangible and valuable privilege. They saw losses credited to the eight-hour law which were obviously the result of grave defects in management. They have always protested that they were willing to meet the companies half way in mitigating the effects of the change of system upon the profits of capital, but they objected to the results of defective machinery and superintendence being charged to the eight-hour law. They saw nothing in the attitude of the companies save a bull-headed determination to have the eight-hour law erased from the statute book, or nullified in practical working. To say that the trouble in Rossland was caused by the desire of the companies to introduce the contract system is pretty much the same thing as saying that a flood is caused by a superabundance of water. It is true but it is insufficient either for a proper understanding of the trouble or a proper appreciation of the results of the settlement.

THE LABOUR SETTLEMENT AT ROSSLAND.

It is curious that the disturbance in the Slocan, caused by the introduction of a new system of hours, should have broken out over the question of wages, in Rossland over the method of payment, by piece or by time. But it is remarkable in both cases that the difficulty has been arranged at the expense of the men. In the Slocan they have to be content with a lower wage, in Rossland they have accepted the contract system which at first they bitterly opposed. That is to say, that the burden of the cost of the eight-hour law has fallen upon those whom it was presumed to benefit. Nor is it necessary to suppose that they have not received good value, or that they object to paying the price of their new privilege. But they have paid for it just the same. The amount paid for each foot of ground broken under the eight-hour law will not exceed either in the Slocan or Trail Creek the amount paid before the law came into force. By that it is not meant that the amount of work performed in eight hours is as great as that done in ten; but the pay will be less for the time worked unless the work is done at higher pressure. The value or extent of a day's labour cannot be altered by statute. If it is attempted there is a strain, a struggle, a temporary dislocation of business interests. Eventually the equation is arrived at with the same certainty, with which a stream of water, if it be dammed at one point, will find an outlet at another. In the Slocan the scale of wages was lowered, in Rossland the contract system

was introduced. The law modified a factor in the industrial situation; to counterbalance this, two other factors have been modified: the resulting equation is the same. To say that when man interferes with natural or customary (it is the same thing) conditions, nature finds a way to equalize things, is not to argue that therefore man may interfere with nature with impunity, although this is a fallacy into which many people fall. Similarly, it is absurd to say that because the industrial equation must have been re-established, as it has been, it was therefore a beneficial act to pass the eight-hour law at the time and in the manner in which it was passed. Nature is impassive to strikes, loss, bankruptcy and suffering. A man may press the lever which maintains a mass of rock in equilibrium; but his crushed body may be underneath the rock. But on this ground it is perhaps arguable whether it would now be advantageous to repeal or modify the law. This would mean another dislocation of industry, because it would be a change which labour would resent as keenly as capital did the previous one. Such changes are for the good of the community, to be deprecated as much as possible. It is evident that whether the eight-hour law should be repealed or not depends on whether the system adopted under it is sufficient to mitigate its effects on capital in any considerable or permanent degree. This can only be fully determined by experience. But the bearing of the Rossland settlement upon this question makes it doubly interesting, as illustrating the relations between labour and capital in the province in a general way and also in connection with the eight-hour law.

It will be well to separate the salient points involved in the settlement and deal with them categorically. This method, while it detracts from the style of a leading article, adds to the clearness with which the subject may be comprehended. As the matter is one more to be studied by those vitally interested in the industrial situation in our province, than lightly skimmed over by those who prefer their opinions ready made, this theological method of exposition may be adopted without further apology. The settlement then is interesting on the following grounds:—

1. The method by which employers and men were brought together.

2. The extent to which the miners' union was recognized in the negotiations.

3. The radical change introduced in the method of working the mines.

4. The effect of the negotiations and settlement on the future relations between labour and capital.

1. The companies and the men were brought together by outside mediation, Mr. R. C. Clute, representing the Dominion Government, and Mr. Ralph Smith, the Provincial Government. Both of these gentlemen are notorious for their labour sympathies. It is probable their mediation would otherwise have been unsuccessful. Their functions were limited to getting a plain statement of the case on both sides. If there existed an irreconcilable difference then a fight was inevitable. But it was a pity that a strike should be ordered until the parties knew that their differences could not be adjusted save by the exhaustion of the one or the other. Numerous conferences were held; the matters in dispute were discussed. Finally a statement of their position was obtained from the managers. The mediators gave their opinion upon it and the men ballotted as to its acceptance. Nine industrial disputes out of ten, if attacked in the same way would be settled in the same way. The most serious are so settled after a strike has been in progress. The particular credit in regard to this one is that it has been settled in accordance with common sense before, not after or during a strike.

The statement of the companies was as follows:

Rossland, B.C., April 3, 1900.

R. C. Clute, Q.C., Commissioner:

Dear Sir: Referring to the several communications that have passed between Messrs. MacDonald and Kirby and Mr. Devine, as to the conference with yourself and Mr. Smith we have thought it well to make a statement in writing of our understanding of the situation.

1. That the companies are prepared to open up their mines under the contract system to their full capacity, as rapidly as circumstances will permit.

2. The contract system, putting it generally, provides that the contractors are to be paid for all the work they do and the companies pay for all the work done, at a price agreed upon and determined by both parties.

3. The two simplest systems will be adopted, viz., (a) contract by lineal foot of hole drilled and (b) contract by lineal foot of completed working.

4. In stopes, the method of hole measurement has been selected, because of its extreme simplicity—contractors not being obliged to take any chances on the breaking qualities of the ground, or the powder required, the cost of mucking or loss of time from smoke.

5. Blasting will be done, except where otherwise arranged, between the hours of 1 and 7 a.m., so that the probability of loss of time will be reduced to a minimum.

6. As to having all development contracts measured by the lineal foot driven, instead of by the length of holes drilled, it is understood that most of this work will be let by the lineal foot. It would not be satisfactory to contractors or the companies to be confined to this method of measuring the quantity of work done. The method selected for any contract will vary with the mine and the existing conditions, and it is a matter of free arrangement with individual contractors.

7. When, through fault of the companies contractors find themselves obliged to do work not properly included in their contract the time spent in doing such work, in excess of one hour will be paid for at the standard scale of wages. When, by special agreement contractors assume the chances of such occasional extra work, the price agreed upon will be made to cover it.

8. The companies will furnish all explosives to contractors at cost from distributing stations, or they will furnish this material free of charge when agreed upon between them and the contractors in any particular work.

9. The companies will furnish all machine drills, tools and implements necessary for the work free of charge to contractors, and no charge will be made to contractors for drilling machines broken while at work.

10. The companies will arrange as far as practicable to have all holes in stopes blasted between the hours of 1 and 7 a.m., and they will also endeavour

to have all timbering done when required so as not to interfere with the work of drilling.

11. Companies will furnish and pay for the services of engineers and pumpmen when such are required.

12. Mucking or the barring down of rock will be done by the contractors, or the companies, as may be agreed upon at the time of making contract.

13. It is expected that the prices agreed upon, based upon ordinary working conditions, will cover all delays which are inseparable from and incident to mining work.

14. It has been made clear that it is the desire and intention of the companies to afford the contractors every facility for carrying out their contracts to the end that all parties concerned may be mutually benefited.

15. The fact of an employee being a member of the union will be no bar to his employment, nor will the companies place any obstacle in the way of non-union men becoming members of a union.

16. The companies reserve to themselves the right to employ men as they see fit, whether they are members of a union or not.

17. It is the policy and intention of the companies to treat their employees fairly, and not to discharge any employee, whether he be a member of a union or not, without just and sufficient cause, it being clearly understood that membership in a union will not constitute grounds for discharge.

With respect to matters wherein the employees of the companies may consider themselves aggrieved, the companies will, at any reasonable time, receive a presentation of the case, and consider the same in a fair and impartial spirit and endeavour to remove the cause, where any is found to exist.

19. It is expected that the union will at all times use its good offices and exhaust all conciliatory methods, before permitting any strike or stopping of work. And further, that they will not seek to interfere with the companies in employing or discharging employees or interfere with contractors. Yours truly.

BERNARD MACDONALD,
Manager.
EDMUND B. KIRBY,
Manager.

The mediators annotated and explained this document and the men accepted its conclusions.

2. The miners' union was freely acknowledged as representing the men. The negotiators were officers of the union. The matter was submitted to a ballot by the unions. But at the same time the limits of a union's usefulness and powers were clearly laid down. The clauses dealing with this part of the subject as well as the attitude adopted during the negotiations form the most important recognition of organized labour yet witnessed in the Dominion. It is satisfactory that both labour and capital in this country are following the English not the American precedent.

3. The radical change in the system of work is in the system of contracting in stopes and paying by the number of feet drilled. Only experience can prove whether it will result in economy to the mines and satisfaction to the men. With contracting in drifts and raises and shafts we are all familiar where payment is made by the number of feet of ground broken. But this is an entirely new thing. It must not be forgotten that the amount of ground broken does not depend solely upon the number of feet drilled. The holes must be placed right, pointed, and the powder and fuse used must be scientifically adapted to obtain the best results. By the system introduced the initiative of the miner has been taken away from all these things and directed upon something which may detract from proper attention being given to factors very important in successful work. Experience will prove whether this flaw will counteract the undoubted advantage the new system possesses.

4. In the mining industry throughout British Columbia the future of the relations between labour and capital looks very bright. It is not necessary to assume that a victory of reason heralds the millenium. A cynical critic might indeed argue that the exigencies of the companies on the one side, and the fact that the central union in Butte had troubles of its own on the other, made the masters and men see the light of reason in each other's eyes. Be that as it may, the fact remains that it will be difficult in the future to let loose the dogs of industrial war, until mediation has been brought in, the questions at issue fully and freely discussed, and the difficulty at least given the chance of a reasonable settlement.

No one with any experience of mining districts can go through the Boundary Creek district without realizing that is the greatest and richest portion of British Columbia and that its future in wealth and population can hardly be over estimated, and yet there is at the present time a very visible lack of prosperity in this district. The expenditure of capital in the Boundary country has been very largely restricted and the area of its operations is becoming more defined. Power works are being installed at Cascade; the Granby smelter is being completed at Grand Forks; the Mother Lode smelter is being pushed to completion at Greenwood; and the groups represented by the Graves combination, the B. C. and the Mother Lode mining companies, are being actively developed. But the enormous number of good prospects in the Boundary country outside of these can find no purchasers and where they are already owned by joint stock companies these companies are at financial low water. The enormous expenditure involved in the construction of the railway has come to an end. The subsidiary capital expenditure of building towns stimulated by this great work has also come to an end. Consequently there are the towns of Cascade, Grand Forks, Columbia, Phoenix, Summit, Eholt, Greenwood and Midway, supported by a volume of industrial activity, which though great, is inadequate, and hard times are general throughout the whole country in a more accentuated degree than elsewhere throughout British Columbia. The Boundary country needs capital more than it ever did before if the richness of its resources is to be speedily made manifest. If a great flow of outside capital cannot be introduced into the mining industry of British Columbia, and particularly into the Boundary country, progress must be very slow and many a claim owner and business man will starve while the grass is growing. Unless the policy of the country is definitely and intelligently directed to this end the outlook in British Columbia is somewhat sombre. American money has been diverted from British Columbia by the effects of the Alien Exclusion Act and the attractiveness of the Alaskan territory; Canadian capital has been dis-

heartened by the evidence of incompetence and extravagance in one of the principal Rossland mines; English capital is disturbed by the untoward course of the South African war; to overcome these effects alone upon the mining industry of British Columbia would require wisdom and prudence and well directed effort. But when confidence has been shaken in the administration of public affairs in the province itself by the extraordinary events which have characterized our recent political history it is evident that the task before our men of light and leading is more arduous than ever, and unless the right men carry out the right policy a period of actual retrogression is inevitable. The country needs a policy of mining development to which everything else must be subordinated.

The report of the Knob Hill and Ironsides Companies, in Phoenix Camp, has just been issued, and if the statements therein contained are to be relied upon, there can be no doubt that these mines will in the near future, rival most of the largest copper producing properties of the world. Our Boundary Creek correspondent, however, while not questioning for a moment the reliability of the estimates given, makes some comments which are very much to the point, for if it should happen, that the general average value of the ores in these mines—and it must be remembered that the deposits are so enormous that a really exact sampling is a very difficult matter—should be lower than the management suppose and the margin for profitable working is consequently reduced to any considerable extent, the disappointment will be very keen and the whole of the Boundary Creek country will feel the effect. Our correspondent thus comments:

Much publicity has been given to a statement reported by the Grand Forks correspondent to a number of newspapers, to have been made by Mr. Jay P. Graves, as follows: "The last report of our superintendent showed $11,500,000 worth of ore in sight in the Knob Hill above the tunnel level. The total average value placed upon it was $8.35 per ton, which, if the estimate be correct, should pay us $3.25 per ton net profit. It is estimated there is as much ore in sight in the Old Ironsides as in the Knob Hill, and the Victoria, the adjoining mine, owned by the smelter company, is not very much inferior to either. The No. 3 shaft on the Old Ironsides lacks but a few feet of 400 feet in depth, a level that will be reached this week. Extensive development work on the Old Ironsides and the Victoria is being done in the 200 and 300-foot levels. The ground has been so developed that the ore can be easily extracted, and in quantities to keep our smelter continuously in full blast. It is estimated that we have in Phoenix alone sufficient ore in sight to supply the smelter for five years, even though we never found any more mineral." So far as the personal views of Mr. Graves, given out for publication, are concerned, these are usually freely discounted by those who regard him as a company promoter rather than a mining man qualified to express opinions of value respecting mines. But if the figures quoted are the statements of Mr. W. Yolens Williams, the superintendent of the several mining enterprises of the Miner-Graves Syndicate, they are to be taken far more seriously, since Mr. Williams is a mine manager with a good reputation to maintain or lose. It seems desirable though to offer this comment upon the statement respecting the ore in sight above the Knob Hill tunnel level, viz., that though drifts and cross-cuts run around the big body—frequently described as "an acre"—of ore may have, as asserted, shown ore of the average value given to occur where cut by these workings it by no means follows that the values are maintained all through this big block of ground. Conservative mining men will admit that the chances are as much against this assumption as in favour of it, and until this ground has been proved by further opening up there is risk in taking it for granted that the estimate given is to be depended upon. A shaft has been sunk below the level of the tunnel, so if this is in ore too Mr. Williams might just as well have included in his calculations all the ground down to the lowest depth reached and so arrived at a total far in excess of that quoted above.

There is no doubt that much development work is being done on these Miner-Graves properties, the Old Ironsides, Knob Hill and Victoria, and that enormous bodies of ore are being disclosed. With quantity so unmistakably assured it is now only a question of values and the margin they will leave above cost of treatment of the ores and delivery to buyers of the saleable products obtained. Mr. Graves' statement that $8.35 ore will give $3.25 net profit presumes a very economical cost of mining, hauling and treating the ore and marketing the product. Many readers of the MINING RECORD will probably think even though a smelter rate of $3.50 to $4.00 be found practicable $1.10 to $1.60 per ton will be found a difficult maximum cost to maintain for mining, hauling and marketing. It will be interesting a year hence to compare these estimated figures with the actual cost should the latter be then made public.

A correspondent sends us a copy of the "Consolidation and By-Laws of the Kettle River and South Okanagan Pioneers," a society recently organized in Greenwood to which no one is qualified for membership unless able to prove residence in the district in 1894 or previous years. The officers of this very distinguished body include an honorory president (hyas klooshe tyee), a president (tyee), four or more vice-presidents (sitkum tyees), a treasurer (chicamin tyee), a secretary (tzun tyee), an honorary physician (hyas doktin) and an executive committee (mamook tyees). Rightly no stranger, pilgrim or cheecharco will be admitted to any of the society's meetings, and it is strictly enjoined that "members shall not divulge any of the secrets or mysteries of the organization," and thus will the well-worn yarns of other and harder days be preserved sacred as they are related many repeated times in that select circle while the incense from well-smoked pipes ascends ceilingwards. The "old timer" in Boundary Creek is now in a very small minority, but for all that the district owes him a very large debt of gratitude. The man who "stayed with" the camp before even the government waggon road was built, when a weekly mail service was esteemed a luxury, and who notwithstanding the discomforts and extravagance of living in such a country never lost faith in it and never missed an opportunity of shouting its praises deserves well of the community. He it was who by long and persistent effort at length induced the capitalist to view the land. The capitalist came and he also believed. Then was a railroad built which brought in many people of all trades and callings, and in due course Boundary will be of all the

mining camps in Southern British Columbia the most prosperous. But to the pioneer the honour, if not always a fair share of tangible pecuniary reward justly belongs. By the way, the secretary of the new society, Mr. Angus K. Stuart, did in the old days more than most men to advertise Boundary Creek. But he had an exceptional opportunity, for he and his partner, Mr. Norris, of Midway, published together the pioneer newspaper of South Yale, which is still happily flourishing.

The *British Columbia Review,* of London, which by the way, is excellently well informed on matters British Columbian, has an article, in the issue of April 7th, on the subject of the opportunities at present afforded British investors for investment in local mining shares whose values, in consequence of labour troubles and industrial depression, are now selling at "a great deal less than the capital value of the ore in sight." As a suggestion, with proper modifications, the idea is a good one; whether it is likely to be acted upon is a different matter. The British investor generally and not unwisely fights shy of local mining companies. He has been badly bitten in West Australia, also, but not quite so badly, in the Transvaal, and he is therefore not likely to try the experiment in British Columbia. From the point of view of the British investor the local mining company is unsatisfactory, because it rarely, if ever, takes the trouble to notify its shareholders of what it proposes to do or of what is going on. In British Columbia we may have some laws regulating these things, but if we have they are not as a general rule very closely regarded. This shareholders on the spot, who therefore have an advantage over those many thousand miles away, know. Notwithstanding, the present condition of the local stock market does offer many good chances for legitimate investment, apart from mere speculation, to those who can choose judiciously and our contemporary has made a very promising selection in the mines it mentions.

One of the most sensational features in the B. C. market in London recently was the collapse of the Hall Mines, Ltd. This company has been making history rapidly lately, and has now entered upon the reconstruction stage in its career, the debenture and shareholders having approved the scheme put forward by the directors for extricating the concern from its present embarrassed position, and placing it in funds. The first step in this direction was taken on March 18, when the old board retired, and the following gentlemen took their places: Mr. St. Boulnois, Mr. D. H. Gibb, Mr. Chas. Harvey and Mr. Robert Ward. In this new board's hands was placed the task of formulating the scheme of reconstruction. This they have now done after having considered and not seen their way clear to accept the offer put forward by the Messrs. Blackstock. It is practically as follows, and having been approved by the debenture and preference shareholders was laid before the ordinary shareholders at a meeting which was held on April 12th: The new capital as proposed by the board is £325,000 in £1 shares, 250,000 of which has been offered to the existing ordinary shareholders credited with 15s. paid up thereon; 25,000 will be allowed to the existing preference shareholders, and 50,000 will be held in reserve in accordance with the new debenture trust deed. It is proposed that £50,000 6 per cent. debentures shall be created to take the place as the existing debenture debt. This scheme will give the company $62,500 of funds, and with a new and energetic board and free from debt it is hoped the company will give a better account of itself in the future. The shares recently were nominal at 1s. or so; but for the assessment of 5s. shows that some of those in a position to gauge the position consider that there is every reason to believe that the corner now has been turned.

Without an exception the reputable mining papers of the United States are cautioning their readers to take heed lest they catch the Cape Nome gold fever which is becoming epidemic. Our excellent contemporary, the *Mining Reporter*, of Denver, Colorado, has published many well-meant and strongly-worded warnings of which we extract a specimen. Says our contemporary: "One need not draw on his imagination to realize the truth contained in a warning letter written by Sam Kelso, a well-known miner of Esmeraldo County, Nevada, now at Cape Nome. Kelso advises people to stay away from that place and says, there are thousands of idle and penniless men there, crime is rampant, murder and robbery being of daily occurrence. The gaols and hospitals are full and nearly everybody is cursing the country."

But if an American miner can't make headway in the inhospitable region of Cape Nome, what would be the fate of the tenderfoot Englishman fresh from a London office or shop? In the first Klondike excitement many such unfortunates came and the trail swallowed them up. That was in British territory. In Cape Nome the hardship will be as great, so will be the cost of living, but furthermore, if there is available ground it is questionable whether the alien will be allowed to possess it. This is written because a London journal is publishing advertisements of the "Great Northern Railway of America." The advertisement is headed in black type: "The Golden Sand of Cape Nome," and these far distant and rocky shores are therein described as the "most remarkable placer mines the world has ever seen. The Klondike now takes second place." The Great Northern Railway, through their European agent, also offer to supply further information upon application, in the way of "illustrated printed matter." Judging from the sample submitted, such printed matter would make very fine fiction—infinitely stranger than truth.

The legislation now passing through the United States Congress and authorizing miners' law at Cape Nome, wherever such law does not conflict with the general laws of the United States, will afford another strong reason why British subjects had better as a rule keep away from that region. Miners' law as interpreted by Western Miners' Courts, will largely mean the rule of the strongest, if not the law of the mob, and that is not likely to favour British interests.

The Vancouver Board of Trade has on the representation of Mr. R. P. McLennan, a merchant who is largely interested in the Yukon, raised its voice in favour of a large reduction of the gold royalty and sent a representation to that effect to Ottawa. The Vancouver board agrees with Mr. McLennan, that the maximum royalty should,including assay fees, not exceed 2½ per cent, instead of amounting as now,

after allowing for certain deductions, to an average of well over 9 per cent. net. The increase that would be given to Yukon development and output by the lowering of the duty and consequent facilitation of the opening up and working of claims of medium grade and the lessening of present inducements to gold smuggling and other fraudulent evasions of duty would, it is thought with some reason, cause the considerable reduction of royalty urged to imply a much less diminution of aggregate Dominion Government receipts from the Yukon than the proposed rate of royalty reduction would at first sight seem to imply. There is undoubtedly a concensus of mining and commercial opinion to the effect that the present Yukon royalty is excessive and a bar to the speedy development of our northern gold country.

The success of the White Pass & Yukon Railway has enabled one English company, operating in British Columbia, to declare a splendid dividend for the latter half of 1899. The British Columbia Development Association, which helped to promote the railroad and obtained stock in that undertaking, disposed last year of its shares in the concern for no less than £21,569. As a result, the latest dividend of the British Columbia Development Association was one of 37½ per cent. to its shareholders and of 7,500 per cent. for the promoter holders of one hundred founders' shares of £1 each. These last each received £75. The Development Association has now returned to its shareholders 95 per cent of its capital of £20,000 and holdings in debentures, shares, a Skagway wharf, an hotel, and ranch at Cariboo and other assets a very large profit earning surplus over its capitalization. It is a pity for the sake of British Columbia that there are not a few more such successes amongst English organized companies. One cause of the prosperity of the British Columbia Development Association is the fact that its chairman, Mr. R. Byron Johnson, is a shrewd old-timer, now resident in London, who knows British Columbia well and is consequently able to take good care of his company's interests.

The exposures in connection with the Morris Catton companies, with which Messrs. Turner and Pooley so unfortunately allowed their names to be associated, and the collapse of the Tupper flotations emphasizes in a very striking measure the responsibility attaching to Ministers of the Crown or men of high official standing who lend their names and influence to speculative enterprises. Those who have endeavoured to prove that instead of deserving censure the ministers who have figured as directors of discredited or bankrupt mining and transport companies, are really entitled to commendation on the grounds that the means seemed to justify the end of assisting in the introduction of capital into the country, pay but a left-handed compliment to the abilities of the men they champion. Moreover, the well-meaning man is always objectionable. As a result of the recent exposures, however, it is reasonably safe to predict that for some time to come at any rate Canadian ministers will hesitate before taking similar chances of damaging their reputations by being found in company with such scoundrels as Mr. Morris Catton.

The current number of *La Revue Mineral Illustre*, a monthly issue published by the French Agency of British Columbia, Ltd, naturally gives special prominence, for the sake of French investor readers to elaborate descriptions of the operations of the Anglo-French Syndicate at Mansfield Camp, near Kaslo, where the syndicate owns and operates several gold-silver claims. Our contemporary speaks very highly—to use a mild expression—of the prospects of the Joker claim as a gold and silver producer and asserts that another of the Anglo-French Syndicate's properties—the Twin Lakes—ought to pay a dividend this year. But naturally the *Revue Mineral Illustre* will not fail to make the most and best of the British Columbia properties which belong to the owners of the paper, which is an excellently printed and well got-up little monthly.

The veto by the Dominion Government of the anti-alien placer mines legislation of British Columbia last session, merely anticipates a repealing measure which would certainly otherwise have been brought in and passed at the next session of the Provincial Legislature. The immediate effect, however, of the veto will be to encourage the development of placer mining in the Atlin district at the hands of American investors and mine workers this year.

It is interesting to note how Canada's production of refined copper last year—most of which came from this province compared with that of certain other well known copper-producing countries of the world. The Dominion in 1899 produced 6,730 long tons of the metal, as compared with Montana's output of 106,650 tons and with the remarkable yield of the world famous Calumet & Hecla mines of Montana which last year shipped no less than 41,000 tons. The famous Rio Tinto mines of Spain, with the management of which Mr. W. A. Carlyle, late of Rossland, is now connected, also made a splendid copper yield last year, the output being 34,370 tons. Moreover Canada's total yield of last year was on the other hand that of British South Africa, where copper producing mines in Cape Colony and Namaqualand together produced 6,490 tons, or slightly less than the Canadian output. Meanwhile Newfoundland, which is steadily increasing its copper output, gave a yield of 2,700 tons in 1899.

THE LATE MR. J. L. THOMSON.

(Specially Contributed.)

IN the last number of the *Engineering and Mining Journal* we note with sorrow the death of Mr. John L. Thomson, the well-known copper and nickel metallurgist, who died on April 4th last at Norfolk, Va., of pneumonia.

By Mr. Thomson's death the world loses one of that group of men who have, during the past twenty years, revolutionized copper smelting and who may be said to have originated the smelting of nickel on a large scale. The advancement made in these directions is due more to Mr. Thomson's strong practical sense and experience than to anything else.

Mr. Thomson was born in Glasgow, Scotland, and was there associated with Mr. Thomas Gibb in the treatment of copper ores by the "Henderson" wet process. In 1785 he came to Canada as assistant to his brother, George Thomson, then in charge of the copper mines and smelting works at Copletan, some ten miles from Sherbrooke, Que. Later he moved with his brother to the Huntingdon copper mines at Dillonton, Que.

In 1879, when Messrs. W. E. C. Eastis, H. M. Howe and R. M. Thompson, of Boston, in conjunction with Major R. G. Leckee (now in charge of the Sudbury nickel miles) formed the Orford Nickel and Copper Company to work the nickel deposits of Orford County, Que., and the Crown Copper Mine of Copletan, Mr. Thomson was engaged as superintendent. It was during the following year, 1880, that the Orford Company, under Henry M. Howe as engineer and Mr. Thomson as superintendent, produced the Orford ratchet blast furnace for smelting copper ores.

Prior to that time the output of the small square or round copper blast furnace universally in use had not exceeded 40 to 50 tons per day but, under Mr. Thomson's management, the new furnace soon had records of 100 to 150 tons per day. This radical change from a square or round furnace of four feet in diameter in the shaft to a furnace having a rectangular shaft 3x11 feet inside was the turning point in the history of copper smelting and made the Orford Company famous the world over.

The idea once started, other metallurgists followed it out until as much as 300 tons of copper ore per day have been regularly run through one furnace and the end is not yet.

The brick walls of the old Orford furnace, chilled by means of water pipes built in, have given way to the water-jacketed walls of the modern copper smelter in metallurgy.

About 1881 Mr. Thomson was moved to New York, where he assumed the superintendence of copper works which the Orford Company had built there the previous year.

In 1883 Mr. Thomson went to Bute, Montana, having charge there of the Garrat smelter, one of the pioneer smelters of that great camp. Here he became associated with W. A. Clark, now the multi-millionaire United States Senator, and was instrumental in obtaining for that gentleman the United Verde copper mines, the source of the Clark millions.

Mr. Thomson later returned to the Orford Company as superintendent in New York and, while in this capacity, he devised the Thomson (patented) process for the smelting of nickel, thus rendering available and enabling the Orford Company to treat the magnificent deposits of nickel ore at Sudbury, Ontario, and at the same time giving to this company the command of the nickel markets of the world.

The influence Mr. Thomson has had on the smelting practice of this continent may be seen in the foregoing and that Canada and especially British Columbia have been directly influenced by his life's work is indicated by the fact that among those who have acted as his assistants and profited by his sound practical sense are Mr. W. F. Robertson, the Provincial Mineralogist; Mr. Robt. R. Hedley, Superintendent of the Hall Mines smelter; Mr. Thos. Kiddie, Superintendent of Van Anda smelter; Mr. Paul Johnson, Superintendent of Greenwood smelter; Mr. J. E. Leckie, M.E., of Rossland and others.

VERBATIM EVIDENCE IN THE IRON MASK-CENTRE STAR LITIGATION.

HAVING been requested by many of our readers throughout the Province to publish in these columns a verbatim report of the evidence in the Iron Mask-Centre Star litigation, Mr. H. F. Evans, our Rossland correspondent, was enabled through the kindness of Mr. J. B. Hastings to carry out our instructions to copy the official report of the proceedings and evidence taken, and which are in consequence enabled to publish in serial form.

(Continuation of Counsel's Argument, from last month's issue.)

Mr. Davis—Your Lordship will see by the time we open just what the real issues are. I do not think we shall disagree very much as to what the real issues are.

The Court—Yes, your title is disputed.

Mr. Davis—As I said, when we got down to the bottom of this winze, he again met the top of the so-called flat fault which runs across there. The Iron Mask people again applied for an injunction on the ground that this so-called flat fault destroyed the continuity of the vein, claiming again that that flat fault, as they called it, was of such a nature as to destroy—necessarily destroy—the continuity of any and all veins that it encountered on the further ground which they then raised for almost the first time—at any rate a ground which had not been raised in the application for the first injunction—that we had not anything in the No. 3 shaft anyhow, and that we had not any apex on Centre Star ground.

The Court—What is No. 3?

Mr. Davis—What is the No. 3.

The Court—That No. 3 is familiarly known between you as the inclined shaft.

Mr. Davis—The inclined shaft. The form of that injunction was very general, and really covers the whole ground in dispute in this action, or ground of dispute, rather, I should say, outside of the question of damages. The form of that injunction, is such as to prevent us anywhere crossing this so-called flat fault, and the injunction is worded in a very proper way, following the argument advanced by the other side. They said the flat fault cuts you off, not only cuts you off but cuts off any and every vein it goes through, therefore, even if you have a vein above that flat fault you ought not to be allowed to pass through that flat fault and they got an injunction from the Court on those terms. Now, there are several issues, as my learned friend pointed out to you the other day, in connection with this question. Of course, I am only referring now to the mining part of the suit. But there are, I think, only three that your Lordship need pay any attention to, because there are only three which I think my learned friend will press seriously or that there is any ground of contention at all. The others, I think, are more formal, that is as to the course of the Centre Star vein as to where it crosses the boundary lines of the Centre Star claim. Those three are: Is there an apex of a vein on the Centre Star ground at the post where we claim it? The second is: Is there a vein continuing down from that apex (assuming there is an apex) continuously into and through Iron Mask ground, or as it was put in the affidavits, is there a continuous vein, or any vein whatever in the No. 3, that is the inclined shaft? The third point is: Assuming the apex and the vein is that vein as all other veins which meet the flat fault cut off entirely, and is its continuity destroyed by the so-called flat fault? These are really, I think, the three fighting points in the—

The Court—Case.

Mr. Davis—The mining branch of the case, the case outside of these questions of title. The only other question in the case, which will not take up any time at all is the question of damages. It will probably clear up that matter, if I refer at the present time

to the fact that there are disputes arising, so far as the pleadings show on both sides of this natural fault or vertical dyke, the one which comes down here. The injunction does not apply to that. We never tried to cross the vertical dyke, but a large portion of the damages are involved in the west side, what we may call the west side, and right outside of the claim for damages which arises on the west side, is entirely on the east side of that dyke, and I will speak of the two sides as the west side and the east side.

The Court—I suppose there had been ore taken out of No. 3 shaft.

Mr. Davis—Well, they say there is no vein there, so I do not suppose they will attach any very great importance to the ore taken out of that shaft. On the west side there was some ore taken by Durant, the manager of the Centre Star Company, as we have admitted in the statement at station 66. That is the point I have my stick on at the present time, and that is the only point in dispute here so far as the west side is concerned. Because, so far as following the vein down is concerned, we are not trying—have not tried —to cross the vertical dyke— are not trying to. We may in the future, probably will, follow down from the War Eagle because this vein, the north fork of the War Eagle, runs over into War Eagle ground, and we will come down from that side and therefore will not raise any question about the effect of the large vertical dyke. So far as the damages are concerned for the ore that we have taken from station 66, our witnesses have examined that ground carefully—have examined where that ore was taken from, and they have given it to us as their opinion that that ore under no circumstances came from the Centre Star mine. That is their opinion that that ore came from the undisputed Iron Mask vein and when they are on the witness stand they will frankly and candidly tell your Lordship that that is the opinion which they arrived at so that so far as the west side is concerned we can put it out of the question atogether in this action. The only claim with reference to that being as to this ore which was taken, which on examination we find to be ore which belongs, in their opinion, to the Iron Mask. Of course, if more development work was done there might be some question, but at the present stage they are not willing to go on the witness stand and say that they think that ore did not come from the Iron Mask vein, so that that cuts the west side out of the case.

The Court—Has this ore been preserved?

Mr. Davis—There are four or five car loads which were taken from there, and we have given the other side a statement of the amount of value of that ore, which we read to your Lordship a moment ago.

The Court—But it is all preserved, is it?

Mr. Davis—Oh, it has gone to the smelter.

The Court—I suppose specimens were kept of it?

Mr. Davis—We have given him a statement of the smelter returns; there will be no dispute about that part of it we think. We do not want any of their ore, if it is their ore. This is a very trifling part of this action. The main question in issue—the only question we are interested in—is the question of whether or not, as I said before, we have a vein with an apex in Centre Star ground, which passes down from the Centre Star ground into Iron Mask ground, which continues on down in an unbroken sheet and is not cut off or has not its continuity destroyed by this so-called flat fault. That is the thing which is of importance.

Mr. Bodwell—You do not go west of it?

Mr. Davis—So far as this action is concerned, we are not concerned with, and shall not put in evidence respecting the west side of the fault. As I said before, the only claim is the question of damage at point 66, and we have satisfied ourselves that the ore which was taken from 66 came from the Iron Mask vein and so far as following down on the vein itself, that may be a question for the War Eagle in the future, but we are not raising it here.

The Court—You concede, Mr. Davis, then, as to the damages with respect to that ore taken from the west side of the vertical fault. You throw up?

Mr. Davis—Yes, my Lord.

The Court—You surrender what you got?

Mr. Davis—Yes, we are not here to try to prove anything which we do not fairly believe to be so, and our witnesses have satisfied themselves with reference to that. There has been, I might say, a great deal more development work done there by Iron Mask people, which throws a great deal more light on the subject, puts it in a very different position from what it was at the time Durant took the ore. Of course, he took it honestly enough, fully believing that it belonged to the Centre Star vein; and I might say just here that so far as these damages are concerned, the defendants Gooderham and Blackstock have nothing whatever to do with it. We committed no trespass, as your Lordship will remember, looking back at the evidence which my learned friend has put in. There was no evidence whatever that Gooderham and Blackstock have been guilty of any trespass. Whatever trespass took place, if any, took place prior to Gooderham and Blackstock's purchase, and we are on the part of the Centre Star Company. I might say that Gooderham and Blackstock purchased pending the litigation—they bought this last summer. They added by counsel, because, in the first place, my learned friend wished to have them bound by the injunction as it stood, and in the second place, because we wished to be in a position to have that injunction removed, and to be able to go on down this inclined shaft in the winze, in other words, follow our vein down here on its dip as we claim we are entitled to do under the law.

Now that statement clears the way this far. It shows that the fight in the present case is all as to whether or not we have a vein between No. 2 and No. 3, and whether that vein is cut off by the alleged flat fault. It is a very simple proposition, and the evidence will, I think, be very clear on that point to your Lordship. I will give your Lordship a slight sketch of what the evidence will be. We shall prove in the first place by all our witnesses that between No. 2 and No. 3 shafts there is an apex practically continuous, that there is an apex not merely of iron cap as has been suggested, but an apex on the surface, that is an outcrop, showing iron pyrites and chalcopyrrhotite on apex or out-cropping, in short, such is very seldom found in this camp, a broad apex, showing conclusively a broad vein. How broad, of course, cannot be told from the out-cropping itself, because it does not run back to the walls, that is, the exterior walls of the vein. We will prove that apex beyond all question. I think I am perfectly safe in saying that. In the next place we will prove that the vein in the inclined shaft following down from the apex 320 feet to the cross fissure, which has been called the flat fault is continuous beyond all question.

(To be continued.)

THE ATLIN DISTRICT.

RESULT OF LAST SEASON'S WORK AND THE PROSPECTS FOR THE FUTURE.

(By Wm. Baillie.)

IT is estimated that last summer there was a population of between 6,000 and 8,000 people in the Atlin district. A year previously, the district was wholly unknown, though not many miles from it, tens of thousands of people were coming and going over the dreary trail to the mining fields of the Klondike. In the spring of 1898, a party of three or four prospectors, the chief of whom was Fritz Miller, now well known as the first discoverer of placer gold in the Atlin district, went in from Juneau. They returned with the tidings of their discovery during the summer, and immediately chiefly from the ranks of the men employed on the construction of the White Pass and Yukon Railway, there was a stampede of many hundreds of people to the new gold fields, and as the area of the placers was found to be extensive, none of them had difficulty in locating and recording claims for themselves. But they came in at the tail of the season, and winter closed in on them before they had an opportunity to attempt much in the way of actual gold getting. Still, in the shallower diggings, enough had been done to give great promise of wealth to the lucky claim holders when the grip of winter should be loosened by the sunshine of the coming summer. The gold production of 1898 is variously given at figures somewhat below $100,000.

Atlin—Scene on Tramway, two miles long, connecting Taku Arm with Atlin Lake, to be replaced this Year by a Railway.

Atlin—Commodore John Irving's Steamer, The "Gleaner," plying between Bennett and Taku City.

Meanwhile the news of the Atlin discoveries had reached the capital of the Province at Victoria and thence with marvellous rapidity had spread the world over. As usual in such cases the reports were frightfully exaggerated, and Atlin was heralded as a gold field equalling and outstripping the great Klondike. It may be said at the outset that while Atlin, as shown by the extensive mining operations of 1899, cannot be compared in point of richness as a placer field for the operations of poor men in the way of panning, rocking and sluicing, with the Klondike, it still has been demonstrated to be a mining district of very extraordinary interest and importance. Nor is its import-

ance confined by any means wholly to the richness of its alluvial deposits, for its quartz lodes promise to be of equal or possibly greater value.

The Government of British Columbia, with commendable promptitude, as soon as the news of the unknown, though not many miles from it, tens of thousands of people were coming and going over the Atlin discoveries came to hand, set energetically to work to arrange for the proper administration and organization of the district. The original discoverers were under the impression that Atlin was north of the 60th parallel of latitude, and therefore in the Northwest Territories of the Dominion. But a survey quickly determined the error, showing that the discovery claim was from 15 to 20 miles to the south of the 60th parallel, well within the boundaries of the Province of British Columbia. The Government immediately appointed a Gold Commissioner, Mining Recorder and other officials for the new district, laid out the townsite of Atlin at the mouth of Pine Creek on the eastern shore of Atlin, and established the Government recording office at that point.

cut in some sixty odd miles from Log Cabin, a point on the White Pass & Yukon Railway then under

Atlin—A Mule Train on the road to the Mines in Early May.

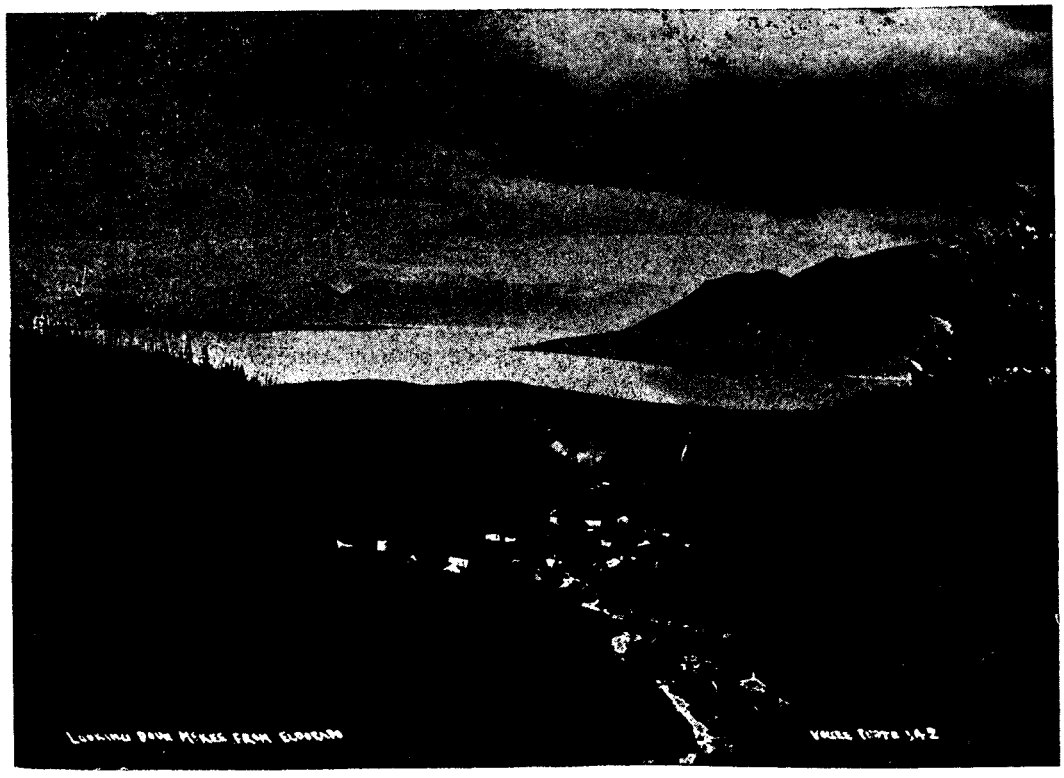
Atlin—A View of the Lake and Mountains opposite Atlin City.

In the fall of 1898, provisions were naturally very scarce and correspondingly dear, so that the great majority of the miners came out to winter at the Coast cities. As soon, however, as the cold weather had frozen the lakes over solidly, and a trail had been

construction, the tide of humanity again began to surge into the Atlin district, and the population continued to increase well on into the spring and summer months. The influx of miners and others to the new gold fields, it is believed by many, would have

Atlin—Stampede to New Discovery at Sucker Lake—Broad Daylight at 1:30 a.m.

been doubled and possibly tripled had it not been for the enactment by the Provincial Legislature of the now famous so-called Alien Exclusion Act which prevented any but British subjects from acquiring placer claims in British Columbia. On account of this law thousands of American miners, who had heard of the Atlin placers were rudely prevented from going in and many who had already made their way in over the



Atlin—A View of the Lake and Mountains opposite Atlin City.

inhospitable trails of that bleak country to the north suddenly found the object of their journey removed and consequently were obliged to retrace their steps indignantly proclaiming against the "perfidious Britisher" and relating stories of privations and kudos sadly diminisned. I shall pass no word of censure on the Legislature in this matter for the enactment proceeded from patriotic motives, but the sadly disappointed Americans have my fullest sympathy; and that the Act was a mistake is now generally recognized and fully confessed by the introduction by the Government at the last session of a measure to repeal in toto the Alien Exclusion law of last year.

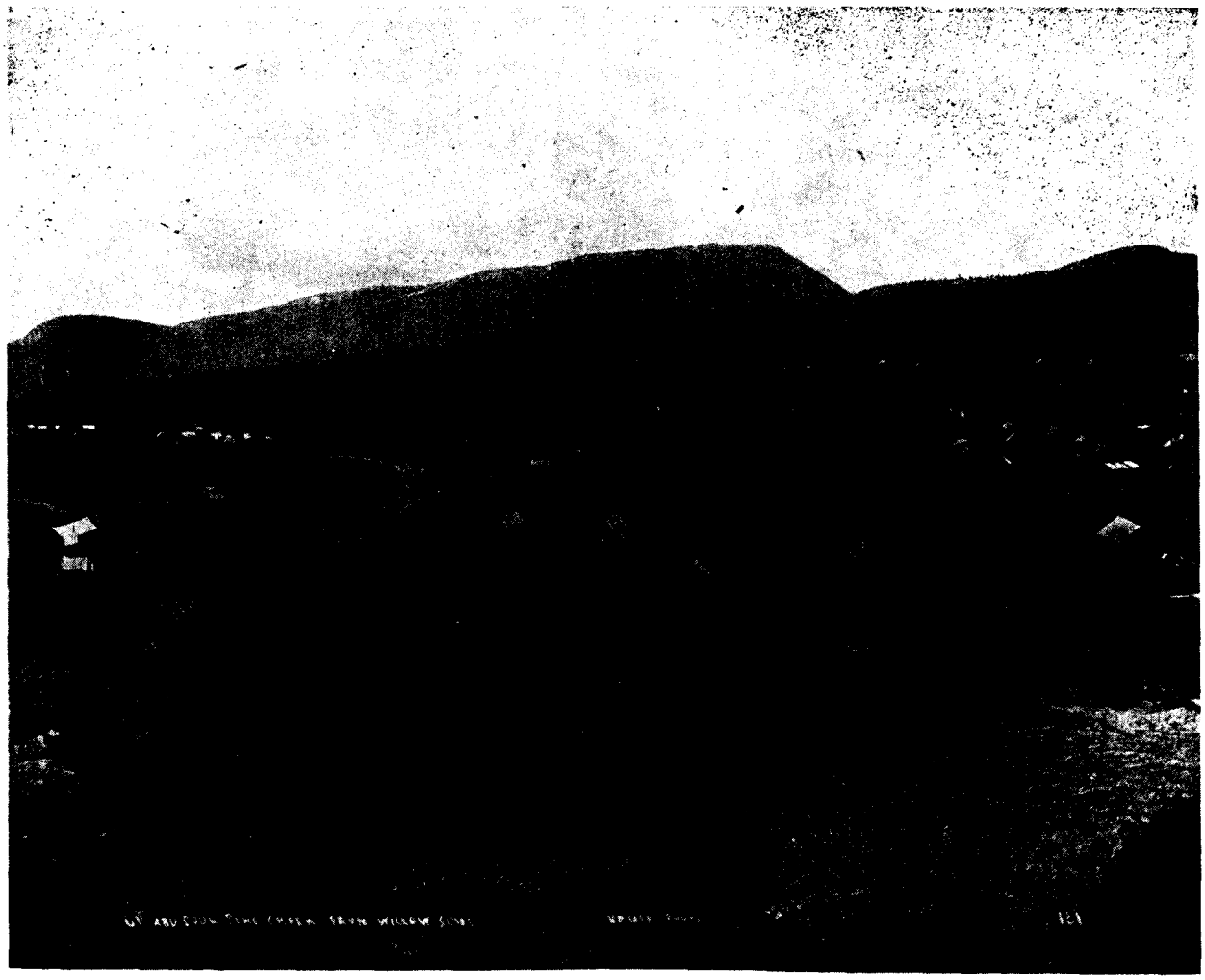
Early in the month of May of last year the Government held an auction sale of the lots on the townsite, and about twenty-five thousand dollars' worth of town property was thus disposed of The inhabitants up to this time had been mainly living under canvas, as indeed many continued to do up to the end of the season, but the acquisition of the lots by private owners gave an impetus to building operations which resulted in the erection of a number of substantial and commodious, not to say handsome, structures—shops, banking buildings, residences, etc., and this notwithstanding that lumber of a very inferior quality was only obtainable at the enormous price of $100 and more per 1,000 feet. The most pretentious building in the youthful "city" is that of the Merchants' Bank of Halifax, which occupies a prominent corner on the main business streeet, and would be an object of note in many older and larger towns. The Bank of British North America and the Canadian Bank of Commerce also have had commodious buildings erected for their accommodation—a fact that speaks volumes for the faith these three great financial institutions have in the future mining activities and productiveness of Atlin district.

Nothing—in British Columbia, at all events—can exceed the scenic beauty of Atlin and its surroundings. The illustrations herewith given will attest this fact, and when to beauty of location is added a summer climate of almost matchless perfection—clear, sunny weather, the brilliant deciduous foliage of the poplar groves surrounding, the air charged with the perfume of flowers of a thousand different kinds—it will be seen that in our "barren north," as it has been improperly termed, there are compensations which its inhabitants enjoy for the drawbacks of an isolated and remote place of residence. On the main street of Atlin City,—well planked on either side for several blocks, are the business places of greater or lesser importance, and some of the most substantial and most extensive commercial concerns of the Province—such as the British America Corporation, Thos. Dunn & Co., McLennan & McFeely, Parsons Produce Company, and others of the large Coast firms—are represented here.

Atlin—The Busiest Scene in the Camp Last Summer where some thousands of Ounces of Gold were taken out.

But to the main purpose of this writing—the mining. There is no possibility of telling accurately the amount of gold won from the placers of Atlin up to date. The Government exacts—or is supposed to exact—a royalty of one per cent. of the gold taken out by miners, and if this royalty were always duly collected there would be no difficulty in arriving at the actual amount of gold won. But as a matter of fact it is generally conceded, and I am of the same opinion, that the royalty has not been paid on one-half the output. Many miners, like many other people, adjudge it no sin to elude the tax collector, and it is so easy for a man washing gravel on a creek in a

mountain fastness to obscure, so to speak, the success of his operations, and the temptation to "tumble to the racket," so great that he very generally doth "tumble." But still, last year, the Government records at Atlin show that the royalty was paid on about $468,000. People familiar with the operations at Atlin during last year compute the total output at from $1,200,000 to $1,600,000. This is a very considerable amount for a new camp, and places Atlin district easily in the foremost place among the alluvial gold producing districts of British Columbia. But this result would have been greatly enhanced had it not been for the unfortunate muddle that took place in the mining records, which completely blocked the



Atlin—This Photo Illustrates the Lower End of the Most Productive Workings in the Camp, Pine Creek, below Willow.

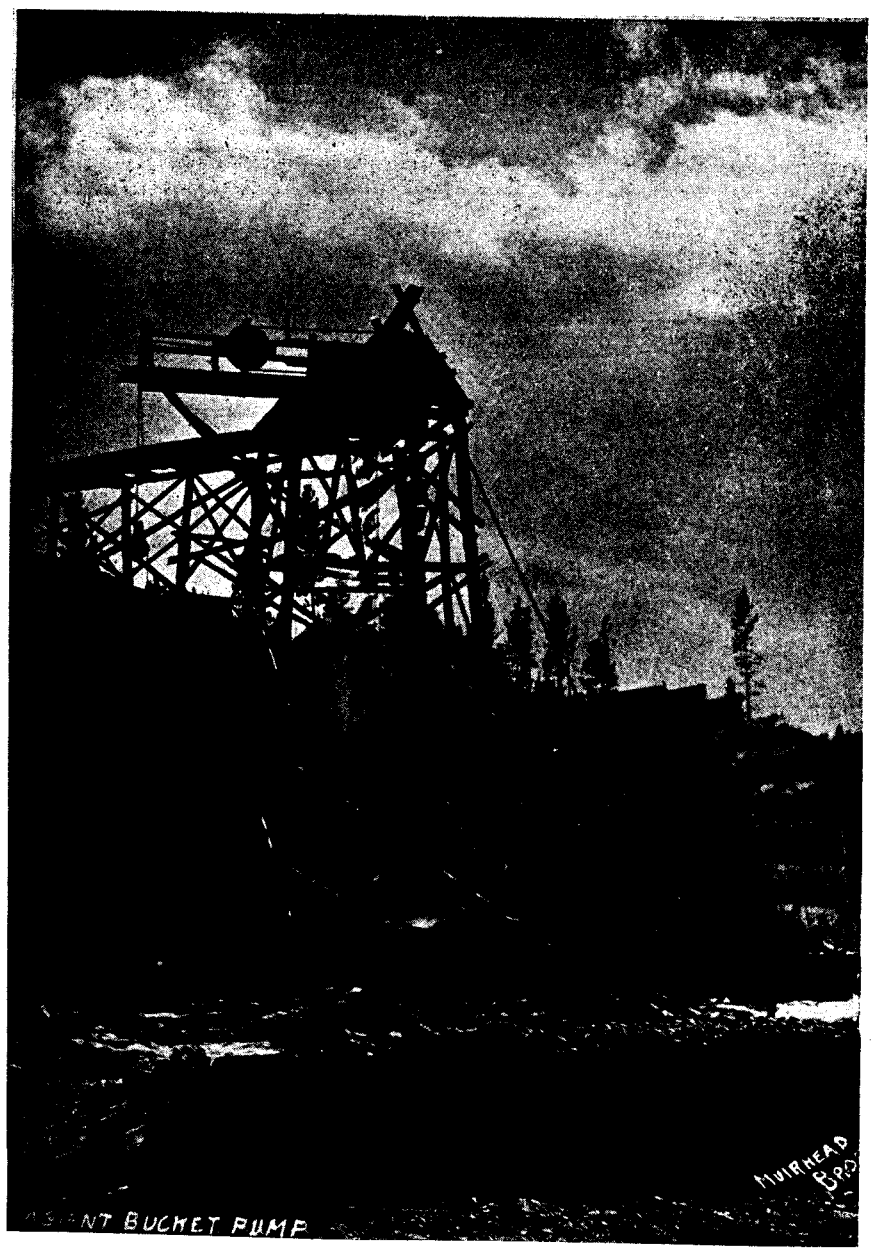
majority of the claims being worked, up to the first of August, by which time the bulk of the season's work should have been completed instead of being just begun. There were two principal causes leading up to this unfortunate state of affairs,which practically paralyzed the operations of the camp for so long a time, and drove out of the country hundreds of miners who otherwise would have been active producers. In the first place many hundreds of claims were staked and recorded at the outset under the misapprehension that the Atlin district was in the Northwest Territories. In the Territories the size of claims allowed is 250 feet, while in British Columbia the miner is permitted only 100 feet. Next, the passage of the Alien Exclusion Act raised a doubt in the public mind (though it should not have done so) as to the title of aliens to claims that had been staked even before the Exclusion Act was passed. The result was that there was wholesale "jumping" of claims. In order to settle the disputes thus arising the Government commissioned a justice of the Supreme Court to proceed to Atlin, and invested him with wide powers to deal with the difficulty. But in the meantime the claims could not be worked, and it was the 1st of August before the tangle was straightened and the rights of the various claimants established. Thus only about six weeks of real work was done on the great majority of the claims last year, and the amount of gold produced during that time is certainly very encouraging.

Some of my illustrations will show the character of the operations, and give an idea, too, of the work accomplished by the miners at several points on the various creeks. The busiest point during the season was at Discovery on Pine Creek, about eight miles from Atlin City, and in one photograph will be noticed the many long lines of sluice boxes that were here put in, also the numerous devices employed in raising the water either out of the trenches back to the creek, or up to sluice boxes on higher levels. There

were many hundreds of miners at work on the claims above and below Discovery for a mile or more on either side. Adjacent to Discovery a spur of rock cuts into the river channel, and has been named Nugget Point on account of the very coarse gold and the many large-sized nuggets that were taken out there, the peculiar nature of the eddy in the stream doubtless lending itself to the ready deposit of the larger chunks of metal at that place. It may here be noted that the gold of the Atlin gravels generally is all of the "coarse" variety, there being extremely little if any "flour" gold.

Just above Nugget Point, the small stream called Willow Creek flows into Pine, and the indications are abundant that the rich deposits of gold found on the richest of the Pine Creek claims (which lie immediately below the point where Willow Creek flows into Pine) have been brought down through the channel of Willow Creek. During the summer months Willow Creek carries only a small volume of water, in fact, it becomes almost dried up, so that some other source of supply had to be tapped. First a large flume was put in to tap a series of small lakes a mile or two distant, but the supply here, as the season wore on, also practically gave out, and the miners thereupon cooperated in the making of a considerable ditch which tapped Pine Creek at a point perhaps a couple of miles up stream. This gave the Willow Creek operations a plentiful water supply; but the season was then already nearing a close. The diggings on Willow Creek have proved very productive, but they are deep, from eight to twelve feet and more, and even then practically nowhere is bedrock touched. The gold is mostly found on a substratum of greenish-blue clay; it is exceedingly coarse, and of a very high assay value. Some two or three miles farther up Pine Creek Birch Creek flows in from the north. Many claims have been staked on this creek and a large quantity of gold taken out. The diggings are deep, however, and operations are a good deal hampered by the many large boulders encountered.

Pine Creek has its source in Surprise Lake, about six miles above Discovery. This lake is some sixteen miles long by three or four in width and flanked on either side by moderately high and precipitous mountains. Into this lake on either side flow a dozen or more streams of varying sizes, and all carrying gold in more or less abundance in the gravels forming their beds and banks. Chief among these are Boulder and Ruby Creeks, flowing in from the north, and Otter and Wright Creeks coming in from the south. Of the other creeks on the south side may be mentioned Union, Horse, Quartz and Hemlock. On Boulder Creek a good deal of work was done last summer with results in many cases quite satisfactory to the miners. The work, however, is greatly impeded by the many boulders from which the creek takes its name. Wright is the principal creek on the south side, and the large amount of work done there, together with the returns, show that while the diggings are deep and therefore not as remunerative as they would otherwise be, they would prove extremely productive if worked by some system of hydraulicing that would obviate the great costliness of operating with ordinary sluice boxes. Otter Creek last summer also had the attention of a large number of miners, with varying success, and Left, Centre and Topaz Creeks, which are short tributaries of Otter, were the scene of the exertions of many miners.



Atlin—Device for Elevating Water from Pine Creek to the Bench above—Scene opp. Pine City.

The most important confluent of Pine Creek is Spruce, whose waters mingle with those of the larger stream some three miles from the mouth of Pine at Atlin Lake. Spruce is upwards of 20 miles in length and carries during the whole season an ample supply of water. Some hundreds of miners were at work on this stream last summer and many thousands of dollars' worth of the precious metal was taken out.

The only other gold-producing stream of any great importance in the district is McKee Creek, which empties into Atlin Lake from the east at a point about 12 miles south of Atlin City. Some very successful mining was done on this creek last year, the aggregate gold winnings being computed at from $75,000 to $100,000. But it has really only begun to be worked, and preparations are being made to renew operations the coming year on a very much larger scale.

The result of operations in the Atlin district during the past two years has demonstrated: (1) That there is much gold disseminated through the immense and widely-spread gravel deposits of the district; (2) that the diggings are mainly deep diggings, and therefore for the greater part not likely to be highly profitable if worked by the expensive process of ordinary sluicing; and (3) that by the introduction of powerful hydraulic plants great success is alone possible. Almost every one of the creeks which I have described above is flanked at numerous places by immense gravel banks, all of them auriferous. There is abundance of water to be obtained almost everywhere, and I can scarcely conceive of a more alluring field than this for hydraulic operations on a large scale. Many leases of large areas of ground have been obtained from the Government, and the initial work of several large companies is to be begun during the coming summer.

Two or three of those I have learned of may be mentioned. A leasehold of pretty nearly 1,000 acres has been obtained at the junction of Spruce and Pine Creeks. This property is now under bond to the British America Corporation, and during last year some prospecting was done on the ground to determine its value, resulting, I am told, very satisfactorily. Another large leasehold was obtained on Boulder Creek, and has been bonded to M. Emil Jaune Delamarre, a Parisian investor, who is also interested in other Atlin properties, and who has made in France the necessary financial arrangements to begin operations the coming summer. On McKee Creek there has been formed a combination of many of the placer claim owners, and the preparatory work is now proceeding to work the whole of the claims and some of the adjacent benches by means of an hydraulic plant of large dimensions. At Willow Creek an extremely promising series of hydraulic leases have been taken out, and these, too, it is reported, will be extensively worked. Wright Creek is one whose configuration lends itself well to hydraulic mining and I learn that this winter preparations are being made to instal a plant at an early day.

Atlin—Looking up Pine Creek towards Discovery.

But these are only a few of the projects on foot, and within a very short period the possibilities of the field from the point of view of the hydraulic miner will be known. Meanwhile, in my opinion, the opportunities are very promising, for it would take many years to work out the enormous deposits of the Atlin gold-bearing gravel.

I have already remarked that Atlin is a promising field for lode mining. During the past summer I

visited most of the "prospects" that had been discovered, and there certainly are enough indications on which to build very strong hopes for Atlin's future in the production of ores. Early last year there appeared in Atlin one "Sailor Bill," otherwise known as Mr. W. J. Partridge, who is reported, or who at all events gives himself the credit of having been a partner of the famous Barney Barnato, the South African promoter. Sailor Bill looked about for some weeks and obtained an option on a number of mineral claims that had been staked in the immediate vicinity of Atlin City—indeed, a part of the property is within the city boundaries. The ledge, an enormous one some 300 or 400 feet wide, was reported to carry from $6.00 to $8.00 per ton in free gold, and as there were many many millions of tons of ore in sight, it is not to be wondered at that when Mr. Partridge shortly afterwards repaired to London with his options he was not long in exciting the interest of capitalists. He came back to Atlin in September, accompanied by Lord Ernest Hamilton (a London promoter of mining and other concerns), who brought with him an expert to examine the property. Sailor Bill's representations as to the average value of the rock on the surface, it may be said, did not prove to be strictly accurate, but nevertheless there was sufficient merit in the property to induce Lord Hamilton to pay the owners of fourteen of the claims $10,000 for their interests, together with a farther stipulation that if on investigation the property should prove valuable enough to justify its flotation, the vendors should be given 20 per cent. of the whole stock issue of the company, fully paid up. It was a fair and favourable arrangement for all concerned, and the work of prospecting by tunnelling has been proceeding ever since. In a recent issue of the MINING RECORD was given the results so far as the prospecting has gone, and I think I cannot do better than repeat here the naturally conservative view of the property given by the engineer in charge. He says:

"In the neighbourhood of Atlin City the country rock is much metamorphosed and is probably an altered gabbro, much serpentised. Enclosed in this are immense areas of altered rock, or quartzose dikes showing great secondary action, and this appears to be generally more or less auriferous. My investigations demonstrated the rock itself to run about $1.00 or rather less; while in the joint planes and fissures one frequently finds high-grade free-milling gold ore. What the future of lode mining in Atlin may be, no one can at present foretell. But if the average values prove sufficiently high for profitable treatment then great things may be expected. We have, meanwhile, felt that taking all the facts into account, there is in Atlin a considerable area of ground worth prospecting, and that in certain areas or zones values might be sufficiently concentrated to be payable. This seems to have been borne out by work last year, so far as we have information. Of two prospecting drifts one has shown no values higher than $2.20, while in the other the ore averages $4.00 and is improving in grade. The ore is easily treated and by open cast working upon a large scale the cost would not be over $2.00 per ton."

Atlin—"French Joe's Claim on Spruce Creek, which Yielded Handsomely.

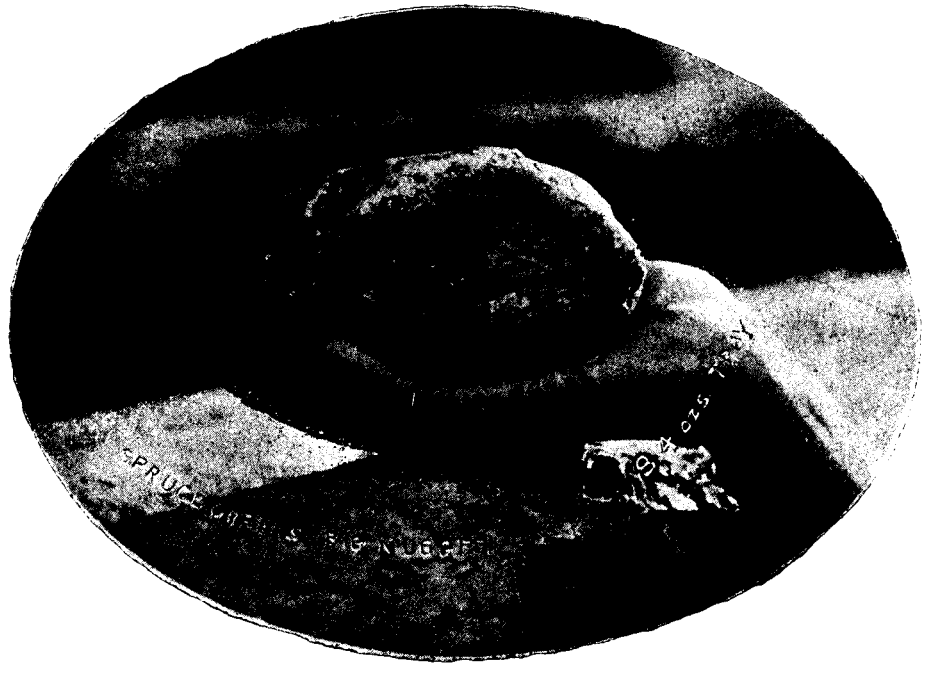
In connection with the above, it may be said that should the character of the material contained in leads being prospected by Lord Hamilton prove to be "pay rock", it will be a very big thing for Atlin, for there are large croppings of what appears to be and no doubt is exactly similar ore.

The rocks of the Pine Creek valley are for the greater part the typical Cariboo schists varying from black to bluish shale to a foliated gray or greenish chloritic or talcose schist. There are many quartz seams in evidence, and some of them, notably at Willow Creek and on the shore of Surprise Lake, show pure white samples well-flecked with gold, but the

Atlin—Sluicing on Pine Creek, Nov. 30th, 1899.

extent or average value of any of the seams has not yet been determined by the actual work of prospecting.

Indian River, or Fourth of July Creek, as it is sometimes called, flows into Atlin Lake from the East at a point some miles north of Atlin City. On

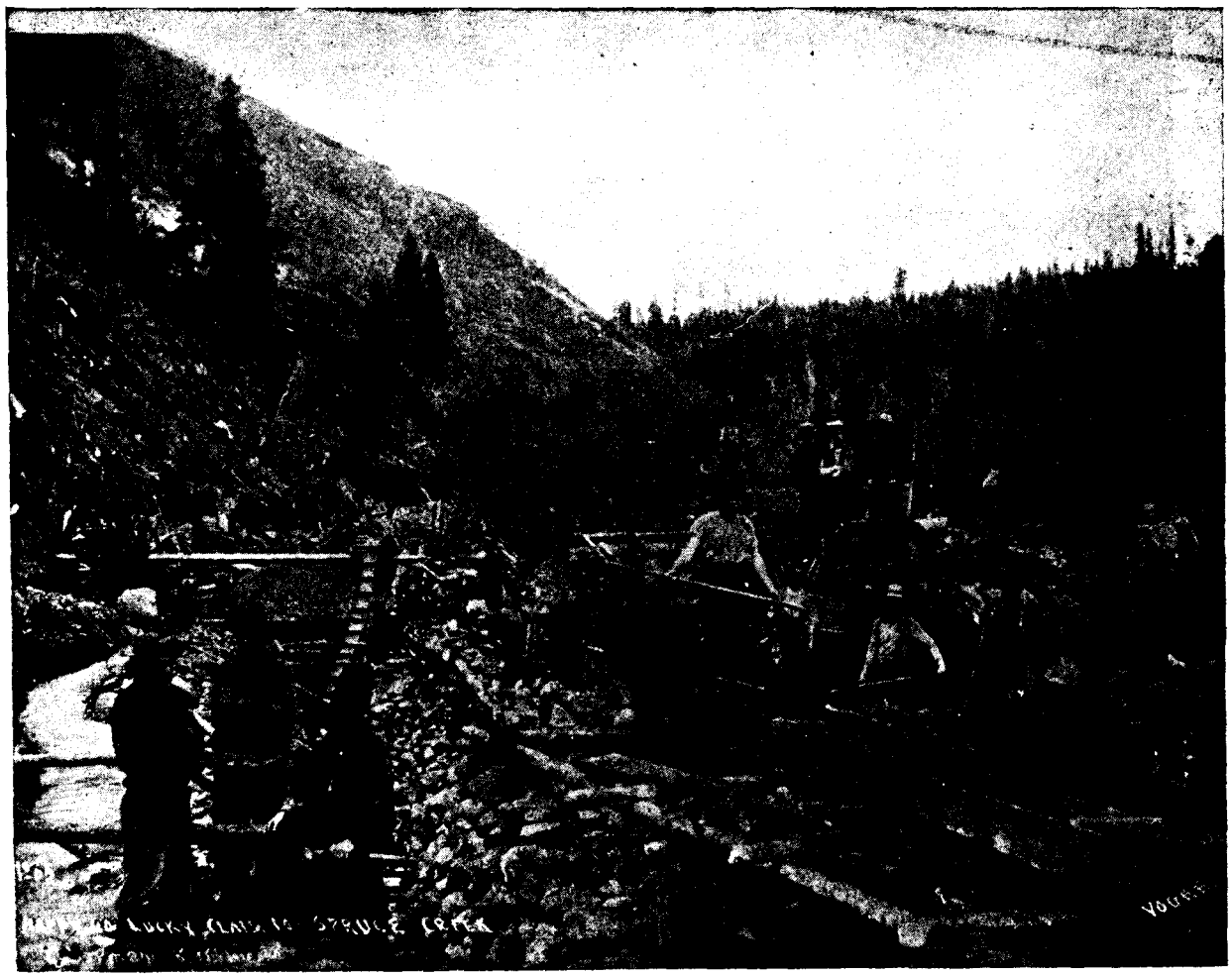


Atlin—Monster Nugget Picked up on Spruce Creek, 84 oz. Troy.

Atlin—No. 1 Claim of the Famous Willow Creek Series, a rich bit of Ground.

this creek, about 12 or 15 miles from its mouth, a heavy ledge of galena has been discovered. The ore is rather dull in colour, showing the steel fracture, and assays giving as high as 85 ozs. silver to the ton with

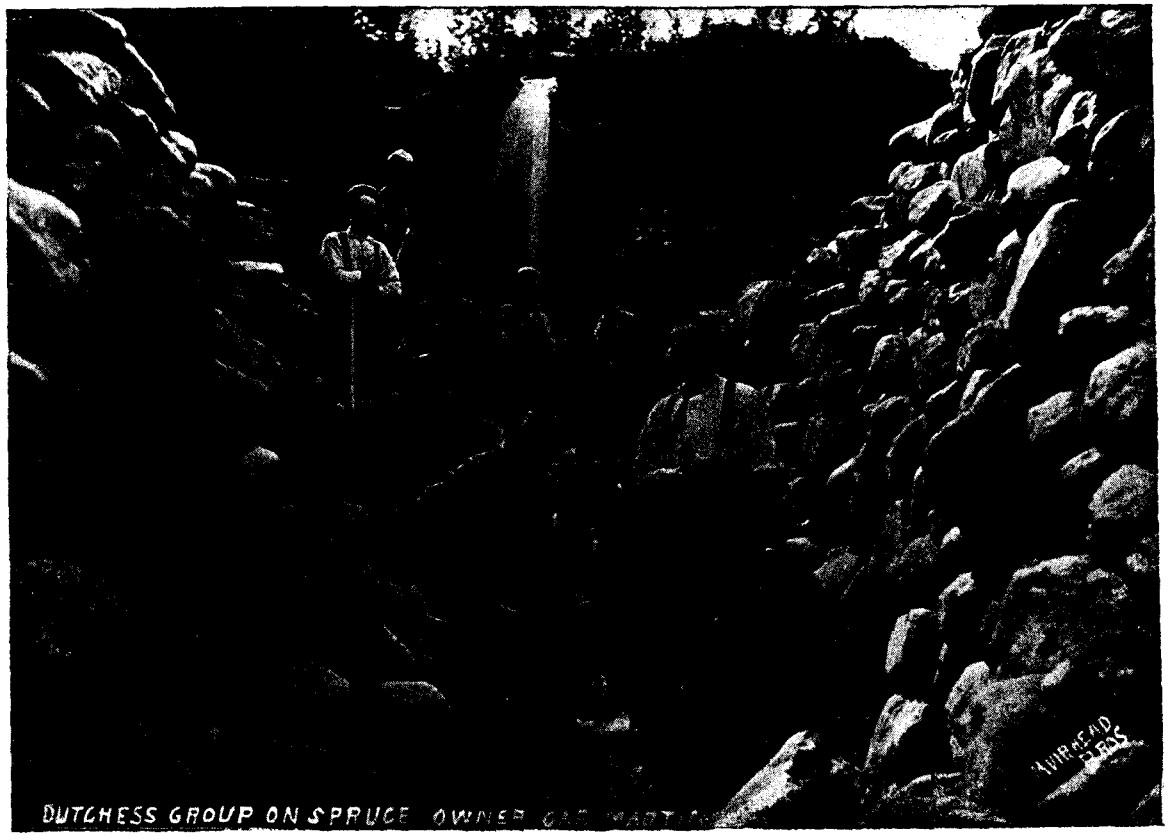
Atlin—The Lucky Miner has just picked up the Big Nugget shown in the Preceding Illustration.



Atlin—Lieberman & Willison's Claim on Spruce Creek showing Waterwheel and Device for Raising Water from Trenches.

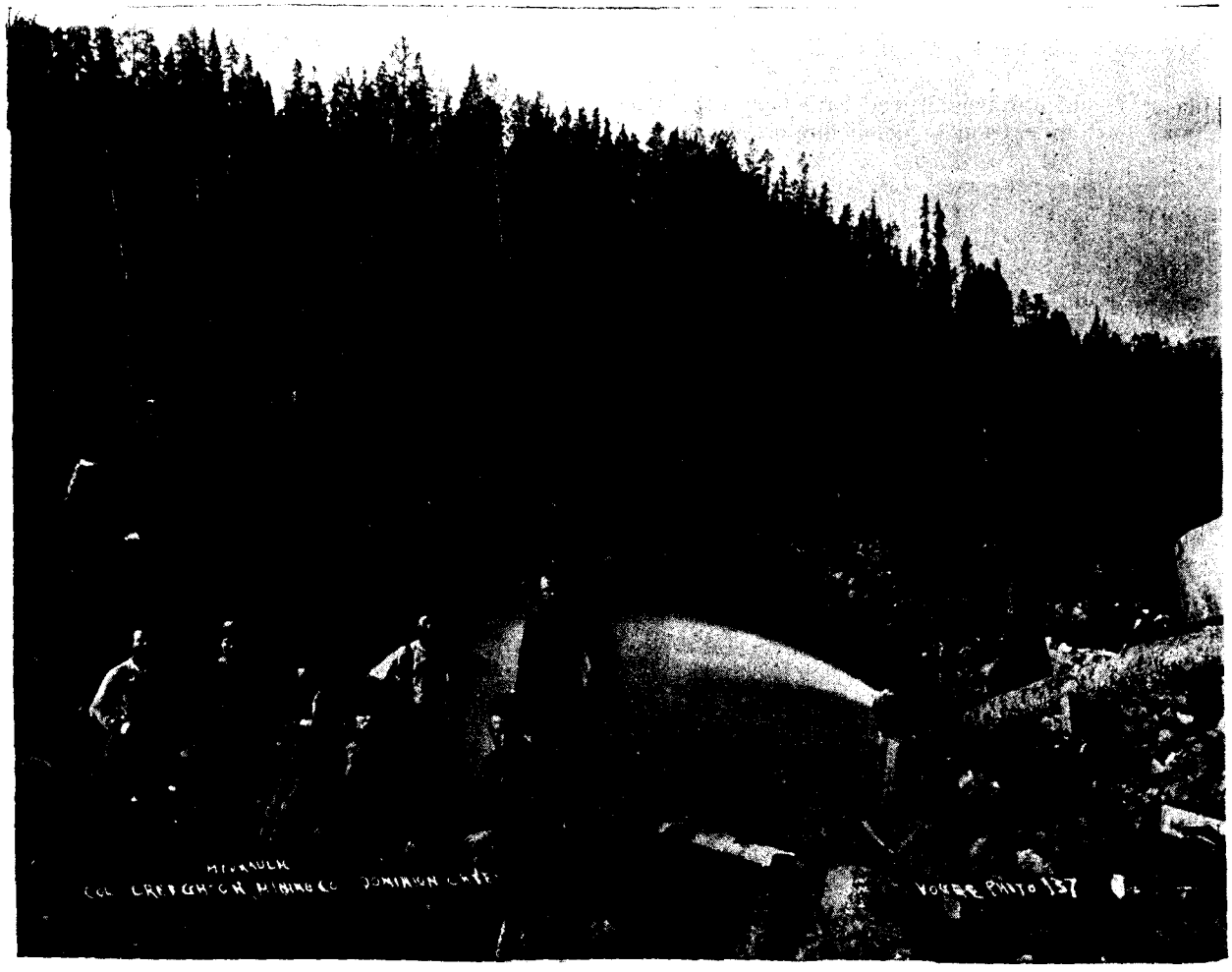
60 per cent. and upwards of lead have been obtained. It looks like an extremely promising prospect, and as it has been bonded to Juneau people and is now under active development, a fair determination of

Atlin—Working Out the Benches on Spruce Creek with Rockers.



[Atlin—A Mining Scene on Spruce Creek showing a few Small Boulders.]

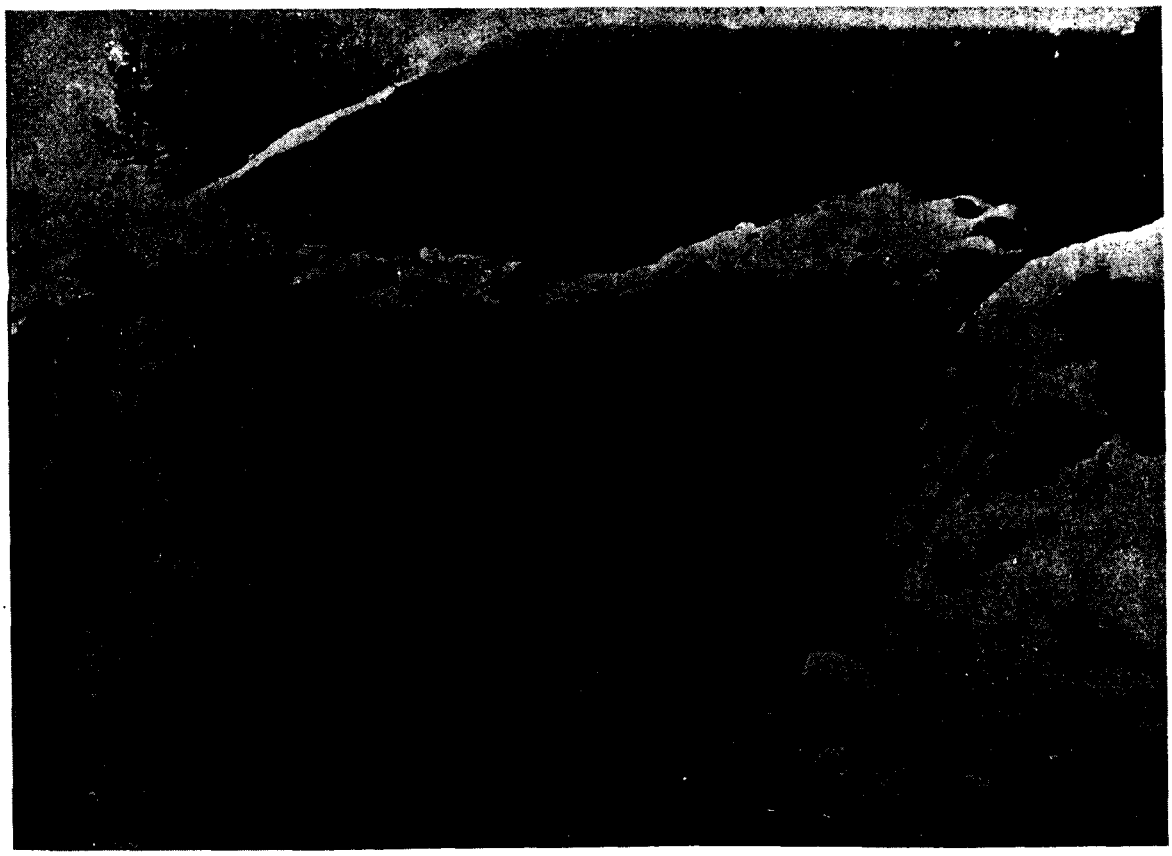
its real value will ere long be made. On the shore of Atlin Lake, some two or three miles south of Atlin City, occurs another galena prospect. Here the ore is bright and somewhat intermixed with white quartz,



Atlin—Mining by Hydraulic Process on Dominion Creek, a Tributary of Spruce.

Atlin—A View at the Headwaters of Wright Creek, where some Rich Placer Ground has been Worked.

the fracture showing either cubes or striations. The assays show a uniform value of about 60 ozs. silver and 60 per cent. or upwards of lead . This prospect is composed of a dozen or more stringers from an inch to several inches in width and running irregularly through a ledge of white and bluish-white quartz. The expectation of the owners is that the various seams will be found below to run into one solid pay

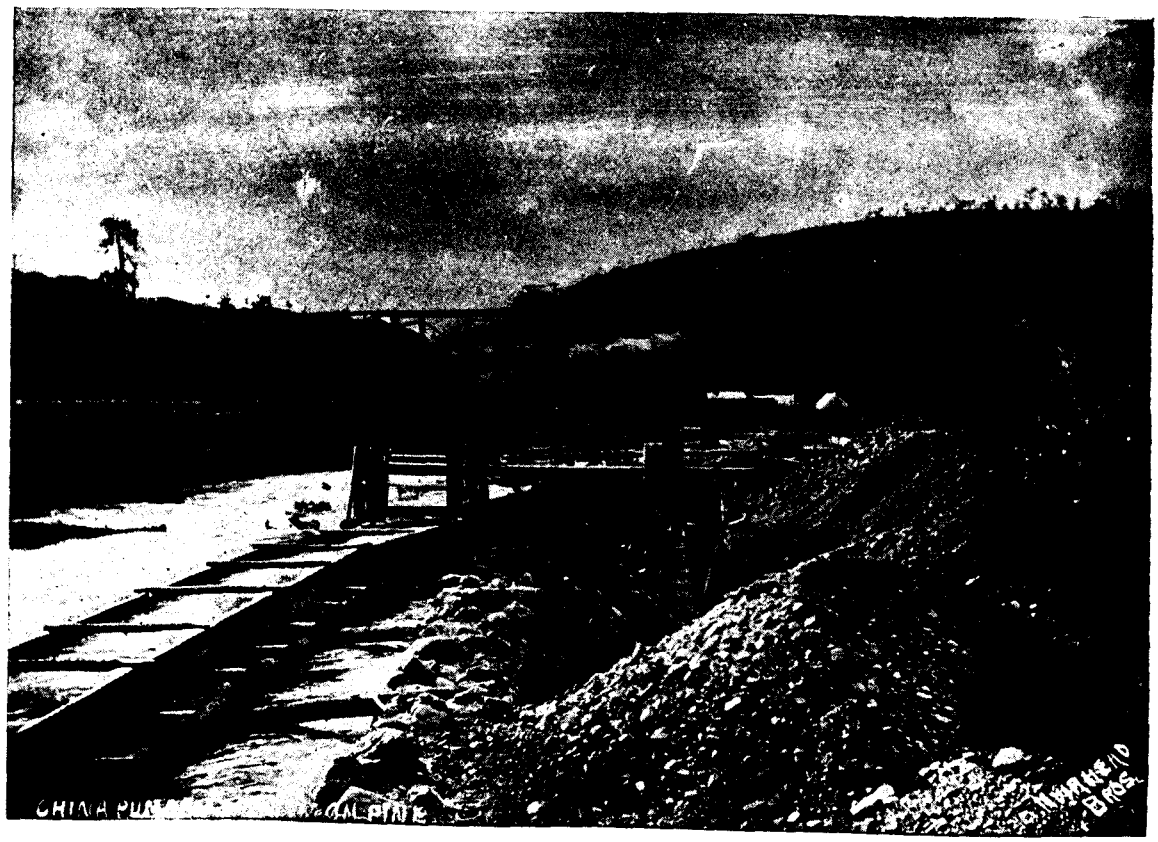


Atlin—Following up a "Pay Streak" with a Tunnel into the Bench.

Atlin—A Capital View of the Great Dixie Group on Willow, which is yielding Large Returns.

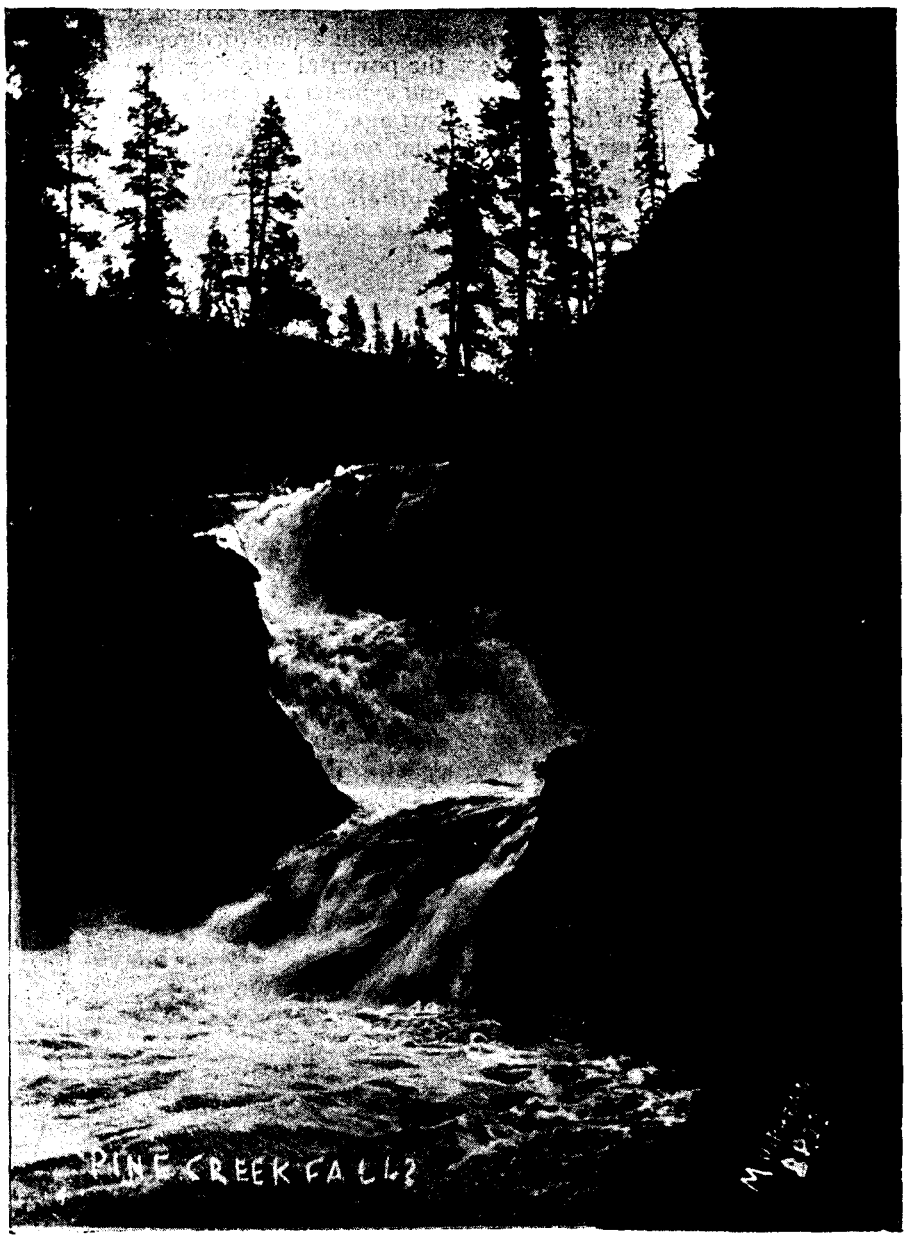
streak, and with the object of determining this they have put in a tunnel to tap the lead at a depth of 40 or 50 feet. A better plan would probably have been to sink on the lead, for the cropping is at so slight an elevation above the surface of the water that the tunnel will be ineffective in determining the real merits of the property.

In July last I visited a copper prospect on an island



Atlin—Closer View of Workings on Pine Creek—China Pump, Water Wheel, Flume, etc.

lying close to the western shore of Atlin Lake and about 30 miles south of Atlin City. Here was to be seen a vein of grayish white quartz not more than 20 inches wide at the point of exposure and cutting its way cleanly through igneous rock on either side. Protruding from the very centre of this vein and standing almost upright out of it to a height of fully 18 inches was a flange of pure native copper, varying from half an inch to an inch and a half in thickness. With the under active development, a fair determination of metal from side to side in the course of an hour or so a piece nearly three feet long was broken off weighing well on to 100 pounds. The vein could not be followed a great distance on account of the drift, but wherever it was exposed it seemed strong and continuous. No work to speak of had been done on the property at the time of my visit to it but I have since learned that a few shots of powder have shown that lower down the solid copper appearing on the surface becomes dispersed thro' the ledge matter in small particles of pure metal. If this condition should continue, the material might readily be milled and the mine become a a very valuable one. Since my visit the strike of the vein has followed to the mainland a distance of some hundreds of yards and on removal of the drift the vein was again disclosed. It is an extremely interesting discovery, and arrangements are being made to have it fully investigated during the coming season.



Atlin—Pine Creek Falls—A Great Water Power now being developed for Electric Light and Power Purposes.

Many samples of good looking gold, silver, lead and copper quartz coming from other parts of the district were shown me, all of which leads to the belief that Atlin Camp has the prospect ahead of a great lode mining industry. It may be thought, perhaps, that the matter of transportation of refractory ores to smelter points will seriously handicap lode-mining in such a country. But after all Atlin is not more than 150 miles or so by water and rail to an ocean port at Skagway, and it is questionable if the charges for freight and treatment would even now be greater than they are from the Slocan country to the American smelting centres whither the great bulk of the Slocan ore has been sent. I believe a rate of transportation as low as $7.00 a ton could be obtained, and that is about what the Slocan miners pay. There need, therefore, be no hesitation on the part of investors in allowing the transportation question to interfere with their careful investigation of Atlin properties. The steam boats and railway trains returning from Atlin via Bennett to Skagway, and thence by ocean southward, go light so far as freight is concerned, and will naturally be anxious to give the best possible rate to encourage the mining of ores in the north country. Then as to the cost of mining in Atlin, it should not be very much greater than in the older camps of Southern British Columbia. Provisions and supplies of all kinds may now be taken in at fairly low rates, and these rates will still continue to be lowered as time goes on and the facilities for transport increases.

Atlin as a place to live in is not without its attractions. As I have said, the summer climate is charm-

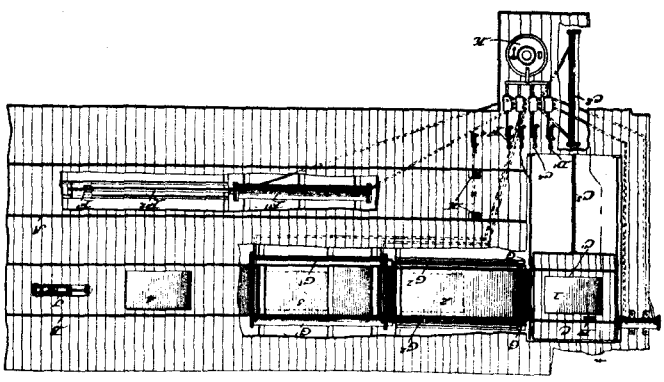
ing, and although in winter the mercury occasionally dips down to 20 or 30 below zero, there is no great snowfall, the weather is usually clear and bracing, the winds exceptionally light, and altogether the winter climate may be favourably compared with that of East and West Kootenay. The City of Atlin is now a well-established place. It has good hotels, a public school, churches, and societies of various kinds. To the lover of sport with the rod and gun it is what is popularly called a paradise. Atlin Lake teems with magnificent trout, grayling and whitefish, while in season ducks, geese, grouse and ptarmigan are here in countless numbersparticularly the ptarmigan, which on the higher plateaus in the fall and winter are to be met in myriads. Those who seek big game have the black bear, moose and red deer to pay their respects to, and the game is in such quantity that the hunter may never be at a loss during the season for a week or two's enjoyable and successful outing.

During the coming summer the various creeks will doubtless again be thronged with placer miners, who will with last year's experience to aid them in improving their methods, and an absence of the claim-jumping fraternity, make a much greater showing in the yield of gold than they did a year ago. One suggestion to the Government: Let the size of claims permissable to be taken up be increased to that obtaining in the Northwest Territories, namely, 250 feet in length.

SHIPPPING FACILITIES OF THE VANCOUVER COAL CO AT NANAIMO.

THE illustrations here reproduced give some idea of the "wall apparatus" for rapid handling of railway cars laden with coal or other material, to which some reference was previously made in an article under the above heading published in the MINING RECORD of November last.

At the Nanaimo shipping wharves of the New Vancouver Coal Mining and Land Company Limited., trains of coal laden cars, only limited in number, by the hauling power, are pushed up to the platforms leading to the loading staiths where they are switched on to what is known as the "supply" track, and forced to within a car-length of the termini of the parallel track. (See fig 1.)

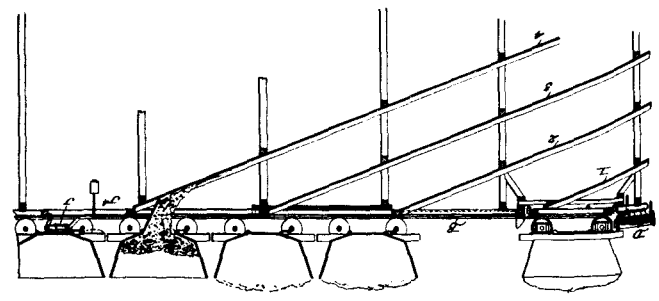


Flat (as ground) Plan of Wall Apparatus.

The loaded train of cars is held by safety catches (H), and are dumped without any shunting aid from the locomotive—the locomotives being kept fully employed in taking away trains of empties and hauling full ones to the chutes. Mr. Samuel M. Robins, the superintendent of the company, has, by means of capacious bunkers, powerful Baldwin locomotives and the "wall apparatus,"achieved the record result of loading the *Titania*, (one of the company's fleet of 6,000 steam freighters) with cargo and bunker coal of about 6,000 tons in ten hours and thirty-five minutes, including the time occupied by "trimming" in the hold. The remarkable despatch of the enormous steam colliers has won for the company a more than local reputation for its shipping facilities at Nanaimo.

Fig. 1 shows the double tracks, A or "supply" track, and B, or "emptying" track. The safety catches, H, stop the cars from going farther along the supply track, until the carriage, C, with its short length of rails is in a line (or "registers") with that track; then the powerful grip dog, F, operated by the piston rod, and cylinder F 1 and F 2, draws the end car on to the carriage, C (which is mounted on trolley wheels running on a transverse track,) and the carriage with its laden car is pushed across the track way until it registers with the parallel emptying or dumping track, B, the motive force being the cylinder, C 2, and piston rod, C 3, and, unless the car is to be dumped down the highest chute, through the opening, C 1, in the carriage, the car is pushed off the carriage on to the emptying track, as far as the chute opening, 2, 3 or 4, as the case may be. The force is supplied, first by the cylinder and piston, D, taken up and enforced by the grip dogs G, G, (located on each side of the track, B, so as not to interfere with the chute openings); after being unloaded the car is pushed further on the emptying track over the automatic lifter, J, by which the trap door is raised and secured; the car then proceeds and joins a train of empties. While this has been going on the carriage, C has been drawn back by means of the piston, C 3, (fastened to the carriage and pushing backwards and forwards) till it again registers with the supply track: the grip dog, F, draws the train of loaded cars one car length towards the end, and forces a car on to the transferring carriage which takes it over to the emptying track for dumping as already described, the entire operation requiring about 25 seconds per car at most.

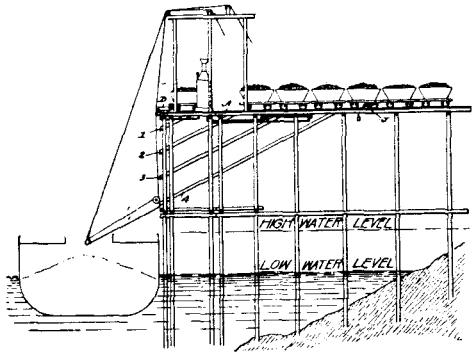
Figure 2 is a plan of an elevation showing the emptying track, B.



Water. Elevation of Wall Apparatus.

The motive power may be steam or other force. In Fig. 1 the place for a stationery boiler is indicated by K, but in the case of the N. V. C. Co.'s application of the apparatus, steam might is piped from a conovenient range of boilers. The levers, C 4, D 1, E 3, and F 4, under the manipulation of one driver easily control suitable steam valves for the operation of the machinery. Besides those mentioned, there is the catch, E, which locks the car on the carriage until it is in a line with the track B; G 1, G 1, pair of cylinders to operate grip dogs G G, by pistons, G 2; it will have been noted that the grip dog, F, draws

the whole train of loaded cars and so obviates the necessity for any shunting by locomotives: the empty



Loading a Collier.

train is formed by each empty car pushing forward those emptied previously.

Figure 3 is a general sketch of the application of the apparatus to the loading of a collier.

The cylinder D, which propels the laden or empty car along the emptying track, is shown and the coal running down chute No. 4—the lowest—also J 4, part of the automatic appliance for raising the trap door of a hopper car, of the pattern in use by the N. V. C. Co., although their cars have more slope in the ends than shown in the cut.

Mr. W. H. Wall, mechanical engineer of the company, has patented his invention, but will be glad to furnish information and specifications and detailed plans for construction if applied to at the N. V. C. Co.'s works at Nanaimo.

The work of transferring and empting full cars, can be performed at an average rate of 550 tons an hour for each loading chute, and two chutes can be worked simultaneously by the N. V. C. Co., who have shipped coal at the rate of 750 tons per hour at a chute.

In addition to the expedition in loading, the cost is lessened, so that on the whole quite $125 per steamer is saved by the use of the Wall apparatus, as compared with the ordinary cost of loading a steamer. The apparatus compares favourably in cost of construction with any loading appliance previously known, being under $1,500, including steam boiler, in lieu of which compressed air or any other fluid could be utilized. The principle of the invention can evidently be applied to many other purposes, such as the transfer of cars in railway stations or at mines above or below ground from one track to another, as well as in moving cars along tracks from one or two car-lengths at a time.

In publishing a notice of the speedy loading of the *Titania* the local *Free Press* stated: "The loading of the *Titania* was effected in the short space of 10 hours and 35 minutes and that in the face of a mishap to one of the cars which caused a delay of half an hour. Ten hours will soon be looked upon as an every-day occurrence. What a difference between this and 40 years ago, when the Indian women used to take the coal out in small baskets in their frail canoes, and hand it up over the side of the vessel riding at anchor in the middle of the harbour, requiring nearly a month's time to load a 1,000 ton vessel."

A FORTUNATE LADY MINE OPERATOR.

(By Randall H. Kemp.)

Mrs. Harris, a Lady who has made a Fortune in Mansfield Camp.

ABOUT twenty-five miles east of the south end of Kootenay Lake, with its summit at least 8,000 feet above the level of the sea—a hoary giant guarding the dividing line between East and West Kootenay—stands White Grouse Mountain. During the summer of 1893, a few venturesome prospectors laboriously pushed their way from Kootenay Lake eastward and climbed the rugged sides of this grand old hill. Their enterprise was rewarded by finding large veins of copper ore carrying more or less of the nobler metals, gold and silver. When samples of these finds were brought back to Kootenay Lake there was a wild stampede to this new Eldorado. Scores of claims were staked before the early snows at that altitude drove the prospectors back to civilization. The remoteness of the region, the absence of transportation facilities and the difficulty of obtaining the assurance of capital at that time caused many to abandon their claims the following year but a few held on and by dint of hard work supplemented by a trifling aid from the government, an apology for a trail was constructed from Davie, ten miles south of Pilot Bay to the mountain. This trail crossed two summits and was only useful for footmen who could pack their effects on their backs. In 1896, a Montana company holding options on a number of claims in

the district built a trail from Sanca via Granite Creek to the claims and started to construct a waggon road, but their finances giving out, that scheme was abandoned.

In the meantime Mr. J. Fred Hume, lately Minister of Mines, and Mr. J. A. Gibson, of Nelson, became interested in the camp and this together with the building of the Crow's Nest Pass Railway resulted in again drawing attention to the territory.

The building of the C. N. P. Ry was a great thing for Grouse Mountain, for it rounds the base of the hill and spurs can be built from the main line up White Fish Creek in East Kootenay or up Goat River in West Kootenay, either of which would tap the heart of the district.

Foreseeing this, Messers. McKenzie & Mann, the railway and mining magnates, have secured a number of claims. Mr. D. W. Moore, representing the C. P. R. smelter at Trail, in the interests of that concern has also acquired mining property in the neighbourhood.

Among the 93 prospectors who pioneered the way from Kaslo was "Tom" Harris. "Tom" arrived on the scene early and had his pick of the choice ground which heretofore had been waste land of the Crown. The yellow sulphides of copper on a mountain east of White Grouse attracted "Tom" more than the mallachite and tetrahedite of White Grouse, so on that hill he planted his stakes and posted his notices. The hill become known as Harris Mountain and on it energetic mining development will be inaugurated as soon as the snow leaves the ground the coming season. "Tom" Harris's backer was his wife, Jennie E. Harris, a shrewd Canadian lady. Through her efforts the annual assessment work was performed each year although the claims numbered a dozen and consisted of three groups.

"Tom" Harris's brother "Billy" was one of the fortunate Le Roi stockholders. By the sale of that property and other clean-ups around Rossland he made at least $300,000 and hence was able to give his brother "Tom" a lucrative position in the city of gold and copper.

Therefore "Tom" Harris made over to his wife the claims on Harris Mountain and a group on Goat River.

The sequel to all this is that a short time since Mrs. Harris for the sum of and consideration of $125,000 transferred to Ernest Mansfield the claims mentioned. From numerous assays made by Mr. E. DeDolph, the assayer for the Kootenay Ore Co., at Kaslo, these veins carry about one ounce of gold per ton and copper from 13.5 to 31.5 per cent.

Mr. Mansfield represents both English and French capital and has been very fortunate in his dealings in West Kootenay. It was he who first invested in prospects at what is now Camp Mansfield, at the head of the South Fork of Kaslo Creek. A number of companies are developing property there and it is claimed the leads are turning out phenomenally well.

A representative of the Standard Oil Co. and an agent of a strong British mining company were after Mrs. Harris's gold-copper-silver claims, but Mr. Mansfield secured the plum. Mrs. Harris is probably the first woman in British Columbia to make over an eighth of a million in mines, and with her experience and natural business ability, it is not at all unlikely she will add to this sum considerably in the future.

ABSTRACT OF OFFICIAL REPORTS.

THE CARNES CREEK CONSOLIDATED GOLD MINES, LTD. LY.

IN the directors' report to shareholders of this company, it is stated that Crown grants have been secured to the Rosebery mine group consisting of eight mineral claims and 155 acres of land on the north fork of Carnes Creek in the Revelstoke district. In addition to this property the company still holds the following mineral claims: St. Peter at Illecillewaet, Homestake at Carnes Creek, Klondike at Downie Creek, and Consolidated at Downie Creek.

Considerable surface prospecting has been done on the different claims of the Rosebery group and much additional information gained in this way in regard to the continuity of the vein and the probable extent of ore deposits.

An assaying plant has been placed at the works, this being thought necessary to enable our foreman to make the tests required for his guidance in saving ore.

The lower, or No. 2 drift, has been extended 325 feet, gaining a point approximately 250 feet below the surface. Ore is continuous for the whole length of this drift, 400 feet, and considerable bodies of the higher grade ore have been struck, especially in the most recent part of the work. The high-grade ore now mapped out by our workings has been computed at 5,000 tons, valued at $30 per ton, and we believe this to be a very conservative estimate. This estimate, however, only represents a small part of the advantage gained by the work done. In gaining depth by drifting we have been approaching the richer part of the vein, and we also anticipate striking larger bodies of ore than we have yet found, by means of comparatively short cross-cuts from the main drift through the mineralized zone, which is upwards of forty feet wide, and the surface of which at some points show indications of containing good ore for the greater part of its width.

The directors report that the results of the work has justified an increase in the price of the treasury shares. Shortly after the last annual meeting 100,000 shares were sold at ten cents per share. After this sale it was thought advisable to offer no more of these shares at less than 25 cents. Two hundred thousand shares have been offered and a sale has recently been made of 30,000 shares at this price. This is exceptionally gratifying in view of the prevalency of cheap stocks, and serves to indicate the confidence which the steady progress in development is inspiring.

The company still holds 318,130 shares which at the steadily increasing value caused by developments, should be ample for future operations.

RECEIPTS.

Cash on hand last report	$ 85 87
Sale of Treasury shares	17,500 00
Sundries	10 25
Liabilities	10 25
Total	$18,326 08

EXPENDITURES.

Liabilities as per last report	$ 4,191 40
Assaying plant	297 67
Solicitors' fees	13 00
General expense, including commissions, advertising, etc.	3,609 60
Work at Rosebery mine	5,004 24
Work on other claims	473 23
Travelling expenses	1,115 10
Government fees	161 67

Management and office expenses	1,704 39
Merchandise	247 52
Interest and discount	248 74
Printing	92 75
Telegraphing	32 12
Office fixtures	154 75
Cash on hand	980 50
Total	$17,326 08

THE YMIR GOLD MINES LIMITED.

DIRECTORS' REPORT.

THE directors beg to submit their annual report and statement of accounts covering the period from 29th August, 1898, the date of the incorporation of the company, to 31st December, 1899.

Appended hereto is the report of Mr. Fowler, the company's engineer, dealing with the operations which have taken place at the mine between the above dates.

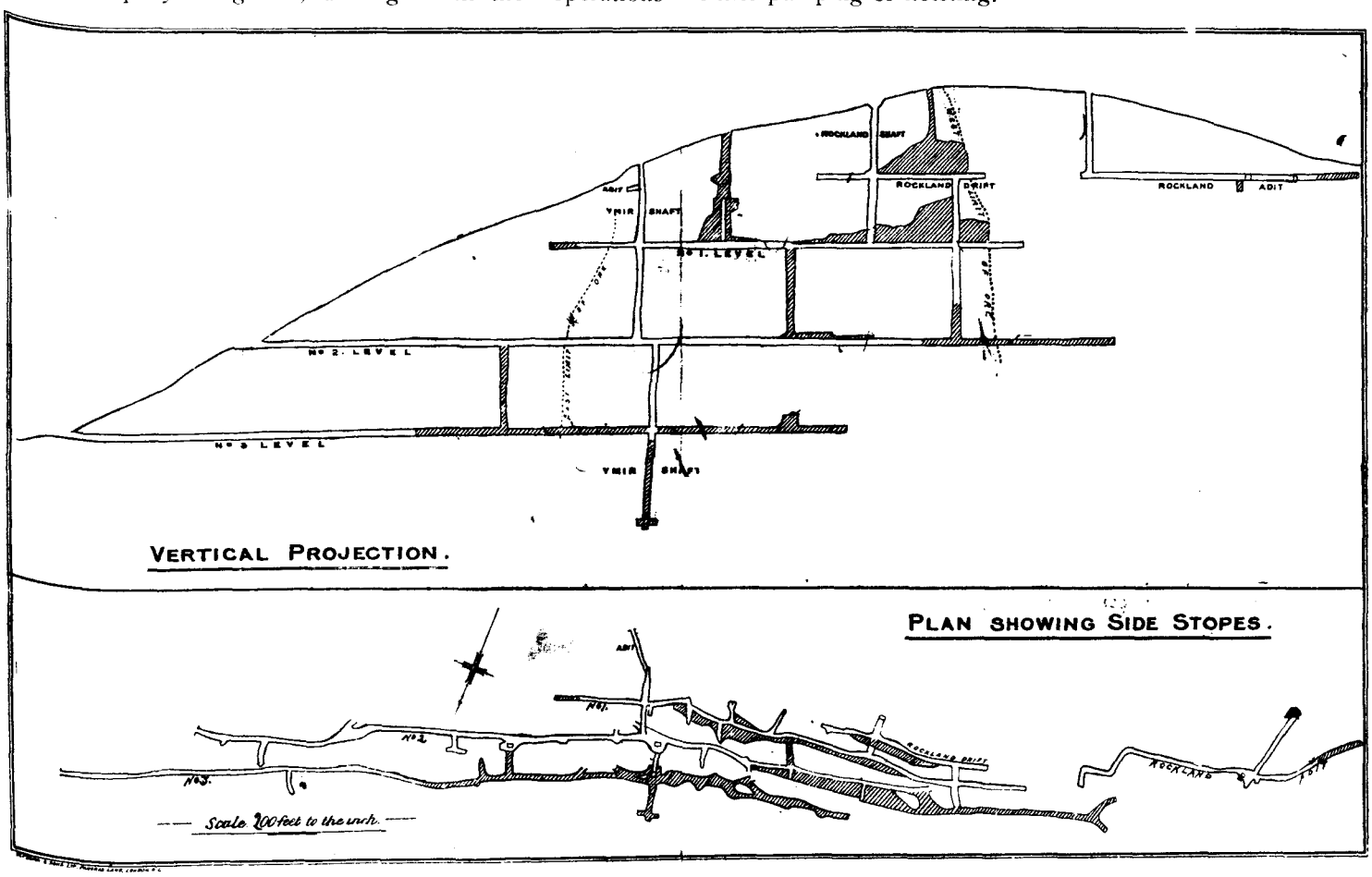
Although the company took over the mine on 1st September, 1898, it was not until the end of March, 1899, that milling operations were commenced and the mine became revenue earning, and even then, owing to difficulties inseparable from the the starting of new plant, several interruptions occurred reducing the total working of the mill to a period equal to 172½ days, or practically six months' continuous working.

It will be seen from the accounts submitted that the profit amounts to £20,030 18s. 9d., which has been arrived at after writing off an ample amount from development account, all repairs, the preliminary expenses, cost of No. 6 tunnel (abandoned owing to the substitution of No. 10 tunnel) and after making reasonable allowance for depreciation of plant, machinery and buildings.

The quantity of ore handled during the period under review was 17,522 tons, and as the profit amounted to £20,030 18s. 9d., after debiting the accounts with all charges both here and in British Columbia, the ore has realized a net profit of £1 2s. 10¼d. for every ton treated.

On account of the large amount of ore blocked out and available for treatment, which Mr. Fowler in his report gives as 121,600 tons above No. 3 level on 31st December last, and further development establishing the continuity of the vein at depth, the directors lost no time in making speedy arrangements for doubling the mill and thus raising its capacity from 35,000 to 70,000 tons per annum.

Arrangements were at the same time made for driving a main working tunnel for opening up the vein at a depth of 1,000 feet or 600 feet below the present lowest workings: this tunnel will enable the mine to be worked to a depth of 1,000 feet without either pumping or hoisting.



Diagrams Showing Mine Development, Ymir Mine.

All the necessary new buildings are erected, and as all the new mine machinery (except the boilers and compressor) was on the ground at the date of Mr. Fowler's report (January 27th) it is confidently expected that the additional 40 stamps will be complete and ready for work in the course of the next two or three months.

In order to meet the requisite outlay for the new machinery and works the directors raised a loan of £15,000 repayable within 12 months. This arrangement was entered into having in view the additional profits which will accrue from the erection of the new plant.

An interim dividend of 1s. per share was paid on 1st November, 1899, and a further distribution is contemplated when the new plant is erected and working.

The directors are gratified at being able to state that the strike which at one time seriously threatened to stop operations has now ended.

Balance Sheet 31st December, 1899.

DR.

	£ s. d.	£ s. d.
To Share Capital—		
Authorized		
200,000 shares at £1 each	200,000 0 0	
Subscribed and Insured—		
199,993 shares issued to vendors as fully paid, per contra	199,993 0 0	
7 shares subscribed by signatories	7 0 0	
200,000		200,000 0 0
To Advances from various companies, to meet cost of erection of additional 40 head of stamps		15,000 0 0
To Sundry Creditors—		
British Columbia	4,892 11 2	
London	1,117 9 1	
Do. unclaimed dividends	100 3 0	
		6,110 3 3
To Profit and Loss—		
Balance as per account	20,030 18 9	
Less interim dividend of 1s. per share on 200,000 shares, paid 1st November, 1899	10,000 0 0	
		10,030 18 9
		£231,141 2 0

CR.

		£ s. d.	£ s. d.
By Property Account		99,993 0 0	
Purchase price of four mining claims comprising the Ymir Mine, 163 acres in all, with new 40-stamp battery erected thereon, situate at Wild Horse Creek, in the West Kootenay district of British Columbia, satisfied by the allotment of 199,993 shares of £1 each fully paid as per agreement dated 5th December, 1898.			
Deduct assets included in above purchase price, transferred to separate accounts, as follows:—			
Machinery, plant, tools	£6,759 18 4		
Buildings	4,212 9 5		
Tramway	982 6 2		
Flume	913 7 8		
Live Stock	52 8 2		
		12,920 9 9	
			187,072 10 3
By Development Account		6,601 6 2	
Less amount written off		1,271 18 0	
			5,329 8 2
By Machinery, Plant and Tools—			
As at 29th August, 1898	£6,759 18 4		
Add purchased to date	7,935 9 1		
		14,695 7 5	
Less amount written off		412 11 5	
			14,282 16 0
By Buildings (at cost) as at 29th August, 1898	£4,212 9 5		
Add additions to date	2,708 6 7		
		6,920 16 0	
Less amount written of		346 0 9	
			6,574 15 3
By Tramway and Flume (equipment, as at 29th August, 1898)		1,825 13 10	
Less amount written of		94 15 8	
			1,800 18 2
By Roads Trails and Timber Rights		663 17 10	
Less amount written of		33 3 10	
			630 14 0
By Furniture and Fixtures		336 5 4	
Less amount written of		16 16 3	
			319 9 1

Balance Sheet 31st December 1899—Continued.

CR.

	£. s. d.	£ s. d.	£. s. d.
By Stock, Harness, etc, as at 29th August, 1898	£52 8 2		
Add additions to date	134 18 7		
		187 6 9	
Less amount written of		37 9 4	
			149 17 5
By Materials and Supplies on Hand			3,111 2 8
By Ore in Transit			4,244 6 10
By Sundry Debtors—			
London		1,342 9 10	
British Columbia		407 17 2	
			1,750 7 0
By Cash at Bank in Hand—			
London		2,623 9 5	
British Columbia....		3,251 7 9	
			5,874 17 2
			£231,141 2 0

We have audited the London books of the Ymir Gold Mines, Limited (in which have been incorporated the accounts received from British Columbia), from 29th August, 1898 (the date of incorporation), to 31st December, 1899, and certify that in our opinion, the above balance sheet correctly exhibits the position of the company's affairs at the latter date.

London, E.C.
March 7th, 1900.

MONKHOUSE, STONEHAM & CO.,
Chartered Acountants.

Profit and Loss Account, from 29th August, 1898 (the Date of Incorporation), to 31st December, 1899.

DR.

	£ s. d.	£ s. d.
To Operating and General Expenditure in British Columbia:—		
General mining expenses	4,534 8 2	
(including cost of opening out and raising ore and repairing tunnels		
Development Accounts—		
Amount written off....	1,271 18 0	
General milling expenses	3,328 0 10	
(including cost of operating mill and tramway and repairing milling equipment)		
General smelting expenses....	7,516 2 10	
(including freight, duty and smelter's charges)		
Management, engineering and office expenses	1,983 11 4	
Insurance, Taxes and Assessments	483 18 1	
Registration expenses in B. C. including legal charges	340 1 6	
Travelling expenses	319 6 4	
Cablegrams, telegrams and postages	79 11 2	
Bank charges	61 17 0	
Printing and stationery	49 15 3	
General expenses	134 3 10	
		20,102 14 4
To London Administration Expenditure (16 months) :—		
Directors' fees	801 15 8	
Office rent and salaries	732 14 2	
Interest	120 10 11	
Printing and stationery	115 14 10	
Cablegrams, telegrams and postages	38 5 9	
Legal charges	27 13 6	
Advertising expenses	27 6 0	
Audit fee	26 5 0	
Sundry Expenses	33 5 9	
		1,923 11 7
To Preliminary expenses		322 4 4
To Depreciation written off—		
Machinery, plant and tools	412 11 5	
Buildings	346 0 9	
Tramway and flume	94 15 8	
Roads, trails and timber rights	33 3 10	
Furniture and fixtures	16 16 3	
Live stock, harness, etc....	37 9 4	
		940 17 3

	£.	s.	d.
To Income tax	389	9	0
To Balance carried to balance sheet	20,030	18	9
	£43,709	15	3

Cr.

	£	s.	d.
By gross proceeds of ore treated (from 1st March, 1899, to date	43,450	1	1
By Transfer fees and sundry receipts	259	14	2
	£43,709	15	3

MR. FOWLER'S REPORT.

Of Operations at Ymir Mine and Mill for the Period 1st September, 1898, to 31st December, 1899.

MINE.

Development.—Prior to 1st September, 1898, the status of vein development as carried out by the London and British Columbia Goldfields, Limited, was as follows:

	Feet.
In Rockland adit and connected workings	432
In Rockland shaft and connected workings	177½
In Rockland shaft drifts and connected workgs	198½
In Ymir shaft and connected workings	347½
In No. 1 level and connected workings	748
In No. 2 level and connected workings	971½
In No. 3 level and connected workings	438½
And in works off the vein	873
Total	4,186½

This work has resulted in putting on dumps 6,051 tons (2,000 lbs.) of ore, and placed in reserve approximately 95,000 tons. On 1st March, 1898, we estimated 59,000 tons, and on 1st July, 1898, Messrs. Bewick, Moreing & Company estimated about 89,000 tons in sight.

Since acquiring possession the Ymir Company have done the following development work:—

	Feet.
In Rockland adit	62
In No. 1 level, east	28
In No. 1 level, raise 1	73
In No. 2 level, raise 1	39½
In No. 2 level, raise 2	105
In No. 2 level, drifts	236½
In No. 3 level and connected workings	617½
In Ymir shaft	134½
In No. 4 level	39
Off vein	187½

The aggregate result has been that we had blocked out and still in reserve above No. 3 level on 31st December, 1899, 121,600 tons.

The relative positions of the various workings mentioned may be seen by reference to the plans and elevation appended. Very little of the Ymir Company's developments has been done since 1st June last because of the labour difficulties prevailing in British Columbia, and more particularly in South Kootenay; but latterly we have resumed sinking in Ymir shaft, and have been driving No. 3 westward for some time.

Future Work—No. 10 Adit. The strength of our main ore body and the metal tenure as revealed in our deepest workings (No. 4), have fully decided us in our plan of driving a deep adit from the level of the top of our ore house at the mill. This adit is at a level equivalent to No. 10, will be about 2,100 feet in length, and beside entirely superseding our present tramway, will, when completed and connected with the present mine workings, avoid the necessity of pumping and hoisting from points below No. 3 level, which, it will be observed, is the lowest which has direct exit to surface. Aside from these principal advantages, it seems quite probable that the adit may encounter ore of value when we cross a small vein upon which we have done work on the Golden Horn claim.

Ymir Shaft.—This will be sunk as rapidly as possible in order to connect with No. 10; and stations and crosscuts will be made at various levels as the work proceeds.

No. 2 West.—The ground at the present face has been very wet, but it is our intention to proceed westward with the object of getting under a low grade body of quartz exposed in Rockland adit drifts. If, at this No. 2 level, we meet with favourable results, No. 3 will also be pushed into the same country, and our reserves may then be increased from a source never hitherto taken into account.

Surface Work.—During the coming season we propose to prospect the Mugwump claim for the Ymir vein, and also again to try to find a vein which we believe to exist some 400 feet north of and parallel to our main ore body.

Stoping.—Our operations in this department have been largely dependent on the requirements of the mill, and prior to 1st June only 3,400 tons were handled. At this date all underground work was suspended because of the strikes, and during the summer, while the old dumps were being drawn upon, we gradually got enough men to continue work in the stopes. After the 1st November we succeeded in about keeping pace with the mill consumption, and at present have more applicants for work than we can employ.

During the year there were broken from main stopes a total of 13,110 tons of all classes of ore. Of this amount 11,692 tons went directly to mill, 273 tons were sacked and shipped as carbonate from above No. 1 level, and 112 tons shipped in bulk as crude ore.

Mine Buildings.—During the period in review an addition was made to the boarding-house, a commodious building for the men was erected, and, besides several smaller structures, a new mine office and house for foreman was provided. These are all good and substantial buildings.

MILL.

The 40-stamp milling plant provided by arrangement with the London and British Columbia Goldfields, Limited, was begun in August, 1898, and practically completed in February last. On the 1st March the plant was turned over to the Ymir Company, but the extreme severity of the weather and the very small volume of water made it impossible to do any crushing until near the end of the month.

Briefly described, the plants comprises: One No. 3 Gates crusher of a capacity of about 20 tons per hour; eight Challenge feeders; 40 850-lb. stamps; eight

amalgamating plates, 56-in. by 12-ft.; 12 6-ft. Frue vanners; one 54-in. by 14-ft. tubular boiler for heating, etc.; one 125-light 16-c.p. dynamo. The power system embraces a flume 18-in. by 20-in. by 1,4000-ft. in length, from which the water passes by 900-ft. of spiral rivetted pipe to one 24-in. Pelton motor, under 320-ft. head, to drive the crusher; one 6-ft. Pelton wheel, under 430-ft. head, to drive the stamps and vanners, and one 12-in. Pelton motor to drive the dynamo.

The ore house is connected with ore bins at the mouth of No. 3 level by a Hallidie ropeway, about 2,100 feet in length. The capacity of the mill has been about 100 tons in 24 hours, with 40 to 50 mesh screens.

Besides the mill plant, there have been built an office, assay office, superintendent's house, and commodious quarters for the men.

Mill Operations.—As above stated, these began only towards the end of March. At that time the volume of water was only one-third of what it had been a year earlier, and it did not increase sufficiently to enable us to drop the whole 40 stamps until the 16th of April. Since that time there has been more than enough water for all purposes—with a two or three days' exception early in October. During the season we suffered a number of annoying accidents, which, in the aggregate, caused much delay, and aside from these, a change in the power transmission system, from wire rope to belting, and the fracturing of a ten-foot sheave because of the breaking of the wire ropes, caused a shut-down of seven weeks, beginning 26th July. Since starting up again about the middle of September, nothing of an extraordinary nature happened to delay our operations until near the close of the year, when an accumulation of small particles of ice caused the flume to overflow, with the result that a considerable section was undermined, and the stamps were hung up for three days.

The duty of the mill has been as follows:—

Running Time for Forty Stamps	Tons crushed.
March—2 days, 13 hours	250
April—16 days, 6 hours	1,700
May—17 days, 4 hours	1,450
June—21 days days, 14 hours	2,107
July—21 days	2,000
August—Nil	Nil
September—14 days, 18 hours	1,550
October—27 days	2,790
November—29 days, 5 hours	2,942
December, 23 days	2,348
Total 172 days, 12 hours.	17,137

Average crushing, 99⅓ tons per 24 hours.

The record of the last three months shows much improvement, and as we have made several changes in details, and taken precautions to prevent the recurrence of most of the minor annoyances, it may be expected that the second year of our operations will show much greater mechanical efficiency.

Duplication of Stamps.—Under instructions from London based on our reports, we prepared plans for duplication of milling capacity, and began work of excavation early in October. The north extension to present battery room and vanner room are now inclosed, and we shall soon begin the erection of machinery. At the south end of the present building we have built an extension to accommodate three 80 h.p. boilers; one 175 h.p. high-speed engine, and a ten-drill air compressor. The boilers and compressor have yet to arrive, but all the mill machinery is now on the ground. No material changes in the ore house will be made, the breaker having sufficient capacity, but we have ordered new ropes and buckets for our tramway, commensurate with the demands which will be made on the tram when the 80 stamps are dropping. A new 400-light dynamo is being put in place, and hereafter the mine and all buildings will be lighted thereby.

Sawmill.—As a measure of economy, and in order to facilitate the new construction work, we secured a good sawmill plant, including edger, planer and cut-off, at a low price, and this plant has been in daily operation since 1st December. We are confident that when mill construction is completed this sawmill will have saved its entire cost in the decreased price of structural material and, beside, it will have produced a large amount of fuel at nominal cost for heating the present mill and offices and for power when required. Timber is obtained on adjacent lands acquired for the purpose from the Nelson and Fort Sheppard Railway Company. (See plan of the Ymir Company's property.)

Product and Income—

	Tons.	Tons
Old dump		5,061
Stoped—Carbonate	273	
Galena	112	
Milling	12,725	
		13,110
		18,171
Ore milled	17,137	
Ore smelted	385	
		17,522
Ore on hand 1st January (milling)		549

Crude Ore.—Average assay: 4.251 ozs. gold; 25.05 ozs. silver; 35.2 per cent. lead. Return, $35,808.93.

Milling Ore.—Average assay recovered: 0.3965 ozs. gold; .893 ozs. silver; 1.11 per cent. lead. Return, $142,356.93, of which $117,259.84 was derived from 9,983.36 ozs. ore bullion, 561 fine in gold, and .387 fine in silver, and $25,097.09 from 1,026 tons of concentrate of average assays, 1,173 gold, 11.16 ozs. silver, and 18.61 per cent. lead.

Distribution of gold and silver per ton of mill stuff is: In bullion—.3263 ozs. gold; .225 ozs. silver. In concentrate—.0702 ozs. gold; .668 ozs. silver; 1.114 per cent. lead. Totals—.3965 ozs. gold; .893 ozs. silver; 1.114 per cent. lead.

Total metal marketed:—

	Ozs. Gold.	Ozs. Silver.	Lbs. Lead.
In Bullion	5591.297	3861.89	
In concentrate	1202.983	11448.96	381918.8
In Crude	1637.711	9657.18	270917.5
Totals	8431.991	24968.18	652836.3

Based in total tonnage (17522) of crude and milling ore treated, the average assays are: Gold, .4812 oz.; silver, 1.425 oz.; lead, 1.863 per cent.; and the average gross income per ton is $10.168 per ton, and of the total income ($178,165.82) the following amounts and percentages are derived per ton treated:—

	Amount.	Per. Cent.
From bullion	$6.692	65.8
From concentrate	1.432	14.1
From crude ore	2.044	20.1
Total	$10.168	100.0

Summary of operating costs. Mine—

	Labour.	Other Charges.	Totals.
Stoping	$15491.15	$2411.14	$17902.29
Repairs	464.75	126.06	590.81
Surface work	890.37	.....	890.37
			$19,383.47

Tons stoped and treated, 12,087. Cost per ton, $1,6037.

Old Dumps.—

Labour.	Other Charges.	Totals.
$3224.11	$267.54	$3491.65

Tons handled, 5,061. Cost per ton, $0.6899.

Tramway.—

	Labour.	Other Charges.	Totals.
Operating	$2114.84	$518.21	$2633.05
Repairs	26.05	59.41	327.46
			$2960.51

Tons trammed, 17,137. Cost per ton, $0.1727.

Mill.—

	Labour.	Other Charges.	Totals.
Operating	$6837.52	$3166.38	$10003.90
Repairs	1391.64	900.28	2291.92
Prelmnry expnses	.....	772.54	772.54
			$13068.36

Tons milled, 17,137. Cost per ton, $0.7627.

Transport.—Bullion expressage, $221.10. Ounces shipped, 9,983. Cost per oz., $0.0221.

Concentrate.—Sacking and shipping: Labour, $724.63; other charges, $2558.29. Total, $3282.92. Tons shipped, 1.026. Cost per ton, $3,1997.

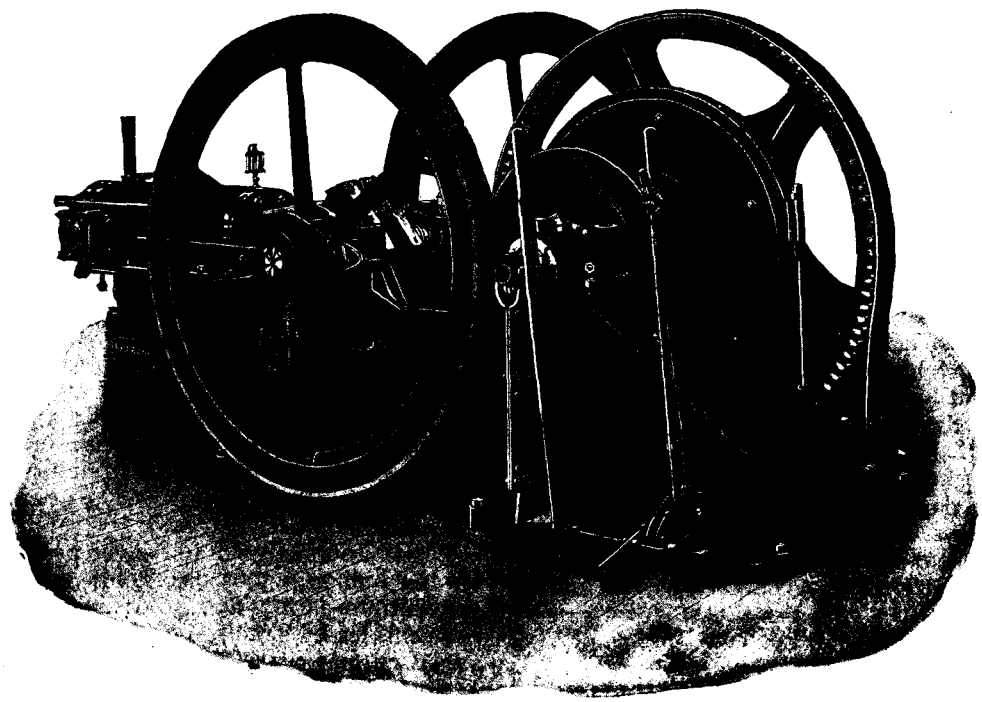
Crude Ore.—Sacking and shipping: Labour, $502.98; other charges, $870.43. Total, $1373.41. Tons shipped, 385. Cost per ton, $3.5673.

Assaying	$1193.52
Salaries	5104.30
Office and travel	2459.27
Taxes and insurance	2168.08
Legal expenses	649.81
General and other contingent	2856.57
	$14431.55

Tons, 17,522. Cost per ton, $0.8237.

A GOOD TYPE OF HOIST.

IN mining operations it is of the greatest importance that thoroughly reliable machinery be purchased. Delays and breakdowns are so expensive that it is true economy to purchase that machine which has proven its superior excellence. It is this thought which leads us to call attention to the lines of machinery furnished by Fairbanks, Morse & Co., whose principal office is in Chicago, but who have branch houses and agencies in all the principal trade centres of this country, and in many foreign countries. They make a special feature of furnishing mining machinery operated by gasoline, gas, distillate and steam.

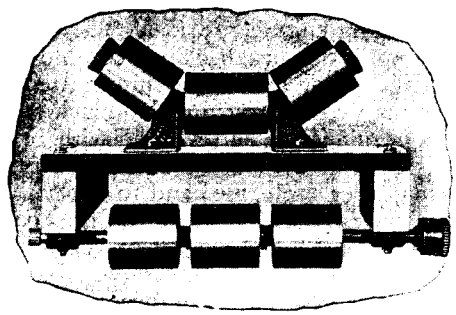


A Good Type of Hoist.

The illustrations published herewith show the company's gasoline geared hoist which is very largely used in those sections where fuel and water are scarce. Messrs. Fairbanks, Morse & Co. also manufacture compressors, pumps, engines, etc., and furnish very complete lines of mining supplies.

THE ROBINS BELT CONVEYOR.

THE belt conveyor, as perfected and standardized by the Robins Conveying Belt Company, of New York, has, in the last two years come into such general use, that a brief description of its essential parts and workings will be of interest to those of our readers who are not already familiar with the sorting belts installed by this company a year ago at the Centre Star and War Eagle mines.

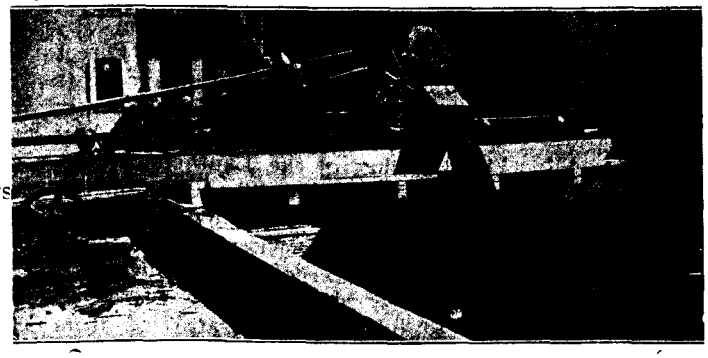


The system has but two parts—the belt and the idlers. The conveying surface is separated absolutely from the highly lubricated running parts, thereby permitting each to perform its function with the highest efficiency. The result is a system which insures freedom from shutdowns, and a minimum of repairs; and it is these two features, coupled with its enormous capacity, which have contributed more than anything else to its success in so many fields. The material is carried on the troughed belt without breakage or noise and in quantities as great as 1,500 tons per hour when desired. The conveyors can elevate at a very considerable angle though no flights are used. The power requirements are comparatively low, owing to the lack of friction, and in cases where trestles must be used, the lightest possible form suffices, as the load is small but constant.

The design of the belt has been adopted after years of experimenting, as the only one which has been found to give satisfaction under all conditions. The reinforcement of rubber at the centre, where the load is principally carried, serves to protect the belt from wear, while the extra plies of duck at the sides render them stiffer and cause the belt to conform more readily to the troughed idlers. The latter are shown in figure 2. This arrangement was also selected after much experimenting with two inclined pulleys and other forms, as the only satisfactory design, and it needs but little description, save that in the process of forcing the grease through the hollow shafting, all bearings are rendered dust-proof.

Figure 3 is a photograph of a sorting belt temporarily erected in the shops of the Robins Conveying Belt Company before it was shipped to Rossland for installation at the War Eagle mine.

Figure 4 is another sorting belt which was installed three and one-half years ago for the Sterling Iron & Zinc Company, Franklin, N.J. Since that time, it



has carried over 350,000 tons of heavy crystalline ore in pieces about the size of 5" cubes. The attendants are provided with hammers with which they break, right on the belt, the larger pieces which occasionally pass through the crusher. Notwithstanding this rough treatment, the belt shows scarcely any wear, and will apparently last for many years to come.

These sorting belts require less than half the power necessary for the old-fashioned sorting tables, and they have this advantage, that the same belt can be used to elevate the ore and, further along, can be run as a sorting belt, thus doing away with the ordinary forms of elevators. The sorting belt conveyors have a wide, heavy belt, and idlers at the centre, with narrow, very slightly raised sides. The advantages claimed for them over wood or iron sorting tables are that there are no small crevices where pieces of ore can stick and jam—no teeth or links to wear and get out of pitch, and no bearings exposed to dust and grit.

The Robins belt conveyors have been installed for a wide variety of services, such as handling tailings and waste, carrying ore from under crushers, filling cyanide tanks, and removing the sand from under the vats, coal handling in all its phases, carrying off waste from dredges, working gravel banks, surface strippings and excavations and in an endless number of other capacities. Their ability to deliver their load at any point or points, as illustrated in figure 4, has given them a great advantage in all propositions where it was required to distribute the material evenly or at various points, as in forming tailing piles, or in coal storage yards.

"Belt Conveyors" is the title of a fully illustrated and descriptive catalogue recently issued by the Robins Conveying Belt Company, and this, as well as any special information, may be obtained by addressing them at the Park Row Building, New York City, where their main offices are located in the Tower, comprising the 27th, 28th, 29th and 30th stories.

TECHNICAL PUBLICATIONS OF THE MONTH.

TRANSACTIONS OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS.

THE latest number contains a paper presented at the hundred-and-forty-first meeting of the Institute at New York, on the 28th of March last, on the subject of the "Evolution of Safe and Accurate Fuse Protection Devices," by Joseph Sachs.

THE SCHOOL OF MINES QUARTERLY.

The contents of the last issue of the *School of Mines Quarterly* which has been received by us are "Principles of Alternating Current Distribution," by Francis B. Crocker; "Engineering Tests on Direct Current Electrical Machinery with Preliminary Tests on the Properties of Conductors," by G. F. Lever; "The Progress of Ore Dressing," (a second article) by C. Blomeke; "The Paradox of the Pantheon," (second paper) by A. D. F. Hamlin; "A Study on the Metallic Caronbyls and Their Decomposition," by Herman A. Loos and Victor Lewker; and "Simple Tables for the Determination of the Common or Economically Important Minerals," by Alfred J. Moses. Professor Blomke's paper translated from the "Berg und Hutten Mannisches Jaborbuch" dealing with the latest methods introduced into German metallurgical practice is an especially valuable contribution.

MODERN MACHINERY.

Perhaps the best, certainly the most scientific, account of the auriferous beach sands of the Pacific Coast, including the new diggings at Cape Nome, appears in the April number of this periodical, being from the pen of a mining engineer, Mr. W. Y. Adams. According to this authority beach claims of gold deposits on the Pacific coast have been intermittently mined for a good many years past; in 1876 black sand was found in paying quantities and worked with Frue Vanners on the shores of Humboldt and Del Norte counties, California, after each tide; and in 1878, five men made $125 in six days with a rocker on the coast near San Francisco. Both on the coast of Washington and on the West Coast of Vancouver Island black sand carrying fine gold has been discovered and what is not so generally known, the discovery was made over ten years ago that along the coast of Alaska wherever the beaches were of a blood-red colour they carried gold in paying quantities. After giving the origin of the deposits, (which the author attributes to erosion and the consequent natural concentration of gold-bearing bluffs beyond), the geology of Alaska and the Cape Nome deposits, the author concludes with a very comprehensive account of the methods of working and the different classes of machinery used in beach coast mining.

RECENT PUBLICATIONS.

CENTRIFUGAL Ventilators, by J. T. Beard, C. E.,E.M., The Colliery Engineer Co., Scranton, Pa.

This is a reprint in pamphlet form of a series of articles which originally appeared in *Mines and Minerals*. The subject is treated in a very lucid and interesting fashion.

Alaska and the Klondike. A Journey to the New Eldorado with Hints to the Traveller and Observations on the Physical History and Geology of the Gold Regions; the Condition of and Methods of Working the Klondike Placers, and the Laws Governing and Regulating Mining in the Northwest Territory of Canada: Illustrated from Photographs and Maps, by Angelo Heilprin, F.R.G.S.,F.G.S.A., etc., 12 mo. cloth $1.75: D. Appleton & Co., New York.

Although the Klondike "boom" is now a thing of the past, this is far from saying that interest in the gold fields of the north has ceased. Mining in this territory has, however, begun to assume the dignity of an industry, and wild speculation of two years ago has given place to activity of a much more useful and productive character. In his exceedingly thorough and comprehensive work, which is unquestionably the best book yet published on the Yukon gold fields, Professor Heilprin dwells on this fact, and speaks in not unfavourable terms upon the future possibilities of Klondike placers. Of the twelve chapters, the three last are, from a technical and scientific standpoint, the most valuable. These chapters deal with the methods of working the claims, with the physical history and geology of the region and with observations on the laws governing placer mining in the Yukon.

Regarding the geology of the Yukon region, Professor Heilprin arrives at the following broad conclusion that: (1) The gold wealth of the Klondike will

sustain the claims that were put forth for it by the earlier prospectors. The concentration of gold in certain favoured spots in such as to almost bear out the characterization of miners that it plasters the bottom. (2) Many more streams than are now known to be auriferous will be discovered to be gold-bearing, and this applies equally to such as are still entirely unprospected and to others which have been described barren through insufficient or deficient prospecting. (3) The gold region is one of highly disturbed schists and schistose rocks of ancient age, the contours of which indicate long continued degradation, but whose superficial aspects have in great part been acquired in a moderately recent geological period, not necessarily exceeding a few hundred or thousand years. To this late period dates the existing conformation of the creek placers in great part; and the mammoth was witness to their location. (4) Much or most of the gold in the creek claims had its source in the upper benches—the gravel, etc.—of the high-level terraces which marked the former elevated position of the regional waters. Water-worn drift is found at practically all heights of the immediate region, and therefore no limit can be told at this time to the heights at which gold may or may not be found and worked with profit. (5) The evidence in hand is as yet insufficient for the statement to be made what or when was the ultimate source of gold, as that of the high terraces is part of a wash deposit. Some of the gold, but probably not very much, is a distinct product of the immediate location in which it is found. (6) There is seemingly good evidence pointing to the existence in a recent period of a high-level interior sea or series of vast lagoons in the region which is to-day the drainage basin of the upper Yukon. From this lacrustine state the Yukon has gradually, and perhaps even rapidly, drained down to the character of the modern swiftly flowing stream, with powerful and almost equally rapid tributaries. (7) No unequivocal evidences of glacial action are met with in the region, and the terminal indices of the great continental northward moving ice-sheet are found about one hundred and twenty-five to one hundred and fifty miles southward of the tract. (8) Evidences of both ancient and comparatively recent (and even modern) volcanic action are abundant in and around the Klondike region; the region is, therefore, one which has been largely moulded and effected by igneous constructions (dikes, bosses, fluent sheets, etc.) (9) The known facts of the Klondike region, so far as they relate to the primal origin of the gold in the placers, favour the theory of chemical solution and precipitation, as opposed to the generally accepted view of accumulation from disintegrated reefs, lodes or veins. (10) It seems probable that the Klondike gold region is merely a fractional part of a discontinuously continuous auriferous tract that extends in a westerly course into the heart of Alaska and southward into British Columbia.

There are many eminent scientists, notably the late Prof Genth, the Australian geologist Mr. J. C. F. Johnson, Prof. T. Egleston and Mr. E. D. Levat, author of *L' Or en Literie Orientale,* who share with Prof. Heilprin the opinion that the source of gold in alluvial and deluvial deposits is from adjoining rocks is erroneous. The photographs with which this book is illustrated are particularly admirable and quite in keeping with the general excellence of the publication.

Preliminary Report of the Klondike Gold Fields, by R. G. McConnell, B.A., Geological Survey of Canada: Ottawa: 1900.

In a short preface to this report Dr. Dawson, the head of the Geological Survey Department, relates that it may be regarded as the first result of a systematic and moderately detailed scientific examination of the Klondike region. In our opinion this report is one of the most complete yet issued by the Department, for the reason that it goes much further than has been customary in the publication of information other than that of a strictly technical character. The report which is handsomely illustrated with photographs and drawings, deals with the geology of the Klondike district, the gold in gravels, the method of working claims, a description of the creeks and gulches and the production of the district to date. Mr. McConnell states that while it is impossible to give an approximate estimate of the value of the great stretch of gravel forming the paying portions of the different creeks, owing to the irregularity of the concentration and the difficulty in obtaining trustworthy returns from most of the miners, still the product of a few of the 500-foot claims on Eldorado and Bonanza Creeks will certainly exceed a million dollars each; and a considerable number on the same two creeks (in fact the majority of the lower Eldorado claims and a few on Hunker Creek) will yield over half a million each, and claims running from a quarter to half a million are common on all these creeks and also on Dominion and Sulphur Creeks. On the assumption of an average yield of a quarter million per claim, and that three-quarters of the claims in the distance mentioned are rich enough to work, the total value approaches $95,000,000, which this authority believes to be well within the mark. However, in this estimate no account is taken of long stretches of gravel on all the creeks, at present too low-grade to work profitably, but which eventually will become payable with the introduction of improved conditions and cheaper methods of working. Meanwhile these methods are still very primitive, although the employment of machinery in the working of Klondike claims is gradually increasing. Steam thawers are largely used and steam pumps are beginning to replace hand appliances. The greater part of the mining work, however, is still done by hand, and this, notwithstanding the fact that, taking into consideration the high price of labour, nowhere in the world could machinery be more profitably employed. That the Yukon will for many years to come, produce a very considerable quantity of gold is now undeniable, and, to quote from the report: "Thousands of streams in the gold belt stretching for hundreds of miles from Atlin to the Klondike and farther to the north, still remain to be explored and the work of the prospector will not be completed for many years." Accompanying the report is an excellent map of the region compiled by Mr. J. F. E. Johnston, largely from surveys made by him while assisting Mr. McConnell in the field.

We have to acknowledge the receipt of the second annual issue (1900) of the "Advertiser's Ready Reckoner," published by Mr. C. J. Walker, of 24 Coleman Street, London. This exceedingly useful work gives the prices charged for advertising spaces in all the

leading British and Colonial newspapers and journals. We expect to see some of the American advertising agencies, who are swift to recognize a good idea of this kind when brought to their notice, follow Mr. Walker's lead on this side of the Atlantic.

The Practical Handbook for the Working Miner and Prospector and the Mining Investor: By John A Miller. Spar & Chamberlain, New York. Price $3.00.

The author of this work subscribes himself "a practical miner," but even if he had not volunteered the information the book would proclaim the avocation of the writer. It is an eminently practical book, and a "practical" man wrote it. The fact is self-evident. Take this sentence in the introductory chapter for example: "Whether or not too much was, and is, expected of science to aid in the prosecution of practical mining, it is clear that too much has been sacrificed to science. In the education of the certificated mine manager, theoretical and purely technical instruction have monopolized attention at the expense of practical experience." This is exactly the idea held by the "practical" man, but is it quite a fair view? The graduate of a school of mines whose only knowledge of mining is theoretical, is obviously not qualified to manage a mine, but when that man has added practical experience to his technical training, he is generally a more competent person for the position of mine-manager than the merely "practical" miner who has not had the advantages of a scientific education. But apart from questions of this nature, the present treatise is in many respects entitled to warm commendation, and as a work of reference or instruction it will certainly be appreciated by the class for which it was written. The book is divided into two parts; the first and larger half being devoted to mining and prospecting, and the second to the subject of mining investment and promotion. Here are a few of the subjects treated under the first head: Work (including blasting, machinery, horse-power, hydraulic motors, and the steam engine); timbering (in which the whole subject is dealt with, and the different methods of timbering and shaft sinking described); mining geology; prospecting and opening mines, both placer and quartz. In the chapters on "Lessons to Investors" some really excellent if novel suggestions are held out. One of these is that when a company is to be brought out "the prospectus should emanate from a practical mining engineer of good standing, who should be held responsible for every statement made in it." The respectability of the compiler must then be vouched for by a magistrate or Government official residing in the district, and (1) "The prospectus should show in what way the capital of the company is to be expended. The works required for the development of the mine should be specified severally, the estimated cost set against every item in plain figures, and shown in detail upon plans open for inspection. (2) The directors should be compelled to follow these plane. . . . (3) The prospectus should indicate the leading geological features of the country or belt in which the mine is situated. . . . . (4) The prospectus ought to show an estimate of the cost of working the mine according to the plans recommended by the mining engineer, and give an estimate of the probable net profits of the mine if worked in consonance with any of the attenuative plans he may have provided: If this plan were adopted (we leave it to our readers to judge whether it is quite "practical" or otherwise) the author believes that the occupation of directors of a mining company, "who may sometimes be ornamental, but useful never" will be gone, "everything being arranged beforehand upon well-digested plans, and estimates of cost approximately fixed, there will be nothing further for the directors to discuss than such modification of the plans as may be necessitated by circumstances that could not be foreseen, and in such cases the directors can be of but little real assistance to the mine manager." There is really more truth than poetry in this last observation.

THE B. C. MARKET IN LONDON.

(From Our Own Correspondent.)

WITH the commencement of the new year it was hoped that British Columbia would attract a little more support from European investors than it had received during the greater part of last year, but so far as it has gone, 1900 shows little improvement on 1899, and although there are a few dealers who make a special feature of British Columbia mining shares, the price quoted for these are still very nominal, and business is largely a matter of negotiation in all descriptions, except the very pick of the list, such as B. A. C's., Le Rois, London and B. C. Goldfields, etc., and a few others. And it is not hard to explain this very marked apathy. For a long time, the mining section of the London Stock Exchange has been in a very nervous condition. Political and monetary considerations have been deterrent factors, and as, whatever may be said to the contrary by some people, a strong tone in one department has a bracing effect on other departments, the lack of interest in both the leading markets, viz., Kaffirs and Westralians, has helped to chill what is left of the B.C. section. I do not mean to say that West Australians cannot be good unless Kaffirs are blazing. What I mean you to understand is that when the leading sections are dull and inanimate, the lesser fry suffer in sympathy, and it would not be at all difficult to produce figures to prove this. The war has, of course, had a very unsettling effect upon Kaffirs, and although West Australians have made occasional efforts to rise superior to the generally depressing conditions of the times through which we have been passing, these have always indeed in fizzles, and prices have gone back whence they started, and sometimes have fallen even lower, owing to the disappointment caused by failure. In these circumstances, it is surprising that the junior section of the whole market should be left very much to its own devices? British Columbia has not done so much yet that it can boast of a host of dealers, prepared to devote their whole time to its interests, and recent events have not been of a cheering character. The closing down of the War Eagle and Centre Star properties followed almost immediatly by the news that the Le Roi and Hall Mines had almost stopped caused a gloom to overshadow this section, and more than counterbalanced the good effect which might have been produced by the announcement that the Slocan strike was ended.

Movements in prices at present are chiefly confined to the shares already mentioned, and I have no hesitation whatever in saying that in the rest of the British Columbia list it would be practically impossible to dispose of a thousand shares in a line without breaking the market all to pieces. Had the

news of the fall of the British Columbia government come in normal times, it might have helped the B. C. section a little, for people in the city recognize that the government which has recently been deposed did not distinguish itself by its wisdom in so far as nursing the mining industry went. But coming as it did when everything else was dull and down in the dumps it had no effect whatever, and as a matter of fact, hardly received any attention at all in the press. A few brief paragraphs announced the collapse of the government and intimated that an appeal to the provincial electors was imminent, but the cables announcing the news were probably completely buried by the war telegrams which have been pouring into Fleet Street since last November. Those cables reporting the end of the Slocan strike got very scant attention, and I doubt if half-a-dozen men in the Stock Exchange could tell which of the British Columbia companies the termination of the unfortunate dispute would be likely to benefit. So far as individual movements are concerned, they are few and unimportant. Le Rois have not fluctuated so much of late, although during the very bad times which preceded Christmas, and which were chiefly due to monetary considerations, they were down very close to £4, if they did not actually change hands at that figure. B. A. C's. were in the neighbourhood of 10s. and other shares practically unsaleable at any price. Since then, however, there has been a recovery, but B. A. C's. were so little affected by the meeting and dividend at the rate of 2s. a share that they are, as I write, between 15s. and 16s., and are dull at that. Le Rois are now quoted at 5 to 5¼, and London and B. C. Goldfields at 1¼ to 1⅜. The Ymir report was considered very satisfactory, and the price has been maintained fairly well, while one of the exceptional features was the sudden advance in the price of the B. C. Development Association which were improved to 2. The Tupper companies have been decidedly out of fashion and the proposal to amalgamate three of them which have proved their inability to stand alone has produced a certain amount of opposition, although it seems to be the best thing to do under the circumstances, and will probably be to the advantage of shareholders in the different companies. The Velvet is, of course, not without friends, and the New Goldfields of B. C. itself has quite a number of friends who believe in its being one of the best companies in British Columbia. But despite this faith in the future of the company few people seem disposed to back this hope with cash, owing to the ill-success which has followed several companies brought out by the Tupper group.

A very few reports have been issued or meetings held lately, and indeed there has been nothing of incident stirring in the British Columbia section. A few new companies are occasionally registered, and amongst those which have recently been formed are the following: The Antoine Mining Syndicate, with a capital of £12,000, formed to acquire "an undivided one-third interest in five mining claims known as the Antoine, Spokane, the Alice Fraction, Last Chance No. 4, and the Jenny Fraction."

Another is the Adams Investment Syndicate, which with a capital of £10,500 in 88,701 ordinary shares of 2s. each and 32,598 deferred shares of 1s. each, propose to acquire the business of the Adams B. C. Co., Ltd., and to carry on a mining, exploration and financial business.

The French Haute Finance is represented by the Chapleau Consolidated Mining Co., which with a capital of £75,000 will carry on mining operations in the Slocan region.

The following is an interesting little paragraph from the speech of the Marquis of Dufferin at the meeting of the British America Corporation:

"The expectations we held out to you concerning British Columbia have been satisfactorily realized. We have already begun to develop, and have formed into several groups a large number of properties at Rossland, which, in the opinion of our experts, in whose scientific knowledge and experience we have every confidence, are amongst the most valuable in the whole of that neighbourhood. It would only weary you to describe the thousands of feet of development work that have been carried on in various directions, and the large amount of machinery that has been erected to operate the mines in question. Suffice it to say that considerable ore bodies have been exposed, and that these mines will soon speak for themselves in the extent of their output and profit. Since the formation of the corporation we have acquired and formed into a separate company the well-known Le Roi mine; and, as many of you are probably shareholders in that property, I may state that it is developing in a very satisfactory manner, and gives every promise of continuing to pay dividends for a long time to come. Since the formation of the Le Roi company special attention has been given to placing the mine in a sound position by re-timbering, sinking new shafts, erecting powerful machinery, and generally preparing for a much larger output. This was rendered all the more necessary in consequence of its previous owners having pursued a very unscientific and reckless method of distributing and dealing with its workings. But, valuable as is the Le Roi mine, you will be pleased to learn that, according to the last accounts we have received, it would appear that we own a mine which may probably prove more valuable even than the Le Roi, and a third mine of perhaps equal worth, and should further explorations continue to confirm the sanguine views of our representatives on the spot, none of us need, I think, regret having chosen British Columbia as a field for our exertions."

In connection with this it would be interesting to know something definite regarding the actual state of affairs as to the Newport smelter. When the Le Roi was brought out, everyone thought that the British America Corporation had acquired the smelter. But throughout there has been a good deal of uncertainty as to this, and even now this uncertainty remains to vex those people who believed when they acquired their shares that if the B. A. C. did not entirely control the smelter, it had at least a joint interest in it with the Le Roi. According, however, to a statement in the *Colonial Goldfields Gazette*, which is, as I have often told you, the mouthpiece of the Whitaker Wright group, it is still an open question as to how much interest either or both companies has in this important asset. Any information you can give the British investor through your columns upon this important subject will be heartily welcomed.

You will remember that long long ago I dealt with the Morris Catton group, that coterie with which Mr. Turner and several of his friends saw fit to associate themselves. The collapse of this house of cards has completely verified my predictions. This you will

see more clearly in the following report which has been in all the papers:

THE OFFICIAL RECEIVER'S REPORT ON THE KLONDIKE AND COLUMBIA GROUP.

"At meetings held on Wednesday, March 21, of creditors and shareholders of this company, it was resolved to appoint the official receiver to act as liquidator and to wind up the company in the usual manner. Mr. G. S. Barnes (official receiver) reported that his investigation was as yet incomplete, but it showed that there seldom was a case in which a thorough investigation was more necessary, and the shareholders might rely that the whole of the circumstances attaching to the flotation and transactions of the company would be sifted to the bottom. The accounts showed unsecured debts £5,737, debenture bonds £4,183, and that out of a public subscription of upwards of £34,000 to the share capital there now only remained assets valued by the directors at £2,808. The whole of the deferred shares were assets issued to Mr. C. F. Flack, a clerk and nominee of Mr. John Morris Catton, the promoter of the company, in consideration of the payment of the promotion expenses, and, although no provision was made in the agreement filed at Somerset House, the directors, in addition to allowing those deferred shares, paid £3,007 in respect of certain of the promotion charges. In response to the prospectus 27,166 ordinary and 107 deferred shares were applied for, the arrangement being that each subscriber of 100 ordinary shares should be allowed to subscribe for one deferred share at par. Practically, the only business done by the company in England was the flotation of three other companies—i.e., the New Golden Twins, Ontario, Limited, the Dawson City, Klondike and Dominion Trading Corporation, and the Rainy River and Ontario Exploration Company. When 10s. per share had been called up, a dividend of 20 per cent. on the subscribed capital was declared, and the money with which that dividend was paid was obtained partly by calling up the other 10s. per share and partly by the sale of 5,500 New Golden Twins shares to the company's brokers for £2,750. The company still held 41,545 shares of the New Golden Twins company, but no value was placed on them in the statement of affairs. The only conclusion to which he could come was that the sale was an arrangement fraudulently made by the directors with the sole object of declaring the dividend. They could rest assured, however, that he would thoroughly investigate the case, and if he found that a criminal offence had been committed, the papers would be laid before the public prosecutor."

May I ask you to read, mark, learn and inwardly digest this report. I do not care to crow too lustily, but I am sure your readers will not need to be reminded that when the group were most busy in flooding the country with prospectuses holding out all kinds of promises, I did not hesitate to use the scalpel unsparingly. The remarks regarding the flotation of these companies contained in the official receiver's report, and especially his final utterances will give you some idea of the class of company to which some of your big men allowed their names to be attached. If you want to know what people are saying about the group and its promoters at the present moment, let me refer you to Mr. Hess's vigorous articles in *The Critic* in dealing with this wretched list of wildcats. As you will see from the concluding paragraph of the report, it is probable that we have not yet heard by any means the last of the matter, and in some quarters, people are looking for sensational developments.

THE MONTH'S MINING.

KAMLOOPS.

(From Our Own Correspondent.)

SINCE the snow disappeared from the hills, mining in this camp has received a very considerable impetus. Not only are the Coal Hill properties being actively developed but the surrounding camps of Nicola, Copper Creek and Shuswap Lake are receiving their share of attention. Two deals of considerable importance have materialized during the month. The B. C. Exploration Syndicate, already the owners of the Lucky Strike group, has bonded four adjoining claims, the Maxwell, Neighbour, Bluebird and Bill Nye, the price being $25,000, of which the first payment of 2½ per cent. has been made. The shaft on the Lucky Strike has been emptied of water and is being re-timbered, and a large force of men will be put on as soon as the shaft is ready. Meanwhile work is being prosecuted on the Bill Nye claim with good results.

A GENERAL ACTIVITY.

The transfer of the Kimberley group is also an accomplished fact. The cash payment of $8,500 has been made and the late owners still retain a one-fifth interest in the property to be taken in stock. It is not yet precisely known who are the real purchasers, the arrangements having been carried out through Messrs. Jackson & Wood, of Rossland. The bond calls for development on a large scale, which will be early commenced.

On Coal Hill the Python company continues working steadily with a force of seven men. On the Erin a band of ore seven feet wide has been met in crosscutting at the 100-foot level, the face being still in ore.

On the Thistle some high-grade copper ore has been struck. A shaft is being sunk on the Wheal Tamar group, a promising property owned between a local company and the representatives of a French syndicate. The shaft is all in ore of a very uniform quality carrying good copper values with some gold and silver. The ore body appears to be 40 feet wide and extensive surface work has been done showing it to be continuous over two claims.

Messrs. Asby & Donaldson have a staff of five men at work on the Truth group. The shaft is down 65 feet and is all in ore. The vein on this property is the largest in the camp and is well mineralized. The ore taken out is being cobbed and a shipment will be made to the Trail smelter.

The question of dredging on the North Thompson River still occupies a good deal of attention in some quarters, but beyond the staking off of other 25 miles or so of the river no further developments have taken place.

Mr. J. Fleetwood Wells, of Kamloops, has been appointed superintendent of the properties at Ten-Mile Creek, Nicola, which are being opened up by English capital. Some high-grade ore is being taken out and two carloads will be shipped to Trail smelter at an early date. The probable extension of the Columbia & Western Railway to Spence's Bridge is stimulating the development of mining properties all along the Nicola valley.

NICOLA PROSPECTS.

Salmon Arm, Shuswap Lake, is attracting considerable attention by reason of the discovery of a valuable ledge of argentiferous galena. Large bodies of low-grade ore are known to exist and in working on one of these a band of eighteen inches of high-grade ore was struck recently. Other strikes of high-grade silver ore have been made near Shuswap Lake, assays going up to 1,000 ounces in silver.

The Tenderfoot mine at Copper Creek is being developed with great success by a local syndicate. A large vein carrying a uniform distribution of bornite with some gray copper has been proved at a depth of 80 feet by a tunnel. There is about 2,000 tons of ore in sight and over 100 tons of picked ore on the dump. The work has been done with a view to proving the property before the syndicate made any large payment, and it has turned out very satisfactory. The syndicate has therefore made its payments and is now owner of three-fourths of the property. The last payment will be made in June. Meantime arrangements are being made for incorporation when stock will be placed on the market. If the same prudence is exercised in the management of the new company as has been the case with the development syndicate its success should be assured. It is undoubtedly the most legitimate and carefully managed mining enterprise yet promoted in Kamloops.. The success attending the development of prospects by local enterprise and the renewed operations of outside capital in the camp is greatly stimulating the mining industry, and greater confidence is now felt in its future.

REVELSTOKE.

(From Our Own Correspondent.)

There is very little to report from the immediate neighbourhood of Revelstoke this month, as the Big Bend has been remarkably quiet, though considerable assessment work has been done during the winter. Some results obtained from the Keystone ore are very favourable, and the owners confidently expect to either bond it or float it as a limited company during the coming summer as it is now sufficiently developed to put before the public. At the Consolidation (placer) mine on French Creek much work has been done, but it was largely necessary dead work and the output of gold has in consequence been smaller than usual, though of course now that the work has been done, better results are probable in the immediate future.

THE BIG BEND.

The Carnes Creek Co. have issued their annual report, from which it appears that there is a very fine body of ore exposed in the Rosebery ready for extraction when the best method of treatment has been decided upon, which is likely to be cyaniding. Nothing further has transpired with regard to the Standard Basin group, but the original owners are constructing a new company and intend to work the claims again as soon as access can be got to them this spring, which promises to set in early this year.

So it is to the southeast that we must look for solid results, and the Lardeau is still holding its own as firmly as ever. Fish Creek will be the scene of much business this year, as the value of several recently discovered properties is sufficiently proved to attract the attention of outside capital, more particularly as the practically assured branch of the C. P. R. will provide means of transportation to the whole district that have been hitherto utterly inadequate or wholly wanting. Another thing that is at least probable, is a smelter to be erected somewhere not far from Arrowhead, for the purpose of treating the Lardeau ores, and there is no doubt a small plant to begin with will find plenty to do, especially if it will smelt at reasonable prices. There are varieties of ore sufficient to render fluxes hardly necessary, and the locality has plenty of sites well adapted for the works. At Ferguson and Trout Lake there is a great deal of development work being done, and several properties have shipped ore to the Trail smelter, notably the Silver Cup and the Nettie L., both of which are showing up splendidly. But the enormous cost of transportation, and the excessive smelter charges take off a great deal of the profit and it is only the best ore that can stand the expense, so that a railway will be of untold benefit to the country. It is reported that the Badshot group has been bonded; it is a very good property, but certainly has hung fire for an unreasonable time, and it is to be hoped that this is but the forerunner of other business in the district, as there are plenty of claims with good showings that are likely enough to prove valuable mines. This next summer should be productive of great minig activity throughout the whole of this division, and will put the Lardeau still further to the front.

THE LARDEAU AND TROUT LAKE.

BOUNDARY CREEK.

(From Our Own Correspondent.)

At the time of writing the Boundary Creek district is bestirring itself in matters political in preparation for the forthcoming provincial election. As a legacy left to it by the Turner Administration, which departed this life politically in 1898, the district is still tacked on to the Rossland Riding of West Kootenay. For continuing to be so it has to thank the Hon. Joseph Martin, who went back on his promise when the Semlin Government's redistribution bili came before the Provincial Legislature a few weeks ago. Under the circumstances there is nothing for the electors of the Boundary country to do but to make the best of their temporary practical disfranchisement and to organize so as to exhibit their comparative strength as a voting power when the time comes for doing so. That they will do this is certain and that the Martin Government is alive to the fact is equally sure. The late Finance Minister, Hon. F. Carter-Cotton, recognizing the growing strength of the Boundary country, began to seek its favour and support, but the fates decreed that he should not remain in office to take full advantage of the prestige and influence attaching to the position of Minister of the Crown. The Martin Government is, however, "going him one better," not only in promises to populous centres in the Boundary district, but as well in its performancess. For months the rival towns of Grand Forks and Greenwood had been contending, each doing its utmost to secure the Supreme Court Registry that the legitimate requirements of the Boundary district demanded should be established. For a while it appeared as though the advantage lay with Greenwood. Then the Hon. Joseph Martin became the Provincial Government and he satisfied the rivals by establishing a registry in each of the two towns. Greenwood, seeing its opportunity, also pressed for the removal of the office of

the Mining Recorder for the Kettle River Mining Division from Midway to Greenwood. It mattered not that this would involve for all west of Midway the division extends about 30 miles westward to Camp McKinney and 50 to 60 miles northwesterly up the West Fort and other tributaries of Kettle River—who should go to the office to transact business 18 miles' additional travel, and to those using the mails two extra days' delay. There was only one consideration to be entertained at such a time, that of securing votes if possible. Phoenix, too, took advantage of the liberal attitude of the Government to urge its claims, which by the way, were legitimate and reasonable, and so it has been promised a Small Debts Court and a Deputy Mining Recorder. Other government promises embrace expenditures for road and bridge work, and so the game of vote-buying goes merrily on. Two Supreme Court registrars only 22 miles apart and three mining record offices in the same distance—this is a strange kind of economy truly, and doubtless more of a similar nature will follow. But it is very doubtful if it will achieve the intended result, for if the present Provincial Minister of Mines, Hon. Smith Curtis, contests the Rossland Riding of West Kootenay, he will in all likelihood find his supporters far outnumbered by those of Hon. C. H. Mackintosh, who was early in the field and who enjoys a double advantage in deserving well of the Rossland Riding, especially of the eastern portion, and in having his supporters already hard at work to ensure his return.

REMOVAL OF GOVERNMENT OFFICES.

The MINING RECORD in its confidence that the Mother Lode mine in Deadwood Camp has, from the time it was acquired by the Boundary Mines Co., been worked for mining purposes rather than for the profit there sometimes is in stock-jobbing, has for a long time freely published information respecting this property. Last month particulars were given of the additional plant and larger machinery ordered recently for this mine by theBritish Columbia Copper Co., the financially strong organization that in 1898 was formed to operate the mine on a more extensive scale. This month attention is directed with pleasure to the success that three or four weeks ago attended the placing of a number of the company's shares, the par value of which is $5.00 each. The *Engineering and Mining Journal* reported the sale in New York during the week ended April 5 of 9,500 shares at prices ranging from $10.25 to $13.00, and in Boston about the same time of 7,095 shares at from $10.00 to $12.75. The proceeds of these sales, which were probably supplemented later by others, will furnish a considerable sum of money towards the cost of further equipping and developing the mine and building the smelter now being erected near Greenwood. The methods of the British Columbia Copper Company, both in financial and mining matters stand out in strong and favourable contrast to those of some other companies formed ostensibly for developing mining properties in the district and this fact is evidently fully appreciated, for few if any other companies operating in the Boundary district can show that they have inspired such confidence and legitimately earned such good repute as to enable them to sell stock at more than double its par value. The position is more significantly favourable since there is no immediate prospect of the mine and smelter returning dividends, for it is unlikely the latter will be running before September next at the earliest and meanwhile it is not proposed to send any great quantity of ore to an outside smelter for treatment.

BOUNDARY CREEK STOCK IN NEW YORK

Regarding work in the mine, there has been done since last month's letter was written about 200 feet of work in the tunnel which is being run from the 200-foot level of the mine out to the creek where, as mentioned last month, the new compressor plant will be placed. The north drift at the 200-level is still being extended. It is now in some 700 feet from the main shaft and is still in ore. No. 4 cross-cut at this level has opened up about 90 feet of ore which will, of course, require sorting. At 650 feet from the shaft and 150 feet beyond No. 4 cross-cut No. 5 is being run, 40 feet having been made. Altogether 190 feet of work has been done during the past fortnight. Before this appears in print work will have been resumed at the 300-foot level, the non-arrival of some fittings for the cage having caused a delay. Grading for the new hoist will be completed by May 1st, and the erection of four 300-ton ore bins will be in hand by that date. No wood is now being burned in the boiler furnaces at the mine, Crow's Nest coal having been substituted for it as a more econmical fuel.

At the smelter lumber is on the ground for the ore bins and a contract has been let for the supply of 400,000 bricks for lining furnaces, flues, etc. It has not yet been definitely decided whether the smoke-stack will be built of brick or iron. The assay building and offices and the residence for the manager of the company are completed. The spurs from the Columbia & Western Railway have been put into both smelter and mine.

ROSSLAND.

(From Our Own Correspondent.)

Activity is once more satisfactorily in evidence in Rossland Camp and the despondency of the past few weeks has given place to renewed confidence. This with the settlement or adjustment of recent capital and labour differences. There has been no strike, and the settlement of the matter in dispute was arrived at by mutual conciliation and forbearance.

A RESUMPTION OF WORK.

While invidious mention may be subject to just criticism, Messrs. Ralph Smith and R. C. Clute as successful mediators should, I think, receive just consideration in having arranged the adjustment of a labour dispute which might have led to serious complications, but of course "there are others."

Aside from the business and practical conditions which form an important part of the compact entered into between the management and the men, it will be generally admitted that the following stipulations contain what must be regarded as the "essence" of the agreement.

"In order that all friction between the company and workmen might be eliminated, it was thought to be of great importance that a statement should be obtained from the companies that no discrimination should be made against union men, and that no obstacle should be placed in the way of miners becoming members of the union, it is specifically declared that—

"The fact of an employee being a member of the union will be no bar to his employment, nor will the

companies place any obstacle in the way of non-union men becoming members of the union.

"And while, the companies reserve to themselves the right to employ such men as they see fit whether they are members of the union or not, yet it is declared the policy and the intention of the companies to treat their employees fairly and not discharge any one whether he be a member of the union or not without just and sufficient cause, it being clearly understood that membership in the union will not constitute grounds for discharge; and with respect to matters wherein the employees of the companies may consider themselves aggrieved, the companies will, at any reasonable time receive a presentation of the case, and consider the same in a fair and impartial spirit, and endeavour to remove the cause where any is found to exist, and it is expected that the union will at all times use its good offices and exhaust all conciliatory methods before permitting any strike or stoppage of work, and further that they will not seek to interfere with the companies in employing or discharging employees or interfere with the contractor."

While the foregoing have been called the essence of this agreement the basis of it is the contract system which has come to stay.

How much Rossland depends upon the staple industry of its mines was never more clearly shown than during the suspension of operations. The readers of the MINING RECORD have already been advised as to the unnecessary alarm that was raised a few weeks ago when a strike was apprehended. While much of this alarm was needless the apprehension was natural. A large amount of money has been invested and expended here in ventures and enterprises dependent upon the mineral industry and a good deal is at stake other than the capital invested directly in mining operations. Indeed the large amounts of capital that have been expended in plant and machinery, as well as in improvements is a matter worthy of note. The community is entirely an industrial one, and consequently sensitive to any cloud which may arise within its horizon. At no time during the lull was there total suspension and as the columns of the MINING RECORD can testify a great deal of work was done not only in the producers which temporarily suspended shipments, but in the outside properties around the city.

During the period of its greatest mining activity in 1899 Rossland mines showed a pay-roll variously estimated from $120,000 to $150,000 per month. This had decreased in the middle of the suspension to figures estimated from $60,000 to $75,000 per month. The amount is again ascending and by next month it will be about $120,000 monthly.

Recently I had occasion to revise some of the figures tabulated in connection with the mineral production of 1899 from Rossland mines. While the quantity of ore returned as shipped remains about the same, viz., 180,300 tons, some reduction must be made in the valuation.

The War Eagle ore was estimated at $18.00 gross all around. Since the exact figures have been furnished in the company's report, it is found that the average is nearer $17.00 than $18.00 gross smelter returns. For all practical purposes, Rossland ores for last year may be placed at $17.00 per ton all around, these being the gross figures, as distinguished from the net, smelter returns which are from $5.00 to $6.00 less. The finally revised figures for last year stand about as follows: Production, 180,500, valued at $3,065,100 gross; average value, $17.00. The average for a series of years beginnig with 1894 is: 1894, 40.69; 1895, 35.67; 1896, 32.65; 1897, 30.48; 1898, 22.20; 1899, 17.00, with a largely increasing tonnage.

Le Roi.—The management is working 275 men with 30 machines. Considerable progress is being made with the new shaft a short distance west of the old working shaft. Marked progress is being made with the workings on the Black Bear ground. The ore shipments now average about 12 cars daily, amounting to 350 tons.

War Eagle.—The management is working a small force of men with six drills. Shipments will not be resumed for some time.

Centre Star.—A small force is at work in the mine with four drills. The principal work is on surface improvements such as the gallows frame for the new hoist, and the new compressor building 60x30. The foundations are concrete and granite and are said to have cost $5,000, in addition to the cost of the building, $2,000—$7,000 in all. The 40-drill compressor plant which is being manufactured at Sherbrooke, Quebec, will be shipped May 5, and the compressor will be running a month later. Shipments of ore will not be made until after that time.

Sunset No. 2.—The west drift on the vein from No. 3 shaft is in 260 feet and Mr. W. I. C. Jeffrey, the mining engineer in charge, states that the vein is eight feet wide in some places. The vein is very much interrupted by dykes which, however, on being cut through the ore is again found. There has been much disturbance, which, it is believed, will be very much overcome with deeper workings. Mr. J. R. Drewry, the managing director, has been on a visit to Toronto and will return by May 1.

Ore Shipments.—These from Rossland mines for the three months and twenty days ending April 20 amount to 35,050 tons, made up as follows: Le Roi, 14,650; War Eagle, 11,000; Centre Star, 7,000; Iron Mask, 1,500; Evening Star, 300; I X L, 250; Monte Christo, 300; Giant, 50. Total 35,050, against 16,000 tons for the corresponding period of last year.

Progress in development work is reported from the White Bear, California, Gertrude, and some other properties on the outskirts of the city.

British America Corporation Josie.—The new tramway reaching from the mine to the Red Mountain Railway is nearly completed, and I am credibly informed that shipments from this mine will shortly be made.

British America Corporation, Nickel Plate.—Mr. W. S. Haskins, the superintendent of this mine, has gone on a short visit to his old home in San Francisco, California.

The recently discovered vein at the 460-foot level has given many proofs that it is one of the main leads of the camp. Sinking is being continued to the 500-foot level.

British America Corporation, No. 1.—Sinking has been discontinued pending the installation of hoisting machinery.

Within another months operations here will be making rapid headway, a progress that not even political matters will affect, though these are attracting more than ordinary interest.

SLOCAN.

(From Our Own Correspondent.)

The advent of spring somewhat earlier than usual this year is heralded not so much by the anxiety of prospectors and others to get away into the hills as by townspeople who are busy improving their respective properties, enclosing the same and turning them to agricultural account; and contrary to all etiquette —past or present—of mining regions, less is now heard of the conditions of the mines than of prospective football matches. However, matters will adjust themselves if left alone, it being satisfactory in the meantime to know that despite the pessimistic utterances of some who have recently returned from Eastern Canada and the Old Country, the Slocan still comes up smiling looking hopefully to the future. Not that the difficulties of the situation have been over estimated by any means, as only those who are fully conversant with the conditions know the really serious nature of the problems which confront the mine managers even now in their efforts to satisfy expectant shareholders; and speaking candidly I must say the majority of onlookers have unwittingly allowed their prejudice, or perhaps we might better call it sympathy for the labourer to get the better of their judgment in considering the unenviable though sometimes envied position of those on whom the burden of management devolves and who are held responsible for the financial result of the operations.

AN IMPROVED OUTLOOK

Everyone is pleased to learn that a satisfactory conclusion has been arrived at with the miners around Nelson, the amended Slocan scale of wages having been adopted practically *in toto*. Now that matters are getting settled on what everyone considers to be a just and permanent basis it is to be earnestly hoped that future governments will do all in their power to help maintain the prevailing feeling of equanimity.

Shipments to the middle of April total roughly 6,000 tons and although a good proportion of this legitimately belongs to the last month, considerably increased movements will have to take place before we even approximate the output for former years. The best known mines seem to be holding aloof for some reason, the Payne being the only one so far to exceed 500 tons. With the mills running at the Slocan Star, Ruth and Wakefield we may reasonably look for a rapid rise in the rate of production.

Outward improvements at the mines which portend much future good are still proceeding, the Hartney on Silver Mountain being the latest to recognize the economic advantage of comfortably housing their men; of perhaps more importance even is the fact previously mentioned that their action inspires confidence in the permanence of their operations.

Goat Mountain properties so long in disfavour are once more taking popular fancy, and although preliminary operations at the Mollie Hughes did not quite realize expectations it would be manifestly unfair to condemn all the deposits on the strength of the limited development there carried into effect. The ore obtained up to the present though of high grade has been found wholly in small bunches and stringers but a reasonable hope is entertained that more extended operations will result in locating bodies of considerable size.

The chief item of interest from Silverton refers to the successful operation of the Wakefield concentrator, the mine of which name is one of the best developed in the Slocan, having enough ore on hand to last for a considerable period. The mode of occurrence is somewhat peculiar and differs essentially from that of other well known properties. The vein which is remarkably persistent, lies quite flat contrary to usual experience, and conformably with the slates which is also exceptional. Its width is very great, varying from six to as much as forty feet in places, the whole of this space being occupied with an almost pure lime through which is distributed shoots of galena and irregular masses of concentrating ore. The former exhibit an unfortunate tendency to strike across from the foot to the hanging wall which renders safe and economical mining more than ordinarily difficult. The mine and mill are connected by means of a 6,000-foot Finlayson aerial tramway with a capacity of 250 tons a day which is found to work to perfection, requiring only three men to operate. The concentrator embodies several new departures, the most important of which is the substitution of seven Wilfley shaking tables for the old-time round buddles which are in vogue elsewhere for treating the slimes. For the rest the difference consists chiefly in the arrangement, the essential parts being 5,000 feet of flume and 1,500 feet of piping which supplies water sufficient to generate 500 horse power to three Pelton wheels, one of which is required to operate the electric light plant of the building. The ore as it comes to the mill is fed to a crusher of the Blake type, thence to an elevator which conveys it through an automatic Challenge feeder to the rolls whence it passes successively through a series of trommels, classifiers, Hartz jigs and Wilfley tables, emerging finally in the form of marketable galena and zinc blende. The smooth working of the tables is something to be admired and mill men from quite a distance have been to inspect this part of the process.

YMIR.

(From Our Own Correspondent.)

I am pleased to be able to report the adjustment of the difficulty between mine owners and miners. A settlement has been reached in which eight hours constitutes a day's work while the remuneration is fixed at $3.25.

SETTLEMENT OF LABOUR TROUBLES

The majority of properties which have remained idle owing to the past troubles have already commenced operation and this town once more put on a prosperous air. The Ymir Gold Mines, Limited, are employing a large number of men, who are putting in a new tramway and repairing the mill. The Porto Rico mine, operated by the Canadian Pacific Exploration Limited, have decided as soon as the snow has gone to move their mill to the forks of the creek. This will necessitate the installing of a seven-thousand foot aerial tramway. At the same the management have decided to make the mill a twenty-stamp instead, of as at present, a ten-stamp. Mr. Campbell-Johnson, of Nelson, will look after the engineering problems while Mr.S.L. Long will manage the company affairs. This company is one of the pioneers of the Ymir Camp and we all trust that they may be as successful in the future as in the past.

I regret to state that the Tamarac mine has closed down, it is believed, owing to the treasury being de-

pleted. However, it is reported that the directors are negotiating with English parties to place a block of stock. At the present the mine never looked better and under the management of R. W. Macfarlane the property has been brought from the prospective stage to that of a mine. The company has been having their ore experimentally treated so as to discover the best method of treatment which is suitable, and if the funds can be raised a mill will be installed, it is understood that the bromo-cyanide process will be used. The Wilcox and Black Cock mines are looking remarkably well and it is only a matter of a short time before mill will be installed on these properties.

PRODUCING MINES.

LILLOOET.

WE are indebted to the Bend 'Or Mines, Limited, for a report of this company's crushing operations for March. The mill was started on the 17th ult., being in operation twelve days and seventeen hours, crushing two hundred and fifty tons, yielding four hundred and sixteen ounces retorted gold. It is this company's intention to "clean up" in future at the end of every month.

YMIR.

The output of ore from the mines of the Ymir district for the first three months of 1900, amounts to approximately 10,000 tons. To this figure the principal contributors are the Ymir mine, which has sent about 8,000 tons down to the mill; the Yellowstone whose ten-stamp mill has been crushing for about six weeks, and the Blackrock, Arlington and Canadian King.

The original returns from the Ymir mine for January are as follows: During January 2,160 tons have been milled, producing 1,011 ounces of bullion and 130 tons of concentrates; have shipped 92 tons of concentrates but no smelting ore; the total receipts for the month are $14,294; expenses, $7,930; estimate of outstanding concentrates, $1,200; the mill has run 22 days; mined, 2,500 tons.

NELSON.

The report of the Collector of Customs from this port for the month of March shows the mine exports to have been:

	Values.
Ores of all kinds, 790 tons	$50,403 00
Coke, 1,985 tons	6,239 00
Gold bullion	33,871 00

The March returns of the Athabasca Company's mill run are as follows: The mill was in operation thirty days and seven hours, crushing 416 tons. Value of bullion recovered, $9,201.30; value of concentrates recovered, $1,472.80. Total values recovered, $10,674.10; values recovered per ton crushed; $25.66.

SLOCAN.

The Slocan output for the first three months of the year aggregate 4,009,000 pounds, divided as follows:

	Pounds.
January	1,498,000
February	794,000
March	1,717,000

In the customs report for March the exports show:

Total pounds of ore	1,115,000
" Value	$43,267
" Pounds lead	454,740
" Ounces silver	49,940

ROSSLAND.

The following mine products were exported in March:

Pyritic ores, tons	220
" value	$4,250
Matte (copper and lead) lbs.	1,069,473
" " " value	$140,347

Our Rossland correspondent telegraphs as follows: "The ore production of this district for the four months ending April 30th amount to thirty-eight thousand tons."

COAL EXPORTATIONS.

THE exportation of coal from the Vancouver Island collieries for the month of March were divided as follows:

	Tons.
New Vancouver Coal Co.	37,423
Ladysmith (Extension)	25,387
Union	12,483
Total	75,293

The New Vancouver Coal Company's shipments for the three weeks ending April 20th were:

Date.	Vessel.	Destination.	Tons.
3—	SS. Robt. Adamson.	San Diego	4,582
4—	SS. Mineola	Pt. Los Angeles	3,234
6—	SS. Karluk	Alaska	112
8—	SS. New England	Alaska	43
9—	SS. San Mateo	Pt. Los Angeles	4,301
13—	SS. Titania	San Francisco	5,871
15—	SS. New England	Alaska	41
19—	SS. Mineola	Pt. Los Angeles	3,300
Total			21,484

THE METAL MARKET—APRIL.

GENERAL business during the month has been good, with, however, very little change in prices. Silver, which has been quoted at from 59⅜ to 59⅝, is dull but steady; the average price having been higher than the preceding months of this year.

COPPER.

This market continues to be very strong and active, with a large consumption both in America and Europe. In consequence of large orders, prices have slightly advanced. Our latest quotations are: Lake, 16.90 to 16.95c.; electrolytic in cakes, wire, bars and ingots, 16.75 to 16.85c.; in cathodes 16½ to 16⅝; casting copper, 16⅝. The average price of electrolytic copper last month was 16.29.

LEAD.

The market has considerably improved in the last two weeks, but prices remain unchanged at 4.65 to 4.70c. New York, and 4.55 to 4.57½s. St. Louis.

SPELTER.

Spelter is in good demand with prices at 4.60c. St. Louis and 4.75c. New York.

THE LOCAL STOCK MARKET.

THE market is in a better condition now than for some months past and brokers in all sections of the country report an improvement in business and generally anticipate a revival of good times again.

TRAIL CREEK.

Since our last report the Rossland mines have resumed shipments. Centre Star has advanced to $1.55, War Eagle to $1.48, Iron Mask to .40, and Evening Star to 10½. Other stocks in that district practically remain unchanged.

SLOCAN AND NELSON.

Noble Five has dropped to 5 with a few sales at 3, owing to rumours of the intended foreclosure of mortgage of $150,000 held by Mr. James Dunsmuir. Dardanelles has dropped to .3, Athabasca to .27, Hall Mines to 1-6, Payne to $1.20 and Rambler Cariboo from .55 in our last report to .27, owing to cessation of dividends, and Tamarac to .6.

BOUNDARY CREEK DISTRICT.

King has fallen to .11, Winnipeg to .15, Brandon and Golden Crown to .22, and Knob Hill to .75. It is reported the Winnipeg is soon to resume work .

CAMP M'KINNEY.

Cariboo has advanced to .97, Waterloo has fallen to .5, and Minnehaha to .5. The Cariboo is about to add another twenty stamps to their mill and the Fontenay is reported about to start work again on a large scale.

TEXADA ISLAND.

Van Anda has been selling at from 3½ to 4 cents, and Treasury mines have advanced to 10 cents owing to reports that the Surprise group owned by this company will soon resume work.

MACHINERY CATALOGUES.

WE shall be pleased to mail catalogues of any of the undermentioned firms to our readers free of charge, on application:

Ainsworth & Sons., Wm., fine balances; Armstrong & Morrison, riveted steel pipe ore cars, etc.; B. C. Assay & Chemical Supply Co., assayers' supplies; Braun & Co., T., assayers' supplies; Beatty & Sons, M., cables and tramways, dredges, pumps, etc.; Bennett & Co., Wm., fuse safety couplers, etc.; California Wire Works, cables and tramways; Canadian Rand Drill Co., drills and compressors; Canadian General Electric Co., electrical plants; Cooper Mfg. Co., The James, compressors, power and hand drills; Denver Fire Clay Co., assayers' furnaces, etc.; Fraser & Chal-

mers, mills, pumps, hoists, engines, etc.; Fairbanks, Morse & Co., steam and gas engines, compressors, etc.; Gates Iron Works, engines, boilers, crushers, etc.; Hamilton Mfg. Co., The Wm., crushers, mills, hoists, etc.; Hendy Iron Works, Joshua, modern mining machinery; Hinton & Co., Geo. C., electrical supplies and machinery; Hearn & Harrison, engineering, mining and surveying instruments; Hamilton Powder Co., explosives; Howells Mining Drill Co., drills, all kinds; Jeffrey Mfg. Co., elevating machinery; Jenckes Machine Co., hoisting and milling machinery; Krupp, Fried, Grusonwerk, mills, engines, pumps, etc.; Lexow, Theo., carbons; Link Belt Machinery Co., conveyors, elevators, etc.; McLennan, McFeely & Co., belting, etc.; Mitchell, Lewis & Staver, compressors, drills, hoists, etc.; Perrin & Co., Wm., filter presses; Royal Electric Co., electric power, all kinds; Robertson & Co., James, wrought iron pipe, paints, etc.; Sturtevant Mill Co., ore breakers and mills; Stilwell—Bierce & Smith-Vaile Co., water wheels; Taylor & Co., John, assayers' supplies; Trenton Iron Co., cables and tramways; Taylor Aair Compressor Co., drills, compressors, etc.; Union Gas Engine Co., gas engines, hoists, etc.; Wittstock, P. & R., mining engineering and surveying instruments; Wilfley Ore Concentrator Co., Ltd., concentrators.

Mining Stocks.

Prepared by A. W. More & Co., Stock Brokers, Victoria, B.C., April 25, 1900.

Company.	Capital.	Par Value.	Price.
TRAIL CREEK.			
Big Three	$3,500,000	$1	$ 6
Centre Star	3,500,000	1	1 55
Commander	500,000	1	10
Deer Park	1,400,000	1	2
Enterprise	1,000,000	1	20
Evening Star	200,000	10	10½
Georgia	1,000,000	1	5
Gertrude	500,000	1	9
Golden Drip	500,000	1	15
Gopher	1,000,000	1	03½
Homestake	1,000,000	1	2
Iron Horse	1,000,000	1	6½
Iron Mask	500,000	1	40
I.X.L	1,000,000	1	13
Iron Colt	1,000,000	1	10½
Jumbo	500,000	1	25
Le Roi	£1,000,000	£5	£5
Lilly May	$1,000,000	1	$0 20
Mayflower	1,000,000	1	10
Monte Cristo	2,500,000	1	4
Nest Egg-Firefly	1,000,000	1	02
Novelty	1,000,000	1	3
Poorman	500,000	1	14
R. E. Lee	2,000,000	1	2
Red Mountain View	1,000,000	1	3
Rossland, Red Mountain	1,000,000	1	10
St. Elmo	1,000,000	1	3
Silverine	500,000	1	6
Silver Bell Con	500,000	25	3
Victory Triumph	1,000,000	1	5
Virginia	1 000,000	1	6½
War Eagle Consolidated†	2,000,000	1	1 48
White Bear	3,000,000	1	2
AINSWORTH, NELSON AND SLOCAN.			
American Boy	1,000,000	1	6
Arlington	1,000,000	1	6½
Argo	100,000	0 10	10
Athabasca	1,000,000	1	27
Buffalo of Slocan	150,000	0 25	—
Dundee	1,000,000	1	10½
Dardanelles	1,50 000	1	3
Dellie	7.0,000	1	12
Exchequer	1,000,000	1	12
Fern Gold	200,000	0 25	6
Goodenough	800,000	1	11
Gibson	650,000	1	17½
Hall Mines	£300.000	£1	1s.6d.
Lerwick	$1 500,000	$1	10
Leviathan	2,000,000	1	3
London	150,000	25	25
Miller Creek	1,000,000	1	08
Molly Gibson	2,000,000	1	35
Minnesota	1,000,000	1	66
Nelson-Poorman	250,000	0 25	20
Noble Five Con	12,000	1c. par	5
Ottawa and Ivanhoe	1,000,000	1	12½
Payne	3,500,000	1 00	1 20
Rambler Con	1,000,000	1	27
Reco	1,000,000	1	1 00
Slocan-Reciprocity	1,000,000	1	—
Slocan Star†	500,000	50	1 25
Silver Band	250,000	0 25	12½
Slocan Queen	1.000,000	1	10
Star	1,000,000	1	07
St. Keverne	1,000,000	1	5
Sunshine	500,000	10	
Tamarac	1,000 000	1	6
Two Friends	240,000	30	3
Washington	1,000,000	1	25
Wonderful	1,000,000	1	4
LARDEAU.			
Lardeau Goldsmith	200 000	1	04
Consolidated Sable Creek Mining Co	1,500,000	1	5
Lardo-Duncan	1,500,000	1	05
TEXADA ISLAND.			
Gold Bar	100,000	10	10
Raven	1,000,000	1	10
Texada Proprietary	250,000	0 25	25
Texada Kirk Lake	600,000	1	1 00
Treasury Mines	250,000	25	10
Van Anda	5,000,000	1	4
Victoria-Texada	150,000	0 25	10
VANCOUVER ISLAND.			
Alberni Mountain Rose	250,000	1	03½
Consolidated Alberni	500,000	1	5
Mineral Creek	500,000	1	05½
Mineral Hill	750,000	1	05
Quadra	500,000	1	05
Mount Sicker & B.C. Development Co	£125,000	£1	4 85
CARIBOO.			
Cariboo Gold Fields Ld	£100,000		
Cariboo Hydraulic Consolidated	$5,000,000	$5	$1 10
Cariboo M. & D. Co	300,000	1	25
Golden River Quesnelle	£350,000	£1	
Horsefly Hydraulic	$200,000		
Ward-Horsefly	500,000	$ 1	55
Victoria Hydraulic	300,000	1	85
LILLOOET DISTRICT.			
Alpha Bell	500,000	1	
Cayoosh Creek Mines	500,000	1	
Excelsior	500,000	1	
Golden Cache	500,000	1	
Lillooet Gold Reefs	200,000	25	
FAIRVIEW CAMP.			
Smuggler	1,000,000	1	01½
Fairview Corporation	1,000,000	25	04½
BOUNDARY CREEK.			
Boundary Creek M. M. Co	1,500,000	1	10
Brandon and Golden Crown	1,500,000	1	22
Dominion Copper Co	5,000,000	1	75
King	1 500,000	1	11
Knob Hill	1,500,000	1	75
Morrison	1,000,000	1	3½
Old Ironsides	1,000,000	1	80
Pathfinder	1,000,00	1	11
Pay Ore	1,000,000	1	07½
Rathmullen	2,500,000	1	4
Winnipeg	1,000,000	1	15
CAMP MCKINNEY.			
Camp McKinney Development Co	600,000	1	23
Cariboo†	1,250,000	1	97
Minnehaha	1.000,000	1	5
Waterloo	100,000	10	5
Fontenoy	1,000,000	1	10
O'Shea	£0,000	10	01
Waterloo No. 2	50,000	10	01
Mammoth	50,000	10	01
Little Cariboo	100,000	10	01
Shannon	50,000	5	03
Sailor	1,250,000	1	10
Silver Bell, Consolidated	500,000	25	2¾
REVELSTOKE.			
Carnes Creek Consolidated	1,000,000	20	
EAST KOOTENAY.			
Canadian Gold Fields	1,000,000	10	7
Crow's Nest Pass Coal Co	2,000,000	25	$37 00
North Star	1,500,000	1	1 25
Sullivan	1,000,000	1	12½