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THE MONTH.

AN important meeting of the Executive Committee of the Provincial Mining Association was held in Victoria during the past month, the chief business being the presentation to the Legislature of the recommendations made by the Association at its first convention in February last with regard to proposed changes in the mining laws and the introduction of new measures with a view to improving the conditions and promoting the welfare of the industry in the Province. Among the suggestions brought forward were the following: The appointment of a competent geologist, "who has had experience in examination and classification of auriferous alluvial deposits" to report during the present season on the geological conditions and mineral resources of the placer mining districts; the amendment and modification of the tariff fees chargeable on the incorporation, registration or licensing of companies; the abolition of the "two per cent. tax," and the substitution of a more equitable form of taxation therefor; the discontinuance of the practice of collecting timber dues from mine and mineral claim owners, when the timber is used for mine purposes; the securing of information and advice from both mine owners and miners relative to the working of the mine-signals code, in order that it may be made as perfect as possible; the granting of six months' grace for the redemption of mineral property sold for taxes; the

abolition or amendment of the clause in the Mineral Act imposing the penalty of forfeiture for failure to renew a free miner's certificate; the inclusion, for the purpose of taxation, of Crown granted mineral claims under section 145 of the Mineral Act, reading "all groups of Crown granted claims upon any one of which claims the assessment work for the whole group may have been performed," thus freeing the unworked claims of the group from taxation; the taxation of mines on the basis of the "net annual income resulting from the product of the mine"; the reduction of the fee charged for the issuance of a Crown grant when applied for by the original locator or discoverer of a claim; the suppression "by prosecution or otherwise," on the part of the Government of "wild-cattling"; the institution of an enquiry by the Government concerning the working of the "Boiler Inspection Act" with a view to the removal of existing dissatisfaction; the appointment of a commission to enquire into "existing relations of employer and employee engaged in the mining industry in this Province," said commission to act in the meantime as a Conciliation Board; the issuance of Crown grants on placer claims; the opening of Indian reserves for mining purposes; the expenditure of larger sums annually on the construction of roads and trails throughout the mining districts; the revision of the Mineral and Placer Mining Acts in view of the ambiguity of many of the clauses; and the abrogation of the powers of local agents or attorneys under the Companies' Act, for the sale or transfer of stock or property.

It would appear almost an impertinence on our part to in any way question—and we do not propose to do so—the wisdom of any of these recommendations, embodying as they do resolutions which were approved of by a body as representative as it was possible to make it of the mining interests of the Province, but it may very properly be pointed out that during the three days the Mining Convention was in session as many important questions (some of them of a decided controversial character) were introduced and disposed of as would have occupied the attention of the Legislature for at least as many months. Of course this is easily explainable on the grounds that we had at the Convention a body of men who knew exactly what they wanted and consequently had no occasion to waste time in arriving at that point. But at the same time, we submit, that if any errors of judgment have been made, if some of the recommendations made to the Government are found impracticable or after all not quite in the best interests of the public—and we do not suggest at present, that this is the case at all—then such mistakes must certainly be ascribed to the unavoidable haste in which the business before the Convention was completed. In the future it will not be necessary for any

risks to be taken on this account, for it will be a comparatively easy matter to arrange for notice to be given well in advance of any annual meeting of delegates of the more important matters to be debated, so that district organizations may first thoroughly discuss these questions from the local standpoint and instruct their representatives accordingly.

Taking the sixteen or seventeen recommendations made to the Government—all of them admirable in their way and some certainly demanding every consideration—we find that quite a large proportion of them suggest that present sources of revenue should be either cut off altogether or considerably reduced, while another large proportion advise a greater expenditure of public funds. The Government in considering such proposals must necessarily be influenced in some measure by the exigencies of the hour. They are told that if certain courses are pursued capital in very largely increased amounts will flow into the country, that new industries will spring into existence, and that as a natural sequence, population and permanent settlement will result. But however much we may believe these statements, it should not be forgotten that the problem confronting Provincial legislators is no easy one; money is required for the administration of the affairs of the country; the greatest difficulty is at present experienced in providing the necessary revenue from present utilized sources to meet that expenditure; our borrowing powers are limited and money can now only be got at an exceedingly dear rate. It is for the Government to carefully consider whether or not the predictions made by those who desire changes in the law, but which meanwhile would have a direct present effect on the revenue of the Province, are based on any reasonably sure foundation. They are called upon to determine whether they are justified in reducing that revenue and at the same time increasing the expenditures on merely an assurance that the Province will enjoy a greater measure of prosperity in the future. Consequently, if the Mining Association finds that the Government does not embrace immediately all the suggestions that have been tendered, we do not think that the Association need feel thereabout that its advice is not valued or that its influence is in any way lightly regarded.

We propose now to discuss in brief some of the matters presented to the Government by the Executive Committee of the Association, leaving for the time being the question of revenue on one side. The suggestion that the Government should appoint a geologist to examine and report on the alluvial deposits of the country is a most commendable one. It is quite too much to expect that our Provincial Mineralogist, who, while no doubt having a fair all-round knowledge of mining and metallurgy in its several branches and in more than one branch may be regarded as an expert authority, should be a specialist in all lines, and a really comprehensive report from a recognized authority on the alluvial gold deposits of British Columbia would undoubtedly be of the greatest possible value and interest to prospectors and to the investing public. Prob-

ably the best report on the Cariboo and other gold fields yet published was that prepared many years ago for the Geological Survey Department by the late Dr. Dawson in his work on the "Mineral Resources of British Columbia." There is much in this report that might be advantageously included in any new treatise on the subject; in fact, few additions are required beyond the recording of developments since that time, and more extensive reference to the commercial in contradistinction to the scientific side of the matter.

We confess to not being in accord with the proposal to reduce the fees for joint-stock company incorporation registration or licensing, or in respect to the reduction of the charge made for companies' "free miners'" certificates. No desirable company, namely, one adequately capitalized and formed for the purpose of mining along legitimate lines would be in any way deterred from operating in British Columbia by reason of the present moderate imposts. On the other hand, to reduce these charges would be to further encourage the generally impecunious wild-cat sharpers, who would thus escape from contributing to the public treasury the sufficiently moderate amounts they are now compelled to pay. For the very purpose of limiting the promotion of over-capitalized and wild-cat concerns the present tariff charges were incorporated in the Act at a time when the evil was at its height some few years ago. The effect was good and to our mind there is an advantage in repealing or modifying a measure which has proved useful merely because the evil at which it aimed is temporarily less in evidence.

Of the "two per cent." tax little need be said here, for the Government has already taken this question under advisement, proposing to rectify the injustice complained of, and will no doubt devise a system of taxation which will be more acceptable to the mining community. This change, we understand, contemplates the imposition of a tax on the net annual income of mines. If no difficulties present themselves in the matter of arranging for reasons to be made upon an approximately equitable basis, the proposed change from a tax on gross output would appear to be well conceived.

There can be no two opinions as to the justice of the demand that the Government should discontinue the practice of collecting stumpage dues on timber used by the miner for mining purposes and cut on his own claims. The Act distinctly states that a claim owner is entitled to the timber so obtained and used, and yet the royalty has been regularly demanded and generally paid, though nearly always under protest. It is to be hoped that the mining district officials will be at once instructed in the proper interpretation of the law as it stands.

In convention a strong pressure was brought to bear and resolutions were introduced for the repeal of the code of mine signals embodied in the Metalliferous Mines Inspection Act, and of the clauses relating to the inspection of boilers in the Boiler Inspection Act.

The resolutions as introduced were not, however, permitted to carry, for it was shown that employees in whose interests these regulations had been placed on the statutes were strongly adverse to their removal on the grounds that that they were perfectly workable and had had, since in force, the desired effect of promoting the safety of respectively, miners working underground and of men employed about boilers. The objection, however, to the signal code was that it is "unwieldly" and moreover, it was stated, no code could be devised that would be equally applicable to the working of both large and small mines. The operation of the Boiler Inspection Act, it was also pointed out, involves unnecessary hardships and expense to the mine operator, and on these presentations the Convention offered the very sensible suggestion that the Government should be required to ascertain the views of those affected by the operation of these Acts with a view to remedying, if possible, any objectionable features. It is absurd, as Mr. Kirby has said, that mining companies, realizing their responsibility as regards the lives and safety of their employees, and liable for very heavy damages in the case of accidents, should desire for the sake of avoiding comparatively trifling inconvenience or expense, any regulations or laws for the prevention of accidents amended if in consequence the risks of accidents occurring would be increased. At the same time we are assured that in such cases as these the Legislature will consider the wishes of the workmen as paramount, and employers can therefore only expect a modification of the existing regulations after thoroughly satisfying their employees that the changes they suggest are really desirable from their, the workmen's, point of view.

Several amendments have been suggested to the law in respect to Crown granted claims, all of which recommendations are on right lines. Thus no one can possibly object to the suggestion that a period of six months should be allowed for the redemption of Crown granted mineral property seized for taxes in arrears, more especially as owners of other classes of property are accorded this privilege. Then it is also a reasonable proposal that a company or syndicate owning a group of Crown granted mineral claims and wishing to concentrate operations on one, should, provided this work is equivalent in the aggregate to what is required to be done by law in the case of individual claims to entitle the owner to exemption from the tax on unworked property, that taxation on the remaining claims of the group should be remitted. The third proposal that the Government should issue Crown grants at a reduced fee to the original locator or discoverer was introduced by the Association with the object of affording additional encouragement to prospectors. It is not, however, a matter of much practical moment. The present fee of twenty-five dollars is not excessive, and we have not heard of a case of a prospector who attached sufficient value to claim to secure a Crown grant of it, raising any objection on the score that the fee charged was exorbitant or beyond his means to pay.

Another well intentioned, but, we fear somewhat

impracticable suggestion, is that the Government should take steps "for the suppression of fraudulent statements regarding mining properties in the Province made with a view to inducing the public to buy shares in such properties at outrageously exaggerated prices"; the steps proposed being "by prosecution or otherwise" of the perpetrators. As we have remarked, it would, for obvious reasons, be very difficult for the Government to act in this matter. We do not pretend to any legal knowledge, but it seems to us that the only grounds upon which the authors of fraudulent statements in connection with mining property could be prosecuted would be on the charge of obtaining money on false pretences. But as a general thing the promoters of wild-cats do not attempt to sell stock to the British Columbia public, and consequently it would not be often that swindlers of this class would come within reach of provincial legal jurisdiction. At the same time our Mines Department might well do a great deal more to warn the public against the more flagrant instances of wild-cattling; though as long as the Department continues to issue a Report but once a year such departmental interference must necessarily be largely ineffectual. It may be said here in passing that the State Mineralogist of California has of recent months accomplished much in the way of discouraging fraudulent mine-company promotion in that State. But the duty of warning the public against swindling schemers should perhaps rest not so much with the Government as with the local press, and we venture to say that if the newspapers of the Province recognize more fully their responsibility in this regard, there would be little occasion for Government intervention. Meanwhile the resolution as it stands serves an excellent purpose as registering the protest of so representative an organization as the Mining Association, and further as affording an assurance to mining investors on the outside that an endeavour is being put forward by this body to safeguard their interests.

The fact that during the present session of the Legislature two important remedial measures have been introduced largely along the lines suggested by the Convention is a further testimony of the useful work the Association has been able to accomplish. It is, as we have stated, the intention of the Government to amend the unfair incidence of the "two per cent." tax on mines in accordance with a promise made to the Convention by the Premier; but a still more important measure is the Conciliation Bill framed for the purpose of preventing strikes and lock-outs with the consequent general disturbances of industrial conditions resulting therefrom. It is more than probable that the Government in bringing down this Bill were influenced both by the recommendations of the Association, and by the practical demonstration by the Association's Conciliation Committee of what conciliation may effect when the matters in dispute requiring adjustment are left in the hands of a board of independent, disinterested and honest men. It is to be hoped, however, that the Bill as introduced will be modified in respect to the penalty, clause 3, before becoming law. There is, at present, at least no occasion for quite so drastic a

measure as that proposed, and we imagine that both employers and employees will be satisfied if the Legislature contents itself with passing a general Act providing the machinery for the speedy settlement of labour disputes. At the Convention the opinion of the Association was clearly against what is known as "compulsory arbitration," for the reason that such a system is both unnecessary and only questionably workable.

We now come to the consideration of perhaps the most important of the recommendations submitted to the Government—the matter of Crown granting placer claims. At the Mining Convention a resolution was practically unanimously carried in favour of this proposal, after the reasons for its adoption had been advanced by the advocates of the measure. A minority at the meeting, however, lodged a protest against the passage of the resolution on the grounds that the effect that such amendments as suggested would have, had not been adequately discussed or considered. The recommendation was subsequently debated at length by the Executive Committee, one member only dissenting to its provisions as finally submitted to the Legislature. We should not have referred to the opposition to the proposal but for the fact that recently a number of placer miners in the Atlin District and also, we understand, at Stanley, have expressed themselves as being opposed to the Crown granting of placer ground or to any of the changes that it is proposed should be made in the Act. At the same time we are obliged to recognize that the present title obtainable for hydraulic and deep level ground is not a satisfactory one; that as long as the title is not secure it serves to discourage the investment of capital in large undertakings of this nature; and finally that there is nothing revolutionary or novel in the request that has been put forward, for it is merely that the placer miner should be placed on the same footing as the quartz miner, and that we should accept as a basis for the remodelling of our placer mining laws an Act under which placer and hydraulic mining has been successfully carried on for years in the United States where conditions are precisely similar. It is, of course, out of the question for the prospector to attempt to hold hydraulic ground under the present system. Some are inclined to doubt whether under any other system mining property of this character could or would be developed by prospectors. But the fact remains that deep alluvial ground has been successfully developed by individual miners in California under favourable conditions of tenure, and if the Crown granting system will afford to this class in British Columbia any further encouragement it is certainly a strong argument in its favour. The objections raised to the recommendations appear to be first that the introduction of the Crown granting system would result in the "tying up" of enormous tracts of territory, and secondly that the country would suffer a serious loss of revenue by the abandonment of the leasehold system. Under the present leasehold system, fifty dollars per annum is paid annually for the right of leasing eighty acres of ground, and further it is obligatory that the work should be continuously prosecuted on the pro-

perty. The life of a lease is twenty years, and consequently the Government would receive during that period a thousand dollars, and presumably something like twenty thousand dollars would have been expended in development work. The proposed change would only necessitate the expenditure of four hundred dollars payable in cash to the Government and reduce the amount of development work legally required to the equivalent of an expenditure of five hundred dollars. A reply to these objections is that in spite of existing regulations large areas are held unworked from year to year, and if this objection proved in actual practice to be really valid, the evil is open to easy regulation by the imposition of a considerable taxation on unworked claims, but that as a matter of fact there is little likelihood of speculation on such lines for hydraulic ground can have no value until it has been thoroughly prospected and tested—in itself requiring a large outlay. On the score of revenue, it is expected, that any deficit in the one direction would be more than compensated for in another by a tax of 50 cents per acre on Crown granted ground and a charge of 5 cents per inch for the water used in mining.

This seems to us to be a fair representation of both sides of the case and our readers are therefore in a position to form their own conclusions. If, meanwhile, the proposed changes appear too radical a compromise here suggests itself. We think it is admitted that better title should be granted to operators of hydraulic and deep level mines whose *bona fides* have been established. As a further precaution then against the holding of property for speculative purposes, absolute title might be withheld in all cases where the equipment of a property was not up to a standard requirement. But in that case the argument in favour of the prospector falls to the ground.

It is with very great regret that we learn that the American Institute of Mining Engineers has been compelled to abandon the proposed British Columbia meeting this summer for the reason that the transportation companies being unable to provide return-journey special car accommodation for the party, in consequence of the "unprecedented demand for cars for the regular traffic." The acting secretary of the Institute, Mr. Theodore Dwight, writes meanwhile that "Applications and negotiations in every possible quarter have resulted in the conviction that it is impossible to secure even a special train for the journey to British Columbia and back." We suppose we should express gratification at this evidence of Canadian industrial activity and prosperity, but one is inclined to discount the point of the explanation in one's natural feeling of annoyance at the abandonment of an arrangement from which British Columbia was certain to have realized very substantial benefit.

Now that so much more attention is being directed to the gold-dredging possibilities of the Fraser and other rivers, the news that alluvial gold mining machinery not manufactured in Canada—but there's the rub—may be imported free of duty is very welcome. We have already heard of a number of new enterprises that are to be undertaken this season, and now that conditions are better understood the proportion of failures should not be great.

An active season is anticipated this year in the Big Bend, one of the most promising of the outlying districts. Placer mining is being vigorously prosecuted on Smith, Camp, McCullough and French Creeks, and large consignments of machinery suitable for deep level mining have already been sent in. Lode mining is being extensively carried on at Carnes Creek, Standard



Mr. L. W. Shatford, of Fairview, a member of the Executive Committee P. M. A., representing Commercial interests.

Basin, Downie Creek, Laforme Creek and on Keystone Mountain. Excellent reports have also been received of the development of the mica properties in this region.

Hardly a day passes without the arrival at the office of the MINING RECORD of a request or requests for specimen copies of the periodical. Some of these are worded in a more or less picturesque way, but here is one from Richmond, Kentucky, entirely characteristic:

"Richmond Ky.

"Our commissioner said this morning that British Columbia was the greatest country in North America. I suppose he meant in a mining way, as he is an old miner. He is inclined to be erratic and therefore extravagant in his statements at times. I think he was in one of those moods this morning. Anyway my interest is aroused. Please send me a copy of your journal and terms."

The British Columbia Financial Trust which now proposes to go into voluntary liquidation is one of the many London promotions which have been of no credit to the Province or to themselves. At a recent meeting of shareholders—a sort of funeral service over the corpse of a suicide—it came out that while the company was formed in 1897 the shareholders had received no statement of accounts or balance sheet since 1899. The directors, whom, it was shown, had received fees amounting to £3,000 to console them presumably for the loss of £50,000 of other people's money, had entered a further claim for arrears, and were openly accused of questionable conduct, which charge was not denied.

A correspondent, a prospector, writing to the New Denver *Ledge*, makes the very sensible suggestion that steps should be taken to compel claim holders to fence in, or in the case of abandoned ground, fill in, shafts or prospect holes, which otherwise are a source of danger. He remarks: "The country is getting full of old abandoned prospects whose shafts and upraises are not properly guarded. I think the law should require all such places to be filled, and until they are filled and abandoned, to be kept guarded by clearing the brush and dirt away for at least six feet around the hole, and be fenced in by a railing. This would give a man a chance for his life. I know the danger, as some of the workings I have seen will soon be entirely covered with brush. Upraises are the most dangerous; there is nothing but the hole, and it soon grows over."

Much indignation has been expressed at the action of the Crow's Nest Coal Company in advancing the price of coke from \$4.25 to \$4.50—a difference which it is said, adds in round figures a hundred dollars a day to the expense of operating the large smelters in the Boundary District. Of course even at the advanced rate the price of Crow's Nest coke is a good deal below the price of this commodity obtainable elsewhere, but that is hardly the point. The Crow's Nest Company claim also that it pays them better to sell their raw product at \$2 per ton at the mines than to manufac-

ture coke even at the price now demanded, which may be equally true. But if the Crow's Nest Coal Company had not a monopoly, would the price of coke have been advanced in so arbitrary a fashion? So long as the Crow's Nest Coal Company continue to enjoy a monopoly there can be no certainty of continuous prosperity in the metalliferous mining districts of the Kootenay and Yale. That already has been clearly demonstrated.

There is a good deal of unconscious humour in the following statement of the chairman of a Rand mining company, speaking at a shareholders' meeting on the subject of the native labour problem: "He (the chairman) denied the allegations made in the London Press of the mine owners being slave drivers, and he affirmed that the food and pay given to the natives rendered their condition infinitely better than that of the London poor. He pointed out that the Native Labour Association would prove one of the greatest civilizing agencies in the history of South Africa by opening up new districts and giving the natives a knowledge of work and a taste of luxuries, and thus preparing the way for the trader and the missionary."

If the point of the argument is to be found in the last paragraph, it is surely an unsatisfactory one, for while the savages of Africa may require a "knowledge of work" there is certainly no necessity to teach them that a missionary is a luxury. He is not even an acquired "taste."

The catastrophe, which occurred at the close of last month at Frank, Alberta, a small coal mining town on the line of the C. P. R. at the south-eastern borders of British Columbia, was of an unlooked for and appalling character. Without warning huge masses of rock became detached from near the summit of the mountain and sweeping down the hillsides swept with irresistible force into the valley beneath, carrying death and destruction to the village. The loss of life was chiefly among the women and children living in cottages, which were buried under the avalanche of rock, the men who it was first thought had been buried for ever in the mine by the sealing-up of the entrances to the tunnels, managed to dig their way out, without assistance from a rescue party. This was the one gleam of light in this most sad and deplorable affair. The destruction of property and machinery was also very considerable, and the blow is a very serious one to the coal company operating the Frank mines.

British Columbia is not the only country in which the question of mine-taxation is a burning one. Thus we

learn that steps are being taken in Idaho to test the validity of the law enacted by the last Legislature of that State, providing that mines shall be required to pay taxes only on their net output. We imagine, however, that it is not the mine owners who in this case are raising objection. *Apropos* of the subject of mine-taxation, our contemporary, the *Mining Reporter* (Denver) remarks that "Outside of a nominal acreage assessment which surface real estate would bear, it is difficult to equitably assess that which constitutes actual mine valuation, because its commercial value is not easily established. Shafts, tunnels and levels, run for the purpose of exploration, should not be considered assessable, for of themselves they are non-productive. The ore that is capable of being valued and measured in a mine is the real property; and the conditions and locality always should enter in when it comes to making an assessment based on present commercial value. In strictly mining communities, where mining is the chief industry, the *pro rata* taxation, as between mine and mine, is usually quite satisfactory, because mining conditions there are more clearly defined. The necessity of raising a certain amount by taxation is recognized and a tolerably equitable basis is generally established. But in countries having a great diversity of industries there naturally arises some friction as to the proportion of public burden each industry shall bear. All of which is much to the point.

Both the Rossland newspapers publish articles recently commenting favourably on the progress of mining in that district during the past few years and speaking in most hopeful terms of the outlook for the immediate future. The *World* points out that the Le Roi in something less than four years has, after paying the expenses of development and working, earned nearly half the amount of its capital—although, of course, this has not gone into the pockets of shareholders in the form of dividends. The reasons for which are well known. The showing, too, of the other big mines is also far from unsatisfactory. Meanwhile the *Miner* states that this year a great deal more activity is being shown in the development of the "partially developed mines." The Giant, for example, has again resumed operations and is more than paying its way; a large concentrator is to be set up on the White Bear, which is rapidly becoming an important mine; the Jumbo is to be again operated in a few weeks' time, as also the Novelty; a considerable sum of money is to be expended on the further development of the Spitzee; on the Iron Mask, the I. X. L. and O. K. work has been resumed, and it is said the California will also shortly be worked; in the Centre Star richer ore is re-

ported to have been encountered and both this mine and the War Eagle are making extensive shipments; the Great Western is to be unwatered early next month and altogether it would appear that Rossland is about to witness a new era of increased activity and continued prosperity. The price of copper meanwhile is satisfactorily high, smelting costs are reasonably low, the labour conditions are settled, and in the background is the great possibilities awaiting the development of the economic treatment of the lower grade ores by methods of concentration to be shortly introduced.

We have on several occasions called attention to the unbusinesslike manner in which the affairs of the Boundary Creek Mining and Milling Company are conducted. We are now informed that the Bank of Montreal at Rossland holds the deeds of the company's property as collateral security for an advance of eight thousand dollars, and that as the money was not paid when due the property may at any time be seized and sold. The worst of it is that the shareholders seemingly know nothing of the position in which they have been placed. The property is just becoming valuable in consequence of the successful development of adjoining property in the granitic belt, and therefore the sooner the directors are called to account and an explanation demanded the better.

The Labourers' Co-operative Gold, Silver and Copper Mining Co., Ltd., of B. C., to which we referred in a recent issue, appears, we are glad to note, to have been re-organized on a more business-like basis, although it is to be regretted that our pious friend, Mr. Nylin, still has a seat on the Board and acts in the capacity of Treasurer. At a meeting held in Chicago last month the Directors were authorized to complete the purchase of seventeen mineral claims in the Ice River district previously owned by the Chicago & B. C. M. Co., Ltd., the consideration being 850,000 shares in the Labourers' Co-operative Company. In order to carry out this agreement and to provide sufficient funds for development purposes the capital stock of the undertaking has been increased to half a million dollars. In a circular issued recently by the secretary the following paragraph appears: "Under the new directorate, and with ample means to carry out the work, and a capable management, the Directors believe that the company has now entered upon a successful career; and while it is to be hoped that the progress of the company will be such as to put the company on a paying basis within a reasonable time, the shareholders must remember that it takes time and a lot of money to develop and equip a mine under the most favourable conditions." Now that sounds very like an honest and reasonable statement; at any rate, it is written in a

strain contrasting most favourably with the bombastic and absurd utterances of Nylin. On the new Board, we observe, are five reputable residents of Golden, and we have therefore further reason for believing that the enterprise will be henceforward conducted along legitimate lines.

The Executive of the Mining Association recently passed and forwarded a resolution to Ottawa suggestive of the form of assistance which the Federal Government should afford the silver-lead mining industry. This recommendation was to the effect that failing tariff adjustment, a bonus should be granted of \$4 a ton in ore, \$8 on lead mined and smelted in Canada, and \$10 per ton on lead mined, smelted and refined in Canada. The resolution was drawn up by a special committee, one of whose members was Mr. J. J. Campbell, of Nelson, than whom few are better informed on the subject of the lead mining industry in the Kootenays. It may be also mentioned that before final action was taken in the matter the Executive endeavoured but without success to communicate by telegraph with and ascertain the views of Mr. Retallack, one of the delegates sent by the Silver-Lead Miners' Association to lay the case of the lead mine owners before the Government at Ottawa. It now appears that the recommendation of the Executive does not meet with the approval of Mr. Retallack and the mining interests he represents who desire a direct bonus of \$15 a ton on all lead mined. It is unfortunate that there should be any conflict of ideas on so important a matter, as the Government might easily find here an excuse to defer action altogether. The Executive of the Association have recognized such a possibility, and on that account now commend for the consideration of the Government Mr. Retallack's suggestion. At the same time, it must be remembered that the Association is working not for one class only, but for the mining industry of British Columbia, and the original recommendation was framed accordingly. An adjustment of the tariff, as proposed, would stimulate not only mining, but local smelting, refining and manufacturing of lead. Aid in that direction, however, has been refused. The next best thing, therefore, is a bonus so granted as to afford adequate encouragement to both miner and smelter. The suggestion of the Executive aims to effect that purpose. The assistance asked for by Mr. Retallack would no doubt greatly benefit the owners of lead mines, but it would have no direct influence in building up smelting or refining industries in the Province.

THE NEED FOR SIMPLIFICATION.

(By Clive-Phillips-Wolley.)

IF we may be allowed to judge, we should say, that the dominant characteristic of the present Provincial Mining Association as a whole, is its plain common sense.

Simple practical laws, in simple words are what the Association is working for.

These are what the mining interests of British Columbia at present lack.

No one can help being struck by the contrast between the mining laws of California and those of British Columbia.

Broadly speaking, no laws in the known world compare favourably with those of Britain, and we believe that our American neighbours admit this, but a great deal of the superiority of our laws depends upon the fact that we make laws to be administered and administer them, whereas the Americans make laws and laugh at themselves for doing so. The genius of America, Kipling says, bids the American "flout the law he makes, and make the law he flouts."

This is one of those wonderful summaries of national character for which Kipling has become famous, but for all that, the Americans have made some excellent laws and in some cases have administered them with a whole-hearted sincerity of which we see nothing in British Columbia.

Speaking only of that which we have known we would instance the laws for the preservation of forests from fire and the preservation of game.

Of course it is not fair, as was pointed out in the Convention, to condemn a law as a bad law because it is badly administered. This was the mistake all through the Convention in dealing with the question of the Gold Commissioners' discretionary powers, which if wrongfully exercised, can be controlled by means set out in the Statutes.

But apart altogether from the question of administration, whilst it must be admitted that as a whole our own laws are superior to those of the States, it must also be admitted that in our mining laws we might well take example from those who have mined longer and more successfully than we have done. Their laws are, as far as the writer has seen, concise and simple: plain words for plain men to read.

It seems to the writer that it is essential to a good law that it should be concise, written in simple English, understandable by the people, in words which as far as possible can have but one meaning and that the meaning plainly expressed upon the surface.

Pace Mr. Galt of Rossland, one of our ablest members, the object of legislatures should be as far as possible to get rid of lawyers who are a source of expense to the people, and of litigation which brings no profit to the State. If the laws were simply worded, a long step would have been taken in the right direction. Men do not need interpreters of a language which they themselves understand, and the day has gone by when all the professions were supposed to be justified in hiding simple things under Latin names, and making mysteries of matters which the common folk could understand for themselves.

The writer has himself been through the mill as an English barrister and knows well the arguments in favour of professional language, but he knows, too, that a will drawn in the simple language of Hodge is more valid often than the most lawyer-like document ever drawn.

So may it be with our laws if we will only use ordinary English, carefully employing only those words of which we know the exact meaning.

These remarks especially apply to our mining laws, which should be so condensed and so simplified that every poor fellow who lards our lean earth with his sweat in the Kootenay hills or Cassiar willow swamps can read them in half an hour and understand them at the first reading.

Let us take a few special instances to illustrate our general meaning. The British Columbia Water Clauses Act (consolidated) covers 61 pages and is contained in 154 clauses. In Cobb's American Mining Code we find the law relating to the water rights of California set out in four pages and about a dozen clauses. Here is a specimen of the language employed:

1410. "The right to the use of running water flowing in a river or stream or down a canyon or ravine, may be acquired by appropriation."

Less than three lines are thus employed to tell a man for what purposes he may appropriate and under what circumstances his title to water so appropriated will cease.

Ten lines tell him how to appropriate, to post notices, etc., and there is the pith of the whole matter.

Now, take an instance of the vagueness of our own law.

I won't hark back to a beautiful amendment to the Game Act which I once saw on its way to the second reading, which had become so involved that it provided not only for the protection of roosting pheasants but also for the protection of such sweet little dears as moose, big-horn and mule-deer "when roosting in trees." But let me instance a clause on the Statute Book to-day, Clause 102, of the Placer Act. Here it is:—

102. "Any free miner or two or more free miners, holding adjoining leases as creek claims, or leases of any other placer mining ground, may consolidate as many as ten leases," etc., etc.

Now, if this is not well and clearly drawn, the purport of it is at least clear. Surely it means that the claims whatever they are which are to be consolidated must *adjoin*. "Adjoining" is the forerunning word and ought of course to have been repeated, but as it has not been we are told that an attorney-general has translated this to mean that a man may consolidate ten claims in ten different parts of the country although such a translation is diametrically opposed to the general spirit of our mining laws which as a rule stipulate for consolidation only where such consolidation would enable a man to work several claims as one mine.

The men who originally drafted our laws, drafted them clearly enough and the spirit of them is plain to-day, but there has been too much tinkering by unskilled or interested tinkers and the originals have become dim.

As a last example. The old law gave a man 80 acres of placer ground under a lease for 20 years because the men of that day thought 80 acres enough for any one man and knew that he could work out 80 acres in 20 years, but they did not provide for blocks of 800 acres. Those could not be worked out in 20 years, but then the old law makers never meant them to be.

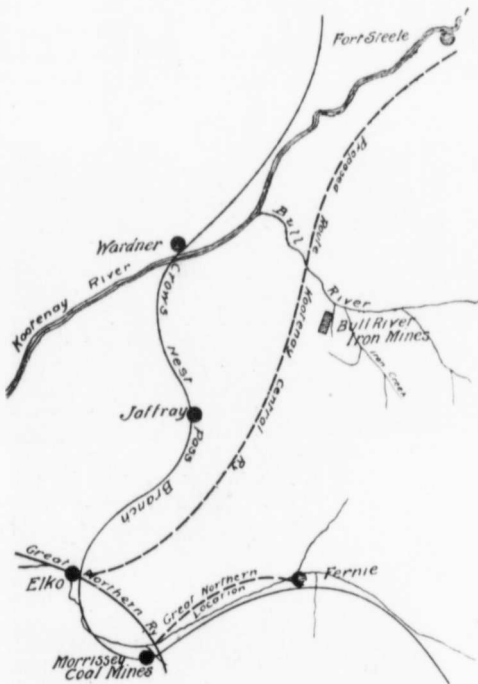
THE BULL RIVER IRON MINES.

(By C. Hungerford Pollen, F.G.S., M.A.I.M.E.)

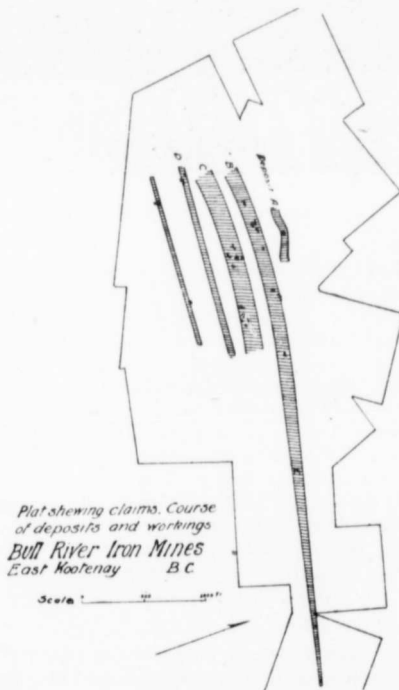
It is a matter, not merely of individual, but of national importance whether pig iron or steel can be profitably produced in British Columbia. There must always be a beginning. The value of a commodity must be governed in the end by the cost of its production. The position in Bull River is a striking one when the estimated costs of production are compared with that of steel produced in the United States.

River, hence the point of assembly for fluxes, fuel and raw material is in each case down hill. The building of the Kootenay Central Railway, which seems now a certainty, will give special advantages in the making of a great centre for the reduction and refining of metals. Deposits of various kinds such as manganese that have hitherto been considered of no commercial value whatever seem destined to become great assets to the wealth of the country.

The property in question is known as the Bull River Iron Mines and is situated on Fenwick Mountain eighteen miles from Fort Steele. The distances to existing railway points are to Jaffray and Wardner on the C. P. R., nine and five miles respectively; Elko on the Great Northern Railway, twenty miles. Good waggon roads connect with these places at present but the route of the proposed Kootenay Central Railway passes immediately below the claims at the foot of Fenwick Mountain and will be within convenient reach of a tramway. The elevation of the claims is 6,000 feet above sea level and 2,500 above Bull River which encircles two sides of Fenwick Mountain. The extent of the property is about nine hundred acres. The base of the mountain is composed of slates, shales and quartzites of Cambrian Age. Above these and in-



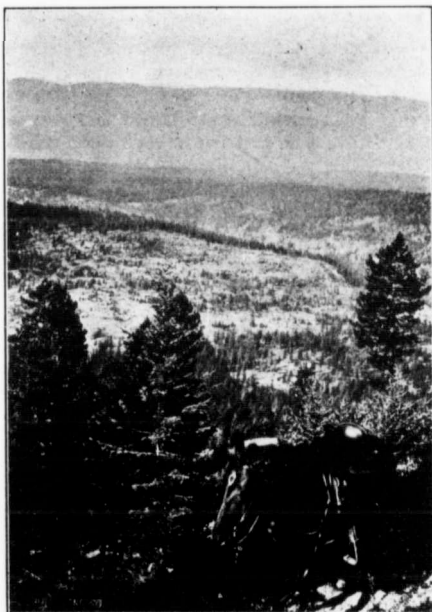
It should be remembered that the costs of transportation are a diminishing item. As railways do more business, improve and extend their lines, and have return freight to haul, they can give cheaper rates. The users of the product too come to the source of supply as an industry increases in magnitude instead of waiting for it to be brought to them. We have already seen in East Kootenay the vindication of the long neglected coal fields. These were considered too far from transportation and for many years hung fire as an enterprise. It was the same too with the great lead mines of the North Star and the St. Eugene, the latter being now proved to be the second largest lead mine on the American Continent. It seems only a matter of time before other commodities, for which the raw material exists in great quantities in East Kootenay, are exploited on a commercial basis. Vast deposits of low-grade material are, like the coal areas, situated on tributaries of the Kootenay



Plan showing claims, Course of deposits and workings Bull River Iron Mines East Kootenay B.C.

cluding the deposits the formation is Devonian-Carboniferous. The deposits occur in a limestone which is in places dolomitic and which has a general strike of northeast and southwest with a north-easterly dip.

The general structure of the deposits is a bedded or banded one. The beds, ranging from two to ten feet, are separated by partings varying from six inches to one foot of barren material. These are sometimes replaced by a low-grade ore carrying 20 per cent. to 45 per cent. of metallic iron. So far developments have



Kootenay Valley looking towards Selkirks.

disclosed five deposits with a general east and west strike and dipping at various angles. Deposit "A" on the plan dips 50 degrees to the south; the others are nearly horizontal or dip at small angles. The flat appearance of the deposits would sustain the theory that the zone of mineralization is a replacement of the country rock and that the solution or filling came from a fissure crossing at an angle with the strike of the country rock. For some distance on each side of the fissure the country rock has been impregnated or entirely replaced by haematite, giving the deposits approximately the same dip as the country rock and following the course of the fissure. The ore is exposed by cuts for the distance of \$2,200 feet on deposit "B" and for a distance of one and one-quarter miles by natural outcrops.

The vertical distance measured from the summit to the lowest workings is 500 feet and from the summit to the lowest outcrop is 900 feet. Assuming the deposits are of a bedded type, the following figures are given from actual measurements. The depth of one of the beds only is taken into the calculation, being considered as continuing the width and length of the deposit. The

width is taken at a distance measured at right angles to the course of the deposit.

Number of Deposit.	Length	Width	Depth	Cubic Feet	No. of Cubic Ft. To 1 ton	No. tons
A	600	25	10	150,000	7	.....
B	2,800	200	6	3,360,000	.....	.....
C	1,400	200	6	2,100,000	.....	.....
D	500	50	4	100,000	.....	.....
E	2,000	25	2	100,000	.....	830,000

From a series of analysis made on this ore, the phosphorous contents have never been found to exceed the Bessemer limit and the sulphur runs always low. The highest class of ore will run 68 per cent. metallic iron and 3 per cent. silica. This is a massive hard blue haematite. A hard blue haematite of a slightly schistose character will run 60 per cent. iron and 11 per cent. silica. Softer varieties of ore go higher in iron and carry more alumina and magnesia. The absence of



Bull River Canon.

phosphorous makes this ore a most desirable one for the manufacture of Bessemer pig.

List of Analysis, Bull River Haematite.

Sample from	Insoluble Residue	Silica SiO ₂	Iron Ore Fe ₂ O ₃	Alumina	Lime	Magnesia	Sulphur	Phosphorus	Metallic Iron	
Goliath Claim	17.00	76.20	4.00	2.00	1.10	.06	.02	53.34	
Ajax	12.00	85.00	2.55	1.10	.....	.04	.03	50.50	
Haematite	8.50	88.00	1.20	1.60	.....	.08	.04	51.50	
Goliath	9.68	.....	.....	.....	.....	.....	.....	64.00	
Tempest	11.60	.....	.....	.....	.....	.....	.....	61.95	
Kent	3.50	.....	.....	.....	.....	.....	.....	68.00	
Whisper	4.00	.....	.....	.....	.....	.....	.....	65.80	
Atlantis	10.20	.....	.....	.....	.....	.....	.....	61.70	
Ajax	9.25	.....	.....	.....	.....	.....	.....	61.50	
.....	6.64	.....	.....	.....	.....	.....	.....	58.50	
Average from Several Claims	10.94	.....	.....	.....	.....	.076	.0291	55.9	
Average	8.52	12.50	2.58	1.56	1.10	.062	.0282	61.35

The slope of the hill occupied by the claims is sufficient to allow open cut work to be advantageously carried on. The deposits lie one above the other, so that a number of faces can be worked at the same time. The ore is hard and would require blasting. Figuring all expenses in, the costs of extraction are not likely to exceed \$1.00 per ton. In the case of the lower grade



Falls of Bull River, showing remains of old bridge.

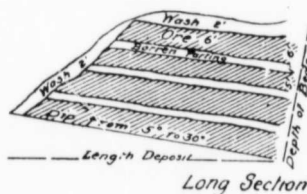
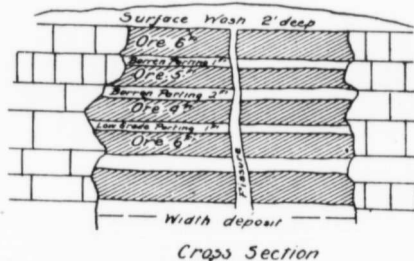
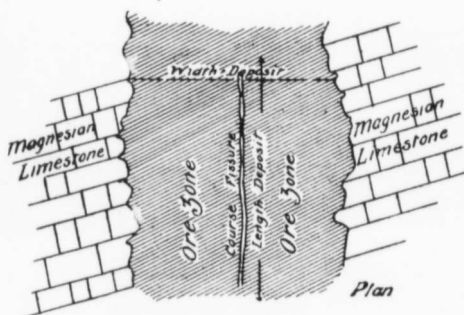
ores a certain amount of mechanical sorting can be done at very slight extra expense since the ore will break out in massive pieces and the remaining waste can be easily shovelled aside.

The falls on Bull River, two and a half miles from the claims, afford a magnificent opportunity for power. The river drops 200 feet within a distance of one mile and has a flow of about 6,000 inches. A good site is available for the instalment of a plant which might be made sufficiently large not only to generate electricity for this mine alone but for use in the surrounding towns. The alteration of the Great Fall smelter from a lead to an iron furnace, which is now proceeding, should give a market for the ores, but it is interesting to see whether reduction could not be effected as economically on the spot. In the following tables Pittsburg is taken as the centre of the iron smelting industry in the United States and the comparison is made of the cost of assembling the raw materials for reduction. It should be noticed that there is a difference in the price of coke at Fernie of \$4.25 per ton as against \$2.24 per ton in the United States.

Table showing flat costs of making one ton Pig at Pittsburg, U. S., and Bull River, B. C.

Mined and Shipped from	To Smelting Point at	Distance miles	Cost at mine or shipping point	Freight at .4 per ton mile	Quantity used to make 1 ton pig iron	Freight on quantity used in 1 ton pig iron	Cost of material for 1 ton pig iron at shipping point	Total cost at Smelting Point	Totals
COKE: Connelsville, Pittsburg.	"	80	2 50	32	1.7	54	4 25	4 79	
LIME: Tyrone	"	130	50	52	.5	26	25	51	
ORE: Lake Superior	"	360	2 81	1 44	1.8	2 59	5 05	7 64	\$12 94
COKE: Morrissy, Bull River....	"	30	4 25	12	1.5	18	6 37	6 55	
LIME: Bull River, "	"	00	50	00	.5	00	25	25	
ORE: "	"	00	2 81	00	1.8	00	5 05	5 05	\$11 85
									\$1 09

The above table shows that the flat costs of smelting and manufacturing one ton of pig iron is \$1.09 less at Bull River than at Pittsburg. With regard to the

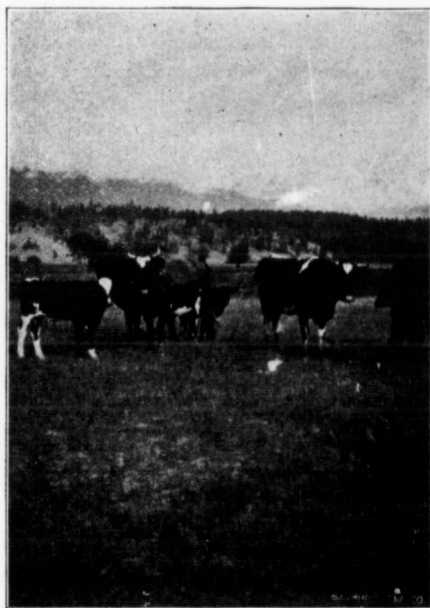


profit on one ton of pig iron on the Pacific Coast and in the Orient the following table is designed to show the comparative rates and prices between Bull River and Pittsburg:

Table Showing Freight Rates and Prices of Pig Iron at Bull River and Pittsburg.

Cost 1 ton pig iron at	Cost 1 ton pig iron, flat costs	Price pig iron June, 1902.	Profit 1 ton pig at points smelted from single points to Pac. Coast.	Flat cost 1 ton pig.	Price pig iron Pacific Coast	Profit 1 ton pig Pacific Coast	Freight to Orient from Pacific Coast	Cost Orient
Pittsburg.....	\$12 94	\$22 50	\$ 9 56	\$13.40	\$26 34	\$35 90	\$ 9 56	\$36 34
Bull River.....	11 81	10 65	7.50	19 35	.....	.....	10 00	29 35
	1.00	.....	5.90	6.99	.....	.....	.....	.....

It is unfortunately considered very visionary at present for anybody to take a sanguine view of mining



Scene on Kootenay River near Fort Steele.

in B. C. A fact often overlooked is that although in the initial stages of mining the ruggedness of the country is an enormous drawback on account of the expense of exploitation and of the bringing of supplies and materials up hill, when the balance is turned and it is a question of hauling the product down hill the principles of gravity afford, in the flowing streams, cheap power and easy transport. The natural grades of the mountains themselves facilitate the accumulation of raw materials in the most economical manner. The very snow itself, once so objectionable, acts like a lubricant under the loaded sleigh.

In the above description of the Bull River mines I am largely indebted to Mr. Jas. T. Laidlaw, mining engineer of Fort Steele, to whose skill and foresight the exploitation of the property is due. To Mr. Laidlaw must be given the credit of being instrumental in bringing the reserves of East Kootenay forward

both in connection with the coal and oil as with the metal mines.

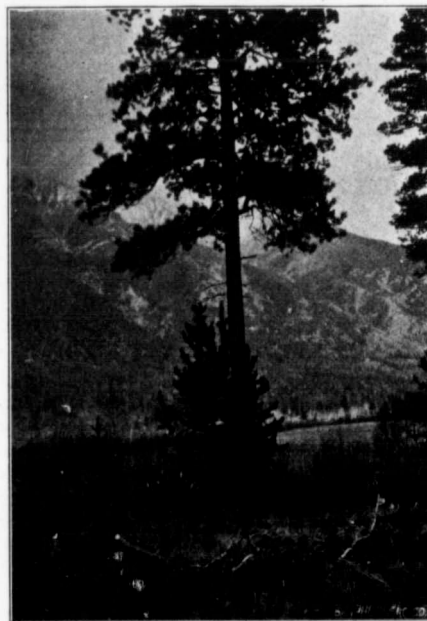
THE MINING CAMPS OF YALE DISTRICT.

(By E. Jacobs.)

CAMP M'KINNEY.

CAMP McKinney was named after Al. McKinney who, in the spring of 1886, discovered and located the Cariboo mineral claim, situate on Rice Creek, a tributary of Rock Creek. McKinney, Fred Rice, — Burnham and "Frenchy" LeFeuvre in April of that year came up from Colville, Washington, or from below that town, to look at the Victoria and to prospect in the neighbourhood. Particulars of the discovery of the Victoria in 1884 were given in the first of this series of contributions. (See MINING RECORD for January, 1903, pages 452-3.)

EARLY HISTORY.—Leaving the Victoria during the first week in May, McKinney and his partners started for the mountain known as "Old Baldy," but the snow hindering them, they were about to turn back when McKinney accidentally happened on an outcrop of quartz in a little draw into which he had gone for water. Examining the quartz he found free gold



Steeples Mt., from Kootenay Valley.

showing in it. On the other side of the small creek another cropping of quartz was found, so it was thought that parallel veins running with the formation, occurred here, but with much snow on the ground the direction of the supposed two veins could not be im-

mediately determined. The Cariboo and Amelia claims were located side by side, the law then in force restricting the size of mineral claims to 600 feet by 1,500 feet. When the snow was gone, however, it was found that the vein cut across the formation and that the locations had been made crosswise. Hearing of McKinney's discovery, C. B. Bash came up from Osoyoos to try to get a claim on the new strike, and at a place afterwards known as Hoosier's, met Henry Nicholson, John East and — Talleyard, who had come up from Rock Creek on a similar mission. Arrived at McKinney's camp they found that others had got there before them, Chas. Hotter and — Winkler having already located the Okanagan claim, and John Moran and Geo. Young the Kamloops. The newcomers tossed up with a half dollar coin for choice of ground. Bash and East first won against Nicholson and Talleyard and then East won from Bash, securing first choice and taking ground now the Minnehaha claim, situate southwest of the discoverer's claims. Bash took ground to the south, and Nicholson and Talleyard, ill-pleased with their supposed bad luck, had to locate to the west. When the snow disappeared, though, it was found that the last locations, the Alice and the Emma, were in line for the ledge to cross them. Numerous locations were made later, including the Teazer, Vernon, Fontenoy, Maple Leaf, Eureka and many others. For several years there was little work done outside of the assessment work necessary to hold the claims, the district being without roads or other transportation facilities, but in 1889 a beginning was made to interest capital in it. In the fall of 1893 McKinney sold his interests, and the active development of the property was entered upon, with the result that during the winter a fine body of ore was opened up. Among the new owners were Messrs. Jas. Monaghan and Geo. B. McAulay, of Spokane, who with their associates, are stated to have bought the Cariboo and Amelia for \$3,000. A ten-stamp mill, obtained from the abandoned Rainbow mine, at Golden in the American Okanagan, was, in February, 1894, hauled 35 miles over the snow to Camp McKinney, and on April 26th following it commenced running.

CARIBOO-MCKINNEY—In 1898 the Cariboo Mining, Milling & Smelting Co., Ltd., was organized, and in 1898 this company was re-organized, the present company, the Cariboo-McKinney Mining & Milling Co., Ltd., of Toronto, acquiring all its property. The company now owns a group of seven adjoining mineral claims, known as the Cariboo-McKinney mine. These are the Cariboo, Amelia, Okanagan, Alice, Emma, Maple Leaf and Saw Tooth fraction. But little work other than open cuts and test pits has been done on the Alice, Emma and Maple Leaf, the main workings being on the four other claims. These workings extend for nearly 2,000 feet along the main lead, which has been traced on the surface each way beyond this company's claims. This vein varies in width up to 14 feet, but four feet is stated to be about its average width. The quartz is mineralized with iron sulphides, galena, and zinc blende, with free gold scattered throughout

and frequently visible. A series of faultings of the vein, which is evidently continuous with depth, have to a considerable extent increased the cost of working the mine. The company's accounts show the total bullion receipts to the end of 1902 to have been \$1,105,861.58 and the total dividends paid, \$509,337.52. The average value of the ore mined and milled last year was \$9.65 per ton, but of this \$1.27 per ton was lost in the tailings. The mine is in an excellent condition, with ore reserves opened up well in advance of the stopes. It is developed to a depth of 563 feet and its yearly output of ore is 15,000 to 16,000 tons. Its plant includes two boilers together 110-h.p., a 60-h.p. double geared friction hoist, a 10-drill Rand air compressor, etc., whilst its mill is equipped with four 5-stamp batteries, two boilers, 60-h.p. Corliss engine, two Johnstone vanners, a Wilfley concentrating table, one Blake and one Gates rock crusher, etc. Superintendent J. P. Keane has had many difficulties to contend against, especially during the two years last past, but he has succeeded in restoring the mine to a dividend-paying basis after a prudent suspension of dividends during 1901.

WATERLOO.—Next in present importance is the Waterloo, owned by the Waterloo Consolidated Mining & Milling Co., Ltd., of Spokane. This is a property full of promise of productiveness in the near future. The vein has been drifted on at the 60-foot and 150-foot levels, and some rich ore has been mined from it. A compact though small plant was installed in 1899. This included a 30-h.p. boiler, hoist, sinking pump, etc., and a 5-stamp mill with a Johnstone vanner, Blake crusher, 50-h.p. boiler and 40-h.p. engine. The company seems to have lacked good management in the past, but a change for the better has been made in its directorate, and the prospects of the mine are now bright. Soon after the recent change of management was made a larger hoist was installed and sinking to the 260-foot level was pushed on, with the object of getting deeper before the melting snow in the spring shall make the water troublesome. A cross-cut is now being run at 250 feet depth, to cut the ledge.

SAILOR AND MINNEHAHA.—The Sailor Consolidated Mining & Milling Co., Ltd., of Toronto, Ontario, is an amalgamation of the Sailor and Minnehaha mining companies, which together owned a group of eleven claims. The Minnehaha company put in a power plant and stamp mill, the machinery including 80-h.p. boiler, 5-drill Ingersoll-Sergeant air compressor, 7x12 double cylinder hoist, two sinking pumps, etc., and at the mill, two batteries each of five stamps, Frue vanner, Wilfley concentrating table, Blake crusher and 35-h.p. boiler and engine. The Sailor company had a 35-h.p. boiler, double cylinder hoist, sinking pump, etc. The Minnehaha put down a shaft about 190 feet and drifted at 40, 90 and 150-foot levels, and the Sailor sank a shaft 173 feet and ran cross-cuts and drifts at 75 and 150 feet depth, respectively. Both properties have been closed down for some time.

FONTENOY.—The Fontenoy, owned by the Fontenoy

Gold Mining & Milling Co., Ltd., of Victoria, B.C., is another Camp McKinney property upon which prospecting was done for a while until financial difficulties necessitated a stoppage of work. Three shafts were sunk, the depth being 129, 65 and 59 feet, respectively. Drifts on the vein have shown it to be quartz mineralized with iron pyrites and galena and assaying up to \$65.00 in gold. Its width where opened up is four feet in places. A 30-h.p. locomotive boiler, 6x8 hoist and a sinking pump were installed on the property several years since. Efforts have recently been made to resume work.

KAMLOOPS.—The Kamloops is another claim that had attention for a time, the Kamloops-McKinney Gold Mining Co., of Montreal, Quebec, having in 1899-1900 sunk a shaft 100 feet and at that depth drifted on the vein besides prospecting it elsewhere on the claim. The plant put in includes boiler, hoist, pump, machine drill, etc.

EUREKA AND OTHERS.—Among other claims are the Mammoth, Shannon, Dolphin, Warton, Teazer, Vernon, Eureka, etc. The last named is stated to be owned by some of the Standard Oil Co. officials. No work has been done on it for years, but it is reported that between \$25,000 and \$30,000 was spent in prospecting it in the early days of Camp McKinney. Two or three miles east of McKinney are the Lemon group, Victoria, Old England and other claims. Between these and the camp a number of claims are on a mineral-bearing formation of an entirely different character to that occurring where the quartz veins are met with. These latter include the Dayton, Le Roi, War Eagle, Jim Crow, Night Hawk, and many others, in some of which iron sulphides carrying values in gold and silver have been exposed in deep trenches and prospect holes.

LEMON GROUP.—The Lemon group consists of the Lemon, Pennsylvania, Last Chance, Gold Standard and Galena, owned by the Lemon Gold Mining Company, of Omaha, Nebraska. On one of these claims a shaft has been sunk 228 feet on the incline, with drifts run at 125 and 210 feet depth in white quartz mineralized with iron sulphides. The plant here includes a 25-h.p. vertical boiler, hoist, sinking pump and steam drill; also a 5-stamp mill with a 50-h.p. engine to run both the stamp mill and a saw mill put in near by. This property, like most others in the district, has been idle for several years.

VICTORIA GROUP.—The Victoria group is owned by the Rock Creek Mines, Ltd., of Victoria, B.C. The claims are the Victoria, Queen, California and Astor. About 1,000 feet of development work was done in 1896-7 under the direction of Mr. C. B. Bash, who still resides on the property. This work consisted chiefly of an incline shaft sunk 110 feet on the vein, two cross-cut tunnels, drifts, etc. It is stated that the returns from 30 tons of ore shipped were: gold \$50, silver \$2 and lead 2 per cent. The cost of transportation, however, is too high for the property to be worked. The company has money in the treasury and will

resume work when a railway shall reach the neighbourhood.

THE STEWART RIVER GOLD DREDGE.*

(By A. W. Robinson, Montreal.)

THIS dredge was built in 1902 from the writer's designs for Mr. William Ogilvie, ex-Governor of the Yukon, for the development of claims on the Stewart River, Yukon. The hull was built and machinery erected by Mr. W. M. Ogilvie, and the machinery was supplied complete by the writer under contract for a lump sum. This dredge is a special design for exploration purposes, being very light and strong and capable of working to a depth of 25 feet. It nevertheless has sufficient capacity to enable it to do effective work and to handle free material at the rate of 75 cubic yards per hour. In this way if there is any reasonable amount of gold in the ground to be prospected it can be made to pay although, of course, its earning powers will not be so great as a dredge of larger capacity. For the development of our Northern rivers the writer believes it to be good policy not to make a very heavy investment at the outset in a large expensive dredge until the paying qualities of the ground have been thoroughly demonstrated. There is undoubtedly a need for a light and strong dredge of this type which will be primarily a prospecting dredge which can be built and placed on the property for a comparatively small amount of money and yet has the strength and capacity to enable it to make money if money exists.

The writer believes that the class of machinery that has heretofore been built for work of this kind has been entirely too heavy and cumbersome to send to such remote regions where the cost of freight is so high and the loss from breakdowns is great. This is due to the fact largely that the dredges have been built by manufacturers who naturally put into the machine the class of materials and workmanship which suited them best, and which may not have been in all cases to the interest of the purchaser and user. The Stewart River dredge is designed and built entirely in the interest of the purchaser and user and it is as light and strong as it can possibly be made. To this end all important parts subject to strain are made of the best quality of steel forgings or castings and as little cast iron used as possible, in fact, almost the only cast iron parts used in the outfit are the engine cylinders and the grate bars. These are of cast iron because no other material will answer the purpose so well. The arrangement of the parts is such that the various movements are accomplished with directness and simplicity and so that all the operations are under the control of one man. For facility in shipment the parts are sub-divided into convenient size and weights.

In carrying out the idea above outlined many radical departures from the usual construction were made

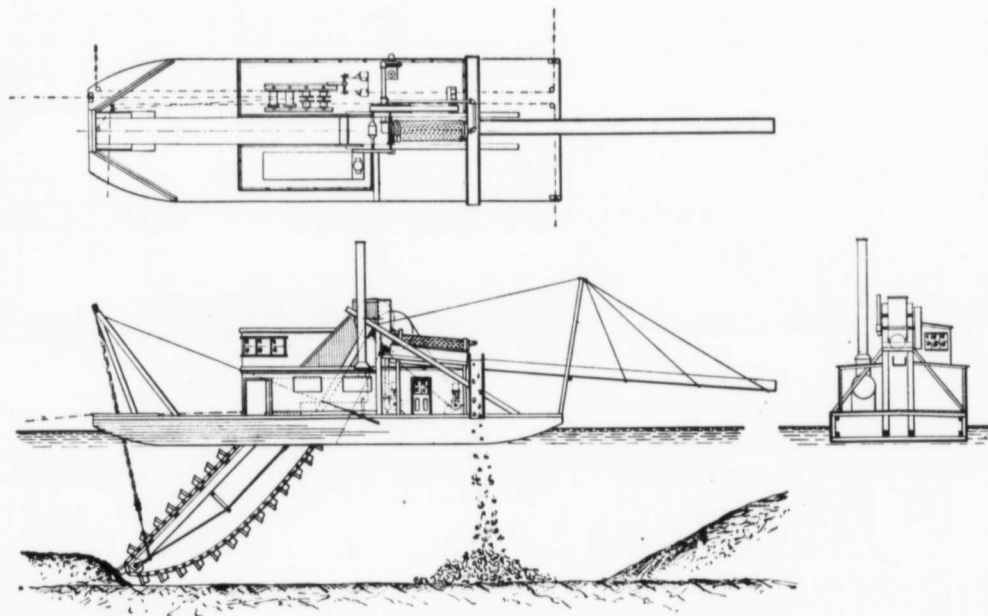
*Paper read at Annual Meeting Canadian Mining Institute March, 1903.

and a form of construction of the principal machinery was adopted after such consideration and study which gives the greatest simplicity and the smallest number of parts that can possibly be used to accomplish the desired result. The importance of simplicity and strength in a machine of this kind can only be appreciated by those who have had to struggle in a far-off locality with a machine which was so complicated that it was difficult to keep in order, and with certain parts so weak that they would break down. In a machine of this kind the presence of a single defective element is enough to nullify the advantage of all the rest which may be good.

The following is a brief description of the dredge: The hull is of wood 85 feet long, 25 feet wide and 4

degree of strength can be secured and the liability to breakage through flaws in the steel castings obviated by making it of forged steel. The lip plates of the buckets are of the highest quality of machinery steel of such hardness that they will resist abrasion and at the same time will have the requisite toughness to resist breakage. The pins are of Hadfield's patent manganese steel and all the pin connections are bushed with renewable bushings of oil tempered tool steel.

The material from the buckets is delivered into the hopper and passes through a revolving screen. The coarse tailings are rejected and the fine material passes through the screen into the sluice box and is discharged astern. This dredge therefore is of the



Plan of Elevation and End View.

feet 6 inches deep and is built of a form specially adapted to work in a rapid running river if required. The main framing is also of wood and consists of three main timbers on each side. These are connected in such a way as to hold the entire head machinery. The head frame timbers are connected by bracket castings of steel which also carry the ladder shaft so that no additional attachment is necessary for this purpose.

The dredge is fitted with a chain of buckets having a nominal capacity of two and a quarter feet each. These buckets are entirely of forged steel; no steel castings are used in their construction. Cast steel bucket backs are extensively used for elevator dredges and the writer has also used them successfully for gold dredges, but where it is necessary to keep the weight down to the smallest possible limit a higher

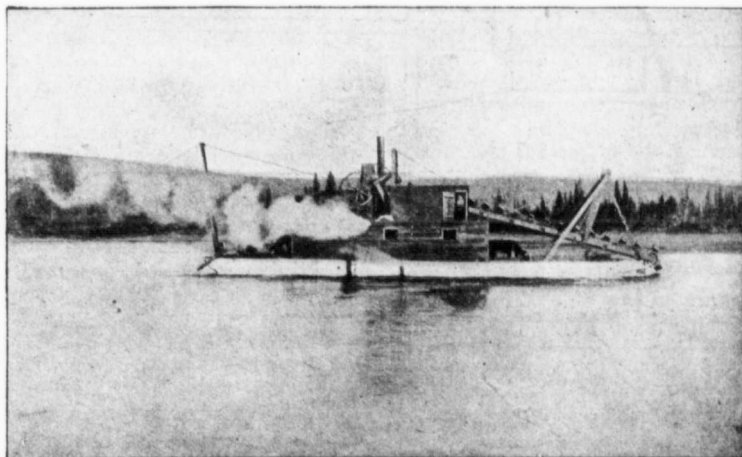
coarse screen and sluice box type as distinguished from the new Zealand type which possesses a fine screen and in which the gold is saved on tables. The writer prefers this type of dredge wherever it can be used on the score of simplicity and also because large capacity can be reached with a comparatively small screen and the tailings can be discharged astern and distributed without the necessity of employing a tailings elevator. The only objection that can be urged against the sluice box type is that it is not capable of saving the very finest gold or at least will not save as large a percentage of it as the fine screen and table method. This is, therefore, a question of adaptability to the character of the ground and the gold to be saved, and in the particular locality where this dredge is to be used the gold is sufficiently coarse to be saved in the sluice boxes. The action of the gold-saving

part of the dredge is therefore precisely the same as in hydraulic mining and as the tailings are discharged astern with a large quantity of water they can be so distributed as not to interfere with the work of the dredge. In special cases where the ground to be worked stands at a considerable elevation above the water it may be necessary to employ a tailings elevator but the writer has used dredges of this type which excavated their way through dry ground standing 10 feet to 12 feet above water and disposed of all the material without any tailings elevator. The movements of the dredge are controlled by wire ropes attached to anchorage or on shore and operated by an independent steam winch. This winch is placed on the main deck and consists of six drums driven by a pair of independent engines. In the design and construction of this winch the idea of keeping the weight down to the smallest possible amount has been fully lived up to and at the same time the strength and efficiency

or attached to the boat in any way. This in turn greatly simplifies the erection of the dredge. It is only necessary to set the winch on deck and bolt it down. When it is ready for work as soon as the steam pipes are connected.

It may be incidentally mentioned that the time occupied in the construction and erection of this dredge was very brief considering the difficulties involved, and it is because of the simplicity of the design in little features such as these that the time of erection and completion was much less than ordinarily required.

The engines for driving the winch are of the vertical torpedo boat type with a cast steel bed plate and forged and turned steel column frames. The engines are fitted with link motion and are of the highest quality of design and workmanship. They are so small and light that they can be readily picked up and carried by one or two men, and yet they are sufficiently strong that they can haul the entire dredge up a current of



General View of Dredge on Stewart River.

has not been sacrificed but rather improved. There is no cast iron in this winch except the engine cylinders. The drums are of rolled steel plate with cast steel heads. The friction housings attached to each drum are of flanged steel plate with turned flanges. All the gears are of best cast steel and even the bearings in which the shafts are carried are steel castings of special and light design lined with babbit metal. The frame of the winch consists of two bars of flat steel to which all the bearings are bolted and which thus connects them all together and preserves the alignment and position of the gears. This bar frame is adapted to be bolted down on top of timbers on the deck. Each drum is fitted with independent clutch and brake. The clutch operating levers are mounted on the winch and project up through the floor of the operating room above so that they can be directly reached and worked by the operator without any shafts, bearings, links or connections being necessary

nine or ten miles per hour and can perform all the movements of the winch with ease.

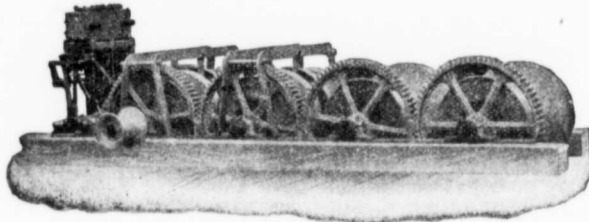
With high class machinery of this kind built entirely of steel and of light weight, not only is the cost of transportation reduced but the liability to breakage during handling and erection also. If these parts, such as the drums and flanges of the winch, had been made of cast iron as is ordinarily the case they might easily be broken through handling or falling on the ground or otherwise injured during the vicissitudes of their long journey. With these light steel parts, however, no such risk is involved and if by chance some parts should be injured or sprung out of shape through accident or a heavy blow it can be readily re-shaped and put back again.

The revolving screen is 38 inches in diameter by 14 feet long. It is driven by steel gearing over the intermediate shaft of the head frame. A special method of driving this screen is employed which in-

volves the use of very few parts and takes the power directly from the intermediate shaft. All the working parts are of steel and the screen is carried on four steel rollers. A special feature of this screen is that the perforated plates are built up on a steel frame in such a way that they can be readily replaced or renewed without taking down the frame or interfering with the driving mechanism. The holes in the

entire engines are of steel except the cylinders, which are of cast iron. The power is transmitted to the tumbler by means of a belt 14 inches wide and provided with a tightener pulley.

The reverse levers and throttle valves of these engines are controlled from the pilot house so that the whole of the operation of the dredge is under the control of one man.

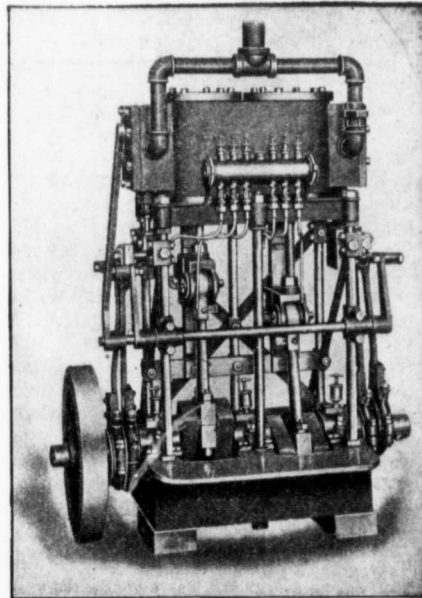


Six Drum Winch.

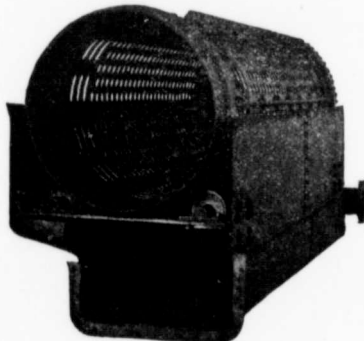
screen are of large size, being ordinarily calculated to permit about 80 per cent. of the material to pass through into the sluice box, only the larger stones being ejected. This practice is essentially different from the New Zealand type in which the holes in the screen are comparatively small so that only the fine material passes over the tables. In the present case the screen with large holes allows the material to disappear quickly and therefore increases the capacity of the screen and it also makes possible the disposition of the tailings without the use of a tailings elevator for the reason that only a small percentage of the material goes over the side and which is not sufficient to obstruct the floating of the hull, and the remainder is washed astern and distributed over a wide area by the combined action of the water and the movement of the boat.

The hopper into which the material is discharged by the buckets is also of steel and fitted with renew-

Steam is furnished by one semi-portable return tubular boiler. It has a cylindrical shell 54 inches in diameter by 14 feet long and it has a very large fire



Main Engines.



Revolving Screen and Casing.

able lining plates. The bucket ladder is of wood with steel fittings and truss rods.

The main engines are of the double high pressure torpedo boat type, having cylinders 8x8 inches. The

box arranged under its entire length and adapted to burn inferior wood.

The water for sluicing purposes is supplied by one independent centrifugal pump having a 10-inch suction and 8-inch discharge. In many of the New Zealand dredges the pump is driven from the main engines. The writer prefers to have it independent so that the water is under better control.

The hull is designed with ample space at the after end so that gold-saving tables can be added at any future time if desired. The disposition of weight of the machinery upon the hull is such that it floats evenly and the draft of water does not exceed two and a half feet.

The work of carrying out this enterprise as well as the erection and installation of the dredge on Stewart River was in charge of Mr. W. M. Ogilvie, and great credit is due to him for its accomplishment in so short a space of time in the face of many and great difficulties. The dredge was completed and put in service on the Stewart River just before the close of last season and could have worked a month if sufficient fuel could have been obtained. The parties, however, who contracted to furnish the fuel failed



Buckets.

to fulfill their obligations and as a consequence some time was lost. Sufficient was done, however, to demonstrate to Mr. Ogilvie's satisfaction that the dredge was a success and also that it was well adapted to work the ground under the conditions as they there exist. So many mistakes have been made and so many enterprises of this kind have ended in failure that the public is not yet prepared to believe that this dredge will prove an exception to the rule, but we have here a machine that is carefully designed and well-built and that can perform its functions without continually breaking down, and I am sure that all the members of this Society will unite in wishing Mr. Ogilvie the success he deserves when operations are renewed in the coming spring.

NOTES ON THE SIMILKAMEEN DISTRICT.

(By Chas. E. Oliver, M.E.)

THE Similkameen Valley was in the first instance used by the goldseeker as a high road to the Cariboo diggings. In those days the miners rushed through to get to their northern goal as early as possible, but as the excitement began to wane, some stopped, panning the gravels and sands of streams *en route*. It was in this manner that Rock Creek, Rock River and Granite Creek diggings were discovered in the order they appear. In the Similkameen and Rock Rivers and Granite Creek platinum was found with the gold. It was discarded at first as black sand, but was re-panned by later arrivals. The placer claims were gradually worked out, and these gave place to hydraulic mines, which operated up to the last few years.

Not much attention was paid to the quartz mining until '98, when a considerable inrush of prospectors went over the country in all directions. The rush was first brought about on the discovery of large croppings of copper ore on Copper Mountain in the Princeton district, and a simultaneous rush was made in the lower Similkameen in the neighbourhood of Bullion Mountain. It was not until later in the year that the Nickel Plate was discovered and the high-grade conditions existing in the middle Similkameen realized.

The country as a whole is somewhat different to the Kootenays. The climate is much milder and the mountains much more easy to travel. The heavy brush met off the trails in that country does not occur here and a saddle horse can be taken through most sections of the Similkameen and Osoyoos with ease.

The lower valley, five miles wide in places, is taken up by the big stock ranches. It is all splendid land for fruit culture and the near future will undoubtedly see the sub-division of the present big holdings into ten-acre lots and small farms and orchards.

The ores of the lower Similkameen may be said to be principally pyritiferous carrying values in both copper and gold. At present development is not far enough advanced to show the exact amount and value of these deposits, but according to surface indications they are undoubtedly big.

Development is now proceeding in this section, and in the next few months valuable information ought to be obtained. In the middle Similkameen the arsenical belt, the ore is high grade arsenical pyrites, associated with copper pyrites in some cases but mainly occurring alone or with pyrrhotite. The belt extends from Fifteen-Mile Creek on the south to Stirling Creek on the northwest. There are some rich veins of copper glance carrying high values in gold on Henry Creek.

The Copper Mountain section is a copper proposition, different varieties bornite and pyrite playing most important parts.

The Aspen Grove district consists of copper glance deposits as before mentioned and this variety of copper ore also occurs in the Ten-Mile Creek sec-

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tion, Nicola. Coal occurs both in the lower and upper Similkameen and at Nicola. It has been mined at Princeton and White Lake and extensive boring operations have been carried on at the former place.

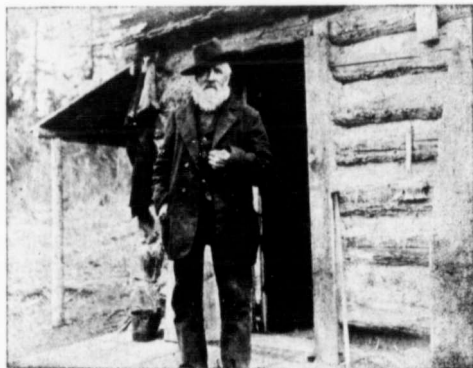
The varieties of ore through this country are numerous, as will be seen by the above article. In future correspondence I will discuss in detail each of the sections therein mentioned with their geological peculiarities.

In conclusion I may state that the early advent of a railway up this valley will prove it to be one of the richest along the boundary line.

JOHN THORNTON—A BOUNDARY PIONEER.

(By E. Jacobs.)

"JOLLY Jack is dead." This was the news that in the first week of April passed quickly from town to town and camp to camp throughout the Boundary District. Regret was universal, not that the old man's decease was unexpected, but that his passing away left a gap in the ranks of the old-timers, and set the veterans of the district Pioneer Association thinking that more than one of the older mem-



The Late John Thornton.

bers of their fraternity must, in the natural course of events, look for his turn coming to strike camp and hit the lone trail ere very long.

Jolly Jack, as John Thornton had for more than half a century been known in the placer mining camps of the Pacific Coast, from California in 1848 to the almost lifeless placer workings of Rock Creek of today, had lived the customary adventurous life of the old-time placer miner. At times flush and spending his hard-earned gold with all the recklessness of one who had an abundance from which to draw supplies, and again "dead broke" and glad of a little timely assistance from others more fortunate for the time being. The closing years of his life were in part provided for by the periodical pension allowance from the United States Government, but between the time when the end of his quarterly remittance was reached and

the receipt of the next supply of cash, there was only the memory of flush days to bring consolation to the old pioneer. Not that he ever lacked friendly consideration or occasional hospitality, for it is not in the nature of the old placer miners to forget the comrades who joined with them in many an early-day rush to new goldfields and anticipated fortune. So it was that Jolly Jack had a "good time" whenever he went to town, and many an act of thoughtful consideration resulted in some little creature comfort or another finding its way to the old man's cabin, with the unspoken regard and goodwill of one or another who had rocked on the same "crick," panned the same "wash" and, likely enough, had similar hard luck in failing to "strike it rich," and in seeing golden dreams and airy castles vanish as morning mists rolled from the valleys in which they toiled and too often failed.

Jolly Jack died in his snug little 10x12 log cabin situate at the junction of Norwegian Creek with Boundary Creek, a couple of miles below Boundary Falls, and on a placer claim the old man had held and worked for many years. He had long lived alone, Mrs. Thornton and children having their home in another cabin a short distance away. For months the old pioneer had been gradually losing his strength, so that his death was not unexpected. He had been cared for since he became unable to care for himself by the Pioneer's Association of Okanagan and South Yale, the official designation of the Boundary pioneers' friendly organization, most of the surviving members of which are still resident in the Boundary District. Last summer this society arranged for the admission of Jolly Jack into the Old Men's Home, at Kamloops, but it was not until October that the old fellow would consent to leave his cabin for the, to him, uncongenial surroundings of such an institution. He soon tired of life there, not that he lacked anything in comfort or attention, for he had nothing but words of praise for the officials with whom he there came in daily contact, but that to him life was not worth living if he were to be deprived of the satisfaction of being in his own cabin, with the "crick" running within hearing and the life-long familiar sounds of animal and bird life keeping up old associations. So it was that he left the Home during the winter and returned to Boundary Creek. Before going to his cabin he spent a couple of days with old friends at "Billy" Nelson's Pioneer Hotel, Greenwood, and around the big stove in the cheery bar of that popular resort of old-timers, stories of long ago were dug up afresh, old-time ditties (including the old man's particular favourite, "I'm Jolly Jack, the Rover," which he sang in strong voice and with as much spirit as ever) were sung once again and the hours passed so pleasantly that the old fellow perked up, feeling, as he confided to his old friend "Major" Charlie Collins, "so good, and right glad to be back among the boys once more." But the improvement in his health was not lasting, for ere a month had passed it was found necessary to send a man to stay with and take care of him. During the last few days of his life the old man's memory failed him, so that he did not recognize even some of those

with whom he had been intimate for many years. To the last, though he knew "Polly," as his wife had long been familiarly spoken of among the old-timers, and she devoted herself most unselfishly to him until the end came, on Wednesday, April 1st.

The funeral took place on Friday, April 3rd. The afternoon was dull and raw, the early spring weather this season having been cold and cheerless. A grave had been dug in the "wash" within a stone's throw from the cabin and near to where a small white-railed and picketed enclosure marked the place of burial of two infant children of the Thorntons. The burial service of the Church of England was conducted by Rev. W. A. Robins, M.A., rector of St. Jude's Church, Greenwood. The coffin was borne from the cabin to the grave by the six pallbearers, Chas. Deitz (a pioneer of the pioneers, he having arrived in the Boundary country from San Francisco in 1858), Thos. McAuley, Chas. N. Collins, L. M. McCarren, Jas. Kerr and D. A. Hollbrook. Among others present were Geo. W. Rumberger (now Mayor of Phoenix) and Thos. Hardy, of Phoenix; A. S. Black, L. Bosshart, Wm. Fowler, R. Greigor, Thos. M. Gulley, J. P. McLeod, J. W. Nelson, W. Vaux and Thos. Walsh, of Greenwood; Dan McLaren and Scott McRae, of Deadwood; Mark Kay, Harry Morgan and Nich. Tholl, of Anaconda; George Cook, — Goodell, Sr., Robert Kerr, Otto Nelson, Thomas Wake and J. S. Way, of Boundary Falls; P. Helstab, John R. Jackson, Ewen Keightley, C. J. Lundy, Jas. McNicol, C. M. Melville, Hugh Murray, C. L. Thomet and Rev. — Thompson, of Midway; Sam Larsen, of Rock Creek, and many others whose names were not obtained. Conspicuous in the gathering were Mrs. Castleman, of Boundary Falls, and her daughter, Mrs. Robert Kerr, present to show their womanly sympathy with Mrs. Thornton and children in their bereavement. The solemn service for the burial of the dead having been finished, there was a general wish that some one would say a few words appropriate to the sad occasion, but the hearts of the hardy pioneers were too full for their thoughts to find expression and no one else volunteered to fill the void. Another cause for regret among the old-timers was that there was no singing at the grave—even "For Auld Lang Syne" would have relieved their pent-up feelings, but the opportunity to say a timely word and sing a comforting line or two was not availed of, so the pioneers slowly dispersed and sadly wended their several ways to their respective homes.

In connection with Jolly Jack's lamented death there remains but to add that the members of the Pioneers' Association acquainted with the circumstances and surroundings of Mrs. Thornton and family desire to see something done to "give the children a chance." There are five or six of them, two or three getting big, and all lacking the ordinary influences of home and education that make for the development of children into good men and women. Particularly is this desired for the sake of the girls, who without such influences can hardly be expected to do well. More cannot here be said of this matter, but it will easily be

understood that if anything is to be done it must be done at once if good results are to be attained. If this should reach the eye of any outside old-timers with a kindly recollection of old Jolly Jack, and disposed to lend a helping hand, J. W. Nelson, of Greenwood; Thos. McAuley, of Midway, or any other of the district pioneers, will gladly indicate in what direction they can assist.

The following particulars of Jolly Jack's life may be read with interest: John Thornton was born at Stockton-on-Tees, County of Durham, England, on June 11, 1825, and was cosenquently in his seventy-eighth year. In 1838, sixty-five years ago, he left his home to go as an apprentice on a collier, and to become a "Geordie," as those who followed this vocation were then and there called. During six years he voyaged here, there and everywhere, changing from one vessel to another as was the custom among many of his class. His experiences during his earlier years at sea were similar to those of many another lad. After having "sailed the Spanish Main" he eventually landed in the United States, and thereafter sailed out of New York, Philadelphia, New Orleans and other Atlantic ports to the West Indies and Venezuela southward and to Bermuda northward.

In 1844 he joined the U. S. navy, going on board the steam frigate Princeton, the first vessel in the United States navy to have a propeller. After two years in the navy Jolly Jack was discharged and for a while he was once more in the merchant service, but only for a short time, for in 1846 at Boston he joined the Independent frigate, Commodore Shoebrink. From Boston he went to California, for the Mexican war was in progress, but by the time he reached San Francisco the Stars and Stripes had already been hoisted.

Invalided, Jolly Jack went back round the Horn to New York in the frigate Savannah. But once again he shipped and this time was drafted into the southern coast survey service, surveying with pole and lead from Pensacola, Florida, to Texas. After nine months all hands were discharged at Pensacola. Thence he went to New Orleans and there shipped on the packet Robert Burton for Philadelphia, where he once more shipped in the navy, was drafted to the receiving ship Philadelphia at Norfolk, and then to the frigate Rariton to cruise during the winter between Capes Delaware and Chesapeake, on the lookout for distressed vessels. From there he went to New York, where he was discharged. At New York he shipped on board the brig Meteor to go round the Horn to Valparaiso, Chili.

In 1848 news came to Valparaiso of the discovery of gold in California and the consequent great excitement. Jolly Jack at once joined the Scotch brig Annie Moore of Aberdeen, and sailed for San Francisco. He remained in that country about nine years. Once during this period he was buried by a fall of earth. He was got out, but was injured so much that he was knocked out for nearly a year.

In 1858 the Fraser River excitement broke out and Jolly Jack went there, but his stay on the Fraser was not a very lengthy one, for in the fall of the following

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year he went to Boundary Creek by way of the Similkameen country. After a short stay there the Columbia River drew placer miners, and Jolly was one of the crowd. He travelled down Kettle River from Boundary Creek, and thence down the Columbia River to Grand Rapids, as one part of it was then called, and it was on this river he found the famous bar, afterwards known as "Jolly Jack's", and from which he and his partners took out gold to the value of \$20,084 net.

In 1864 Jolly went to Wild Horse Creek, in East Kootenay, but did not remain long, going from there to Findlay Creek and later on to the Perry Creek diggings, also in East Kootenay. Then he had a ferry on the Salmon River. Later, in 1867, he went to the coast and after remaining there a year returned to the Boundary country and spent the following year on Boundary Creek, but not making anything he moved to the Pend d'Oreille, going thence in the spring to the Big Bend of the Columbia, where there was a placer excitement at that time. For years afterwards the old man, after the manner of that class of pioneer, prospected, taking provisions for a week or two going into the Slocan, Lardeau, or one or other of the sections of the Kootenay country on both sides of the Boundary line that the wandering placer miner of twenty or thirty years ago used to intermittently prospect. Eventually he made his home on Boundary Creek with which he was associated up to the time of his death.

GOLD DREDGING.*

(By Mr. Denham Verschoyle.)

THE author has not observed, in the *Transactions*, any papers dealing with the modern development of this important branch of mining, and he thinks, therefore, that a few notes on the subject may prove interesting. His experience has been confined to the Australasian colonies, and he presumes that engineers from California and other parts of the world will be able to add to the information contained in this paper.

Gold dredging is important, as providing a practical method of dealing with sundry alluvial deposits, either entirely or economically unworkable by means of hydraulic sluicing, elevating, or other methods.

Grab, suction and bucket dredges have been tried; and practice has shown that the two former cannot compete with the latter method, in point of economy and general efficiency, for treating ordinary gravels and boulders. In fine sand, containing timber they may, however, occasionally prove useful.

In New Zealand steam dredging for gold began in 1882 with the launching of the Dunedin dredge. Prior to that date, much work had already been done; but looking back now, he could only designate the operations carried on up to that time as experimental, elementary and generally unsuccessful. They were

valuable, however, because they led up to and made possible the dividend paying machine of to-day.

The most important innovation introduced by New Zealand engineers is the elevator for stacking away the tailings in the rear of the dredge. The gold-bearing spoil is raised by the buckets, and shot into a long, revolving, perforated and inclined steel cylinder, down the centre of which is a large pipe from which jets of water play on the spoil, as it is slowly revolved by the cylinder. By the time that the spoil has travelled to the end of the cylinder, all the gold-carrying stuff has been washed through the perforations on to the gold-saving tables.

Formerly, the coarse gravel and stones, which could not pass through the perforations, after traversing the cylinder, were dumped overboard at the stern of the dredge. It soon became apparent, however, that the efficiency of a dredge was limited by the depth of the intersection of the faces of the worked and unworked gravel, and as a solution of this difficulty, the elevator was introduced, with most satisfactory results. The elevator, as now developed, varies much in the shape of the buckets and the methods of staying and driving: various patterns being favoured by different engineers, but they must be guided to a certain extent by the class of work to be done.

The revolving screens are made of $\frac{1}{2}$ to $\frac{3}{4}$ inch steel plate, with $\frac{1}{2}$, $\frac{3}{4}$ or 1 inch perforations. The diameter is generally about 4 feet, the pitch 1 to $1\frac{1}{2}$ inches to the foot, and the length from 15 to 30 feet. There is an iron collar at each end, which rests on two small friction wheels, and motion is given positively, or preferably by friction driving from one of the wheels, which is itself belt-driven from the main engine.

The main bucket ladder, buckets, and main gearing are very similar to those in use on any ordinary dredge.

The winch is a very important part of the dredge, and consequently much ingenuity has been expended on its improvement. The winchman controls the movements of the dredge forward, backward and laterally, and also raises and lowers the bucket ladder. This is all done by one sixway winch, in which accessibility, compactness and instantaneous action are the main features desired.

Close beside the winchman, there is generally a lever for throwing the buckets in or out of action by means of a friction clutch. This appliance is very necessary in ground containing boulders or timber.

The hull was formerly built in two separate pontoons, one on each side of the bucket ladder; but modern hulls are, almost universally, built as one pontoon, with a well for the ladder in the centre. In large rivers, where there is a swift current and numerous boulders, it is well to have several watertight partitions.

To ensure continuous action as nearly as possible, and a long life to a dredge, the following points require special attention. The top and bottom tumblers of the main bucket train and elevator should be made in as few pieces as possible, and of cast steel. The main gearing should be made of cast steel. The bushes

*From a paper read before the Institution of Mining Engineers

and connecting pins of the main bucket chain and the elevator should be made of manganese steel, or some other hard steel. The bucket should be provided with interchangeable steel lips. For working in stony ground, at least two buckets should be omitted, and steelshod grabs put in their place.

A large supply of water is required for thoroughly washing the spoil, and it is generally supplied by a centrifugal pump belt-driven from the main engine.

The power required on a dredge is determined by the depth and quality of the wash and the size of the buckets. A dredge having 7 cubic feet buckets capable of working 50 feet below water level and elevating the tailings to a height of 40 feet, would require a 25 nominal horse-power engine, and as supplementary engines are required for the winch and electric light dynamo, the boiler should be about 40 nominal horse-power.

The small pebbles and sand, which pass through the perforations of the revolving screen, fall direct on to the gold-saving tables: these are covered with coconut matting, expanded metal, and various forms of riffles. The matting is taken off at intervals, and washed in suitable tubs provided for the purpose. There is no doubt that a considerable percentage of gold is lost, and improvements are therefore required in the gold-saving part of the plant. These will probably take the form of a stuffing box, to deliver the spoil more evenly upon the tables and probably, also, where the gold is fine, a system of re-elevation and retreatment of the finer sands by gravitation or chemical methods, will be adopted.

Almost any ground may be dredged if a constant supply of water be assured, either by a small stream or by dams, and we may therefore divide dredges into two distinct classes, varying as to their design, material, etc., namely, river dredges and dry land dredges.

Considered financially, the land dredge can generally be made a safe investment, by judicious prospecting, as its operations are confined to accessible beaches and flats. The river machine is generally more speculative, as prospecting is often out of the question, owing to the large volume of water, the proximity of old workings or gold-bearing terraces alone giving a clue as to the probabilities of payable wash in the bed of the river.

Thorough prospecting is of vital importance, where a large outlay on machinery is contemplated. Several important points must be determined by methods which must be adapted to local conditions, namely: (a) The value per cubic yard; (b) the class of wash; (c) the average depth of ground; (d) the percentage of ordinary sand, surface silt and heavy mineral sand; and (e) the position of the water level with reference to the surface and to the bottom. The importance of (a) is obvious and (b), (c), (d) and (e) will determine the size of buckets, length of ladder and elevator, spread of tables and quantity of water, which will enable the ground to be worked to the best advantage.

Shafts should be sunk at various points, and a careful record should be kept of the points previously

enumerated. If there is sufficient water taken from the shaft, the excavated material may be run straight through an ordinary sluice box with matting, riffles and expanded metal. With a proper arrangement of screens, the percentage of light sands can be estimated, and the washings from the mats will give an approximation for the heavy sands.

If dish prospecting shows that the gravels are rich in fine gold, they should be treated by gravitation methods. If the loss is found to be great, it should be determined by chemical analysis, and the advisability of providing—for the dredge—concentrators and a potassium-cyanide plant should be considered. If there is a large influx of water to the shaft, a pump will be necessary, in which case a centrifugal pump, 3 or 4 inches in diameter, with a telescopic length of piping and a foot-valve, will be found useful. If the sinking is through loose sand, telescopic cylinders, that can be withdrawn and moved about, will often be found cheaper than timber. If the bottom cannot be reached by a shaft, on account of water, nor the depth calculated from the dip of strata or other means, a bore-hole should be made, as it is very important that the full depth should be known. In fine gravels, a steel rod, or small pipe, can often be hammered or jumped down.

Having ascertained the average depth of the ground below water level the length of the bucket ladder will be the square d^2 plus d^2 where d is the average depth below water level plus the height of the top pin (generally about 15 feet) above water level. This length enables the majority of the work to be done at the best possible angle of inclination, namely, 45 degrees.

A field book should be kept in the form shown in Table I.

Shafts.			Remarks on Strata and Nature of Bottom	Material excavated			Gold Save I.	Remarks on Gold	Water level	Total Gold: average per cubic yard					
No.	Surface Dimensions	Depth		C	F	Grs				Grs	C	F	C	F	C
	Ft. Ft.	Ft.													
12	5 x 4	3	Clay.....	50	0	—	3 feet from surf.								
		4	Fine wash.....	40	8	—	20 ft from bottom	Fine coarse							
		6	Coarse wash & boulders, largest two feet in diameter	60	43	—		shotty							
		10	Fine wash..... Bottom, finely laminated schist, strike north 23 deg. and dip 45 deg. west	100	51	—		Floury							
		23		230	102										

*Measured. †Calculated.

1 102 mul. 27 div. 230=11.9. ‡ 230-(153 plus 40)=37. || 230:40 plus 37=10.3

If dish prospects show a big loss of fine gold in the light sands, and in the heavy sands after amalgamation, bulk samples should be saved for laboratory treatment by potassium cyanide or other methods.

If a large-scale chart is prepared of the area to be

operated, showing the shafts, it together with the field book, will be found very useful, the progressive position of each dredge when working being marked thereon.

From the information obtained in sinking shafts the principal dimensions of the dredge can be fixed. The capacity of the gold-saving apparatus is the first consideration, and the other parts then in proportion. The proportion of sand and water passed over each foot in width of the table, is an important factor in the success, or otherwise, of the dredge; and it is particularly so in old littoral deposits containing a large percentage of titanic iron-sands. In this class of wash, a distributing head-box, a large supply of water, also tables adjustable as to fall, and with strakes that can be cleaned up separately, should be provided. The proportion of sand to water should be about as 1 to 20; the minimum flow of water 10,000 cubic inches per minute per foot of table width; and the sand maximum for the same about 2,000 cubic inches. The table-fall should be adjustable between the limits of 1 to 2 inches per foot, by wedges or screws.

Power is, of course, usually derived from coal or fire wood, but in the case of a company operating a large fleet of old dredges within the radius of a few miles, a large central electric plant utilizing either coal, wood, or water power, may be found suitable and advantageous, from many points of view.

The writer will now give an estimate of the cost of treating a cubic yard of gravel with a large, modern dredging machine, under average conditions. With a bucket capacity of 7 cubic feet, speeded for the delivery of 10 buckets, 0.75 full, per minute, the delivery will be 115 cubic yards per hour, and 14,490 cubic yards per week.

The cost of running for a week will be:—

Six men at 10s. per day for 6 days ..	£18
Manager	4
Coal, varies very greatly, say	15
Oil, waste, etc.	1
Repairs	5
Office expenses, say	10
Total	£53

And the cost of treating a cubic yard will be 0.87d. With gold at £3 17s. 6d. per ounce, the profits on working ground worth 1s. 11.05d. or 11.9 grains, as per extract from log given in Table I., would be: (23.05d. minus 0.87d. equals) 22.18d. per cubic yard; and (14,490 multiplied by 22.18 equals) £1,339 2s. 4d. per week.

The cost of a dredge to do this work would be under £10,000 in any manufacturing centre.

A member remarked that the figures given in the paper differed somewhat from those published elsewhere. A valuable report by Mr. Jaquet had been published by the New South Wales Government in which the cost of gold dredging in Montana was given as 4½d. per cubic yard against somewhat less than 1d. mentioned by the writer of the paper. That 4½d. was the cost of using steam; with electricity,

which was now largely adopted in Montana, the cost was about 2¼d. per cubic yard, and he believed that about 98 per cent of the gold was saved. Undoubtedly this method was an important advance in working alluvial deposits, and even if the author's figures were a little optimistic, it could be no doubt carried out at a remarkably low cost; in fact, in some of the New Zealand gold dredging operations, a dredge costing from £5,000 to £10,000 had repaid its entire cost within six months.

Mr. W. Denman Verschoyle wrote that since writing his paper, he had been travelling through British Columbia. Numerous attempts had been made to dredge the rivers of that colony but up to the present time no successful operations, for any length of time, had been recorded. He thought that the want of success was principally owing to the class of dredges that had been built. With few exceptions, they had been of the grab, suction or dipper type. These had all been tried in New Zealand, and had been discarded many years ago, and when the same thing had been done in British Columbia there was every probability that dredging would be successful.

NEW OFFICIALS FOR GREENWOOD SMELTER.

IT is announced that Mr. J. E. McAllister, C.E., M.E., for some time past assistant superintendent at the Tennessee Copper Company's smelter at Copperhill, Tennessee, U.S.A., has been appointed superintendent of the British Columbia Copper Company's smelter at Greenwood, B.C., in succession to Mr. Paul Johnson, E.M., whose official connection with the company came to an end on February 25th last. Mr. McAllister is not an entire stranger at Greenwood, he having visited the Boundary District at times about four years ago, whilst the construction of the Boundary section of the Columbia & Western Railway was in progress.

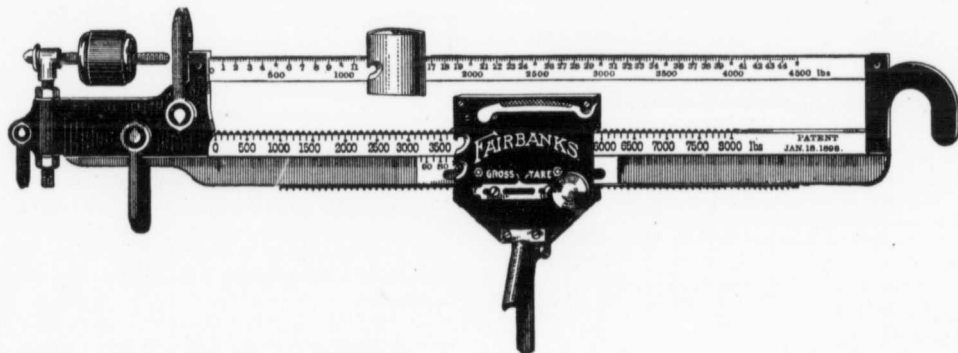
Mr. McAllister graduated as a civil and mining engineer at the Ontario School of Practical Science, Toronto, in 1890. Following this he gave special attention to structural steel, first with the Dominion Bridge Company and afterwards with the New Jersey Steel & Iron Company. Returning to Toronto he took a post graduate course in Applied Sciences at the Toronto University, graduating in 1895 and receiving his B.A. Sc. degree. In the autumn of 1896 and spring of 1897 he took a special course in mining and metallurgy at the Michigan College of Mines, Houghton, Mich., soon afterwards joining Mr. Sydney M. Johnson, C.E., (now of Greenwood, B.C.) the firm practising at Trail, B.C., as civil and mining engineers. In the fall of that year he joined the staff of the Trail smelter under Mr. H. C. Bellinger, then superintendent of Mr. F. August Heinze's smelter known as the works of the British Columbia Smelting & Refining Co., Ltd. When these works were sold to the Canadian Pacific Railway Company Mr. McAllister became confidential secretary to Mr. Heinze's chief engineer, Mr. W. F. Tye, C.E., who joined the C. P. R. Co.'s staff when

that company acquired the Rossland to Robson section of the Columbia & Western Railway, and continued with Mr. Tye until the completion of the railway through the Boundary to Midway. Next Mr. McAllister was with the Hamilton Steel Company, with works at Hamilton, Ontario. About 1900 he entered the employ of the Tennessee Copper Company, soon advancing to the position of assistant superintendent, which post he now relinquishes to come to the smelter which, it is claimed, holds the record for copper smelting, both as regards quantity treated per day and low cost of smelting.

Mr. McAllister has the reputation of being enterprising, progressive and fully competent to maintain the credit the B. C. Copper Company's works has gained for doing good work. He is a Scottish-Canadian, about 36 years of age, and comes well recommended.

TYPE REGISTERING BEAM.

THE above illustration is a cut of the most modern method of recording weights, being the quickest and surest way as the record is indelible and ineradicable. There is an advanced me-



chanical product which is to commerce what the printing press is to literature—indispensable. It obviates the necessity of reading from the beam, the weight being mechanically registered on the weigh ticket in printed characters. Rapid weighing is the demand of the present day, to meet which these beams have been designed and constructed. Rapidity of weighing under old methods or devices means multiplicity of errors. The Type Registering Beams are an instantaneous record of the reading of the beam with positive accuracy and evidence. This beam has beveled face graduated and figured so that the weights may be read in the usual manner. In addition to this the beam is provided with an internal mechanism so that when the load has been placed on the scale the ticket is inserted in the slot of the poise and by means of the handle an impression is made. This impression gives the gross weight of the load.

Should the weigher wish to print the tare ticket is inserted in the same slot and by a semi-automatic

mechanism the record is made just under the previous one so that the net weight can be calculated very easily. Only one operation is required for registering either the gross or the tare weight.

These beams, we learn, have been used with great success by many of the leading railroads and mines throughout this country, and are one of the many products of the Fairbanks Company.

RECENT MINING PATENTS.

WE are indebted to Mr. Rowland Brittain, patent attorney of Vancouver, for the following information.

METHOD OF TREATING ORES, U. S. Patent No. 722,809, granted March 17th, 1903, to F. R. Carpenter, Denver, Colorado.

Claim: The process of treating dry silicious ore containing precious metal which consists in smelting them with sulphur, copper and a basic flux, subjecting the matte produced to an oxidising roast then re-smelting the product with a silicious flux, thereby producing black copper containing the precious metal and a rich slag, adding the rich slag to a subsequent charge of ore, adding to the black copper metallic lead, sub-

jecting the mixture to heat and an oxidising blast, thereby forming copper litharge and a sulphur bearing material, and other reducing agents, thereby producing metallic lead and matte, and finally smelting the matte, producing metallic copper substantially as described.

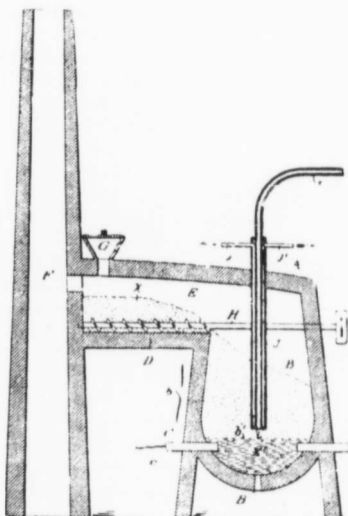
THE RUTHENBERG ORE REDUCTION PROCESS.

At the plant of the Cowles Electric Smelting and Aluminum Works at Lockport, N.Y., there is installed apparatus, the invention of Marcus Ruthenberg, of Philadelphia, which is capable of performing two functions, that of agglomerating or fritting fine ores, concentrates, or flue dust so as to put them into much better condition for charging into the blast furnace, or that of reducing iron oxide to what may be termed a sponge, to be employed as a raw material in the open hearth furnace.

The apparatus, say the *Iron Age*, consists of a horizontal horseshoe magnet hinged so that its poles may

be approached. The poles are surrounded by water-cooled bronze rolls covered with carbon plates, which rotate in opposite directions. Along the lines of closest approach an electric arc is formed, which subjects the material to be operated upon to a high temperature. The material is fed upon one of the rolls, and is thus carried to the active zone dropping out of the reach of its influence as the revolution of the rolls carries the material beyond it.

When the ore does not possess magnetic properties to certain degree Mr. Ruthenberg uses cast-iron borings in order to create the arc, the percentage varying with the circumstances. When putting the ore through the machine alone the action is sluggish and the capacity suffers. The result of this operation is a fritted material, which is in much better shape mechanically for charging into the blast furnace than the crude ore.



Mr. Ruthenberg makes the important point that during the exposure of the ore to the action of the electric arc a considerable part of any sulphur in the ore is eliminated.

A somewhat more interesting operation is the direct reduction of iron ore in the electric arc. The fine ore is mixed with carbon in a suitable form, and if desirable cast iron borings are also added. Exposure of the mixture in the electric light causes a reduction of the iron oxide, and there drops from the rolls a coarse, partly sintered material, which is largely iron in metallic form. This product is employed in the place of scrap in the open hearth furnace, one charge having been made with it at a leading steel plant.

The rated capacity of the machine is about two and a half to three tons of material per day of twenty hours, but it is the intention to build a larger machine, with rolls three times as long, which, it is expected, will reach a capacity of ten tons per day. The electric energy required for the machine is about 25 horsepower.

P.S.—The foregoing is copied from the *Mechanical Engineer* of March 28th, a Manchester publication, and I forward it to you as I believe it will be of interest to your readers.

FRENCH STEEL.

SEVERAL mine managers in British Columbia have been victimized in the past few months by the agent of a French steel works, who, on the strength of very excellent samples, has succeeded in obtaining large orders for steel, which upon delivery has proved to be worthless. The same sort of thing has been done in Australasia, and we print the following correspondence and editorial comment published by a Melbourne contemporary on the subject:—

To the Editor, The Australasian Hardware and Machinery.

SIR: During the past year New Zealand witnessed the advent of a French metalician, who, to prove the merits of his brand of steel, visited the principal engineering shops of the colony, and submitted his material to tests, which were very successful. The persistent exhibitor and salesman did considerable business, but he sold in metric terms, and few, if any, of his customers secured a note of the sizes and lengths ordered in our English measurements. From one end of the colony to the other, it is said, dealers believed they were ordering a couple of feet of each size as samples. The price was fairly high, but as the cutting edge of the steel was first class, the unsuspecting foundrymen were willing to give a fair, or even high rate for good material.

In due time, the invoices came to hand, and the steel was landed. Judge the astonishment of the buyers, when they found the bills running to hundreds of pounds, the bars arriving in about 18-foot lengths. Comparing notes, our foundry proprietors found to their mutual chagrin that each was as bad as the other in his careless ordering. One or two of the larger and busier works were disposed to take up their purchases, and did so, only to find that the quality was not as anticipated. Others decided not to touch the shipment, determining to abide by the sample submitted, and the lengths which they understood had been ordered. As far as one can learn, the only person who got his exact order filled to his own requirements was a blacksmith near Christchurch. The engineers of the colony are uniting to test their position, having generally come to the conclusion that they have had dumped on them an enormous quantity of useless steel. The final act of this little comedy will be awaited with interest.

Yours, etc.,

AUCKLAND.

SIR: Adverting to the letter in your current issue, the trouble arising through orders for steel placed in France is not confined to New Zealand by any means. Several Australian founders, were the matter not so painful, could tales unfold. Some of them took

the bait and were bitten—if you will tolerate the mixed metaphor. In plain English, they were impressed with the properties of Monsieur's vest-pocket samples and gave orders, with the result that they have on their hands to-day bars of inferior metal running to four and five times the quantity expected. The same tactics have been employed in Great Britain, and even the "cute" American has been similarly "had." In the *American Machinist* of July 24th last, Fenwick Freres & Co., the well known machinery agents, of Paris, exposed the hollowness of the whole business. The editor of that paper, in calling attention to the letter, said: "It will not be difficult to draw conclusions from this report, and anyone who gets caught in this game hereafter will have only himself to blame."

Yours, etc.,

J. CRAPAUD.

Melbourne, November 23, 1902.

(Following is the text of Fenwick Freres & Co.'s letter, as printed in the paper named.—Editor.)

"We think it advisable for you to call the attention of your readers to the following: A number of American tool manufacturers that we are representing reported us lately that they had been visited by representatives of French tool steel manufacturers, handing very pretty and attractive visiting cards, and soliciting orders for tool steel giving wonderful results; but they never received the steel ordered, or the quality that they received was very common and altogether different from the samples that they had been shown. Therefore these friends wanted to know if we knew anything about the French steel manufacturers referred to. Upon investigation we found that two of the firms whose addresses were given in this city had simply very small offices, where nobody could give intelligently any information in regard to this surprising steel, or tell us where this steel was manufactured, and name us reliable references. Another, whose representative claimed to be personally acquainted with us, was found to have never existed in the French city named. We leave to the interested parties among your readers, to draw themselves the conclusion they will like from the above report."

EDITORIAL NOTE.

Our correspondence column contains another letter on this subject. Last month a New Zealand contributor told of the experiences of foundrymen in that colony who had ordered special tool steel from the representative of a French company. The orders were duly filled, but few, if any, were satisfied with the result. More—in some cases much more—than the founders believed was ordered, came to hand, and the quality was anything but equal to the sample.

In the present issue another correspondent says Australian iron-users have been similarly victimized, and inquiry shows that he speaks by the card. It is difficult to ascertain the particulars—men do not like to admit that they have been "got at"—but we have learnt something of the who and the what—more

than we feel disposed to publish. The traveller who effected the sales carried samples of the metal, which he represented as a high-grade tool steel manufactured by his firm under a special process. Tools made from this steel were capable, he said, of doing better work than anything yet introduced. He was willing to have the matter tested there and then, and this was actually done in some cases, tools being made from his specimens and tried on the spot. Whether tested in this way or in some other, the result was eminently satisfactory. The steel was obviously of very fine quality. Orders for trial quantities followed in many cases, and in due time the invoices came to hand and the steel was delivered. Then the trouble began. In the first place, there was too much of it. One firm who expected £50 worth, received over £200 worth. But worse than this, the quality was poor. "Perfect rubbish" is how one firm describes it, while other descriptions are equally contemptuous, but less parliamentary. A few of the firms concerned took up the drafts, and, rather than have any bother, have closed the unpleasant business. But in most cases, as it would seem, no settlement has been made. In Australia, as in New Zealand, there has been talk of combination to resist any attempt to enforce payment. So far, however, no definite arrangement has been concluded. The company, it is said, are sending out two representatives to adjust matters, and some of the smarting founders are anxious that any delegates sent should be able to "talk English," meaning, we take it, able to comprehend foundryman's English when heated to a bright red!

It should be said that not all the firms approached are in the unpleasant position foreshown. Some of them turned a deaf ear to the charmer, and others, while placing small orders, took the precaution to stipulate that the metal was only to be paid for on proving equal in quality to the sample submitted. It was the quality rather than the price of the steel that induced the many to give it a trial. For the price was high, according to all accounts, although some seemingly agreed to pay more for it than others. In British money 2s. and 2s. 6d. per pound are given as the approximate cost, while one provincial firm says it amounted to "about 3s. 6d. per pound, as against 9d. per pound for ordinary steel." The whole business forms a tempting text for an editorial homily, but we forbear. "Ware French steel" is one of the lessons, the more needed because there is reason to believe that the parties concerned intend to prosecute their foreign activities under a different name and from a different address.

FREE MINERS' CERTIFICATES.

(By Clive Phillipps-Wolley.)

THE Association's recommendation in this matter was entrusted by the Provincial Mining Association to the writer of this article.

As far as we can judge from the opinions expressed by all the many politicians interviewed on behalf of this amendment, as well as from the words of the Premier himself this amendment is extremely likely to become law in the immediate future, and if it does, the

Association may be congratulated upon the removal from the Statute Book of a condition which seriously prejudiced mining in this Province, frightened foreign investors and complicated the difficulties of lawyers employed in investigating title to mining properties.

Under the law as it stands to-day, a man is obliged to take out a miner's license for which he pays \$5, before he can acquire or hold a claim, and he must renew this license every year on a certain date.

If he neglects to renew this license on the due date, his title to his mining properties become void and although he can within six month of the expiration of his mining license obtain a special free miner's certificate upon payment of a fee of \$15, which will entitle him to hold all his properties then in his possession, this special license is of no avail against anyone who may have jumped the licensee's property between the expiration of his license and the taking out of the special license.

In other words, he has to pay a fine of \$10 for negligence in not taking out his license at the proper date, and is also liable for the same offence to lose absolutely any property however valuable which anyone else chooses to jump during the period in which he has no valid existing miners' license.

For instance: Jones, a tourist from England is attracted by the mineral showings in Rock Creek, where he happens to be hunting, and is induced to take out a license, purchase a claim and spend certain moneys in the development of it.

He returns to England. In his absence his agent forgets to renew Jones' license. The claim appreciates in value and a professional jumper who "keeps tab" of such matters, observing that Jones has not renewed his license, puts in his stakes and jumps the claim.

The innocently negligent tourist loses his claim. He may pay the fine and take out a special license which will entitle him to hold any other claims he may have which were not worth jumping, but the one good claim has been jumped and can not be recovered.

We venture to assert that there is no other instance in our law of the punishment of innocent negligence by total confiscation of property and the knowledge that the negligence of an agent, or a man's own forgetfulness might subject him to forfeiture of rights honestly earned and paid for has been one of the causes which have made mining in British Columbia unpopular with foreign investors.

Clause 5B of the Placer Act reads at present: "In case any person shall allow his free miner's certificate to expire, he may at any time within six months from the date of such expiration, obtain from the proper officer, upon payment of a fee of \$15, a special free miner's certificate. Such special certificate so far only as such title depends upon such person having a free miner's certificate, shall have the effect of reviving the title of the person to whom it is issued to all placer claims which such person owned at the time of the lapse of his former certificate, except such as under the provisions of the Placer Mining Act may have become the property of some other person at the time of the issue of such special certificate and shall operate as a free miner's certificate until midnight of the 31st May

next after issue. In the case of a joint-stock company the fee for such special certificate shall be \$300," etc.

The amendment proposes to cut out after "such special certificate" inclusive and from the words "except such" to "special certificate" inclusive, and to alter the fee for a joint-stock company's special certificate from \$300 to \$150.

Under this amendment a man who has neglected to renew his free miner's license will have six months' grace in which to renew: he will have to pay a fine as it were of \$10 for not taking his license out at the proper time, but his property will be unjumpable during those six months of grace.

It will be a bad blow to the "jumping interest" but a boon to the foreign investor.

As far as we are aware there is no such thing as a miner's license in the States. It would, we are told, be contrary to the Constitution if there were, and in any case it is certainly in the interest of the Government itself and that most important matter, the revenue, to give security of title and to discourage "jumpers" who are merely beasts of prey, a menace to the community, and an incentive to law-breaking.

At the meeting between the Cabinet and the Executive of the Provincial Mining Association, Mr. Wolley ventured to go a step beyond his brief and plead that in cases of delinquent taxes the property holder received of his delinquency from the department affected, so in cases of unrenewed miners' licenses, the delinquent licensee should one month from the expiration of his term of grace, receive by registered letter addressed to an address endorsed upon his original certificate, a notice of the fact that his license had not been renewed.

If this suggestion is adopted, as the Premier seemed to think that it might be, the holder of mining property would in this particular be put upon the same footing as holders of other property in British Columbia and would have no just cause for complaint if by continued neglect he forfeited his title.

Under this amendment Clause 9 of the present Placer Act would be amended by inserting at line 7 after the word "shall" the words "subject to the provisions of Clause 5B as amended," and the the spirit of the amendment is expected to control all miners' licenses whether as regards quartz or placer claims.

Before leaving this subject it is only fair to congratulate the Government upon the improvement already effected by making all miners' licenses renewable upon the same date. This was a step in the right direction. Add to this the present amendment and there will be no excuse left for "innocent negligence."

NOTES FROM PHOENIX.

(From our own Correspondent.)

NOW that coke shipments are arriving with some regularity at the smelters, there is again considerable mining activity in Phoenix. Forces at the mines in this district have been somewhat increased, but for a time men were scarce. A considerable amount of work has been done on the 100-foot level of the Old Ironsides mine. This level will have its exit to the surface by what is known as No. 3 tunnel. Shipments for the past six weeks have been cut down to half the former rate. When the full blast of four furnaces is again running at the Granby smelter, however, shipments

from the Old Ironsides and Knob Hill mines will reach 1,500 tons per day. The new 60-drill compressor built by the Canadian Rand Drill Company, of Sherbrooke, for the Granby Company's mines here, has been installed. The two 700-h.p. motors which will drive this compressor have arrived from Pittsburgh, Pa., where they were made by the Westinghouse Electric Manufacturing Co. These motors are now being erected and as everything else is ready, the compressor will be in working order very shortly.

At the Snowshoe mine the main shaft which is now down over three hundred feet, is to be sunk a further 40 feet. The electric hoist for this mine is now in place and the current to be supplied by the Cascade Water, Power and Light Company, may be turned on when required. The Snowshoe is now in a position to increase its output upon resumption of shipments to the Sunset smelter. A tonnage of 500 to 600 tons per day could be easily maintained, but the smelters are not at present able to handle that amount.

It is reported that the Mother Lode smelter is to take the ore now on the dumps of the Brooklyn and Stenwinder mines. Tracks are to be laid to reach the dumps and it is expected that between 5,000 and 10,000 tons will be shipped to the Greenwood smelter.

Outside of Phenix work is being performed on the Oro Denoro in Summit Camp; the Blue Jay, some two miles below Phenix, has two shifts extending the tunnel. The B. C. mine has a small force of men working, and ore is accumulating on the dump.

YMIR DISTRICT.

(From our own Correspondent.)

DURING THE past month the almost impassable state of the roads has greatly hindered active mining developments. The Foghorn and Wilcox mines have both been temporarily obliged to reduce their forces at work in consequence of inability to get in sufficient supplies for a large crew. The Foghorn has a few men at work still, while the Wilcox has resumed operations with a full crew.

At the Ymir mine the force has been largely increased of late. On the 1000-foot level where it is nearly half a mile from the face of the east drift to the mouth of the adit tunnel, a number of large cars, holding two or three tons each, and drawn by horses, are being utilized instead of the ordinary mine cars. On this lower level, although no official announcements have been made, it is reported that good pay ore has been encountered in the drift to the east, and that it is well up to the average-mill stuff of the mine. The importance of this news can hardly be overestimated, as the existence of pay ore at this depth practically quadruples the amount of ore demonstrated in the mine. On the fifth level high-grade ore has been encountered in both the east and west drifts. A new theory as to the Ymir vein is that the ore body has split in two at a point near the shaft at the 500-foot level, so that practically two separate ore bodies now trend east and west with a zone of barren ore in between. The eastern ore body, it appears, has been caught on the 1,000-foot level.

One of the most enterprising companies operating in this district is the Active Company, of Cincinnati, Ohio, which owns the Union Jack group on Porcupine Creek. Clutronic drills of the latest improved Durkee pattern have been installed and are giving good satisfaction. On the Queen vein the lower tunnel is in some 270 feet in ore nearly all the way. The rich ore in this tunnel is about three feet wide and averages about \$20 besides about eight feet of free-milling quartz running about \$8 in gold. The tunnel is being run to get below a richer shoot exposed in the upper tunnel 100 feet above, where a quantity of solid galena ore running \$40 has been encountered. In addition to the Queen vein the company's property includes a second vein known as the Union Jack, which is crossed at right angles by a third vein. A tunnel has been run 305 feet on the third vein, and will intersect the main vein in the course of another 65 feet. Good ore has been shown up in this tunnel, getting noticeably richer as the point of intersection with the main vein is approached. When this point has been reached and the lower Queen tunnel has

reached the rich pay shoot the company will be guided by the results obtained as to the erection of a treating plant.

In addition to the promising prospect offered by the mine, the Active Company has an undoubted bonanza in its timber limit. It has purchased eight square miles of magnificent timber land lying between the mine and the railroad, and in view of the unlimited demand for B. C. lumber from the Northwest, proposes to turn it to instant account. A large plant including a shingle mill with a daily capacity of 60,000 and a sawmill of 25,000 feet per diem has been ordered and will be installed as rapidly as possible. By this means the company anticipate sufficient profits to amply provide for the complete development of the mine, and the equipment of a plant to treat the ore.

OIL CONCENTRATION AT LE ROI No. 2.

THE following is a brief description of the oil concentration plant to be installed shortly at the Le Roi No. 2 mine at Rossland: The cost of the concentrator completed, including buildings, is estimated at \$25,000. This provides for a plant of two units, capable of treating fifty tons of ore per day. Further units can be added at a much lower *pro rata* cost, but it is the company's intention to establish the practicability of the process beyond question on the smaller scale before making the expenditure on capital account necessary to mill a larger quantity on the start.

Briefly, the specifications for the plant are as follows: An estimated capacity of fifty tons per day of twenty-four hours, to consist of two units, each consisting of three mixing cylinders and accessories. The mixing cylinders will be six in number, each three feet in diameter and ten feet six inches long, complete with spiral inside and a pitch of twelve inches. Galvanized hoods and tanks are provided for each cylinder. Four carrier rollers are provided for each cylinder. The cylinders are to be driven through a worm operated by means of a jack clutch with striking lever suitably arranged. Galvanized launders for conducting the oil and concentrates from the separating tanks to the settling tanks are supplied. One settling tank is furnished, to be five feet in diameter, with coned bottom and steam coil rim. The oil storage tanks are two in number, each seven feet in diameter and ten feet deep. Oil meter pumps are six in number with one and a half inch outlets. The pumps are of a patent rotary type. An oil receiver tank goes with the equipment. It is four feet in diameter. There is a patent belt-driven suspended self-balancing centrifugal extractor with bottom discharge valve, safety outer case and solid basket 48 inches in diameter fitted with vertical vanes and diving ring, together with one trough with conveyor for leading concentrates from preliminary to final extractor. The balance of the apparatus consists of a tank for final separator, a tailings tank, and the shafting, pulleys and belts necessary for the operation of the works. The weight of the machinery is approximately 28 tons.

A wide range of experiments have been made with Le Roi No. 2 ores at the Elmore experimental works at Rossland, and the results secured are of an interesting nature. The real problem has been in connection with the extraction of the gold contents of the ore. It has been demonstrated that the percentage of extraction depends in large measure upon the fineness to which the ore is crushed, and the problem therefore resolves itself into a question of the advisability of crushing extra fine to recover a small additional percentage of gold, the copper contents being taken up with a comparatively coarse mesh.

The recovery of gold from pulp of thirty mesh has run from 71 per cent. to 80 per cent., the latter being the largest percentage of recovery secured with pulp of the mesh specified. Pulp passed through a sixty mesh has been found to return 90 per cent. of the copper contents and 90 per cent. of the gold contents. The difference in favour of the smaller mesh is 10 per cent., and it is a commercial equation whether the additional percentage of gold recovery will justify the extra cost of reducing the pulp to 60 mesh. This can be determined readily when the two unit plant has been in operation for a short time.

PROPOSED AMENDMENTS TO PLACER
MINING ACT.

AS RECOMMENDED BY THE PROVINCIAL MINING
ASSOCIATION.

On page 1, after section 1, add section to read as follows: "Claims usually called 'placers,' including all forms of deposit excepting veins of quartz or other metalliferous or valuable mineral rock in place, shall be subject to location, entry and Crown grant under like circumstances and conditions and upon similar proceedings as are provided in a general way by the Mineral Act for lode or mineral claims."

(The object being to simplify and encourage the working of placers, and to facilitate the final acquisition of a permanent title thereto.)

Part I, Sec. 5 B—Strike out on 5th line all after word "certificate" to "shall" on 6th line.

All after "certificate" on eighth line to "and" on 11th line, and change "three hundred" to "one hundred and fifty" on 13th and 14th lines.

And make corresponding changes in form of special certificate following.

(The object of this section is to give security to foreign owners against loss by accidental or other omission to take out a free miner's certificate on time by its employees.)

Sec. 6—Add words to end, "or satisfactory proof by statutory declaration or otherwise accounting for the non-production thereof.

(This is to provide against being handicapped in case, in the upper country, the free miner's certificate should be left behind or lost.)

Sec. 9—Insert after "shall" on 7th line the words "subject to the provisions of Clause (b), Sec. 5," as amended.

(This amendment is to conform to the alteration in Sec. (b), clause 5.)

Add at end of Sec. 9 the words, "or shall hereafter be issued."

(These words are added to preclude a doubt as to what should be done in the future.)

New Section (15) Every free miner shall be entitled to locate and record and hold only one claim on each separate creek, ravine, hill or bar diggings. He shall be allowed to hold any number of claims by purchase, and shall have the right to work said claims so held under one general system; and every free miner may sell, mortgage or dispose of his claim or claims, or any interest therein.

(The object of this is to permit a number of single claim owners to work their claims jointly; or, if acquired and held by one owner, to consolidate them and work under a general system. It is not suggested that the number of claims should be limited, as there is only one outlet, which, if limited, might prejudicially affect or even bar the possibility of the owners of the upper locations from being able to work their claims at all until after the exhaustion of the lower ones, except at prohibitive cost.)

Part II, Sec. 17—Add following new sub-section (20): The Gold Commissioner or Mining Recorder shall, immediately after being advised of the discovery of new creek diggings, have a survey made of same, said survey to be made by a Provincial Land Surveyor on each newly discovered creek, placing monumental posts every 500 feet, to be numbered consecutively 1, 2, 3, above, and 1, 2, 3, etc., below discovery; and the initial post of every claim shall be tied by survey or description to the nearest monumental post. Maps of such survey shall be kept at the office of the Gold Commissioner or Mining Recorder.

(Difficulties arose at Atlin during the rush which took place there in the early history of that camp. Anticipating a similar experience of a large influx of prospectors, it is to define

the locations by reference to these posts, and so save the Mining Recorder and other Government officials the difficulty of recording overlapping locations and prospectors from innocently selling locations having no status owing to the difficulty of proper description.)

Sec. 18—Strike out.

(The object of this is to enable the ground to be dealt with as abandoned and worked-out ground under Part VII of this Act as proposed to be amended, and defining by statute the time when such claim shall be deemed abandoned, instead of leaving it to chance for years to come.)

Sec. 20—On 4th line strike out all after "locator" to "the" on 5th line.

(This alteration is simply to conform to Sec. 5 (b).)

Sec. 27—Strike out on second line the words "one or more years" and all of last sentence.

(The alteration of this section is to conform to the proposed amendment to Sec. 1 of this Act.)

Sections 28 and 30 and 31 strike out, and substitute the following (31): Any free miner having located and recorded a placer mining claim shall be entitled to hold the same for a period of one year from the date of recording the same, and thence from year to year without the necessity of re-recording; provided, however, that during such year and each succeeding year such free miner shall do or cause to be done work on the claim to the value at least of \$100, and shall satisfy the Gold Commissioner or Mining Recorder that such work has been done, by an affidavit by the free miner or his agent, setting out in a detailed statement such work; provided, further, that any free miner or company of free miners holding adjoining placer mining claims to be worked under one general system shall be allowed to perform on any one or more of such claims all the work required to entitle him or them to a certificate of work for each claim so held by him or them. If such work shall not be done, or if such certificate shall not be obtained or recorded in each and every year, the claim or claims on or in respect of which the requisite work has not been done shall be deemed vacant and abandoned, and open for re-location.

(This alteration is to conform with the proposed amendment to Sec. 1 of this Act.)

Sec. 33—Strike out.

(This is struck out, as the Judgment of the Supreme Court of Canada in *Manley v. Collom* held it to be a bad section or bad law.)

Sec. 36—Strike out all after "for" in 3rd line to "and" in 4th, and insert in lieu thereof "one year," and strike out the "re-recording" in 5th line.

(Sec. 36 is proposed to be amended simply to conform to Sec. 1 hereof.)

Sec. 37—Strike out all after "have" in 3rd line and insert in lieu thereof "complied with provisions of (new) Sec. 107."

(This amendment is to clear up all doubts as to the possession of any vein or lode, and provides a method whereby it can be acquired without doubt.)

Sec. 38—Strike out.

(The reason of this is that the \$100 worth of work expended annually sufficiently saves the locator from being ousted and relieves the Gold Commissioner from work which will not be required if the recommendations contained in this document be adopted.)

(This will also prevent the continual holding of claims from year to year under such (in many cases) subterfuges as a lay-over, a re-record, a leave of absence, and other reasons galore—which we understand have been taken advantage of to an unlimited extent in the past.)

"This will enable *bona fide* prospectors to hold their claims as against the influences of large leaseholders who propose to force them to sell if possible.)

Sections, 39, 40, 41 and 42—Strike out, except Clause 3 of Sec. 42.

(The same remarks apply to this as to the last item.)

Sec. 43—Add after "claims" in 3rd line, "and if so recorded shall take effect from the date thereof, as against all persons."

(The object of this clause is to describe what effect the record shall have when made after the time proscribed therefor, and to render clear the provision which follows.)

Part III, Sec. 48—New section, as follows (44): Every free miner requiring to run or construct a tunnel, tail-flume or drain in connection with his claim through any occupied or unoccupied lands, whether mineral or not, shall obtain a license from the Gold Commissioner for that purpose, which license shall be granted by the Gold Commissioner whenever it is proven to him that said claim cannot be worked without such tunnel, tail-flume or drain; and shall also give such security for any damage that may be caused by such tunnel, tail-flume or drain as such Gold Commissioner may require. Such license shall be subject to such terms and conditions as the Gold Commissioner shall think fit, and shall be recorded in the record book.

(The object of this section is to describe more fully what shall be granted by the Gold Commissioner, subject to such conditions as he may think equitable, without leaving to him the power of discrimination against anyone.)

Sec. 49—Insert "tail flume" after "tunnel" in 1st line.

(This is simply to make the language of the Act harmonious, and provide for tail-flumes from hydraulic mines.)

Sec. 50—Insert "a tail flume or" after "constructing" in 3rd line. Insert the words "outlet, easement or" between "public" and "drainage."

Sections 51 and 53 and 54—Insert the words "tail-flume" before the word "drain" wherever it occurs.

(Same reason as 19.)

Sec. 60—Strike out.

(The object of striking this out is that a new section may be put in to conform with our other recommendations as to re-records.)

Sec. 61—Strike out the words "as many as ten or" in 4th line.

(It is proposed to strike out the words "as many as ten" so as to comply with the proposed amendment referred to in our Article 6.)

Sec. 63—After "employed" in 3rd line strike out all down to "and" in 4th line.

(Same reasons as 22 and 6.)

Part V, Sec. 64—Strike out "five" and insert "thirty."

(The reason for this is the difficulty of accomplishing the desired end in a sparsely settled country in five days.)

Part VI, Sec. 79—Strike out "one hundred and" in 3rd line from end.

(We strike out "one hundred and" because the price is considered excessive for the benefits derived therefrom, and is a larger price than should be demanded from a free miner.)

Sec. 84—Amend so as to provide for construction of 100 feet of flume each year.

(The object of this amendment is to force continuous work of at least 100 feet of flume annually until the completion of the flume, without permitting the discretion of the Gold Commissioner being exercised in the reduction thereof.)

Sec. 88—Add words "if found necessary" to 1st line, and strike out all after "extension" in third line.

(The object of this is to obtain the right, if the necessity show.)

Sec. 89—Add 89A, as follows: The holder or holders of a placer mining claim held under the provisions of Sections 16 and 17 of Part II of this Act shall, after he or they shall have expended in development work the sum of \$300, be entitled to a Crown grant thereof upon paying to the Government the sum of \$5 per acre; and the holder or holders of a consolidation of placer mining claims held under the provisions of Sections 16 and 17 of Part II of this Act shall, after he

or they shall have expended at least \$500 for each claim included in such consolidation, be entitled to a Crown grant thereof upon payment to the Government of the sum of \$5 per acre.

(The object of this new amendment is to enable the small owner of prospects to acquire a title which he may be able to sell in the future, and which at present there are no buyers for; and to place him in as good a position as the quartz miner.)

Part VII, Sec. 90—Strike out Sections 90 to 102, both inclusive, and substitute the following new sections:—

90. Placer claims suitable for operating on a large scale by the hydraulic, hydraulic elevator, drifting or other mining process may be located and recorded as follows, namely:—

(1) On worked-out or abandoned creeks, half a mile in length.

(2) On worked-out or abandoned dry diggings in newly discovered placer mining districts, or other placer mining districts, eighty acres.

(3) Provided, always, that nothing in this section shall be deemed to affect the right of any holder of a placer mining claim held under the provisions of Sections 18 and 19 of Part II of this Act as amended.

(These sections have been struck out and suggested new sections inserted which in our opinion provide a policy which will encourage development on a large scale owing to the better security of tenure and title provided for investors, and for which they are making strong demands.)

(It also promises the settling up of the surrounding country for stock raising, truck farmers, and others, to feed the large mining community which will be employed in the development of properties, for which an indefeasible title is proposed to be provided.)

(Particular attention might be drawn to the operation of Sec. 102, under the powers conferred by which the holder of a creek claim lease may be included with nine other placer mining grounds in other mining divisions, and the work performed on any one of them for all of them—which is unfair, and contrary to the spirit of the Act and the intention of the Legislature.)

91. Every free miner shall be entitled to locate and record a placer mining claim on any worked-out or abandoned creek, not exceeding one half mile in length. He shall also be entitled to locate and record a placer mining claim not exceeding eighty acres on worked-out or abandoned dry diggings in newly discovered placer mining districts, or on any other placer mining ground, 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 to work the same under one general system; and every free miner may sell, mortgage or dispose of his claim, or any part thereof; but in no case shall any placer mining claim extend along any creek or river more than 500 yards, creek diggings excepted.

92. Every 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 initial 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.

93. A placer mining claim shall not include any portion of any mining ground occupied by free miners for mining purposes, unless with the consent in writing of such occupiers of such included placer mining ground shall have been worked out or abandoned.

94. Every free miner locating a placer mining claim shall record the same with the Mining Recorder of the district within which such claim is situated within fifteen days after

the location thereof, if located within 10 miles of the office of the said Mining Recorder; one additional day shall be allowed for such record for every additional 10 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 his free miner's certificate, the locality of the claim, and a general description of the boundaries thereof. A certified copy of the record shall be given by the Mining Recorder to the free miner or his agent. A placer mining claim which shall not have been recorded within the proscribed period shall be deemed to have been abandoned.

95. A free miner shall not be entitled to a record of a placer mining claim until he shall have furnished the Mining Recorder with all the above particulars, and shall have paid in advance to the Mining Recorder the customary fee for making such record.

96. Any free miner having duly located and recorded a 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 his claim to the value of at least \$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 having been done; provided, also, that all work done outside of a 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 placer mining claims to be worked 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.

If such work shall not be done, or if such certificate shall not be so obtained or recorded in each and every year, the claim shall be deemed vacant and abandoned and open for re-location, any rule of law or equity to the contrary notwithstanding.

97. The holder of a placer mining claim shall be entitled to all surface rights, including the use of all timber thereon for building and mining 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.

98. Where the physical conditions surrounding placer mining claims intended for operation by the hydraulic, drifting, elevator or other processes or such as to make it practically impossible to equip and operate each claim separately, the owner or owners of such claims so situated shall be entitled to form a consolidation of such claims and the water rights appurtenant thereto, so that they may be equipped and practically operated on one general system, by recording his or their intention to form such consolidation, together with a schedule of the claims and water rights included in such consolidation. The holder or holders of such consolidation shall be allowed to perform in each and every year on 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.

99. Every free miner who is the holder of a placer mining claim or consolidation of such claims shall be entitled to a record of such quantity of unappropriated water from any stream, lake or watershed as may be required to work his claim or consolidation of claims, and he shall have the right to construct and maintain dams, gates, canals, ditches, flumes or pipe-lines for the purpose of controlling such water as may be necessary to work said ground effectively, and shall have the right-of-way through any mining ground or unoccupied

Crown lands for the purpose of constructing canals, ditches, flumes or pipe-lines to control and carry said water to the placer mining ground so held. Said right to the quantity of water so recorded shall continue in force so long as the holder or holders of such claims shall pay annually to the Gold Commissioner or Mining Recorder the sum of five cents per miner's inch per annum for the quantity of water so recorded, and until said placer mining claim or consolidation of such claims shall be worked out or abandoned; but all dams, canals, ditches, flumes and pipe-lines shall remain the property of such free miner or free miners who may have constructed the same.

CROWN GRANT TO PLACER MINING GROUND.

100. (New No.) Every free miner who is the holder of a placer mining claim shall, after he has expended in development work the sum of \$500, be entitled to a Crown grant thereof upon paying to the Government the sum of \$5 per acre; and the holder or holders of a consolidation of placer mining claims shall, after he or they shall have expended at least \$1,000 in development work for each and every claim included in such consolidation, be entitled to a Crown grant thereof upon paying to the Government the sum of \$5 per acre.

101. (New No.) Every free miner who is the holder of a lease for a creek or placer mining claim, or consolidation of such creek or placer mining claims, shall have the right to record the same under the provisions of this Act. Such record shall include the date of the lease or leases or claims included in such consolidation, together with the date of any water grant held as appurtenant thereto; but in no case shall the holder or holders of a lease of consolidation of leases of creek or placer mining claims be entitled to a record thereof under the provisions of this Act until he or they shall have proved to the satisfaction of the Gold Commissioner or Mining Recorder that there has been made the required expenditure annually for development work on such lease or for each of such leases or placer mining claims included in such consolidation, and shall have paid all rents and taxes due on such lease and each of such leases or placer mining claims included in such consolidation.

102. (New No.) The holder or holders of such lease or consolidation of such leases for creek or placer mining claims shall, after recording the same under the provisions of this Act and proving to the satisfaction of the Gold Commissioner or Mining Recorder that there has been expended at least \$2,000 for development work on such leased claim or for each of such claims included in such consolidation, be entitled to a Crown grant thereof upon payment to the Government of the sum of \$5 per acre.

103. (New No.) The holder or holders of a record for a creek or placer mining claim held under the provisions of this Act shall pay annually to the Government a placer mining tax of 25 cents per acre on each and every creek or placer mining claim so held; said tax shall be paid to the Gold Commissioner or Mining Recorder before such holder or holders of creek or placer mining claims shall be entitled to a certificate for work performed on such claims or consolidation of claims.

104. (New No.) The holder or holders of a Crown grant for a creek or placer mining claim shall pay annually to the Government a placer mining tax of 50 cents per acre on each and every creek or placer mining claim so held. If said tax shall not be paid on or before the 31st day of May in each year, the claim or claims in respect of which the taxes are so in arrear shall be sold under the provisions of the Act in force dealing with the sale of property for delinquent taxes; and if the said claim or claims be not sold, the same shall forthwith revert to the Crown and be declared open for re-location by notice posted at the office of the Gold Commissioner or Mining Recorder for 15 days previous to the date upon which such claim or claims shall be open for re-location.

105. (New No.) The beds of all rivers, creeks and gulches draining placer or mineral mining districts, which, at the time of the passing of this Act, shall be worked out or abandoned,

shall be reserved from Crown grant and held open as a highway for affording outlet, easement, drainage and a place of deposit for tailings or waste from either placer or mineral mines.

(In reference to this new section, it is proposed to maintain this highway or outlet for the benefit of all classes of miners on the creeks or gulches which have been worked out or abandoned, so as to afford an outlet, easement or drainage or place of deposit of tailings or waste from placer or mineral claims, and so that no one man or company can control such outlet by the mis-use of any of the powers hereinbefore granted to him.)

106. (New No.) All Crown grants for creek or placer claims issued under the provisions of this Act shall contain a clause reserving the right-of-way for such tunnels, tail-flumes or drains as may be required to afford outlet, easement and drainage for such mines, as provided in Part III of this Act.

(This is self-explanatory; its object is so clearly set forth that we ask only that equal rights and privileges shall be granted to all persons alike, whatever the nature of their interest, to reach a deposit in place, for their waste, tailings, debris or drainage.)

(General.—It is suggested that a clause providing that all Acts and parts of Acts conflicting with this Act should be repealed.)

PLACER CLAIMS CONTAINING LODGES.

107. (New No.) Where a free miner, association of free miners, or corporation is in possession of a placer mining claim and also a vein or lode included within the boundaries thereof, application shall be made for a Crown grant for the placer claim, with the statement that it includes such vein or lode, and in such case the Crown grant shall issue for the placer mining claim subject to the provisions of this Act, including such vein or lode, upon the payment of \$10 per acre for such vein or lode claim, and 100 feet of surface on each side thereof; the remainder of the placer claim or any placer claim not embracing any vein or lode claim, shall be paid for at the rate of \$5 per acre, together with all costs of proceedings; and when a vein or lode such as is described in the Mineral Act is known to exist within the boundaries of a placer claim, an application for a Crown grant for such placer claim which does not include the application for a vein or lode claim shall be construed as a conclusive declaration that the claimant of the placer claim has no right of possession of the vein or lode claim; but where the existence of a vein or lode in a placer claim is not known, a Crown grant for a placer claim shall convey all valuable mineral and other deposits within the boundaries thereof.

Sec. 102A—Strike out in 3rd line the words "not to exceed six hundred and forty acres."

(The object of striking out the words "six hundred and forty" is to make the Act harmonious and allow large companies to consolidate and conform to the modern methods of conducting business on a large and comprehensive basis.)

Sec. 103—After the word "lease" in 11th line insert the following: "and that the lessee shall have his dredge or dredges in actual operation on the ground within two (2) years from the granting of his lease, and shall continue the operation of such dredge or dredges during at least sixty (60) days in each and every year, and in default of compliance with this proviso, or any part thereof, the said lease shall be deemed to be and be void."

(The object of this proposed amendment is to compel dredger companies to get to work, carry out the objects of their incorporation, and produce a revenue to the Government, or vacate the ground for others to do so.)

Sec 104—Strike out.

(The object of striking this out is to make it conform with the provisions of Sec. 103.)

Z. The provisions of the Mineral Act relating to certificate of improvement, adverse claims and Crown grants shall apply to placer claims of all kinds, and shall be deemed to be incorporated in this Act.

(These provisions, the application of which is suggested to be incorporated in this Act, are to simplify the procedure, having in view the fact that there are so many judgments in existence now declaratory of the meetings which should be attached to the various sections, some of which have been pronounced by the Supreme Court of Canada, and are therefore beyond question.)

N.B.—This section is an alternative for proposed Sections 108 to 114, both inclusive, which are practically the same as the Mineral Act provisions.

(This, of course, is simply proposed as an alternative for the proposed amendments, being Sections 108 to Section 114, both inclusive, hereinbefore set out.)

Part VIII, Sec. 109—Add Sub-section (h), "a book to be known as the Record of Crown Grants."

(The object of this addition is simply to make it comply with the suggestions hereinbefore made, and to keep a complete record of the Crown grants which may have been issued for the information of the public at large without having to send to the nearest Land Registry Office.)

Sec. 110—Strike out the whole of the second sentence.

(This alteration is simply to conform to the former recommendation herein as to re-records.)

Sec. 111—Strike out the words "lay-over, leave of absence."

(The object of striking out these words is because there will be no necessity for them if the recommendations herein are adopted.)

Sec. 113—In first line, after word "record," insert words "and retain."

Strike out in first line the words "by copying out verbatim," and insert after "office" in last line the words "and shall copy the same into the Record of Affidavits."

(The object of inserting this is that the affidavit, when made, shall be forever retained in the office, to prevent substitution and alteration, or loss of the original by the owner, except that in case of a deed a notarial copy shall be retained.)

(The same remarks apply to the next section—114.)

Sec. 114—Insert after "record" in first line the words "and retain." Strike out the words "by copying out verbatim in the Record of Conveyances," and add at end, "and shall copy the same into the proper books kept for such purpose."

Part IX, Sec. 128—Strike out sub-clauses (a), (b) and (e), and insert "tail-flume" after "claim" in 4th line, sub-clause (h), and in (j) after word "constructing" in 2nd line.

Sec. 128—In clause (1), first line, strike out words "placer mining ground" and insert the words "the beds of streams for dredging purposes."

(These clauses are struck out for the reason that they will not be required if the suggestion as to \$100 worth of work annually being performed is accepted and acted upon by the Committee. And the insertion of the words "tail-flume," and the leasing of beds of streams for dredging purposes.)

Sec 152—Strike out—as it has been amended and inserted in Assessment Act.

(It is proposed to strike this out, as all the ground covered thereby is covered by the previous amendments as suggested, and the Assessment Act Amendment Act, 1903.)

Forms to be amended to comply with proposed amendments.

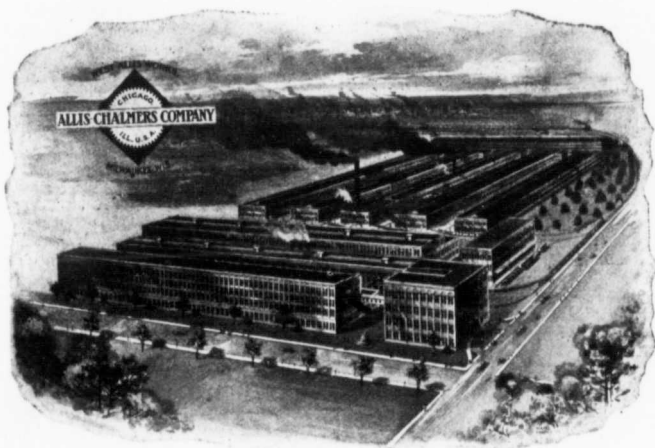
CATALOGUES, CIRCULARS AND TRADE NOTICES.

MESSRS. the Allis-Chalmers Company have moved the company's general offices from the Home Insurance Building to the New York Life Building, corner of La Salle and Monroe Streets, Chicago. This move is only another indication of the progressive spirit which prevails in the management of this strong industrial. The Allis-Chalmers Company has for the past two years been expending enormous sums of money in betterments at their various plants in Milwaukee, Chicago and Scranton, so as to give their customers the best possible service in point of economy and quick deliveries. The new offices of the Allis-Chalmers Company will provide ample space for the various sales departments and general business offices which will be conducive of the best possible service to their trade. To give a fair idea of the scope of the business enjoyed by the Allis-Chalmers Company, we will mention that during the past two months, orders for either engines, mining machinery, rock crushing machinery, sawmill machinery or flour mill machinery were booked from every State in the Union, besides the following countries: England, South Africa, Mexico, Canada, Chile, Central America, Brazil, British Columbia, Bolivia, Hawaiian Islands, Peru, Alaska,

end of an extended generator shaft; wheels to operate under a 390-inch head and run at a speed of 200 R.P.M. The nozzles are of the improved Pelton combination, deflecting and needle type, hydraulically balanced.

The Northern California Power Company, who have recently installed three 1,600-h.p. Pelton wheels to directly connect to Westinghouse generators, have now given the Pelton Company another order for two 3,000-h.p. units to operate under an 1,150' head. By means of flexible leather link coupling, power will be transmitted from both ends of each water wheel shaft to two 1,500 h.p. generators, which will run at a speed of 300 R.P.M. Maximum capacity of plant, 3,000 h.p.

The Gwin Mine Development Company, Valley Springs, Cal., are installing a hoist with a capacity of twenty thousand pounds at a speed of 1,200' per minute—power derived from two 9' diameter Pelton wheels having triple nozzles which are fitted with two hydraulic hoist operating valves, one valve to control the three gates on each nozzle. This will excel the capacity of the famous Utica hoist, which consists of two 10' Pelton wheels and lifts 18,500 lbs. from a depth of 2,000' at a speed of 700' per minute.



China and the Philippine Islands. Meanwhile, at the last meeting of the Board of Directors of the company held in New York April 15th, the regular quarterly dividend of 134 per cent. was declared on preferred stock. It is also reported that the volume of business on the books of the company to-day far exceeds that of any time since the organization of the company, notwithstanding the fact that the output of the plants has been increased to a large extent. We can see no abatement of prosperity in our various lines of manufacture. There seems to be an unlimited demand for all kinds of high-grade machinery, which is certainly a good indication that prosperity is enjoyed in all lines of manufacture.

During the last four months the Pacific Department of the Pelton Water Wheel Company has received contracts for water wheels for the largest and most important hydro-electric plants west of Niagara. In every instance the wheels must conform with the speed of the generators to permit of direct connection, and as the heads under which they operate are of both extremes, that is, from 65' to 2100', some idea of the adaptability and vast range of the Pelton apparatus in this comparatively new industry may be imagined. These important installations may be briefly described as follows:—

Vancouver Power Co., Vancouver, B.C.—To consist of three 3,000-h.p. units; 9,000-h.p. maximum capacity of plant. Each main unit to consist of two wheels, one to be mounted on each

Siskiyou Electric Power Company, of Yreka, Cal., are about to install their first 1,000-h.p. unit which consists of one Pelton wheel which operates under a 680' head and will directly connect to a 750-k.w. generator by means of a flexible leather link coupling.

Contracts for an interesting plant have just been let, by the Pike's Peak Hydro-Electric Co., Colorado Springs, Colo., which when finished will be the highest in the Western Hemisphere, both in altitude and operating head for the wheels—effective head being 2,100' and the plant will consist of three Pelton wheels each to directly connect to one 750-k.w. generator which will run at a speed of 450 R.P.M.

The whole construction of these wheels will embrace the highest grade of steel and U. S. Navy standard gun metal.

Other contracts netting 2,000-h.p. have either been installed or ordered during the last three months, and may be summarized as follows: Iowa & Mexico Mining & Milling Co., Tepic, Mexico; Gwin Mine Development Co., two 6' wheels for running their rock crusher plant, 300-h.p. 290' head, 217 R.P.M.; Brigham City Electric Light and Power Co., Brigham City, Utah, 800-h.p. 280' head, 300 R.P.M.; Corrigan, McKinney & Co., Concheno, Mexico, 150-h.p., 190' head, 85 R.P.M.; Kerkhoven & Mazel, Pasir, Naugka, Java, 800-h.p. 36' head, 76 R.P.M.; Oregon Developing Co., Cascades Calumet Manufacturing Co., Castle Rock, Ore., besides many others of smaller capacity requiring standard wheels.

The Western Engineering & Construction Company, of San Francisco, is about to install, in the territory south of the Yukon District, a power transmission plant for the operation of a gold dredge which will be erected at Atlin, B.C., two miles distant from the power plant. This is a new development in the methods of mining in this region, which is a very important placer district, and much gold that would otherwise be lost will be saved by the use of electrically operated dredges. The work to be done here is similar to that carried on at Oroville, Cal., although the gold is coarser in the Atlin District.

We have received an interesting description of the improved Parker Rotary Mill from the manufacturers. This mill apparently differs in no respect from the stamp mill of the ordinary type except that by the introduction of an ingenious device, better results are obtained. This device succeeds, we are told, in securing the advantage of the "grinding, scouring process of the old arastra" and combining with it the "crushing, pulverizing methods of the modern stamp mill."

Messrs. F. W. Braun & Co., of Los Angeles, Cal., issue a new catalogue in which a very complete list of assaying appliances and assayers' supplies is given.

COMPANY NOTES AND CABLES.

NICKEL PLATE. (Camp Hedley.)—A thirty drill has been ordered for this mine, which it is reported has recently been acquired by the Yale Mining Company.

TYEE, Mt. Sicker.—Official returns issued by the Tyee Mining Company show that the result of twenty-five days' smelting of ore from the Tyee is \$52,336. In that time in March, 3,632 tons of ore were smelted, and 370 tons of matte were produced, the record for 28 days' smelting during the month of February being \$47,050. During the months of February and March, therefore, the Tyee produced an aggregate of \$99,386, or over \$1,875 for each smelting day.

VELVET, Rossland.—The following cable has been received at the London office of the Velvet Mines: "Have received the following returns from smelters: 450 tons second-class ore yielded 364 ozs. gold, 35,400 lbs. copper; net returns from smelters, \$7,877, or an average of £2 12s. 6d. per ton."

HIGHLAND, Ainsworth.—Nearly 500 tons of ore were shipped last month.

Ymir.—Cablegram from the company's representative at Ymir: "Level No. 5 west has been extended 25 feet. The ore in the drift has improved. Assays now average \$10 (£2 1s. 4d.) per ton of 2,000 lbs., width 8 feet."

LE ROI.—Cable from the manager: "Ore has been found 1,050 feet level west of the shaft, probably Mulligan shoot; gold assays average \$16 per ton of 2,000 lbs., copper \$2.80, small amount silver; extent at present unknown, but present appearances most encouraging." Cabled returns for March: "Shipped from the mine to Northport smelter during the past month 17,008 tons of ore, containing 5,417 ozs. gold, 10,511 ozs. silver and 489,300 lbs. copper. Cannot form any reliable estimate as to profits; cost per ton for treatment cannot be determined at present."

TRUE BLUE (Kaslo).—At a general meeting of the shareholders of the True Blue Mining Company it was decided to give an option of purchase on the property for \$75,000 cash. Last February the representative of the purchasers made an examination of the mine and expressed himself as thoroughly satisfied with the showings in the underground workings. He so reported to his principals in New York, who have now secured the option pending an examination to be made of the surface ground when the snow goes off. The holders of the option will examine the group in June, so as to prove the continuity of the vein. If satisfactory, as is expected, the purchase money will be paid at once.

MONITOR (Sandon).—The Monitor mine, Sandon, shipped 150 tons of high-grade ore last month, the largest amount sent out from the property for some time. Shipments are only being made from the stopes between levels 1 and 2 at the present time, and it is only a fraction of what could be mined

and shipped, when it is understood that the ore reserves from the third to the fifth levels have practically not been mined. The Monitor is one of the best managed properties from a paying and system point of view in the camp, and the present manager, M. Gintzberger, is keeping the development work far in excess of the actual shipments.

LE ROI.—Report for February: "The ore shipped during the month amounted to 15,824 dry tons, containing 4,006 ozs. of gold, 12,314 ozs. of silver, 525,970 lbs. copper; average value per ton, \$11.06. The cost of breaking and delivering the ore on the railroad cars was \$2.64 per ton, while the cost of development was equal to 54 cents per ton. The east drift, south cross-cut, which is being driven on the 500-foot level, is intended to cut the south vein on the east end of the property, Exploratory work was continued on the 1,350 level, but no discoveries of ore were made. At the end of the month the west drift had been run 593 feet from the main shaft, but the Josie dyke had not been met with. It is thought probable, as this drift has already passed through several small dykes of varying widths, that the Josie dyke may have changed the dip and form it bore on the upper levels, and become 'forked,' and that it has already been passed through. The diamond drill has not revealed the presence of any ore bodies of value.

"The expenditure for the month on mine account was \$57,017. Northport smelter—The expenditure for the month was \$100,037. The public ores purchased during the month amounted to 2,453 dry tons, containing 2,240 ozs. gold, 4,721 ozs. silver, 178,294 lbs. copper. The tonnage treated during the month was 7,282, segregated as follows: Roasted ores, 4,994 tons; raw ore, Le Roi, 1,370 tons; raw ore, public, 918 tons. The strike which has taken place at the collieries of the Crow's Nest Coal Company compelled smelting operations to be suspended on 12th February—a circumstance which has already been reported by cable. The smelting costs for the twelve days during which the furnaces were in operation were equal to \$3.88 a ton. Although the smelter force was cut down to the lowest notch, the company was still under much expense, as, besides the management staff, men had to be retained to weigh and sample the ores received from the public, and to perform such work as was necessary to keep the plant in condition for starting up at any time. The February smelting costs, if reckoned on the basis of the entire expenses for the month, would amount to approximately \$5 per ton. As to February profits—As, practically, none of the February ore has been smelted, it will be impossible to make an estimate of the profit which may accrue from the month's operations."

LE ROI No. 2.—The following report of the Le Roi No. 2, Ltd., for the month ended 28th February, has been received from the manager at Rossland: "Output—From 27th January to 16th February 1,434 tons shipped, average value per ton less smelting charges, \$21.63. Value \$31,020, from which mining charges have to be deducted. In addition to the above the following ore was shipped and paid for in January: 427 tons, average value per ton, less smelting charges, \$16.35. Value \$6,980. Exploration and development—Josie mine (1) On 500-foot level west drift, 68 feet were driven in ore. No other development work done except with the diamond drill. Number One mine (1)—On the 200-foot level 33 feet were driven by the timbering gang, who filled in odd shifts in this way, the object being to catch the upper continuation of ore in stope (have since met with some ore). Stopping operations—Ore has been raised from the stopes in the following quantities:

Josie Mine—	Tons.	Totals.
No. 19 stope, 300-foot level	729	
No. 5 stope, 400-foot level . . . . .	...
No. 20 stope, 500-foot level	419	
No. 8 stope, 600-foot level	702	
No. 11 stope, 700-foot level . . . . .	...
		1,850
Number One Mine—		
No. 2 stope, 200-foot level	153	
No. 4 stope, 300-foot level	392	545
Total		2,395

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Hartney
Idaho .
Ivanhoe
Monitor

As result of drifting in Josie, tons hoisted	368
As result of drifting in Number One, tons hoisted..	...
Grand total.	2,763

(Office Note.—That the new mine manager's system of monthly report may be quite intelligible to shareholders, it may be explained that only the amount of ore actually paid for during the month is returned, thus avoiding the confusion caused by the overlapping system hitherto in force. The third column represents the actual amount received from the smelter, from which have to be deducted mining and development charges. If these are taken at \$4 a ton the net profit since the recommencement of shipping would be \$30,558, or £6,300.)

MINING RETURNS AND STATISTICS.

THE COAST.

OUR Crofton correspondent writes: Ore shipments to the Crofton smelter during April were as follows:—

	Tons.
Marble Bay (1st class ore)	800
Marble Bay (2nd class ore)	2,400
Lenora, Mt. Sicker (2nd class ore)	3,000
Yreka (Quatsino)	800
Lone Pine (Republic, Wash)	420
Grafter (White Horse)	25
Total	7,445

ROSSLAND.

Shipments to the end of April are:

Le Roi	64,363
Centre Star	25,942
War Eagle	19,329
Le Roi No. 2	8,228
Velvet	2,471
Giant	300
Kootenay	170
White Bear	140
Homestake	80
O. K.	20
Total	121,043

BOUNDARY DISTRICT.

The following are the returns of ore shipments from the Boundary District for four months ending April 30th:

	Tons.
Granby	112,477
Mother Lode	22,368
Snowshoe	10,320
Emma	7,446
B. C.	6,810
Sunset	2,733
Providence	364
Total	162,478

SLOCAN AND SLOCAN CITY DIVISIONS.

Shipments from these districts to date are:—

	Tons.
American Boy	371
Antoine	81
Arlington	40
Black Prince	17
Bondholder	2
Bosun	440
Bluebird	20
Dayton	4
Enterprise	185
Fisher Maiden	280
Hartney	21
Idaho	21
Ivanhoe	446
Monitor	415

Meteor	12
Ottawa	106
Payne	1,062
Queen Bess	144
Rambler	412
Reco	153
Republic	20
Ruth	130
Rio	52
Red Fox	24
Slocan Star	806
Slocan Boy	16
Silver Gance	55
Surprise	5
Total	5,340

COAL EXPORTATIONS AND TRADE.

THE situation at Extension and Cumberland remains unchanged and a commission has been appointed by the Dominion Government to enquire into the matter. It is reported, meanwhile, that the colliers at Seattle and Tacoma are reaping a harvest from the light shipments from British Columbia, as they are crowding their products into the market. There is great uncertainty as to the steps that will be taken at the next meeting of Congress as to the retention of coal on the free list. This is one of the principal reasons why importers are shipping so freely from the Colonies just at this time.

Shipments by the Western Fuel Company in April to Puget Sound and Alaskan ports aggregated 24,704 tons.

Since the settlement of the strike at Fernie shipments have been made at the rate of 700 tons a day.

THE LEAD QUESTION.

IN view of the refusal of the Dominion Government to make any changes in the tariff for the relief of lead mine operators in British Columbia, the Executive Committee of the Provincial Mining Association has passed the following resolution, copies of which have been forwarded to Ottawa:

"Whereas the Province of British Columbia is subject to very heavy contributions exacted by the Government of the Dominion of Canada, amounting to the sum of one million five hundred thousand dollars, or thereabouts, over and above the expenditure of the Dominion in respect of the said Province;

"And whereas the mining industry of British Columbia in general, and of the silver-lead mines in particular, has suffered grievously during the past few years from the depreciation of the value of silver and lead and from other causes;

"And whereas many products of lead are imported into Canada, subject to the payment of an insignificant duty and a substantial increase of said duty, would give speedy relief to many mines which cannot under the existing tariff be worked at a profit, and would thereby alleviate the present distress;

"And whereas the above facts have been fully represented to the Government of the Dominion of Canada by a special delegation from the Kootenay District in the month of January last;

"And whereas this Association did by resolution duly communicated to the said Government, respectfully endorse the said request of the silver-lead mine owners;

"Be it resolved that this Association has learned with dismay that the Hon. the Minister of Finance for Canada has intimated in his budget speech that it is not proposed to make any changes in the duties on lead during the present session;

"That it earnestly hopes that it may yet be found possible to grant during this session the relief so urgently needed, by a readjustment of the lead tariff on the lines of the petition of the silver-lead miners, which request has received the endorsement of representative bodies throughout British Columbia and in other parts of the Dominion of Canada;

"That this Association now urges, that if for any reason

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the Government cannot take this action during the present session, assistance be given to the industry pending such readjustment, by means of a bonus of \$4 per ton on lead in ore mined in Canada and exported in the ore—a substitute bonus of \$8 per ton on lead in ore which has been both mined and smelted in Canada and exported as base bullion—a substitute of \$10 per ton on lead in ore mined, smelted and refined in Canada, such bonus in each case to be payable to the miner or company producing the ore, supported by such declaration from purchasers, smelters or refiners, or other satisfactory proof as may be considered desirable; it being, however, emphasized that this is recommended as a measure of temporary relief, to be replaced by the protective duties asked for as soon as possible."

THE METAL MARKET.

NOTHING of particular interest appears to have transpired during the month, with the exception of a slight decline in copper, being, as the *Engineering and Mining Journal* points out, the natural result of an advance which was possibly too rapid. Sales have not been large in this metal, as producers have refrained from pressing metal on the market in the expectation of a speedy recovery, and consumers also are fairly well supplied. Consumption meanwhile continues undiminished and the outlook is most favourable. The latest quotations are Lake, 14% to 14%; electrolytic, 14% to 14%; cathodes, 14% to 14%; casting copper, 14 to 14%. The American lead market remains unchanged, the ruling quotations being 4.60 to 4.65 New York, 4.50 to 4.57½ St. Louis. The London prices are £12 8s. 9d. to £12 10s. Spelter is stronger, although quotations are somewhat irregular, ranging from 5.35 to 5.45, St. Louis; 5.50 to 5.60, New York. Silver is higher, at 50¾.

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NOTICE

NOTICE is hereby given that the portion of the Yale District known as the Kettle River Mining Division shall, from the 1st day of May, 1903, be known and designated as the Greenwood Mining Division.

EDWD. GAWLER PRIOR,
Minister of Mines.

Department of Mines,
Victoria, B.C., 2nd April, 1903.