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THE CANADIAN MINER

No. 16.

TORONTO, ONT., MAY 1, 1897.

Vol. I.

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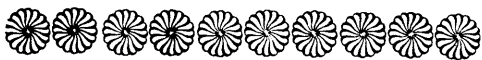
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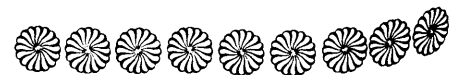
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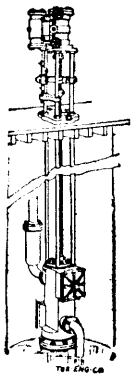
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The Canadian Miner.

VOL. I.

TORONTO, MAY 1, 1897.

No. 16.

TREATMENT OF SILVER ORES.

Low grade silver ores containing insufficient lead or copper to allow their being smelted, and too impure for wet milling, are frequently found. It would not pay to carry these to a smelter. The presence of sulphides, sulpharsenides, or sulphantimonides of the base metals, renders them irreducible by the amalgamation process. Usually such ore is submitted to chloridizing roasting, and then brought out and treated by amalgamation. With some ores this is unsatisfactory.

The use of sodium hyposulphite as a solvent of silver chlorides in ores was proposed by the late Dr. Percy in 1848, and the first trial was made by Von Patra in 1858. O. Hofman introduced the process at Sonora, Mexico, and two or three lixiviation plans constructed by him were in successful operation in 1870, and the process was found well adapted to the treatment of much of the low grade ore in North-Western Mexico. The process is described at length by J. H. Clemes, Ass. M. Inst. C.E., in a paper read before the institution. In this process the extraction of the silver is effected by converting the silver salts into silver chloride, which is dissolved in a solution of calcium hyposulphite, from which the silver is precipitated by an alkaline sulphide. The reactions are carried out (a) by roasting the ore in a mixture of common salt, (b) leaching the roasted ore with a dilute solution of calcium hyposulphite, (c) precipitating the silver sulphide from the solution by the addition of calcium sulphide. The precipitation of the silver is attended by the regeneration of the hyposulphite solution; the addition of calcium sulphide to the solution of silver chloride in calcium hyposulphate, precipitating with silver sulphide and free sulphur a simultaneous formation of calcium hyposulphite. After the precipitate is settled, the supernatant hypochloride is drawn off and is used again.

Except ores containing considerable galena, all silver-bearing ores associated with sulphur, arsenic or antimony are adapted to this process, and ores low in copper are treated with good results. The solvent is cheaper than mercury, and the roasted pulp is more cheaply handled.

The necessary plans for the lixiviation process comprise machinery for breaking and pulverizing the ores, roasting furnaces, leaching and precipitating vats, and an apparatus for treating the silver precipitate.

In Mexico a dry stamp mill is usually employed. The ore is fed into stone breakers and then drops into ore bins. It is then passed into the dry kilns, and thence to the batteries. The work is nearly all done automatically. The product of the mill is fine meal, as free as possible from dust, which would produce slime. Improved stamp mills now produce less dust in crushing than was formerly the case. In some mines rolls are used in grinding the weathered ore, which is less refractory. The long reverberatory furnace is used in Mexico generally, but mechanical furnaces are coming into use. The reverberatory furnaces are usually from 40 to 60 feet long, depending on the amount of sulphur in the ore. Each is divided into several hearths. The hearths'

floors are horizontal, that nearest the fire bridge being lowest, and each about three inches higher, and they are from 10 to 12 feet wide. The ore is spread on a cooling floor, where it is moistened, and it is necessary to have considerable space for the cooling floor. Leaching is carried out in circular wooden vats, of which there are three types, the leaching vat, the precipitating vat and the storage vat. The leaching vats act as filters, and are provided with false bottoms. They are usually from 15 to 25 feet in diameter. The ore is removed from the leaching vat by shovelling. A very important portion of the subsidiary parts of the plant is the means employed for elevating and conveying the solution of calcium hyposulphite. It attacks brass and gun metal, but has no effect on hard antimonial lead. Its action on cast iron is slow, except where friction is present, as in a pump. In distributing the solution no iron pipes are used, but wooden launders connected with the vats by rubber hose. The flow of the solution is regulated by screw clamps placed over the hose. The calcium-sulphide solution has no effect on iron, and is stored in iron vessels.

A charge of ore crushed so as to pass through a sieve of about 30 holes to the inch, to which between three and six per cent. of common salt has been added, is run from the hopper into the hearth of the reverberating furnace further from the fire. The ore remains on this hearth about an hour, and is then advanced to the next, the ore in all the other hearths being moved on to one nearer the fire. The sulphur in the pyrites ignites at this stage and burns with a blue flame, the ore being kept stirred in order to expose fresh surfaces to the action of the hot air. The burning of the sulphur heats the ore to incandescence and it is then advanced to the next hearth. Sulphurous acid is here evolved, and chlorination is perceptible. In the next hearth it is well stirred, and in the last hearth, where it is next the fire, it greatly increases in volume, becomes slightly pasty, and gives off dense volumes of chlorine intermixed with a small amount of hydrochloric and sulphuric acid gases. Samples are taken at frequent intervals. A certain proportion of silver is always lost by volatilization. Much of this is due to the employment of too high a temperature, the undue prolongation of the roasting operation, and the excessive generation of chlorine. In other words, it is due to the addition of the salt in more than the requisite amount, or at an unsuitable period of the operation. In an experimental roasting of three parcels of the same ore, the effect of roasting at temperatures corresponding to cherry red, red and dull red heats, was carefully determined. The furnace's losses, beginning with the ore roasted with the greatest heat, were 15.9, 13.7 and 11.6 per cent. respectively of the silver contained in the unroasted ore. Roasting furnace in which the ore is manipulated by machinery effect great savings in the cost of labor and fuel. The roasted ore is slightly moistened before it is taken to the leaching vats. It is sprinkled with water from the hose, turned over and mixed with a shovel. This handling of course adds to the expense. With argentiferous blende, especi-

ally if a little copper is present, the leaching operation is shortened if a considerable volume of the solution in excess of what is apparently demanded is passed through the vat. When a considerable percentage of lead or copper is present in the ore it is advisable to work with a dilute solution, and circulate as large a quantity as possible. A solution of one per cent. of hyposulphite is preferable to a more concentrated one. The longer the leaching process lasts the greater proportion of base metal will be extracted with the silver. The expediency, when base ores are treated, of employing dilute solutions, and leaching as rapidly as possible, is therefore apparent. When these two conditions are observed, ores containing considerable percentage of lead and copper are treated with an expenditure on the chemicals of between 60 and 80 cents per ton, and furnish a precipitate yielding from 15 per cent. upwards of silver.

The silver solution has stirred into it a strong solution of calcium sulphide in the precipitating vats. Tests are made during the stirring, and when a drop of calcium sulphide no longer causes a tangle precipitate, the proper point is reached. The precipitate is allowed to settle and the supernatant metal is run into the stock solution of hyposulphite. It is necessary that the lixiviation process should be carried on continuously as the solution is weakened by the oxidizing action of the atmosphere; the contained calcium hyposulphite being converted into gypsum. As long as operations are going on this loss is compensated by the fresh supply formed in the precipitating vats. A stoppage of a month's time might render the solution valueless. The calcium sulphide employed for precipitating the silver always contains some calcium hyphsulphite, which partly accounts for the increase in the volume of the stock of solvent; but the main source of calcium hyposulphite which is formed in the precipitating vats is the double matathesis which takes between the argentic and other hyposulphites of the silver solution, and the calcium sulphide of the precipitating solution. The higher the degree of concentration of these two solutions, the higher will be that of the regenerated hyposulphite.

In the Russel process the ores are first treated with a solution of sodium hyposulphite, then with a solution of double hyposulphite of sodium and copper. The latter solution is made by adding sulphite of copper to the former. It acts strongly on metallic silver, and on various silver salts, which are not reached by the hyposulphite solution; especially on silver sulphide, whether existing alone or with antimonial and arsenical sulphides. When the ore is imperfectly chloridized these compounds frequently occur. Under the ordinary lixiviation process these are wasted in the tailings. With well roasted or cupriferous ores the Russel process has no advantage over the Patera process which we have already described. In some mines a saving of six or seven dollars a ton has been effected by the adoption of the Russell process.

The precipitate which is obtained by the lixiviation process is thoroughly dried, and either melted or run into bars of impure bullion, or subjected to mixed scorification

and cupellation. Reverberatory furnaces are used in drying. When the precipitate is thoroughly dry it is heated until the free sulphur ignites. Cupellation furnaces are used in refining. In carrying out the scorification purification it is necessary to employ a large furnace to avoid loss. The litharge and scum which are produced in the refining process are reduced in blast furnaces.

The cost of ore reduction depends upon the chemical and physical constitution of the ore, local conditions, and facilities for handling. The latest item of expenditure is for the chloridizing roasting of the ore. Of some ores a furnace will handle twice the quantity that it would of another sort. The price of common salt and fire wood are important items. Some Mexican mines are successfully operated with cordwood at \$8 a cord, and salt costing \$40 per ton. The amount of quicklime is between one and-a-half to two-and-a-half times that of the sulphur. Sodium hyposulphite is rarely used. The most important economy is that to be expected from the introduction of improved methods for roasting the ore. The adoption of mechanical roasting furnaces, or the use of reverberatory furnaces of large dimensions, would undoubtedly effect a considerable saving.

BRITISH COLUMBIA MINES.

AN INTERESTING DESCRIPTION OF THE TOWNS AND MINING CAMPS WEST OF THE ROCKY MOUNTAINS.

(Written for THE CANADIAN MINER.)

The Province of British Columbia, perhaps more than any other section on the face of the globe to-day, is attracting the attention of wide awake people everywhere. This is owing entirely to the extent of its mineral resources, which are now being developed, and have already given the most absolute evidence of phenomenal richness. Nor is this development confined to any one section of the country, but extends from the Rocky Mountains to the Pacific coast, Vancouver Island included, and from the International Boundary at the south to the Arctic at the north, a country over 400 by 600 miles in extent, and containing over 240,000 square miles of territory, and it is safe to say that, nowhere within that great stretch of country does there exist a single section of 20 miles square, where indications of mineral values cannot be found, that will justify the expenditure of money in actual prospecting work. Those best acquainted with the resources of that great Province, have but begun to realize the extent of its mineral deposits, and few who do know care to publicly state their convictions in this respect, which given even in the most careful way, sounds to those unacquainted with the country like gross exaggeration.

In proof of all this we have only to glance at the different districts within the Province now being opened up. Commencing with the East Kootenay, which occupies the south-eastern portion of the Province, we have a district containing mineral resources of coal, silver and gold, both in ledges and alluvial. This district will be the first to benefit by the construction of the Crow's Nest Pass Railway, and it is perfectly safe to say that its resources alone, are sufficient to justify the immediate construction of that road. Apart from the immense coal measures of the Crow's Nest, which are too well known to require description, evidence of its value as a gold, silver and copper region, are found in the properties now under development and working in the district. Among

them are the North Star group, the Sullivan group, St. Eugene group, Moyie and Queen of the Hills, the Lake Shore, Legal Tender, Stella, Cashier, Skylark and Rover, all running high in silver and lead values. In addition to these properties already mentioned, a large number of gold claims have been located, and their development attended with satisfactory results, as far as the work has been carried out. The Invicta, and Nip and Tuck hydraulic claims on Wild Horse Creek are also operating successfully. That East Kootenay will be rapidly opened up is assured by the present influx of prospectors and others, and that it will repay the labor and capital invested in its development is certain. Throughout the Windermere, Golden and Donald divisions of East Kootenay, many properties of much promise are being opened up.

West Kootenay, famous the world over, owing to the rapid development of mineral resources, which are apparently unlimited, contains the Trail Creek, Salmon River, Nelson, Ainsworth, Slocan, Lardeau, Revelstoke, Illicilliwaet and Trout Lake mining divisions. Chief among these are the Trail Creek and Slocan districts, rendered so by the splendid results obtained from the development of their mines. Rossland, the principal town in West Kootenay, and the chief centre of the mining interests of the district with a population of about 7,000, has just been incorporated, and has elected its first city council, has good hotels, electric light, telegraph and telephone service, and public water works, and is connected with the American railway system at Spokane, by the Red Mountain railway, which was completed last December. The Columbia and Western railway also connects the town with Trail on the Columbia River, seven miles distant. This road is now being extended to Robson at the foot of Arrow Lake, 28 miles above Trail, and it is stated will be built west from that point to Penticton during the coming summer.

Rossland has grown from a single cabin to its present proportions within the last three years. The prospects of three years ago are the Le Roi, War Eagle, Centre Star, Josie, Columbia and Kootenay, Jumbo, Deer Park, Sunset, Nest Egg, Homestake, Monte Cristo, Commander, May Flower, O. K., Lily May, and Crown Point of to-day, while at least 50 properties that have been developed sufficiently to guarantee their future as valuable mines might be mentioned did space permit. In the Salmon River section most satisfactory results are being obtained on a number of claims now being worked, town-sites have been laid off, and the coming season is certain to be one of great activity throughout that camp.

Trail, on the Columbia River, is a fine town of about 1,500 people, many excellent properties are located near it, and much active development work is in progress, results from which are very satisfactory. The Heinzie smelter is located here, and is doing splendid work in reducing the ores of the surrounding districts, much of its supply coming from the mines at Rossland. The importance of Trail as a mining centre is certain to increase very greatly in the near future.

Nelson, the oldest town in Kootenay, is surrounded by a splendid mineral belt, and prospects and developed properties there are being taken up by capitalists almost every day. The Hall Mines Company's smelter is located at Nelson, and is said to be a very complete plant of the kind. Six miles west of Nelson the Poorman mine, a free-milling

proposition, is equipped with a ten stamp mill operated by water power. The Athabasca Company, on Morning Mountain, about three miles south-west of the town, are developing a splendid group of free-milling properties, while the Silver King, on Toad Mountain, is being actively operated by the Hall Mines Company. Taken altogether, the indications are that Nelson will rank among the prominent producing camps of the West before the close of this year.

Ainsworth is also receiving attention and much capital is being directed there. One of the big exploration companies has just purchased the Mile Point mine, near the town and has commenced its active operation. Many other properties are also being worked, and there is no doubt but what this camp will hold its own from this time out. Near Ainsworth the Pilot Bay smelter is located, but for some reason unknown to the public remains idle.

The Slocan is too well known to require any extended description. This region, which has been developed during the last six years, mostly by poor men, who took the values out of the veins, to pay for the cost of development, shipping their ore at first under the greatest difficulties, and at great cost. To-day the Slocan boasts upwards of fifty shipping mines, fine towns, telegraphs, railways connecting with the steamers on the Kootenay and Arrow Lakes, and having direct communication with all the great railway lines of the continent both north and south. The traffic both into and out of this region is already very great, and its extent can only be realized by those on the spot who can see for themselves.

The customs returns for the month of March, show the value of ore and matte exported from the Slocan and Rossland districts alone, to have been over \$700,000, and it seems certain that the value of these exports will reach the million mark, per month, before the end of the present year, and all this from a district that four years ago might be said to have been practically unknown territory.

The Revelstoke division to the north, which includes the Illicilliwaet and Big Bend camps, contains many properties that are showing up under the development work now in progress there, most satisfactorily. There can be no reasonable doubt but that this section will add very materially to the yearly output of British Columbia mines within a short time. The Big Bend has many rich placer and free-milling quartz prospects, and with better means of communication is certain to prove itself a rich camp.

Adjoining the Kootenay on the west comes Yale district. In the south-eastern portion of this district, immediately adjoining the Rossland division, is Christena Lake and Kettle River mining divisions, commonly known as the Boundary district. This section of country possesses perhaps the strongest known leads of copper-gold ore in British Columbia, if not in the world. Among the best known properties of that camp are the Volcanic, described as a mountain of ore; the Seattle, a splendid property of immense value; the Wolverine; Minnie; the extensive Rathmullen group, with its immense ledges; the Pathfinder, the English and French company's property, and the fine group of locations lying between Brown and Pass Creeks, all up the North Fork of Kettle River. These properties, together with the long list near the junction of this branch with the main stream at Grand Forks, contain possibilities which can as yet be only surmised, but at the least must be enormous.

West of the North Fork section comes the Summit, Greenwood, Deadwood, Long Lake, Anaconda, Skylark, and Midway camps, all containing properties of exceptional value, among which may be mentioned the R. Bell, Cordick, Canadian, Mother Lode, (in which the vein has been crosscut at the 100 foot level, showing it to be 200 feet in width between walls,) the No. 7, Combination, Winnipeg, Old Ironsides, Snow Shoe, Stemwinder, North Star, and dozens of others upon which development work already done has shown immense bodies of rich ores.

The coal deposits along the Kettle river and near the mouth of Rock Creek, have been proved by analysis to be suitable for coking purposes, and together with the limestone deposits, furnish the necessary fuel and flux for the economical local smelting of the ores of the district. The conclusions arrived at by all mining men of experience who have examined the mineral deposits of the Kettle River country, are to the effect, that this must become one of the greatest camps of modern times.

Grand Forks, situated at the junction of the North Fork and main branch of the Kettle River, has a beautiful location, and is destined to become a second Rosslund in the near future. Already it has 700 inhabitants, is incorporated, has its mayor and council, and is one of the pushing progressive towns of the West. The rush of strangers is great, and the hotels of the town are taxed to the utmost to provide accommodation. This can only be remedied by the erection of more buildings, which undoubtedly will be commenced immediately.

Greenwood, the central point in Greenwood camp, some 20 miles westerly from Grand Forks, is also growing rapidly, and promises to become a town of large size before the end of this season. It is preferred by many to Grand Forks, but the choice of towns is mostly due to the location of the interests of the parties, which may be in the camps tributary to either one or the other of the two places. Midway, a pretty little town some miles south of Greenwood, is the point at which the Provincial Government officers for the Kettle River Mining Division are located.

The climate of this section is very fine. The lower slopes of the mountains are mostly open and covered with a splendid growth of bunch grass, while the valley lands are adapted to farming purposes, needing in most places however, irrigation, as the summer seasons are dry.

Next of importance to the west, comes Camp McKinney. This camp is now well known for the free-milling nature of its veins, and the results of the operation of the Cariboo M. M. & S. Co., who operate a ten stamp mill, and have paid their shareholders \$125,000 in dividends during the last two years. A splendid group of claims, mostly free-milling, are located in this camp, and much development work is in progress.

Fairview, lying north-westerly from McKinney is another important free-milling section. A large amount of development work has been done on the ledges of this camp, and the most gratifying results met with. There is no room for doubt but that Fairview will soon be adding largely to the yearly output of the British Columbia gold mines.

West of Fairview a few miles is Keremeos, on the Similkameen River, where considerable exploring work has been done, and numbers of good ledges located. Forty-five miles above Keremeos, at the junction of

the Tulameen with the Similkameen River, Princeton, the centre of a splendid region, is situated. Near here perhaps the most extensive placer deposits of the Pacific coast exist, and various companies, amongst others the Allison Ranch Co., Similkameen Gold Gravels Exploration Co., Anglo-American, Anglo-Canadian, Gold Point Co., have been formed to work these deposits. Some distance up the Tulameen, the Granite Creek Hydraulic Company, now in active operation, —the Tulameen Co. also, while farther up the Bear Creek and Slate Creek benches, are about to be explored, and will certainly be operated as they are known to carry good gold values. In addition to the placer deposits of this region the number of ledges already located, and known to exist, guarantee its worth as a mineral territory known to extend continuously in an almost unbroken line through westerly to the coast and north to the Arctic.

In addition to all that has already been mentioned the deposits at Penticton, and extending thence north along Okanagan Lake to Vernon, must not be forgotten, as they have already been proved to be of great extent and value. Then we have the new discoveries at Kamloops, already proved worthy to rank among the rich camps of the country, with the deposits of coal and mineral in Nicola Valley to the south, and Adams Lake, and North Thompson, north. West of Kamloops at Lillooet, a rich camp is opening up, and chief among its mines is the Golden Cache mine, of free-milling gold quartz, which has already made its owners wealthy by the rise in value of its stocks, as the development work progressed. The placers of Lillooet are extensive and declared by competent authorities to be rich in gold and platinum. North of Lillooet at Kelly Creek, Bridge River, Chilcotin and elsewhere rich gold placers and mineral ledges are known to exist, while Cariboo is again to the front, its rich placers and ledges attracting large capital from the United States and Britain. Notable among its new enterprises is the Cariboo and Horsefly hydraulic mines which were actively operated during last season, one clean up in the Cariboo giving results of over \$80,000.

North of Cariboo the Peace River, Omnic, Cassier, and now the Yukon are being, and have been worked successfully, and it is only a matter of better transportation facilities being secured, when these great northern regions too will begin to pour out their volumes of precious metals.

Along the coast from Vancouver north, extensive discoveries of gold bearing ores have been made, and a large amount of development work is now in progress there. The ease with which transportation from these deposits can be had, by water, render them workable, at lower values than elsewhere within the Province. The mines on Texada Island, in the Gulf of Georgia, about 40 miles north-west of Vancouver, are attracting much attention, the copper, gold and silver values of its ores being very high.

Albernia, on the west coast of Vancouver Island, must not be forgotten, for although regarded by many unfavorably at first, development of its ledges has established its claims as a rich gold camp. Several hydraulic claims have been opened up and were operated for a short time last fall. The coming summer is sure to see wonderful progress in that camp.

The facts already known are proof sufficient of the extent and value of the mineral and other natural resources of the country, and fully justify the influx of men and capital now

commenced, and give the most complete assurance of the permanent character of investments to be found there. It is not too much to estimate the riches of British Columbia alone, as sufficient when developed, to sustain a nation.—W. C. McDougall.

SOUTH AFRICAN MINING.

THE following are the figures of the total production and value of the gold in 1896:

	Tons.
Actual returns	1,060,489
Estimated local returns	100,000
Estimated returns of S. A. and O. F. S. Mineral and Mining Association	170,463

Total

This is an increase of 304,631 tons over 1895.

The total production and value of Transvaal gold in 1896 was as under:

District.	Weight of gold. (Ounces. dwt.)	Value.
Witwatersrand.....	2,280,892 4	£7,864,341
De Kaap.....	121,390 0	430,685
Lydenburg.....	50,387 0	148,778
Klerksdorp.....	38,818 0	125,109
Zoutpansberg....	5,602 0	15,807
Other districts....	857 0	3,293
Total.....	2,497,946 4	£8,597,013

The total gold exports from South Africa during the year was 2,386,186 ounces, valued at £8,159,217, of which 2,141,885 ounces, worth £7,414,701, was exported by the banks. The dividend list shows a distribution of £1,545,256 in dividends for gold mining companies on the Rand (including the Rand Central Ore Reduction Company) and £168,625 by collieries and the Consolidated Deep Levels. A total is given of the returns of the stores consumed by 81 companies, which shows the stores to be £4,040,605. Some prominent factors in this total are: Machinery, £892,651; coal, £609,102; dynamite, £101,993; blasting gelatine, £439,671; gelignite, roburite, etc., £22,791. Candles to the extent of 119,135 boxes were consumed, of a value of £76,526. Cyanide figures at 1,969,437 pounds, valued at £125,531; mealies, meal and forage at £338,845; timbers and deals at £274,655; and sundries at £427,527. Whilst the consumption of dynamite has fallen in value from £117,126 in 1895 to £101,998 in 1896, that of blasting gelatine has risen from £297,828 to £439,671. The consumption of the miscellaneous explosives appear to have fallen 50 per cent. The following table shows from what sources and in what proportions the entire output for 1896 was derived:

	Ounces. dwt.	Value.
From mill.....	1,501,492 0	£5,381,600
From concentrates	107,890 7	393,736
From tailings.....	663,992 6	2,058,851
From banks.....	8,511 11	30,154
Total.....	2,280,892 24	£7,864,341

From the above figures, it will be seen at a glance that the stores amount to an excessive sum. It is closely approached by the expenditure on labor, which is nearly £4,000,000. It is obvious, therefore, that there is plenty of room for economy. The future prosperity of the field is absolutely dependent upon the practice of economy, and there is abundant scope for this in the reduction of wages. We are not alluding exclusively to native pay, but also to the remuneration paid to the white hands. It will also be seen from these figures that more money was spent upon the Rand than it produced, a fact which will surprise a great many. But this is not to be wondered at, inasmuch as it is the experience of nearly every gold field, and it not to be expected that the Rand is an exception to the rule.—London *Mining Journal*.

The Canadian Miner.

ISSUED ONCE A WEEK

AND

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MINING MACHINERY AND THE TARIFF.

CONSIDERABLE doubt still seems to exist in the minds of manufacturers of mining machinery as to the proper interpretation to be placed on the provisions of the new tariff, but it appears evident that whatever it will do for the mining industry, it will go a great way towards killing the manufacture of mining machinery in Canada. Prominent manufacturers claim that it is putting home manufactured machinery out of the market and will be of no benefit to miners. To those who have spent money, as some firms have, to the extent of \$20,000 or \$30,000 for patterns, machinery, etc., the loss will be very severe. First class mining machinery is being made in Canada, nearly everything produced in this country of quite as good a quality as that supplied from the other side. It is not that mining machinery can be manufactured for so much, if any, less than the same can be turned out for here, but the distances are very great and the transportation expensive.

It seems preferable to have a moderate duty on mining machinery, as, if the market is left entirely to the United States, United States prices will be charged to Canadian consumers. If there is competition between Canadian and United States manufacturers, the latter will lower their prices to meet the competition here, and the mining industry will be as well off as if mining machinery came in absolutely free. A tariff of say twenty per cent., and the manufacturers continue to pay the ordinary price for raw material, would be the better plan from a Canadian standpoint, or if it is determined to free raw material, a duty of ten per cent. would create a reasonable competition on both sides of the line. Manufacturers are willing to submit to a lower tariff in order to get rid of the horrible competition of the United States, as, for instance, the fall in steel rails from \$21 to \$14, a price at which they could not be manufactured.

The result of taking the duty off iron and steel will be that manufacturers will purchase in the United States; and, as an influential de-

putation representing the iron industries in Canada told Messrs. Tarte and Fielding the other day, "the industry will be ruined." The Canadian market is always open to American manufacturers while the United States market is always closed to Canadians. If we have a tariff of thirty per cent. on an article they have sixty per cent., and the Dingley bill will not help matters. Canadians get no share of the United States market and Americans should not be allowed to control ours.

The ten per cent. reduction on engines and boilers will not seriously affect Canadian manufacturers. They can hold their own. This also applies to shafting, pulleys, and such adjuncts to mining machinery proper.

There is a strong feeling among manufacturers of mining machinery that it would have been better not to have made any change, but to have left in the clause admitting free only such machinery as is not made in Canada.

At the recent meeting of the Canadian Mining Institute, Dr. Hardman referred to Canadian machinery as being better adapted to the requirements of this country than anything made elsewhere, and the government would be justified in granting sufficient protection to ensure a healthy competition which Canadians are ready and willing to meet, but it is not just that they should be subject to the slaughter-house prices at which American firms unload their surplus stocks on this country. They are prevented by their own combinations from cutting prices on the other side, and use Canada as a dumping ground, an operation of no real benefit to the miner and exceedingly detrimental to the manufacturer, and the country in general.

LEGISLATION NEEDED TO PROTECT SHAREHOLDERS.

The "Orphan Boy" mine of Revelstoke is advertised for sale under a writ of execution issued at the instance of J. W. Haskins, president and manager of the company, who recovered judgment against the company by default for \$3,249.19, for unpaid salary. It must be a great fall in dignity for a gold mine to be seized by the sheriff and sold under execution.—*Edmonton Bulletin*.

The Orphan Boy, at Revelstoke, has been sold by the sheriff for \$6,200.—*Telegram*, April 27, 1897.

So endeth the tragedy of a gold mine.

The Orphan Boy was incorporated for \$700,000, and the stock has been sold throughout the Dominion. It would seem that the sale of the property has wiped out the stock, but as to this there are several queries that the law courts could best answer. Whether or not the proper procedure is under the winding up act? Whether or not the stockholders are liable for the debts of the company? Whether or not mining companies chartered in foreign countries but registered and licensed to do business in Canada are subject to the winding-up acts and other laws of the Province and of the Dominion? Are interesting questions suggested by this reported sale of the Orphan Boy. If this were one of many individual properties of what are known as development companies, the loss would not wipe out the stock of the devel-

opment company, but, being a single mine, its sale deprives the stockholders of any other security for their stock.

Without considering the Orphan Boy at all, or any particular property or company, it is within bounds to imagine a mining claim incorporated, capitalized at \$500,000, its stock sold to the public and the moneys received from such sales spent in developing and proving the property a valuable one, and then the public frozen out by various devices, legal and otherwise, even to the extent of judicial proceedings and execution sales for the benefit of a chosen few. The public should have the greatest amount of protection for their hazardous risk in investing in mining stocks, otherwise great loss will surely follow, and it will be impossible to sell mining stocks to the general public, who thus would unjustly be deprived of sharing in the great mineral wealth of the country.

On general principles the consent of the stockholders should be necessary to a sale of their property. Further, the forced or other judicial sale of a mining claim should not wipe out forever the stock of the company, but there should be an equity of redemption, so that the mine if proven valuable in the future should pay its debts, and afterwards revert to its stockholders.

Now is the time to legislate to that end; honest capitalization, honest management, and necessary protection to the investing stockholder, for the good of the whole Dominion, would be the result. Let our Dominion Parliament make a note of this and act accordingly.

ENGLISH OPINION.

THE mineral wealth of Ontario has been practically demonstrated by actual results from such mines as the Sultana, Mikado, Regina, and many others, says London (England) *Mining Journal*. The most eminent mining engineers of the day, representing English and foreign capital, are authorities for the statement that the gold fields of Ontario are the most promising in the world, and when properly developed will astonish the world with the wealth which nature has implanted here. The gold throughout the entire region is almost entirely free milling, and averages \$20 to the ton. Its magnificent waterways offer exceptional facilities for easy transportation; there is an abundance of timber for all purposes of the miner, labor is cheap, and supplies can be obtained at a very cheap rate, and, with good management and sufficient working capital, astonishing and remunerative results may be confidently looked for. Speaking generally, the British investor is no doubt much discouraged at the result of investment in Australia, South Africa, etc. Let him turn his attention and capital to the gold fields of Ontario, and handsome dividends will result.

The War Eagle looks better than ever. There is now pay ore five feet in width in the drift from the winze in the lower tunnel, 385 feet below the surface. The ledge is 11 feet wide.

LOCAL NOTES.

MR. ALEX. M. HAY, of Blackheath, London, England, who has been spending the last couple of weeks in Toronto, leaves to-day for his residence in Rat Portage, where he intends to spend the summer months.

MESSRS. FRED. A. MULHOLLAND and Louis W. Mulholland, of Toronto, directors of the Mines Development Co., and largely interested in other mining properties, left on Sunday evening for British Columbia to look after the development work being done on their various properties.

In an interview with Mr. Sprague, manager of the Sovereign Gold Mining and Development Company, which appeared in our issue of the 17th ult., we regret some figures giving results of assays of ore from some properties in North Hastings were reversed; the paragraph should have read: "Among his most treasured possessions, wrapped carefully in chamois leather, and carried in his waistcoat pocket, is a piece of ore broken from a chunk that assayed \$52,905.20 to the ton, another piece taken at a depth of 20 feet pales into insignificance with a paltry \$1,162.69 to the ton."

AN announcement is made in the advertising columns of this paper regarding the formation of a company which proposes doing business on the following lines:—The capital stock will be fully paid up and issued in shares of not less than \$100 each. They are asking for incorporation however, to do all and everything ordinary mining companies require to do, with the additional power to lend financial aid to companies who may be laboring under temporary difficulties. This feature of their business will be a great boon to many a struggling company who may have a good property but who are unable of their own accord to proceed with development work. If the Orphan Boy could have availed itself of such business assistance as this company proposes to give, it would undoubtedly have been able to have avoided its present financial wreck.

THE GERMANIA MINE.

Stockholders in the Germania Gold Mining Co., will be interested in the following letter from the superintendent of mine:—

ELECTA, B.C., April 20, 1897.

J. R. EDEN, Berlin, Ont.

Dear Sir,—I am very much pleased to inform you that in the drift started at 85 feet in the shaft and which was extended 15 feet, we have encountered some very fine ore, better than any we have had before, and is now becoming solid, with every indication of it being a permanent body of ore.

I am sorry to say we have been compelled to close down for a few weeks on account of the flow of surface water into our shaft. On account of the large quantity of snow this winter all the mines which are not equipped with machinery are in the same fix.

The latest assay I have made runs \$122.50 to the ton in gold, and we have lots of the same kind of ore in the drift.

We have as pretty quartz as I have ever seen, and it is a fine concentrating ore.

Yours very truly,

Fred C. Johnston, Supt.

Wyatt & Co. are the brokers here.

The company owns 104 acres of mineral land on Green Mountain, four miles from Rossland, the property is well developed and a "mine" is now guaranteed. The line of stock marked "special," on which two annual dividends of 10 per cent. are guaranteed, will not be offered after May 1st. The directors are confident this will turn out one of the richest mines in B.C.

THE ETHEL GROUP.

THE following telegram has just been received from Rossland, from E. L. Clark, president of the Ethel Group Gold Mining and Development Company:

ROSSLAND, B.C., via Spokane,
April 29, 1897.

To J. FYFE,

34 Adelaide St. E., Toronto:

Just returned to town from mines. Great strike on the Ethel Group. Large body solid rich ore. Samples expressed.

(Signed), E. L. CLARK.

THE RATHMULLEN GROUP.

THERE is no business to-day more certain to give good results, and standing entirely beyond the reach of monopoly, than that of mining. The man or the Corporation who produces a quantity of gold or silver, be it great or small, can exchange it for its full value in coin anywhere, as he simply holds in his own hands so much of the power that moves the world. Those, therefore, who have money to invest should consider this fact, and what is also most important, the business aspect of the concern in which they propose to purchase an interest.

The Rathmullen group of mineral claims is located on the North Fork of Kettle River, Kettle River Mining Division, B.C., a district that is remarkable for the strength and number of its copper gold ledges, which in addition to great size, give almost uniformly high assay values, the average copper values running from five to ten per cent. The inexhaustible character of copper ledges are established beyond all question, and it was for this reason principally that the Rathmullen Consolidated Mining and Development Co. Ltd. selected the present group of claims, and especially as they are in close proximity to some of the best properties in the camp if not within the province.

The management is in the hands of men who thoroughly understand the business of mining, and have an intimate knowledge of country in which they are operating, they selected the property now owned by the company because it seems certain from the character of the leads opened out by the preliminary surface work already done, that their selection has been an excellent one and it will become a good paying property.

COPPER MINING MACHINERY.

WHAT applies to the "Copper Country" of Michigan is also of concern to the copper miners of the Sudbury district of Ontario, and a paper by Mr. C. P. Paulding, in a recent issue of *The Mining Industry and Review*, of Denver, descriptive of the machinery in use in that region will be read with some interest here. He says:—Two methods of mining obtain, one way is to sink the shaft vertically and intersects the vein about the centre of the property and taps the vein above and below this intersecting point by horizontal passages perpendicular to the vein.

The other way is to follow the vein with

the shaft at whatever inclination it may happen to be. Sinking the most economical. In all the mines the shafts are well and heavily timbered.

The underground machinery consists of rock drills, small portable hoisting engines and pumps. The drills are operated by compressed air at about 60 to 70 pounds pressure, the liberated air being an important factor in the ventilation of the mines. When the drills are idle the mines permit the air to blow free, and at this period the compressors deliver more air than when the drills are working.

Large numbers of small hoists, of double cylinders about 6x6 inches, driven by compressed air are used for hoisting. These hoists are compact, strong and simple, for underground machinery receives hard treatment.

In this region most of the mines are dry, making pumping not extensive.

In wet mines the motor is caught in sumps in different levels and pumped from one level to the sump in the level above and so on to the surface. The pumps used for this purpose are provided each with an independent jet condenser and the condensed steam is pumped up with the mine water. The head pumped against is about 230 pounds and with steam at 120 pounds pressure these pumps show a duty of between 30,000,000, and 40,000,000-foot pounds.

Steam is very objectionable in that it rots the timbers, the loss by condensation in long lines of pipe is very large and the corroding action in the pipe column is great. The use of gas or oil engine in connection with this pumping would be more satisfactory as well as economical.

The surface machinery consists essentially of boilers and hoisting machinery with the usual feed pumps, compressors, condensers, etc.

The boilers are mostly of the locomotive type and in many cases are fired with wood. From 7,000 to 9,000 pounds of water are evaporated per cord of wood. The hoisting engines are usually a pair of simple engines on the same crank shaft which carries the hoisting drum. In the vertical shaft the drum carries two ropes, one for the up cage and the other for the down cage thus securing a balance.

There the shafts are several thousand feet deep, conical drums are employed to compensate for the weight of the cable.

In a shaft of 4,000 feet in depth, the weight of the cable amounts to about five tons. The speed in vertical shafts is as high as 2,500 feet per minute and in the inclined shafts from 1,100 to 2,000 feet. Hoisting skips contain five tons of rock, cable of 1¼ inch in diameter is used and is made of wire of the best steel. The total weight of a full skip and cable for a 5,000-foot lift is about 15 tons and with the shaft inclined 50 degrees, the strain in the cable is about 1,500 pounds per square inch of section, neglecting resistance to traction and pressure of air against the skip moving at 2,000 feet per minute. The efficiency of the hoisting apparatus taking all elements into consideration is low, about 30 per cent.

After the rock is hoisted to the surface it goes to the rock crushers and reduces to small pieces of such size to be ready to go to the stamp mills, where it is crushed to powder and the rock washed away from the heavier copper.

From the mills, the copper, now reduced to coarse sand, goes to the smelting furnaces where the very small percentage of impurities is expelled and the copper cast into ingots.

NEWS OF THE MINES.

ONTARIO NEWS.

Rat Portage.

(Special correspondence to THE CANADIAN MINER.)

Mr. Edwin Ward, prospector from the Seine river, is in town, and reports everything flourishing in that district.

Mr. A. M. Hay, of the firm of R. H. Ahn & Co., is now in Toronto, looking after business for the firm, and is expected here the first of the week.

The Ferguson mine is also running its 3 stamps day and night on rich looking ore. Prospectors went out on the last ice, and surveying around Mines' Centre and Seine city is very brisk.

Everything is kind of slow around town now, and will be till navigation opens and affords access to the mines. The lake is pretty well opened now, and another week or two ought to do the business.

The Foley mine, with its 20-stamp, is running day and night, clearing over \$300 a day. The vein at the depth of 200 feet is between 7 and 8 feet wide, of very rich looking ore. The owners of the mine contemplate putting up a sawmill this spring, and making several other improvements. The last run of their mine turned out a 7,500-brick in 15 days, and it is supposed to be one of the richest properties in this country.

—G. A. P.

Work on the Ruby mine is proceeding favorably.

The Miner says that Wabigoon is badly in need of a barber.

A grant of \$4,000 has been made to improve Ash Rapids.

Mr. E. McKenzie, of the Toronto Street Railway, is in town in connection with the opening up of the Princess mine.

It is reported that the Trojan mine, located on Camp Bay, has been sold to a New York syndicate, subject to examination.]

Mr. Andrew Benson, one of the original owners of the Sweden mine, has sold a location about half a mile west of the Scramble mine for \$10,000.

An outfit of men and material left on Thursday last for the Princess location, and an effort will be made to locate the vein which is said to traverse that property.

The machinery for the Master Jack mine has reached Rat Portage, and will be rushed out to the property just as soon as the opening of navigation makes it possible.

Mr. Purchase, who spent 22 years in South Africa, is preparing a series of articles on the Lake of the Woods district for South African journals. He declares that Rat Portage is good enough for him.

On the Hiawatha gold mine, which consists of part of the Folger-Hammond property in the Saw Bill district, two shafts are being sunk, one on an 8-foot, and the other on a 4-foot vein, on both of which are found rich specimens of gold.

A number of mine owners have combined, organized a company; purchased a water site on the Winnipeg, and propose to erect there a building wherein 50 stamps will begin working at once, and due allowances will be made for an increase of 100 stamps, or even more.

It is stated that Capt. J. H. Henesy, of Rat Portage, has just sold a half-interest in

a Lake of the Woods location at a high figure. Neither the exact figure, nor the exact locality of the property is given, but it is claimed that the mine, which will be developed by the capital of the new half-owners, will make another Sultana.

There are said to be a number of promising-looking, gold-bearing quartz veins right inside the town, one under a church, another under a residence of a clergyman who is said to have set off a small blast of dynamite with disastrous results to his chinaware; a third runs through the site of a large sawmill, and a diamond drill is at work seeking whether the vein, which is 4 wide at the surface, is in good condition at a depth of 100 feet. It is said that the materials for a 30-stamp mill are on the way, and will be erected on the property as soon as navigation opens.

THE MASCOTTE MINE.

One of the most promising prospects in the Lake of the Woods district is the Mascotte, owned by the Mascotte Gold Mining Co., of which Messrs. Calclough, Drewry, Savage and Mather are the leading spirits. The claim consists of 40 acres on S. 79, on Lake Gerrard, 45 miles from Rat Portage. George Gerrard was the former proprietor. The shewings from the top of the vein were extraordinarily rich, and the company started to work last fall, put up camps and pushed things all through the winter, the shaft is down 50 feet, and an adit is being driven from a point near the shore, from base of the cliff, to intersect the vein which crosses the property diagonally from the shore of Lake Gerrard to the south-west corner of the claim. It was expected to intersect the vein last week, but on account of the bad condition of the roads no news has been received for the last two weeks. On top the vein was 3 to 4 feet wide, increasing to 6 feet at the bottom of the shaft, showing a pay-streak on the vein of 3 feet of white quartz, carrying free gold in large quantities, not much base metal, a little iron and copper; and no arsenic. It is expected to yield 90 per cent. free-milling, 50 tons taken from the shaft and drawn to the shore of Camp Bay, is waiting to be shipped to Rat Portage as soon as the weather permits, for a mill-test. For these particulars we are indebted to Mr. Alan Sullivan who has been spending a few days in Toronto, he speaks very highly of the property, and has every confidence that it will become a splendid mine. It is learned from a correspondent in Rat Portage that Sir Rokerick Cameron has taken 15,000 shares, and full confidence is felt both in the mine and the management. The shares have increased in value from 10 cents to 30 cents, and a big jump is expected after the first mill-run. The last samples brought in were very rich.

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Rainy River District.

A letter from Tower says the ice is breaking up, and navigation will open May 1st.

Preston mine is getting in machinery. The boiler was left on the ice half-way between Mines' Centre and Tower, as they could not get it in that way, sending it back to Tower, to ship round by Rat Portage.

Work is progressing on the Golden Goblin night and day, and is very satisfactory. The company refuses any details, they are expecting Mr. Janes, the manager, back in about 3 weeks, with his report.

"Little American mine," situated near Rainy Lake City, on the American side, is going to make mill-tests for the mines in the Seine River district. They have a very complete plant, including a 10-stamp mill.

North Hastings.

Mr. Charles Stanyer has located a large deposit of magnetic iron ore on his property, lot 19, concession B., of Faraday. The dip needle shows a strong attraction over an area of 2 acres, and the outcroppings are of a very pure ore, and free from sulphur.

Flinton, 16 miles north of Tweed, has a mineral sensation in the shape of a discovery of a large vein of rich mispickel ore on lot 24 in the 5th concession of Kaladar. Mr. Ribstock, of Buffalo, who is understood to represent American capitalists, has secured this lot, and has been doing development work for some weeks. The vein has been traced across the lot and into the adjoining one on the north owned by Inspector Burrows of Napanee. The ore around Flinton has always been regarded as free-milling, so that this new industry is a great surprise, and shows that the mineral deposits there are exactly similar to those in Marmora.

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Peterboro' County.

Some rich discoveries are said to have recently been made in this county.

Mr. Woods, of lot 2, in the 4th concession of Methuen, also has an offer for this property on which gold has been found.

Three weeks ago Toronto capitalists were made acquainted with some gold property in Belmont township, and they immediately paid it a visit, and secured an option to work it.

Some time ago a deposit of copper was found in the southern part of Chandos township, near the Methuen boundary, that promises to show up well under proper development.

In the northern part of Methuen township a gold-bearing vein was recently found on the premises of Mr. W. Bound. This discovery was reported, and in a short time an offer of \$4,000 was made for its purchase, but refused.

A discovery of copper and gold has also been made on lot 1 in the 4th concession of Methuen, the property of Mr. W. F. Post. Some pretty samples abounding in copper have been taken out that will catch the eye of the expert miner.

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Schreiber.

Another rich discovery of gold has been made 20 miles from the C.P.R. track, near Schreiber. The vein is from 50 to 200 feet wide, and assays between \$200 and \$300 to the ton. Three railroad employees are the lucky owners.

The Otisse gold mine at Schreiber, from which such marvellously rich samples were taken last fall, is to be worked. A company is being organized, and 100,000 shares of stock will be placed on the market forthwith at 10 cents.

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Port Arthur.

Mr. Schwigler, proprietor of the Mining Exchange Hotel, is contemplating rebuilding in order to meet the greatly increased demand for accommodation. The house is so well patronized that guests have to be refused every night. A large number of explorers are arriving from Duluth and vicinity looking for gold in this district.

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Parry Sound.

The men who are blasting the rock on Gibson street have discovered a vein of metal bearing quartz and a large showing of pyrites, and some good samples of plumbago have been found. The rock is being tested to ascertain what it contains.

BRITISH COLUMBIA.

Rossland.

Work has been suspended in the Ivanhoe until June.

Rich gold float has been found near the mouth of Six Mile.

New strikes are reported near the mouth of Lemon Creek.

A \$2,500 option on the Robin has been given to F. W. Godsall.

Work has been commenced on the Jo Jo, adjoining the Commander.

A good strike was made in the Morning Star, on Springer Creek, last week.

John D. Reid has withdrawn his protest in the matter of the Snow Bird claim.

Altogether 705 feet of tunnels, upraises and drifts have been run on the Golden Drip.

The Great Western has had to suspend work on its shaft owing to the flow of surface water.

A foot of ore has been struck in the upraise between two and three tunnels on the Queen Bess.

The Columbia and Western is now taking down to the Trail smelter from 250 to 300 tons of ore per day.

The tunnel on the Bondholder is in 303 feet. If the ledge is in place they will strike it in another 12 feet.

The Red Eagle hoisting, pumping and drill-power plant is installed. The plant gives great satisfaction.

The Kootenay tunnel now shows 14 feet of ore in the face. This is at a depth of 350 to 400 feet from the surface.

The St. Elmo is troubled with bad air, and it will be necessary to make an upraise. This will be started at once.

Mr. A. H. Kelly has secured a large controlling interest in the Dandy mine on Toad Mountain, adjoining the Silver King.

William Braden instituted suit in the Supreme Court, April 1st, against the owners of the American Boy to the title thereof.

The machinery on the Morning Star is now in fine working order. The shaft has been pumped dry, and sinking has been resumed.

The Colonna tunnel will yet have to run 60 feet to get under the shaft. It will take two weeks to get there, when an upraise will be started.

No. 1 tunnel on the Monte Cristo is now in over 600 feet and its entire face is in ore. This grade is better than it has before been in this mine, the assays running up to \$24 with nothing below \$6. The ore is silicious and will concentrate.

A vein of about a foot wide at the point of discovery has been struck 33 feet below the surface on the Ethel group of mines, situated on the divide between Murphy and Sheep Creek. No assay has as yet been made, but the rock looks extremely promising.

The drift from the first station in the deep shaft on the Currie cut through four feet of ore last week. The main lead will be tapped when the shaft has been sunk a further depth of 40 feet. The building is being prepared for the four-drill compressor now being put in at this property.

The Rossland Miners' Union No. 38 W.F.M., has issued the following circular to those whom it may concern; "Warning! You are hereby warned against the risk of coming to Rossland. Every avenue of labor is overcrowded, the cost of living is high,

and even with the most rapid development of the mines possible there are already in the camp many more men than will find employment."

At the War Eagle the new power plant is found to operate satisfactorily. The pump cleared the water out of the shaft in half an hour after it began operations. At present a tramway is being constructed from the saw mill to the power plant to transport slab wood, which will be used for fuel for the boilers of the power plant.

Another strike has been made on the Exchequer mine on Toad Mountain, 186 feet from the mouth of the tunnel and 130 feet from the surface. The ore vein is two feet wide and apparently high grade. The work of drifting on it will commence in a few days. Assays from the ledge that was found a couple of weeks ago gave a result of \$27. The ledge from which these assays were made is three feet wide.

Rossland's twelve regular shipping mines are making a good showing. The ore shipments from the camp for the week ending Saturday, April 17, were: Le Roi, 900 tons; War Eagle, 200; Iron Mask, 75; O.K., 32; total, 1207. The O. K. mill last week treated 113 tons. These shipments bring the amount for the year to 17,103 tons, of which the Le Roi has contributed 12,012 tons, the War Eagle 3,191 tons, Columbia and Kootenay, 458 tons; Iron Mask, 938; Jumbo, 91; Josie, 126; Cliff, 61; Red Mountain, 56; O.K., concentrates, 118; Evening Star, 21; Giant, 21; I.X.L., 12.

SUNSET NO. 2.

Development work by way of shaft and drift on the Sunset No. 2, owned by the Canadian Gold Fields, Limited, showed that the vein was a true fissure of good strength and carrying excellent values. The work already done, under the superintendence of J. H. Adams, proves the vein through the entire length of the property, 1,000 feet, and to a depth of 100 feet. The vein cuts the diorite formation at right angles, and even those most skeptical of any true fissure veins being found in the camp admit that this is one. Assays from any part of the dump have shown values from \$35 to \$60, and even a little higher, in gold. There is but little copper, except in the upper tunnel, where it ran as high as eight per cent. An air compressor and pumping plant have been ordered for developing the claim, and this will be done thoroughly before any shipping is done or a stamp mill put in.

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Slocan.

The owners of the Roco mine have 16 cars of ore in transit which will average \$8,500 a car.

Owing to the inability to get supplies to the mine, the Ivanhoe has closed down temporarily.

The Chapleau mineral claim has been sold for \$30,000 to the Hill Exploration Company of British Columbia.

The Payne has made slight reduction in its working force. Slides and melting snow are partly the cause.

Ore exports from the Slocan made by the way of Revelstoke during March amounted to 334 tons, valued at \$32,641.

William J. Fretheway has taken over the Ruby Silver at \$25,000. This is regarded as one of Slocan's best properties.

Henry Croft of Victoria has closed a deal for the Black Fox, Daisy and California on the South Fork. The figure was \$30,000.

Two feet of nearly solid ore was recently

struck in the No. 3 tunnel of the Queen Bess. While No. 4 shows 21 inches of the same kind of ore.

The owners of the Reco, another Slocan property, have announced that they will pay a dividend of \$50,000 on May 1. This will make \$150,000 paid by the Reco.

Prospectors' camp fires can already be seen at night on the lower hills around Slocan lake. Not much prospecting can be done in the Slocan until July.

A. L. Davenport has sold to R. E. Brown, of Spokane, his five-eighths interest in Emerald Hill, adjoining the Silver Tip on Blue Ridge, about ten miles from Kaslo.

P. G. Nash and J. Fred Ritchie have purchased 375,000 shares of the stock in Wisconsin Consolidated Mines Ltd. They also bought an interest in the Elkhorn, Haley, "Bellevue" and "Champion," Jackson Basin properties.

The owners of the Idaho mine paid another dividend of \$20,000 on the 25th of the month. This will make the seventh dividend of a like amount paid by the company in seven months. Prior to the commencement of regular dividends, \$82,000 had been paid to the owners at different times, making a total of \$172,000 paid to date.

The Iron Horse on the Ten Mile Creek near Slocan has struck the Enterprise ledge, which they had been trying to reach by a cross-cut tunnel, the length of which is 235 feet. The vein is the same as that of the Enterprise and the ore equally rich, which proves this to be a most valuable property. The Bondholder group has the continuation of the Enterprise lead.

(New Denver Ledge.)

It is said that the deal is on for the Oregon City.

Sleeping quarters for 140 men are to be erected at the Enterprise.

The force on the Two Friends has been reduced to two or three men.

Several Slocan properties have closed down until the snowslide season passes.

F. S. Davis has commenced work on the Silver Wave, a Wilson Creek property.

Geo. Fairbairn has secured from J. A. Finch a three-quarter interest in the Wakefield.

The Payne will ship about 300 tons this month and then stop shipping for a couple of months.

The Nettie Fractional, on the lake shore near Silverton, was bought last week by John Tinling for \$500.

The bond on the Dalhousie has been thrown up. Other parties are ready to take it up at the same figures.

An offer of \$30,000 has been made for the Young Bear group near the Bondholder. The group consists of five claims.

The Chapleau, situated on Gold Creek adjoining the Ranger has been bonded by the Hall Exportation syndicate for \$30,000.

A Burleigh compressed air plant is being put in on the Currie, and many new buildings are under way to provide accommodations for the increased number of men employed there.

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Trail Creek.

A good strike has been made on the Carlisle, Mobile, and Berwick claims on Benhassen mountain. Being a concentrating ore, this is considered one of the most

important strikes up to date on the north fork of the Salmon.

The little town of Waterloo, 17 miles north of Trail now has about 40 houses. The history of the place dates from August, 1895, when Hiram Landis, formerly of Chewalah, Wash., located there and erected a house and other buildings for the accommodation of himself and others, who were engaged in cutting wood for the Trail smelter. They afterward named the place Waterloo and put up a sign, "Waterloo landing," since which time the boats have made regular stops for passengers and freight. There are a number of good claims around, which will be developed and a quantity of work will be done on them this season.

THE SOVEREIGN.

It looks as if the Sovereign on Lookout Mountain has the making of a mine, and a great mine at that. That is the opinion of every mining man who has seen the property, says the Trail Creek News. A magnificent three-foot streak of clean cut ore is disclosed in the ledge, which itself is about fourteen feet in width. It is strong sulphide rock, much resembling the Le Roi product met with on the higher levels. Wherever the vein has been explored, rich gold-copper ore has been met with, and values have increased with depth. The claim lies on the eastern slope of the hill, and by the trail it is a little more than a mile from town. It is a straight down hill haul to the smelter, and cheap and convenient transportation can be easily arranged for.

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Kootenay.

It is reported that the Slocan Star is offered on the London market for \$2,000,000.

Ore and matte shipments from the Kootenay from January 1st to the middle of April exceeded \$2,500,000. The production this year will undoubtedly exceed \$10,000,000.

It is reported that the North Star mine near Fort Steele in the East Kootenay district has been sold to an English syndicate. The North Star is said to consist of a regular dyke, or mass of mineral, rather than of a mere vein or lode. This mine produced and shipped during 1894 nearly 4,500 tons of ore, which had a valuation of \$225,000. At the present time the company have 3,000 tons of rich carbonates and galena at their landing on the Kootenay river and 3,000 tons more on the dump—6,000 tons that, it is said, will average \$60 per ton, or a gross valuation of \$360,000. The North Star mine, working a sufficient force, can take out and ship 100 tons daily.

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Kaslo.

The Susans group on the north fork of Lemon creek has been bonded to an English syndicate through Wm. Tomlinson, for \$125,000.

No. 1 tunnel in the Whitewater mine has come to the front with a two-foot ore. The find consists of 12 inches of steel galena, separated by two feet of gouge from 12 inches of extremely rich gray copper ore.

The Surprise has in the face of the drift 18 inches of clean ore of a better grade than heretofore, and looks extremely well. This drift has been in ore 200 feet. On account of the breaking up of the trail shipping is now impracticable.

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Vernon.

The sinking of a shaft on the Silver Star has had to be discontinued owing to flooding caused by melting snow.

Vernon is in a state of suppressed excitement almost too deep for expression. Gold is the

cause and gold in such quantities that the wonderment and excitement is very pardonable. So says a Vernon correspondent.

A strike has been made on the B X range just east of the town, and several very promising ledges have been located. The first to stake a claim was R. Maunsel, who has a claim from which some very fine looking quartz has been taken. The rock resembles that from the Blue Jay, and an assay taken from the top of the ledge went \$36 in free gold. The ledge is about eight feet wide and can be plainly traced over the whole length of the claim.

Work is being continued without interruption on the new ledge struck last week on the Bon Diable claim. The vein is now well defined and measures between seven and eight feet across. Only one assay has as yet been obtained but that was of an exceedingly gratifying nature, showing a value in silver and gold of \$155 per ton. From the nature of the walls and the character of the country rock, there can be but little doubt that a solid formation has now been reached.

Assays of rock in every direction are being obtained that would make Croesus' teeth water. On the Sarah, one of the Morning Glory group, gold is visible to the naked eye right on the surface of the claim, and in such substantial quantities that the owners have found it necessary to put a notice in The Vernon News to prevent the stealing of the rock. Some of this rock assays over \$200,000. On the Blue Jay and Falcon, two miles from town, assays have gone \$13,000 and \$23,000 in gold, and on the Zion, a property in the same vicinity, very satisfactory assays have been made. Of course none of these properties have as yet been proved as to the extent of the reefs, but the surface indications certainly are the best ever found in British Columbia.

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Ainsworth

A contract has been let for a 100 foot tunnel on the Noble Three.

The Twin claim near Ainsworth has been bonded to A. W. Morris, a representative of a Montreal syndicate. The price to be paid is \$35,000.

Col. Chas. R. Conner, a prominent Spokane man, has just acquired a valuable group of claims on Woodbury creek, near Ainsworth. The property consists of the Liberty, Lucky Boy, Bonanza and Margaret Dora, adjoining the Silver Glance.

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Kamloops.

Shafts are being sunk on the Bonanza and the Pot Hook.

New finds are being reported every day from the North Thompson.

A lead of copper glance is said to have been found on the Roper cattle range.

Carbonates from the surface on the Noonday claim assayed \$278 in gold and silver.

The Lord Salisbury has been sold by F. Harding to Henry Croft, of Victoria, for \$1,500 cash.

The Lucky Strike's lead was struck on the Neighbor on Monday, showing 2½ feet of solid ore.

On the King Solomon, a defined ledge of copper ore has been struck and looking first class.

Jas. H. Russell has made a sale of his Gold Mask to Wm. Hudson, of Sandon, B.C., for \$5,000.

It is reported that the Kentucky mineral claim, owned by A. S. McArthur has been jumped.

Work has this week been started on the

Truth, the Mountain Claim, the Kamloops Bonanza, the Ethel, the Garfield, the Annaleish and the Laura.

Quite an excitement has been caused over the reported discovery of placer mining on Peterson's Creek somewhere in the neighborhood of the Old Man's Home,

Washing from a few pounds of quartz taken from the "Sunflower" one of the claims adjoining the "Noonday" which pounded up in a mortar, showed the bottom of the gold pan literally covered with the precious metal.

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Quartz Creek.

The vein on the Tennessee mine, situated near Quartz Creek, has recently been crosscut, as a result there are 6 feet of solid ore in the tunnel. Another tunnel is now being driven at another level to crosscut the main lead which will probably be tapped next week.

The townsite of Quartz Creek was jumped by three Rosland men on Thursday, April 8th. On that day at three minutes past 12 o'clock, Mr. Powell, John Blake and a Mr. Parker laid claim to 620 acres of ground and got a number of people to sign leases. They allege that Mr. Corbin failed to comply with the provisions of the grant as he did not survey the land within the time specified.

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Thompson and Trout Lakes.

After 8 days shovelling, \$800 has been cleared up out of Lardeau Creek.

It is reported that Chas. Molson, for the Horne-Payne syndicate, has bonded the Mineral Prince from Lanyrell, for \$15,000.

Those who wish to boom a townsite by a railway or tramway, says the Revelstoke Herald, should do so at their own expense.

It is reported that Messrs. Mara and Barnard have been refused a bonus for a road they intend to build from their townsite at Galena Bay to their mines.

At the Silver Creek after driving 16 ft. further than the big lead in which they struck the 4 ft. of solid ore, they struck another lead with 1 ft. of solid ore. They have still 20 ft. to run to tap the main Silver Cup lead.

At Badshot mine they have reached the lead in their crosscut tunnel 85 feet from the surface and struck it better than they expected. When they tapped the lead they found 9 inches of high grade shipping ore, but after drifting in on the lead for a few feet the solid ore widened out to 22 inches, that will average not less than \$250 to the ton.

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Salmon River.

The Salmo Consolidated Mining Co. have a vein 10 feet wide carrying gold, silver and lead of good value.

The Porcupine and Franklin claims, in the Salmon river country have been bonded by E. L. Clark for \$60,000.

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Nelson.

The Nako, Elpro and Kalamish claims on Cayuse creek was transferred by W. L. Parrish to the Pine Ridge Gold Mining and Milling Company. The consideration was \$1,000,000 in paid up shares.

NORTH STAR MINE.

There is a report, says The Nelson Tribune, that the North Star mine has been sold to an English syndicate. The North Star mine is not a vein or lode; it is a mass of mineral. It seems as if the bowels of the earth had swollen and then burst. This mine produced and shipped during the year 1894 nearly 4,500 tons of ore, which had a valuation of \$225,000. At

the present time the company has 3,000 tons of rich carbonates and galena at their landing on the Kootenay River, and 3,000 tons more on the dump—6,000 tons that will average \$60 per ton, or a gross valuation of \$360,000. The North Star mine, working a sufficient force, can take out and ship 100 tons daily, and there is no doubt that with reduction works in close proximity the mine would become the largest producer in the Province.

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Nanaimo.

The question of the erection and operation of a smelter in the immediate vicinity of Nanaimo is being keenly discussed by the citizens.

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Lillooet.

The Golden Cache trail will be finished in the course of a couple of weeks. Development work will then be proceeded with. When the stamp mill is set in operation big results may be looked for.

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Silverton.

This week a strike was made on a prospect on Bannock point, which has been worked for two years, assays on which run \$80 to the ton.

The Galena Farm has struck the ledge in the No. 2 shaft, showing a splendid body of concentrating ore, which confirms the report that a concentrator will be built here in the future.

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South Fork.

E. W. Talbott came down from the Gibson mine a few days ago, bringing with him about 300 pounds of ore from the property. This ore resembles closely that from the mines about Bandon. There seems to be two grades of ore, one a fine grained galena, the other a coarser cube product. These samples show conclusively that the hitherto despised South Fork bids fair to be as big a producer as any section of the Blocan.

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Wharneck.

The Village of Wharneck is claiming attention as being the midst of a gold bearing district. Assays running \$152 have been received and promising claims located. One group of three claims sold lately for \$2,600. Others may be purchased for about the same figure. Shipping facilities are first-class, the claims being situated close to navigable water on both the Stave and Fraser Rivers. The quartz in Wharneck district is of a white or grey white color and much resembles the Trail Creek ores.

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Tailings.

The Rambler-Cariboo paid a dividend of \$20,000 on April 15th. Another dividend may be declared this month.

Work has been recommenced on the mining building at the McGill University, Montreal and it is expected that the structure will be completed in time for the opening of the Autumn session in September next.

There seems now to be every probability of a smelter being established at Esquimalt by Mr. William Selevor and his associates. It will be located at least four miles beyond the corporation limits of Victoria; but the Legislature is to be asked to so amend the charter of the city as to enable a subsidy of \$150,000 being voted.

Prospecting with plows is the last innovation in mining and was introduced a few days ago in what is known as the "Stringer" district, near Randsburg, Cal. They use a large plow with eight horses, and plow furrows across the claim. The soil is a decomposed granite, and

by crossing two three times in each place several stringers are uncovered.

A discovery of asbestos has been made at Fish Creek, 25 miles from Calgary. The vein is 4½ inches wide and the mineral appears to be of a particularly fine quality. Asbestos, of the quality discovered, is worth from \$75 to \$100 a ton. The report does not state whether the mineral is in any quantity or not.

Serious trouble is expected on Klondyke River, Alaska, over immensely rich placer mines now being opened. Klondyke is on Canadian soil, and because of their value Inspector Constantine of the Mounted Police has limited the size of a claim to six acres. Circle City is on American soil, having no federal officers, save a postmaster, and it has become infested with several hundred toughs, many of them being fugitives from justice in the United States. A large number of these toughs have gone to Klondyke, and finding the best gold claims, demanded that the claims be divided with them. The Canadian miners, backed by the Mounted Police, have refused. Both sides are armed, and when the last mail left Klondyke, in March, a conflict was daily expected.

ON THE COAST.

A CORRESPONDENT to the Victoria (B.C.) *Colonist* gives the following description of a rich mineral belt within easy reach of Victoria, situate on the Cowichan district. He says:—A zone of eruptive rock, seemingly dioritic, and traversed by numerous dykes of rhyolite or an allied rock, extends from Salt Spring island across the Sansum narrows and via Maple Bay through Comiaken, Somenos and Chemainus districts. This zone is highly mineralized; chalcopryite is the most prevalent mineral, accompanied in some veins by galena, and carrying both gold and silver. The gangue matter of these veins is quartz and schist is varying proportions, together with calcite, gypsum, etc. The general trend of the veins is about 10 degrees north of magnetic west, but a few veins, and these some of the best, run north-east and south-west.

The L. W. D. Mining Co. have located three contiguous claims, fronting on the Sansum Narrows, on one of which a drift has been run in about feet 60 on a very promising silver and copper lead. Another claim located by Messrs. Dwyer and Willmer, shows, from the small amount done, a very promising appearance. Messrs. Musgrave, Fall, Livingstone & Co. have located numerous claims on what may prove to be some of the best leads on the island. The Allard Bros., Messrs. Bevins, Brownell, Miller and others, have also got claims in various parts of south Salt Spring. Crossing the Narrows is what is known by the name of the Sansum copper mine, owned by Messrs. Bythe and Wood.

Maple Bay Mountain is the next place on which claims have been staked out, both by Cowichan and, towards Osborne Bay, by Nanaimo parties, these latter have, I understand, been already rewarded for their enterprise by striking at a depth of 40 feet a rich gold-bearing vein on their property on the Sansum Narrows. What are called on the maps the Quamichan mountains, but known locally as Richards mountains, and the country contiguous to the north of them, will, however, I think, prove eventually to be the most abundant producers of valuable minerals. There are four or five series of parallel veins traceable for nearly the whole length of these mountains, and each of these veins have been staked for continuous lines for about three miles.

Texada Island.

The owners of the Raven have decided that it is absolutely necessary in order to open up the mines of the island to employ cheaper labor. The white miner is paid \$3 per day and the Chinaman does the work for \$1.25. The owners of the Raven believe that \$1.75 per day per man is much too much to pay for sentiment.

The Copper Queen is turning out her 30 to 50 sacks per day of rich copper ore, which for the present is being shipped for smelting to Everett, yet the 50 sacks do not anywhere approach the output of the mine.

The Kirk Lake gold mine is putting the 100-foot crosscut through to the south vein and have already cut through several fine stringers of quartz.

The Silver Tip has been acquired by the Pugsley syndicate, and capitalized at \$250,000. The shaft is now being sunk down, three shifts are at work, and the ore has already proved itself rich. \$40 gold, \$8 lead and 14 per cent. nickel per ton.

The Surprise shaft is down about 90 feet or there about.

The Potosi and Francis are giving remarkably fine results as work progresses. A test from the tunnel sent to Victoria gave \$45 per ton, and one assay of choice rock gave \$13,930.

NOVA SCOTIA.

Isaacs' and Upper Seal Harbors.

The output of gold from the Richardson mine which, during 25 days last past has been 364 ounces, 30 pounds weight, and worth about \$7,000, is drawing attention is the auriferous veins that are enfolded in the Upper Teal Harbor anticlinals. It is quite evident, says the Halifax (N. S.) *Chronicle*, that the gold-bearing reef for miles along the line contain an immense quantity of gold. It is surprising that there is only one mine yet opened on the reef and that has been parted from the ore and gathered by immature appliances. The quartz containing more or less base metals was mined from one of the interbedded quartz veins lying between the whin and slate layers that are for miles overlapping one another along the anticlinal range. The auriferous veins of the anticlinal are numerous and of great magnitude and curve around the saddle from a north dip to an easterly dip and abruptly to a steep south dip, and this, from the best authority, to inaccessible depths. At the Richardson some 2,000 tons of ore are coming to the surface every month and as soon as the prospecting season opens development work will be started on a number of prospects where large veins are showing, and for which splendid results are anticipated.

BRITISH COLUMBIA MINING LAWS.

NEW REGULATIONS BEING CONSIDERED BY THE LEGISLATURE.

Two important mining bills have been introduced in the legislature at Victoria. One was by Col. Baker to appoint an inspector of metalliferous mines. The other was Smith's Mineral Act Amendment. Baker's bill is self-explanatory in the title, which is: "An Act for securing the safety and good health of workmen engaged in or about metalliferous mines." It provides that the government may appoint as inspector a man, who has had at least seven years' practical experience in mining; who must give his whole time to the duties of the

office. The Minister of Mines may, when he deems it necessary, order an inspection of a mine, and the inspection on the condition of all machinery, timbering, etc., of the mines of the province; penalties being imposed on managers or owners of mines refusing the inspector admission.

Smith's Mineral Bill Amendment is framed on the recommendations of the mining committee, but omitting that provision prohibiting aliens from taking up claims, as Smith is opposed to this as narrow and unnecessary. One section is designed to exempt from free miners' licenses men who are merely employed at work in the mines. Another provision is that in entering on private lands a miner is not first required, as at present, to put up security, but only does so if requested afterwards by the owners. Another section allows work done outside of a mineral claim, if having a direct relation to such claim and in direct proximity to it, to be accepted in lieu of assessment work and also it provides that a partnership not exceeding eight claims in number may put in assessment work for a group on one claim, the amount expended being equal to \$100 for each claim.

Crown grants to mineral claims are made to convey surface rights, including timber for the purpose of working the claim, other surface rights being vested in the Crown, but the owners of Crown grants for mineral claims may purchase all the surface rights also for \$5 per acre. In cases where a mineral claim is located on a railway grant the owner or the Crown grant shall be entitled to appropriate the surface right in fee simple of the company, the amount not to exceed \$5 per acre.

All the sections here referred to are in italics, for private members cannot bring them in and when in italics are supposed not to be seen until the government gives its consent in the house to their insertion.

Other provisions make clearer the laying out of claims and recording them. A miner to abandon a claim must give notice in writing to the Mining Recorder. For the purpose of a Crown grant, work done on a claim by the predecessor in title may be deemed to be done by the applicant, who receives the transfer. Notice of the application for a Crown grant must be made in a newspaper in the district, or if there is none then in the nearest paper. The survey of a claim may be counted as work on the claim, but not to exceed \$100.

To prevent any more uncertainty as to partnerships no free miner shall be entitled to interest in a claim located by some one else except where a written agreement exists.

The onus of proof against a previous location is placed on the adverse claimant. These are the principal provisions in the bill.

NEW MINING COMPANIES.

The Ottawa Gold Milling and Mining Co.; capital \$1,000,000, in \$1 shares. The incorporators are: John Mather, lumber merchant; Edward Seybold and James Gibson, manufacturers; William Andrew Clark, express agent, and Angus William Fraser, barrister-at-law, all of Ottawa.

La Reine Gold Mining Company of Ontario; capital \$1,000,000, in \$1 shares. The incorporators are: Arthur James Jackson of Toronto, loan company manager; George Drewry, merchant; James Malcolm Savage, lumberman; George Girard, miner, and John William Colcleugh, accountant, all of Rat Portage.

The Bi-Metallic Mining and Development Company of Ontario; capital \$2,500,000 in

\$1 shares. The incorporators are: Robert Samuel King, treasurer; Joseph Montgomery, student-at-law; William Henry Jones and John Sifton Dignam, manufacturers; Edward Trousdell, gentleman, and Frederick De la Vigne, mining expert, all of Toronto, and Albert Edward Jones, London, England.

The McGown Gold Mining Company of Parry Sound; capital \$1,000,000, in \$1 shares. The incorporators are: Thomas McGown, the elder, gentleman; Patrick McCurry, stipendiary magistrate; William Rabb Beatty, lumberman; David McFarlane, Division Court clerk; Milton Pearce, Donald W. Ross and Thomas John McGown, merchants; John Robinson Stone, physician; William McGown, wood ranger; James Calder, blacksmith; John Reid Leggett, jeweler; William Harvey Hoppins, filer; Frank Halliday, timber agent; John A. Johnston and James Beveridge, contractors; James Ross Morrison, machinist, and Hiram Erskine Stone, barrister-at-law, all of Parry Sound; Horatio Nelson Crossley of Toronto, gentleman; George Monteith, fur dealer; John Percy Waddy, physician, and Samuel Hooper, merchant, all of Rosseau; Francis William Ashdown of the township of Humphrey, merchant; Thomas McGown, the younger, and John McGown, both of the township of Foley, yeomen, and William Calder of Maganetawan.

THE SASKATCHEWAN.

The Edmonton *Bulletin* in a two-column leader, makes the startling prediction that instead of \$50,000 as heretofore, the Saskatchewan River will hereafter yield \$5,000,000 in gold.

Gold has been mined, or perhaps more accurately, washed for many years. The metal is found in minute scales, so small as to be only noticeable by the naked eye from their sparkle. The dust is always found in connection with black sand—evidently magnetic iron—amongst the ordinary sand, gravel and boulders of the river bars, which are found on alternate sides of the river throughout its length for 100 miles above and below Edmonton.

It appears that not only gold dust but gold nuggets are to be found on the Saskatchewan. Mr. Thomas O. Davis, M.P., for Saskatchewan, who has just passed through Toronto on his way to Ottawa, exhibited a nugget of pure gold the size of a pigeon's egg, which had been obtained from the bed of a stream in his neighborhood. He stated that in Saskatchewan there are 110,000 square miles of land intersected by a network of rivers and water-courses many of which contain free gold in their beds. Already the district has attracted a large number of gold-seekers, who work by the old-fashioned panning system and are able to make from \$2 to \$2.50 per day. The country is well wooded, has plenty of game and living only costs about 40 cents a day.

CRIPPLE CREEK SHIPMENTS.

ORE shipments from Cripple Creek continue to increase, says the *Engineering and Mining Journal* of New York, and in March, for the first time, the values exceeded \$1,000,000 in a single month. This total was made up by 6,459 tons of smelting ore, averaging \$89 per ton, and 17,136 tons of milling ore averaging \$25. The total shipments were therefore 23,595 tons of ore averaging \$42 per ton, and the total value \$1,003,251. It is to be noted that this large amount was secured chiefly by an increase in the quantity of low-grade ore, which goes to

the mills. These ores in March furnished 71.4 per cent. of the tonnage, and 42.7 per cent. of the value, though their average grade was so much less than that of the smelting ores. For the quarter ending with March there was a total production reported of 59,485 tons of ore, 20,461 tons being smelting ore and 39,024 tons milling ore. The total value of the former was \$1,657,961, and of the latter \$996,400, making the full value \$2,654,381 for the quarter. This growth of the camp is very gratifying.

INFORMATION WANTED.

THE Council of the Board of Trade of Victoria, B.C., is making a special investigation of an advertisement of the Department of the Interior calling for "tenders for a lease for the exclusive right to dredge for gold in a part of the bed of Stewart river, a tributary of the Yukon river, North-West Territories."

No information was forthcoming to make clear the meaning of this advertisement, and as action could not be taken in the dark, the secretary of the board was instructed to telegraph at once to Victoria's representatives at Ottawa, Hon. Mr. Prior and Mr. Earle, asking them to mail a copy of the conditions referred to, with all other information, immediately.

The *Colonist*, commenting on this matter, says:—"To offer a monopoly of all the gold in one hundred miles of a river known to be rich in the yellow metal, and that, too, before the miners who after months of toilsome travelling are now seeking their fortunes in the region in question, certainly appears *prima facie* a very strange proceeding. In view of the fact that Stewart river is spoken of as one of the very richest in the Yukon country, and is especially referred to as such in a report just received at Ottawa from Mr. Wm. Ogilvie, the proposition of the government is all the more astounding. To use the words of one old miner who tried to sound its meaning yesterday, 'It almost takes one's breath away.'"

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ONE of the best known manufacturers of mining machinery in Canada is the Wm. Hamilton Co., Limited, of Peterboro', who have just issued a very fine descriptive and illustrated catalogue of their stamp, chlorination and cyanthide mills, a branch of the business to which they have given much careful attention, with the result that their machinery has obtained a very high reputation. Being constantly in communication with practical miners and mill men, and in touch with the latest theoretical and practical methods of mining and milling the different ores they are conversant with the latest methods, and in a position to supply the highest grade and most suitable and up-to-date machinery for all purposes. Stamp mills of every description for dry and wet crushers, amalgamating pans, barrels and plates, the best known and most modern apparatus for drying, roasting, retorting and melting into fine bullion, also the most improved revolving barrels, and tanks used in connection with the chlorination, cyanide and other chemical treatments. In the catalogue, each part of the various machines is very clearly and completely illustrated, and every detail is carefully attended to.

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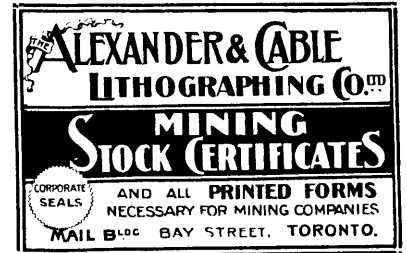
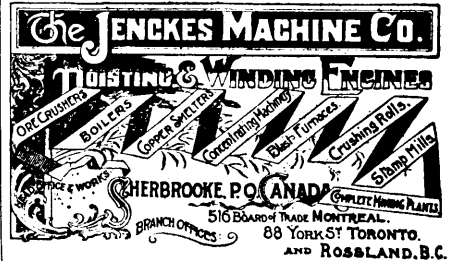
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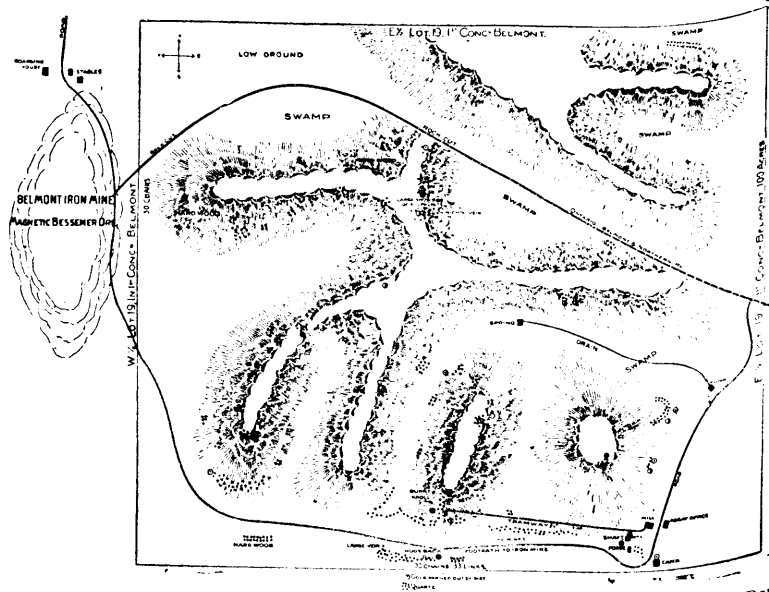
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The mines of this Company are located at Princeton, B.C., and consists of 640 acres of rich gold bearing gravel benches and water rights to 3,600 miner's inches. Experienced engineers who have examined this property declare it to be one of the finest Hydraulic propositions in British Columbia.

10,000 SHARES NOW OFFERED TO THE PUBLIC AT PAR.

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Steel and Iron Hydraulic Mining Pipe.

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CANADIAN AGENTS FOR

THE ROYAL BEACON Incandescent Lamp.

THE HELIOS ARC LAMPS, Alternating or Direct.

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MONTREAL

PRIZE MEDALS IN COMPETITION
WITH THE WORLD

Rathmullen

CONSOLIDATED MINING AND DEVELOPMENT COMPANY (Limited) ROSSLAND, B.C.

Incorporated under the Imperial Act, 1862.

Authorized Capital Stock \$2,500,000, in Shares of \$1 Each, par value.
1,000,000 Shares in Treasury. Vendors' Shares pooled up to August 15, 1897.

LIST OF OFFICERS AND DIRECTORS:

President and General Manager—W. C. McDOUGALL, Rossland, B.C.
Vice-President—Dr. H. D. BURRITT, Rossland, B.C.
Secretary-Treasurer—J. M. O'TOOLE, Rossland, B.C.
W. D. McMILLAN, Rossland, B.C. A. W. FRASER, Rossland, B.C.
W. J. WHITESIDE, Rossland, B.C.
Superintendent of Company's Mines—C. S. NEILSON, Rossland, B.C.
Consulting Engineer—HARRY GAGER, Rossland, B.C.
Solicitors—ELLIOT & WHITESIDE.
Bankers—BANK OF BRITISH NORTH AMERICA.

PROPERTIES.—The Company own outright, free of all claim and good title, a group of TWELVE claims, aggregating six hundred acres, in the famous Kettle River mining division of Yale District, B.C., viz.:

**Rathmullen, Glasgow, Trafalgar,
 Westward Ho, Lansing, Ben Hur,
 Malta, Rob Roy, Gibraltar,
 Helen Ray, Ione, Nannie F.**

SCOPE.—The operations of the Company are not to be confined to the twelve which they now own. It has the fullest possible powers through its charter of a development company in the broadest sense.

Extracts from report of Mr. Harry Gager, mining engineer (whose full report appears in prospectus):

There are at least six well-defined veins running through this group, varying from six to one hundred and thirty feet in width, some of which have been traced for over a mile. * * * The vein in the Glasgow was cross-cut from the footwall for a distance of one hundred and thirty feet without encountering the opposite wall of the ledge. * * * In my opinion it is only a matter of development when the Rathmullen group will rank among the best, as it is at present among the greatest in extent, of British Columbia mining properties.—February 17, 1897.

Extracts from report of C. E. Huff, M.E. (full report in prospectus):

I wish to say, in conclusion, that I have examined this group closely, and find the trend of the formation and ledges which show up on the property to be in a direct line through the Rathmullen group, from Brown's Camp to Summit Camp, and that my investigation has brought me to the conclusion that at least

Six of These Twelve Claims will Make Mines.

While ore undoubtedly will be found on every claim within the group, I have not during my thirty years' experience in the mines of Western America examined a property that I can more emphatically recommend as a safe investment than the property of the Rathmullen Consolidated Mining and Development Co., Ltd., North Fork of Kettle River, B.C.—Feb. 16, 1897.

The Company offers for a few days THE FIRST issue of TREASURY STOCK at 12½c. per share, fully paid and absolutely non-assessable. Purchasers of this block will have the full benefit of the raise in price sure to take place in the Company's stock, as a limited number of shares only are to be sold at this figure.

Stock will be issued in the order in which applications are received.

All applications for stock or information should be addressed to the Company's broker,

WM. C. FOX, Mining Broker,

Telephone 2765

21 Adelaide Street East, Toronto

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Inve
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THE CANADIAN MINER.

AUTHORIZED STOCK BULLETIN.

Name of Stock.	Authorized Capital.	Par Value.	Market Price.	Name of Stock.	Authorized Capital.	Par Value.	Market Price.
Alberta.....	\$1,000,000	\$1 00	\$0 12	Kootenay-Cariboo Mining and Investment Co.....	2,500,000	\$1 00	\$0 25
Aif.....	1,000,000	1 00	0 11	Kootenay-London.....	1,000,000	1 00	0 10
Arlington Con.....	1,000,000	1 00	0 10	Lake Harold.....	1,000,000	1 00	0 15
Bannockburn.....	500,000	1 00	0 20	Ledyard	1,000,000	10 00	2 50
Big Three.....	3,000,000	1 00	0 09	LeRoi.....	2,500,000	5 00	7 50
Bondholder.....	1,000,000	1 00	0 14	Lily May.....	1,000,000	1 00	0 20
British-Canadian Gold Fields.....	2,500,000	1 00	0 15	Lloyd Gold Mining and Dev. Co.....	1,000,000	1 00	0 08
Butte.....	1,000,000	1 00	0 03	London Hill Min. & Dev. Co.	150,000	0 25	0 25
Caledonia Con.....	1,000,000	1 00	0 10	Mabel.....	1,000,000	1 00	0 15
California.....	2,500,000	1 00	0 10	May Flower.....	1,000,000	1 00	0 14
Canada Mutual.....	2,500,000	1 00	0 15	Mikado.....	£250,000	£1	7 50
Cariboo M. C. C.....	800,000	1 00	0 50	Miller Creek (Slocan).....	\$1,000,000	1 00	0 07½
Colonna.....	1,000,000	1 00	0 26	Mines Dev. Co.....	2,500,000	1 00	0 10
Colorado.....	1,000,000	1 00	0 10½	Minnehaha	1,000,000	1 00	0 15
Columbia and Ontario.....	750,000	1 00	0 10	Monarch.....	1,000,000	1 00	0 10
Commander.....	500,000	1 00	0 20	Monita.....	750,000	1 00	0 16½
Consolidated Sable Creek.....	1,000,000	1 00	0 10	Monte Cristo.....	1,000,000	1 00	0 12
Confederation Mines Dev. Co.	2,500,000	1 00	0 10	Montezuma	1,000,000	1 00	0 07½
Cornucopia.....	£100,000	£1	7 50	Morning Star.....	1,000,000	1 00	0 07½
Cracker Jack.....	\$1,000,000	\$1 00	0 09	North American Mining Co.	2,500,000	1 00	0 20
Crown Point.....	1,000,000	1 00	0 48	Norway.....	1,000,000	1 00	0 10
Deer Park	1,000,000	1 00	0 17	Novelty.....	1,000,000	1 00	0 10
Dellie.....	750,000	1 00	0 15	Old Flag	1,500,000	1 00	0 10
Eagle Nest.....	.....	25 00	25 00	O.K.....	1,000,000	1 00	0 24
Eastern Mining Syndicate.....	1,000,000	1 00	0 09½	Old Ironsides.....	1,000,000	1 00	0 11
Eldon.....	1,000,000	1 00	0 10	Ontario Gold Fields.....	1,000,000	1 00	0 08½
Elsie.....	1,000,000	1 00	0 08	Ottawa and Ivanhoe.....	250,000	1 00	0 12½
Empress.....	500,000	1 00	0 21	Phoenix.....	500,000	1 00	0 15
Enterprise.....	1,000,000	1 00	0 20	Pug.....	1,000,000	1 00	0 15
Ethel Group (Preferred).....	1,500,000	1 00	0 75	Princess	500,000	1 00	0 25
Eureka Con.....	500,000	1 00	0 10	Poor Man.....	500,000	1 00	0 07½
Evening Star.....	1,000,000	1 00	0 15	Rathmullen Con. M. & Dev. Co.	2,500,000	1 00	0 12½
Exchequer.....	1,000,000	1 00	0 10	Red Eagle.....	1,200,000	1 00	0 08½
Foley.....	1,000,000	5 00	3 50	R. E. Lee.....	1,000,000	1 00	0 10
Germania	1,000,000	1 00	0 20	Rossland Gold Mining and Dev. Co.....	2,500,000	1 00	0 12½
Gertrude.....	500,000	1 00	0 12	Rossland Red Mountain.....	1,000,000	1 00	0 25
Gold Bar	2,500,000	1 00	0 07	Royal Five.....	1,500,000	1 00	0 10
Gold Exploration Co.....	1,000,000	£1	5 00	Santa Marie (Slocan).....	1,000,000	1 00	0 06
Gold Hills.....	1,000,000	\$1 00	0 10	Saw Bill.....	.....	.....	2 85
Gold Quartz.....	2,000,000	1 00	0 10	Silver Bell.....	1,000,000	1 00	0 05
Gold and Silver Mines Dev. Co.....	1,000,000	1 00	0 20	Silverine.....	500,000	1 00	0 10
Golden Cache	500,000	1 00	1 75	Slocan Cariboo	1,000,000	0 10	0 10
Golden Gate Min. and Dev. Co.	300,000	1 00	1 50	Slocan Star.....	1,000,000	0 50	2 63
Good Hope.....	500,000	1 00	0 10	Smuggler	1,000,000	1 00	0 21
Great Western.....	1,000,000	1 00	0 16½	Spokane-Kaslo	900,000	1 00	0 10
Great Western Mutual.....	2,500,000	1 00	0 15	St. Elmo.....	1,000,000	1 00	0 11
Hansard	1,000,000	1 00	0 10	St. Paul	1,000,000	1 00	0 12½
Heather Bell.....	1,000,000	1 00	0 20	Sweden.....	500,000	1 00	0 25
High Ore.....	500,000	1 00	0 04	The Industrial Mining and Dev. Co.....	250,000	1 00	1 00
Homestake.....	1,000,000	1 00	0 17	Two Friends.....	240,000	0 30	0 31
Ibex.....	1,000,000	1 00	0 03½	Victory-Triumph.....	1,000,000	1 00	0 10
Ibex of Slocan	300,000	0 25	0 30	Virginia.....	500,000	1 00	0 13
Investors Prospecting G. and M. Co (Cripple Creek).....	1,250,000	1 00	0 10	Waneta.....	1,000,000	1 00	0 10
Iron Colt	1,000,000	1 00	0 20	War Eagle (Con.).....	1,000,000	1 00	1 04
Iron Mask.....	500,000	1 00	0 45	Washington.....	1,000,000	1 00	0 28
Iron Queen.....	1,000,000	1 00	0 04	West LeRoi and Josie.....	500,000	1 00	0 27
Josie.....	700,000	1 00	0 46	White Bear.....	2,000,000	1 00	0 12
Josie Mack.....	1,000,000	1 00	0 12½	Winnipeg and Eureka.....	1,000,000	1 00	0 10
Jumbo.....	500,000	1 00	0 60	Yale.....	1,000,000	1 00	0 02½
Kelley Creek.....	1,000,000	1 00	0 15	Zilor.....	1,000,000	1 00	0 15