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AN interesting question with regard to both the past and future development of the mineral resources of British Columbia refers to the sources from which the capital which has been and is opening up and developing our mines is drawn. This capital is of three different kinds. Not that capital can be divided in its nature, but in its mode of application to mines capable of differentiation into three classes. There is first the capital represented in the discovery and location of mineral claims, the capital that the pioneer invests in a country. On the average this is probably the worst remunerated capital in the world. It is invested in small amounts spread over a great territory, but the aggregate must be very large, equal probably to all the capital derived from all other sources and all other purposes put together. The individual and occasional returns are large, and it is this fact which retains so many men in a calling where the life is hard, the average remuneration low and the risk of total loss very great indeed. The capital of this kind which has come into British Columbia has been almost exclusively from the United States. The reasons are obvious. The business of prospecting has been organized in the United States as nowhere else, and in that country there is a body of men whose exclusive pursuit it is. The mining territory so far opened up in British Columbia was easy of access from the United States, and, as a new country offers greater inducements to this class of capital than one partially ex-

ploited, it was very natural indeed that the trained prospector of the United States should take advantage of the opportunities afforded by the virgin territory of British Columbia. There are always people unfortunately who are ready to admit the necessity of capital entering a new country in the abstract, but are jealous of it on its actual entrance in the concrete. The American prospector, it was frequently argued, should be prohibited from entering British Columbia, and this exceedingly impolitic view of the situation went so far as to influence legislation in the ill-starred alien act, now so universally repudiated, that no one will accept the odium of having introduced or approved of it. During the last two or three years there has been a noticeable withdrawal from British Columbia of this class of capital. Numbers of prospectors have been headed for the Yukon and Cape Nome. The very high price of copper has induced many to hark back again upon the old copper districts known to them in the United States, and other causes have also been at work. But this class of capital is exceptionally mobile and migratory in its nature, and it only requires rumours of fresh rich discoveries in the still vast virgin territory of British Columbia to bring American prospectors back again, the swallows that herald a summer of development and prosperity. Nor will they ever again have so exclusive a monopoly of the most dangerous, disagreeable and ill-paid profession in the world, because the growth of the mining industry is training a Canadian class which will be well able to compete with them for its few prizes amid its many hardships. The second class into which capital entering British Columbia may be divided is that capital which opens up and develops mines. This form of capital stands half way, as it were, between mine owning capital, which extracts profits from the ground, and the prospecting capital which discovers mines. As a rule it consists of a portion of the profits of the one, and is generally in close touch with the other. Naturally, therefore, as there were no, or practically no, producing mines in British Columbia prior to 1892, and, as most of the now productive mines were discovered prior to that date by prospectors in touch with the owners and operators of productive mines in the United States, the development capital for the British Columbia mines came largely from the United States also. If we take a list of mines in B. C. at random, or nearly so, which may nevertheless be accepted as typical of our best mines, we will find ample exemplification of this fact. If we take North Star, San Eugene, Payne, Slocan Star, Enterprise, Hall Mines, Ymir, Le Roi, War Eagle, Centre Star, Velvet, City of Paris, Knob Hill, B. C., Mother Lode and Cariboo, Camp McKinney, we will find that all were developed by American capital except the North Star, Ymir, Velvet, City of Paris, Knob Hill and B. C. Of this small list it is

noteworthy that the Ymir and Velvet developed by English capital were not discovered prior to 1892. The City of Paris and Knob Hill were indeed developed by Canadian capital, but under American initiative, and in any case, like some others not included in our list, became visible on the mining horizon at a later day and really exemplify a process which will be referred to later. From this point of view the B. C. is a freak, having been developed by English capital, and then transferred to Canadian capital. The only typical instance left of the Canadian development of a mine from the grass roots down is the North Star.

The third class of capital is the mine owning and operating capital. This is the easiest kind of capital to secure, and is to some extent cosmopolitan in its nature. Once a mine has arrived at a productive and dividend paying stage there are far more men willing to buy it, than there are men willing to sell such a property if they own it. It is very unimportant what particular group of people own a dividend paying mine. What difference does it make to British Columbia whether George Gooderham, of Toronto, or Whitaker Wright, of London, or Patsy Clark, of Spokane, and their respective friends, own and draw dividends from the War Eagle mine. The only direct interest to British Columbia is that the mine shall be effectively worked. But from another point of view the importance of where the mines are held is very great. Because, as we have seen mine owning and operating capital is the basis and source of development capital, either through the devotion of a portion of the profits to this purpose, or through the emulation of those familiar with these profits to secure a like prize for themselves. The enormous amount of development capital introduced into British Columbia from Eastern Canada, after the War Eagle had its headquarters transferred from Spokane to Toronto, is a well remembered example. It was this influx of development capital following upon the influx of owning and operating capital which led to the Canadian development of the City of Paris, Knob Hill and many other properties not given in our list. It is true that zeal to rival the profits of the War Eagle in this case outran discretion; but that was due to ignorance which experience, sad experience, has remedied. If we now look back at our list in reference to the locality in which the owning and operating capital is held, we find that the North Star, San Eugene, War Eagle, Centre Star, City of Paris, Knob Hill, B. C. and Cariboo are all controlled by Canadian capital; that the Enterprise, Hall Mines, Ymir, Le Roi and Velvet are controlled by English capital, and that only the Slocan Star and Mother Lode remain in the hands of American capitalists. Of course this list is not a complete one, but if it were added to sufficiently to make it complete, the proportions would not greatly differ. This points to a great change in the mining centre of gravity. The greater number of British Columbia's mines are now in the hands of Canadian capital; English capital runs Canadian very close, and American capital is nowhere. The importance of this to British Columbia (we are not dealing with the national or imperial aspect of the question at all) is that there is a body of capital growing up in Canada, with substantial reinforcements in London, on which we may look in the future as an active competing source for development capital with the United States. There is a difference in kind, however, exist-

ing between Canadian and English capital and American capital in their devotion to development. The former are very thorough, but they are undoubtedly slower. The American goes at a new district like a hungry dog at a bone. He exults, he triumphs in the idea of resisting and overcoming obstacles. The Canadian and the Englishman are like timid bathers; they try the water gingerly at first. Once in, they swim manfully, but they do not take the plunge so rapidly as the American. This is particularly true of the English capitalist. In the case of Canadian capitalists the hesitancy in branching out is more from lack of knowing how in this particular industry than from any lack of initiative. And experience in mining is increasing every day. In time an equal body of enterprise resource and experience in mining will exist in Canada to what is markedly characteristic of the United States. It is fortunate that this is so, and fortunate that being so the bulk of our British Columbia mines are in the hands of our fellow countrymen.

An article appearing in the Engineering Magazine for September on the four stages of mining in Leadville has much more than merely a local interest. It is applicable to the progress of mining in general during the last quarter of a century. The first stage was placer mining. That has long gone by in Leadville, so long that it is almost forgotten. The next stage was the exploitation of the rich carbonate lead ores characteristic of what are erroneously called the palmy days of Leadville. The third stage was the opening up of the gold belt after the fall in silver in 1893 had made the deep wet silver mines of Leadville apparently hopeless as profit earning concerns. The last stage on which Leadville is now entering is that dealing with the mining of composite ores, in which gold, silver, lead, copper, iron, zinc and bismuth may all occur; and in which the base elements, from being detrimental, have actually become profitable factors. Two characteristics of mining progress are here exemplified, first, the utilization of a number of elements not previously profitable, and second, the cheapening of reduction processes, so that ores of a much less gross content of valuable material of all sorts may be profitably handled. By these two causes, which have operated concurrently the available supplies of workable ore in Leadville have increase in a far greater ratio than the development of the camp would have justified had the grade of ore, and character of ore, that would pay, remained constant. As a result the last stage in the development of Leadville is by far the greatest, both as regards the number of men employed and as regards the gross quantity of wealth produced.

Geologists tells us that mineral belts or zones are derived from globules of mineral solution held in a liquid form in the earth's crust by the tremendous pressure of the surrounding material; that from time to time alterations in the pressure have occurred, liberating these mineral solutions, which have immediately burst through all the available vents, fissures and channels possible, in a gaseous form, and by various processes of infiltration and deposition have made what are known as veins and deposits of ore. Not so long ago men were practically confined to those parts of such mineral belts as had been subjected to the action of the air, in mining for the precious metals. It was not dreamed that mining beneath the

gossan or oxidized portion of a vein was practicable, and this gave to mining for the precious metals that character of being precarious in its nature and temporary in its duration, from which it has as much difficulty in escaping as the ill-named dog in the proverb. And yet how completely false to modern mining is this ancient conception of its character! Modern science may fairly make this boast that given a mineral belt or zone, it may be followed and explored through all its channels and interstices, whether those are indicated by surface veins or not, to any practicable depth, and that in whatever form its mineral contents may occur, they will be found commercially available down to a minimum of value which is every year being depressed a little lower. In other words, the exhaustion of a mineral zone is something postponed indefinitely. This is what the history of Leadville teaches us. To the excellent form in which the lesson is applied we are indebted to the pen of Mr. Thomas Tongue, in the Engineering Magazine. British Columbia has had a certain amount of the same kind of experience as Leadville, but more in the extensive developments of different districts than in the intensive development of any one district. That British Columbia was once a great placer mining country we have ample and lamentable proof in the refusal of a certain order of intelligence to regard it even now as anything else. British Columbia, however, differs from Leadville in this respect, that its placer days, particularly in the more permanent forms of the industry, hydraulic mining and dredging, are by no means over. In fact, a steady progression may be looked for, although the industry must always be, compared with lode mining, trivial as regards either the population sustained or the wealth produced. The discovery and partial working of the rich ore bodies of the Slocan in 1891, 1892 and the first part of 1893 corresponds fairly accurately to the carbonate period of Leadville. The opening up of Trail Creek in 1895 also corresponds to the third period of Leadville. The popping up of productive mines everywhere this year and the great reductions in cost of treatment by which the ore available in the old workings of the Trail Creek camp is estimated at three times what has been taken out show that British Columbia also has entered upon a stage corresponding with the fourth stage in the development of Leadville. But the value of these reflections is not in tracing an ingenious parallel between one section of mining country and another, but in showing the entire reorganization of ideas in connection with mining which it is necessary to make. With regard to the greater portion of its resources, British Columbia has fallen heir to the science slowly acquired in the United States, without being obliged to re-enter upon the experimental steps by which it has been built up. British Columbia possesses by far the largest segment of the great Cordilleran range, in which the greatest known deposits of the precious and useful metals occur. Through its abundant supply of water, coal and timber, as well as by the more energetic character of a people who inhabit a northern climate, British Columbia possesses many apparent advantages over any of the South American countries at all comparable to it in the size of their mineral bearing areas. The rapidity, therefore, with which the mineral belts scattered all through this vast area are discovered and exploited should be greater even than the development

of the mining states of the Union who have blazed the trail in scientific mining. The gross total of minerals produced is bound to be incomparably greater than anything the world has ever seen before. In fact, British Columbia will become *in esse* what it already is *in posse* the richest mineral country existing. And that is because it is no longer a question of rapidly exhausting our mineral belt and going on to another; but of pursuing the mineral into its remotest hiding places within the limits of each mineral belt as it is discovered, a process not likely to achieve finality within the lifetime of three or even four generations when a single mineral zone is alone considered.

The Van Anda Copper and Gold Co. have issued during the past month a circular letter to creditors, containing the information that the trustees for the debenture holders had taken possession of the property and assets of the company. The reason for this action is set out in the following terms:

"Before the company became a shipper, large debts were contracted in developing the properties of the company and establishing a smelter on the ground. For some time after the smelter was blown in, the properties of the company were considered so good that so much of the product of the matte shipped by the company as could be spared from the payment of old debts were utilized by the management in further development work. It has happened, unfortunately, within the past two or three months, that it has been necessary to tunnel through a lot of dead ground. The expenditure occasioned has depleted the company's resources and exhausted its credit. Unsecured creditors commenced pushing their claims by actions in the courts, and the company's employees, not receiving their pay, decided to quit work, with the result that debenture holders, feeling unsafe and fearing a multiplicity of lien and other actions, have apparently decided that it is to their interest to assume control of the mortgaged premises. It is urged by the representatives of the debenture holders that this move on their part is in the interests of the creditors and the company's properties, more particularly as it happens at a time when there is such a good showing in the two principal mines of the company. Just before the men ceased work, they ran into two strong and rich looking ore bodies. It is therefore suggested that the company is now in a better position to re-organize and get in some fresh capital, or, failing this, to assist the trustees in effecting such a sale of the property as will pay all the company's indebtedness, secured and unsecured, in full.

The shareholders in the company are naturally anxious for an opportunity to re-organize the company, in order that they may realize something from their interest in the company's property and assets. They propose to endeavour to interest capital in a scheme to re-organize, or, failing this, to find a purchaser for the property. In the meantime the trustees inform the management of the company that they will, if possible, continue the business of the company, so that it may be spoken of and dealt with as a going concern. Whether or not the trustees will succeed in carrying out their present intentions in this regard, will depend very largely on the action of the trade creditors, wage-earners and other unsecured credi-

tors of the company. If unsecured creditors persist in putting their claims in suit, as by filing liens and obtaining judgments to be registered against the property of the company, the task of so handling the property so as to pay off the debenture debt and unsecured creditors, or to re-organize the company, or to sell the property of the company for sufficient to pay everybody one hundred cents on the dollar will be rendered practically impossible. In other words, if creditors double the amount of their present claims by adding the costs of litigation to their present debts, the present management of the company will give up all hope of so handling the assets of the company as to pay everybody in full.

It is true that the action of the debenture holders takes the management of the company's assets out of the hands of the officers of the company, but it does not preclude the present management from co-operating with the trustees and assisting them to bring about a condition of affairs which will be satisfactory to everybody interested in the company.

The intention of this circular is to convey to all creditors the exact position in which the affairs of the company now stand, and to suggest to them that their best interests will be served by filing their claims with the trustees. By adopting this course, all chances of litigation will be saved the creditors and the company.

The management of the company regrets the present position. The individual members of the directorate and management are heavily interested as shareholders, and in some cases as creditors of the company. This, of itself, is reason enough for the present circular, and for their undertaking to assist the trustees for the debenture holders to make enough from the property to pay the creditors in full."

Meanwhile, the failure, for that is what it practically means, of the Van Anda Company is not by any means an unlooked for occurrence, though under the present circumstances a regrettable one. The original management was ignorant and extravagant, and when the property was taken over by Mr. Treat he was confronted with many serious difficulties, not the least of which was a lack of capital for the proper exploitation of the mines. Notwithstanding, operations were continued on a somewhat expensive scale, and a smelter erected for the local treatment of the ores before the development of the property justified such a course. This is the opinion we expressed at the time. As the difficulties of financing the enterprise increased, the wages of the men employed at the mines was allowed to get in arrears. Good miners in this country can always find employment, and if at any one mine pay-day arrives and the monthly cheque is not handed over, the competent man refuses to continue to work under circumstances so unsatisfactory. The incompetents, however, generally remain, provided they see any sort of likelihood of eventually getting their money. This was the case at the Van Anda. Burdened with debt before actual mining operations really commenced, a hand-to-mouth struggle has been courageously enough maintained for some time past in the endeavour to make production not only pay for the development of the properties, but to liquidate the old indebtedness. The result was inevitable, and the only wonder is that the effort lasted so long as it did. This in itself speaks well for the

value of the mines, and it is sincerely to be hoped that the proposed reconstruction can be successfully and satisfactorily carried into effect.

The Department of Mines has already taken preliminary steps for the publication at regular and frequent intervals of statistics and other information relating to the mineral production of the Province. The importance of this work, the undertaking of which by the Government we have steadily advocated in these columns for some time past, cannot be overestimated, and the money devoted for the purpose of collecting and publishing mineral statistics which are necessarily reliable may safely be regarded as an investment that will repay a dividend of many hundreds per cent. annually. Heretofore trustworthy and complete figures showing the mineral output of the province have been unobtainable, except upon the annual report of the Minister of Mines, or fourteen or fifteen months after the production for the period commenced. But as information of this nature is of little practical value unless it is strictly up-to-date, the annual returns could hardly be said to be more than of academical interest. With production growing at the extraordinarily rapid rate it is doing at present, it is manifestly worth while to allow the fact to become widely known. It is safe to say that comparatively few people in British Columbia even have any idea of the rapid developments that are taking and have taken place this year in the mining districts of Yale and the two Kootenays; and the number outside our special borders who have knowledge, in Eastern Canada or London for instance, is infinitesimal. If the new scheme of distributing broadcast information and figures relating to the mining industry is carried out on the lines proposed, there will be less of this particular kind of ignorance, and as a result very lasting benefit to British Columbia, whose only requirement is more capital to exploit and develop its illimitable resources. It is to be hoped that those directly interested in operating the mines of the country will do everything in their power to assist the department in this undertaking. It should be understood, meanwhile, that it is not the intention to publish details of individual mines against the wishes of their owners, but only such general information as will stimulate public interest in the industry.

For the week ending September 22nd Rossland, for the first time in its history, exported over 7,000 tons of ore, or 1,000 tons a day, including Sundays. It is curious to look back upon the early days in Rossland, when in 1895 shipments were made by waggon and sleigh to Trail and Northport. At that time 1,000 tons a day were looked on as the ultimate ambition of the camp, and the individual who prophesied such an enlargement of the camp's output was considered a somewhat reckless and visionary boomer. In five years it has come to pass, and now, no longer 1,000 tons a day, but 2,000 tons a day represent finality and completeness. Doubtless, when 2,000 tons a day have been arrived at, the press will still teem with eloquent descriptions of the undeveloped resources of the district. Such is life, and certainly if a community does not always have a mark set ahead of it, it will never progress at all. In 1897 the Rossland Board of Trade, of which the moving spirits at that time were Messrs. O. Durant, of the Centre Star, and J.

B. Macarthur, prepared a memorial, in which it was carefully set forth that from the then openings in the Rossland mines an output of 1,500 tons a day was possible with proper railway and smelting facilities. This memorial was laid before the authorities of the Canadian Pacific Railway. It was vastly in excess of the tonnage estimated by their own engineer. It was nevertheless conceived and set forth in such sublime good faith that Mr. Shaughnessy himself admits that it inspired the forward policy of the C. P. R. in West Kootenay. It was an instance of the faith which literally removes mountains. The spirit which inspired that memorial is the spirit that made possible the fulfilment of the calculations contained in it. The prime necessity of those who would develop the resources of a new country is imagination. By imagination is not here meant the capacity of creating in the mind things which do not exist. That is delusion, not imagination. But the making concrete to the eye the developments hidden in the years to come is the one way of steeling the will to overcome the difficulties in the way of realizing these developments. Men and communities who possess this gift become wealthy and prosperous. Those who do not, remain stagnant or decay, retaining only the satisfaction of a sneer.

The shipments from the Le Roi mine for the year 1900 have passed the 100,000-ton mark, comparing with 92,250 tons for the whole of the year 1899, no mine in British Columbia has ever before mined 100,000 tons of ore in the course of one year. The Le Roi has exceeded this amount in eight and one-half months of this year. At the rate at which the Le Roi is now shipping ore, and it is unlikely that the enlargements of the Northport smelter will be completed in time to enable this rate to be much increased this year, it should export nearly, but not quite double the amount of ore exported last year. We do not know at what period of 1899 the books were made up and the dividend of 5 per cent. declared. But the last three months of the year, which were the heaviest so far as output was concerned, must certainly have been excluded. In any case, if 30,000 tons be taken off the production of last year and added to this year's production, as it will be at the end of September, the chances are that the comparative amounts of ore marketed are fairly estimated. The result would be 140,000 tons of ore on the profits of which to pay dividends, as against 60,000 last year. Further, the working expenses of the mine have been decreased this year; that is, the ore has been mined, hoisted and shipped at a less cost per ton. It is also likely that the average value of the ore will show an improvement. It may be safely inferred therefore that the Le Roi has earned a certain 10 and probably a 15 per cent. dividend this year. Of course, it is an entirely different question how much profit will be distributed. The Le Roi Company during the present year has acquired the remaining one-quarter interest in the Northport smelter; large sums of money have been spent upon the new shaft and upon hoisting and power machinery; very considerable enlargements of the Northport smelter are under way at the present time, and, besides, 40,000 tons of ore lie unsmelted at that institution. All these things may interfere with dividend prospects. But that matters but little. The Le Roi mine is now very easily upon a 20 per cent. per annum basis, and has this re-

turn secured for a term of years if the estimates made of the ore in sight have any foundation in fact. It will be a good indication of the standing of the mine if its resources are not strained to pay a very big dividend this year.

The report of the British American Corporation for the year ending September 30th, 1899, has only just been issued. It shows receipts for interest, commission, etc., £6,346. Payments for interest were £2,672; office and other expenses, £1,632; total, £4,304, leaving a balance of £2,042. The company has £117,190 stock and £46,900 debentures outstanding. The directors' report says: "The result of the year's operations, after providing for debenture interest and all working expenses, shows the total sum earned to be £2,042, which amount is carried to reserve account. After careful consideration of the value of properties taken over by the corporation and those held under mortgage loans, the directors have decided to increase the reserve provided to meet possible losses on realization of such properties by the sum of £4,360, thus reducing the general reserve account to £498. During the year several sales have been made of properties or portions of properties held by the corporation, and negotiations are proceeding relative to further realizations. Since the last report, debentures to the extent of £9,500 have been paid off, and it is expected that an equal amount will be repaid during the current year. Arrangements have been made whereby the working expenses will be further considerably reduced during the current year."

It was reported some time ago that a chute of good ore had been struck on the property of the new St. Elmo Gold & Copper Mining Company at Rossland. This company is developing the Cliff ledge or zone of ore in the ground of the St. Elmo and St. Elmo Consolidated claims. This particular ledge is the most continuous and best defined in the Rossland camp. It runs right over Red Mountain and reappears in the outcrop of the Jumbo on the west and the Monte Cristo on the east. With the exception of a body of good copper ore worked on the Cliff and the value bearing mineral discovered in the Jumbo this vein has not produced any chutes of workable ore. The discovery of such a chute in the St. Elmo would be most important, not only in adding another productive mine to Rosslands' resources, but also in stimulating development in the adjoining properties.

How should the name of Canada's greatest gold mine be pronounced, "Leroy" or "Lewah," which is about the nearest phonetic spelling one can arrive at of the attempts of the average Anglo-Saxon to pronounce "the King" with the correct French accent? This question might at first blush appear to be not at all difficult. The mine being named Le Roi, the correct pronunciation requires the twisting of the tongue round the supernumerary "w" and final aspirate. But the use of the word "correct" supposes a reference to some rule or standard of pronunciation. And what possible rule or standard is there except custom. The question therefore is resolved into the question of how the name is pronounced, not of how it should be. The universal custom in Rossland is to call the mine Leroy, and as such it is commonly known

throughout Canada and the United States, where the mine is known at all. It would be interesting to know how the name is pronounced on the London Stock Exchange by those who deal in the shares, although the custom there would not affect the question much, because if there is any rule at all in such matters, it is that local custom should govern. The man who would pronounce the English name Beauchamp Bowchaum and not Beecham would be guilty of a solecism of exactly the same nature as the man who pronounces Le Roi, as the name of the mine in question, Lerwah and not Leroy.

The Granby smelter at Grand Forks is reported to be a complete success and to be treating the ore of the Knob Hill and Ironsides at a satisfactory profit. An actual demonstration of this to the outside world by facts and figures is of course not possible yet, but there are many circumstances which go to show that the projectors of the smelter have not miscalculated the conditions with which they had to deal. The smelter worked without the addition of any fluxing material to the charge of ore; and we have not only the statement of the owners that it is a commercial success but the confirmatory evidence of Mr. Paul Johnson, the builder of the Mother Lode smelter at Anaconda who ought, if any one can, be able to balance the elements that mean success or failure. An interesting basis of comparison is supplied from the working costs of the smelter at Nelson. It cost \$2.96 to reduce to matte every ton of ore smelted at Nelson made up as follows: Flux .196, fuel 1.445, labour 1.32. At Grand Forks there is no cost for flux and the cost for fuel and labour is reduced on that account also. The power is supplied entirely by water, which means a further economy, and the ore is smelted with a ten per cent. charge of coke, which is certainly not high. The resultant product is a 38 per cent. copper matte. It is probably not going too far to estimate that this matte is produced at a cost of not more than \$2.25 per ton of ore, possibly less. Of course it must be remembered that after that comes the cost of shipping and refining a 38 per cent. copper matte which must be very heavy. It can be no joke to pay for the shipment of 62 per cent. of barren material (for the gold and silver may be neglected) to a refining centre. Mr. Muir, in his declared intention to build a refinery in connection with the smelter, evidently appreciates that a saving can be effected by refining the matte on the spot where it is produced. Certainly if the only difficulty in the way of local refining is the capital cost of a refining plant and the difficulty of securing an adequate and continuous supply of copper matte to refine, the problem should be soluble at Grand Forks. The Boundary district is already marked out as one of the greatest copper producing areas of North America; in the Knob Hill and Ironsides alone exist supplies of ore unheard of anywhere else. We hope to see the problem of local refining attacked by the owners of the Granby smelter and successfully solved by them.

There seem to be very strong reasons for the prediction that the South Yale section of the Province, in which is included the Boundary Creek and Kettle River districts, will in the very near future yield nearly as large an ore production annually as the rest of the mining camps of British Columbia

put together. This, of course, as regards bulk and not values. The next year or so should see the establishment of another rich district on the west fork of Kettle river, to which transportation facilities will be provided by the continuance of the Columbia & Western line from Midway. The camp at present is in the undeveloped stage, but the surface indications point to the existence of ore bodies of considerable magnitude, with values as a rule vastly higher than the average of the Boundary Creek ores. Moreover, the county is not so rugged as the latter district, and prospecting is therefore rendered easy, while the economic advantages of good timber and ample water supply are equally available. A good deal of exploration work is now under way up the west fork, and ere long this locality should command a large share of attention at the hands of investors.

The reopening of the Hall Mines smelter is producing good results in many directions. One result is a recommencement of work at the Glen iron mines, on the North Thompson, which are this year to ship to the smelter some 2,000 tons of iron ore for fluxing purposes. A first contract for the supply of 1,500 tons has already been let.

Exit another rotary mill in the case of the Venus at Nelson. These things seem to have a fatal and pernicious fascination for experimenters of all kinds. Much money has been spent in their invention, and much vexation of spirit engendered in their application. They have nearly always to be thrown away and the homely but necessary stamp installed in their place. There may be cases where, in spite of their drawbacks, they are necessary, but these are cases where the ore to be crushed is defective from a practical point of view. Under ordinary circumstances the stamp mill is invincible. Its principle cannot be improved. Children at the seaside who crush sandstones of various hues to make parti-coloured mud pies know that. They are wiser in their day and generation than many scientific inventors; wiser even than Dr. Doolittle of the Venns mine, who left the onus of proving the success of a rotary mill upon the shoulders of the people who produced it.

It is satisfactory to note that most of the wildcats have been now eliminated from the list of English promotions in this country, and that only the sound undertakings remain. These are or will pay respectable and in some cases exceptionally handsome dividends on the capital invested, and at no distant date there will in consequence be a regular market for British Columbia securities on the London Exchange—a consummation devoutly to be wished, if only because it will then be possible to place the local system of dealing in shares upon a more legitimate and businesslike footing. This, by the way. Besides Le Loi, B. A. C. and London & B. C., there are numerous other British controlled companies which come under the category of sound investments, and by no means least is the Athabasca, which this month declared a dividend of 5 per cent. on its capital stock, or one shilling per share. Judging by the way the property is managed and the excellent showing it has made in the way of production and mill returns during the past year, regular dividends may be expected in the future. We congratulate Mr. Nelson Fell.

The New Denver Ledge recently suggested, as did the MINING RECORD on a previous occasion, that the system of taking and working mines on lease under royalties might well often be adopted here as it is in Colorado, to the mutual benefit of owners and lessees. The lease on royalty system enables skilled miners to operate mines which do not warrant capitalization and would probably facilitate the successful exploitation of claims likely to be of productive rather than long lives. On the royalty system these would be worked so long as the one paid and then with no loss of capital, too frequently representing unduly large promoters' profits. There are numerous claims in British Columbia—especially in the silver-lead districts—in the case of which dividends on large capitals could not be expected, but which might on a royalty system be advantageously worked.

It is now abundantly clear that the yet few but extraordinarily rich producing mines of East Kootenay will even this year make the output of that district rival, if not exceed, that of the Slocan. The St. Eugene concentrates run to \$70 a ton, and the mine shipped 1,800 tons in August. The St. Eugene's output for last month continued on much the same scale, and this one group this year will contribute most importantly—probably to the extent of seven figures—to the East Kootenay output. The North Star and Sullivan mines will also make great showings, and in consequence East Kootenay should this year reach the two million dollar mark of metal production. The substantial value and saleability of the St. Eugene concentrates is, meanwhile, well shown by the fact that there is now a large and permanent demand for the product, which is being purchased by the Gugenheim Company, Antifagista, Chile.

Although few mines of the Lardeau District are shipping this year, and these only of selected ore—freight and treatment charges running to between \$40 and \$50 a ton—it seems not unlikely that ere the close of the year the district may be credited with an initial output of between \$100,000 and \$150,000, perhaps more nearly the latter. This will not be at all a bad beginning for some three or four producing properties. Until railway and also better trail communication comes, the Lardeau will only be able to ship to advantage its very richest ore, and nothing that does not run considerably over \$100 a ton will be sent out. Some of the recent shipments have, however, run as high as \$300, the ore being no doubt carefully sorted, and of the highest grade procurable.

It is not, however, to be expected that the exceptionally high present values will be maintained as an average when the district commences to produce in earnest. This notwithstanding, the Lardeau will doubtless have several very substantial mines thoroughly established in the course of next year.

The Triune mine, in the Trout Lake district, is being operated under lease. The lessees lately shipped a carload of ore, which netted them over \$250 a ton. They are certain of getting out 150 tons, and if weather conditions are favourable they expect to ship 200 tons before the lease expires at the end of the year. If they succeed in reaching the latter figure, they will net \$50,000. What proportion of this goes to the owners of the property we do not know; but there

will be enough left to pay fair wages to the four lessees for the time they have worked.

The London Consolidated Company, Ltd. proposes to let a contract for the shipment of 5,000 tons of ore as soon as the road to their property is completed. The properties of the company are located about seven miles inland from Crawford Bay, on Kootenay Lake. The ore is rich and the vein has been under steady development for between two and three years. It is a blanket vein and can be easily and cheaply worked. According to the actual reports and estimates of ore in sight, this mine is likely to become a steady and large producer.

The recent discovery made on the Dundee mine at Ymir seems to be one of considerable importance. A new vein has been found at some distance from the one on which developments have been carried on hitherto, of which the outcrop is both very strong and very rich. As the veins in the Ymir country are nothing if not permanent and regular, the subsequent developments in connection with the Dundee may be awaited with a good deal of confidence.

The directors of the Kenneth Mines, Ltd., Company are to be congratulated on the policy they have adopted, namely, of shipping ore as soon as the tramway is completed to the railway. The Tamarac mine, which is owned by this company, in the Ymir district, has been slowly and carefully developed. Level after level has been explored and proved until at length a very large and valuable tonnage of ore has been blocked out. When it was clear that the property had been developed beyond the prospective stage, a series of experiments were made to discover the most economical means of treating the ore. A process was eventually chosen, for which a local mill would have to be put up, and a tramway built. Both of these, particularly the former, involved a large expenditure of capital. The company suffered from comparative shortness of funds and with others felt the effects of the depression in mining stocks this year. The shares were made assessable, but to supply the capital necessary for reduction works by this forced method would have been severe on the many shareholders. It has been decided to go on with the tramway, and when that is completed to ship such ore as will stand shipment to one or other of the smelters. By doing this it is possible the mine may lose a percentage of its possible profit. But the company will more than make this good by being able from now on to make the mine pay its own footing, and by the increased facility with which the necessary capital to install reduction works may be secured later, when successful shipments have established the standing and reputation of the mine. It might almost be laid down as an axiom in mining that it always pays to make a mine pay for its own development and milling facilities by shipments, if that is feasible at all, even if there is a loss of a percentage of possible profit. This percentage of profit apparently lost is more often than not eaten up in any case by the premium demanded on the capital to provide the work necessary to save it.

Work has recommenced at the Savonas cinnabar properties. Expert opinion states that the ore on the dump should average 20 per cent. of quicksilver and

be furnaced profitably by retorting. It is, however, added that there must be an improvement of past methods at the mine to insure success and dividends. Apropos of the talk of the threatened shortage of the quicksilver supply, our contemporary, the Mining Reporter, of Denver, Colo., suggests, is really preparatory to an advance in the market price of that metal in obedience to manipulations in New York, London and Paris. For many years past, the price has been controlled by the quotation asked for the product of the Almaden mines in Spain, which are the largest producers of the metal in the world, and have been largely under the control of the French Rothschilds, who have held them as security for money loaned to Spain. When this arrangement was made, mercury was in very active demand on account of its extensive employment in the metallurgy of silver, as well as of gold, and was worth from 90c. to \$1.15 per pound; but with the growth of concentration and smelting industries, and the abandonment of silver amalgamation, coupled with the extensive resources of California in mercury, has kept the metal for many years at about 50 cents per pound, with only a moderate profit to anybody in its production. When the South African gold mines began to produce heavily, there was an attempt to advance the price, but it was unsuccessful, because the California mines were at any time able to and did increase their production heavily and at short notice. Finally as the gold production all over the world began to grow, the demand for mercury has advanced gradually to an amount which equals the supply, so that at the present date there is a real cause for an increase of the price. And the immediate cause of the threatened increase is the impending reopening of the South Africa mines, where, of course, a large amount of the metal is consumed.

The quicksilver mines of the world are producing at present about 4,000 tons of metal annually, of which, in round numbers, 1,700 tons comes from Spain, 1,200 from California, 600 from Austria and 400 from Russia. There is a small production in Italy, Mexico and Australia. They are very extensive but at present unworked deposits in China and Peru, and the Australian deposits are supposed to be susceptible of a greatly increased yield if developed. As the price, which is now about 62 cents per pound, is certain to advance, there is every reason for the American miner to give attention to the metal. It is known to exist in Nevada, Utah, Arizona and Texas, and there are good grounds for expecting its existence at several other places, notably north-eastern New Mexico. There will be good money in quicksilver, at least until the Chinese and Peruvian mines are reopened, and possibly for some time thereafter.

Although the first payments on the bond on the Britannia group, Howe Sound, are small by comparison with the big value involved in the provisional purchase, the fact that the bond will be taken up is pretty well assured. That is, of course, provided the report of a noted and trustworthy expert, who has already an extensive acquaintance with this Province, who is shortly to arrive and make a thorough examination of the property, is satisfactory. Should this expectation be realized, we shall shortly learn more definitely and accurately than now the possibilities of the group and immediately surrounding district. Meanwhile other properties adjoining the Britannia group have been secured by Sir Hibbert Tupper and Messrs. Dunn & Armstrong, a fact which sug-

gests the generally high opinion held in and about Vancouver of this locality.

If as is quite likely Consul Shimizu's investigations and subsequent tests made in Japan bear out the adaptability of the Crow's Nest coal to naval uses or compared with the product of the South Wales collieries, there may in the early future be a considerable demand for East Kootenay coal from Japan. Despite the long railroad haul to the Coast, the considerably short ocean voyage and other circumstances will enable Crow's Nest coal to be sold in Japan at less cost than the product of South Wales, which is at present used to a large extent in the Japanese navy.

The American iron furnaces are buying Lake Superior iron ore at Cleveland for \$5.75 a ton, and transporting it thence by rail to Pittsburg. The Dominion Iron & Steel Company is mining, transporting and delivering iron ore from Belle Island to Sydney, Cape Breton, at a total cost of \$1 per ton. Once in Sydney the ore is smelted with coke produced from coal mines on the spot and fluxed with limestone found in the immediate vicinity. When smelted the products of the furnace can be marketed at a minimum of cost in any part of the habitable globe. Sydney, Cape Breton, is not merely the Pittsburg of Canada; it is the Pittsburg of the world. It is destined to become the world centre of the iron trade. Two years ago Sydney was a moribund country hamlet. To-day it has a population of over 12,000 people. It is beginning to become conscious of its destiny. An interesting conundrum might be presented to the ironmasters of Great Britain. If the manufacturers of Pittsburg, U. S. A., can lay down steel rails in China \$4 a ton cheaper than the manufacturers of Great Britain, how much cheaper than the manufacturers of Pittsburg can the Dominion Iron & Steel Company lay down steel rails in China?

Mr. W. Pellew Harvey, Provincial assayer at Vancouver, has lately made a valuable suggestion through the daily press. It is that the Dominion Government should, in conjunction with the authorities of the Imperial mint, establish a state assay office for gold at some point in British Columbia. Then miners from all parts of the Province as also from the North, would have local opportunities for the sale of gold dust, instead of being obliged, as at present, of going to Seattle, where a government assay office purchases gold on behalf of the United States mint.

As things are, there being no Dominion assay office connected with the Imperial mint and no mint in Canada, the Provincial assay offices have but a limited scope, since reassays are required by the authorities of the Imperial and United States mints, the largest purchasers of gold.

It is unfortunate that an inrush of water should have marred the apparently excellent prospect of a respectable gold yield this season from the Miocene mine in Cariboo, and the necessary new pumping equipment can hardly be installed in time for operation this year. Meanwhile expectations of further substantial gold returns from the Cariboo Consolidated hydraulic properties and prospects of a possible first dividend have likely caused a considerable advance in the market quotations for the company's stock. We shall learn very shortly now if the management's forecast of a total gold yield of \$300,000 for the season is to be realized.

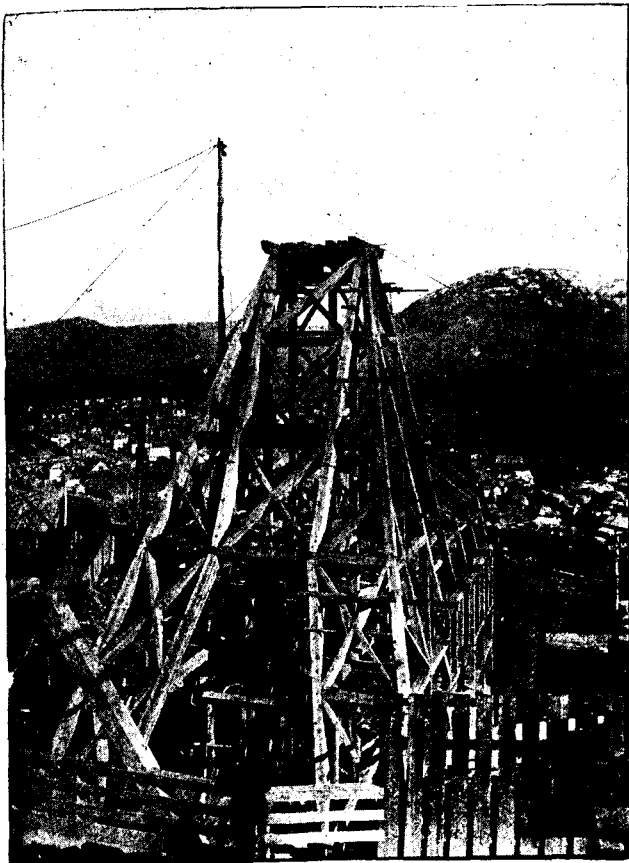
RECENT PROGRESS ON RED MOUNTAIN, ROSSLAND.

(By H. F. Evans.)

THE SURFACE improvements recently made on the south and southeast face of this mountain to a considerable extent measures the rapid progress which has been made in lode gold mining within Trail Creek mining division. The surface improvements, too, in this case, at any rate, denote the vast underground developments of the four principal mines—Le Roi, War Eagle, Centre Star and Iron Mask. Although it is not intended at present to deal with the underground workings of the chief mineral producers of Rossland, yet in passing it may be mentioned that the main shaft of the Le Roi is now nearing the

great world above. An engineer having much experience of the underground workings of continental mines informed me some days ago that when the new shaft in the Le Roi is completed the mine will have no superior so far as ventilation and convenience are concerned in America. There will then, he informed me, be two main shafts, an ascending and a descending one (double compartment); this is in addition to a tunnel outlet by way of the Black Bear. The miners are thus doubly safeguarded.

In earlier times the visitor to the Le Roi or War Eagle mines had to descend either a steep and rough waggon road or go up a trail as crooked as that described by Jennings Bryan in one of his campaign speeches—"so crooked that the traveller often met himself coming back." For some months there has



The new Centre Star Hoist. This has since been completed and covered in.



Surface Workings on the lower ground of the War Eagle, showing location of Compressor Line.

1,000-foot, and that of the War Eagle is about the 800-foot levels, with a system of cross-cuts, drifts and tunneling that are more or less intercommunicable, making the ventilation equal to that of any other mines on the continent. In these two mines alone a force of men estimated at from 750 to 1,000 is constantly employed. Meanwhile, in order to fully appreciate what is intended by mining, the uninitiated reader must descend by one of the main shafts of these mines and traverse with the assistance of his guide the various passages which are lighted by the miner's dip, and at intervals by the more dazzling rays of the electric light. Communication with the upper world is maintained by telephone and other contrivances for the use of the foreman and underground superintendent are in constant touch with the

been put down at the expense of the City of Rossland a plank sidewalk beginning with intervals of stairs all the way to the Le Roi and War Eagle mines. This not only provides a short cut, but in muddy weather the advantage is obvious.

By following this plank sidewalk one first arrives at the Centre Star. A group of four or five buildings is situated a short distance above the head of the steps, on both sides of the Canadian Pacific Railway track, where, too, are the ore bins of the Centre Star and War Eagle mines, on the north side of the track. The buildings comprise the new compressor building, the old compressor house and the gallows frame and shaft house. Ascending by way of a succession of stairs to the next level are located the War Eagle buildings. On the way up these steps a vast amount

of what may be called surface work, though it wanted a considerable amount of ditching, has of late been done. A double iron pipe has been laid from the workings of the Centre Star to the great hoist of the

trail which runs up the south face of the mountain. The view shows the rear or north and east side of the hoist. The tram descends from the south face, and it was at the head of the tram where the ore bins re-



The Great Hoist of the War Eagle. The View is taken from the N.E. The Road to it being known as the "Pilgrim's Progress."



A Tunnel in the Nickel Plate, showing curious formation of "Inverted Icicles" from Water dripping from the Roof in cold weather.

War Eagle 300 or 400 feet above. These pipes carry the air and steam power to the hoist.

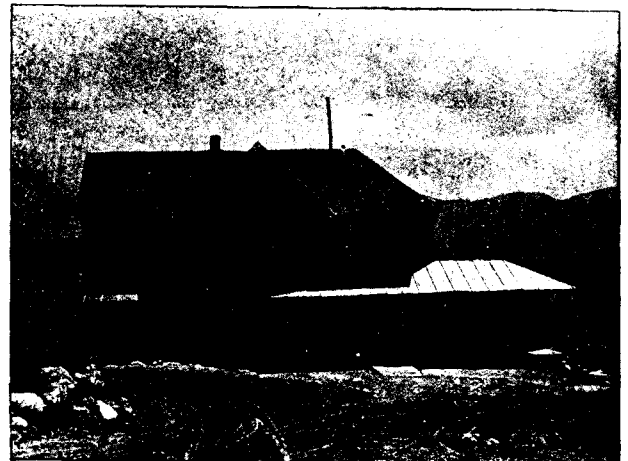
Three hundred feet on higher ground in the direction of the strike of the main vein of the War Eagle

cently destroyed by fire were situated. The visitor will find the pilgrims' road to the hoist the safest and best.

When the Centre Star and War Eagle mines re-



The New Hotel at the War Eagle, built partly of Native Stone.



Le Roi Hotel, one of the First Buildings Erected by the Original Owners of the Mine.

is the great hoist, which was fully described in the September number of the Mining Record. The illustration herewith given shows the pilgrims' route to the great hoist. This is the waggon road, for the working staff either ascend by the tramway or by the

sume shipments the present activity of Rossland mines will, at least, be doubled. The daily output will then amount to 1,000 tons per day for the Le Roi and the two just named.

The War Eagle and Centre Star, though owned by



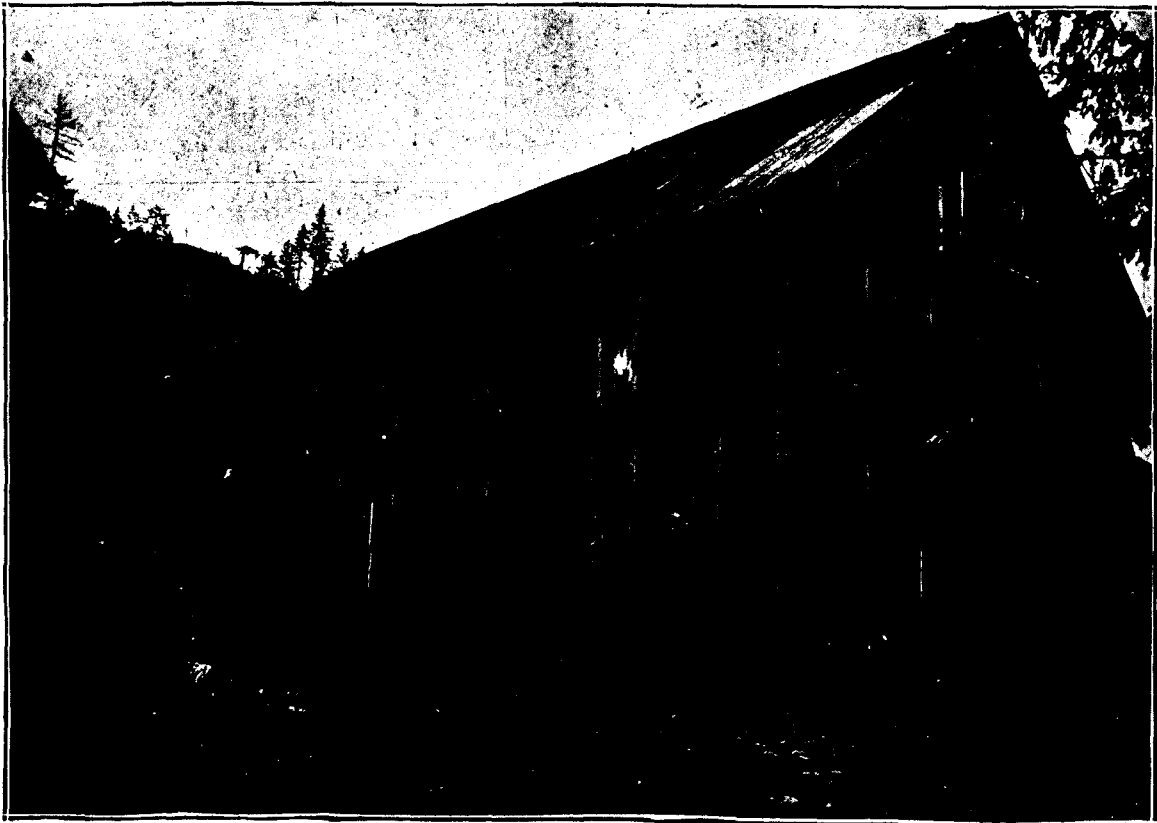
Cottage occupied by Mr. Long, Superintendent of the Le Roi.

two separate companies, are under the same general management, an arrangement which has been found to work very satisfactorily, and, of course, has the advantage of economy.

ed, was among the first buildings erected by the old management, as were also some of the buildings on the Le Roi claim on Red Mountain, also shown in the illustration.

Not very long ago the locality where these buildings are now erected was a muddy swamp. It has since been transformed into a dry and spacious yard and the railroad accommodation here is certainly very much superior to that of any other portion of the camp.

The old bunkers, an illustration of which is given, will, in all probability soon go out of service, for the new bunkers, partly shown to the right of the power house in the photograph, will supersede the old and primitive bins, which, however, have held nearly all the ore that has been shipped from the Le Roi up to date. The old bunkers are situated about four hundred yards east of the new ones, which latter have a capacity of 1,000 tons, and besides being supplied by the tram connecting with the Black Bear tunnel will be connected by another tram with the new shaft-house on the hill. Some of the old buildings and facilities on the Le Roi will be discarded or turned to other uses. The new ones are entirely independ-



Le Roi Boarding House for the Miners, situated a short distance east of the Old Shaft House.

The illustration on page 377 shows the lower ground of the War Eagle, with the ore house and some of the shipping facilities.

The most extensive surface improvements, however, have been recently made on the grounds of the Black Bear, immediately to the west of the Le Roi west line. These comprise the power house, a photograph of which here appears, saw and planing mill, blacksmith's shop, bunkers, etc. The compressor building, though considerably improved and enlarg-

ed, was among the first buildings erected by the old management, as were also some of the buildings on the Le Roi claim on Red Mountain, also shown in the illustration.

ent of the old, and they will be first utilized during the present month of October. It is stated upon excellent authority that the Le Roi Co. have expended in building and other improvements at the mine since it was purchased from the Spokane owners at least \$500,000, exclusive of mine development proper. For the eight months ending August 31 of the present year the Le Roi shipped 95,000 tons of ore, valued at \$1,520,000, and for the corresponding year of 1899 the quantity shipped was

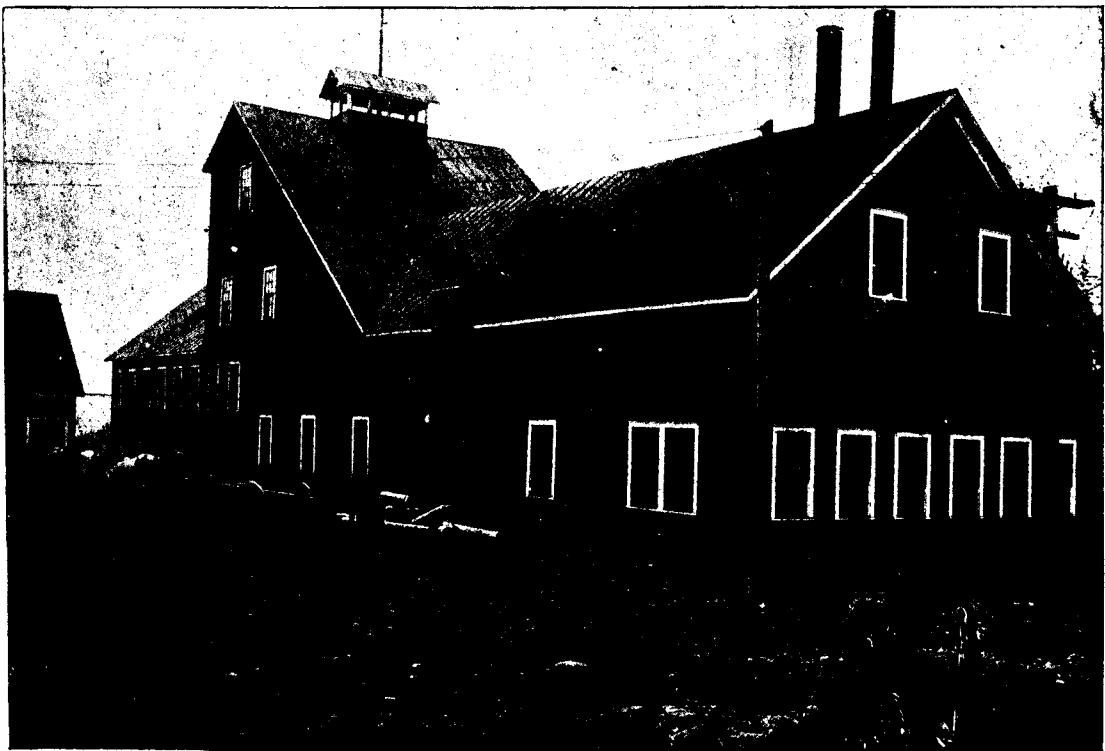


Group of Le Roi Buildings on Black Bear Ground. The Compressor Building is in the extreme left, from which Piping leads to the Power and Engine House at the right. Higher up portions of the new hoist and Le Roi dump are visible.

56,600 tons. In addition to its regular shipments of about 600 tons daily, ore amounting to 120 tons daily is being shipped to the Canadian Pacific Railway smelter at Trail. This ore is being taken from the

old dump, and is being treated at a low price, the ore running about \$8 per ton.

• The other buildings are on the mountain, or rather on the lower bench of Red Mountain, and as they are



Le Roi Shaft-house at the head of the old shaft.

respectively described with each illustration, it is not necessary to repeat the description here.

In mining there is a constant demand for new buildings and additional machinery, so that the capital account is being continually drawn upon, for it is the practice to charge such cost to capital account and not make it a tax upon revenue.

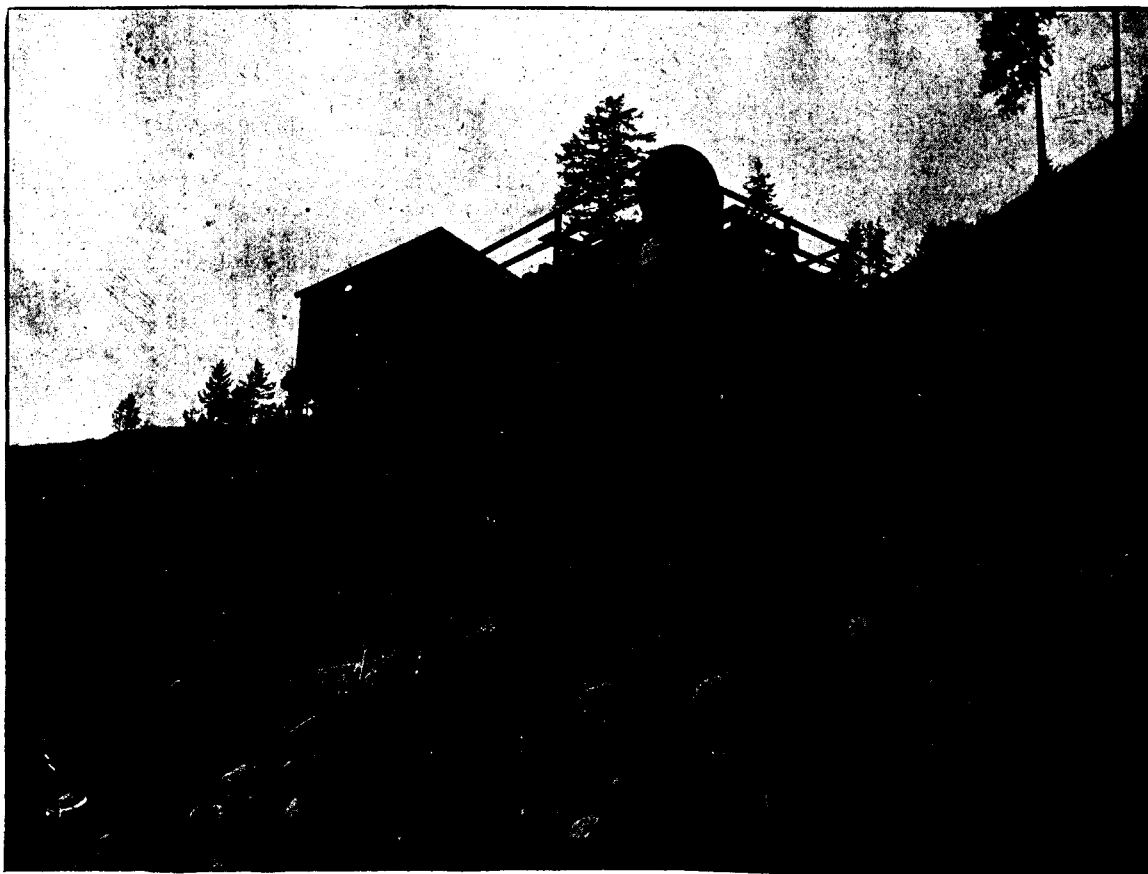
PROFESSOR EMMONS ON THE BOUNDARY CREEK DISTRICT.

(By E. Jacobs.)

PROFESSOR S. F. EMMONS, of the United States Geological Survey, recently spent part of a vacation at Greenwood, and has been occupying the greater part of the past two weeks in ascertaining

time to come. Some of those already discovered are promising enough, but the question of values has yet to be determined. He had visited several of the mines and had seen big ore shoots in the Mother Lode and Knob Hill. He was deferring visiting the B. C. mine as long as possible in the hope that Superintendent S. F. Parrish, whom he had known in Colorado, would return from Denver in time to show him that property. From the mining industry of this district in particular, conversation turned to that of the province generally and especial importance was placed by the Professor upon the Crow's Nest Pass coal fields, which, as the mining industry attains to larger proportions in the Kootenay and Boundary districts, will be of increasing value to these districts.

Turning to the United States Geological Survey



Le Roi Tram-line and Ore Bunkers.

the geologic conditions obtaining in the Boundary Creek district, more particularly in the mining camps immediately surrounding Greenwood. To a representative of the "Mining Record" he said that whilst he was not yet familiar enough with the geology of the district to say much about it he was impressed with the fact that the larger ore deposits so far discovered in the district occur in limestone, generally more or less altered. This characteristic did not appear to be recognized by many. Another thing that struck him was that owing to the free growth of timber and brush and to there being much disturbed matter overlying the settled formations the district is a difficult and an expensive one to thoroughly prospect. As a consequence it is probable that there are ore bodies that may not be discovered for some

the Professor was good enough to respond to a request for some information as to its work. The government of the United States now makes an appropriation of \$750,000 per annum for this work. Under the old arrangement the division of the work was along geographical lines, officials being assigned separate districts, but later the system was adopted of allotting departments rather than districts to the officials severally. Professor Emmons was accordingly given charge of the geology of metallic minerals, and so besides performing specific duties in this connection, has the general supervision of all work on ore deposits done under the auspices of the Geological Survey. There are half a dozen or more of these departments. For instance, one official has charge of geology of non-metallic minerals, such as

coal, salt, etc.; another of the statistical department, and so on. All co-operate, however, so as to secure the best results possible. These results are to a large extent published, so that the public may have the benefit of the valuable work done by the Geological Survey, whose publications are in the form of monographs, bulletins and the annual report of the Director. Monographs, which are exhaustive treatises on particular subjects, are published in what is known as government quarto. Bulletins are short, less exhaustive reports, chiefly of local interest, containing a few pages of small octavo, of each of these some 3,000 are usually published, and like the folios referred to below, are sold at about cost of publication. Some 10,000 copies of the Director's Annual Report are printed each year in large octavo and these are distributed free by the Survey Department or by Congress. To an increasing extent these reports contain papers or contributions on special subjects. The folios, which originated in the United States service are in size 17 x 20 and contain (1) the explanatory text; (2) a topographical sheet; (3) an areal geology sheet; giving the different geological formations without regard to their economic values or otherwise: (4) an economic geology sheet, showing the formations containing valuable minerals, coal being printed dark, so that the croppings may be followed and iron, silver, gold, etc., being printed in different colours; (5) structure sections and (6) columnar sections. About 100 separate folios have been published, these selling at 25 cents each, and their utility has been attested by their sale. The department has its own lithographic establishment, so that its maps are published under its own control and the direction of an expert lithographer, who possesses besides such scientific and geologic knowledge as ensures the accuracy indispensable in such delicate work.

Asked as to the published results of his own work the professor stated that his first and most important book was a quarto volume of "The Geology of the Mining Industry of Leadville, Colorado." A preliminary report was published in 1882, but the book itself, including an elaborate atlas of 35 plates, involved so much work that it did not appear until 1886. So popular did this useful book become that it is frequently referred to as the "Miners' Bible." Another work is a monograph on the Denver Basin, and still one more (among many others) on the Silver Cliff district of Colorado. Others now being prepared to be published next year, are on the Butte district, Montana; on Mercur and Bingham districts, respectively in Utah, on the Black Hills, Denver, and folios on Silverton, Telluride and Recco districts, in Colorado.

The professor, who came over from Rosslund with Mr. E. C. Laidlaw, of New York, treasurer of the British Columbia Copper Company, will this week return to that city having been requested to give expert evidence in the Centre Star-Iron Mask case. It is not too much to expect that the visit of so eminent a geologist to the Boundary country will be of benefit to it, especially if, as appears to be the case, his opinions of it are favourable.

RECENT AMENDMENTS TO THE MINERAL ACT.

THE following is the act passed at the last session of the Legislative Assembly amending the Mineral Act. Sections 4 and 6 were drafted by the mem-

ber for Nelson riding, and in the mining committee they had the unqualified support of Mr. Green, of Slocan; Mr. Taylor, of Revelstoke, and Mr. Smith, of Fort Steele. They were at first opposed by Mr. Curtis, of Rosslund, but his opposition was withdrawn.

2. A Crown grant of a mineral claim, or of any part thereof or interest therein, may be issued to the administrator of a deceased owner of such claim, or part of claim or interest in a claim, upon all conditions precedent to the issue of such grant being fulfilled.

3. The Mineral Act is hereby amended by inserting the following as section 8 thereof:

"8. Every person who mines for any minerals for his own sole use and benefit on any Crown lands in the Province of British Columbia without having taken out and obtained a free miner's certificate, shall, on conviction thereof in a summary way, forfeit and pay a penalty not exceeding twenty-five dollars, besides costs."

4. Section 11 of Chapter 45 of the Statutes of 1899, being the "Mineral Act Amendment Act, 1899," is hereby repealed, and the following section is substituted therefor:

"11. Upon the failure of any one of several co-owners to contribute his proportion of the expenditure required by section 24 of this Act, the co-owner or co-owners who have performed the labour or made the expenditure may, at the expiration of the year, give such delinquent co-owner notice by publication in a newspaper published and circulating in the division in which the claim is situated, or in the absence of such local paper, in the one nearest thereto, for at least once a week for ninety days, and if at the expiration of the ninety days of publication such delinquent should fail or refuse to contribute his proportion of the expenditure required by said section 24, together with all costs of advertising, his interest in the claim shall become vested in his co-owners who have made the required expenditure, pro rata, according to their former interests, on the filing with the Mining Recorder of the division in which the claim is situated, such notice in full, and there shall be attached thereto an affidavit of the manager or publisher of the newspaper in which the notice was printed, stating the date of the first, last and each insertion of such notice therein, and where and when the newspaper was published during that time, and the name of such newspaper. Such notice shall be recorded as aforesaid within one hundred and twenty days after the first publication thereof."

5. Sub-section (h) of section 36 of the "Mineral Act" is hereby repealed and the following sub-section is substituted therefor:

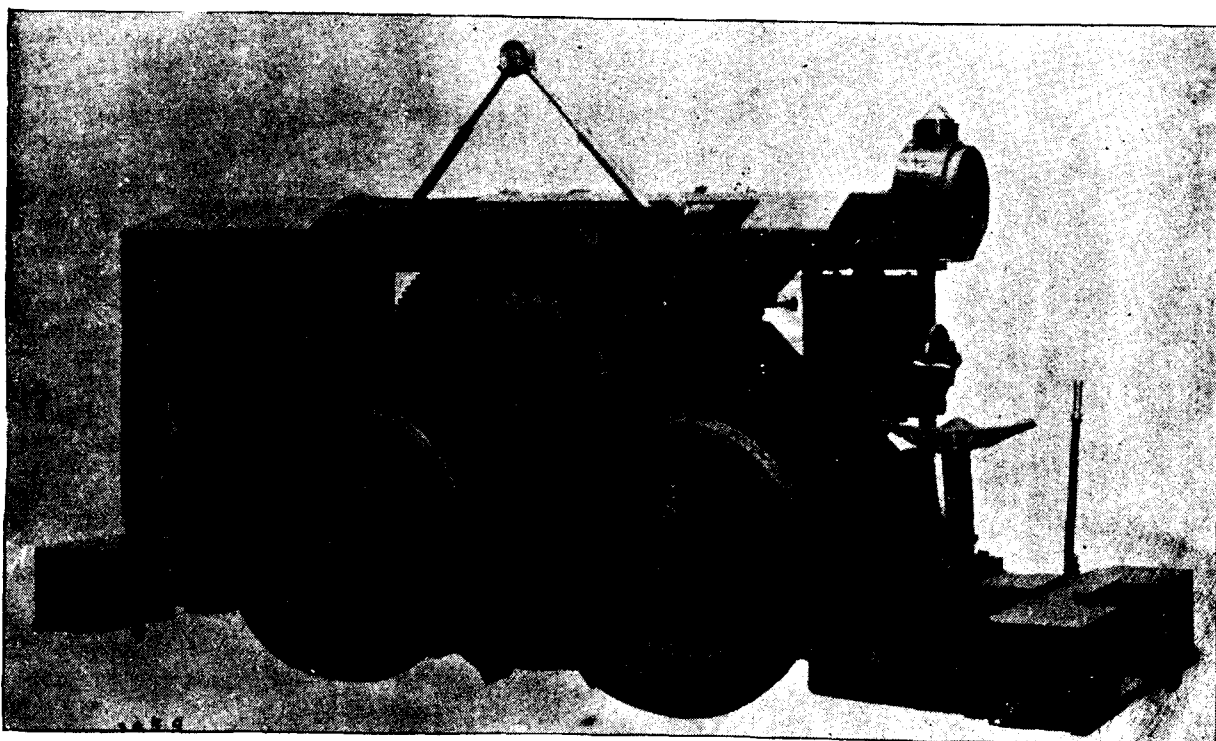
"(h.) Twenty days after the expiration of the term of the said publication, unless a notice that an action has been commenced and a copy of the writ in such action have been filed in the office of the Mining Recorder in the mining division in which the claim is situated, the Mining Recorder shall forward to the owner or agent, under Form I of the Schedule to this Act, the documents referred to above, together with a certificate that the notice provided by section 36, sub-section (d), has been posted in his office, and the field-notes and plan deposited for reference therein from the date of the first appearance of the said notice in the British Columbia Gazette, and continuously therefrom for a period of at least sixty days. The Recorder shall also set out in Form I the name of

the recorded owner of the claim at the date of signing the same."

6. Section 127 of the "Mineral Act" as enacted by section 10 of Chapter 33 of the Statutes of 1898, and amended by section 14 of Chapter 45 of the Statutes of 1899, is hereby repealed and the following section substituted therefor:

"127. The owner of a mineral claim who has had his claim surveyed and has filed in the office of the Mining Recorder in the mining division in which the claim is situated, a declaration by a Provincial land surveyor, or if the claim is situated within the Railway belt, a declaration by either a Provincial or Dominion land surveyor, stating that he has surveyed the claim as required by subsection (c) of section 36 of this Act, and has delivered to the mining recorder a plat of the claim and a copy of the original field-notes, and delivered two copies of the plat and one copy of the field-notes to the owner, then the owner of such claim shall be entitled to have the cost of such

by which the tax is distributed. It is unjust and inequitable. Injustice in the incidence of taxation is the most ruinous of policies. This tax is not unjust for the reason that is commonly given. It is sometimes argued that a mine where the net profit is \$100 a ton can better afford to pay \$2 to the government than the mine whose net profit is \$2 can afford to pay 4 cents. But it is not so. Either the capitalization of the low-grade mine is smaller or else its tonnage is larger. It probably ships 50 tons for the high grade mine's one, and reaps the same profit in the end. The injustice does not lie there. It lies in the fact that the high-grade mine pays 2 per cent. not on its profit of \$100 but on that profit plus the cost of developing, mining and hoisting the ore. Take this at a low figure for a high-grade mine \$3 a ton. Then 2 per cent. is paid on \$103. The tax is \$2.06. Suppose the low grade mine to be under an equal cost in developing, mining and hoisting the ore, namely, \$3, then the tax is 10 cents or 2 per cent. on



An electric locomotive with 50 h.p. draw-bar, at the Extension colliery, Nanaimo. This locomotive has a capacity for hauling 100 coal-boxes at the rate of 12 miles per hour on the level. It was manufactured by the Royal Electric Company, of Montreal.

survey, not to exceed one hundred dollars, counted as work done on the claim as required by section 24 of this Act."

7. The schedule of fees attached to the "Mineral Act" is hereby amended by striking out "For a Crown grant \$10 at the end thereof, and by substituting therefor "For a Crown grant \$25."

THE NEW TAX ON MINE OUTPUT.

THE principle of taxing ore is undoubtedly a right principle. There is no reason why mines should not pay out of their abundance to the support of the government of the country in which they are worked. Nor do we object to the amount which under the law is levied from the industry as a whole. The mining industry can afford very well to pay \$100,000 towards the expense of government. But there is very strong and good ground of objection to the method

\$5, which makes it 5 per cent. on the net profit. And consider. The lower the profit per ton the higher the tax. Justice surely calls for equality. The illustration given was a simple one. As a matter of fact the cost of developing, mining and raising a ton of high-grade ore is much greater, as a rule, than the similar cost for a low-grade ore. But the principle involved is not altered. But why is the cost of developing, mining and raising a ton of high-grade on the average greater than the similar cost with regard to low-grade ore? Not because there is not low-grade ore in existence which would cost just as much as the high-grade ore to develop, mine and raise. But because only those low-grade ores can be mined at all, which can be mined at the lowest possible cost. The government adds 2 per cent. to this cost. And the monstrous and abominable effect of this tax is that the more nearly the cost of mining

eliminates the margin of profit the heavier the tax becomes in proportion. This is blood curdling, positively blood curdling. There is no other word in the English language to express this appalling but inevitable conclusion, for anyone who appreciates how much British Columbia depends upon the development of our low-grade ores.

MINING MEN OF THE PROVINCE.

Mr. Frank Robbins, M.E., Manager of the North Star Mines, East Kootenay.

LEAVING the Upper Canada College in the early seventies Mr. Robbins went to the celebrated silver-lead camp of Eureka, Nevada, where he became the pupil of a prominent mining and metallurgical engineer. When qualified he entered into a partnership with his master and for several years engaged in a consulting practice of his chosen profession. Later, and in the same place, he was appointed manager of the mines and smelting works of the Eureka Consolidated—the most celebrated silver-lead property of the American continent. Here he re-modelled, practically reconstructing, that company's reduction works. He resigned in '86 to go to Spanish Honduras to plan and construct smelting works there. This work finished, he returned to the United States, making his headquarters the City of New York, from here visiting in a professional capacity the coal and iron lands of Alabama and Georgia, building a large gold mill in Georgia, the copper mines of Montana; the gold, silver and lead mines of Idaho, Washington, Oregon, California and Utah,

also gold and copper properties in Arizona and New and Old Mexico. Mr. Robbins next went to San Diego, California to erect and start a Washoe process mill for the Esperanza de Cedros mines of Mexico. From California he went to Leadville, Colorado as manager of the New Elkhorn Co., an English corporation operating mines in Montana and Colorado. He remained at Leadville until the strike of '96-'97, which culminated in the pulling of the pumps and the consequent flooding of the mines he was operating. After making an examination of the copper mines in the Grand Canyon of the Colorado in Arizona he came to British Columbia, where, almost since his arrival, he has been associated with Messrs. Mac-

kenzie, Mann & Co. as consulting engineer and manager of several of their mining enterprises. Since his return to Canada and while in his present position, Mr. Robbins private practice has not only called him to examine nearly every district in the Kootenays, but also Parry Sound, Sudbury, Blind River and the Lake of the Woods district in the East. His wide experience in silver-lead mining would seem to particularly fit Mr. Robbins for the position he now occupies as manager of the North Star mines in East Kootenay.

TREATMENT OF AURIFEROUS PYRITES.*

FROM a paper recently read before the Institute of Mining and Metallurgy, London, by Mr. Thomas

G. Davey, we condense the following interesting note on the subject of amalgamation:

In the treatment of auriferous pyrites, or roasted sulphides, there is generally formed as soon as water touches the ore, more or less free sulphuric acid. When this comes in contact with mercury there is an evolution of hydrogen, accompanied by a brightening of the surface of the quick, so that it has to the eye of the millman a live appearance, and as a matter of fact, becomes active in gathering the precious metal. But, if the quantity of free sulphuric acid is large, the evolution of hydrogen becomes very violent, and is exhibited by a lively rotary movement on the surface of the quick, whereupon particles of gold that would otherwise be assimilated, are actually thrown off at a tangent, and little or no amalgamation occurs. Under these circumstances (the rotary motion is visible to the



Mr. Frank Robbins- M.E.

naked eye) the use of some bichromate of potash will moderate the action, and subdue the evolution of hydrogen to a proper point. But, if too much bichromate is added, so that all free sulphuric acid is neutralized, the quicksilver becomes dull and "sick," and again incapable of assimilating particles of gold with which it comes in contact. The millman therefore should aim to keep his pulp in a slightly acid condition.

THE YUKON'S COAL.

THE White Horse *Tribune* states that the coal lately found on the Dalton trail, below Le Barge, will make serviceable domestic fuel. It is about to be tested to ascertain if it will coke, so as to be capable of use for smelting and other metallurgic purposes.

Mining Reporter, Denver, Col.

TECHNICAL PERIODICALS FOR THE MONTH.

MODERN MACHINERY.

IN the September issue of this magazine, Mr. J. G. Sherman contributes an able paper, under the heading of "A New Factor in Industrial Development." This factor is the gas engine for power production. According to Mr. Sherman "there is no steam driven mill or factory in operation to-day in which even twenty per cent. of the latent energy of the fuel finds its way to the machinery being operated. The boilers take a quarter of the total energy and throw it out in hot gases. The engine claims at least three-fourths of what is left and throws this out mostly in the exhaust. If there are complicated lines of shafting and countershafting with belts or gears these take a considerable percentage of what little residue there is and spends it in heating bearings and in overcoming the friction of belts and gears. It is therefore a sober fact that for the energy of each pound of coal which is permitted to pass effectively from the boiler room to the work the energy of from four to twenty pounds of coal is wasted on the air.

These facts have been recognised by the engineering world and finding that it is practically impossible to improve further on the steam engine a substitute has been found in gas. The annoying weaknesses of design which ten years ago marked the prevailing types of gas motor has been so far corrected that today engines in use and continuous service require fewer and briefer stoppages for repairs than do most standard steam engines. It is also claimed for gas engines in addition to greater reliability and efficiency decided economy of operation, and there are many engines now in use of such large capacity as 650 horsepower.

Another interesting article in the current issue is on manganese mining, by C. H. Vannier.

JOURNAL OF GEOLOGY.

The July-August number contains little of popular interest. The leading articles are: Igneous Rock Series and Mixed Igneous Rocks, by Alfred Harker; On the Habitat of the Early Vertebrates, by T. C. Chamberlin; The Biogenetic Law from the Standpoint of Paleontology, by James Perrin Smith; The Local Origin of Glacial Drift, by R. D. Salisbury. In the editorial column attention is called to the reorganization of the United States Geological Survey, to which the following appointments have been made: George T. Becker, physical and chemical research; T. C. Chamberlain, plenistocene geology; S. F. Emmons, metalliferous ores; C. Willard Hayes, non-metalliferous economic deposits; F. W. Stanton, paleontology; C. R. Van Hise, pre-Cambrian and metamorphic geology; Bailey Willis, areal geology. Each geologist is supreme in his own department and his opinion authoritative, his field is co-extensive with the work of the survey. Administration remains as before, in the hands of the director.

THE SCHOOL OF MINES QUARTERLY.

This issue contains the following articles by well-known authorities. The question of Temperature-Influence on the Specific Rotation of Lucrose, by F. C. Wiechmann, Ph. D. The Course in Architectural Practice, by C. P. Warren, Ph.B.; The Conflict between Sir Isaac Newton and the French School of

Astronomers concerning the Figure of the Earth, by D. H. Pollard; On the production of Asymmetrical Alternating Currents by means of Electrolytic Polarization, by W. L. Hildburg, E. E., A.M.; Mean Effective temperature a Unit of Comparison for Heat Engineers, by C. E. Lucke; and the Assay Practice of the West, compared with that of the School of Mines, by Charles Fulton. In this last paper, Mr. Fulton contrasts the general methods of assaying taught with those in use in the smelter and laboratories of Colorado and Montana. There is, however, no appreciable difference. The chief point being that crucible furnaces are not in common use in the West, that larger charges are used in the school than in actual practice, and that: "In the West the gold and silver are determined in almost every case by separate assay, the silver by scorification on 1-10 A. T., and the gold by crucible assay on $\frac{1}{2}$ A. T., with the addition of silver if the silver contents is unknown. This silver is added directly to the crucible change. This differs from the practice in the School of Mines, when the silver and gold are determined in many cases by one assay, especially if the crucible assay is employed. The practice in the West has the advantage in that scorification is considered better adapted for the determination of silver, except in cases of basic ores and other rare exceptions. The western crucible assay with $\frac{1}{2}$ A. T., also yields accurate results for gold when the ore contains no silver, and when the amount of gold present is small.

THE ENGINEERING MAGAZINE.

Among the leading articles in the September issue are: The Fourth Era of the Leadville Mining District, by Thomas Tongue, referred to elsewhere; Commercial Requirements of Water Power Governing, by Eliner F. Cassel; The continuous Recording of Steam Engine Performance, by W. Ripper; and Electric Mining Machinery in the British Collieries by Sydney F. Walker. Mr. Walker, who illustrates his paper with numerous photographs, gives an extremely valuable account of the use to which electricity has been put in the principal collieries of Great Britain.

MINES AND MINERALS.

The September issue contains much matter of interest, including the conclusion of a comprehensive paper on the Metallurgy of Zinc, by H. Van F. Furman, E. M., and a paper read before the American Institute of Mining Engineers, on Signal Device for Mines, by C. S. Herzig. There is also a short leading article on the misapplication of the term "true fissure veins." This article, by the way, was recently misappropriated and served up as original comment by a local daily mining contemporary.

RECENT PUBLICATIONS.

DESCRPTIVE Catalogue of a Collection of the Economic Minerals of Canada. Prepared for the Paris International Exposition, 1900. Ottawa: By direction of the Canadian Commission for the Exposition.

While this work reflects great credit—for the careful and comprehensive account given of the mineral collection sent by the Canadian Government to Paris—on Mr. Dawson and his staff, its value has been considerably destroyed by the delay in publication, as it is only a few weeks ago that copies of the catalogue

were received at Paris, or not until the first press of visitors to the exposition was over. However, it is possible the catalogue will be of still further use when the second exhibit of the specimens takes place at Glasgow. Meanwhile the specimens were primarily arranged in natural groups according to composition and the purposes for which the several ores and other minerals are employed. The secondary arrangement was a geographical one, the enumeration, under each group, being as nearly as possible from west to east, by provinces and districts, as follows: Yukon Territory, British Columbia, Northwest Territories, except Yukon, Manitoba, Ontario, Quebec, Northeast Territory, New Brunswick, Prince Edward Island and Nova Scotia. The name and address of the exhibitor of each specimen, or that of the owner or operator of the property or mine from which it is derived, was generally given, even when the exhibit had been collected by the Geological Survey or a provincial mining bureau. In compiling the catalogue, reference was made to that previously prepared for the Colonial and Indian Exhibition of 1886, to various reports of the Geological Survey and to the provincial reports. Information was obtained directly from many of the exhibitors and from other sources. The length of the explanatory notices is not to be accepted as indicative of the relative importance of the deposits to which they refer, as the catalogue had to be prepared in a limited time and the facts at hand, in some instances, were not as complete as might have been desired.

The total number of specimens exhibited from the Dominion was 1,191. In the catalogue and its description the classification adopted was: 1. Metals and their Ores. 2. Materials used in the Production of Light and Heat. 3. Minerals Applicable to Certain Chemical Manufactures and Chemical Fertilizers. 4. Mineral Pigments. 5. Salt and Brines. 6. Refractory Materials and Materials Applied to the Manufacture of Pottery, Chinaware, etc. 7. Materials for Grinding and Polishing. 8. Minerals Applicable to Fine Arts and Jewellery. 9. Materials Applicable to Common and Decorative Construction.

Monopolies and the People, by Charles Whitney Baker, C.E.; G. P. Putnam's Sons, New York and London. Third Edition. Revised and enlarged.

To Canadians Mr. Baker's book possesses no more than academical interests, although the matters of which he speaks may become to us in a very few years of practical concern. The power and growth of monopoly, however, in the United States, of which country he speaks, has assumed such gigantic proportions that one who would find a remedy for all the evil that has resulted therefrom, is face to face with one of the most difficult and envolved economic problems of the day. Mr. Baker has attempted the herculean task, but while he diagnoses the complaint with skill and precision, the prescription he offers us, does not carry with it the assurance of cure that one would desire. Mr. Baker has compiled the most comprehensive information perhaps ever got together on the subject of the evils of monopoly in a single volume. His facts are irrefutable, his reasoning logically sound, but his literary style eminently precise. But if his idea of government control and the limitation of profits to a common level were carried into effect, it is much to be feared he would also dangerously limit enterprise. The book has and un-

doubtedly will continue to do good. It throws light on a question of vast and over-reaching importance, and if it fails to completely unravel the skein of tangled complexities in which the problem of remedying the ills of monopoly is held, it will at least be of useful assistance to all economists who with Mr. Baker are working to that end.

THE MONTH'S MINING.

CAMP M'KINNEY.

(From Our Own Correspondent.)

THE visit of Mr. G. B. McAuley, the managing director of the Cariboo Mining and Milling Co., who has just returned from the Old Country, together with Mr. McMichael, the treasurer of the company, and Mr. Belton has been productive of the most happy results for the camp and broken a long period of monotony with which this camp has been somewhat affected during the summer months. The very fine showing of the Cariboo at the lower level and the splendid mill returns have determined the management to at once start at the east end of the group of properties—to be more definite, on what is known as the Okanagan claim, where clearing is now going on preparatory to commencing a triple compartment shaft, 16 feet by 7 feet, to be sunk 600 feet as quickly as practicable. A winze will be sunk from the 400-foot level and then an upraise made from that level to the surface. As this shaft will be a considerable distance east of the present working shaft, a new covered tramway will be built about 1,000 feet in length, to connect

THE CARIBOO

with the mill where a new 50 h. p. engine is about to be installed to meet the increased capacity which will be required as development progresses. On the west end of the company's properties development will be vigorously pushed underground, and an upraise made on what is known as the Alice claim. A very large increase to the present working force of the company will be necessary, and already steps have been taken to bring men in from the outside, and it may be here mentioned, that the wages of car men and muckers have been raised to \$3 per day.

The long-hoped-for movement of the Cariboo company of extensively opening up their valuable properties has at last materialized and has given the most intense satisfaction to all connected with the camp, as it will now be proved that the old Cariboo is still in its infancy as a gold producer. Any one who has closely followed the management of this mine must acknowledge that it has been most conservative, some have thought too much so, no development being undertaken or expense incurred, unless warranted by circumstances, which had to be more than favourable. Under the management of such an experienced mining man as Mr. McAuley, a feeling of the utmost confidence prevails as to the successful results of the company and to the consequently general welfare of the camp by the inauguration of these extensive works.

Moss, Hamilton and Younkin have resumed work on their claim, the Dayton, and since doing so, have still further demonstrated the continuity of the rich oxidized ore, which has made this property the best prospect in the camp, panning from its surface being equalled only by those from the now famous Cariboo in its earlier days—it matters not whereabouts on the vein, which has now been exposed for some 600 feet,

a pan of this oxidized matter is taken, a good showing of free gold is obtained—six openings or cross-cuts have been made to show up the vein, the width of which has not been definitely ascertained—the thickness or depth of this oxidized matter seems to vary, being in some places about 10 feet and under which is found sulphide ore carrying gold. It is the opinion of many old miners that the bars on Rock Creek, more particularly the rich White's bar, which is but a short distance below the Dayton claim, were fed by this rich decomposed surface ore. That this property will some day be a veritable bonanza seems certain, when the necessary capital is forthcoming to develop it.

An important strike has been made between Camp McKinney and the West Fork of the Kettle River, about fifteen miles east of the former, in the foothills of the Bald Mountain, which will undoubtedly lead to the thorough prospecting of the mineral belt between what is known as Fish Lake and Beaverton on the West Fork of the Kettle River. Some time since Messrs. McKenzie, Sullivan and Sanborn located three claims, the Rosie, Rubie and Katchinka, about three miles west of Fish Lake, owing to finding some croppings of copper pyrites on the first named claim, which on examination proved to be bornite and chalcopyrite, carrying some 18 per cent. copper and half an ounce in gold—it was then determined to drive a tunnel, the circumstances being favourable to tap the outcrop at a depth of about 40 feet. This tunnel has just been completed and the ore body encountered with the most favourable results, samples just brought into camp assaying \$30 and \$40 to the ton. At the time of writing it is too soon to speak with any certainty as to the extent and value of the find, but that it is considered most satisfactory, may be inferred from the fact, that an interest in the property has already been secured by a leading mining man of the camp. The particular section where the strike has been made, has always been regarded as some day likely to reward the prospector, it being situated in the almost unexplored mineral belt, which forms the connecting link between Camp McKinney and the mining camps of the Kettle River.

BOUNDARY CREEK.

(From Our Own Correspondent.)

Business continues quiet but a more hopeful and confident tone pervades the district and the feeling that there will soon be a distinct improvement is becoming general. Although sales of mining property are not frequent there is an increasing number of inquiries and this fact coupled with recent visits of experts, who have been sizing up the situation, makes it appear that interest in the district is being revived. There does not seem to be any room for doubt that the successful operation of the Granby smelter, at Grand Forks, has done much towards convincing the outside public that the Boundary District has immense possibilities for wealth and that its mineral resources are not only unusually large, but as well offer a profitable field for the employment of capital. The increasingly favorable results met with as depth is gained in the mines already under development give substantial support to this view, and since no stronger inducement to put money into mining can be held out to capitalists than to prove to them that big ore bodies are being opened up below ground and that values are suffi-

ent to leave a margin of profit above the cost of mining, freight and treatment, there is good reason to believe that, with this inducement existing here, some of the numerous promising prospects now lying idle will be taken in hand and be systematically worked.

Shipments of ore from the district now total between 400 and 500 tons per day. This statement may be taken as reliable, although not agreeing with the wild assertions of the irrepressible boomers who send out so many exaggerations for publication. It

is very easy to test the truth in this matter. The Old Ironsides and Knob Hill are together main-

maintaining an average of not more than ten cars daily, say 300 tons. The B. C. mine shipments do not yet average 100 tons per day the month through, whilst the Winnipeg, Golden Crown, Athelstan and City of Paris are certainly not keeping up an average of one car each per day, so that they do not together total 100 tons per day. The few carloads of ore sent out occasionally for test purposes are not numerous enough in the aggregate to materially increase the daily total above given. It is therefore evident that at least for the first three weeks of September 500 tons per day is a liberal estimate to allow. Should the Old Ironsides and Knob Hill double their daily output, as has been announced they will shortly do, the position will of course be then altered. Meanwhile though the higher figures given by the boomers are incorrect.

Reports from Grand Forks are to the effect that the Granby Company's smelter there continues running without interruption, treating about 300 tons of ore per diem. It is announced that a second furnace of like capacity is to be blown in shortly. The British Columbia Copper Company's smelter at Greenwood is not likely to be ready for operation before December 1st, possibly not till later. During the

past month the erection of the furnace has been proceeded with, the lining and roofing with brick of the big dust chamber or flue has

been completed, and the work of fitting up the laboratory has been taken in hand. At present a dam is being put in and pipes are being laid for water supply purposes, foundations for boilers and engines are being set and tracks are being put down over the ore bins, preparatory to receiving ore shortly to be sent down from the Mother Lode mine. The machinery and plant for the smelter are expected to arrive during October. Preliminary work is being done on the site below Greenwood on which is to be built the Standard Pyritic Smelting Company's pyritic smelter. Mr. Andrew Laidlaw, managing director, resident in Greenwood, has received advices from the manufacturers that the plant for this smelter will be shipped at Denver, Colorado, by October 1st, so it should reach Greenwood during that month. Blue prints of foundation plans should be received before that date. Immediately after receipt of them the work of preparing for the machinery and erection of buildings will be pushed on, so as to have the smelter ready for running before the close of the current year if possible.

The past month's developments at the Mother Lode mine, in Deadwood Camp, have been very satisfactory. Altogether during that period some 400 feet of work have been done in development, mostly at the 300-foot level. The drift is now in about 225

feet, the last 50 feet with ore of good grade coming in from below. This drift ought soon to run into the main ore shoot which, from its apparent strike and dip at the 200-foot level, should be in the near vicinity. Two cross-cuts—one from the north drift and the other from a drift run southwards—have passed through from 20 to 30 feet of ore, some of which is the best yet found in the mine in any quantity. At the 200-foot level some nice ore has been found south of the shaft when enlarging the station to make room for an air receiver, and more in the north drift at the same level, where this was being widened for a double line of tracks. On the surface, near the mouth of the main shaft, a lot of very pretty peacock ore was opened up in blasting out a site for the larger hoist shortly to arrive from the East. This ore, which is being followed into the hill, is going into the ore bins without any sorting. Arrangements are being made to ship to the smelter a lot of ore now on the dump that was taken out during earlier development work. The larger compressor plant, ordered last June, but shipment of which has been delayed, should arrive during October, recent advices having stated that it will be put on the cars on September 25. The two 100-horsepower boilers to supply power for this plant have already been installed, and the building to house the plant is well on towards completion. The foundations for the two 80-horsepower boilers for the new hoist, due to be shipped from Sherbrooke, Quebec, a few days hence, are being set, but the plans for the hoist foundations have not yet been received. When the boilers for the hoist shall have been received the mine will have four 80-horsepower and two 100-horsepower boilers. There are now 63 employees on the mine pay-roll.

The Morrison mine, also in Deadwood Camp, is another property upon which development is being steadily pushed. The main cross-cut tunnel is now in over 600 feet, along which length it has encountered three veins. It is being further extended with the object of cutting the vein known as No. 1, which is farther ahead. A winze is being sunk on one of these veins, all in ore. Some additional machinery is being installed to expedite development. The dump shows an increasing quantity of nice ore. The outlook generally for this mine is reported as being favourable, so much so that a very satisfactory statement of progress made since the resumption of work may be looked for a few weeks hence. There is not much of importance to communicate respecting the Greyhound, Great Hopes or Marguerite this month. Work is being done on all of them, but without results of interest, except that both shaft and cross-cut on the Greyhound are in ore. Nor is there much to say about the Sunset. On the adjoining Crown Silver, however, work is being continued at the 150-foot level, where the vein has been cross-cut at two different angles, one giving about 40 feet of ore and the other 34 feet. The first-named working is now in rock containing less mineral, but what there is of it carries higher copper values. There are 16 men at present employed on the Sunset and Crown Silver. The Buckhorn was closed down for a week or two, but several men have lately been put to work opening up the ore where it occurs near the surface, with a view to following it down.

More ore is going out from the Old Ironsides and Knob Hill mines, near Phoenix, than from all the other properties in the district put together.

These mines are shipping ten cars—about 300 tons—of ore daily to the Granby Company's smelter, and will double this output shortly, when the smelter shall be prepared to treat the larger quantity continuously. Work underground is largely restricted to stoping, earlier development having been extensive enough to block out more ore than can be stoped and raised for months. The 10-drill air compressor—a Rand duplex cross-compound—has been installed at the Knob Hill, and upon receipt a few days hence of some pipes to complete its equipment will be ready to furnish power for this mine. This will leave the other 10-drill compressor free to give all its power to the Old Ironsides and Victoria. The new plant is furnished with all modern improvements, and so should prove very effective in operation. In this connection it may be mentioned that Mr. G. L. Fraser, formerly in the employ of the British America Corporation, Rossland, and more recently at the Sunset mine, near Greenwood, has been appointed master mechanic at the Old Ironsides and Knob Hill mines, and has there entered upon his duties in this capacity. Above ground more improvements are being made right along. The ore bins at the Old Ironsides and Victoria have lately been roofed in and similar protection against the snows of winter is being made at the Knob Hill. There were during the third week in September 170 men on the pay-roll of these mines, and more will be added as the tonnage of ore being sent out shall be increased. The company purposes building more cottages for the accommodation of married employees.

There is not much else to write about this camp this month. The development of the tunnel known as the railway tunnel of the Snowshoe mine is being pushed on with. This is exposing a large body of ore. There are some 25 men employed on this property. At the War Eagle the east cross-cut is being extended at the 100-foot level, with the object of cutting the ore believed to continue down from the prospect shaft above. There are 16 men at work at this mine. A smelter man recently sampled the Gold Drop mine, but nothing definite has yet been given out as to whether or not work is to be resumed soon. Half a dozen cars of ore were sent out from the Brooklyn dump last month, but the returns have not yet been made public.

The Golden Crown, Winnipeg and Athelstan continue at work, and are intermittent shippers of ore on a small scale—not now exceeding 100 tons each weekly. Probably later, when a vigorous policy of development at a greater depth than the present limit of 300 feet shall have become practicable, there will be something important to communicate relative to this camp. Meanwhile operations are restricted with only 50 to 60 men in all employed at the several mines.

The fourth annual meeting of shareholders in the Brandon & Golden Crown Mining Company, Ltd., was held in Greenwood on September 18. Hon. T. Mayne Daly, Q. C., president of the company, presided, and there were 1,356,979 out of the 1,500,000 shares in the company represented either in person or by proxy.

The balance sheet and auditor's report for the year ending August 31 ult. were submitted and adopt-

DEADWOOD CAMP

GREENWOOD CAMP.

WELLINGTON CAMP.

ed. These were ordered printed and a copy sent to each shareholder. The report stated among other things that to date about 2,500 feet of work had been done underground in development of the mine and that the total quantity of ore shipped was 1,876 tons.

A resolution was passed, providing for the pooling, for a further period of six months, dating from the time the present pool shall expire, on January 1, 1901, of the 1,000,000 shares held by the promoters of the company. This will make the duration of the pool to have extended over a total period of four years and six months.

The election of directors and officers resulted as follows: Hon. T. Mayne Daly, Q. C., Rossland; Mr. W. A. Macdonald, Q. C., Nelson; Hon. J. N. Kirchoffer and Mr. A. Kelly, Brandon, Man.; Mr. C. E. L. Jarvis, St Johns, N. B.; Mr. W. A. Fuller, Spokane; Mr. W. J. Porter, Phoenix, and Messrs. G. H. Collins and James Russell, Greenwood. The officers are: President, Hon. T. Mayne Daly; vice-president, Mr. W. J. Porter; managing director, Mr. George H. Collins; secretary-treasurer, Mr. W. L. Orde.

The other business transacted was of routine character, of little public interest. It may be worthy of mention that Mr. R. L. Johnston, of St. John, N. B., attended the meeting as the representative of shareholders resident in that province, and expressed himself as well satisfied with the position and prospects of the company as submitted to the share holders.

In Summit Camp the B.C. mine continues to maintain a steady output of ore. Although not yet reaching to anything like the quantity, the boom correspondents with which this district is afflicted have caused to be published in several newspapers the mine is shipping at a rate the mine superintendent estimates will give a total of about 2,000 tons for the month of September. Should the railway company supply sufficient cars and nothing happen to interfere

SUMMIT
CAMP.

with stoping and raising operations, the month's shipments will not unlikely exceed this total. The tonnage for July was about 2,000

tons, and for August about 1,500 tons. The first half of the latter month saw scarcely any ore raised from the mine, the work of repairing the timbers of the main shaft so as to put these into good shape for the safety platform cage, afterwards installed and now in running order, having practically stopped hoisting during that period. The mine is now better equipped than at any previous period in its history, so from this out will probably make an increasingly good showing. Development work is proceeding right along, and in continuing this it is intended to shortly deepen the main shaft, which at present is only 272 feet in depth. There are on the pay-roll about 85 men, with a prospect of an increase ere long.

Other properties in Summit Camp are the Oro Denoro, R. Bell, Mountain View and Maple Leaf (Rathmullen group). The Oro Denoro, owned by the King Mining Co., of Rossland, has not had any work done on it for some months past, but the management is now making efforts to secure sufficient capital to admit of operations being resumed and carried on on a larger scale than has heretofore been practicable with the limited financial resources available. It is to be hoped that their efforts will be successful, so that it may be determined whether or not the ore already cut by prospect tunnels continues down and is

sufficient, both as regards quantity and quality, to make this a permanent mine. The R. Bell, in which the Miner-Graves people are understood to be interested, looks promising, the drift from the main shaft at the 80-foot level having occasionally met with bunches of very nice ore. Running into the hill this drift has been making depth all the time, so that the raise now being put up at about 200 feet in will give more than 100 feet depth, where it will connect with the old prospect workings above. These old workings were in gold-copper ore of good grade, but the water was so troublesome that the ore was not followed down here, the place not offering such advantages for sinking the main shaft as the site since chosen does. It is expected that a nice shoot of ore will be encountered in the raise. The Mountain View is a prospect that has several times been the subject of boom correspondents' lively imagination, but this notwithstanding a ledge of good ore has not yet been cut in the cross-cut now being run at the 50-foot level. The indications met with nearer the surface were very encouraging, but this is about all that can fairly be said at present. Some surface prospecting is being done on the Maple Leaf, but nothing definite appears to be known in this district as to whether or not there is any probability of work being soon resumed below ground.

But little work is in progress in Long Lake Camp just now. The tunnel on the Ethiopia is in about 220 feet and it should soon cut the second ledge, one having already been passed through. Some ore is being shipped from the Jewel to the British Columbia Bullion Extracting Works, at Silica, near Rossland, for test purposes. The mill there was built to treat silicious ores by the Pelatin-Clerici process. Should results of preliminary shipments warrant it, some 500 tons in all will be sent from the Jewel. There may possibly be some announcement to make next month respecting a resumption of work at this mine, but at present there is nothing official obtainable to justify an assumption that development work may shortly be resumed. The City of Paris is the only mine working in Central Camp. It has sent out more than 3,000 tons of ore to date, and is now working a force of 25 men.

ROSSLAND.

(From Our Own Correspondent.)

One of those periods of activity which has marked the progress of the mineral industry here since its commencement has occurred, and judging from the factors in sight this advance is permanent.

The resumption of ore shipment by the Centre Star, predicted in my last report, has materialized.

The management, since September 4, has been shipping about 300 tons daily, jointly from the bunkers and the dump. This quota, added to the regular shipment from the Le Roi, supplemented by occasional shipments from the Le Roi No. 2 and other occasional producers, has brought up the average weekly shipments to at least 6,000 tons.

The total outturn of ore from Rossland mines for the eight months and twenty-one days ending Sep-

tember 21 amounted to 136,000 THE OUTPUT. tons, valued at \$2,176,000, as against 112,600 tons, valued at \$1,924,200 for the corresponding period of 1899, and 1,318 tons more than the output for the whole of 1898.

The weekly shipments a year ago averaged 4,600

tons, so that the present weekly output shows an increase of 1,400 tons, and this without a pound of ore from the War Eagle, which has not yet resumed shipments.

Judging then from the output—and this is certainly a good criterion—Rossland mines in output alone now mark the highest average weekly output yet reached in the history of its mineral production and shipments.

The ore output of these mines for the whole of 1899 amounted to 172,665 tons. The shipments to September 21 amount to 136,000, leaving a difference of 36,665 tons, which at the present rate of output will be shipped within the next six weeks, or by October 31, and should nothing happen the total shipment of Rossland mines for 1900 will reach 222,000 tons, and probably 235,000, as the War Eagle will, it is now believed, resume shipments before the end of the present year.

This forecast is based on the actual returns as they are furnished by the management, and are not to be confounded with the fiction fancies of the camp enthusiast.

Since the present month was ushered in there has been more than the average activity in Rossland. Labor Day was very creditably celebrated. This was followed by the arrival here of the vice-regal party, His Excellency the Earl of Minto, Governor-General of the Dominion, and suite. The weather was exceedingly fine, and everything passed off most pleasantly. Doubtless the most interesting feature—interesting at all events to the vice-regal party—was the visit to the mines, especially the one to the War Eagle. Photographs of the scenes and incidents connected with this especial visit were taken, and I have been promised some of these views for the Record.

Following these social events came the political nominations for the Dominion House. More than usual interest is being taken in this political contention. The situation has been complicated by the announcement coming from the Trades and Labour Council that the labor organizations are determined to present a candidate in their interests. Whether they will finally adhere to this determination or throw in their support with one or other of the political candidates is yet an unknown quantity.

There is, however, nothing in the aspect of affairs present or future that may be regarded as a disturbing factor in the outlook of the mineral industry here. This outlook is now very bright and encouraging, and there is a profound impression amongst the well informed that this hopeful vision will continue for an indefinite time.

The ore shipments for the mining divisions, exclusive of Rossland, and within East and West Kootenay Districts, including the district of Yale, for the present year up to September 21, amounted to 100,000 tons (an approximate but conservative estimate). This makes the total shipments of ore from the various mining divisions of the two Kootenays and Yale equal to 236,000 tons, which, of course, is the greatest in the history of the mining territory embraced. The value of this tonnage is a debatable point, and the totals, until the smelter returns are available, can only be approximated. The value of the 136,000 tons of Rossland ore is placed at \$16 per unit ton, while the great bulk of the ore from the other divisions being argentiferous lead, is put at \$60 per ton, a third at least is the gold-copper ores of the

Boundary district. The value of those ores is much less than Rossland ores, so that we have 136,000 tons valued at \$2,176,000, 60,000 valued at \$3,600,000 and 40,000 tons valued at \$320,000, being a total of \$5,836,000 gross, which will be subject to reduction when the final returns are made up. This approximation of course is really for nine days less than nine months of 1900, and by the end of the year the gross figures in round numbers would at least be \$7,000,000 for the districts mentioned. The growth of the mineral industry in Southern British Columbia is therefore of a phenomenal character, and it is not surprising that it has attracted the attention not only of capitalists but of statisticians. The volume of increase during the next five years would indeed be worthy of comment.

The prospects of ore shipping by the Le Roi No. 3 (Nickel Plate) are approaching the state when it will be materialized. The new ore bin is about ready. Certain hopes were some-

LE ROI NO 3. time ago entertained that the Evening Star, Giant and I. X. L. would be advanced from the grade of occasional to that of regular, but this fruition must now be postponed for a few months. The Columbia and Kootenay (Le Roi No. 4) will enter the list sooner or later, so that it may be readily inferred ore shipments are becoming one of the active factors in connection with the industry.

Mr. Bernard McDonald has been summoned to Europe, presumably for consultation at headquarters. He is an exceedingly busy man, but he has arranged his affairs so well that his efficient assistants are able to keep things in good shape during his temporary absence.

Mr. William S. Haskins, formerly superintendent of the Nickel Plate here, is in Nevada City, Cal., near which he is working some properties, which are said to be very promising. After leaving here in the early part of the summer, Mr. Haskins made a trip to the mining regions of Mexico, where I am credibly informed he secured for his principals some very promising properties. Through an error it was stated that he had not been successful, but I am reliably informed that his mission there was quite successful.

While legitimate mining never looked better here than it does now, there is no prospect of a revival of the wild work which gave Rossland such an unenviable reputation four years ago. There are still some operators here that are as reckless as ever, but the public has become weary as well as wary.

Mr. W. L. Orde, the efficient secretary-treasurer of the Brandon and Golden Crown, located near Greenwood, has furnished me with the official statistics submitted at the annual meeting of the company held at Greenwood September 28. The B. & G. C. shipped 1,876 GOLDEN CROWN. tons since it started, and up to the date of the report. As the Record will doubtless publish this report, it is not necessary to give it here. However, I may add that the total receipts from ore were about \$25,000. The smelter returns show a net of at least \$6 per ton after deducting smelter and freight rates. The B. & G. C. seems to be carefully and honestly managed, which, in addition to its good prospects, ought to be very satisfactory to its shareholders.

One of the most important events of the month is

the announcement that the litigation between the Iron Mask and Centre Star mining companies has been terminated. It is understood that an agreement has been reached by which the case is to be settled out of court. The result of this arrangement is the removal of the embargo on operations in the Iron Mask workings, which operations have been resumed. Every one will be glad to hear that this celebrated case is to terminate by mutual agreement. The full particulars of the settlement have not yet been furnished for publication.

YMIK.

(From Our Own Correspondent.)

During the past month the Eldorado Mines, Limited, has been incorporated to take over the Eldorado, Carmencita and Chihuahua mineral claims from the original owners, Messrs. Breau, Rugg & Grantham. The capital of the company is \$150,000, divided into 1,000,000 shares, par value of 10 cents. The ore is a high grade galena, and runs as high as \$60. Mr. R. C. Pollett, the manager, has done extensive development work in the shape of cross-cuts upon the lead. At three points he has sunk through the wash a depth of 30 feet, and has struck the ledge which in one place is 60 feet in width and well mineralized. The property is certainly one of great merit. I might add that the property is situated on Porcupine Creek and within easy access of the Nelson & Fort Sheppard Railroad. During the month one of the most important mining deals in the history of the camp took place. The property of the Broken Hill Mining & Development Company, comprising the Wilcox, Bywater, Fourth of July and Wilcox claims, has been bonded by a French syndicate for a large figure. By

the terms of the bond work must be commenced immediately. This has been done, the syndicate having placed a good force of men to work developing the property. The property already has some 1,600 feet of work done on it by the original owners. The officers of the above company are: Stephen Bywater, president, Kalispel, Mont.; Cornelius Shields, vice-president, Bristol, Tenn.; A. B. Buckworth, secretary-treasurer, Ymir, and Philip White, superintendent, Ymir. Messrs. Long & Roberts are experimenting with a patent air compressor, and are erecting a trial plant on Wild Horse Creek. The agency is water, which, falling from a height, brings the air into a receiver, and the volume of water behind compresses the air. If the trial proves satisfactory, a number of the companies operating on the creek will obtain power from this plant. During the past few days the M. S. mineral claim, situated near the Wilcox group, has changed hands at a good figure. J. Fleutot has purchased the same. Ymir has sent an excellent mineral exhibit to the Spokane Industrial Exposition, which opened at Spokane, Wash., on the 2nd October. The different mines have contributed some excellent specimens of mineral. Pierre Maris, professor at the College of Master Miners at Douai, France, paid our camp a visit, and your correspondent, in conversation with him, found the professor well satisfied with what we have. He stated that he would return next summer.

SLOCAN.

(From Our Own Correspondent.)

The scene of excitement in this division seems to have shifted temporarily from Sandon to Slocan City,

a number of very important deals having been consummated lately in that vicinity. It has been known for a long time that the Arlington was developing into something more than an average property, fulfilling in this respect its promise of five years ago. The ancient saying that "Rome was not built in a day" is equally applicable to mines, it having taken years of patient study and systematic exploitation, not unmixed with vicissitudes of one sort and another, to determine its real value. Whether this is exaggerated or not we cannot say, but we do know that investors are backing up their faith in its prospects by bonding adjacent properties for enormous sums.

SLOCAN LAKE
ACTIVITY.

During the last month the whole of the claims—some ten in number—lying between the Arlington, on Springer creek, and the Enterprise, on Ten-Mile, have come under the control of Mr. J. Frank Collom for sums which will aggregate \$120,000 when fully paid. The knowledge that 5 per cent. of the purchase money, or \$6,000, has already changed hands, in conjunction with the fact that men are now at work on the Speculator, one of the most important claims in the group, indicates pretty thoroughly the bona fides of the undertaking.

Stupendous as this transfer is, it is not the only one to be recorded in that neighbourhood, the Neepawa, adjoining the Enterprise in another direction, and previously under bond to Vancouver parties, having again been taken up. Percy Dickenson, representing the Warner Miller Syndicate, is the principal in this deal, which extends for eighteen months and involves the sum of \$30,000. A small shipment has recently been made from the property, which should serve as a guide to the quality of ore which may be expected on development.

It is encouraging to find that many of the older and better known prospects are again coming to the front after periods of severe depression, and it may be a happy augury for the future that the Arlington was several times relinquished, after considerable sums had been spent upon it. In this connection we note that the Two Friends, from which many carloads of excellent ore were shipped a few years back, is once more in a position to resume profitable operations, and such old-timers as the Howard Fraction and the Tamarac groups are to be given another trial. Despite the woeful failure at the Golden Wedge, machinery is being packed up to the Chapleau with all speed, and it is in the the realm of probability that before Christmas the hills of Lemon Creek will again resound to the heavy thud of a stamp mill in operation.

Taken altogether, the outlook at Slocan City is certainly brighter than it has been for many moons, and should merely a fraction of the deals and operations projected at the present time prove successful, the foundation will be laid for a larger and more progressive population than that district has ever known.

The Wakefield remains closed for the present, although it is not to be expected that the company will abandon a mine of such resources and a brand new mill and tramway costing well on to \$100,000 without further trial. As a natural consequence it is announced that an independent engineer is now on his way to examine and report fully before the board decides on any definite course to be pursued. That his report

will favour a continuation of operations on a larger and more embrasive scale than before nobody who is acquainted with the mine and its past achievements doubts for a moment. At the same time I wish to say a word on behalf of Mr. Paterson, the late manager, who is now in the old country, and unable to reply personally to criticisms. The almost insurmountable obstacles with which he had to contend are not, I am confident, half understood by his detractors, and if his judgment was at fault, as admittedly it was in one or two particulars, let us not forget that he was at any rate an engineer trained far beyond the average of British Columbia managers, and above all a man thoroughly honest in his convictions. I can state from personal knowledge that he has left the province one of the most efficient tramways and concentrators that it possesses, and I consider it no reflection on him to say that we all hope and believe that his original opinion of the Wakefield formed when he first contemplated the erection of so extensive a plant, will prove in the end to be the correct one, though to do him justice, we must not overlook the fact that economic conditions were materially altered during the time operations were in progress, which would suffice to account largely for his change of views.

Let me say, in conclusion, that I am not posing as a vindicator of everything that Mr. Paterson said or did while he was in the province, but as one who knew him personally and had a great deal to do professionally with the Wakefield at one time and another, I deem it my duty to do what I can to correct the impression which seems to prevail that he was hopelessly incapable and quite unworthy of the trust reposed in him.

BURTON CITY, ARROW LAKES.

(From a Correspondent.)

The mining outlook in this district has vastly improved of late. Mr. Clark, of the Chieftain, is being congratulated on the strike of very high grade silver ore made on his property, where ore showing of pure nature and leaf silver associated with copper pyrites averaging 5 or 6 per cent. in association with galena and gold bearing pyrites, being taken from the mine and being sacked ready for shipment.

The values in this ore will average \$150 or \$175 per ton.

A rawhide trail is being built to this property, as is also one to the Hailstorm group, owned by Messrs. Jamieson and Matthews, of Vancouver, where four feet of high grade galena ore has been found this last month. Mr. Jamieson will also rawhide the ore out this winter if the trail is finished in time.

The Molly property, it is to be regretted, is not working. It is to be hoped the discovery of the Chieftain will induce other property owners to develop their claims.

Mr. E. C. Black's property, the Galena Star, which assays high in gold, is looking very well.

While other claim owners are pegging away, stimulated by the strike on the Chieftain, henceforth much development work will be done in this locality.

REVELSTOKE.

(From Our Own Correspondent.)

Revelstoke's old standby—the Big Bend—will be very quiet this winter, as but few of the properties there intend to work through the coming season; their assessments are done, and it is useless to ex-

tract ore when it is impracticable to ship it. A new survey for a permanent waggon road into that quarter from Revelstoke is in progress, and probably work will be started on the road and kept going as long as possible,

NEW WAGON ROAD TO BIG BEND.

some \$10,000 having been voted by Government for that purpose. If that sum is properly expended and not frittered away, as is usually the case with Government money, the road should be well made to 10-Mile Camp. The usual rule should hold good here: First a trail, then a waggon road, then a railroad; but all honour to the men who start when there is even no trail, and hunt the country for its mineral wealth! Although Revelstoke will retain its accustomed sleepy attitude this winter, there will be plenty of work going on in the Fish Creek and the Lardeau districts, especially the latter, as but few properties in the vicinity of Fish creek can ship any quantity of ore yet. The development done during the last few months has proved still further the extent and value of the numerous claims, but in a district so very badly provided with means of access, much good stuff must of necessity remain where it is found. The Lardeau and Trout Lake divisions are better supplied

with roads, though very far from what is needed for the convenience of shippers; still it is certain that such mines as the Silver Cup and

the Nettie L. will do their utmost to ship considerable quantities of ore during the coming season. One small property lately has become noted, namely, the Triune, which, while hardly known to exist some three months ago, has actually shipped some 20 tons to the smelter, which yielded about \$300 to the ton. No wonder the owners are elated over their prospect, as to get any claim to pay so well from grass-roots is not usual, even in that rich district. No new gold strikes have been reported lately, but those already known are holding out well, and there is every reason to expect that further search will reveal more. Silver-lead is the principal mineral in the district, and while there is a very great deal of extremely high-grade ore, yet that is small compared to the enormous bodies of lower grade, such as the Great Northern, Broadview and others close by which will hardly pay to ship at the present awful prices of transportation and treatment. The promised railway is as far off as ever, leading one to suppose that the Great Northern and the C. P. R. had buried the hatchet and mutually agreed to suspend all operations on the railroads that both parties commenced a year or two ago.

It is to be hoped that we shall not be favoured with any more violent changes in the mining laws, such as that unnecessary and unasked for eight-hour act. Some small modifications from time to time are reasonable enough, but they should tend to help the prospector and struggling claim owner rather than discourage him. There are almost too many details, and generally too much "red tape" about the undisputed possession of mining property; and the failure to observe some small act or another should not subject the owner to the risk of losing his holding altogether. This simply encourages that nest of every mining district, the claim jumper. So long as work is honestly done on a claim, and done continuously and abundantly, the owners should not be in any doubt as to whether or not by neglecting some small technicality "made and provided" they have forfeited their rights to it, and it might be well if legislation were improved in that direction.

THE VAN ANDA SMELTER.

(By Our Special Commissioner.)

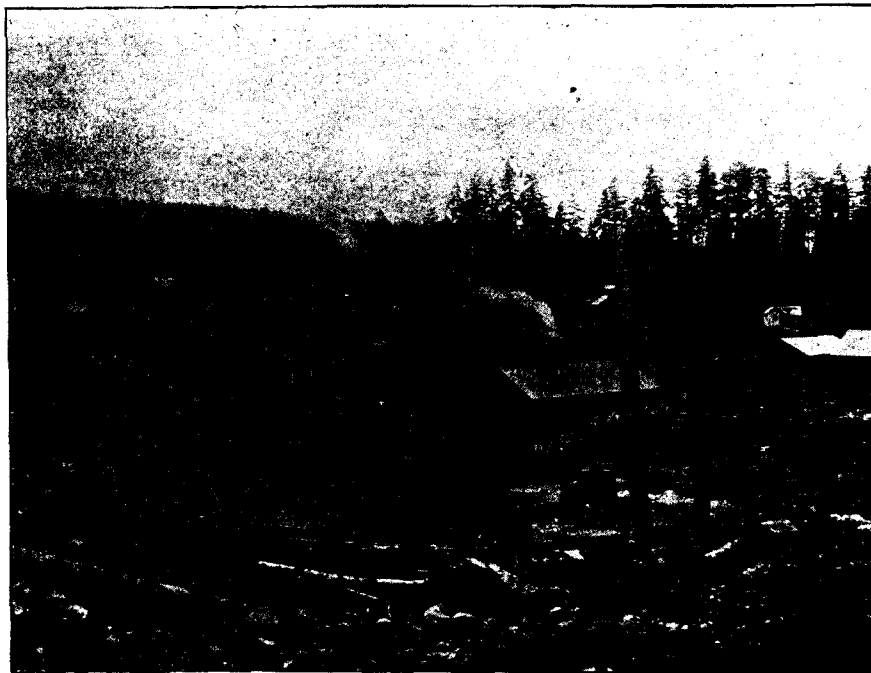
THE lead furnace recently purchased by the Van Anda Company now presents quite a changed appearance. Completely overhauled, it has been converted into a hot blast copper furnace. It occupies the space between the smelter shed and the incline, a spot reserved for the purpose. The idea in installing the new furnace is *not* to double the smelter's capacity, though that is more than accomplished,—the old furnace having a capacity of 50 tons and the new of 75 tons, but to provide against accidents such occurring up to the present necessitated suspension of work for two or three days, with consequent loss to the smelter.

The smelter plant now consists of an 80-horsepower boiler, pump, engine, two blowers, cold blast furnace with goose neck pipe leading into a dust chamber, and hot blast connecting with the dust chamber.

The advantage of the hot blast is in the saving of coke and the consequent lessening of the cost of production. At present, smelter charges are \$6 to \$9 per ton according to the amount of silica the ore contains.

The ore brought from the mines is weighed and deposited in ore-bins, of which there are three. From

made into three parcels: one of which is given to the owner of the ore—if he happens to be other than the Van Anda Company; one goes to the assay office to be assayed; the third, sealed by the owner of the ore, remains in the smelter and is used if umpiring is necessary. One-tenth of the ore being thus disposed of, the rest is roasted. (Some of the ore now coming



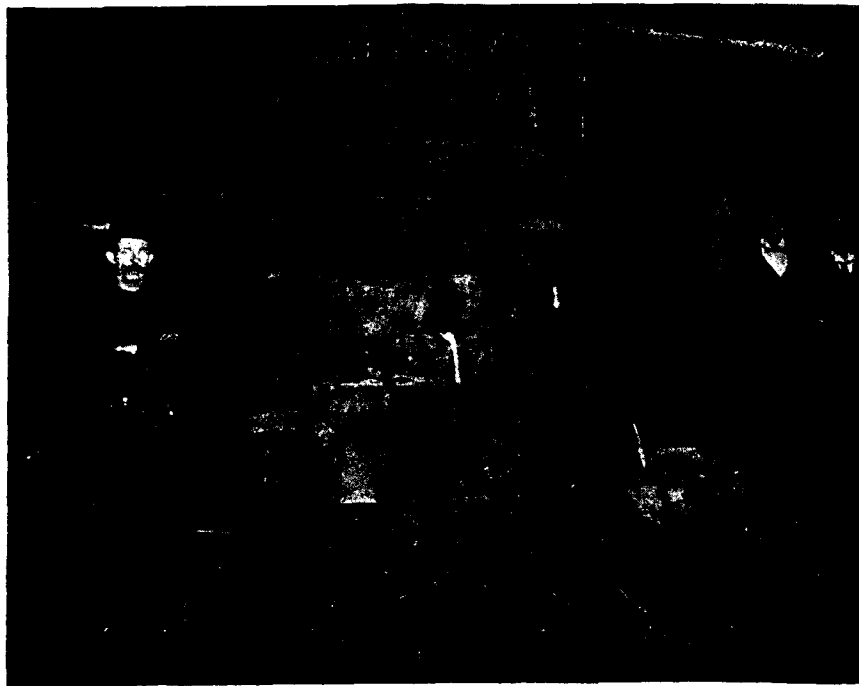
General View of Works

out of the Cornell mine is so good that it does not require roasting, but passes straight to the furnace.) The ore is placed on a bed of cordwood; the wood

lighted and the ore burned, sulphur fumes being given off. Everything has its compensations; these fumes are no exception. The destruction that they cause is desirable and otherwise: otherwise, when the blight to trees and flowers is considered; desirable in the temporary absence of bacteria and insects. Scarcity of flies in Van Anda is translated into meaning that Lenora ore is on the piles. Roasting occupies from fifteen days to a month. The better the roasting the higher the matte.

Thus roasted the ore is taken on cars to the smelter, weighed, then dumped on to the feeding platform—which is in the rear of and above the furnace. There it is mixed with the proper percentage of iron flux, 5, 15 or 20 per cent. being required. The Van Anda ores contain suf-

ficient lime to require no addition in that line. When the furnace requires feeding coke is shovelled in, then ore and iron. These melt and the heavier—the mineralized portion—goes to the bottom of the



Interior of Smelter, Van Anda.

these it passes through the automatic sampler, where it is cracked and one-tenth withheld as a sample. That tith is then passed between rollers, and, after being reduced to as fine a powder as required, is

settling pot from which it is tapped at intervals. This is known as matte. When cool it is broken up and put into sacks ready for shipment to Brooklyn. The slag—the lighter and worthless portion, is run off into slag pots and then dumped into the bay. A portion is occasionally used as flux. Analysis shows that very little copper is retained in the slag, decimal three (.3) per cent. being the average. Slag consists of silica, lime, iron and alumina, named in order of abundance. The matte contains copper, gold, silver, some iron and carbon. It runs about \$175 in copper, \$40 in gold and \$9 in silver to the ton.

As a rule two shipments of matte occur in a week. The forty-eighth since January was made on August 4th. It consisted of 15 tons. With the exception of what comes from Mount Sicker, nearly all the ore smelted is from the company's mines.

Never before before have these mines looked so well. Finer ore could not be desired than what is now being taken out of the 80-foot level of the Cornell from near the winze. Under the present management development work is being kept well ahead and there seems every reason to believe that there will be no difficulty in keeping the smelter running to its utmost capacity.

Occasionally there are interruptions, as from August 1st to 5th, when the fires were allowed to die out from failure in the water supply. Water is obtained from a creek issuing from Priest Lake and too much seepage was taking place. The dam was repaired and sufficient water again secured.

Advantage was taken of this lull in smelting to clean out the dust chamber. Though 9x25 feet and cleaned out in May, it was choke-full. This dust is too good to waste and is put again through the furnace.

Incidentally it was learned that the fire bricks made in Victoria from Union fire-clay cannot stand the fierce heat of the furnace. Running too high in silica they give out in three days. Cartcraig, a Scottish brick, is used and found to be much superior.

At first sight smelting looks smooth work. Slag and matte seem to come out with ease and regularity. But when we consider the difficulty some people have in understanding the humors of an ordinary stove we conclude that it is not so easy as it looks. Indeed we recognize that it is only after years of study and practice that the skilful foreman has become able to say: "The moment I look at her, I know what's wrong."

THE NEW HENDY HOIST.

The Joshua Hendy Machine Works of San Francisco, Cal., is at present making a number of sales of its new and superior design 8½x10 double cylinder single drum hoists. Through the courtesy of the company, we are enabled to present herewith an illustration of this hoist. The hoist has certain features of construction to which the builders are able to trace the reputation these engines have secured in the short time they have been on the market. The hoist is mounted on a single solid base, with standboard for the operator. The engines are reversible link motion, and the drum is fitted with post breaks, which are sure, quick and safe in operation. Their compactness in design and the substantial and strong construction are particularly commendable. For severe and continued service experience has shown them to be unequalled.

The columnar indicator is also a feature of the

hoist, although the manufacturers will furnish dial indicators if preferred. Clutch pinions are furnished as the purchaser may desire. The pinions are helical steel, thereby obviating vibration, and at the same time lessening the likelihood of breakage. A better idea of the engine can be obtained from noting the following dimensions, which are for the 8½x10 hoist, 45-horsepower: Diameter of drum, thirty-two inches, diameter of flanges, 44 inches; length of drum between flanges, 24 inches; diameter of drum shaft, 4½ inches; diameter of crank, 4 inches; weight of hoister, single rope, usual speed 8,000 lbs; approximate shipping weight, 8,750 lbs.; floor space required, 88 x 92 inches.

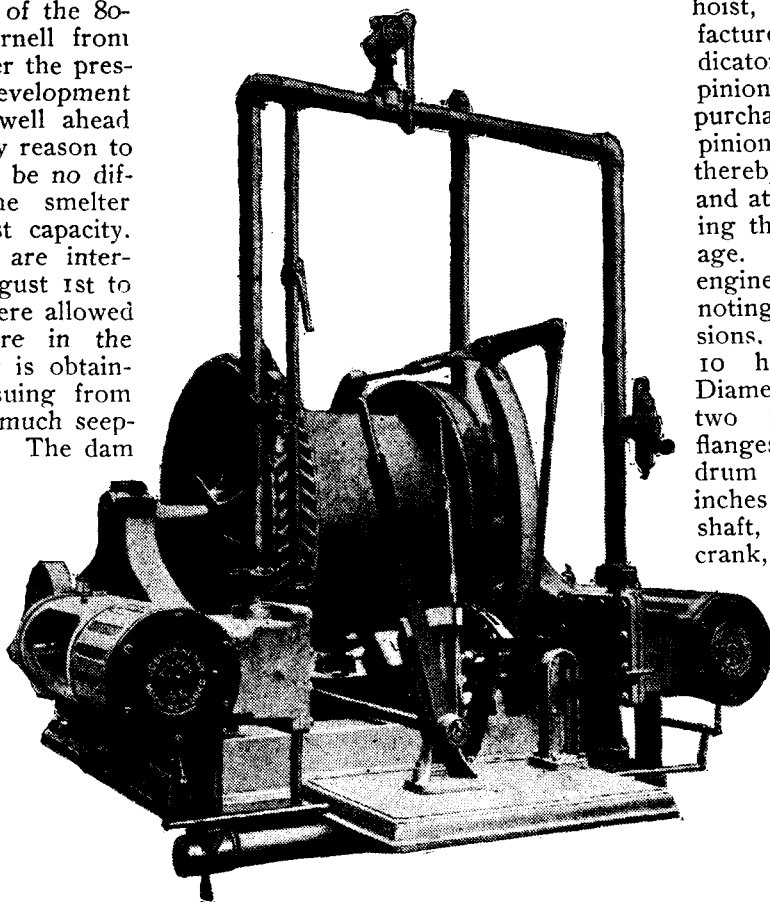
Smaller engines of from five to seven inch cylinders, having cut gears and pinions, can also be seen at the warerooms of the

Joshua Hendy Machine Works in San Francisco. The company also shows a large variety of double drum hoists.

A NEW CENTRIFUGAL DREDGING PUMP.

WE call attention of our readers, and especially of those interested in mining operations, to the progress made in development of pumping machinery under the exacting demands due to development of our mines on the Pacific Coast.

It is noticeable that demand for an article to fill any particular requirement, always has the effect of calling out efforts for its production, and reciprocally, the production of an article, the highest and



Centrifugal Dredging Pump.

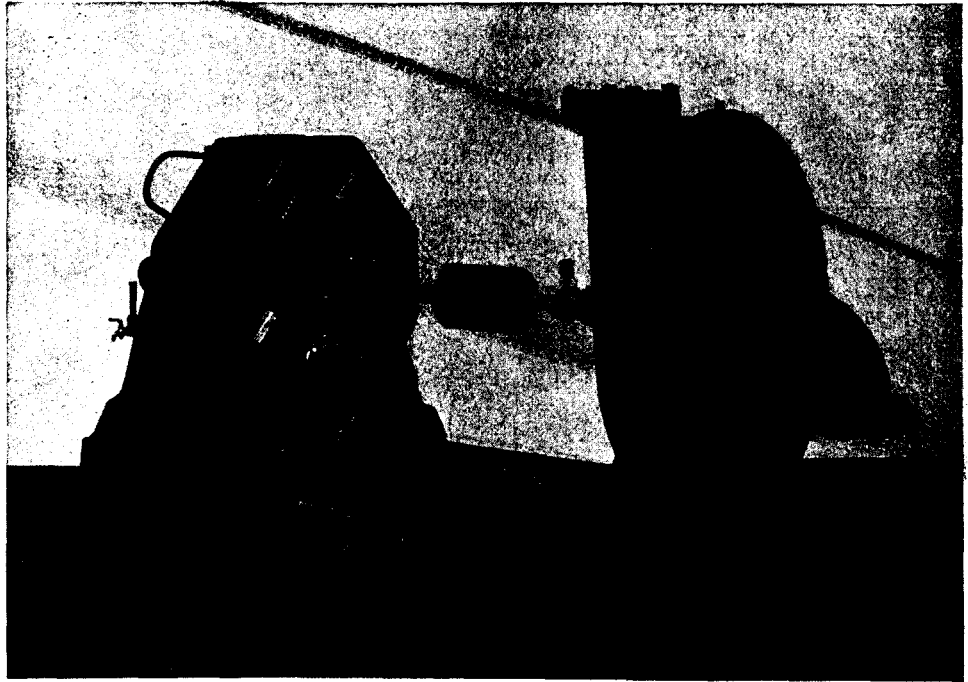
best of its kind for any purpose, always results in increasing and strengthening the demand therefor.

The many demands upon a centrifugal pump, peculiar to the Pacific Coast conditions, has done much to call out pumps of the high class manufacture for that market. And the careful, painstaking efforts of some Coast manufacturers along this line has kept pace with these demands. One of the foremost manufacturing firms is the Byron Jackson Machine

Works, of San Francisco. This firm, after years of patient toil and experimentation, is enabled to turn out such plants as are here shown. In cut is shown a dredging pump direct connected to high speed vertical steam engine. This plant is peculiarly adapted to handling gravel claims, which can be, or are submerged. It may be mounted on scow and operated as an ordinary dredge. The expense of handling gravel, sand and water with the attendant values, is, with these machines, reduced to a minimum. In cut herewith is shown a unique application of these pumps for purposes of hydraulic mining. The pump from which this photo was made is designed for the delivery of 1,000 gallons per minute under a pressure of 140 lbs. per square inch. It is to be used for delivery through a hydraulic giant to knock down auriferous gravel, and its test shows it to be successful beyond the makers' expectation. This plant is used in localities where it is physically

The second illustration of a pump made by this company is also interesting. This plant is especially noteworthy in view of the recent wide application of electricity to mining operations. It is small and compact, simple and durable, and can be installed in multiples to reduce pressure by distributing it among several units.

The Byron Jackson Machine Works are ready to supply plans and estimates upon whatever specifica-



Jackson Centrifugal Pump Direct Connected to Electric Motor.

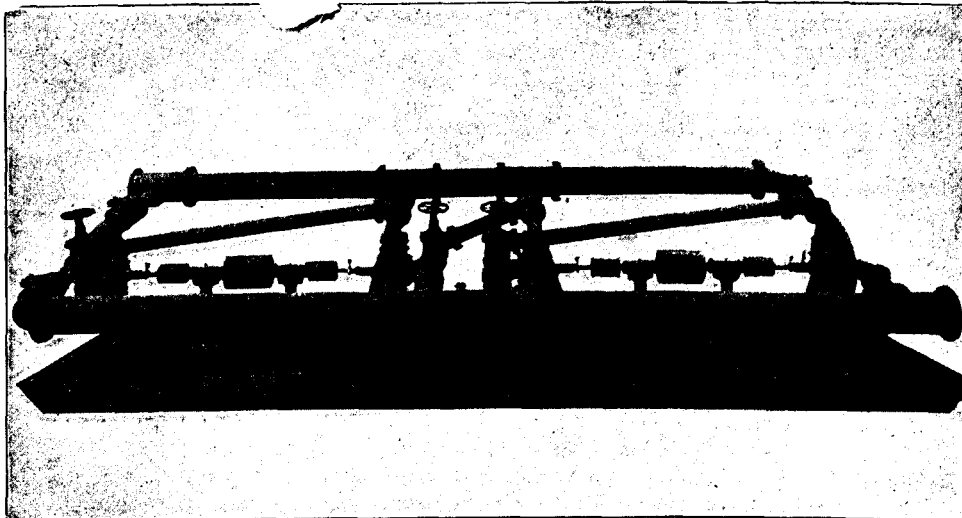
tions are submitted for their consideration.

DEVELOPMENT OF THE CARIBOO. CAMP M'KINNEY.

(From a Correspondent.)

IN the east drift of the 400-foot level of the famous Cariboo mine a strong body of high grade ore has been encountered.

This has been followed for a distance of over 400 feet. An upraise has been put through to the 300-foot level, and it is now the intention to sink a winze for at least 100 feet directly below this upraise. Should the ore body prove to be as strong at the 500-foot level, the upraise will be enlarged and pushed upward to the surface. This new shaft will have triple compartments, one compartment being reserved for sinking. It will



Jackson Quadrupler Centrifugal Pump for Hydrauliceng.

impracticable to obtain water under pressure by gravity. It may also be used to deliver a larger quantity under a nominal pressure should there be any call for same, for sluicing, or other purposes.

reach the surface on the Okanagan claim about 150 ft. from the west side line. Work has also been resumed on the west drift of the 300-foot level almost directly under the mill and there is to be an upraise

from this to the surface, should the showing be sufficiently encouraging to justify the expenditure.

A new 50 h.p. boiler has been ordered for the mill and will shortly be installed. Fourteen extra men have been sent for and the ground in the vicinity of the new shaft is being cleared and levelled.

Mr. H. Nicholson has a force of men at work on the Old England, and is opening up what is believed to have been an old channel of Rock Creek. Fair values are being obtained in the sluice boxes.

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.

A PRACTICAL MINER'S VIEWS.

TO THE EDITOR:—I am taking the liberty to address you on a subject all miners and prospectors are interested in, namely, the necessity of getting the legislature to repeal part VII. of the placer mining act referring to leases.

It is very difficult to get capital interested in prospecting, men of this class preferring to invest when value of mines are demonstrated. At present the prospector cannot now hold deep placer claims as he is required to hand over to the Government before obtaining a lease for mining purposes \$50 for Hill leases, and \$100 for creek leases, besides paying a heavy charge for water with which to prospect or operate a mine, if value is found upon doing exploratory work; second, an annual expenditure of \$1,000 to \$1,500 in labour on each claim is required annually in addition to the yearly rent of \$50 to \$100. Therefore, it is plain to see that no prospector or free miner can afford to explore and prove values of deep placers. There are vast areas of auriferous alluvials in the interior of British Columbia undeveloped, the existing laws accounting for the reason that this vast area is still undeveloped, unexplored and unproductive.

In regard to Crown grants to deep placer mines such claims should be on the same footing as Crown grants for mineral claims. Let us compare a deep placer mine to a mineral claim to illustrate the difference in deep placer mining and mineral claims. In the first place the deep placer miner frequently expends thousands of dollars in development work before he knows whether the ground is valuable or not. For example, we will take the Miocene Company of Horsefly. That company have expended over \$150,000 and do not yet know the value of their property. The Horsefly Hydraulic Mining Company have spent something like \$500,000 and are still prospecting. I could mention a number of other companies, while a mineral owner finds a prospect at the grass-roots and knows something of what he has got before doing much development work. It is plain therefor that a deep placer mine is entitled to more consideration at the hands of the government in regards to Crown grants than at present. Capitalists do not want leaseholds, they want a title to the ground before investing their money. And Crown grants for deep placer mines on the same conditions as mineral claims would cover the difficulties we are now working under.

Trusting you will find space in the next issue of your valuable journal to publish these suggestions and advocate the necessary legislation by the govern-

ment for the same. I am sir, yours very respectfully,
Black Bear Creek, Quesnelle Forks, B.C.

JAMES MOORE.

I also enclose the suggested amendments to the Placer Mining Act, as follows:—

MEMO OF SUGGESTED AMENDMENTS TO THE PLACER MINING ACT.

Amend section 2, Chapter 136, Placer Mining Act of 1899 to read as follows:—

Placer mines shall be divided into two classes as follows:—

Shallow Placers and Deep Placers.

Shallow Placer mines shall include all claims located on Creek diggings, bar diggings, bench diggings, dry diggings, and hill diggings, in newly discovered shallow placer mining districts.

Deep placer mines shall include all claims located on deep alluvial or other deposits of earth, gravel and gravel conglomerates (excepting rock in place) containing gold, platinum, osmiridium, or other valuable metals, minerals, or precious stones that shall be worked by the hydraulic, hydraulic elevator, drifting, or milling process.

Part VII. of the Placer Mining Act so far as it refers to leases should be repealed and amended as follows:—

DEEP PLACER MINES.

Section 1. Every free miner shall be entitled to locate and record a Deep Placer Mining Claim on any creek, bar, bench, hill, or plateau on any unoccupied and unreserved Crown land, but not more than two claims in the same locality, one of which shall be a creek claim. He shall be allowed to hold any number of placer mining claims by purchase, and every free miner may sell, mortgage, or dispose of his claim, or any part thereof, but in no case shall any free miner be permitted to locate and record a deep placer mining claim in a newly discovered shallow placer mining district without first obtaining the consent of the Gold Commissioner with the sanction of the Lieutenant-Governor-in-Council.

Section 2. The dimensions of deep placer mining claims shall be as follows:—

In creek diggings, or abandoned or unworked creeks half a mile in length.

Section 3. In other deep placer mining ground 80 acres, but in no case shall any deep placer mining claim extend along any creek, or river, more than 500 yards; creek diggings excepted.

Precious stone diggings 10 acres, but the right to mine for precious stones shall not include the right to mine for gold, or other precious metals, unless the ground be held also for that purpose under the provisions of this act.

Section 4. Every deep placer mining claim shall be as nearly as possible rectangular in form and marked by four legal posts at the corners thereof, firmly fixed in the ground; one of such posts shall be marked as the initial post and on that post shall be placed a legible notice in writing stating the name of the claim, its length and breadth in feet, and a general description of its boundaries commencing at the ini-

SHAPE OF
CLAIMS AND
HOW STAKED
OUT.

OTHER DEEP
PLACER MINING
CLAIMS.

PRECIOUS
STONES.

tial post marked No. 1, stating distance and general direction therefrom to each of the other corner posts, which shall be marked Nos. 2, 3, and 4.

Section 5. A deep placer mining claim shall not include any portion of any mining ground occupied by free miners, unless with the consent of such occupiers.

Section 6. Every free miner locating a deep placer mining claim shall record the same with the Mining Recorder of the district within which such claim is situate within fifteen days after the location thereof, if located within ten miles

RECORD OF
CLAIMS.

of the office of said Mining Recorder; one additional day shall be allowed for every additional ten miles or fraction thereof. Such record shall be made in the regular book of records kept by the Mining Recorder for that purpose, in which shall be inserted the name of the claim, the name of the locator, the number of the locator's free miners' certificate, the locality of the claim and a general description of its boundaries. A certified copy of the record shall be given by the Mining Recorder to the free miner or his agents. A deep placer mining claim which shall not have been recorded within the prescribed period shall be deemed to have been abandoned.

Section 7. A free miner shall not be entitled to a record of a deep placer mining claim until he shall have furnished the said Mining Recorder with all the above particulars and shall have paid in advance to the Mining Recorder the annual deep placer mining tax of \$25, together with the customary fees required for making such record.

Section 8. Any free miner having duly located and recorded a deep placer mining claim shall be entitled to hold the same for a period of one year from the date of the recording of the same and thence from year to year without the necessity of re-recording; provided, however, that during each year and each succeeding year, such free miner shall do or cause to be done work on the claim itself to the value of \$100 and shall satisfy the Gold Commissioner, or Mining Recorder, that such work has been done, by an affidavit of the free miner, or his agent, setting out a detailed statement of such work, and shall obtain from such Gold Commissioner, or Mining Recorder, and shall record a certificate of such work having been done, provided also, that all work done outside of a deep placer mining claim with intent to work the same shall, if such work have direct relation and be in direct proximity to the claim, be deemed, if to the satisfaction of the Gold Commissioner or Mining Recorder, for the purpose of this section, to be work done on the claim: provided, further, that any free miner or company of free miners holding adjoining deep placer mining claims, or any two or more free miners, who locate and record adjoining deep placer mining claims to be worked both in partnership under the provisions of any act for the time being in force, shall, subject to filing a notice of their intention with the Gold Commissioner or Mining Recorder, be allowed to perform on any one or more of such claims all the work required to entitle him or them to a certificate for work for each claim so held by him or them; provided, also, that such free miner or company of free miners shall pay in advance to the Mining Recorder the deep placer mining tax on each claim held by him or them. If such work shall not be done and such tax shall not be paid, or if such certificate shall not be so obtained

or recorded in each and every year, the claims shall be deemed vacant and abandoned any rule or law or equity to the contrary notwithstanding.

Section 9. The owner of a deep placer mining claim shall be entitled to all surface rights, including the use of all timber thereon for mining and building purposes in connection with the working of said claim, so long as he holds said claim for the purpose of developing the minerals contained therein, but no longer.

SURFACE
RIGHTS.

Section 10. Where the physical conditions surrounding deep placer mining claims intended for operations by hydraulic process, drifting process, or milling process, are such as to make it practically impossible to equip and operate each claim separately, it shall be lawful for the Gold Commissioner with the sanction of the Lieutenant-Governor-in-Council, to authorize a consolidation of such adjoining claims and water rights appurtenant thereto, so that they may be equipped and practically operated under one general system. Each application made to the Gold Commissioner for such consolidation of deep placer mining claims shall be accompanied with a deposit of \$20 and shall contain a schedule of the number of the claims and water rights desired to be so consolidated and shall also be accompanied with plats in quadruplicate showing the several adjoining claims and water rights desired to be so consolidated. If the application is granted the \$20 deposited by the applicant is to be retained to cover the cost of making out the necessary papers, and if not granted the the deposit is to be returned to the applicant. A copy of the plat shall be filed in the office of the Minister of Mines, the Gold Commissioner, the Mining Recorder of the Mining Division in which said claims are situate, and one copy shall be returned to the applicant with the notice of approval of consolidation. After receiving notice that such consolidation has been authorized, the holder or holders thereof shall be allowed in each and every year to perform on any one or more of such claims all the work that is necessary to be performed to hold the whole of such claims included in such consolidation. The holders of such consolidation may, in lieu of the required expenditure in work on such claims in each year, pay to the Mining Recorder of the mining division in which such claims are situate the sum of the aggregate amount required to be expended on the consolidated claims, together with the amount of the aggregate deep placer mining tax, and receive from such recorder a record and receipt for such payment and record thereof in any year shall relieve the person or company making it from the necessity of doing any work during the year in and for which and upon the consolidation of claims in respect of which such payment is recorded.

Section 11. Any free miner who is the holder of a deep placer mining claim, or mine, shall be entitled to a grant from the Gold Commissioner of such quantity of unappropriated water from any stream or lake together with the right and privilege to construct and maintain dams, gates, canals, ditches, flumes and pipe lines for the purpose of controlling such water as may in the opinion of the Gold Commissioner be necessary to work the said mining ground efficiently and shall have the right of way through any mining ground or unoccupied Crown lands, for

WATER RIGHTS.

the purpose of constructing canals, ditches, flumes, or pipe lines to carry said water to the deep placer mining ground so held. Said grant shall continue in force until said deep placer mining claim or mine or consolidation of such claims or mines are worked out or abandoned.

Section 12. Any lawful holder of a deep placer mining claim shall be entitled to a Crown mineral grant for the exclusive right to mine and extract the precious metals and minerals from said mining claim until the same shall have been worked out or abandoned on payment to the Government of British Columbia the sum of \$500 in lieu of expenditure on the claim. The intending purchaser of said right to mine shall comply with all the provisions of Section 36 of the Mineral Act and the amendments thereto concerning the application for Crown grants so far as they may be applicable to deep placer mines.

Section 13. The holder of a mineral grant for a deep placer mining claim or a consolidation of deep placer mining claims shall expend annually on each claim or mine containing 80 acres or less at least \$200 for exploratory or development work. Such work shall consist of manual labour, permanent improvements made on the mine in buildings, roads, shafts, tunnels, machinery, dams, canals, ditches, flumes, pipe lines, or any mining work necessary for the equipment or operation of such claim or mine.

Section 14. The holder of a Crown mineral grant for a deep placer mining claim, or mine, or a consolidation of deep placer mining claims or mines, may in lieu of the work required to be done by Section 13 of this Act on each mine or consolidation of mines in each year, pay to the Mining Recorder in whose office the mine or mines are located \$200 for each deep placer mining claim or mine so held and receive from such recorder a record and receipt for such payment of the deep placer mining tax, and the record thereof in any year shall relieve the person making it from the necessity of doing any work during the year in and for which upon the deep placer mining claim or mine in respect of which such payment is recorded.

Section 15. The holder of a Crown mineral grant for a deep placer mining claim or placer mine, or a consolidation of deep placer mining claims, or placer mines, shall pay annually the deep placer mining tax of \$25 on each and every placer mining claim or mine so held.

Section 16. The failure of the holder or holders of Crown mineral grants for deep placer mining claims or mines to comply with the provisions of Sections 13, 14, and 15 of this Act shall be deemed an abandonment and such mines shall be declared open for re-location by the Gold Commissioner or Mining Recorder of such district, who shall post notice to that effect on the bulletin board of his office.

Section 17. It shall be lawful for the Gold Commissioner with the sanction of the Lieutenant-Governor-in-Council to grant the right to lawful holders of leases of placer mining ground for hydraulic or deep mining purposes to avail themselves of the provision of this Act without in any way prejudicing the rights or other privileges appurtenant thereto. The

lawful holder of a lease for placer mining ground and water rights appurtenant thereto shall be entitled to a record for same dating back to the date of original lease and water grant so held as appurtenant thereto but in no case shall the holder of a lease be entitled to such record until he shall have fully paid up all leasehold rents due on such leases.

Sections 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, and 102 inclusive of Part VII. of the Placer Mining Act of 1898 and 1899, should be repealed.

NECESSARY AMENDMENTS TO THE PLACER MINING ACT.

TO THE EDITOR:—It appears to me that the best thing our mining journals could do to stimulate the development of the deep placer mining industries of the province would be to encourage Parliament to repeal Part VII. of the placer mining act referring to leases and so amend as to place deep placer mining claims on the same footing as mineral claims. It must be remembered that capital rarely explores or prospects for mines preferring to invest in properties where values in gold or mineral are demonstrated by the skill, industry and perseverance of the individual miner with his pick and shovel.

As the law now stands concerning the acquirement and holding of claims in deep placers, such as are suitable for operation by hydraulic process or hydraulic elevator process, the prospector is practically prohibited from taking up, holding or developing value in such claims for the reason that he is first required to produce and hand over \$50.00 to procure a lease; besides a large and unreasonable charge is made for water required to prospect with or operate if values are found upon doing exploratory work. Second: an annual expenditure of \$1,000 in labour or improvements on each claim is required in addition to the leasehold rent of \$50. to \$75 per annum.

It must be clear to any person having the development of the great placer deposits and the prosperity of the province at heart, that no prospector or free miner can afford to attempt to explore or prospect to prove values in deep placers.

This condition of affairs explains why the vast areas of deep auriferous alluvials known to exist in the interior of British Columbia are lying unexplored, undeveloped and unproductive.

Legislate and make favourable laws to encourage the prospector and he with his muscle and pick will explore and expose values in the deep auriferous alluvials that will attract and encourage the investment of capital. Give the deep gravel prospector the right to hold and explore his claim on an annual expenditure of \$100 and charge him \$20 per annum as a tax and it will not be long until thousands of industrious prospectors will be in the field and as many valuable properties discovered.

Large capital will be invested in development work necessary to place such properties on a productive and profitable basis and the deep placer mining industry will be producing many millions annually instead of less than a million as at present.

A large industry of this kind would encourage the settlement of the neighboring productive valleys by farmers and stock raisers who would find a ready market for their products. Numerous towns and villages would be built and occupied by thousands of

miners with their families, and prosperity would reign in the interior basin of Northern British Columbia as it does in the mining region of south eastern British Columbia, Idaho, Montana, Colorado, and the mining region of central California.

Trusting that you will see your way clear to encourage the necessary legislature through your valuable journal, I am, yours faithfully,

J. B. HOBSON.

The Consolidated Cariboo Hydraulic Mining Co., Bullion, B. C.

MACHINERY AWARDS AT THE PARIS EXPOSITION.

THE Jeffrey Manufacturing Company of Columbus, Ohio, was awarded a gold medal at the Paris Exposition for an exhibit of Elevating-Conveying and Mining Machinery. No doubt many of our readers who have enjoyed a visit abroad this summer have had the pleasure of seeing the exhibit of this Company.

The James Cooper Manufacturing Company, received the highest award of a gold medal for the exhibit of Ingersoll-Sergeant machinery at Paris.

A gold medal was also awarded the McLaren Belt Company, of Montreal, for an exhibit of belting, for the manufacture of which this firm is famous.

PRODUCING MINES.

ROSSLAND.

OUR Rossland correspondent telegraphs: Ore shipments from the Rossland mines for the nine months ending September 30th, amount to 143,000 tons, valued at \$2,288,000.

The following is a detailed statement of shipments to date:

	Year.
Le Roi.....	113,328
Centre Star.....	14,963
War Eagle.....	1,063
Le Roi No. 2.....	2,094
Iron Mask.....	1,435
I. X. L.....	370
Evening Star.....	351
Monte Christo.....	273
Giant.....	239
Iron Colt.....	80
Spitzee.....	20
Total.....	143,746

SLOCAN.

The Slocan shipments for the present year to date are valued at nearly \$1,500,000 in round figures, the Slocan Lake properties contributing about \$250,000 of the total value of output.

The shipments over the Kaslo & Slocan Railway in August aggregated 1,000 tons, of which 547 tons were from the Whitewater, 210 tons from the Payne, 104 tons from the Rambler-Cariboo, and 42 tons from the American Boy.

The mines on Slocan lake have shipped ore of the approximate value of \$250,000 since January 1st. The shipments were from the following named mines:

	Tons.
Bosun.....	740
Hartney.....	20
Capella.....	7
Emily Edith.....	20
Hewett.....	70
Vancouver.....	80

	Tons.
Wakefield (concentrates) ..	680
Galena Mines.....	20
Enterprise.....	880
Nee-pawa.....	7
Arlington.....	300
Black Prince.....	60
Kilo.....	20
Total.....	2904

NELSON.

The following are the returns from the Athabasca mine for August:

Period of run.....	30 days, 14 hours
Tons crushed.....	430
Bullion recovered.....	\$12,525
Concentrates.....	4,875

Total.....	\$17,400
Value of bullion recovered per tons ore crushed.....	\$29 13
Value of concentrates recovered per ton ore crushed.....	11 33
Total values recovered per ton ore crushed ..	40 46

Corrected returns for July place the total values recovered at \$18,350.

The Venus produced during the present month two gold bricks valued at \$1,000 and \$1,200 respectively.

During the month of August the Granite mill crushed 1,265 tons of ore, which produced 593 ozs. of gold and 36 tons of concentrates, of a gross value \$11,074.

The shipments of the Queen Bess mine to the Nelson smelter during August amounted to 115 tons, the returns upon which aggregated about \$6,000.

BOUNDARY CREEK.

The mineral output from this district is now nearly 2,000 tons weekly. Particulars of production are contained in the letter of our special correspondent.

CAMP M'KINNEY.

The Cariboo continues to produce at the rate of \$20,000 per day, crushing 50 tons daily.

YMIR.

The official returns for August of the Ymir mine are as follows: During the month 4,650 tons were milled, producing 2,340 ozs. of bullion, 298 tons of concentrates. Have shipped 278 tons of concentrates. Total receipts for the month are \$35,600; expenses, \$11,600. In addition to the above outstanding car concentrates, \$600; car smelting ore, \$950; total, \$37,150. The profit for the month on the foregoing figures is \$25,550.

EAST KOOTENAY.

The shipments of clean ore from the North Star and Sullivan mines in the Fort Steele district for August amounted to 2,660 tons, or 120 carloads, showing a slight decrease from July. The output will be largely increased this month, as the Sullivan is now using machine drills instead of hand.

MOYIE.

The shipments of concentrates by the St. Eugene Consolidated Mining Co., Moyie, for the month of August amounted to 1,900 tons.

ATLIN.

The estimated gold output for the season of this camp is placed at a value of one million dollars.

VANCOUVER ISLAND.

The production of the Lenora mine, Mount Sicker, now averages 1,200 tons monthly, the ore running \$2.50 in gold, \$2.50 silver and 10 per cent. copper, wet assay test, per ton.

In the annexed table from the B. C. Review are compiled the returns to date of those companies whose crushings in ore shipments are available. Owing to the irregularity with which some of these returns are published the list is necessarily incomplete.

NAME.	April.	May.	June.	July.	August.
Athabasca	\$ 9,385	\$ 18,500	\$27,400	\$17,100	\$17,200
Bosun (B.C.)	—	\$ 4,966	\$ 5,592	\$ 4,811	—
Granite	\$ 7,100	\$ 11,250	\$ 7,600	\$ 9,550	\$11,100
Hall Mines	—	—	—	—	—
Hastings	—	—	—	\$ 5,500	—
Klondike Govt. Concs.	—	1,400 ozs.	1,838 oz.	—	670 ozs.
Le Roi	\$119,000	\$219,000	\$227,500	\$248,000	\$49,000
Le Roi No. 2	—	—	—	—	\$ 3,900
Mikado	894 oz.	875 oz.	944 ozs.	921 ozs.	—
McDonald's	—	—	—	2,075 ozs.	1,409 ozs.
Nimrod	—	—	—	*62 ozs	—
Queen Bess	\$ 6,600	\$ 2,600	\$ 5,900	\$ 6,700	\$ 5,300
Whitewater	\$13,500	\$ 4 750	\$ 9,250	\$14,500	—
Ymir	\$25,000	\$ 21,431	\$10,700	\$25,500	\$25,550
Yukon Goldfields.....	\$27,375	\$ 22,518	\$20,572	\$23,500	\$23,000

* Trial crushing. † Mill idle 21 days.
‡ These figures represent profit, not gross values.

COAL EXPORTATIONS—AUGUST.

	Tons.
New Vancouver Coal Co.	41,070
Ladysmith	31,085
Union	18,070

Total 90,225

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

Date.	Vessel and destination.	Tons.
6—	SS. New England, Alaska.	49
7—	SS. San Mateo, San Francisco	4,414
11—	SS. Mineola, San Francisco.	3,449
13—	SS. Titania, San Francisco	5,783
15—	SS. New England, Alaska	53
18—	SS. Robert Adamson, San Francisco	4,546

Total 18,294

THE METAL MARKET—SEPTEMBER.

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

SILVER.

SILVER has been steadily advancing this month on a strong market. A slight check, however, occurred during the last week on the completion of the Imperial mint order, the price receding to 28½d., but at this price large purchases were made from India, and the market closed firm at 28 13-16d. The latest New York quotation is 62¾, the highest price during September being 62¾. The average price in August was 61.14.

COPPER.

The market has been strong and active. Consumption continues good, and the demand for both early and future shipment is heavy. Spot copper continues to be scarce, in this country as well as in Europe. Production in America was 2,000 tons less during the month of August than during the previous month, and, with the present rate of consumption continuing, this, of course, tends to still further strengthen the position of the article. Lake copper is quoted at 16½@16¾c.; electrolytic in cakes, wire-

bars and ingots, at 16¾@16½c., in cathodes at 16½@16¼c.; casting copper at 16¾c.

LEAD.

Lead is in heavy demand and the market is active. Prices, however, remain steady. The latest quotations are: New York, 4.32½@4.27½; St. Louis, 4.27½@4.32½.

SPELTER.

A fair business is reported, prices remaining unchanged at 4.10 New York; 3.95 St. Louis.

PLATINUM.

For ingot platinum in large quantities \$18.20 per Troy oz. is quoted in New York.

QUICKSILVER.

The New York quotation continues at \$51 per flask for large lots, with \$52.50@54 asked for smaller quantities. San Francisco prices firmer, \$49@50 being named on local deliveries, and \$44.50@45 on export orders. The London price is now £9 2s. 6d. per flask.

THE LOCAL STOCK MARKET.

WE are indebted to Messrs. Foulkes & Co., of Victoria for the following report: The past month taken as a whole has not been an entirely satisfactory one to holders of British Columbia stocks. In isolated instances there has been a marked improvement in prices, but the general advance which was expected has been conspicuous by its absence. As matters at present stand, the Eastern markets control the situation, and except for their local stocks they are neither buyers nor sellers, the Eastern brokers at present merely acting as middlemen for the sale of B. C. stocks, which they buy and sell in Spokane and the Coast cities, their only interest being the commission which they manage to secure upon the transaction. As a consequence the Toronto and Montreal market quotations are absolutely unreliable, the divergence between the quoted buying and selling prices being so great as to prevent intending purchasers who allowed themselves to be influenced thereby from doing business with their local brokers, who find it impossible to buy within fifty per cent. of the price at which stocks are quoted as being offered at in the Eastern markets. A remedy will have to be found for this state of affairs or the Coast investors will refuse to recognize the Eastern exchanges. Iron Mask on the strength of the settlement with the Centre Star advanced to 45 cents, but it has fallen at least ten points since the first announcement. Athabasca is quoted at \$6.50, an improvement of nearly two dollars per share during the month. Rambler Cariboo is steady at 24½, and were it not an underlying suspicion that this stock is open to manipulation, there would be a very marked advance in its price. Noble Five is quoted at 5½c. and a peculiar feature of the market in this stock is that at periodical intervals all the cheap stock in the market is absorbed by insiders. This stock will probably advance very considerably before Christmas, if reports of the present development work turn out correct. American Boy has trebled in price since the first of the month, and this mine has a future before it, almost equal to that of the Payne or Last Chance. Cariboo Camp McKinney has recovered from the listlessness which characterized it during the summer months, but it is still 25 per cent. below its intrinsic value.

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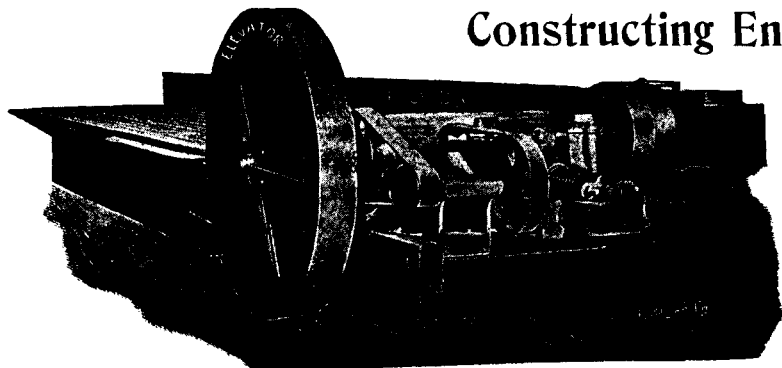
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**NOTICE.**

APPOINTMENT OF DEPUTY MINING RECORDER.

UNDER AUTHORITY of Order in Council passed December 30th, 1899, the Honourable the Minister of Mines has been pleased to sanction, and I do hereby give notice that I have appointed Edward Elwell, of Kimberley, a Deputy Mining Recorder of and for the District known as the vicinity of Kimberley, in the Fort Steele Mining Division, with sub-recording office at Kimberley.

J. F. ARMSTRONG,
Gold Commissioner for Fort Steele M.D.

NOTICE.

APPOINTMENT OF DEPUTY MINING RECORDER.

UNDER authority of Order in Council passed December 30th, 1899, the Honourable the Minister of Mines has been pleased to sanction, and I do hereby give notice that I have appointed P. Douglas Hope, of Moyie, a Deputy Mining Recorder of and for the District known as the vicinity of Moyie, in the Fort Steele Mining Division, with sub-recording office at Moyie.

J. F. ARMSTRONG,
Gold Commissioner for Fort Steele M.D.

NOTICE.

APPOINTMENT OF DEPUTY MINING RECORDER.

UNDER authority of Order in Council, passed December 30th, 1899, the Honourable the Minister of Mines has been pleased to sanction, and I do hereby give notice that I have appointed Henry Nicholson, Esquire, of Camp McKinney, a Deputy Mining Recorder of and for the District known as Camp McKinney, in the Kettle River Mining Division, with sub-recording office at Camp McKinney, vice Charles Winter, Esquire.

WM. G. McMYNN,
Gold Commissioner for District.
Greenwood, B.C., 7th September, 1900.

NOTICE.

APPOINTMENT OF DEPUTY MINING RECORDER.

UNDER authority of Order in Council, passed December 30th, 1899, the Honourable the Minister of Mines has been pleased to sanction, and I do hereby give notice that I have appointed William J. Rant, of Bennett, a Deputy Mining Recorder of and for the District known as Porcupine Division, in the Bennett Lake Mining Division, with sub-recording office at Pleasant Camp, Dalton Trail, B.C.

J. D. GRAHAM,
Gold Commissioner for District.
Atlin, B.C., 21st August, 1900.

DEPARTMENT OF MINES,

15th August, 1900.

THE following copy of a letter addressed to His Honour the Lieutenant-Governor, by the Imperial Consul of Russia, at Montreal, covering a translation of a notification with regard to prospecting for gold and mining in the Maritime Province of Eastern Siberia, is published for the information of those whom it may concern.

RICHARD McBRIDE,
Minister of Mines.

IMPERIAL CONSULATE OF RUSSIA IN CANADA.

No. 81.

Montreal, 20th July, 1900.

Sir,—By order of my Government, I now lay before Your Honour the annexed notification relative to the prospecting for gold on the Territory of the Russian Empire, with the request that you will have the kindness to communicate its contents to the Government and to the business and industrial community in the Province of British Columbia.

I avail myself of this opportunity to request Your Honour to accept the assurance of my greatest consideration.

(Signer) N. DE STRUVE,
Imperial Consul of Russia.

To His Honour

Sir H. G. Joly de Lotbiniere,
Lieutenant-Governor, etc., etc., etc.

NOTIFICATION BY THE IMPERIAL GOVERNMENT OF RUSSIA.

1. Foreigners are not allowed to prospect for gold in the Maritime Province of Eastern Siberia, including therein the District of Anodyr and the Peninsulas of Kamtchatka and Tchuktchi, except such private individuals or companies as may be admitted by virtue of a special authorisation by the Imperial Government.

2. The prospecting for gold and the working of gold mines by Russian subjects are specially regulated by law.

3. The Imperial Government has granted to Colonel Vonliarliarsky, who is at the head of a society of Anglo-American capitalists, the exclusive right of taking out minerals of commercial value (mineraux utiles) on the Territory of the Peninsula of Tchuktchi, and in consequence of the exclusive grant so made, all other parties are absolutely forbidden to carry on the same industry in that Territory.