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OUR CHRISTMAS NUMBER.

OUR subscribers, we think, will not be slow in appreciating the free distribution to them—in addition to the regular December issue—of a special Christmas number of the MINING RECORD, which will be issued from the press in the course of a few days. The publication of this special edition has entailed a very considerable expenditure of money, time and labour, and we can in all modesty claim that it approaches as nearly as possible, with the facilities at hand, that high standard which has been reached by wealthier literary publications in older lands. It is, we might point out, the first venture of the kind attempted by any periodical in Western Canada, and that the *materiel*, letter-press and skilled workmanship are each and all distinctly British Columbian. As to the literary merit of the work, among our contributors we may mention such well-known names as Sir Charles Hibbert Tupper, Mr. Hill-Tout, Mr. A. Scaife and Mr. Phillipps-Wolley. It is our intention to produce a similar issue semi-annually to which our regular subscribers will be entitled as in the present case.

THE private letter of a correspondent the other day made the very strong statement: "London is unmistakably hostile to British Columbia mines." It is not certain that "hostile" is the proper word to use. If it is then there is a more hopeful outlook for British Columbia mines in London than there has been. Because hostility implies feeling, and London is never hostile to things out of which there is no money to be made. It is simply apathetic. But where London knows there is money to be made,

and London for some reason is not making it, that hurts, and hostility is an adequate description of its feeling. It is only to be hoped that the London business man is, for British Columbia's interests, in this very salutary frame of mind, because he can be trusted to discover what is wrong and to apply the remedy. The trouble does not lie in the country, so much is certain. There never was a country which has made more poor men rich and more rich men richer than the Kootenay country when the amount of capital invested in relation to the profits that have been made is considered. Nor is there any country offering richer rewards in its still unexplored and partially explored territory. And yet British Columbia is represented to the London business man by some seventeen companies that are at all ever heard of, of which the shares of nine stand at a nominal premium, while there are active dealings in only three or four. There is obviously something wrong, which, if it is not the fault of the country must be the fault of either the London business man or of the people of British Columbia. As a matter of fact both are to blame. In the first place, with regard to the attempts of English capital to obtain a footing in British Columbia, there has been a general inefficiency of service in the field. This is a somewhat sweeping statement and it is qualified by some brilliant exceptions, but on the whole it is true. This inefficiency has been displayed in many different ways. An apparent incapacity to judge of the resources of a mineral belt when it is first discovered appears uniformly true of all English engineers and experts. In dealing with prospects they are hopelessly at sea. They went through the Slocan country and turned their backs on that. They went through the Rossland country and turned their backs on that, and they are walking in scores over good mines to-day; nor do they seem to see what they have missed until some one else has demonstrated it beyond question. Peculiar and special incapacity has characterised exploration companies backed by English capital. The most notorious instances are the Lillooet, Fraser River and Cariboo Company, and the company associated with the name of Grant Govan. But while these

companies are pointed out as particularly bad, nearly all English exploration companies possess defects of method and management similar in kind if not equal in degree.

In addition to this apparent want of grasp upon the potential resources of new mineral belts the notorious "Galena Mines, Limited," has only to be recalled to bring home what a mess can be made of prospects otherwise favourable. The Galena Farm did not bear out the reports made upon it, was grotesquely over-capitalised, and after having been a complete failure in the hands of an English company has been bought and is being quietly developed by an American syndicate. The Hall Mines, Limited, might also be cited as another case in point. This mine did not bear out the reports on which its flotation was based; it has not been opened economically, nor to the best advantage, Mr. Hardiman notwithstanding. The company went into smelting without knowing how much ore it had to smelt; the directors' board is conspicuously ignorant of what it is supposed to supervise; and finally, the company went off on a wild exploratory career after copper ore, which has all come to naught. Yet many people in England are quite satisfied that British Columbia is no good because the Hall Mines, Limited, has not paid satisfactory dividends. Then again, what problem of transportation or treatment has been attacked and solved by the representative of English capital? And yet the reward of enterprise lies as much in these things as in the recognition of rich mines. If the gold, silver, lead and copper mines of British Columbia lay in Cornwall or Lanarkshire they would form a body of wealth untold for their owners, but there would not be very much in them for the adventurous capitalist. It is because they lie in the fastnesses of the British Columbia mountains and present at every turn new and complex idiosyncrasies of formation and of ore occurrence that they offer the opportunities of such rich reward, but at the same time demand so much talent and invention for their development—qualities which have so far been conspicuous by their absence in the representatives of English companies and capital operating in British Columbia. It is just as well that these things should be recognized frankly and without reservation, because they happen to be true; but there is another side to the shield. The people of British Columbia have never realized the fact that the promoter in London—a frequently abused but very necessary and useful person—is tied hand and foot by what he knows as the "market," which is really the ordinary outside individual from whom the hard cash necessary to develop the country comes in the last instance. Unless that ordinary outside individual, the man who in his factory and office, garners, pound by pound, the wealth that in its turn fertilises and makes productive the waste places of the earth, be attracted, the cry for English money is in vain. What made possible the flotation of the British America Corporation, and the application of one million sterling to the development of Rossland mines? It was the fact that the transition of the Le Roi from a worthless prospect into a great mine came so suddenly, and with so much romantic elements in it, that it pierced the ear of the English public deafened by the hum of the whole world's business. None knew better the value of the Le Roi as a drawing-card than the promoters of the British America Corporation. As with the Le Roi, so with Rossland district as a whole. The first discovery of a really great

gold district on Canadian soil, whose mines are to-day discovering resources undreamt of in the beginning; whose smelters lead the van in scientific development of pyritic smelting; assailed with ferocity as a worthless and dangerous boom district; defended with enthusiasm, genius and perseverance; it occupies a unique position as the best advertised mining district in North America. And as such, not as the great mining camp it undoubtedly is, but as the best advertised mining camp in North America, it has received the capital necessary for its development. Now British Columbia as a whole does not lack the necessary material to attract the attention which Rossland was so successful in securing. It possesses the greatest, widest and richest portion of the mineral zone which stretches from the Andes of South America to the frozen steppes of the Arctic Circle. The few infinitesimal spots that have as yet been attacked by development have produced mines already known as among the great mines of the world. The rest of the vast territory lies virgin and unassailed, only waiting for the hand of man to add an industrial empire to the world. But what is being done to bring what might be called this geographical syllogism before the mind of the investor, without whose money the wilderness must remain a wilderness? Nothing; absolutely nothing. So it is to some extent the fault of the people of the Province themselves that the country, this great country, is represented by the operations of some seventeen, more or less, chiefly less, successful joint stock companies.

After all the English investor is not enterprising in the American sense. He lacks altogether the keen personal interest in industrial details with which every American follows the operation of his capital. He leaves that to the specialists who direct affairs. He is a placid animal, satisfied as long as dividends are produced for him, but he becomes petulant under delay, and when roused by ultimate loss rends his specialists in pieces. He insists on scrupulously correct financial management and has an analytical eye for a balance sheet. His function is really out of the narrow circle of his own individual productiveness to supply the capital needed by other industries and countries. But this function he does not discharge automatically only in those directions brought favourably before his notice. So that if British Columbia will not condescend to explain itself to him and unroll before his eyes the glittering promises of its virgin territory it need never hope for any assistance from him. British Columbia will still be represented to his mind by the operations of some score of more or less, chiefly less, successful joint stock companies.

A significant item appeared in the Customs returns of the port of Nelson for October. Exports of bullion for the month amounted to over \$25,000. That in itself does not appear significant, but when coupled with the fact that during October, 1898, no bullion whatever was exported from this district it becomes vitally interesting. It points to a new development in the mining industry, which has made great strides during the current year, namely, the successful treatment of free milling ores. It is curious that in British Columbia the ordinary course of development in mining seems for some reason or another to have been reversed. As a rule in a new country it is the free milling vein which first attracts attention, because they are the easiest to exploit where means of transporta-

tion are inadequate and smelting facilities do not exist. But we find that in British Columbia it was first the silver-lead mines of Kootenay Lake that attracted serious attention to lode mining in the Province, then the copper-silver ores of Toad Mountain, then the Slocan country, and finally the copper-gold ores of Trail Creek and Boundary. While the free-gold belts of Nelson, Salmon River, Camp McKinney and other places were comparatively neglected. The reason was probably, not that these free-gold belts were unworthy of attention, but that prior to 1893 there was on the average a better and safer return in mining silver and lead in North America than in mining gold, and that after that the popularity of copper-gold ores became so great as to discount everything else. Everyone was looking for a mine that would rival the Le Roi and War Eagle, and so far did this go that a ledge of worthless iron became a better saleable asset than a good vein of free milling quartz. It looks now, however, as though the quartz veins of the Province were about to get a fair show. Not only has the output amounted to an appreciable quantity, but all over the Province there are evidences of increased activity. The Ymir mine is putting in forty additional stamps, thus doubling its capacity; in Camp McKinney there are now thirty stamps at work instead of twenty, and there will soon be twenty or thirty more, contracts having already been let. The Bridge River district of Lillooet is also moving in the direction of an output, and other sections of the Province as well. This is in every respect a most satisfactory development of the mining industry. Returns are rapid once they are set in motion, profits are good, and the initial expenditure is not nearly so great as in the case of low-grade base ore mines.

It is very satisfactory to see from an interview with Mr. Gooderham, published in Toronto, that the War Eagle mine is at last in a position to increase its shipments, which is very important to the country; and also to increase its dividends, which is very important to the shareholders. The partial failure of the electric hoist and the complete failure of the electric compressor have both increased the working expenses and diminished the output, so that the mine has been unable to make the showing this year warranted by its reserves of ore and anticipated by the high price at which the shares were held. This double drawback has been remedied, to a certain extent, by the utilization of a number of small compressor plants, which now give sufficient air to work the drills in use in the mine. It will be remembered that the War Eagle and Centre Star are under contract to supply the Trail smelter with 300,000 tons of ore, and that very little impression so far has been made on this contract. The smelter is not getting as much ore as it requires and the shareholders are not getting the dividends they expected, while the country still lacks the great advertisement which the adequate working of these two mines would give it. That this state of affairs will shortly cease to exist is a matter for congratulation to everyone, and not least to the management of the mines, to which this long series of embarrassments through defective machinery must have been most trying.

The tonnage of ore exported from Rossland during 1899 bids fair to outstrip the most sanguine expectations. The Rossland Board of Trade estimated the output for the last quarter of the year as 54,000 tons,

bringing the total output up to 173,000 tons or thereabout. But as things look now the output of the last quarter will be over 60,000, and the total for the year over 180,000 tons. The satisfactory feature about this is the progressive rate of increase shown during the year. If the present output is maintained next year should show 250,000 tons. If the present rate of increase is maintained it should show over 350,000 tons, or an average of very nearly 1,000 tons a day. However that may be, the progressive production of the district is encouraging and satisfactory, especially so when the lamentable condition of affairs in the Slocan country is considered, which is bound to have its effect on the statistics for 1899.

Mr. Hastings has postponed the compilation of his annual report of the War Eagle until next February. There are good and sufficient reasons for this, especially since it is known the company's year and the smelter's year did not correspond. It generally takes from four to six weeks to get the smelter returns completed, so that in previous years the returns up to December 31st could not be obtained until from four to six weeks later.

Writes our Rossland correspondent: It having been stated on what is alleged to be reliable authority that the distributions of profits, amounting to \$250,000, by the Le Roi Mining Co., and which was made payable November 7th, was chiefly derived from other sources than ore production and smelter returns, Mr. W. A. Carlyle, until recently consulting engineer and general manager of the Le Roi and British America Corporation, makes an emphatic denial that the dividend was declared upon any other basis than that of ore production. Mr. Carlyle should know if anybody does, and his denial cannot be disregarded. If any doubts existed in the minds of some persons on the subject of the recent distribution such doubts were caused by the business methods and lack of accuracy on the part of those who, in the first instance, began to promote the British America Corporation and its various projects. Mr. Carlyle was not regularly connected with the corporation when the corporation began its preliminary work, and, as I understand, his position was that of a consulting mining engineer, and not that of financial manager, and as the engineer for the corporation he has performed his responsible duties with the rectitude for which he is justly credited.

Meanwhile I have been favoured with a copy of the London *Mining World* of October 28th, containing a full report of the annual meeting of the London and Globe Finance Corporation, Limited. According to this report, and to the statement of the Marquis of Dufferin and Ava, the chairman, the London and Globe Finance Corporation recently declared a dividend of £200,000, equal to 10 per cent., and in addition to this carried forward to the next dividend account the sum of £304,497.14.2

The Marquis of Dufferin in his address to the meeting thus comments: "The sum carried forward is 50 per cent. in excess of the amount required for the distribution of a similar dividend next year. I may also point out that the privileges enjoyed by the shareholders of securing priority of allotment in the issues of the corporation have been a source of much profit to many of you, as we have had the good fortune to make issues of so promising a character as to command very substantial premiums. On the credit side

of the balance sheet you will not have failed to observe the item shares held in various companies stands at the handsome sum of £1,813,231.11.10, after deducting no less than £500,000 against possible depreciation. All the items on our list of assets are perfectly sound, and some are of a very promising character. During the past year we have made several public issues, all of which were fully subscribed. The first of these was the Le Roi mine, which is generally admitted to be one of the great mines of the world. Its former owners devoted themselves principally to extracting ore, and neglected altogether the due development of the property, both as regards timbering, shafting and introduction of adequate machinery. During the past year development work has been pushed in all directions, the mine has been largely re-timbered, and it has been equipped with the latest machinery and appliances. On the completion of work now in progress, the output will be very largely augmented, and what is equally important, we have every prospect of considerably decreasing the cost of smelting. Notwithstanding the extensive expenditure which has taken place for the foregoing purposes, the directors of the Le Roi have been able to commence the payment of dividends, an interim dividend of 5 shillings per share becoming payable on the 7th of November; and when once the mine is in full working order, we have little doubt that the results produced will fulfil our legitimate expectations. We have also had satisfactory reports from the other properties controlled by the British America Corporation, properties in which we are largely interested. These we have divided into three groups. Two of these groups, we are assured by our engineers, will shortly reach the dividend stage, and the third promises well. The general meeting of the British America Corporation itself will be held before Christmas, and I have no doubt of the directors being able to declare a substantial dividend."

How the dividends of the London and Globe Finance Corporation are to be limited to 10 per cent. per annum, under this heading the chairman said: "On reference to the balance sheet you will note that the balance to the credit of the profit and loss account amounts to £500,000 sterling. Were we therefore so imprudent as to divide our profits to the extreme limit, it would be possible for us to declare a dividend of 25 per cent. We have, however, adopted a sounder and more cautious policy, believing it to be much more to your interest in the long run to consolidate and strengthen the position of the company than to attempt the payment and distribution of such excessive dividends as would over-reach too freely upon the cash reserves, which it is desirable to hold at our disposal. We, therefore, recommend a 10 per cent. dividend, free of income tax, be declared."

It will be seen from the above that the 5 per cent. declared by the Le Roi is in addition and separable from the 10 per cent. declared by the great finance corporation, which is the parent concern; and it is thus made clear that no matter what criticism may be made about the London and Globe Corporation the Le Roi dividend has been based upon earning from ore production. We have Mr. Carlyle's assurance of this, but we have yet to be enlightened as to the facts with regard to the promised dividend of the B. A. C. Is this to be based on ore production or an advance in the company's stock?

It is announced that the Great Northern Railway intends to use every endeavour to establish a large smelter at Spokane, in which connection Mr. Hill will seek to divert to it as much of the ore as possible, which now goes to the C. P. R. smelter at Trail from Southern British Columbia. This attempt is to be furthered by the grant of specially low freight rates. Meanwhile it is to be expected that the Canadian Pacific Railway, as one of the roads interested in maintaining non-competitive freight rates on the Pacific division, will not allow the project to take definite form without a very determined protest. But with the advantage of cheaper fuel and the shorter haul on this side of the line, our local smelters should have no cause to fear outside competition for low-grade refractory ores, at any rate.

The price of War Eagle stock has latterly declined in average amount to about \$2.80 from, as was once the case, considerably over \$3. The stock is, however, held quite sufficiently high at \$2.80 on the present dividend bases, which yields a little over 6 per cent. Allowing for contingencies, a mine stock should more nearly approach a 10 per cent. dividend rate. Mr. Gooderham meanwhile declares, as the largest owner of War Eagle stock and a leading director of the company, that the present profits are sufficient to pay twice the present dividend of 1½ per cent. a month, which is really equivalent to rather over 18½ per cent. paid half yearly. Granting, however, that Mr. Gooderham's statement is correct, a War Eagle mine will not last for ever—and it is high time that a reserve or sinking fund, in gradual replacement of very considerable sum should each year be set to capital, not only by this company, but others boasting themselves dividend-payers.

The Boundary Creek towns are growing apace, and within a year Greenwood should have a population of five thousand and Phoenix at least half that number of residents. Phoenix—situated as it is in the very heart of Greenwood camp—has become quite a thriving centre of trade and activity within the last few weeks, and a correspondent informs us that its population is already over a thousand, and this, notwithstanding that as yet only four mines in the immediate vicinity have steady pay-rolls. The metropolitan character of Greenwood, meanwhile, may be judged from the fact that the Boundary Creek *Times* is about to appear as a daily issue.

An occurrence worth noting as illustrating a small beginning of big things in the Boundary Creek district, is the first all-rail shipment of ore. This was made from the busy little mining town of Eholt on the 16th inst., when a carload of ore from the Oro Denoro mine was sent to Trail for a smelter test. There had previously been a small ore shipment for Grand Forks, but the Eholt carload made the first sent "all-rail" since the obtaining of C. P. R. connections.

The reported organized importation of Italian mine workers into the Slocan seems to have been vastly exaggerated. Certainly no gang of alien labourers would appear to have arrived. Less than half a dozen men seem to have come in and some of these have since departed. Meanwhile, it is incumbent on the Dominion and Provincial authorities to do everything that is necessary to maintain law and order in

the Slocan, in view of the possibility of trouble resulting from the mischievous incitements of hot-headed agitators from certain mining districts of the United States, unhappily notorious for dangerous—and too generally unchecked mob violence. Unionist miners have every right to further their cause by peaceful means, and most of them are unlikely to pass beyond the bounds of lawful action, if only a few notorious agitators from the States be made fully aware that they will have to pay the fullest penalty, if they incite any breach of the peace. Such transgression every British Government is bound to prevent, when possible, and punish sternly its happening, without regard to the class of offenders.

There is no reason to suppose that the labour difficulties now paralyzing industry in the Slocan will affect either Rossland or the Boundary country during the coming winter at least. The conditions are different and labour and capital seem to be tolerably well satisfied with their mutual relations. But there is always danger of sympathetic disturbance, and on both sides of the dispute there are those who have been urging its initiation. But it is unlikely to occur. Sympathetic strikes and lock-outs aggravate instead of lessening the disastrous effects of labour disputes, embitter relations between employers and employed, and in the interests of labour itself are to be deprecated.

Writes a correspondent: "I notice in an article you published last month a reference to the fact that the Kootenay Miners' Union permits work at Ainsworth to be done at a \$3-a-day wage rate, that camp—a low-grade one—having been run at the same rate, ere the eight-hour rule was legislatively enforced; and that, therefore, there is already differentiation of wage scale recognized by the Union. Could not then this principle be applied further and a lower scale of \$3 a day be allowed by the Union to mines of which the ore is below a certain fixed high grade? Some mines can probably well afford a \$3.50 wage rate, others cannot—so it is stated—work and pay their way at more than a \$3 wage rate. The more skilled miners would naturally go to the mines paying the extra half dollar, but a fair average set of men would probably be obtainable by the others." This suggestion has a pretty enough appearance; but fortunately or unfortunately, as the case may be, this country has yet to be educated up or down to the acceptance of socialistic doctrines. Hence, we fear, mine-owners would hardly consent to such an arrangement as our correspondent outlines. It is not a question in the Slocan whether the mines can afford to pay the increased scale of pay. The question is: Are there any right or proper reasons why the mines should pay a higher wage rate?

It is an open secret that members of the Provincial Government are very anxious in regard to the present state of affairs in the Slocan, where, as in other of our mining districts, the police force is very small by reason of the fact that under ordinary circumstances the observance of law and order is well and easily maintained throughout the Province.

The Canadian bank statement for October marks a considerable contraction of speculative credits and expansion of purely trade discounts at highly remunerative rates to the banks. At first sight it might ap-

pear that this was a thoroughly sound and satisfactory position, and indeed there is every reason to be pleased with the position of Canadian trade at this moment. A limited finance would argue that the speculative increase of prices of stocks and shares if maintained and augmented by bank credits was dangerous and likely to bring about a financial crisis, and that it was a very good thing that the loanable capital of the country had been turned into the channels of what by contrast is called for some unexplainable reason legitimate trade. No doubt the greatest care should be taken not to strain the resources of the country in starting and maintaining speculative enterprise. The great boom which followed the first construction of railways in Great Britain, and the fearful panic which followed that boom, will always be a beacon of warning how far a nation ought not to go in that direction. But, on the other hand, it must not be forgotten what speculative enterprise really is. It represents through the purchase of railway stocks and shares the promotion of new railways, new mines and various productive works, the turning of the free or loanable capital of the country into fixed capital, which, in its turn, becomes productive and refills the gaps made in stores of loanable capital and increases its supply. While a trade discount is very largely an advance made on account of unproductive consumption. Its value depends entirely upon the ability of the consumer of the goods on which it is made to pay for those goods, and that again depends upon the increasing productiveness of the country in which population is constantly increasing and in which the standard of comfort is certainly not diminishing. Therefore, in the last analysis it is not wholly nor altogether a good thing to see the tide of speculative enterprise under check while the consumption of the country is at such a point as to require all the free resources of the country to finance it.

We are requested by Mr. W. M. Brewer, who for the past year has acted as consulting engineer for the British Pacific Gold Property Company, Limited, of Victoria, to state that he has severed his connection with this company and will in future act as technical correspondent and manager in British Columbia for the *Engineering & Mining Journal* of New York, in addition to his general practice as a mining engineer. In our opinion it is a matter for regret that the British Pacific Company have lost the services of a very competent director of their operations. Mr. Brewer assures us that the company's property near Port Hughes on the west coast of the Island is a prospect with very promising possibilities and one which, under careful management, should develop into a mine.

Mr. J. D. Kendall—who, by-the-way, has severed his connection as a partner with Bewick, Moreing & Co., no doubt by reason of the decline in the prestige of that firm consequent upon their numerous blunders in Western Australia—writes to the *MINING RECORD* from London deploring the slackness of our Provincial Government in the matter of advertising the mineral resources of the Province in Great Britain. He also suggests the appointment of an agent in London having some knowledge of mining, for "it requires a man who understands mining and who is familiar with the Province." Our correspondent justly remarks, "that he may be able to deal with adverse criticisms, etc. Unless something be done in

that way and also in the direction of well-considered advertising, I am afraid the Province will obtain much less assistance from this side of the water than it might otherwise get." Meanwhile we are glad to learn from the Minister of Mines that the British Columbia exhibit of mineral which is to be sent in Dr. Dawson's charge to the Paris Exposition, is afterwards to be permanently displayed on exhibition in London. Probably by that time the Government will have recognized that "cheese-paring" is poor economy.

An English correspondent, writing with apparent knowledge, declares against a mint for Canada, on the grounds that at the two Australian mints, there is only enough gold coined to keep the establishments occupied for a few months of each year, and there is far more gold at present produced in Australia than in Canada. The contention thus raised undoubtedly holds as against a Canadian mint merely coining gold, but such an establishment might also coin the silver and bronze subsidiary currency of the Dominion, and even if only run for part of the year, the cost of buildings, equipment and staff would not be very large. The great chartered banks of Canada—all-powerful in Parliament—are, however, naturally opposed to the coinage of metal, by reason of the considerable profit which they make in respect of the large use of paper money issues of their own. And so long as there is this opposition, the establishment of a Canadian mint, need, seemingly, be not hoped for.

Meanwhile the establishment of Government assay offices in Canada, which should certify to gold values of metal after melting it into bars, which would be taken by the banks and mint purchasers of the United States, without the cost and trouble of further testing, is offered as an alternative suggestion. The idea would be good, were it not that the United States gold-buyer, Government and financial, will not in this regard adopt the principle of reciprocity with Canada. Hence, although there are competent Government assayers in this Province, American bidders for the gold which our Government officers thus vouch, usually decline to buy it without further test. Consequently the Canadian Bank of Commerce and other Canadian banks send the gold they buy directly to the United States for assay, without using the mineral assay facilities. The United States is now, it should be added parenthetically, the only easily and cheaply available market for the gold of Canada.

Experience does not teach, not always. There is every indication that the rush into Cape Nome will attain the proportions of another Klondike boom. Seattle is already a vortex of rumours of the incredible richness of the Cape Nome district. One hears of men digging up fortunes in little depressions of the sea shore left by the receding tide as children dig for crabs and shells with wooden spades, and of men who went in without a cent returning to pay their debts and live in the luxury of those who have inexhaustible resources behind them. These things may all be true. The fact that they are repeated on the street corners does not make them so, however, while of those who have not returned one does not hear at all. The same conclusion in the popular mind that gave the Klondike boom such unexampled proportions is already growing up with regard to Cape Nome. It was argued with regard to Klondike that the whole country was equally as rich as the bon-

anzas first discovered. People rushed in to find an empire of golden treasure, they found a limited area of productive ground, already largely appropriated. At Cape Nome they are ready now to believe in a practically unlimited stretch of sea coast where gold is to be had for the picking up almost without labour or experience. Their disappointment will be bitter.

But on the other hand, it is certain that Cape Nome district contains a great deal of gold, and is likely to greatly increase the trade with and population of the Alaskan territory. This will militate against the commercial interests of Victoria and Vancouver. Already handicapped even in regard to the Klondike trade by the fact that Seattle, having all the varied trade of Alaska to draw from, could afford better facilities for dealing with one part of it, they will now be subjected to a greater disadvantage from the same cause. It is at least a legitimate speculation whether the discovery and development of Cape Nome is not to some extent one of the first effects of the Alien Law coming home to roost. By that law we deliberately expelled American experience and enterprise from prospecting and exploring our territory for placer gold. And so far our territory remains unproductive and silent. Even in the Atlin country it is at least a question whether its resources might not have yielded a larger return and presented a more hopeful outlook as well as a greater market for trade to Victoria and Vancouver had labour, capital and experience from the American side not received peremptory notice to evacuate the field.

Although there is now no doubt that there is much gold in the surface sands at Cape Nome, it is more than probable that current estimates which reckon present returns at the rate of \$9,000,000 a year as the result of rocker working by some 3,000 men, greatly overestimate the yield. The cost and discomfort of living at the Cape are both excessive, and typhoid fever there plays havoc with many unfortunates. The chances are that a very brief period—perhaps less than a year—will see the practical exhaustion of the gold-bearing sands at Cape Nome, for shore sands, sufficiently rich for placer working, seldom last long. The present state of affairs at Cape Nome warrants no rush to this bleak and inhospitable point on the Alaskan coast.

It is stated in a recent despatch from Ottawa, that Mr. Louis Coste, who was formerly chief engineer of the Dominion Department of Public Works, and also *persona grata* with Mr. Tarte and other leading members of the Ottawa Government, has reported very adversely to the continuance of the ten per cent. Yukon gold royalty. Mr. Coste's opinion should come home with special force, as in addition to his past official experience, he is able to speak with special knowledge regarding the present conditions in Yukon, where, for the past two years, he has superintended the affairs of an important British gold mining syndicate. Mr. Coste is said to have declared emphatically, that the Yukon country is being strangled by the high royalty, which adds not only to the cost of gold output, but also by its detrimental effect upon Northern development in general—limiting the supply and enlarging the cost of most articles of daily consumption. He also declares that although several thousands have lately left the Yukon for Cape Nome, attracted by the recent shore-gold finds, there would

not have been so phenomenal an exodus, but for the ill effects of the excessive gold royalty. The representations of so sensible a man as Mr. Coste should, it is hoped, sufficiently influence the Ottawa Government in the direction of inducing a reduction of the present Yukon royalty, especially as Mr. Coste's opinion coincides with that of other responsible and experienced observers "in situ."

The following letter is self-explanatory and fully bears out our criticisms which appeared in the MINING RECORD some months ago on the prospectus of the concern known as the Boston and British Columbia Mining and Smelting Co.:

To the Editor of the B.C. MINING RECORD :

Dear Sir,—In compliance with your request I submit here a report of my visit to Revelstoke to investigate the conditions surrounding the Boston and British Columbia Copper Mining and Smelting Company in the interests of the *Engineering & Mining Journal* of New York. I would state: That I was unable to visit the properties of the company, when I arrived at Revelstoke on the 3rd of November for the following reasons, viz.:

1st. That the Standard group of mineral claims which comprise the holdings of that company, are located near Carne's Creek, some fifty miles distant by trail from Revelstoke.

2nd. That at this season of the year, I was informed by good authority, that there was probably snow covering the surface of those claims.

3rd. That the weather during my stay in Revelstoke was so inclement that such a trip could only have been made, probably the greater distance, on foot. Consequently I had to rely on the most reliable information I could obtain from both disinterested and interested sources concerning the company. The conclusion I came to from this information was, that the group of claims is a fairly good prospect, with only a very limited amount of development work performed up to the 27th of September last. From the character of this work it would be impossible, in my opinion, for any engineer to measure up "ore in sight," and certainly no engineer of reputation would state, as was stated in the prospectus issued by that company, that he could measure 750,000 tons of "ore in sight."

The property has been recently examined by a Mr. Von Rosenberg, of New York City, who has advised that development work be done, and the mineral claims thoroughly exploited. I was reliably informed that a winter camp of fourteen men has been made at the mineral claims, and that the work laid out by Mr. Von Rosenberg has been commenced, and will be prosecuted vigorously.

With regard to the statements made in the prospectus, especially respecting the amount of "ore in sight," and the profits which would accrue from the business from its inception, there is no doubt but that such statements are exaggerations of the grossest description. With regard to the map which was published with the prospectus, and which included sketches showing the ore-bins, tramway and smelter, such sketches are the work from the imagination of the artist, as these improvements do not exist in fact.

Yours faithfully,
WM. M. BREWER.

Victoria, B.C.,
November 21st, 1899.

Mr. Wm. M. Brooks contributes an interesting article on the Atlin gold fields, to the *Engineering and Mining Journal* of recent date. His estimate of the past season's gold output is in round numbers \$750,000 and \$1,000,000; but he points out if this figure is correct, only a small proportion of the mines have paid the royalty or provincial tax for the official returns for the six months ending September of this year, only show a yield of 14,626 ozs, which has been subjected to taxation. The following paragraphs relating to the geological and physiological features of the country are worth quoting: "The entire region known as the Atlin gold fields where auriferous gravel is found, bears evidence of having been covered at some remote period with a vast system of glaciers. A closer examination of the features of this country establishes the fact that the northwesterly trends so remarkable for their regularity, in the region of the Upper Columbia are here carried out in all their geological and physical details. It will be seen by making a study of the maps of Western Canada and Alaska that the same gold belt which extends through the Kootenay, Cariboo, Omenica, Lower Cassiar and Juneau districts, covers the Atlin camp and continues on taking in the Klondike and penetrating the Yukon Basin beyond Munook. The superficial deposits found here are divided into those of pre-glacial and those of post-glacial age. When the boulder clay is present it separates these two classes of deposits, of which the first mentioned may be included in the latter territory, while the second class are described as pleistocene, and are, no doubt, largely made up of the re-arranged material of the older beds as well as that of the boulder clay. Both classes of deposits are largely represented by gravels; sands and silts are also present. The old pre-glacial channels of the streams are usually filled up to a considerable depth with tertiary deposits and in these gravels of the valleys most of the highly auriferous ground has been discovered. The actual channels of the old streams contain the richest accumulations of coarse gold. The gold marked in the beds of the present streams is generally associated with the post-glacial gravels, and deposits of the same character and age from benches or terraces. The larger ones may be seen on Spruce Creek and that part between Discovery and Lake Atlin." So far as development has proceeded the richest auriferous creeks in the district are those entering Atlin Lake from the east and northwest, and it is from these creeks that most of the gold has, during the past two seasons, been recovered. While bed-rock here is generally very deep, there are limited areas on each of the creeks, that may be characterized as shallow diggings, and these have been the centre of activity up to the present time. As to the future mining possibilities of the field Mr. Brook thus sums up: "As a hydraulic proposition the Atlin district is undoubtedly one of the most promising lately discovered, equal to the Cariboo fields now being developed, it will have the advantage of from 20c. to 25c. per pound in the matter of freights, and the ease with which machinery of every description can be taken from salt water will render it a formidable rival to the mineral areas of Southern British Columbia when the lode development has reached the operating stage. The country rock is the typical Cariboo slate, associated with bands of limestone, by granite and porphyry

intrusions." But why does Mr. Brook after prophesying such great things for lode mining in this district immediately add, that owing to the heavy accumulations of "gravel covering the country in every direction" lode prospecting has and must continue prophesying such great things or lode mining in this statement to be made in accord with the prediction that as a quartz mining territory Atlin is destined to rival Southern British Columbia?

We published last month without comment a circular from a correspondent in Mexico, warning the public against a concern described as the Union Trust & Smelter Manufacturing Company, of St. Louis, Mo., of which a Mr. Meinhard is associated in a managerial capacity. Since Meinhard has written to explain that the Union Trust & Smelter Manufacturing Company does not exist but that the Union Smelter Manufacturing Company does. This gentleman has also sent us a copy of all the correspondence which has passed between the editor of the *Engineering & Mining Journal* and himself upon the subject of the accusations contained in the circular above mentioned, from which it appears, that the author of the circular is quite a notorious character, one Hartsfield, whose methods of swindling the public, particularly with a concern once widely advertised as the "National Ore and Reduction Company" have been frequently and successfully exposed in the technical press of North America. Hartsfield sold out his interest, so we understand, in the National Ore and Reduction Company, which is now being carried on upon a legitimate basis, by the Union Smelter Manufacturing Company—but for some reason (not explained in the correspondence) Hartsfield has since used every endeavour to injure the new Company, the issue of defamatory circulars being a means to this end. He has taken up his residence in Mexico, and is therefore beyond the reach of the men he assails. This is Mr. Meinhard's side of the story, and seemingly it has been accepted by the most influential mining journal in America, as the authentic version.

It seems likely that the Gooderhams will make more out of their British Columbia mining interests than out of their famous Eastern Canadian distilleries. Thus not content with retaining big interests in the War Eagle, the Centre Star and other Trail Creek mines, Messrs. George Gooderham and T. G. Blackstock are now controlling the St. Eugene Consolidated Mining Company which is taking over the well known St. Eugene group and the Lake Shore group of mines near Moyie, East Kootenay, together with the Moyie and the Queen of the Hills group in the same district. It is already prophesied and the thing is quite probable, that the Consolidated Company with its nine full claims and five fractions will prove the biggest silver lead yielder in all B.C. and even out-rival the Payne, on which unfortunately as a result of the late labor trouble little is at the present moment being done.

There is widespread regret in the Province over the loss of the productive ledge on the Dorothea Morton mine. The result is the more disappointing as the venture has been regarded as a typical coast gold mining proposition of a good class, and everything concerned with the owning syndicate and its opera-

tions has been businesslike and straightforward. The closing down of the mine will give a bad set back to immediate mining development on the Coast.

RECENT MINING DECISION.

THE following is the full text of the judgment of Mr. Justice Drake in the action of Dart vs. St. Keverne Mining Company, in which his Lordship decides that a mineral claim cannot embrace several fractions of ground:

This action is brought by way of special case whether or not a miner can locate a claim on each side of a prior location under one record; in other words, whether two strips of land unconnected with each other but within the statutory limit of 1,500 feet can be covered by one location and record.

The O. B. H. claim was recorded on 16th August, 1894, and the only unoccupied land was a strip lying northeast of the Exeter claim, and a strip lying southwest of the Exeter claim but divided further on the east by the Slocan Boy. Thus the two pieces of land, which the defendants claim, are divided the one from the other by lawfully occupied and recorded mining claims.

The defendants contend that they are entitled to both these strips under their record.

The object of the Mineral Act is to enable miners to enter on lands of the Crown and record a plot of ground, which, under section 14 of the Act of 1891 as amended by chapter 29 of 1893 is, where possible, not to exceed 1,500 feet by 1,500 feet, and of a rectangular form.

The term "plot of ground" does not mean a variety of plots. A mining claim may be restricted in area by other existing claims, but it must be of rectangular form, except when a boundary line of a previously surveyed claim is adopted as common to both claims. The whole scope of the Act indicated that a mining claim means but one piece of ground. The legal posts which were required by the Act are two in number and the notice upon the initial post is to contain the number of feet lying to the right and left of the line.

The location notice, Form A, in schedule to Act 1893, chapter 29, section 14, defines the claim as so many feet in length by so many feet in breadth, and is to show how many feet lie to the right and left of location line. The location notice shows that the party claiming under it claims a clear tract of land on each side of the location line. If any land on either side of the location line and within the area indicated by the location notice is lawfully occupied mining ground the locator has no right to enter on it, and therefore no right to extend his line across such ground. The locator of the O. B. H. claimed 1,500 feet to the left of the line, but there was only a few feet of land to the left, because the Exeter intervened, therefore, he could only take up to that line and any further unoccupied land forming portion of the same plot without any intervening bar of recorded claim.

I am of the opinion that the defendant company are not entitled to any portion of the land separated and cut off from this portion of land on which they had placed their stakes. No question is before me for decision as to whether the records of either parties are valid or the reverse. As the parties have agreed there shall be no costs, the plaintiff will have judgment without costs.

SUGGESTIONS FOR THE DEVELOPMENT OF MINERAL PROSPECTS.

(Written for the Mining Record by Wm. M. Brewer).

IN opening a mineral prospect, the sage saying of Davy Crocket, "Be sure your're right, then go ahead," should receive the utmost consideration, and at all times remain in the memory of the man to whom the work is entrusted. Failures in mining operations are attributable to various causes, but the one cause which has resulted in a greater number of disasters than probably any other, is the poor judgment, and lack of system shown by operators in the preliminary work in opening their properties.

Of course different geological conditions occur in nearly every mining camp, consequently no hard and

that nature has been so erratic as to very often knock theories and text-book teachings into a cocked hat.

In consequence of this, unless a mining expert has had a vast experience and unusual opportunities for making comparisons, he is liable on entering a new field, to find himself at sea, and make errors in pronouncing judgment when he is called upon to examine undeveloped prospects.

In British Columbia there is such a vast area embraced by the mineral-bearing zones, that one can expect to find nearly all of the different geological complications which occur in all the mining districts in the United States put together.

It is impossible for anyone to attempt to instruct prospectors with regard to the exploitation of new fields. Experience is the only teacher the average



1st July, Sport, Baker Street, Nelson, B.C., 1898.

fast rule can be applied in valuing a crude prospect. For instance, in portions of Colorado, the true fissure veins with quartz filling, and which can be traced for long distances, are the rule. In the Appalachian system of mountains through the Southern States, the auriferous bearing material is more often found occurring in huge deposits of mica and hornblende-schists, with narrow stringers of quartz as interpolations. These occurrences usually only carry sufficient value to pay for mining through the zone of oxidation, below that zone, the material is of such low grade, that even with the low rate of wages, satisfactory results cannot be obtained from mining operations. In the Black Hills of South Dakota, in Arizona, in the Lake Superior district, and in fact in every mining district in the world, the experienced engineer finds

prospector will acknowledge, therefore, the writer of this article will start his suggestions on the supposition that a prospect with possibilities and merit has already been discovered.

The most important consideration to be taken into account is ore, its quality and average value. Of course such features as transportation, timber, water and dumpage must all receive due consideration, because no matter how rich the ore may be, if the conditions with regard to the features are decidedly unfavourable operations may result in failure for the reason that the cost of carrying on these operations will be in excess of the values which can be obtained from the ore. Consequently, from start to finish, such operations would be carried on at a loss, and in mining, the theory that is sometimes advanced by enter-

prising merchants for selling goods below cost, that they make their profit in the quantity, will not hold good for one single instant.

Another important feature to be considered is that the mixing of low-grade ore, of too low value, to be treated alone, with higher grade ore must result in failure to give satisfactory results, and any ore of too low grade to be treated by itself, should be considered valueless, at least for the time being.

The ore body, which we will presume has been already discovered, and exposed by some shallow prospect working should be followed systematically, and no operations should be conducted, except under very exceptional circumstances on the theory that because the ore occurs at the surface it will undoubtedly maintain continuity into the bowels of the earth. Therefore, at this stage of the operations, the writer is decidedly against the sinking of vertical shafts in country rock, on the calculation that the ore body can be intersected at any given point below the surface. For the same reason he would discourage the running of cross-cut tunnels with the same calculation.

The first step to take, is to ascertain the true line of strike of the ore body, by surface cross-cutting, if no outcrop occurs on the surface.

Should the outcrop be persistent and pronounced, then it should be followed to ascertain if it is possible to commence driving a drift at same depth. In locating the mouth of this drift, special attention should be given to determining the occurrence of a wall, or both walls, so that the miners can drive at less cost per foot than would be the case if there was no wall to shoot to. Another big advantage in being able to drive such a drift, besides that of proving the ground, foot by foot, and ascertaining the continuity of the ore below the outcrop, is that pumping machinery is rendered unnecessary, the cost of hoisting the material extracted avoided, and the opportunity for blocking out ore by upraising, presents itself. In locating the mouth of such a drift, the chances for dumpage, for both ore and waste, should receive due consideration. The operator need not be discouraged, if in running this drift the ore body is not continuous. Especially does this feature apply to mining in many of the camps in British Columbia, because in many cases, the ore bodies are found with only one wall, and the ore itself has been deposited to greater or less thickness through the country rock adjacent to that wall, by replacement. Another reason why he need not be discouraged is because of the numerous faults which occur throughout nearly all the mining camps of the Province, owing to the eruptive action which has taken place, or from other causes by which the regular structure of the country rock has been interfered with.

If the topography of the ground is such that this method of drifting cannot be pursued, then the writer advises sinking on the ore body, and by all means following a wall, no matter at what inclination the angle of its dip occurs.

Often one hears the complaint that it is cheaper to sink or drive in the country rock than on the ore itself, but it must be remembered that all work performed in barren country rock is dead work, and cannot possibly return any revenue. Whereas, if the work is done in the ore itself, some value is being returned for every foot of work performed. Too often a really promising prospect has been spoilt, because of the tendency of operators to work in the country rock where it happens to be softer than the ore body itself.

If the method of sinking has to be pursued, then it is very desirable that at about every 60 feet at least, both drifting and cross-cutting should be done, because, while the ore may maintain its continuity with depth, yet that fact alone is proven by sinking, and no thoroughly conservative engineer will give any measurement of ore, beyond the confines of the shaft. But, on the other hand, when drifting is carried on in both directions, from the bottom of the shaft, an engineer can then estimate, if due allowances are made for contingencies, the quantity of ore in sight, above the line of the drift.

(To be Continued)

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 we are in consequence enabled to publish in serial form.

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

The Court—So there could not be a re-record where there has been no record.

Mr. Bodwell—No.

The Court—That is your point?

Mr. Bodwell—Yes.

The Court—I do not see how it would bear on it, yet, but I know how it used to be looked at with regard to placer mining.

Mr. Bodwell—The re-record in 1891—

The Court—That re-record was merely to keep his rights alive a year.

Mr. Bodwell—But it was a re-record of an original record; it was not a re-record of something else.

The Court—There could not be a re-record unless (Preliminary Motion 25) there was a record; the syllable *re* implies that.

Mr. Bodwell—That is it exactly. Their holding, then, in 1890, was bad; in 1891 it was bad, because they were joint holders by location of two claims on the same ledge. It never became good unless the Government had some power to waive it.

The Court—Wait a minute. If I get this property in my mind at the start it will be of great assistance by and by when you do come to argue the amendments made. The holding in 1890 was a holding by both?

Mr. Bodwell—Yes.

The Court—By both—separately in 1890?

Mr. Bodwell—Perhaps I do not understand Your Lordship.

The Court—Each man recorded; Bourgeois recorded the Centre Star and Morris the Idaho?

Mr. Bodwell—Yes.

The Court—Each held a half interest in trust for the other.

Mr. Bodwell—That is it exactly.

The Court—Very well; they made separate records.

Mr. Bodwell—Yes, sir.

The Court—I will take that down now. Holding

in 1890 was separate, as shown by two separate records of Bourgeois and Morris?

Mr. Bodwell—Yes.

The Court—Of separate claims, the Centre Star and Idaho. (I don't care for the dates of these now.)

Mr. Bodwell—No, the date is not material.

The Court—Then you say they made a re-record in 1891, and "you have clearly no right to do that because there have been no records jointly." Then a re-record in 1891 of both claims in joint names." (Motion of Plaintiffs 26.)

Mr. Bodwell—Yes, My Lord.

The Court—Well, I will call it a joint re-record.

Mr. Bodwell—Yes, we will understand it by that term better.

The Court—No formal bill of sale was recorded?

Mr. Bodwell—They had no title—

The Court—And they took nothing by their joint re-record?

Mr. Bodwell—That is it.

The Court—That is it; it cannot be anything else.

Mr. Bodwell—Will Your Lordship take another note now?

The Court—Yes, I will take it down; therefore, they took nothing by the record—or re-record—we will call it.

Mr. Bodwell—I want Your Lordship to take down this fact also, that although the record in 1890 was in separate names there was a joint ownership.

The Court—You only want that to show that the records according to your theory were bad, on account of joint (Preliminary Motion 27) ownership;



View of Nelson, Looking down Kootenay Lake.

Mr. Bodwell—Not a thing, My Lord.

The Court—By either of them?

Mr. Bodwell—Never was such a thing in existence?

The Court—Well, they might have drawn up and recorded a document of that kind.

Mr. Bodwell—Yes, they could have, but they did not.

The Court—Now, there is a joint re-record of each claim in 1891?

Mr. Bodwell—Yes.

The Court—And then the change in the law took effect, when?

Mr. Bodwell—In 1892.

The Court—Really, what you mean is then, that they took nothing by their joint re-record?

in other words, that the men were taking locations on the same vein?

Mr. Bodwell—Yes; may I put it in just a word?

The Court—Yes, certainly.

Mr. Bodwell—The way I would put it is this: The Centre Star and Idaho location in 1890 was bad, because it contravened the law. That is really a self-evidence proposition.

The Court—(You have had a good deal to do with this and I have not); Centre Star and Idaho location in 1890 bad, because it contravened the law; therefore, re-record of a bad record.

Mr. Bodwell—I was going a little further. In 1890 they were bad for the same reason and for an additional reason, because they could not re-record what had not been recorded.

The Court—Of course; I understand that. I think

you saw that in a moment; they were bad as a re-record, because there had been no previous record to re-record. Bad for the same reason, and also—?

Mr. Bodwell—And also. Well, Your Lordship has anticipated the whole thing in that one word. The way I was going to put it was this: It would be bad as a re-record, because there was nothing to re-record; but it would be bad also even if it could be considered as an original record, for the same reason that the record of 1890 was bad.

The Court—It would not be a good record by both of them in 1891?

Mr. Bodwell—No, because there would still be two men holding two claims on the same vein.

The Court—Oh, yes, that law was still in force. (Preliminary Motion 28.)

Mr. Bodwell—This law is in force to-day. The same form of words were in the Act of 1889 as in 1888.

The Court—Yes, I had overlooked that the law has been the same for nearly thirty-six years.

Mr. Bodwell—Yes, in the original Placer Act as originally introduced.

The Court—Yes, and reference made there to quartz. No two locations can be yet made on the same vein by the one locator.

Mr. Bodwell—No. Now, to re-state what I have stated, no title can be founded to that mineral claim on that location. If the patent gets any force at all it relates back to something else besides that invalid location.

The Court—Only gives what was supposed to be given by the location?

Mr. Bodwell—Yes, the patent is designed to be a further assurance of title.

The Court—Yes, that is perhaps the best way to put it; it is so, too.

Mr. Bodwell—But there are some authorities which, perhaps, my friend relies on—

The Court—I have taken that down this way (it is a short way to putting it): Patent is designed to be a further assurance of title; therefore, if location is not good, the patent cannot be good.

Mr. Bodwell—No; now my friend Mr. Davis will say it is not open to us to question the patent at all; that would have to be some action which would constitute a direct attack upon the patent. But passing that point altogether (I think there is something to be said on both sides), I can support my case without any attack upon the patent, for, as I said before, the question is not whether the patent is good or not, but to what date does the patent (Preliminary Motion of Plaintiffs 29) relate.

The Court—Do you recollect the date of the patent to the Centre Star?

Mr. Bodwell—The 27th of November, 1893.

The Court—Your contention being that it relates back to the date of their agreement?

Mr. Bodwell—Yes.

The Court—The date of the agreement was 1890.

Mr. Bodwell—But not to that partnership agreement. The patent relates back to the first valid act. When I speak of agreement, I do not speak of any agreement that is proved or referred to but to what must be taken to be an implied agreement between the Government and the people who applied for a patent, that, notwithstanding this defect the patent should issue. I do not know whether I make myself clear to you?

The Court—Yes, it is this: You are practically contending that they must show by and by that the Government conceded them this right after knowing exactly how they stood.

Mr. Bodwell—Yes, we must assume in this case that the Government acted with knowledge of the fact. We cannot assume that they acted without knowledge, because the fact was there before them.

The Court—Your contention being that the patent relates back to the first valid agreement; that is to say, an agreement on the part of the Government to overlook these defects in title. That is your way of putting it?

Mr. Bodwell—Yes, My Lord, exactly. That would be the day when they applied for their patent, which would be some day of September, 1893. Now, at that time, even if we assume that the Government had power to grant a patent (Preliminary motion 30.), notwithstanding the irregular mode of location, there was no law which allowed the Government to give a patent granting extra-lateral rights.

The Court—It was dated the 27th of November, 1893?

Mr. Bodwell—Yes.

The Court—Meantime the change in the law had been made?

Mr. Bodwell—Yes, on the 23rd of April, 1892, extra-lateral rights were abolished.

The Court—I have your view of it in a short way: Agreement on the part of Government to overlook the defects of title on the day when the Centre Star applied first for the patent?

Mr. Bodwell—Yes, My Lord.

The Court—Then extra-lateral rights were taken away by the Act of 23rd of April, 1892; therefore, the patent to the Centre Star would not include extra-lateral rights, except they had been conceded by the Government, which it had no power to do.

Mr. Bodwell—That is my point exactly. That is the case we wish to put on the pleadings; whatever effect will be given to it will depend on the evidence and is for future argument.

The Court—Now, Mr. Davis.

Mr. Davis—We object, My Lord, and object very strenuously to the amendment which our learned friend now proposes; and we wish to have that objection noted on the record. I do not intend, however, to argue the matter here. We took the same objections to the amendment which was proposed by my learned friend before, and those amendments were allowed, and I do not intend to re-argue the matter again. It is a matter entirely within Your Lordship's (Preliminary Motion 31) discretion, of course. But if Your Lordship should choose to allow the amendment, I wish to direct your attention to the fact that it could only be allowed on certain terms. The first of these terms would be, of course, liberty to us to plead to the amendment. The second would be a question of costs, which, of course, could be received. A third and most important one, however, would be this: Such an amendment as my learned friend has suggested may lead to a necessity on our part of putting in entirely new evidence. If that amendment is allowed and the question is gone into it may be necessary—and in fact, I think it would be almost be sure to become necessary—to have the evidence of the original locators, who do not live here. One of them lives in the Northwest Territory at Edmont-on, and the other, I believe, lives in Spokane; and it

is quite possible that an adjournment would become necessary if this question is gone into. Your Lordship might not be able to decide now whether or not an adjournment would be necessary, and even if that were so, I do not suppose it would be advisable or advantageous on the part of either of us that an adjournment should take place at this time; that is, we can go on and put in the evidence which we have here on the record as it stands, and when that is done, if upon my learned friend putting in evidence with reference to the point as to which he has just now asked this amendment, it shall become necessary for us to have an adjournment in order to meet that evidence, then we would be entitled, I take it, as a matter of right, to such an adjournment, and that the

now. That is what it would mean. I do not say that he is not entitled to the amendment, but the way I should regard this amendment, Mr. Davis, is this: Suppose all this had been in his pleadings in the first instance, could you have applied to me to strike it out on account of being embarrassed by it? You could have done it.

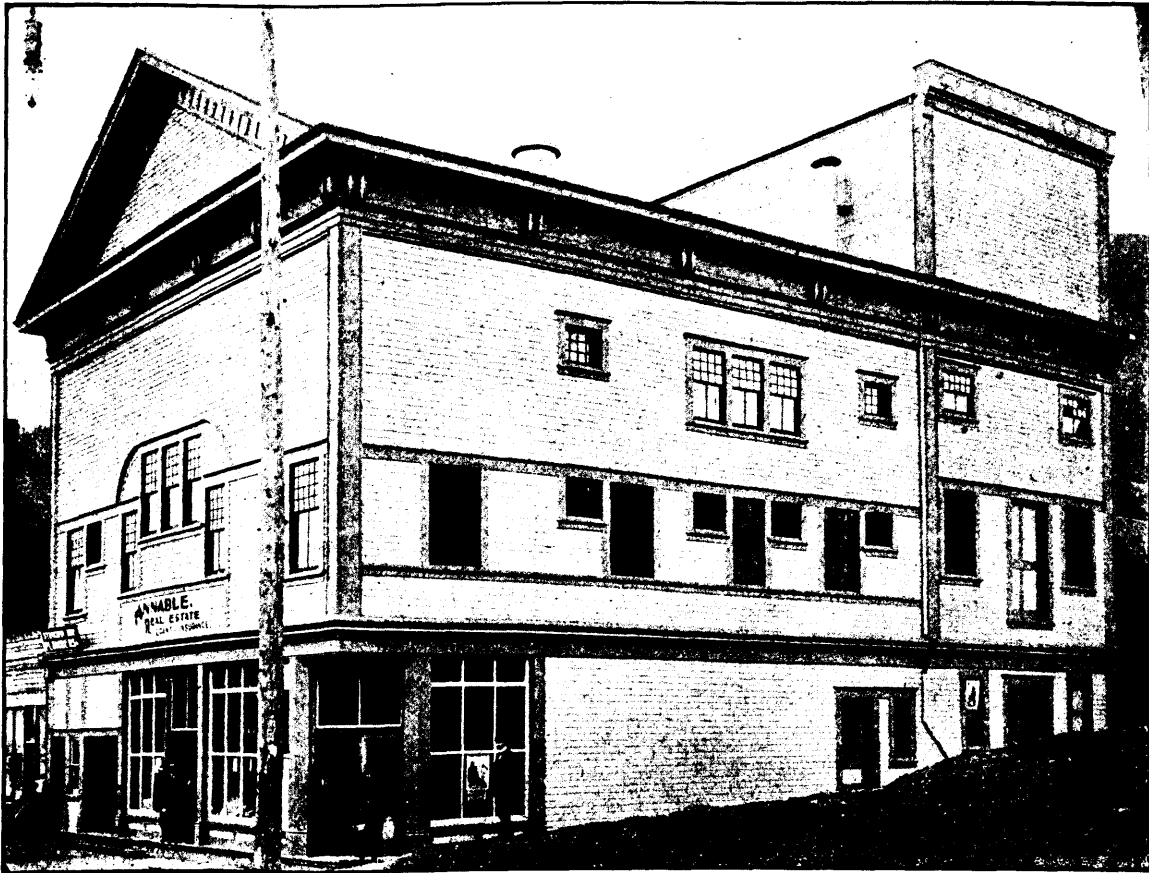
Mr. Davis—Well, my Lord, I do not admit that for one moment.

The Court—That it would have embarrassed you?

Mr. Davis—I think, I could have, and perhaps it might not be allowed.

The Court—In that sense you would have?

Mr. Davis—But what I would probably have done—which is what I will do now if Your Lordship al-



Nelson Opera House.

costs of such an adjournment should be borne by the other side. So that the terms which I submit, Your Lordship, should grant the amendment under—if you grant it at all—should be to reserve the question of (Preliminary Motion 32) costs and the question of adjournment of trial, and also give us leave to plead to any such amendment.

Mr. Bodwell—Within what time would you want to plead?

Mr. Davis—Oh, we would plead within a day or two.

The Court—This is a very peculiar case, and it amounts to this: That if you go on arguing the case, which I think, with all due respect to Mr. Bodwell, he has, fairly to himself refused to do, I would be practically deciding a point in this case instead of trying the case; I would be practically deciding it

lowers the amendment—that as soon as my learned friend submits evidence under that amendment, object to it, and have the point raised in that way.

The Court—There is a short decision of Lord Bromwell in a case, that I do not recall, to this effect, that the Judge ought to allow any amendment that will raise the point at issue between the parties and settle it finally on a just basis. I have given no opinion about this amendment, or proposed amendment, nor do I intend to. It is bristling with legal points, some of which I have formed an opinion on in days gone by, but whether it would be right now I do not say. I should be inclined to allow the amendment as a matter of course, and I believe I would be over-ruled if I did not. A leading case in that respect is, as you know, in 10 Chancery Division, I have quoted so often, the case of *Fildsley vs. Harp-*

er, where in Mr. Justice Frye, who was a great Judge at any time, refused to allow an amendment which was of so radical character that it charged one of the parties with deceit, and it went to the Court of Appeals and he was over-ruled. This was shortly before he was made Lord Justice Frye. So, in view of that case, I do not think I have the power or discretion (it is said to be discretion, but it means judicial discretion) to refuse it. I do not think the terms are at all unfair, Mr. Bodwell.

Mr. Bodwell—No, my Lord, I do not object to those terms at all.

The Court—By and by it will be discussed, but you cannot discuss it very well now without getting a decision from me, which would anticipate the trial, and I think it would be mischievous in that respect.

Mr. Bodwell—I am quite satisfied to take the amendment on those terms.

The Court—The amendment will be granted, subject to Mr. Davis' protest as to cost, as to amendment of his own pleadings, and adjournment; the first two to be decided after hearing the evidence. Is that it?

Mr. Davis—Yes, my Lord; except the amendment of pleading, that we shall have leave to amend.

The Court—Yes, you will have to do that to get in the evidence. Now, is that all?

Mr. Bodwell—My friend has a motion to present. (Preliminary motion 34.)

Mr. Davis—The motion which I now make, my Lord, is for leave to do certain experimental work underground, and in the territory lying under the boundary line of the Iron Mask. The notice of motion reads as follows: "Take notice that a motion will be made on behalf of the defendants before the presiding Judge at the trial thereof on Monday, the 17th day of April, inst., at 11 o'clock in the forenoon, or so soon thereafter as counsel can be heard, for an order giving the defendants liberty to carry out certain experimental work upon the vein in question herein, for the purpose of obtaining evidence for the trial hereof, by continuing the defendants' winze down to the Iron Mask east drift, a distance of 15 or 20 feet, or thereabouts, in order to connect the portion of the vein, claimed by the defendants herein with that portion for the said vein which is exposed in the said east drift of the plaintiffs; or for such further or other order as may seem just.

"And, further, take notice, that upon the said motion will be read the pleadings and proceedings herein in the Appeal Books used upon the three appeals herein, which were heard before the Full Court in December last and the affidavit of John B. Hastings."

The Court—Is that the winze at the foot of shaft No. 2, or the winze at the foot of the long drive from shaft No. 2?

Mr. Davis—I think the plan which I will show Your Lordship will enable Your Lordship to follow what I am going to say. It is a general plan of the ground in dispute.

The Court—Is that the last winze where they stopped?

Mr. Davis—Yes. (Preliminary Motion 35.)

The Court—I know where that is; at least, I recollect these plans.

Mr. Davis—(Illustrating on plan)—That is No. 3, Centre Star shaft; this (indicating) is the Centre Star east drift, coming out here (indicating); this (indicating), is the winze running down. Now this (indicat-

ing) is the Iron Mask winze below, running across from the same direction.

The Court—Where you have taken out some pay?

Mr. Davis—No, they did at one time take quite a lot of pay, but I think the place Your Lordship is thinking not that, but this is almost immediately below.

The Court—One of the main faults is here (indicating) is it not?

Mr. Davis—That fault runs across here (indicating); it runs this way (indicating), the vertical fault runs this way (indicating).

The Court—This plan is on a much larger scale.

Mr. Davis—The only three points that Your Lordship need look at are: the Centre Star incline shaft, the Centre Star drift, the winze and the Iron Mask winze below. Your Lordship is, of course, familiar with all of the facts in connection with this case. But I will refer to a few of them briefly, so as to refresh Your Lordship's memory. The present action was begun in January, 1898. Prior to that time the Centre Star Company had, through certain explorations, become of the opinion that they had a vein within their own boundaries, which on the dip passed beyond their northerly side line and ran into the Iron Mask, that there were considerable bodies of ore upon that vein. For the purpose of verifying that idea—

The Court—(Interrupting)—Centre Star, No. 2?

Mr. Davis—The Centre Star Company sank such shaft, which is known as the No. 2 shaft, or has sometimes been called in the affidavits filed, the incline shaft; they began that shaft some 15, 20, or 30 feet from the northerly side line of their own plan. The Iron Mask, as Your Lordship knows, immediately joins the Centre Star.

The Court—I recollect it.

Mr. Davis—They found an apex there, and they sank upon the vein, the apex of which existed in their own ground. They sank that shaft about 320 feet, following the dip of the vein, as we claim. This action was then started, as I say, in January, the early part of January, of 1898, when the Iron Mask people applied for an injunction to prevent the Centre Star people sinking the incline shaft any further, claiming that the vein was cut off and put an end to by a certain cross fissure or flat fault, as they called it. The Centre Star people then came back up the shaft, some 34 feet, and ran a drift eastward, which is known as the Centre Star east drift, and marked in the plan (in front of Your Lordship). They ran that in about 100 feet.

The Court—150 feet.

Mr. Davis—Then they sank a winze from the easterly end of the Centre Star drift; they sank that about 30 feet, when the Iron Mask people applied for and obtained an injunction restraining them from sinking further, on the ground again that vein was cut off and put an end to by this same cross fissure, which has been called a flat fault. A motion was made to dissolve both of those injunctions, and this motion was heard before Your Lordship, and Your Lordship gave a judgment, in October last, declining to dissolve the injunction, on the ground that the evidence shown in the affidavits was too conflicting. An application was then made to Your Lordship for an order, under rule 514, to do experimental work.

The Court—Haven't you the Annual here?

Mr. Davis—I have the rule here.

The Court—Yes; but the Annual; it would give us

a good deal of information about this rule. I suppose that is the rule for inspection.

Mr. Davis—Yes; the rule is as follows (reading): "It shall be lawful for the Court or a Judge on the application of any party to a cause or matter, and upon such terms as may be just, to make any order for the detention, preservation or inspection of any property or thing being the subject of such cause or matter, or as to which any question may arise therein, and for all, or any of the purposes aforesaid, to authorize any samples to be taken, or any observation to be made or experiment to be tried, which may seem necessary or expedient for the purpose of obtaining full information or evidence." Upon that application Your Lordship, I understand, was of the opinion that the injunction motion precluded You-

was, as I thought in my way, but it was because I thought that there was no authority shown, or there had been no authority shown, to permit me to give leave to parties to trespass upon their neighbours' grounds; and, whoever it was argued the question then, answered me in this way: "Oh, well, but it is mining in the ground, it does no harm." My answer again was, that every man has the right to mine his own grounds, in his own way, because some men may mine the ground carelessly and others carefully, and there is a great difference between the two, and you may injure the general work on the lead. That was my view of it. It was only what might be called a practical miner's view of it—and I suppose a practical miner would take that view.

Mr. Davis—As I understand, both the motion to



Nelson Smelter.

Lordship from making the order asked for there, and suggested, as I understand, that you would make a formal order refusing it, and it could be appealed, along with the other orders. That was accordingly done, and upon the argument before the Full Court we urged only the question of experimental works. We did not take the position that the injunction should, under any circumstances, be dissolved in toto. We conceded, readily enough, that we should not be allowed to go on and mine, pending the litigation, but we pressed as strongly as we could for the leave to do experimental work.

The Court—I recollect a little more of it now. You, Mr. Davis, were present when the first motion for inspection was made.

Mr. Davis—No; I was not.

The Court—It was not only because the injunction

dissolve the injunction and on the application for leave to do work, no direct authority was cited to Your Lordship.

The Court—No.

Mr. Davis—Which will go to show that there was jurisdiction in the Court to make such an order.

The Court—But the question often comes up, and has often come up, in regard to gold mines, and it has been decided adversely to men going in and prospecting in gold mines, doing experimental work in gold mines in adjoining ground, say, where really a question of title has been involved. Now, down to that order that I made for the inspection of the Dunsmuir ground, or in the Vancouver Island Company's ground, on behalf of the E. & N. Company, it is a different thing altogether. The E. & N. Company got leave to inspect and to measure, but not to work

I know there is some case here bordering on the line, and I dare say you are going to quote it, are you not?

Mr. Davis—I was going to say, there was a cause cited before the Full Court.

The Court—Not cited before me?

Mr. Davis—It was not cited to Your Lordship—Lumb vs. Beaumont, 27 Chancery Division, 356, a decision upon the rule which I have just read.

The Court—Whose decision was it?

Mr. Davis—It is a decision of Mr. Justice Pearson, and was never appealed, and has never been overruled or dissented from.

Mr. Bodwell—Or referred to.

Mr. Davis—It is like the American practice in respect to matters which have been so universal after the first decision in that respect was made, that nobody ever dreamed of questioning it, because, Your Lordship knows, the American practice is very conclusive on this point.

The Court—I have not seen the case, but I believe there are some cases that go a long way.

Mr. Davis—They always allow, on both sides, experimental work to be done, with reference to trial.

The Court—The great difficulty that I have, and the difficulty that I shall have, is this: The English law governing these matters is not the same as the American law, because there has been no reason to have a law of that kind.

Mr. Davis—Exactly; that is what I was going to say.

The Court—Extra-lateral rights and those things are not known in the English law, and therefore no case in point.

Mr. Davis—No case in point at all.

The Court—And one to use his own judgment.

Mr. Davis—And no case analogous to that, so far as the necessity for doing work is concerned.

The Court—There is a very strong decision, you know of.

Mr. Davis—Enner and Barwell, which is referred to in this Lumb and Beaumont case, and they state that has no application under rule 514.

The Court—Now, where is that Enner and Barwell case cited?

Mr. Davis—In 1, J. Fisher vs. Jones, 529. Rule 514 comes in with the Judicature Act.

The Court—Yes. I don't know this other case you are referring me to, and of course it is a rule for inspection, taking care of properties that are litigation, preserving them?

Mr. Davis—Yes, my Lord, and goes a great deal further than any rules which were in existence before, that is, the rule under the Common Law Procedure Act, and under the Chancery practice. Those rules in terms only went to inspection. This rule comes, as Your Lordship will notice, at the end, considerably further. Any experiment may be tried, any work may be done, any observation made or experiment tried which may seem necessary or expedient for the purpose of obtaining further information or evidence. It comes directly within the language of trying an experiment in order to obtain evidence for trial. The head note in Lumb vs. Beaumont was as follows: "Under rule 3 of order 50 the Court has power to make an interlocutory order before trial, giving liberty to plaintiff to enter upon land belonging to the defendant, and to excavate the soil thereof for the purpose of inspection."

The Court—I now recollect something about that case. That was a case something about water pipes or gas pipes?

Mr. Davis—Yes, tracing pipes out, very similar indeed to the present case. They want to trace a pipe, and we want to trace a vein, that is all the distinction. The facts are as follows: It was a summons take out by the plaintiff asking that he and his servants and workmen might be at liberty to enter upon the defendant's cellar to the plaintiff's house in Provident Street, and that for such purpose he might be allowed to dig down to such drain and follow its course from the defendant's cellar to plaintiff's drain, and a survey employed by plaintiff deposed that on the 7th of June he caused a portion of the plaintiff's property to be opened up and at a depth of about 12 feet from the surface of the ground he found a pipe connecting with the plaintiff's drain, which pipe ran in the direction of the defendant's house, but he was not able to trace it throughout its entire length, as it passed through the defendant's land, on which he had no authority to enter. Then he came to the Court for an order.

The Court—And the Court allowed him to trace the pipe. But that is different from working a vein.

Mr. Davis—No; the whole point here involved is breaking up the soil of another's land.

The Court—I suppose it is.

Mr. Davis—That is the whole thing. It does not matter whether you run an inch hole or dig a two-foot or six-foot hole across the property, and the only principle upon which it could be objected to is so far as the jurisdiction goes.

The Court—Yes, trespasser.

Mr. Davis—That the Court would really be committing a trespass upon a man's ground, and that they had no jurisdiction to do such a thing. In this case they held that the Court had power to make such an order. The judgment is very short and is as follows: Enner vs. Barwell were cited.

The Court—It is a very strong judgment.

Mr. Davis—In my opinion Enner vs. Barwell has no bearing on the construction of the rules under the Judicature Act. That was merely the construction of a Chancery rule, which was limited, and limited strictly to inspection, and the question there was, whether the Court had any jurisdiction to extend inspection far enough to cover breaking up the soil, and they said they did not wish to go that far.

The Court—I don't want to interrupt you, but my recollection of a good many of the leading judgments in the United States is this, and in one point only, and it is rather remarkable, and that is by such men as Field and Phillips, and other men of their ability and standing, that the whole practice with regard to entering other property is borrowed from the English Chancery practice. I did not, it was so, with great deference to those gentlemen.

Mr. Davis—It is in principle, possibly, and no doubt it is.

The Court—They say that their system is borrowed from the English Chancery System—and the English Equity System they use that phrase: the English Equity System as described in the Jones case is very different.

Mr. Davis—The principle is, I think, my Lord, the same. It has universally been carried further in this particular kind of law, and it is, I think, the only kind of law where you find orders of that kind made in the

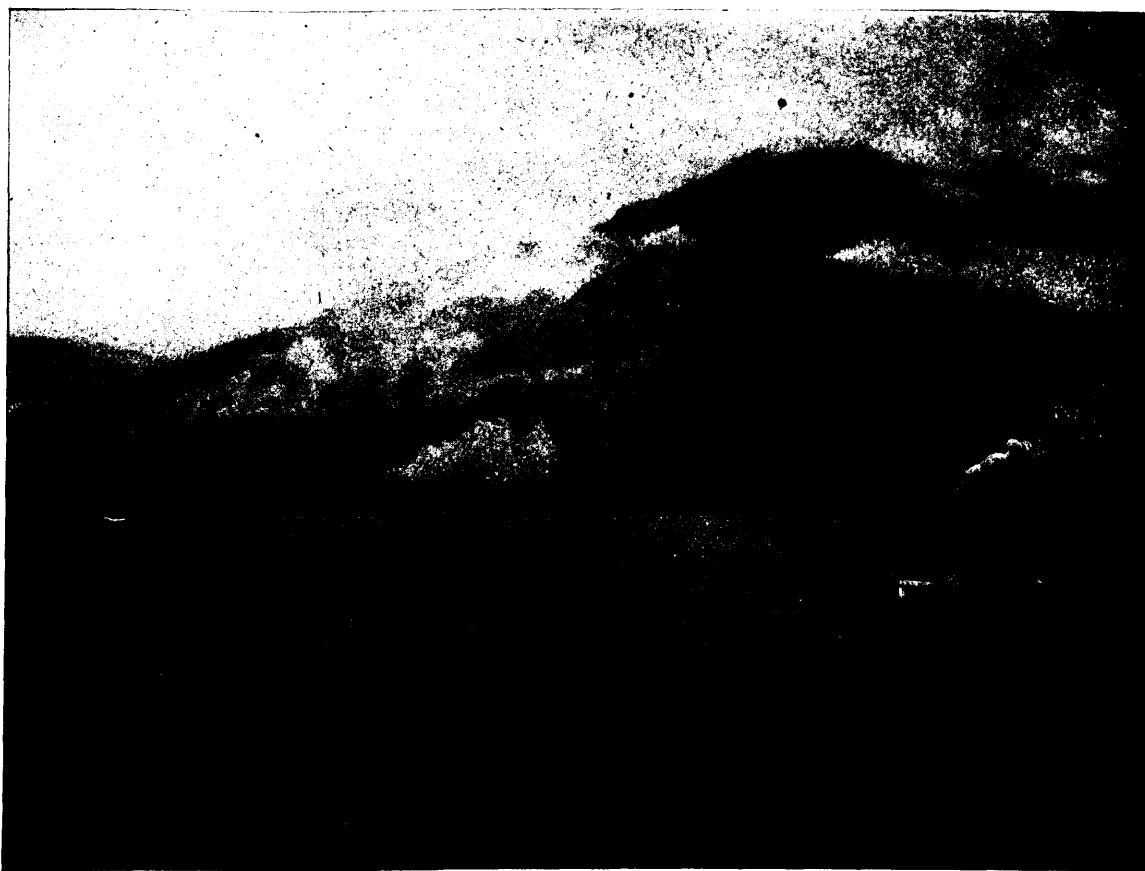
United States, and the reason is, of course, clear enough to settle those questions of extra-lateral rights, the lack of which we do not find, I think, in any other country than the United States. It is absolutely necessary that certain work should be done, in order that the Judges or the jury, as the case may be, shall be placed in a position to give a sound opinion as to the ownership of those veins. That is the reason why it has been extended. In principle it is just the same as the English practice of inspection. When the Court authorized a plaintiff to walk into the land of the defendant to go through his tunnels, we will say in a gold mine, and take measurements and to remove artificial obstructions, as has been done in the English practice, they are authorizing a trespass, just as much as when an order is made al-

Mr. Davis—Yes, they have. The matter is really settled now, so far as the jurisdiction is concerned. The Full Court decided to leave the matter entirely to Your Lordship at the trial.

The Court—Well, as I said on a former occasion, I should be very much inclined, if I felt that I had the power, the jurisdiction, to do such a thing. I said so several times during the argument, because it seemed so eminently fair.

Mr. Davis—Altogether.

The Court—But if I have not the jurisdiction, I certainly would not feel inclined to assume it, especially in the face of a decision of such Judges as decided that Enner case—two of our greatest Chancery Judges.



Launching Steamer Moyie, at Nelson, 1898.

lowing the plaintiff or defendant to dig up the soil. There is, for instance, no difference between my walking upon a man's land and against his wish and my going on to that land and digging a hole against his wish. The one is just as much in the eye of the law a trespass as the other, and the only difference between them is the amount of damages done. In the States, they have carried it that much further. The principle, however, remains the same, the principle being that a Court wishes to have the facts before it; that the Court will not allow a case to be in any way hurt by a defendant or a plaintiff refusing to bring himself within the rule that is before the Court, and not allowing the other party to do likewise. That is the principle.

The Court—Mr. Davis, did the whole Court give an opinion upon that?

Mr. Davis—The Enner case was decided under another rule.

The Court—Well, it was decided on the old Chancery practice.

Mr. Davis—It does not cover it, it does not extend nearly as far as the present rule.

The Court—I went so far, Mr. Davis—you were not in the matter, but Mr. Bodwell will bear me out—at the time I think I went so far as asking the other side to allow this, because I could not see what damage it could do either party, but I did not feel that I had jurisdiction, and I have no business to assume jurisdiction.

Mr. Davis—Certainly not.

The Court—That was the trouble.

Mr. Davis—Continuing with the judgment of Pearson, J. —

The Court—I felt very strongly about it at the time, for whatever that was worth, but I felt I had not the power.

Mr. Davis—Rule 3 of order 50 gives a very convenient power of inspection before the trial of a case. They still used the word "inspection" because it is only inspection, with certain auxilliary powers connected with it, in order that the Court may at the trial—

The Court—And auxilliary work it is.

Mr. Davis—They have gone this far in the English cases, where a man had erected a wall in a coal mine, in front of a place, the Court authorized the tearing of that wall down. That is as much an infringement on a man's private property as digging a hole out there.

The Court—Do you recollect that case? I don't recollect the case.

Mr. Davis—I don't remember the name of it now, but I think it is Bennett vs. Whitehouse, 28 Bar. 119.

The Court—With all due respect; I don't think that the Full Court should have left the point to me at all.

Mr. Davis—I presume the reason they did that was this, the whole case had been before Your Lordship.

The Court—Yes, but they should have decided it one way or the other.

Mr. Davis—They did decide it. They decided the question of jurisdiction by leaving it to you; they decided that there is jurisdiction for you to make that order.

The Court—Have you a copy of their judgment?

Mr. Davis—Yes; I will refer to it in a moment, but as to whether or not it is a proper case in which to make the order, they gave no judgment.

Mr. Bodwell—I do not admit that.

Mr. Davis—I do not expect my learned friend to admit anything, so I will save him the trouble of interrupting at any time to say that he does not admit anything I state. I claim—and I am going to refer to the judgment in a moment—that the result of their judgment is a holding that Your Lordship has jurisdiction. It is very natural that they should have left the decision of the facts to Your Lordship, because the case has been before Your Lordship from its inception, and Your Lordship was more familiar with it than any of those Judges.

The Court—The point was so extremely simple in itself in one way—the winze worked in so far, and then they are stopped on account of a flat fault; the question is whether they had a right to go farther or not, in the shape of inspection, or whatever you choose to call it.

Mr. Davis—Yes.

The Court—And with great deference to the Full Court, I think it might have been decided once for all.

Mr. Bodwell—I claim it has.

The Court—Well, we don't, you see.

Mr. Davis—I agree fully with my learned friend, that it has been decided, once for all so far as jurisdiction is concerned, so far as the facts of this particular case are concerned, that they gave no decision.

The Court—It was only this particular case that was up before them.

Mr. Davis—That is all.

The Court—I know when I have been in the Supreme Court on a Full Court, I did not want to de-

cide anything, if I could help it, because the Judge does not do anything except what is positively his duty, but it does seem to me, with great deference, this thing ought to have been decided.

Mr. Davis—Proceeding with the judgment of Pearson J.,—in this case we find the following language: "Rule 3 of order 50, gives a very convenient power of inspection before the trial of an action, in order that the Court may at the trial have before it the materials necessary to enable it to come to a decision." Now, that language is very much, indeed, on a par with the language used by some of the American Judges.

The Court—Yes, it it; I know.

Mr. Davis—And the principle is well-defined, clear-cut principle, and certainly one that must commend itself to any Court or any Judge. Now, the order which Pearson, J., made in this case was as follows: "Without prejudice to the the rights of any other person of authority the plaintiff is to be at liberty, on giving forty-eight hours' notice to the defendants, to enter on that part of the street, the soil of which belongs to the defendants, for the purpose of experimenting, in order to discover whether the pipe which joins the plaintiff's drain, proceeds directly from the defendant's house, and, for that purpose, to dig out and excavate the soil of the street, so far as may be necessary; plaintiff undertaking to do no unnecessary damage, and to replace the street as soon as his investigation is completed, as quickly as possible, and at his own expense." Now, that is a judgment, it is very true, of a single Judge.

The Court—It is a good judgment—a good Chancery judgment.

Mr. Davis—It certainly commends itself to reason. Aye, my learned friend says it is not referred to in any of the later cases; and my learned friend can get any comfort that he sees he can get out of that. It is quite sufficient for me that such a judgment has been given, and that it has never been over-ruled or in any way infringed upon.

The Court—Hill and Trimble decides that.

Mr. Davis—Yes, and it would certainly be a binding judgment, in the Hill and Thimble case.

The Court—That is, if I take your view of the point.

Mr. Davis—Yes; a case in the House of Lords. It is for my learned friend to show some case in which it was held in England that the Court had no jurisdiction to make such an order, if he wants Your Lordship to assume that there is no jurisdiction in Your Lordship to make the order now asked for. What does he produce? He produces the case of Enner vs. Barwell, decided upon an entirely different rule, and decided prior to this case referred to by the Judge who gave judgment in this case, as being a judgment upon a rule which was entirely different from the present rule, and therefore that the case had no bearing whatever upon the application made in Lumb vs. Beaumont, therefore, could have no application to the facts as presented to Your Lordship in this case. Now, as I said before, in the United States—the only place where this law of extra-lateral rights prevails—the principle is well organized to grant orders of this kind. Certified copies of reports made in a great number of the well-known cases have been produced, I think, to Your Lordship on the argument below, and referred to in the Court above, and I have them here; for instance, that order was made

in the case of Tyler vs. Last Chance, and made in the Gilpin and Sierra Nevada case.

The Court—I did not take a note of those. They were handed in with consent. Do you know where it was reported?

Mr. Davis—It went up to the Supreme Court of the United States, and was reported in the 157 U.S. 683.

The Court—You have those there, have you not?

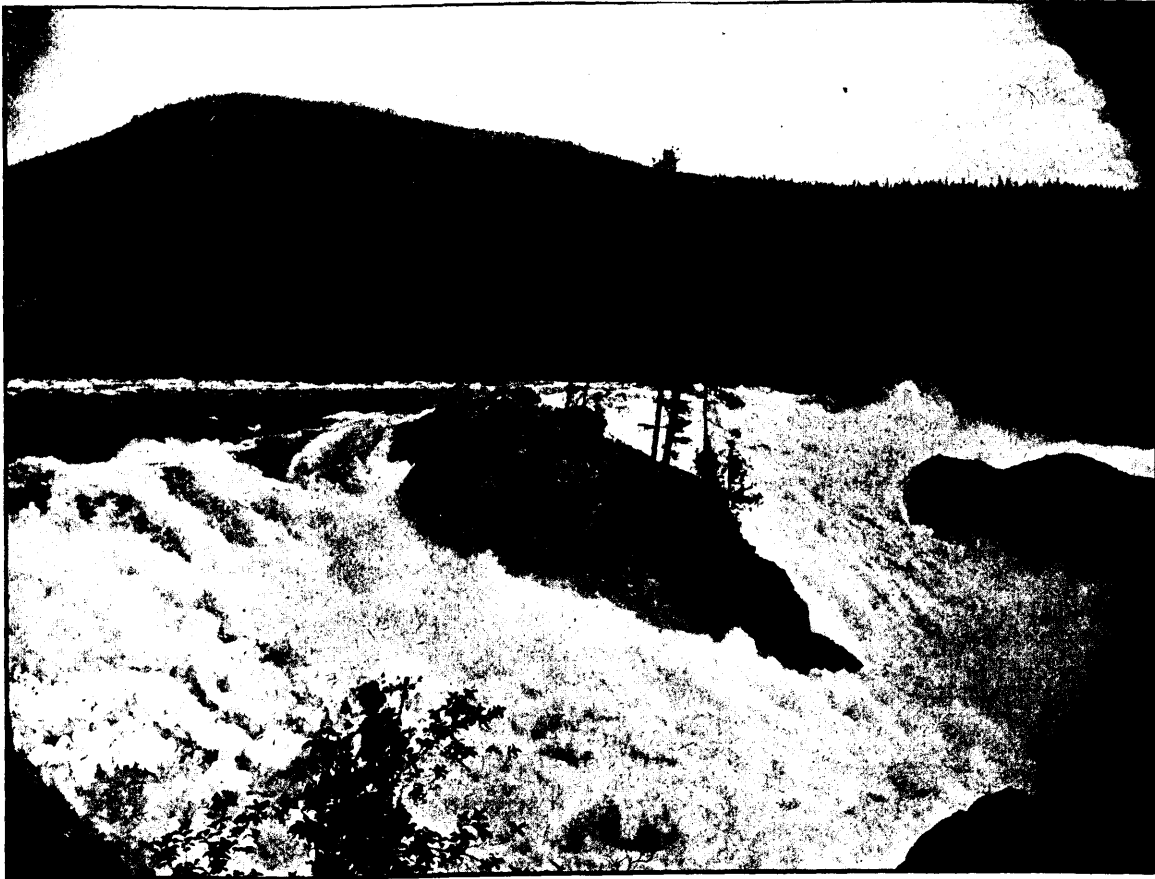
Mr. Davis—Yes, sir.

The Court—Will you hand them to the Registrar, if you please? (To the Registrar): You need not take it in as an exhibit; just so that it is not lost; that is all.

Mr. Davis—We have a number of others which we

The Court—They are hardly admissible.

Mr. Davis—It is the practice, and I will read to show it is the universal practice in the United States, from Barringer & Adams, page 723, citation from St. Louis Mining and Milling Company, the Montana M. Co., which says: "When title is in dispute, whether legal or equitable, and interlocutory injunction will be granted, restraining the mining of valuable ores, pending its determination." That was the principle upon which Your Lordship's injunction orders in this case were founded, and I appealed to the Full Court. We did not attempt to attack that part at all, but simply asked for leave to do the work, under rule 514. Then this authority goes on to say: "An injunction will not issue in such a case when neither



Upper Falls, Kootenay River.

have received since that time. I have here a copy which is certified. The original was handed into Court by Mr. Daly, and I don't know where it is, but I have a copy here.

The Court (to the Registrar)—Put on the document: "Put in by Centre Star," so there will be no confusion.

Mr. Davis—I have here also a certificate under the seal of the Court from the clerk of the United States Circuit Court for the District of Montana, showing that that is the practice in force in that State.

Mr. Bodwell—I object to that going in as evidence.

Mr. Davis—If my learned friend objects, I do not press it. I have a number of certificates, among them the Boston and Montana, the Anaconda and Montana—certified copies of orders made permitting inspection in various United States Courts.

the Bill nor the proofs fix the point where defendants must stop. Hence the Court will not, in terms, enjoin them from working any vein in complainant's claim, for this would require the defendants to ascertain from what facts they are enjoined. Nor will the working of disputed veins for purposes of exploration only be enjoined. There is the only principle—"The working of disputed vein for purposes of exploration only will not be enjoined." Now I understand perfectly that this Court is in nowise bound by any decisions of the American Courts. That, of course, is too clear for reference even; but at the same time, whenever the judgments of the American Courts are based upon principles which commend themselves to the Judges of the Courts of Canada, and more especially, when the judgments are with reference to a state of law which exists nowhere else but in the United

States, then I say that the Canadian Judges will pay great attention, and it is very proper they should pay great attention to American decisions.

The Court—The strongest example of that, Mr. Davis, as you are aware, is the decisions repeatedly given, not by the Judges of this Province, but the Judges of all the Provinces, and the Judges of the Supreme Court of Canada following Judge Marshall's decisions, the Chief Justice of the United States, with regard to constitutional questions, where the constitution differs wholly from that in England.

Mr. Davis—Exactly.

The Court—You understand what I mean.

Mr. Davis—Yes, my Lord, and it is the same thing exactly. We are now considering a law which was taken from the United States, which exists in no other country and with reference to which we have no decisions except the decisions of the United States.

The Court—I was trying, in one sense, to get the other side to agree to exploration.

Mr. Davis—And what troubles Your Lordship, I understood, was the question whether or not there was the jurisdiction to make such an order.

The Court—Whether I had the power, yes.

Mr. Davis—Now, the only place that we can get any decisions bearing on this question is from the United States, and when we find that there are decisions there, when we find that the principle there is uniform with reference to the particular matter under consideration, then unless those decisions and that practice is contrary to equity and good conscience—contrary to good judgment and to common sense—then I submit, unless that is so this Court will follow those decisions. Now, you have the judgment of the Full Court upon the question whether or not an order should be made in this particular case; three Judges sat—the Chief Justice, Mr. Justice Drake and Mr. Justice Martin. Mr. Justice Martin dissented. The judgment of the Court was the judgment of Mr. Justice Drake with the Chief Justice concurring.

The Court—What number is that in?

Mr. Davis—It is reported in volume 6 of the B.C. Reports, page 353. In my opinion, the dissenting judgment holds expressly that there is jurisdiction, and, furthermore, that it is a proper case in which to make the order. Mr. Justice Drake's judgment—which is the judgment of the Court—does not purport for one moment to decide that there is no jurisdiction; in fact, he decides the contrary, as I think I can show Your Honor presently. He says this—and this is all he says, specially, respecting the power of the Court to grant such an order. He says at page 355: "I am not prepared to deny that the court has power to grant the order asked for; but there is no case that goes to such an extent based upon rule 514." And then he refers to Lumb and Beaumont; and I just refer to that now so as to show Your Lordship the distinction which Mr. Justice Drake drew in this judgment between Lumb and Beaumont and between our case, has been removed by the affidavit of Mr. Hastings, which we are filing upon this application. There was evidence to the same effect in the material before the Full Court, but Mr. Justice Drake overlooked it. The evidence, as Your Lordship knows, was very voluminous, and it is easy to see how the particular point that he refers to is overlooked, if it is there. I think it is there; I am satis-

fied it is there. But at any rate, we have supplemented the evidence in that respect here, we have filled that gap. Lumb vs. Beaumont is authority that where a certain fact is known—such as an existing drain—the Court authorized the plaintiff to ascertain one other fact, to wit, to ascertain whether that drain was a drain made by the defendants to connect his house with the existing drain, which was well known. Present circumstances are very different. Defendants seek to establish a theory that the alleged vein exists below the fault, not to prove any connection between two existing facts. If that be actual evidence of a vein both below and above the existing spot, and sought to explore the existing ground, they would have a stronger case; in short, that fact would bring them within Lumb and Beaumont. The affidavit which I referred to a moment ago I will now read.

The Court—I would like to refer to this judgment. I certainly think that they ought to have rendered a judgment on that point.

Mr. Davis—Then we would have had the judgment of the Court now, and would not have had to ask it now.

The Court—You would have had the decision of the Court instead of getting a decision of a single Judge that is what we come to again.

Mr. Davis—It is quite clear from their decision that they do consider the Court has jurisdiction.

The Court—The Centre Star say that: "If you allow us to explore beneath and prove this, it will be demonstrated that the vein we have followed, as we claim, exists on the other side of the fault." The Centre Star have been enjoined until the hearing from continuing the work. They now seek for an order to give them leave to explore under territory of the Iron Mask, so as to ascertain whether or not there is any ore below the fault; they say if there is, then they are entitled to continue the working of it as a part of the vein. There is a conclusion of law that follows from that, too, according to the American decisions, I don't know which way it is now. The first thing to be decided in the case of the Iron Mask and Centre Star is, whether the Iron Mask can show that the Centre Star has no apex and no vein; that is what I wanted to get at.

Mr. Davis—No; at the last of the judgment, over the page, Your Lordship will find it, just the tail end of the judgment—the sting is in the tail, as usual.

The Court—Well, as I say—I speak with deference—I think that the Full Court ought to have decided this matter they have not.

Mr. Davis—Now, as I said a moment ago, the Full Court settled the question of jurisdiction, and I think that is beyond all question. We have first, the decision of the dissenting Judge, to the effect that they have, beyond all question, jurisdiction. We have, in the next place, the statement of Mr. Justice Drake, that he is not prepared to deny that the Court has the power to make the order asked for. It is only, as I take it, an equivocal way of admitting—

The Court—Show me that place. It is rather a negative way of putting it. (Reading from decision of Mr. Justice Drake). "I am not prepared to deny the Court has power to grant the order asked for, but there is no case that goes to such an extent, based on rule 514." You say you have not seen this affidavit that you are going to read?

Mr. Davis—No; what I am referring to now is the

question of jurisdiction, whether the Court has full power, and I say that is settled by the decision of the Full Court. More than that, during the argument, the Chief Justice interjected a remark when the question of jurisdiction was being discussed, to the effect that he did not understand and that Mr. Bodwell really very strenuously urged that they had not jurisdiction. I have a shorthand copy of the notes, and I can show Your Honour that statement, and I think my friend himself will remember it; and the main argument was then upon the question of fact presented. But, what is entirely conclusive as to the Full Court holding that there was jurisdiction is the fact they referred it to the trial Judge to make such an order at the trial if he saw fit. Now, it would

he does not think the facts as shown present sufficient ground for the order being made at that time, and therefore the Court have decided to leave the matter with the trial Judge to deal with himself, and that he can make the order or not, as he sees fit. What does that mean? They are not referring the question of jurisdiction to the trial Judge. That would be absurd.

The Court—Because you mean to say, that they could have determined that themselves, one way or the other?

Mr. Davis—Certainly; that was the real question which that Court had to determine in considering the appeal—whether or not they had power under any circumstances to make—

The Court—Your position is very clear now.



Lower Falls, Kootenay River.

be moonshine for the Court to refer a matter to the trial Judge after having tied his hands. We certainly do not suppose that the Full Court desire to pose as a Court that makes an order which is foolish—an order which cannot be worked out, which would really be nonsensical, and say that they would leave it to Your Lordship to make the order or not, after they had come to the conclusion that the Court had no power to make such an order at all. It seems to me that the only correct reading of the judgment is, that they came to the conclusion that there was no power: one Judge saying that, beyond all question, he was of that opinion (although he differs from Mr. Justice Drake as to whether or not the facts shown the Court were sufficient to order the making of the warrant at that time); another Judge saying that he is not prepared to deny that they have the power, but

Mr. Davis—Then if they have power to make the order the next question is: Are the facts which are now before us sufficient to warrant us in making the order and making it at this particular time? The Court came to the conclusion on that point, with one dissenting, that it was a thing which ought to be left to the trial Judge. Why left to the trial Judge? Because in this case the trial Judge was the Judge absolutely familiar with all the facts of the case; and, furthermore, being a Judge who was himself about to try the case, it was a matter with which he alone, to a great extent had anything to do, or in which he had anything concerned. If he failed, knowing the case, as Your Lordship of course knew it, and as the Full Court knew you knew it, if he failed, that he could be assisted, greatly assisted, in coming to a conclusion when considering the conflicting evidence, by

the doing of certain work, then it was better to make the order that the work be done.

The Court—I was appealed to when this case was up before, when some attorney and Mr. Daly had this case up, and the counsel that was assisting him, Judge Heyburn, on the ground that it could not be any harm to anyone, and might do a great deal of good to both parties.

Mr. Davis—Certainly, but if Your Lordship had no jurisdiction it would make no difference how much good it might do, or how little harm it might do.

Now, the affidavit that I am going to read is as follows—it is the affidavit of Mr. Hastings, the manager of the Centre Star. The date is the 13th of April, 1899.

The Court—Was this read before the Full Court?

Mr. Davis—No, this was not read before the Full Court and this is the affidavit which I say fills the gap suggested by Mr. Justice Drake in the judgment of the Full Court. It would be as well, perhaps, before I read the affidavit to show Your Lordship what work it is we are asking to have done. (Illustrating on map.) Your Lordship will see that the winze runs down from the end of the Centre Star east drift on the plan before you.

The Court—I know all about it.

Mr. Davis—And that a winze runs up to a line brought down from the Centre Star winze and that is what is called the Iron Mask drift. The Iron Mask winze runs out from the Iron Mask drift perhaps 30 or 40 feet there. (At this point Mr. Davis illustrated to the Court on the plans.)

Mr. Davis—That is the work that we have asked to have done. That is, we ask to have the Centre Star winze continued on down through the alleged flat fault to the Iron Mask drift. Of course, the evidence up to this time with reference to what we find in the bottom of the winze is very contradictory.

The Court—Had you up this point before the Full Court? You must have had.

Mr. Davis—The affidavit showing that there was a vein above and below was not before the Court in this shape. There is evidence of that kind contained in the vast mass of evidence which was before them, but I did not draw their Lordships' attention particularly to this point, and they evidently did not look at the evidence; it was not cited; so that Mr. Justice Drake says it would be a very different thing if we had a vein up above that is to the Centre Star winze, and another vein down below in the Iron Mask drift, and what we ask to do is to do work connecting those two veins, or those two portions of the one vein.

The Court—You mean by sinking?

Mr. Davis—By sinking. That is what we ask to do here. The evidence is very contradictory. We say we are through the flat fault at the bottom; the other side say we are not, and there are all kinds of testimony.

The Court—I left this whole question free, and I asked both counsel then to produce evidence at the trial, if possible, to show what the character of the flat fault was, in the first place, and then to show the legal effect of it.

Mr. Davis—Yes, sir.

The Court—I suppose this was done now, and still what you say is, that you cannot do that if you are not allowed to go farther with it?

Mr. Davis—What I urge is this, that it is and will

be a great deal more satisfactory to Your Lordship to have the winze continued on down, and see whether or not there is a vein between these points, then I will have witnesses go into the box and say there is such a vein there, but as yet there is not sufficient development work, of course, to show it.

The Court—I do not suppose that any witnesses on either side, from what I have seen already of the affidavits—twenty on one side and sixteen on the other—that can say what is an inch below the ground there.

Mr. Davis—Oh, yes; they can't say it in one way. We all know, in one way, that expert evidence is only opinion, and when an expert gives his evidence, he is only giving his evidence of something he has seen.

The Court—I withdraw what I said. I only thought that would be the rule here.

Mr. Davis—To a great extent, of course, it comes out that way.

The Court—And what you mean to say is, it would be more satisfactory.

Mr. Davis—To have all of that thrown aside.

The Court—Have the facts shown instead of opinions.

Mr. Davis—The difference is this—

The Court—I understand it is very great.

Mr. Davis—We will have men swearing to what they have seen, and not what they think.

The Court—I know I will be dealing in one case with, perhaps, what has been improperly called, "expert evidence"; and the other case with facts.

Mr. Davis—Yes, my Lord. The affidavit in question is as follows: "I am the manager of the Centre Star mine and am acquainted with all its workings;

"I have read over the pleadings, affidavits and other material printed in the appeal books used on the three several appeals before the Full Court in December last.

"The trial of this action has been fixed for the 17th of April instant..

"The defendants desire to show upon the trial of this action the vein claimed by them herein as disclosed in their incline shaft No. 3 and in the drift to the eastward therefrom, and in the winze sunk from the said last-mentioned drift is a portion of the same vein which is described in the plaintiff's east drift, about 15 feet below the bottom of the said winze."

You see there is a vein showing in that Iron Mask east drift.

The Court—You mean Centre Star?

Mr. Davis—No, my Lord, I mean in the Iron Mask east drift.

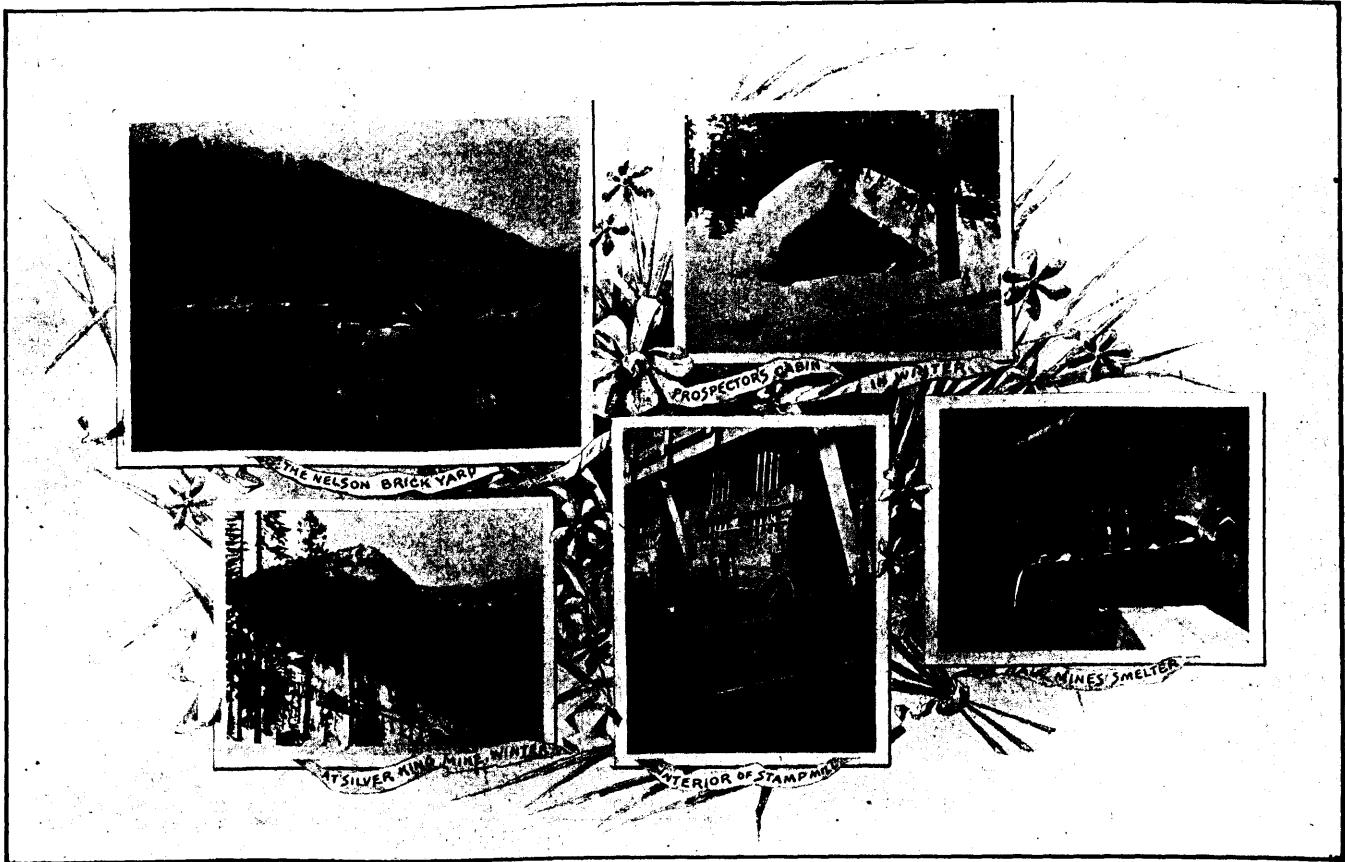
The Court—No, he is not referring to that. What he means to say by that is, that you are simply a little higher up than the Iron Mask is on the same vein.

Mr. Davis—Yes; that is it exactly, and there are 15 feet between us. Now they say there is a vein in the Iron Mask drift, and there is a vein in the Centre Star winze, at the foot of it. We say that those two veins are the same, that they are one and the same thing. The other side say: "That is so; your vein is cut off by the so-called flat fault; it does not extend below the flat fault." We say: "Let us do that work and we will show you that this vein which you see down in your own drift continues right from where you see it up to the vein where we have it in the Centre Star winze." Now, would not evidence of that sort be a great deal more satisfactory than statements

as to what engineers think? If there is no vein there, we are going to get hurt. If the other side believed in the strength of their position, why do they object to this work being done, which, if their statements are correct, will show conclusively that we are out of Court? We are not afraid to take that chance. We are sufficiently satisfied of the correctness of our position to go ahead and take the result of this case upon what happens when the work is done; and surely the Court would prefer to have the facts before it. They claim that the effect of this flat fault is to destroy the continuity of the vein in the winze entirely. They say that what ore is found below the mud-seam—because we are through the mud-seam—there is no question about that; and we say we are through what is called the flat fault; but they say the flat fault goes further down, eight or ten feet or something like that

The Court—And the mud-seam largely impregnated with it?

Mr. Davis—Exactly. And they say that in any fracture you find the rock shattered a good deal, and what happens then is that a certain amount of mineral and these iron pyrites will be gathered in the fracture—planes of the rock, and would be found there, more or less, irrespective of any vein. What we want to do is to run that winze on down. If their contention is correct, the further we get away from that mud-seam the less ore we shall get. If our contention is correct, the further down we go the stronger and firmer the vein will be. If it is merely the vein jumbled a little bit by the fracture, then it will come out just the same below as it is above. We say it is really so now in the bottom of the winze, but, of course you cannot look down on ore in the bottom o



Mining Scenes in the Kootenay.

further than we say. There is broken rock accompanying every fracture, and they say that broken rock crushed up and jumbled up continues for eight or ten feet below the mud-seam, and that the ore which we find in the bottom of that winze is not ore belonging to our vein. They admit we do find ore there, but they say that ore comes from the flat fault itself, that it is really nothing but segregations of iron pyrites collected from the adjoining country rock and matter that is brought down by this mud-seam itself. They say you do find ore in the bottom of the winze, but the reason you have found it there is because the mud-seam is there.

The Court—It has been floated there by the mud-seam?

Mr. Davis—Floated there by the mud-seam.

a winze and say which way it is dipping; it is impossible, therefore, to give the same kind of evidence as could be given if the winze was run through. If they are correct in what they swear to, it will appear beyond all question if we run down that fifteen feet. Why are they so afraid of our doing that work? The only difference would seem to be that they were just as satisfied as we are that that is the same vein, and of that I have no doubt. I may say, and this bears out what I was saying a moment ago, that the only objection which my learned friend, Mr. Bodwell, raised to the doing of this work before the Court of Appeal was that if the winze was continued down you would find an apparently continuous body of ore which would look like a vein, but which really was not a vein. At that time what my learned friend referred

to and said was, that in the shaft there was a body of ore which was more or less continuous. He did not say "continuous," but looked as if it were continuous, and looked as if it were a vein.

The Court—He meant the same thing as you mean.

Mr. Davis—And if the work were done through it would be the same, we would be that much further on. At the present time we have to decide, first of all, whether there is any vein in that shaft or winze. We have evidence to show that, and I have little doubt about satisfying Your Lordship on that point. As to whether it is cut off or not is another question; and we want to be in equally good shape to show that, and that is the only objection my learned friend raised. Mr. Justice Martin refers to that and says: If they get through, and if it looks as if there was a vein, so that all miners would say there was a vein, then the Court will probably say it is a vein, too. What else can they do? and the defendants' case will be established. They do not suggest that the sinking of this winze is going to do them any harm, and they could not suggest that because the Iron Mask east drift is not being worked any, there is no one working there at the present time and has not been for a long time. The sinking of that winze fifteen feet further, which can be done in four or five days by working day and night, will not affect in any way the plaintiffs' working of their mine. The only objection which they raise—at least that my learned friend raised at the argument before the Full Court—was, that if that work was done it might put our case in a better position. I think we have a right to have that; if there is any work which will put our case, or their case, in a better position by bringing out the actual facts, that is something which I take it Your Lordship wants.

The Court—The rule in regard to interrogatories is much that way. You are not only entitled to bring out the facts from the defendant, that will help your own case, but you are entitled to bring out facts that will smash his case.

Mr. Davis—Exactly, and it is the same principle.

The Court—That is the decision which was before me a short time ago, and very well argued by Mr. Duff. I took the view that he was right in his application. I was very much against him at first, but had to agree with him afterward because that was the law as laid down in England. There is difference between this and a matter of trespass.

Mr. Davis—Supposing there was no way of producing evidence of any value that a certain vein which apexed on the plaintiff's land ran into the defendant's land, except by working ore down. Would the court say, "I will not decide the point at all, because I will not allow you to go into the defendants' land, and unless you go into the defendants' land you cannot get any evidence." That is what it comes to, because in going down that winze we find a fracture. My learned friend says that that fracture cuts you off; there is no vein beyond that fracture, no vein whatever, which is yours. We say there is. We say this vein continues right through, runs in this 15 feet of work, and we will show you that that vein continues right down to the vein which you see in the Iron Mask drift." There is, admittedly, a vein there, and we will show you that it exists between those two points, it could not be urged for a moment that our vein was not there."

The Court—On the same dip?

Mr. Davis—On the same dip exactly.

The Court—Of course, you can tell that by ascertaining where they have reached the end of their drift, and where you have sunk to the end of your winze, are points on the same incline.

Mr. Davis—We can prove that, and they don't dispute that—they cannot dispute that our vein if continued would come out; our vein would be there if it were not cut off. But they cling to the last straw, and they say, "We will not let you find out whether it is cut off, because if we do, it will appear that you are cut off, and that is what you hang on to."

The Court—No; what they hang on to is this principle and they will come out with it exactly—you are working other people's ground, except so far as the statute has given you that portion of it that is in the vein, then you are a prima facie trespassor—that is the effect of the judgment—and as you are cut of the ore you are a *de facto* trespassor. That is what they say.

Mr. Davis—I will refer to that because my learned friend took that back a little in the argument before the Full Court. I started to argue this, that it was absurd to set up a contention of this kind; that, if, in following a vein down you met a fracture three inches broad, in which there was foreign matter, we will say, and then, on the other side of that fracture, you found a vein going on down—it was absurd to say that that fracture and that three inches of foreign matter cut you off and prevented you from following the vein down on its dip. My learned friend said he did not contend any such thing.

The Court—I gave a similar example, of course; you could not have been told it; it was your own idea, but in the argument which occurred before me in the Court below I gave this example—to cut off the vein because it is three inches or three feet.

Mr. Davis—Exactly. What I say as to that is this—

The Court—There is a lot of authority about that, but that is apart from what you are going to get at; you want to get at the fact.

Mr. Davis—We have plenty of authority showing this—and my learned friend does not dispute this, that a displacement of a few feet will not destroy the continuity—the legal continuity of a vein which was established. My learned friend will not dispute that proposition of law; he does not dispute it.

The Court—That is in accordance with the American decisions.

Mr. Davis—Although on his argument before Your Lordship you might have drawn the same conclusion as I did from hearing his argument.

The Court—That was his idea.

Mr. Davis—And I began by combatting that idea. He said, "If you go one inch out of ore in following your vein down on your dip, you have got to stop."

The Court—He took very strong ground on that.

Mr. Bodwell—I did not say that.

The Court—It does not matter. You took very strong ground. That does not alter the fact or the law. Mr. Bodwell was doing the best he could for his client.

(To be Continued.)

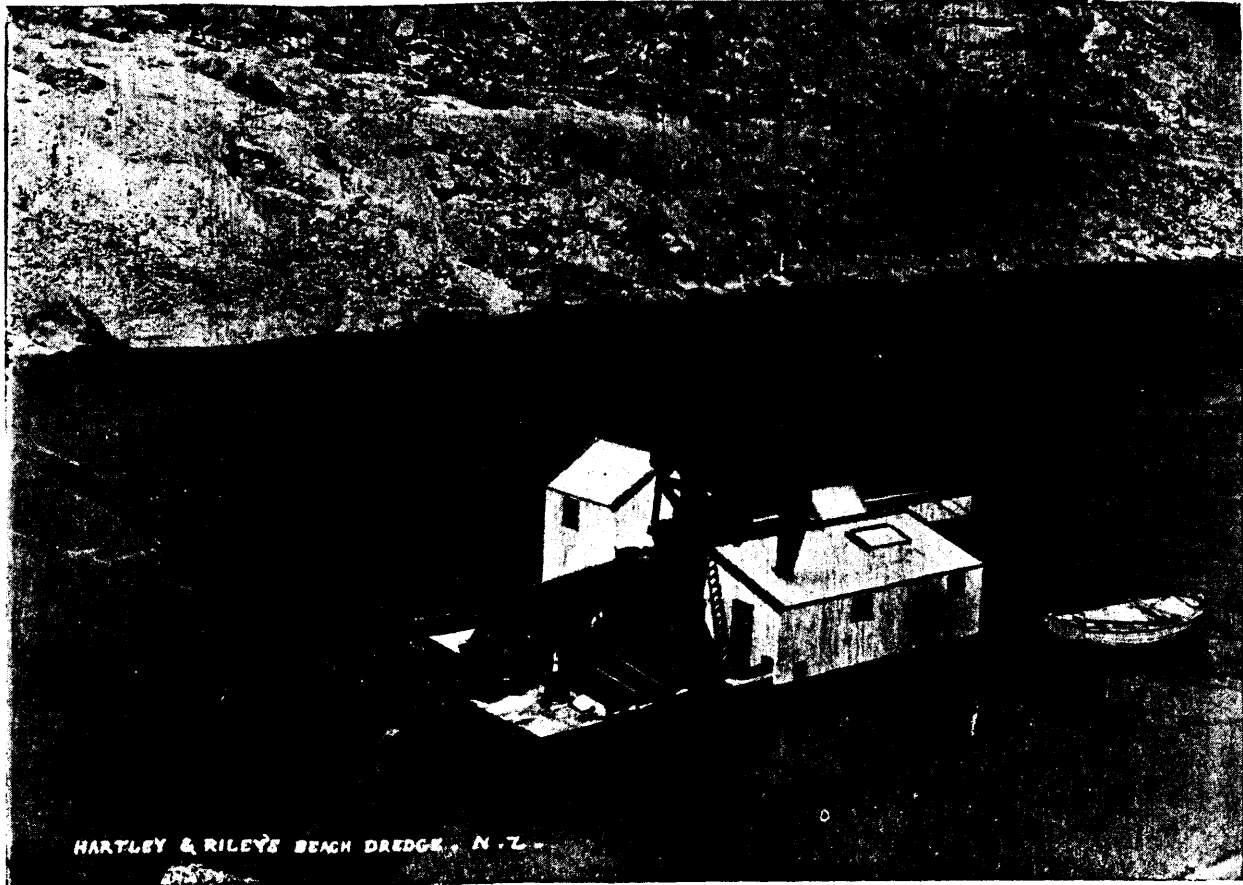
GOLD DREDGING IN NEW ZEALAND.

By W. M. Mackinnon, Civil Engineer.

THE district of Otago at the south end of the Middle Island has become the Mecca to which the engineer in search of information on the subject of dredging directs his pilgrimage. The writer lately paid a visit to the town of Alexandra, in Otago, for the purpose of seeing for himself the operations of dredging for gold, and studying the conditions, with the view of applying the same means to recovering gold from the rivers and gravel beds of British Columbia. Within a distance of five miles from Alexandra, some twenty dredges are at work on the Clutha River and Manuherikia Creek. These are all of the movable ladder type with an endless chain of buckets, and only vary in size and arrangement of details.

During the last ten years there has been a process

the buckets is delivered into one or two revolving inclined cylinders of strong boiler plate, perforated with holes from $\frac{1}{4}$ " to $\frac{1}{2}$ " dia. A length of angle iron is rivetted inside, in helical form, so that the gravel travels slowly down while being washed by water discharged from a pipe inside the cylinder. The gold and fine gravel pass through the holes in the plate on to inclined tables, while the coarse gravel and shingle pass out at the end of the cylinder into the elevator which stacks the tailings clear of the dredge. The elevator is a particular feature of the machine. The tailings occupy a very much larger space than the same material does when lying compactly in the bank, and, except in a swift current, when discharged immediately over the stern, are found to run back into the excavation and interfere with the working of the dredge. The elevator is an endless chain of buckets, carried by a steel ladder, and worked by gearing from



Dredge moored in swift current, Clutha River, Otago, New Zealand.

of evolution going on in the design of dredging machines. The object to be attained is the turning over of a large amount of material at the minimum of cost in the minimum of time. This can only be done by powerful machinery; so that, from the original dredge of small capacity worked by a current wheel, there has been a continuous advance in size, and steam power is now universally used. Improvement in design of details and general arrangement has kept pace with increase of capacity.

The industry has now become such a success that the New Zealand appliances are being copied for use in other parts of the world. Dredges are at the present time being built in Dunedin for use in Siberia.

When the machine is in operation the gravel from

the main engine. By this means the tailings are stacked some distance astern of the dredge and to a height dependent on the length and inclination of the ladder.

The gold saving tables are about twelve feet long, and are covered with cocoanut matting, which is protected from wear by sheets of expanded metal or stout wire netting. All the gold is obtained near the upper end of the tables and it is evident that a considerable amount of fine gold is lost.

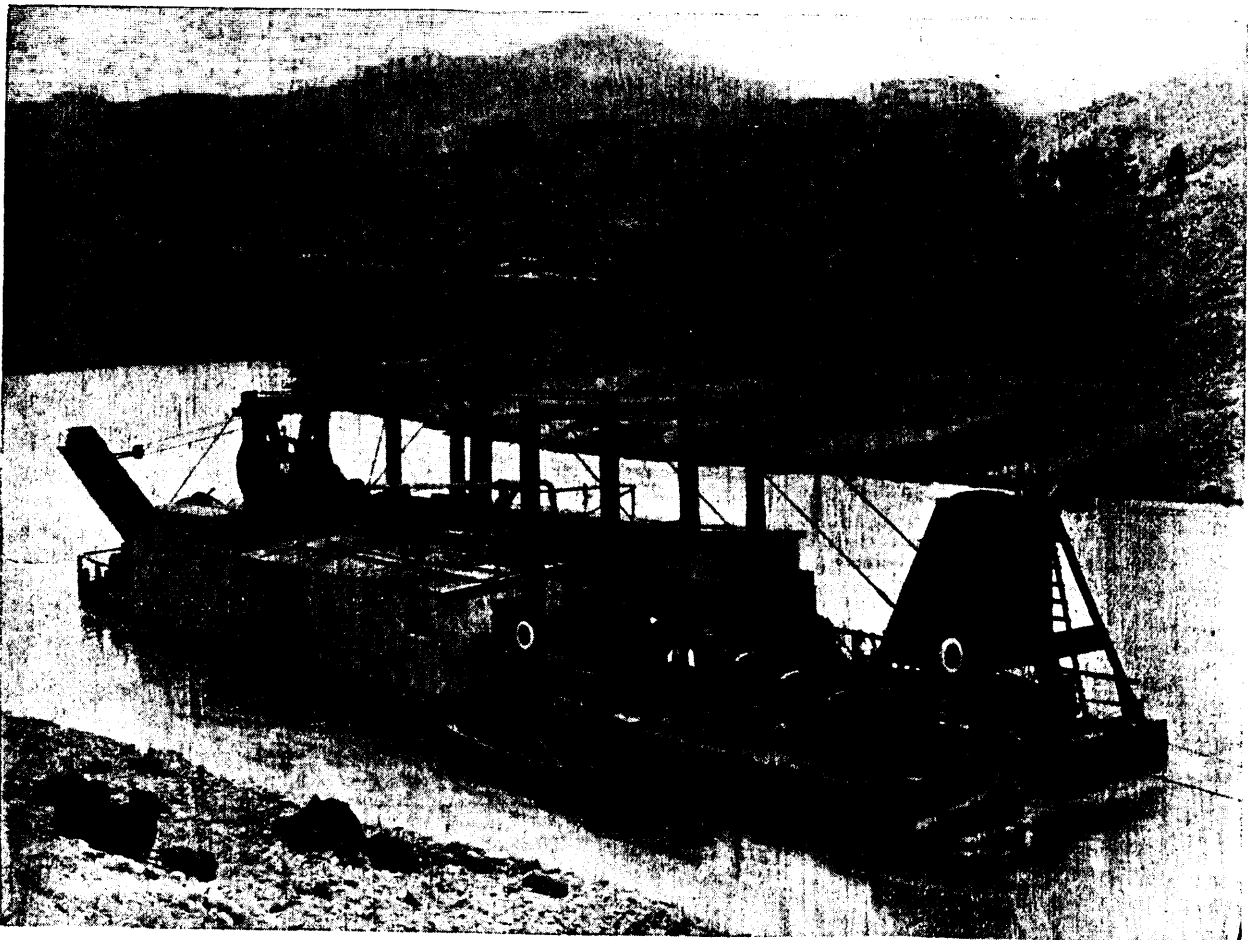
The shingle—by which is meant the coarse material which does not go over the tables—is very regular in size, and generally speaking, much smaller than similar material along the rivers in British Columbia.

As in this Province, the deposits on the Clutha consist of glacial drift washed down and re-arranged by the river. The country-rock is a finely laminated schist cut up into prisms by innumerable cleavage planes, and to that circumstance would appear to be due the regularity in size and the fineness of the shingle.

Compound condensing engines are used for driving the machinery. Centrifugal pumps, driven by belting from the fly-wheel of the engine, supply water to the tables and screening cylinders, and do duty as circulating pumps, by drawing or discharging their supply through the condenser. The boilers are multitubular of the locomotive type and are worked at a pressure of 120 lbs to 150 lbs.

day, except Sundays. Shifts of eight hours are worked and the crew of a dredge consists of a dredge-master and five or six other men. Expenses of working are covered by a yield of 50 ozs. of gold per month, though this is likely to be exceeded soon, as there is a tendency for wages of dredgemasters to increase considerably on account of experienced men having been hired lately to go to other countries at a wage of double the amount it has been customary to pay in New Zealand.

Dredging companies have not in the past been compelled to supply particulars of the amount of gold obtained, and only a few have been in the habit of making their returns public. The Government have lately taken steps to obtain regular monthly returns from



Dredge moored in swift current, near Cromwell, Kawaran River.

The winches for raising and lowering the bucket ladder and working the mooring ropes are operated by a small independent engine. They have six drums fitted with clutches and breaks so that each drum can be worked independently; and the whole is arranged as one compact piece of machinery so that the winchman need not move more than a few feet to control the whole or any one of the drums.

An inferior lignite, of which there are beds close to Alexandra, is used for fuel. Dredge owners are fortunate in being able to get it, as the country is quite destitute of timber, and the cost of bringing coal from the coast would be very great.

Operations are carried on continuously, night and

the various companies of the yield of gold, cost of workings, etc. These statistics will soon be available for public information and should prove of great use to those who propose to invest money in the dredging industry.

The following are the aggregate returns from thirteen dredges on the Clutha River during 1898 (Report of Minister of Mines, 1898).

Capital involved	\$290,000
Value of gold obtained	250,000

Taking the working expenses as amounting to 60 per cent. of the yield, sufficient profit remains to pay a dividend of over 33 per cent.

The average value of the gravel worked cannot be

arrived at, owing to the almost total absence of information on the point. The following yields per cubic yard are given in the Report of the Minister of Mines for 1897:

Jutland Flat—Yield, 1.49 grains per yard = 6 cents.
 Cost of working, 1.38 penny per yd. = 2.8 cts.
 Earnslugh—Yield, 2 grains per yard = 8 cents.
 Ngapara—Yield, 2 grains per yard = 8 cents.

Judging from what he has seen in New Zealand the writer has no hesitation in saying that the conditions in British Columbia are such as to ensure success in dredging for gold if the proper appliances are used. The heavier nature of the gravel will require the use of stronger and more powerful machinery; and the

coarse and irregular in size. Some form of cutter has to be used to loosen the gravel, and before the gold comes within the influence of the pump it sinks or is washed away by the current. Besides, as the amount of gravel raised by a centrifugal pump bears a very small proportion to the amount of water raised at the same time, the cost per cubic yard is greater than the cost of raising similar material by means of buckets.

When the precaution is taken of thoroughly prospecting ground it may be proposed to work, the prospect of success may be made a certainty; and it should not be lost sight of that working conditions vary and so machines must be designed to suit each case.

The accompanying photographs show clearly the nature of the country round Alexandra and the style of dredge in use.



Dredging, Clutha River, 10 Dredges in sight.

greater distances from railways—into the Cariboo country for instance—will make the first cost of machines greater than in New Zealand. Working expenses will also be greater as wages are higher, but that will be compensated for by the richer gravel in British Columbia.

The want of success which has so far marked operations in British Columbia is not surprising. Money has been wasted in pumping plants which might have been spent to better purpose had a fraction of it been expended in getting particulars of the system in use in New Zealand. Pumps can never be a success for dredging in swift currents and where the gravel is

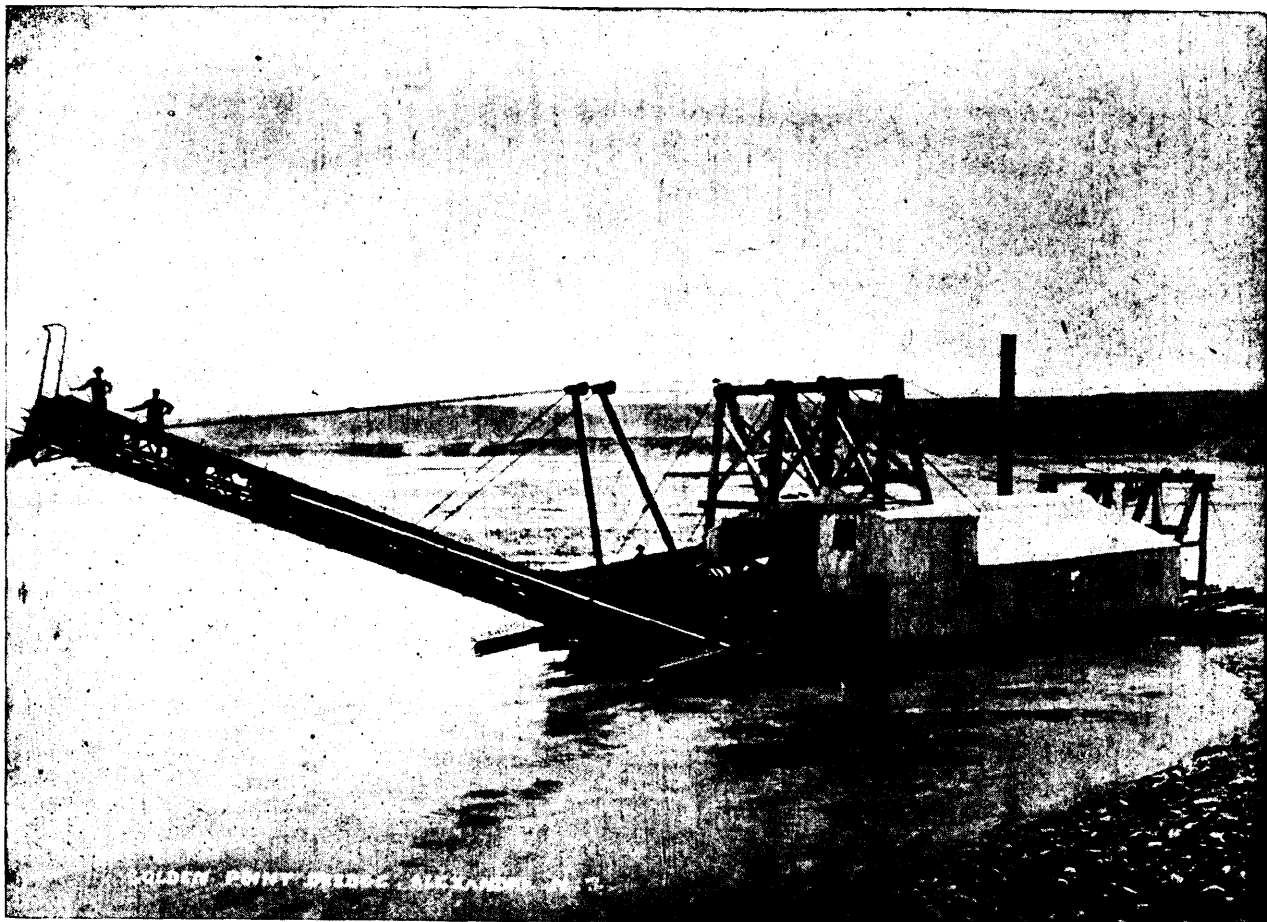
TECHNICAL PERIODICALS OF THE MONTH.

MINES AND MINERALS, SCRANTON, PA.

THE leading article in *Mines and Minerals* for November is devoted to the subject of "Interior Photography," by L. A. Osborne. As is pointed out, "interior photography is undoubtedly one of the most difficult problems that either the amateur or professional operator is called upon to solve; and but little information in this branch of photography is as a rule obtainable from text-books and manuals. The purpose of this article is, therefore, to suggest to the in-

experienced a few of the devices that may be resorted to in order to remove or lessen some of the difficulties that beset this class of work. After advocating, as giving in general better results, the use of a lens of as long focus as possible, and slow plates, the writer offers the following suggestion for calculating exposures: "The exposure of the plate will be governed usually by the darkest portions of the interior. A good way to estimate the proper exposure is to pin up, for a given length of time, in the darkest part of the room, a yellow envelope, out of which one end of a piece of printing out paper is allowed to protrude. After thus exposing it for, say, ten minutes, put the paper all in the envelope and take it out of doors, and in the shade of a tree expose the other end of it by the yellow light that comes through the en-

velope from the developer and thoroughly washed, dried with absorbent cotton, and the "halo" carefully painted with potassium bromide solution. With flash-light exposures in photographing underground workings, plenty of powder should be used and the appliance should be placed above and to one side of the camera and moved slowly from right to left while burning. This movement softens the edges of the shadows and prevents the harsh effect so prevalent in flash-lights made by inexperienced operators. If, however, the flash powder burns too fast to permit of this movement, two flashes should be made, one on each side of the camera. Care should also be exercised in developing flash-light plates, the necessary great unevenness of exposure, requiring strong developers in some places and considerable restrainer



Dredge, Clutha River.

until it has reached the same tint (which can be determined by pushing the paper inside and examining the envelope). The ratio of time required by these two exposures will be the ratio of exposure required for your interior and an open landscape at the same time of day. For instance, if the paper darkens in five seconds outside as much as it did in ten minutes inside, then your interior requires 120 times the exposure of an open landscape, and you make your calculations accordingly." The use of non-halation plates, or better still, celluloid films, is strongly recommended, but sometimes halation makes its appearance in spite of all efforts to avoid it. Under such circumstances, the plate should be removed

in others. The article altogether is of extreme value to engineers and others who employ photography in the exercise of their duties.

THE ENGINEERING MAGAZINE, NEW YORK.

In the *Engineering Magazine* for November the articles are: "Standardizing in Engineering Construction," by Sir Benjamin C. Browne; the "Revolution of Machine-shop Practice," by Mr. Henry Roland, and "Works Management for the Maximum Production," by Mr. J. Slater Lewis, to which we briefly referred last month, are continued. In addition to these, however, there is a very admirable and comprehensive contribution by Mr. Thomas Yonge,

on "The Evolution of Mining and Ore Treatment in Colorado." Gold was first discovered in Colorado in 1859, and it is estimated that not less than \$25,000,000 represented the yield of the placers between 1860 and 1870, the work being done by primitive "rockers," "short sluice boxes" and hand labour. When the first railway was built, under circumstances of exceptional engineering difficulties, in 1870, lode mining began to receive increased attention, and all the rich placer ground workable by crude methods, having been exhausted, this branch of mining was correspondingly neglected. In passing it may be stated that within recent years placer mining in Colorado, as in the Cariboo district of British Columbia, has entered upon a new era, consequent upon the introduction of elaborate machinery and hydraulic appliances. The only class of lode mines worked in Colorado before the advent of railways came under the category of "free milling," and the ore was treated by means of arrastras and small stamp mills; but as depth was gained on the veins, the decomposed or oxidized ore was, as has so repeatedly happened in this country, succeeded by ore of a refractory character, from which only a very small percentage of the values could be extracted by the stamp mills. In those days there was no known process by which refractory ores could be made to yield their precious contents, and notwithstanding the efforts made between the years 1864 and 1867 to solve this problem, they were without success, until in 1867 a small smelting plant of 12-ton capacity, consisting of a reverberatory and a calcining furnace was erected at Black Hawk. The result of its operations proving successful, abandoned claims were reopened and "the mining industry of Colorado commenced a career which has ever since increased in magnitude and importance." It is to be noted that every single fire-brick used in the construction of this pioneer smelter had to be brought by waggon 600 miles and cost delivered on the ground a dollar each; the iron cost 22 cents per pound; the pay of skilled labour was \$8 per day, and of common labour \$4 per day. In consequence, doubtless, the charge for smelting ranged from \$20 to \$45 per ton. When, moreover, we learn that the product of the smelter, the matte, had to be hauled in waggons to the Missouri River, taken thence by rail to New York and thence to Swansea to be refined, it will be readily understood that only ore of the very highest grade character could be profitably mined at that period of excessive costs. To-day there are nine smelting plants in Colorado, two heavy refineries in connection; and the aggregate daily capacity of these smelters, which give employment to 4,000 men, is 4,500 tons. As the writer of the article concisely states it: "Whereas, in 1871, after paying the cost of smelting, etc., the miner only received 65 per cent. of the value of the ore, by the year 1889 he received 84 per cent. of the value, and the percentage has since been somewhat further increased. The average smelting charges in 1868 were at least \$30 per ton, as against an average of about \$4 per ton at the present time. In 1878 the average value of the ore treated in Colorado had to be about \$100 per ton to leave a profit, as against the average value in 1899 of \$25 per ton, including concentrates, representing original crude ore reduced from six to seven tons to one ton." But improvements and consequent reduced costs of ore treatment have not been limited to smelting only, and the great improvement in the stamp mill is emphasized by the fact that a fifteen-stamp mill of modern pattern will

treat more ore than the sixty-stamp mill of ancient type with the deep mortars and slow drop formerly in vogue; and an instance is given where \$3 ore is profitably mined and treated by means of a thirty-stamp mill. A great advance has also been made in concentration, and the result is that an immense tonnage, formerly outside the range of profitable handling, is now being treated at a fair margin of profit. Thus, while ten years ago the highest saving of values in sulphide ores by means of concentration was from 50 to 75 per cent., at the present time it is as high as 90 per cent. The utilization of the mountain streams for the generation of electricity for power purposes; the utilization of compressed air for the operation of machine drills and the great improvement in the drills themselves; the improvement in mine hoists and pumps; and the erection in one district of cyanide and chlorination plants for the treatment of the lower-grade tellurium ores have all contributed in marked degree to the establishment of the mining industry in Colorado upon its present eminently satisfactory basis.

THE MINING & METALLURGICAL JOURNAL,
LOS ANGELES.

A most comprehensive article, entitled "The Use of Electricity in Mining; The Kootenay-Rossland Power Transmission," by Mr. G. P. Low, editor of the *Journal of Electricity*, is now being published in serial form in this periodical, the first instalment appearing in the issue of September the 1st.

THE MONTH'S MINING.

SHOAL BAY.

(From Our Own Correspondent.)

In this district mining is pretty well at a stand-still, the Dorothea Morton and Douglas Pine mines having both closed down. It is, however, understood that the reason for the cessation of operations at the latter property is that there is a deal pending for the sale. This appears to be a reasonable explanation, since the shaft, which is down over 100 feet, is almost entirely in good ore. Work is being vigorously prosecuted in the Monte Cristo, and it is confidently expected that the lead will be encountered in the next eight or ten feet.

Satisfactory reports still continue to come from the property in Estero Basin, which is being worked by the B.C. Exploration Company. Mr. J. H. Hoare, of Vancouver, owning the Golconda, a claim adjacent to the property of this company, is carrying on preliminary work on this location.

AROUND SHUSWAP LAKE.

Kamloops has the good fortune to be placed in the midst of a large district rich in mineral wealth, a district whose worth is only now beginning to be recognized. That portion of the Kamloops district in the vicinity of Shuswap Lake is but little known even to the ubiquitous prospector. In the neighbourhood of Sicamous and Salmon Arm a good deal of prospecting has been done and some very promising locations made, and among these may be mentioned the Bluebird, whose ore is pyrrhotite carrying high gold values in the richer pay streak. The hills around Scotch Creek, Manson Creek and Adams' River, etc., have been but cursorily gone over, and from these points to Adams' Lake and beyond there to the north

is a country that may be found to be as rich as any yet prospected in the Slocan. The Slocan silver belt appears to crop out in the localities just mentioned, and on the divide between Scotch and Manson Creeks a number of claims have been staked on ledges of fine grained galena carrying from 100 to 700 ounces of silver. The pale schists abound on the north shore of Shuswap Lake, and cropping out again near Adams' Lake, another great silver lead deposit is met with, known by the name "Homestake group." Eight claims have been located, six of which are Crown-granted. Beyond Adams' Lake, schists and silver-lead ores again show up on the North Thompson River. The greater portion of the country lying between these several known outcrops is practically a virgin field for the prospector.

In April of the present year I determined to spend a few days on Scotch Creek, where some claims were located and which I desired to examine, and finding that the steamer "Ethel Ross" would make a trip up the river and to Shuswap Lake in a few days, I decided to go by water. It was a miserable raw morning when we started at six o'clock on our voyage. A drizzling rain was falling, but although this took the keen edge off the pleasure of the trip, it was, nevertheless, most enjoyable.

Delayed by a number of stoppages with freight on the way, it was not until about two in the afternoon that we made a landing a mile east of Scotch Creek outlet, and I lost no time in at once getting under way for a point six miles up the creek, which would serve as the base of operations. Under the guidance of a miner who knew the ground, we soon struck the trail, and a good one it is, too, except for the crossing over the creek, a couple of miles from its mouth. The water was rising rapidly, and it was not very comfortable walking on the big cedar that, spanning the creek, serves as a bridge for pedestrians. The last mile was accomplished in a downpour of rain, and we were both pretty damp when we reached the camping ground; but no one minds these little inconveniences which, a good supper, a blazing fire and a whiff of the fragrant weed will speedily efface.

Next day we tramped over the hills. Here are schists in every direction with quartz veins of all sizes running through the prevailing formation. About a mile from the camping ground is a large quartz vein, some 25 feet in width, carrying galena. There are large outcrops at both sides of the creek, and on the east slope, the vein crops out at intervals for quite a long distance. There is a tunnel on this claim running with the vein for 30 feet, but the result of this work has not been very remarkable. Assays from picked samples yielded 9 ozs. silver to the ton and 48 ozs. lead, with no gold values; again, there is much quartz that is absolutely barren.

Intersecting these same schists are numerous quartz veins of all widths, and two veins of quartz, strongly mineralized with pyrrhotite, have been located. Assays from these have given from \$2 to \$12 in gold per ton from surface ore. At the summit of a high peak that kept silent sentry over our camp is the Queen mineral claim. This is a copper property, quartz, full of variegated pyrites,

from which, it is said, assays as high as \$20 in gold have been obtained, with 15 per cent. copper. There is a shaft down some 50 feet on a 3-foot vein. A tunnel has been started at a point on the face of the cliff to intersect the ledge at a depth of 200 feet. A few miles higher up the creek several Chinamen are engaged in placer mining, and as they have stuck to it for several continuous years, the chances are they get something more than the alleged "two bittee" a day as a result of their labours.

The difficulties in the way of prospecting this country are chiefly caused by the snow and the thick timber. The snow does not disappear from the higher elevations until late in June or early in July, and it again falls in October. The timber is very dense in most places until a considerable altitude is gained, and then the timber line is passed and travelling is easy—if the snow is off. It is such a good field, however, that it will not long remain neglected by the prospector. Game is abundant; creeks are numerous, and little rills trickle from the mountains in all directions, for this is out of the dry belt, and the fall of snow and rain is considerable. Like all mountain streams, Scotch Creek becomes a turbulent torrent in early summer, sinking into comparative insignificance later in the season. The result of my excursion to Scotch Creek was the conviction that in that section of the Kamloops mining division there are indications of large deposits of precious and useful metals. There has been no systematic prospecting so far; when this is done, good finds will most assuredly be made, not only in silver and copper, but also a free milling gold-bearing quartz.

M. S. WADE.

YMIR.

(From Our Own Correspondent.)

Herewith are the returns of the Ymir mine during the month of October. During the month some 1,550 tons of ore were milled, which produced 1,110 ounces of bullion and 97 tons of concentrates; in addition there were 56 tons of smelting ore shipped to the Nelson smelter. The total receipts being \$22,062, and the expenses \$5,041. This is not a bad showing for a property with only 40 stamps, and further hampered with labour trouble. The management are erecting a saw mill on the North Fork of Wild Horse Creek, in the immediate vicinity of their mill, and intend to manufacture their own lumber, as it is the intention to build an addition to the present mill and instal a further 40 stamps, making the mill an 80-stamp one. As soon as these arrangements are completed big returns may be expected.

It is rumoured that the Dundee will shortly be taken over by a syndicate, associated with whom is the London and B.C. Gold Fields, and Mr. Rand, who organized the Athabasca; this is certainly good news, as, undoubtedly, a mine exists. What is needed is a competent man to manage the property; what work has been done on this property was money thrown away. The late manager made the serious mistake of endeavouring to make a shipper out of a property that was not fully developed.

The Porto Reco mine has been steadily worked

during the past summer and is giving returns very satisfactory to the management. It is believed that this company intends at an early date to further enlarge the plant, and substitute water in place of steam to supply motive power.

Ymir, in company with other camps in West Kootenay, has suffered greatly in consequence of the labour complications, and outside capital which would have been put into properties here has, on this account, been taken elsewhere. But we are hoping that ere long matters will be arranged.

The machinery for the Yellowstone mine is now on the ground and the finishing touches are being given to the mill. It is expected that a run will be made about the first of the year.

BOUNDARY CREEK.

(From Our Own Correspondent.)

The main shaft of the Mother Lode mine in Deadwood camp is now down 300 feet, and at this level a station is being cut out preparatory to drifting on the lode. The shaft—a large one—is all in ore, estimated to average at least \$15 to the ton. This is a decided improvement upon general values obtained near the surface. The north drift, at

THE MOTHER LODE DEADWOOD CAMP. 510 feet from the main shaft, is all in ore, estimated to run about \$18.00 For the last 120 feet this drift has been in ore of good grade. It is now

20 feet past the point at which an upraise is shortly to be commenced, with the object of making connection, chiefly for ventilation purposes, with the old workings above. It is intended to continue this north drift to ascertain how far the big chute of ore now being driven extends. The incline winze from the old prospect tunnel was down 135 feet a fortnight since, this depth being about 35 feet below the lower cross cut, which is also a part of the old workings. From the bottom of the winze to the 200-foot level of the new workings is about 140 feet. Sinking the winze and rising from below is to be continued simultaneously until the intended connection shall have been made. Besides ensuring good ventilation for the north drift below, the winze will serve to demonstrate the continuity of ore of shipping grade from the old prospect tunnel (driven in 1896-97) down 275 feet on the incline, or about 245 feet vertical depth, to the 200-foot level, where, as already mentioned, the drift has been in good ore for 120 feet. This big chute of ore may be expected to run from, say, \$10 to the \$18 general value, lately set upon that part of it reached by the face of the drift. The Mother Lode mine should, next spring, be in a position to maintain a regular and comparatively large output of ore, for, as shown above, it has sufficient ore now in sight to allow of a number of stopes being opened up.

The Morrison.—The stock of the Morrison mining company being frequently dealt in, it may be well—failing the writer's present ability to ascertain from disinterested parties what their opinions are of this property—to quote from the published statements of Mr. Fred H. Oliver, managing director of the company, who is reported to have said: "Development is progressing at the rate of about ten feet a day on the 200-foot level. This development consists in driving both ways from where the vein was tapped. The vein at the point where it was cross-cut is 73 feet wide. Along the footwall is 30 feet of solid, clean ore, with no waste whatever. The ore in the south drift is now

sampling from \$8 to \$18 in gold, three to ten per cent. copper, and a little silver. Two carloads of ore are being piled on the dump daily, this being taken out of the mine in the ordinary course of development. As soon as the stopes are opened the mine will be in shape to maintain shipment of 100 tons a day, for we have a back on the dip of the vein of 250 feet, as proved by the shaft and raise which connect with this level. It is the intention of the management to drift on this ore-body for 200 or 300 feet, and where the richest chute shall be encountered there the permanent shaft will be sunk. It is the intention of the company to instal, early in the spring, a much larger compressor than the one now on the property."

The Winnipeg and Golden Crown.—The Winnipeg and Golden Crown are properties owned by different companies, stock in which is widely distributed and frequently enquired for. It is the misfortune of the writer not to have lately had opportunity to obtain, at first hand, particulars of the work in

WELLINGTON CAMP. progress at these mines. Both are stated to be opening up chutes of ore

of good grade at the 300-foot level, and to have faces of ore at shallower levels ready for more extensive stoping. Track-laying on the branch railway lines to these mines is in hand, but a difficulty in obtaining steel makes progress in this direction much slower than is desired. It has been variously reported that the Winnipeg has contracted to ship from 10,000 to 20,000 tons of ore to the Trail smelter, but even if it be only the smaller quantity, this will be quite large enough to show what values the mine will yield in bulk. The Golden Crown, too, may be expected to be an early shipper, preparations having for some months past been made with this end in view at this mine as well as at the Winnipeg. Both mines may be expected to give a good account of themselves, particularly as their ore promises to return fairly high values.

City of Paris and Majestic Groups.—From Mr. Jay P. Graves, managing director of these properties, it has been ascertained that upon them about sixty men are employed. A station has been cut in the City of Paris, in the tunnel, about 850 feet from its mouth. The hoist recently installed is now in operation and sinking is in progress at this station. It will be continued until an additional depth of 100 feet be gained, before cross-cutting will be commenced. At the station the tunnel is 250 feet vertically from the surface.

More than 3,000 feet of work have been done on this level in the City of Paris, and an upraise to the surface has just been completed, ensuring

WHITE'S CAMP. good ventilation. A second upraise will be made from the adjoining and connecting workings in the City of Lincoln. Stoping will shortly be commenced from the 100-foot level of the City of Paris preparatory to hauling the ore to Grand Forks early in the new year. The Majestic tunnel is in 400 feet, and very good ore was encountered in the latter half of the workings. The property bids fair to become a good mine. The plant, which serves for the two groups, comprises a Rand duplex compressor, two 60-horse power boilers, and one 25-horse power hoist. The new waggon road from Grand Forks is in good condition. Over it during the winter months will be hauled from 2,000 to 5,000 tons of our ore. There are 1,000 tons of shipping ore on the City of Paris dump. This group comprises three claims, and

the Majestic group four claims. The principal values are in gold, copper and silver. Many assays of City of Paris ore yielded 1 oz. of gold, 2 to 5 per cent. of copper, and from 20 to 30 oz. of silver to the ton.

Old Ironsides and Knob Hill.—These properties, which, together with several neighbouring claims, are held by companies organized by Mr. Jay P. Graves, continue to attract much notice. A large amount of development work is being done at the 200 and 300-foot levels of the Old Ironsides and

GREENWOOD in their extensions into the adjoining CAMP. Victoria claim. Several weeks since

there were five ore-faces open in these claims in readiness to begin stoping for shipment as soon as transportation and smelting facilities should be provided, so as to warrant the work of maintaining a regular output of ore being entered upon. Similar activity to that shown in the Old Ironsides marks the conduct of the affairs of the Knob Hill, where following cross-cut tunnelling on a comparatively extensive scale, sinking from the main tunnel has been commenced. The mine buildings of these companies are in marked and favourable contrast to those of most others in the district, being larger and more numerous than are as yet to be seen on other mining properties. It is expected that before the close of next year fully 200 men will be employed on the Old Ironsides, Knob Hill and Victoria, and already sleeping and boarding house accommodation for that number is being provided. The pay-roll will, however, scarcely be so numerously increased until after the Granby smelter, now in course of erection at Grand Forks, shall be ready to receive ore. It is worthy of mention that a portion of one or two of the claims held by the Graves companies having lately been platted and offered for sale in town lots, the demand for them was almost phenomenal and the sale of more than \$100,000 worth in one week of November was reported. This experience in town-lot selling—unique in the Boundary district—may be accounted for by the fact that already the town of Phoenix had been started on adjoining claims and had quickly developed into a busy centre. It is claimed that there are already between 200 and 250 men regularly employed within a radius of about a mile of Phoenix, so speculators and investors regard the new town—which many think will eventually become a second Rossland—as promising a good return for money put into it.

Other Properties Near Phoenix.—There are near Phoenix several other well-known mining properties besides those named in the foregoing paragraph. The Brooklyn-Stemwinder-Idaho group and the Rawhide, situate in another part of this camp, all merit notice, but the writer has no recently acquired information relating to them to communicate. Then there are the Gold Drop, Monarch, and Snowshoe. The last named is reported to be developing encouragingly. In this camp, too, are several claims held by three companies in which eastern townships capitalists are largely interested. These include the Lulu, Red Rock, Bald Eagle and War Eagle. A power plant is expected to arrive shortly for the War Eagle. The Buckhorn, in Deadwood camp, and the Golconda group, in Smith's camp, have also been acquired and are being worked by companies in which the same capitalists are large stockholders.

The following is a briefly summarized reference to several of the better-known claims in Summit camp.

The work of deepening the main shaft of the B.C. mine from 160 feet to 260 feet is being proceeded with. This mine will probably be shipping ore to the Trail smelter by the time this letter appears

SUMMIT
CAMP.

in print. The rails have been laid along the branch line to the mine, so that transportation facilities have at length been provided. It has been announced that the ledge has been met with at a depth of 169 feet in the main shaft of the Maple Leaf, one of the Rathmullen Company's group of claims. Work is proceeding on the Oro Denoro, both at the 200-foot level, and on the ledge exposed in cutting the railway grade across the claim. The Josie is also being opened. Little has lately been heard of the R. Bell, which was being prospected by Rossland men who held an option to purchase it. The Emma and several neighbouring claims, held by the McKenzie & Mann Syndicate, should come into prominence if a policy of active and continuous development be entered upon.

The Boundary Creek district is so big, with so many properties of either proved or prospective merit in camps spread over an extensive area of country, that it is not practicable, except under conditions too costly to be regularly availed of, to supply recent information concerning, say only twenty of the leading mining properties. For this reason some mines of proved merit must of necessity be passed by every month. Among those thus reluctantly omitted from this month's summary is the Jewel, in Long Lake, where good work is being continued below ground, and additions are being made to plant and machinery above. The Sunset, in Deadwood Camp, and the Gold Bug, owned by the Boundary Creek Mining and Milling Company, and which has three carloads of picked ore sacked ready for a trial shipment to the Trail smelter, other properties held by stock companies, shareholders in which would probably be pleased to see particulars of, but these must, perforce, be left until a later date.

In conclusion, just a few lines respecting smelting and transportation matters. Both at Grand Forks, where the Granby smelter is being erected, and at Anaconda, where the British Columbia Copper Company's smelter will be situate, construction work is being steadily pushed forward, the stated intention being to have both these reduction works ready for operation next spring or summer. The railway is fast approaching completion, and already it has proved to be of great benefit to the district. In fact, with the waggon roads in such a deplorably bad state as they now are, it would have been simply impossible to have hauled in over them anything like sufficient supplies for the ordinary needs of the increasingly large population the district now possesses. The recent opening of the railroad for regular traffic through to Greenwood is therefore a source of almost universal satisfaction. It is pertinent to here remark that prominent railroad officials state that the patronage accorded to the Columbia and Western Railway has already exceeded their expectations.

PERCY VERENS.

Midway, B.C.

ROSSLAND.

(From Our Own Correspondent.)

The total quantity of ore shipped from Rossland mines for the eleven months and twenty days, ending

November 20th, amounts to 155,000 tons gross, valued at about \$2,635,000, though these figures will doubtless be reduced on final revision for the official returns ending December 31st of the present year.

Of this output the Le Roi has shipped about 81,000 tons, the War Eagle about 55,500, the Centre Star about 12,000 tons, the Iron Mask about 5,000 and about 2,000 tons by occasional shippers.

The weekly shipments here have not maintained the 5,000 tons mark, so that it may be estimated that

up to the end of the year the total shipments may be estimated at from 175,000 to 185,000 tons. The official

returns for 1898 give an output of 111,282 tons, which is already exceeded by 44,000 for the 11 months and 20 days of the present year, and should the greater estimate, viz., 185,000 tons, be obtained as above, then the percentage of increase would be $185,000 - 111,282 = 73,718$ or 66.24 per cent over the output for 1898. This is good showing so far as ore tonnage is concerned. What the smelter returns will show as to values is yet undetermined.

The departure of Mr. Carlyle for Spain was made the occasion the other day at Rosslund of a public reception. He was the recipient of an address, and is to receive a testimonial of a silver

FAREWELL service, valued at \$750. He was also RECEPTION. presented with a diamond ring by employees of the B. A. C. Major

Collins was not appointed Mr. Carlyle's successor, but I hear that the appointment will be made shortly. In the meantime Major Collins is performing the duties of general manager.

The progress of the various mines and mining properties in Trail Creek is appended herewith. What looks to be an important move is the bonding of the Giant by Senator Turner and associates. This property is situated on the west and south-

THE MONTHLY west flank of Red Mountain, and it is REPORT. known to be traversed by at least three distinct ore bodies of considerable width and persistence, the ore being of shipping value. This syndicate has secured the efficient services of Mr. Nick Tregear, formerly underground superintendent of the Le Roi, who is working a small force of men doing preliminary development work. It is not improbable that this project will ultimately turn out eminently well. The Giant has a good local reputation, especially amongst experienced mining men.

Le Roi.—The general management is in charge of Major W. H. Collins. The new electric hoist of 150 h.p. capacity has arrived from the Iron Works Manufacturing Company, Denver, Colorado. The underground management reports general progress in development work. The weekly ore shipments vary from 1,850 to 2,400 tons.

British America Corporation.—Of this company's properties the Josie is showing up the best at present. According to the best authority a considerable school of pay ore has been cut at the 500-foot level in one of the drifts. The facilities for shipment are not yet complete.

War Eagle.—The weekly ore shipments vary from 1,600 to 2,500 tons. The condition of the mine, according to undoubted authority, continues to be very satisfactory. The annual report will not be made until February.

Centre Star.—Weekly ore shipments vary from 600 to 900 tons.

Iron Mask.—According to J. F. Herrick, general manager, the ore reserve is increasing. Shipments run from 90 to 120 tons weekly.

Virginia.—The management continues to develop the ledge and is shipping a small quantity of ore.

Deer Park.—Development work continues under the management of Lorne Becher, who reports good assays from the ledge matter.

White Bear.—The east cross-cut has been run for a distance of 100 feet, and the management is now drifting north. The indications continue to be promising.

Evening Star.—Operations have been suspended pending the re-organization of the company.

Sunset, No. 2.—The management is drifting west into the mountain from the 100-foot level. A considerable body of shipping ore is on the dump, having been taken from the shaft.

Giant.—The management under the direction of Nick Tregear is opening up the ledge of pay ore known to traverse the property.

Velvet.—The main tunnel is in a distance of 415 ft.

Portland.—The shaft is down 95 feet, and is on pay ore. The tunnel is in for a distance of 150 feet.

Referendum.—According to Charles Parker, mining engineer, the main shaft on lead No. 1 is now down 72 feet, and a tunnel is about to be started on another level, from which good results are expected. The development work on the Referendum at present consists of 2 shafts on vein No. 1, 72 and 35 feet respectively.

	=107 feet
Drifting on the same lead	28 "
Cross-cutting on the same lead	103 "
Work being done on vein No. 3	100 "
Shaft on vein No. 1	100 "
	438 "
Shaft on vein No. 1 which will be completed during the winter	160 "
	598 "

All of this work will be fully completed by the spring of 1900. The stamp mill has arrived, and it will be installed this winter. The condition of the company's affairs is reported to be very satisfactory.

Mascot.—The west drift from cross-cut No. 3 is in 100 feet and much mixed ore has been cut. Another drift from the bottom of the winze is in 90 feet. The lower tunnel is in 1,100 feet. The extent of the underground works shows a linear measurement for at least 4,500 feet.

Okanagan Free Gold Mines.—The management recently brought in two additional bricks of gold from their mines in the Okanagan country, being the result of the second clean up. They netted 238 ounces, and after being exhibited here were sent to the branch mint at Seattle, Washington.

TROUT LAKE.

(From a Correspondent.)

Reports from the Silver Cup and Sunshine properties, in the Trout Lake district, still continue in every way satisfactory. Recently a considerable force has been engaged in preparing for the winter's work, the intention being to ship before Christmas some 200 tons of ore; about half of this tonnage from the Silver Cup and the balance from the Sunshine claim, adjoining it.

Active development has been proceeding on each property, a good ore body having been exposed 100 feet below the old, or main workings, which, by means of an upraise in ore, have been connected with the new or lower tunnel.

A cross-cut tunnel has been recently driven at the Sunshine to tap at a depth of some 120 feet the ore in the main tunnel. The vein and high-grade ore were intersected after driving about 50 feet, and the management has every reason to be satisfied with the outcome of this work.

All stores and supplies have been got in for a long and heavy winter's work, and by next summer it is expected enough high grade and concentrating ore will be in sight to justify the erection of an aerial tramway for a distance of some three miles to the foot of the hill, and the erection at such point of concentrating works. In any case, a compressor plant is to be installed in the spring.

CORRESPONDENCE.

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

"GOLD MINES OF THE WORLD."

TO THE EDITOR:—This is the name of a book written by a Mr. Curle, and published by Waterlow & Sons of London. It is expensively got up and well printed. It deals with the world; one of its surprising features is that it does not deal with the mineral capacity of the heavenly bodies and the reduction facilities afforded by the infernal regions. It is certain that Mr. Curle must be familiar with those things because he knows everything about everything else; even if he were not, he has a method, which will be described later in his own language, for telling others all about things of which he is himself ignorant. Incidentally Mr. Curle deals with the gold mining industry of British Columbia. He paid the country a visit and saw ten mines. By many people this might not be considered a sufficient experience on which to talk authoritatively about the gold mines of the country. But such people do not possess the secret of Mr. Curle's success. He says himself: "To one who is continually visiting mines, and, who, like myself, takes the greatest interest in their study, from both a mining and financial point of view, experience creates a sort of intuition, so that it is often possible to arrive at a correct solution of the particular problem even upon slender data or after only a hurried inspection of the mine." It is this intuitive or clairvoyant method which Mr. Curle applies to his analysis of the gold mining industry of British Columbia and by which he is able to explain all about many things of which he is ignorant. He deals first with the general gold product of the country and tells us it will be five years before a definite estimate can be made. This is very interesting. It is surprising Mr. Curle's intuitive method could not give us such an estimate at once. "The immense majority of the reefs are admittedly low grade and usually of a highly refractory nature" is another of his statements. No word of proof given. It is Mr. Curle's *ipse dixit* arrived at by the intuitive above described. It might be safely said of any and all mining countries. He goes on to describe the local conditions of the industry. "The American," he says, "looks on a mine

purely as an excuse for share gambling." Presumably from his subsequent remarks he includes the Canadian in this stupendous, this amazing statement. Next he describes local methods of flotation. He takes an imaginary case of the worst wild-cat flotation to be conceived of and winds up as follows: "This is, unfortunately, not an overdrawn picture of the average locally floated British Columbia mining property." Of companies floated in England Mr. Curle points out that the results in almost every case have been hitherto unsatisfactory. We are afraid the inference is obvious that the mineral output of British Columbia has been so far developed by the very methods which he condemns because he does not understand them.

"On the head of all this," concludes Mrs. Curle in his introductory remarks, "a great deal of harm is done to the best interests of British Columbia by the local press, and incidentally by those financial papers in England which diffuse information derived from the same sources. Day by day an astonishing mass of crude irresponsible gossip, and a great quantity of lies appear under the guise of accurate mining intelligence." These are Mr. Curle's own words. They will be borne in mind and properly applied before we are finished with Mr. Curle. After this introduction, Mr. Curle goes on to deal in a detailed manner with the different gold mining districts. He begins with Rossland. "Rossland is a picturesque town of 8,000 or 10,000 people . . . Two railway lines wind up the mountain sides . . . bearing away piled-up carloads of quartz. . . . The town is very flourishing at present, but this state of things will not last for long." I do not know of any local or other authority that ever claimed more than 8,000 as an outside estimate of Rossland's population. The description of the Rossland ores as "quartz" is rankly misleading; while the statement that the town's present prosperity cannot endure is absurd. Rossland has 1,200 mines working underground. That number directly supports a population of 6,000 people. In addition, Rossland is the headquarters for prospecting over a very wide area, the headquarters for mining investment over a large area, and the centre of operations for many companies working mines elsewhere. The population is not excessive for the business done, and that is the main indication of a sound position.

Mr. Curle then goes on to teach the mining and smelting men of British Columbia their business. He quotes numbers of obsolete statistics which progress has entirely altered. If the British investor can afford to base his investments on facts that are two years old he has my sincere sympathy. He further animadverts on the unfair charges made by smelters, but as his statistics are based on the rates offered when copper was 12 cents a pound his deductions have as much to do with the present situation as the price of sheep in the Middle Ages has to do with the market for agricultural produce in the 19th century. He says: "It is an unfortunate thing that the only public smelter at the disposal of the Rossland mines has passed into the hands of the all-powerful C. P. R." The purchase of this smelter effected great and beneficial changes in the cost of reducing ore; while the Le Roi smelter and the Hall Mines smelter are both public smelters and are making active bids for the ores of Rossland, Mr. Curle repeats the story that the Le Roi company does not own the Northport smelter. Surely if the Le Roi company owns the stock of the foreign corporation, rendered necessary by the laws of Washington, which does own the smelter, that really

amounts to the same thing as itself owning it. To follow Mr. Curle through his animadversions on British Columbia gold mining in further detail would be to devote too much time to the criticism of "an astonishing mass of crude, irresponsible gossip, and a great quantity of lies appearing under the guise of accurate mining intelligence." His book may have a certain vogue in the English mining and financial press for a time but very soon its ludicrous misinformation will be recognized and it will be cast out into the limbo of forgotten things.

DAVID B. BOGLE.

PUBLICATIONS.

REPORT on the Geology of the area covered by the Seine River and Lake Shebandow on mapsheets, comprising portions of Rainy River and Thunder Bay District, Ontario; by William McInnes, B.A., Ottawa, 1899. Price 20 cents.

This report, which will be embodied in Vol. X. of the Geological Survey Annual, is accompanied by two maps, and is handsomely illustrated by the author.

PRODUCING MINES.

ROSSLAND.

Our Rossland correspondent telegraphs the following returns:

The ore shipments from Rossland mines for the eleven months ended November 30th, amount to approximately one hundred and sixty-four thousand tons; valued at two millions, seven hundred and eighty-eight thousand dollars gross. So far winter has failed to put in an appearance and is now three weeks later than last year. Prevalence of south and southwest winds with copious rainfall is regarded as indications pointing to open or "continental" winter, similar to that of '77 on this continent. But little snow visible and only on highest peaks.

The total matte shipments for the month of October, 230,815 pounds, valued at \$71,767.90. The total exports of miscellaneous articles were \$1,829. The great output of the camp, however, was ore for the Northport smelter, which was valued at \$234,616. Coupled with the output of matte, the total metal product, \$306,383.99, equals an annual production of \$3,650,000.

NELSON.

The results of the crushing at Atahasca mill during October are as follows:

Number of tons crushed in mill..... 357½
 Number tons crude ore shipped..... 2½

Total tons treated 360½
 Value of bullion recovered..... \$7,460 92
 Value of concentrates 1,905 77
 Value of crude ore..... 298 61

Total..... \$0.665 30

The gross value of the exports from the port of Nelson during October was \$83,465, of which, the copper matte and bullion from Hall Mines smelter was valued at \$51,095. The gold bullion exports were valued at \$27,560; the balance being made up of 710 tons of coke, valued at \$2,857, and 21 tons of coal, valued at \$43.

The General Manager of the Hall Mines, Limited, sends the following returns of this company's smelting operations for the four weeks ending October 27:

Copper Smelting—13 days, 19 hours.—2,919 tons of Silver King ore smelted, containing (approximately) 64 tons of copper and 33,930 ounces of silver.

Lead Smelting—20 days, 22 hours.—192 tons of Silver King ore and 457 tons of purchased ores were smelted; 149 tons of lead bullion produced, containing (approximately) 145 tons of lead, 15,770 ounces of silver, and 682 ounces of gold. Silver King ore smelted contained 2,640 ounces of silver.

SLOCAN.

The following Customs returns have been received from the port of Kaslo for the month of October:

Exports of silver-lead ore—901,000 gross lbs; value, \$42,058; 490,450 lbs. lead; 47,978 ozs. silver.

Exports of zinc ore to Antwerp, Belgium—1,389,410 gross lbs.; value, \$26,122; zinc, 653,041 lbs.

Total exports—2,290,410 gross lbs.; value, 68,180; lead, 490,450 lbs; silver, 47,978 ozs.; zinc, 653,041 lbs.

BRIDGE RIVER.

Statement of cost of mining and milling for term ending November 1, 1899:

To cost of mining from August 23rd to Oct. 31st, inclusive\$ 2,843 50
 To cost of milling 1,082 tons ore and expenses in mill from 23rd Aug. to 31st Oct., inclusive 1 326 00
 Powder, fuse, caps, etc..... 170 00
 Estimate of charcoal used in time, at two bushels per diem 34 00
 Balance profits for term ending Oct. 31st.. 16,868 28

\$21,241 78

Sept. 6th, by proceeds clean up.....\$ 6,358 00
 Oct. 5th, by proceeds clean up..... 7,692 40
 Oct. 30th, by proceeds clean up..... 7,191 38

\$21,241 78

COAL EXPORTATIONS.

The Vancouver Island collieries exported during the month of October 62,705 tons of coal, divided as follows:

New Vancouver Coal Company.....37,575
 Wellington Colliery19,960
 Union Colliery 5,170

The New Vancouver Coal Company's shipments for November to the 20th inst. are appended:

Date.	Vessel.	Destination.	Tons.
2—	SS. San Mateo.....	Port Los Angeles..	4,428
3—	SS. Tyee.....	Port Townsend	19
7—	SS. R. Adamson.....	San Diego	4,499
9—	SS. Mineola.....	Port Los Angeles..	3,235
10—	Ship Sintram.....	Honolulu	2,391
11—	SS. New England	Alaska	53
16—	SS. Titania.....	San Francisco	4,994
17—	SS. Tyee.....	Port Townsend	57
18—	SS. San Mateo.....	San Francisco	4,449

Total.....24,175

THE METAL MARKET.

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

Business, as a whole, has been fairly brisk during the month, though speculation has been decidedly slack,

and there appears to be no likelihood of any immediate improvement.

SILVER.

The silver market shows little change. If anything, the tendency is to lower the price. The lowest point reached during the past month was _____, and the highest _____.

LEAD.

The market for lead continues very strong, with a brisk demand for both prompt and distant shipments. The European market has shewn considerable activity, and a number of important transactions have taken place. Prices show no change. New York, \$4.55 to \$4.60; St. Louis, \$4.45 to \$4.50. Spanish lead is at £17, English lead 5s higher.

COPPER.

The copper market remains quiet but steady. Casting and lake copper show a slight decrease, the former being nominal at 16½ and the latter quoted at 16½ to 17. Electrolytic 16½ for cakes, bars and ingots; cathodes at 16¾. The demand for fine copper continues slack.

SPELTER.

There has been a considerable decline in this market, as compared with last month's figures. It seems that consumption in general, but more especially for galvanizing purposes, has grown decidedly smaller.

W. A. BAUER, D.L.S., P.L.S.
611 Hastings St., Vancouver.

A. S. ASHEROFT, D.L.S., P.L.S.
Greenwood, B.C.

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Civil Engineer, Provincial Land Surveyor
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P. O. Address:

**FAIRVIEW, KEREMEOS
AND CAMP MCKINNEY,**

Fairview, B.C.

We quote as follows: New York, 4¼c; St. Louis, \$4.50 to \$4.55.

THE LOCAL STOCK MARKET.

THE Rossland stock market has been very active during the past month, with more buyers in the West than in the East. 380,000 shares sold on the Rossland Stock Exchange last week, and 584,000 the week before. Giant has sold very freely at from 5 to 10½c, and also Canadian Goldfields at 8 to 9c. King has been active at 29 to 30c; Winnipeg at 30 to 31c; Tamarac at 9c; I.X.L. was boomed up to 17½, but has since declined to 14 to 15c; War Eagle has sold as low as \$2.56, but has advanced again to \$2.80.

From the Coast large blocks of Fairview were bought in the Eastern market and some large orders were received in Victoria for Van Anda, but sellers would not accept the price bid.

Brokers look forward to an active market during the winter months.

THE HALEY-GIVENS INVESTMENT CO.

(Incorporated.)

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THE "WILFLEY" TABLE

The following strong claims are put forward for the "WILFLEY," and will be found more than fully substantiated in actual working:

1. Simplicity of construction. No expensive wearing parts. No belt renewals. Nothing to get out of order. Practically no repairs.

2. Facility of adjustment to all ores treated. Once adjusted it needs but a minimum of attention.

3. Its wonderful capacity. Will handle three to five times as much material as any belt table made.

4. Reduction of maintenance charges. No skilled labour required. Reduction in initial outlay, as smaller number of tables are needed.

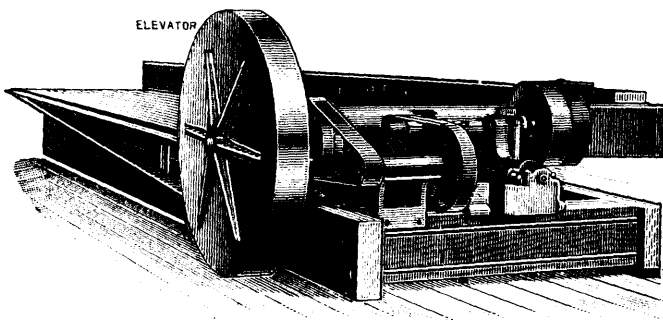
5. The ore particles being separated into distinct streaks a complete separation of the different minerals contained is effected.

The "WILFLEY" has only been on the market some eighteen months, yet in that time nearly 800 have been sold, and are in use in 200 mines, which speaks volumes for the rapid and favorable recognition it has been accorded.

The most flattering Testimonials have been received.

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