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THE CANADIAN MINER

Vol. I.

TORONTO, ONT., APRIL 17, 1897.

No. 14.

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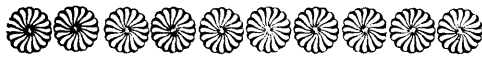
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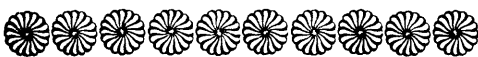
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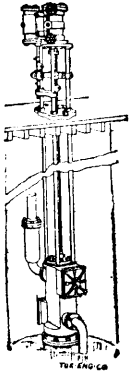
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The Canadian Miner.

VOL. I.

TORONTO, APRIL 17, 1897.

No. 14.

HISTORICAL NOTES ON GOLD CHLORINATION.

NOTWITHSTANDING the statement in the official government report for 1896 on our mines, that "The mining and milling practice of Nova Scotia is abreast with that of any other mining country," we have only just succeeded, says the *Industrial Advocate*, in getting a chlorination plant in the province, and we may add that this step, like a great many improvements in both mining and milling, is due to our cousins across the border, rather than to local enterprise.

In 1848 Professor Carl Fredrick Plattner made his historic experiment in applying chlorine gas as a method of extracting gold from its ores. Like many other important discoveries the inventor of it would have allowed it to drop had not his colleagues at Freiberg continued the investigation, and really, although, the early forms of the chlorination process have always bore the name of Plattner, he had very little to do with the development of the process. A series of laboratory experiments followed Plattner's discovery.

Names of Dufas, Coster, Lange, Georgi, Richter, Guettler, and others appearing prominently in these researches.

It was several years after Plattner's discovery that the chlorination process came into commercial value. In 1858 Deetkin introduced the process into Grass Valley, Nevada. The method he adopted was to mix the roasted ore with from 4 to 5 per cent. of water, this moistened ore was sifted on to a filter bed having a false bottom, and chlorine gas generated by the action of sulphuric acid on salt and peroxide of manganese, was forced up through the moistened ore, the vat in which operation was being conducted was covered, and the ore allowed to remain in contact with the gas for several hours, when the operation was considered to be complete, the pipe conveying the chlorine was removed, and the ore was leached with water, thus removing the whole of the gold chloride, and the gold was afterwards recovered from this solution by precipitation with ferrous sulphate. By this method Deetkin treated from 7 to 8 tons of roasted sulphurets at the time, and the process lasted some 15 hours, and the cost was about \$15 per ton of concentrates.

Many patent and suggested improvements followed Deetkin's modification of the Plattner process, but none came into commercial use until in 1877 J. J. Howell Mears introduced a process in which the moistened ore was revolved in a barrel; chlorine gas being forced into the barrel from a generator outside of it during the operation. The agitation of the barrel was found to hasten the conversion of gold into auric chloride, and this was really the foundation stone of the present barrel chlorination system.

Adolph Thies in America and Claud Vautin in Australia followed out a suggestion of Mears himself, namely, that of generating the chlorine in the barrel with suitable reagents.

Both Thies and Vautin used chloride of lime and sulphuric acid, these are mixed in the required proportions in the barrel with the ore, and the whole is revolved together until all of

the gold is converted into chloride, the contents of the barrel are then turned out upon a filter bed, and the auriferous solution is allowed to drain through into settling tanks. The extracting of the gold from this solution is done by different methods, the most common of which is to syphon it from the settling tank into the precipitating tank, and precipitate with ferrous sulphate, the precipitated gold is allowed to settle, and then the solution is drawn off and the gold collected, pressed together, smelted and cast into ingots.

That the chlorination process is perfect no one who has made a study of it will for one moment admit, there are many points in which improvements will come and even now at the Mount Morgan Mine in Queensland, Australia, they have entirely thrown out the barrel process and substituted leaching in vats with chlorine water and it is claimed that a higher percentage of extraction is obtained and that the working expenses are reduced.

MISS-FIRES.

J. D. KENDALL.

THE following paper on miss-fires, published in the Transactions of the Federated Institute of Mining Engineers, though written some time ago will be of interest to mining men. Mr. Kendall said:—

The usual method of charging holes is to put the explosive into the hole first, the last cartridge having the cap in it, then to stem with a more or less clayey material to the top of the hole. In very wet ground water alone is usually employed for tamping.

Miss-fires arise either from defective materials or bad workmanship.

DEFECTIVE MATERIAL—Miss-fires from defective materials may arise as follows:—

(a) INFERIOR EXPLOSIVES—Arising in many, if not most, cases from exudation of nitro-glycerine. This is a defect, however, which is fortunately not of very frequent occurrence now.

(b) INFERIOR DETONATORS—are also met with occasionally, but not often.

(c) DEFECTIVE FUSE—This is a most abundant source of the miss-fires which arise from the use of inferior materials. Even in fuse of first-class make there are sometimes found lengths in which for two or three inches not a trace of powder is to be seen, and sometimes the powder is of an inferior quality for short lengths. Fuse of either of these descriptions may be most dangerous, for even if it should eventually "run," it must "hang fire" more or less, which may so deceive the miner as to lead him back again into his working, merely to be shot. The touch-thread or threads burn at rates varying from 1½ to 5 inches per minute in the open air, but confined in the fuse they will burn much more slowly, and be much more likely to die out. It is quite possible, too, that a deadening of the fire conveyed by the touch-threads may so occur that the rate of burning in a barren part of the fuse may be reduced to that at which the yarn enclosing the powder-train is consumed; that is, from 0.38 to 0.85 inch per minute in the open air. As confined, even this slow rate may be reduced to one-half; so that a piece of fuse barren for 3 inches may

hang fire for a quarter of an hour. This, to a miner, waiting for a shot to go off, is a very long time, and many cases have occurred in which he has gone back too soon and been seriously injured in consequence. The usual rate at which fuse runs is about 2 feet per minute, although in some cases it is much slower, only 1.4 foot per minute. Therefore from 1½ to 2½ minutes is sufficient for any ordinary length of fuse to run, and when this time is exceeded a miner concludes either there has been a miss or that the fuse is hanging fire. If he lack caution, or be very anxious about his work, he may go back too soon and suffer in consequence, as many have done. A miner should never return to a working in case of a miss-fire, unless he heard the cap explode, before the expiration of at least twenty minutes.

Fuse is no doubt, however, often blamed for miss-fires when the real cause is defective charging.

DEFECTIVE WORKMANSHIP—Miss-fires from defective workmanship may arise in several ways:

(d) The detonators may be so insecurely fixed on the fuse that in course of stemming the two may be separated, especially if the swab-stick be rather too thick and draw back the fuse during the operation of stemming. In such a case the fire may not reach the detonating-material. Before this could happen, however, the fuse must be pulled completely out of the detonator or it must be defective, so that it will not spit properly, to use the miner's expression; for when both the fuse and detonators are good the latter are exploded, even if the fuse only enters the cap. It is a common opinion among miners that the fuse must be cut very square at the end, and then fixed in contact with the detonating-material, but that is not necessary. All that is needed is that the detonators shall be firmly fixed on the end of the fuse, so that they cannot be separated in the course of stemming. It is of no consequence if the cap be pulled out of the dynamite; detonation of the latter will take place just the same, provided, of course, that they are in contact. Some miners knowing this, often, in charging their holes, put in the explosives first, and then the cap with the fuse attached, on the top of it. It is a common but erroneous opinion that the cap must be placed within the explosive.

(e) In wet ground it is necessary to grease the cap; that is, to fill up the space between the sides of the cap and the fuse with tallow, so as to prevent water from gaining access to inside of the cap. This is sometimes neglected or imperfectly done, and miss-fires are the consequence. The writer has had greased caps and fuse immersed in water for twenty-four hours, yet the fuse ran and the caps exploded, just as if they had not been in water at all. Caps with fuse attached, but not greased, would not explode after immersion for the same length of time. The explanation is probably that a comparatively thick film of water intervenes between the fuse and detonating-material in the ungreased cap, so as to prevent the fuse fire from reaching the latter, because caps that have been immersed in water for three-quarters of an hour, and afterwards drained, explode in

the usual way, and fuse so treated runs as usual, so that mere dampness is not sufficient to account for miss-fires of this description.

(f) The sawdust, with which the caps are filled as they leave the factory, may also cause miss-fire if it be not removed. The writer has made experiments in this direction. Caps that contain only sufficient sawdust to barely cover the detonating material will explode, but one-sixteenth inch of sawdust will prevent explosion. If the sawdust be not quite dry, it is most difficult, and in some cases impossible, to shake it out of the cap, and it is not advisable to attempt its removal by any sharp-pointed instrument, unless it be of wood; therefore caps in which the detonating material is not visible should be rejected. The writer has tried to explode caps both by scratching and hammering on the detonating material with pointed pieces of wood, but he never succeeded. Nor could he produce explosion by scratching with a sharp-pointed piece of iron, but hammering with the same instrument was always successful. Gently crushing the cap and the detonating material within it will not cause explosion.

Miss fires, whether arising from defective materials or bad workmanship, sometimes occur unknown to the miners; as, for example, when two holes are supposed to have exploded simultaneously, whereas in reality, only one of them has exploded, the other having missed fire. To prevent this kind of occurrence, there should be at least two inches difference in the length of any two fuses fired together even though all of the holes fired at that time be of the same depth.

From whatever cause, however, miss-fires arise, it will probably not be possible to prevent them altogether although they may be greatly reduced in number; for we are not likely in the future, any more than in the past, to obtain at all times, either perfect material or faultless workmanship. The question, then, is: How can miss-fires be dealt with so as to avoid the serious accidents which sometimes follow on them? At present the usual practice is either to remove the stemming, or by either a wooden or iron pricker to make a passage in the stemming and pass through it another cap. Both these practices are most dangerous; the latter, however, is only so when an iron pricker is used, and this is occasionally done unknown to the managers. The principal danger in both cases is of the same kind, and arises from the possibility of coming into contact with an unexploded cap and causing it to explode by a blow, either from without or within, that is directly on the detonating material.

For the purpose of obviating any necessity or excuse for resorting to either of these practices, the writer sometime ago carried out two sets of experiments, which showed that miss-fires may be dealt with in a most simple manner and with absolute safety. One set had reference to the quantity of stemming necessary to enable the explosive to do its work properly. Shots were fired in the presence of experienced miners, who were all in favor of heavy stemming, with various thicknesses of stemming, ranging, in the different holes, from fourteen inches down to half an inch, and these miners all agreed that the burden in each case was as well thrown as it would have been had the hole been stemmed up to the neck. A number of holes were also fired without any stemming whatever, and these were almost if not quite as satisfactory. The unanimous conclusion arrived at by all who witnessed these experiments was that two to five inches of stemming, according to the nature of the ground to be thrown, was as effective as two feet.

The other set of experiments were made for the purpose of determining the thickness of

stemming through which a charge of gelatine-dynamite could be exploded by another charge placed on the top of the stemming. The *modus operandi* was this: Two cartridges, without a cap or fuse, were put into the bottom of the hole. These were stemmed with a certain thickness of clayey stemming; another cartridge or half-cartridge with a cap in it, and fuse attached was placed on the top of this stemming, and a further lot of stemming, generally not more than an inch or two, was put over this last cartridge or half-cartridge. The primary stemming, that between the two lots of explosive, was tried of all thicknesses up to fourteen inches, and in every case the whole of the dynamite in the hole was exploded, and the work intended to be done by it executed satisfactorily. In one experiment five inches of paper was put between the two lots of explosive and two inches of paper on the top of the last cartridge, no clay stemming whatever being used. The hole was a very strong one, in the middle of a narrow forehead, but the ground got by it was all that could have been expected if any amount or quality of stemming had been employed.

The lesson to be learned from these experiments is this: It is quite unnecessary to put more than three to six inches of stemming at the most into a hole; but if this were increased, say to eight inches in deep holes, so as to partly meet the prejudice of miners generally, yet even then in case of a miss-fire, all that has to be done is to put another cartridge, or part of one on to the top of the stemming, and the first charge will be exploded in the manner described above. No unramming of a hole is necessary, and no pricker need be used, so that all the risks attending these two operations will be avoided.

The writer has caused the holes made in a number of mines to be charged as above suggested, for several months, with complete success, miss-fires being now most simply and easily dealt with.

These experiments were made with gelatine-dynamite, containing a higher percentage of nitro-glycerine than giant powder.

ABOUT GOLD MINING.

A VERY instructive lecture on gold mining was given recently by Mr. A. Clifton McMicken. The lecturer began by giving a short synopsis on the formation of the earth's crust, stratification and mineral formation. He illustrated his explanations on the blackboard, showing as a typical example the chart published by the United States geological survey of the state of Colorado. He then followed by a rapid description and enumeration of the formation of metals and metal bearing rocks, explaining at the same time how the upheaval and contraction of the earth's crusts in its different stages of cooling and subsequent cohesion produced cracks or crevices which filled by internal molten matter are called fissures. It is in these fissures that gold, the precious metal, the subject of the lecture, is found. Gold, he said, although occupying our attention at present, is not the only metal whose value makes mining profitable. The term "mining" is applied to the extraction from the earth of all profitable geological productions, and as clay, coal, stone, etc., and all rock-bearing metal in profitable quantities is called ore, the next step after knowing the theoretical formation of ore is to acquire the practical knowledge necessary for the finding of them. After the prospector has found what he thinks may be mining ore he proceeds to test it to discover its value to the best of his ability. If he has any knowledge of the physical character of minerals he is guided by the indications shown by the asped or

lustre, the color, forms, structure, hardness, etc. The last named is one of the best guides, as scales of hardness have been devised by eminent mineralogists which faithfully followed give the classification of the mineral. The degree of hardness in minerals is conventionally assumed to vary from 1 to 10 (1 being the lowest) as in the following scale, devised by a German mineralogist, Moks, and now generally adopted: 1, Foliated Talc; 2, rock salt, a transparent cleavable variety; 3, calcareous spar, a transparent variety; 4, fluor spar; 5, a patite; 6, feldspar; 7, rock crystal; 8, opaz; 9, corundum; 10, Plse diamond. Other tests of these mineral ores are those made by the blow pipe flame, or by the simpler, but cruder, process of "panning." This was the process that was always adopted by the pioneer miners in the "boom" days of '49 in California. It consists in crushing the rock to powder, then washing it in a pan with a rocking, winnowing motion, which carries off the lighter mud thus formed and collects at the bottom of the pan the heavier gold. The gold dust thus obtained is amalgamated with a little quick silver and then weighed. The original piece of rock from which it was obtained having been also previously weighed, the value to the ton is thus approximately determined. This, of course, is a very inaccurate way of valuing the ore, as only the free gold is thus obtained, whereas the ore in reality may be exceedingly rich and yet not show gold by the process. The only sure way is to have it properly assayed by a competent assayer, who, provided with all the most improved instruments and chemical preparations, is able to determine the accurate value to the smallest fraction.

The lecturer concluded with a short explanation of the working of a mine and the description of mining machinery used in the extraction and treatment of those ores.

MINERAL WEALTH OF CUBA.

IN mineral wealth, Cuba is capable of taking high rank. Gold and silver have not been found in paying quantities. Copper was mined at Cobre by the natives before Columbus discovered the island, and there is strong proof that native copper was carried across to Florida, and used by the Florida Indians hundreds of years ago. The mound builders of that State buried with their dead copper ornaments and utensils hammered from native copper, which always has an admixture of more or less foreign matter. As no copper ore is found in Florida, nor in the United States for a long distance from there, and as that found in the United States or Mexico does not correspond chemically with that buried with the mound builders, it occurred to Prof. R. H. Sanders, of the Academy of Natural Science in Philadelphia, that it was possible that these mound builders had water communication with Cuba, and got their copper from here. He therefore communicated with the writer, and procured a sample of native Cuban copper, which proved, upon analysis, to be the identical kind used in the copper ornaments mentioned. In the early part of the present century some English capitalists purchased these mines, which are nine miles from Santiago. The books of this consulate show that from 1828 to 1840 an average of from \$2,000,000 to \$3,000,000 worth of copper ore was shipped annually to the United States from these mines. How much was shipped elsewhere, I have not the means of knowing.

For advertising machinery and camp supplies no better medium exists in Canada than *The Canadian Miner*. It reaches the managers and directors of our mines.

THE PARK AMALGAMATOR.

An interesting description of the Park amalgamator is given in a recent issue of the *Vancouver News and Advertiser*:—

A number of prominent citizens and expert representatives of mining in Cariboo, Kootenay and Alberni, were present yesterday at a trial of the Park amalgamator in the School of Mines building, Alexander street.

It is the invention of a Cariboo miner, at present a resident of this city, who had for his object the perfection of a machine that would save all the gold in whatever form. The machine, if perfect, should have great capacity, also simplicity of operation, and the "cleaning up process" should be controlled to suit the convenience of the parties interested.

That Mr. Park, in his invention, has done so, there is not the slightest doubt, and anyone who sees it in operation, and understands its principles, will certainly have the same conviction. It is simply a wonderful machine, and evidently will fill a great want in the mining world.

The amalgamator may be described as being a perpendicular inlet, 72 inches high, 20 inches wide, and 2 inches deep, joined to a horizontal chamber 24 inches long, 20 inches wide, and 3 inches deep, continued to an outlet having an angle of 45 degrees. This outlet has the same relation in height to the inlet that quicksilver has to water, viz.: 13½ to 1. The horizontal chamber is filled with quicksilver, and all material is forced through it by water, gravity causing a current. Six shafts, alternately right and left, revolve in this chamber and in the outlet. Deflecting plates descend to the shafts and force all matter to pass down and up through the quicksilver.

It is quite evident that, no matter how extremely fine and light the gold may be, it cannot possibly escape; it might be almost in solution, and yet be captured. This amalgamator ought to certainly supersede plates used with stamp mills, by reason of a greater percentage in saving gold and avoiding the extreme care and watchfulness so necessary to plate amalgamation. It should also be well adapted for saving the fine gold from the Fraser and other rivers, and there should be no reason why it should not form part of a cheap system for working the low-grade refractory ores, after a preparatory roast.

The inventor and the gentlemen associated with him are heartily congratulated upon the successful production of an amalgamator suitable for either gold or silver, of so wide a range and which must necessarily prove a boon to all interested in mining, and who are not?

THE SLOCAN GRANITE BELT.

The following paper, written by Mr. R. C. Campbell-Johnston, manager of the Bondholder mine, was presented at the annual meeting of the B. C. Association of Mining Engineers held in Vancouver recently:

I offer no apology for the following few notes on this district except for the scantiness of the information imparted, which is not from a want of desire to gather all the facts obtainable, but from the small amount of development relatively to some other parts of the Kootenay. As far as the country has been prospected there is a granite belt, bounded on one side by half of Slocan Lake and Slocan River, and on the other to the east, by Kootenay Lake; on the north by Eight-mile Creek, which flows into Slocan Lake; on the south by Kootenay River. I do not mean to say that this is the extent of the granite belt, namely, 40 miles north and south by 25 miles east and west, as granite is apparent on the west side of Slocan Lake, but this latter has not been prospected to speak of, and so no information can be gathered.

In the prospector's head there is an antipathy

to searching a granite region. In 1892 when the slate and shale belt from Kaslo to New Denver was gone over, mostly everyone passed this granite region, and even if someone saw in the region a vein outcropping, he did not think it worth staking, as, for example, the Meteor and other claims that run into the hundreds of ounces of silver to the ton. Even now, among some mining engineers, some, who come here and take a casual look over two or three claims and from these judge the whole district, some unhesitatingly condemn the granite country as no good; some shake their heads and say they are doubtful about the veins, while others won't even come near it. As for "hoc grnus glorisum" the expert or practical miner who has no reputation to lose, as he never had one, and who does not believe in theory, (founded on experience), as the scope of his comprehension is capable of grasping the education, if it was imparted to him, this noble tribe shake their heads and advise purchasing some ground elsewhere, probably with no vein showing on it, because it is within a mile of some well known mine. All these little idiosyncrasies have retarded the development of the district to some extent, but what has already been done in actual work has proved so satisfactory, and has shown such good results, that the public are beginning to think that there may be some claims of value after all in this granite zone.

Now, in describing this part as a granite belt, I use the term in its widest sense, including all varieties of rocks that carry two or more of the four constituents, mica, felspar, hornblende and quartz, without going into the details of slicing and putting them under the microscope, then traversing the four names of the above in various rotation. Granite is sufficient for us as we are after mineral, and must leave the discussion of eruptive and primary and other minute examinations for those with more leisure. What are the minerals and combinations of minerals that occur in this belt? Of course the veins are fissure, and carry, broadly speaking, dry ores, requiring lead or wet ores to flux them, if smelting is decided upon as the cheapest treatment.

Well, silver, as native in threads and nuggets and leaf, as argentite, as ruby silver, as alloyed with galena, antimony, copper and zinc, and in the place metallic arsenic, is in all the ores. Next gold occurs as traces in all, but predominates over the other values in many cases. It occurs native and sometimes, a rather unusual occurrence, in crystalline form. Most frequently the gold goes with iron pyrites, and also with lead. On Ten Mile creek, zinc carries the highest value in silver, running up to 400 ounces of silver per ton, while solid bunches of galena, unless carrying antimony, are very low grade. Grey copper and copper pyrites are good indications of richness.

Now as to the conditions of the relations between the country rock and the variety of ore. So far proved from the development, where the country rock is composed mostly of hornblende, with large crystals of felspar, there zinc, high in silver, is most frequent. Where quartz and mica predominate with that familiar iridescent gloss to quartz, gold is the value. Where hornblende and quartz are about equally mixed, gold and silver exist more or less in equal values. As examples of this, in the first case of the hornblende predominating, take the Bondholder, Enterprise and Nepawa mines. In the micaceous quartz, take the Crusader, Alpine, Black Prince, and all those on the eastern forks of Lemon creek. Lastly, in the case where the proportions are equal in quartz and hornblende take the Exchange, Evening Star No. 2, Old Glory and many more. As to the character of the veins: the most prevalent

strike in all the district is N. 35, which since has had splendid ore shown up by its owners. To class all the veins as small is wrong; and to say we have phenomenal ores, like those the newspapers tell us of in other localities, is also wrong. As proved in the district, the veins are sufficient to pay handsomely to mine them: not as rich per ton as the Sandon mines in the slate, but ton per ton five times as rich as many of the copper ores along the southern boundary.

As to holding in depth and in value for example, the Bondholder mine is working 2,500 feet above the lowest Enterprise tunnel, both on the same vein, yet native silver and zinc are equally prevalent in both places. Take the Topaz and Kalispell, the Exchange Evening Star No. 8 and those claims low down on Springer creek. The values are identical. Take the Alpine or Crusader and those at the foot of the mountains, the values don't materially differ. However the loose expressions, "increase in value in depth," "widen in depth," "Mother lode," and other familiar hackneyed expressions will not go here; shipping mines in the district speak for themselves. On Springer Creek there are the Two Friends, Howard Fraction group, and Exchange; on Lemon Creek the Chapleau and Black Prince; on 10 Mile Creek the Enterprise, Bondholder, Nepawa and Topaz.

Now as to the treatment of ore. Wet concentration in most cases is impossible on account of sulphurated silver. Milling is not adaptable from the baseness of the ores and the great loss in slimes. The most feasible method, though in many cases it has been found difficult, seems dry concentration with a Clarkson-Stansfield centrifugal machine. Although it sounds peculiar, practice has shown it best to use one of the machines to classify the ore and the identical machine again to concentrate. The cost of mining, covering management and all expenses, is \$10 a foot, throughout in running a tunnel any distance, and \$15 a foot sinking down to 150 feet. This is just half the cost of mining in the diorite belt and one-fifth more than in the slate, and compares very favorably with general mining. Machine drills are an advantage but not a necessity.

The elevations in the district vary from the lake, 1,800 feet above sea level, to nearly 8,000 feet on Lemon Divide. Snow lies for six months at the higher levels, but when the workings have been previously commenced and are underground the snow is an advantage as it cheapens transportation. Skilled miners are plentiful. Timber limit is about 6,000 feet above sea level. Water is abundant.

Despite the antipathy of this granite belt and the prospectors' hesitancy to explore Cedar Creek and down to Kootenay River and also on the west of Slocan Lake and Slocan River, sufficient work has already been accomplished to prove the value of the locality and that mining is very profitable here. Being fissure veins there are many feeders that are often taken for the main vein, so that considerable cross-cut dead work has to be done, but mining here, when one watches the developed veins, is as certain as are the constant values in a contact. The veins are very persistent in their course.

EIGHTH AT PRESENT.

Among the 34 gold-producing countries in the world Canada is eighth. Last year the United States led the procession with a gold product of \$57,000,000. The seven next in order were: Australia, \$43,709,322; Transvaal, \$43,184,819; Russia, \$31,599,097; Mexico, \$6,989,000; India, \$6,002,508; China, \$5,167,500; Canada, \$3,750,000. In another year Canada probably will take a higher standing.—*Industrial World*,

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ISSUED ONCE A WEEK

AND

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CANADIAN MINING MACHINERY.

At a recent meeting of the Ontario Mining Institute, held in this city, a discussion of great interest to mining men took place with regard to stamp mills and mining machinery.

We have for many years been in the habit of getting our mining machinery from the United States, and it is only natural that we should do so, as on account of their immense mining operations and mechanical ingenuity they have been producing mining machinery of the very best character. Our operations have been on so limited a scale that even the largest manufacturers here were not warranted in devoting their serious attention to mining machinery; but there are now certain firms in Nova Scotia that have been manufacturing a good grade of stamp mills; and more recently enterprising firms in the Province of Quebec have been making, not only good mining machinery, excellent drills and compressors, but a first-class grade of smelters for copper and nickel. Here in Toronto machinery has been produced for pumping, hoisting, etc., and a good many of the adjuncts to the mine can be obtained right at home. More recently a Peterboro' firm has shown a considerable amount of enterprise, and holds out great inducements for the purchase of their stamp mills and mining machinery. In the far west, at New Westminster, hydraulic pipes for placer and hydraulic mining have been manufactured, which have previously had to be brought from abroad.

These facts are extremely gratifying, and show that mining is not only receiving attention at the hands of investors and mining prospectors, but the manufacturers must be satisfied that there is sufficient demand for mining machinery to warrant them going seriously into its manufacture. We may take it as a good sign that men of the shrewd character of these machinists should be imbued with the requirements in this direction as to spend their money for the necessary patterns, etc., from which the mining machinery is made.

The greatest feature of the discussion above referred to, in which Messrs. T. H. Hardman

and Wm. Hamilton Merritt, took the chief part is, to make it clear that it is not now necessary to go out of our own country for most classes of mining machinery which may be required for the development and operation of Canadian mines.

AN ENGLISH POINT OF VIEW.

A WEALTHY English capitalist in a recent letter to a correspondent in Toronto on the subject of investment of British money in Canadian mines gives some pretty straight advice to owners of mining prospects who are trying to sell in the old country. He says:—I could place three or four good properties here if the owners would only be content to take shares instead of cash at present. I find everyone wanting from \$1,000 to \$25,000 in cash for a mere prospect of 40 acres. They are only spoiling their chances. How much better it would be and how much more confidence one on this side should have in the venture if a man would say, I don't want more than £100 cash in a month and one-fifth of the share capital of any company formed to work the property. Take it that the capital was £50,000, he would get £10,000 in fully paid up shares, non-assessable, and if he agreed to pool them I could readily sell them at 7s. 6d., or 10s. if the mine went on well during the sinking of a couple of shafts. The £100 would pay him for his outlay on the property, including two or three good reports, assays, samples, plans, etc. Men won't put up capital here to develop prospects and pay over £100 in cash for them; their owners must either stand in and take the risks of the thing turning out well or keep their properties.

AMENDING THE MINING LAWS.

WHEN the House went into Committee-of-the-Whole, on Saturday of last week, to discuss the bill to amend the Mining Laws, the distance of any new vein or lode from any known vein or deposit in order to entitle the prospector or discoverer to a free grant of forty acres was reduced from fifteen to ten miles; and on Mr. Conmee's suggestion that it would be in many instances impossible for a prospector or discoverer to make an affidavit that there had been no previous discovery of the vein, the clause was amended so that affidavit shall read that the applicant "has no knowledge of, and has never heard of any claim or prior discovery."

Mr. Gibson announced that he had decided to amend the clause against blanket claims by inserting the words, "For mining lands containing ores or minerals of the same class or kind," so as to permit of applications being made for mining lands containing one kind ore adjoining lands containing a different class. He also reduced the radius within which dual claims are prohibited from twenty-five to fifteen miles.

The sub-section relating to pending applications was amended so that proper protection is given to applications now pending where discoveries have been made in good faith under the existing regulations.

Mr. Haycock suggested that the Government

should accept the Patron policy, and allow any man or company to obtain mining lands upon the same terms as the Engledeu syndicate in any quantities, even as small as one square mile, the Government reserving every alternate mile.

Mr. Conmee wanted the fifteen-mile limit reduced to five; he thought that one or more locations of forty acres was not sufficient for any person to take up as a mining proposition; he wanted assurance that timber could be obtained for mining operations; and objected to the Commissioner of Crown Lands having power to withdraw a district in which valuable discoveries have been made from sale or lease, but no changes were made in these respects.

An important change was made on Mr. Whitney's suggestion with regard to the time of payment for mining lands. The clause provided that one-half of the purchase money be paid within thirty days, and the remaining half within sixty days. Mr. Whitney moved that this be altered to one-quarter within sixty days, and the remaining three-quarters within three months.

Mr. Gibson expressed great surprise at Mr. Whitney's amendment to strike out section 8, which provides that where a part or section of the Province is shown or reported to be rich in ores or minerals, the Lieut.-Governor in Council may withdraw such lands from sale or lease pending an exploration or prospecting by means of the diamond drill or otherwise, under the direction of the Commissioner of Crown Lands, who may fix a higher price per acre, or offer the same for sale by public auction.

The amendment was not concurred in, and the bill finally received its third reading.

THE RAT PORTAGE CONVENTION.

A MEETING of the Rat Portage Mining Exchange was held on Tuesday evening of last week to make arrangements for the holding of this convention on the 2nd, 3rd and 4th of June. The secretary reported that the Canadian Pacific Railway Co., had consented to grant tickets to those attending the convention at a single fare for the round trip, that the Great Northern would grant the same privileges as the C.P.R. Co., and he expected as a result of correspondence that the Grand Trunk and the steamboat lines would concede similar concessions. The manner of entertainment of the visiting delegates that should be adopted by the Exchange came up, and various suggestions offered as to the best means of bringing the resources and development to the notice of the visitors as well as making their stay a pleasurable one. It was resolved that a finance committee be appointed to see to the collection of funds to provide for the necessary entertainment of the delegates to the convention while in the district.

During the discussion on the various papers proposed to be read, and speeches made by visitors, it was suggested that it would be most advisable also to have papers and addresses by local men thoroughly acquainted with the district, its conditions, and the process of mining development.

MINING COMPANIES' BILL.

The following are some of the features of the new bill for the regulation of mining companies introduced by the Hon. J. M. Gibson and just passed by the Ontario Legislature:

Incorporated companies must include in their report to the Government a statement of the number of shares sold or disposed of and the rate at which such shares were sold or disposed of.

Any director, officer or agent of the company who disposes in any way of any shares at less price than par, unless under the authority of a by-law of the company, shall be liable to a fine of \$200 and costs.

No extra Provincial mining, milling, reduction or development company having its head office elsewhere than within the Province shall directly or indirectly sell or dispose within the Province of its stock, shares, stock securities or other certificates until it has received a Provincial license.

No license will be issued to such extra Provincial company until the company shall have satisfied the director of the Bureau of Mines that it has been duly incorporated, and that it possesses the real estate, property and assets, and that it is carrying on its operations on a scale and in a manner to command the confidence of the public. Power of summary revocation and annulment of license for cause is given.

The provisions for incorporation of companies for construction of works on mining lands are as follows:—

(1) Subject to the provisions of the Ontario companies act, the Lieutenant-Governor in Council may by letters patent under the great seal, grant a charter to any number of persons not less than five who shall petition therefor, constituting the said persons and others who may become shareholders in the company thereby created a body corporate and politic for the purpose of acquiring, holding, constructing, maintaining and repairing roads, bridges, improvements in waterways and other means of communication and drainage works, and other improvements upon, through or over or adjacent to or leading to or from mining lands.

(2) Every company incorporated under this section shall have power for carrying out the objects of incorporation only:—

(a) To construct, maintain and keep in repair roads, bridges, waterways, drainage works and other improvements and means of communication through, over or adjacent to or leading to or from mining lands.

(b) To acquire by purchase, lease, concession, license, exchange or other legal title, and hold lands and other property necessary for the construction of such works, and from time to time to sell and dispose of all such lands as may be found to be unnecessary or unsuitable for the purpose of the company.

(c) To demand and receive from persons and corporations for the use of such works such fees and tolls as may be fixed by the company, subject to approval by the Lieutenant-Governor in Council.

(d) To build, acquire, own, charter, navigate and use steam and other vessels.

(e) To enter into any arrangement for sharing profits, union of interest, or co-operation with any other person or company, to carry on or about to carry on any business or transaction which may be of benefit to any company incorporated under this section.

(f) To do all such acts, matters and things as shall be incidental or necessary to the due attainments of the above objects or any of them.

VISIT TO THE CRAIG MINE.

A HOLE 60 feet down into a vein of rich quartz, in the midst of a bleak black wilderness is what a party of gentlemen from Toronto went out to see. The Craig mine in Tudor Township, Hastings County, has just passed out of the hands of the Tudor Mining Co., into those of the Gold Hills Development Co. The party that left the Union depot in a special C.P.R. Pullman car on Monday evening included Messrs. A. R. Patteson, J. W. Curry, Hamilton Merritt, M.E., A. W. Ross, F. A. Hilton, J. B. Laing, John J. Foy, W. J. Douglas, Dr. Sprague, H. E. Carey, M.E., J. F. Edgar, D. K. Edgar, Wm. Douglas, T. A. Stimson, A. Henry, Dr. W. T. Stewart and a number of newspaper men. On arrival at Bannockburn station on the Central Ontario Railway, conveyances were in waiting to drive the party out to the mine seven miles away. It was raining in torrents, the road, where there was any, was in such bad shape that it took nearly two hours to arrive at their destination. The principal feature on the way was rock, slate planted edgeways uncompromising, furrowed and weather-beaten.

Active work has only been in progress for the past three months. When the Tudor Co. secured its option of the property on the 17th December last there was only a hole 8 or 10 ft. deep and some stripping for two or three hundred feet. Since that time a shaft has been sunk to a depth of 60 feet, the entrance well timbered, sleeping and eating accommodation for the staff, now consisting of 10 men, of which Mr. Ayre is resident manager, a blacksmith shop, assay house, store room and other offices erected. The ore is removed from the shaft in buckets by a hand windlass.

The gold-bearing vein has a surface showing at intervals throughout the full extent of the claim, almost due north and south. The shaft has been sunk almost in the centre of the property; at the surface it showed about 5 feet, increasing at a greater depth until a width of over 8 feet was reached, it is almost perpendicular, dipping slightly to the north-east, the quartz is well defined, showing clearly against the black slaty country rock in which it is confined. A mill test of fourteen thousand pounds of ore taken from this shaft gave a total yield per ton of \$17.09 made up as follows:—Bullion per ton of ore, \$11.81; gold in concentrates per ton of ore, 50 cents; gold in tailings per ton, \$4.78. The high loss in tailings was chiefly due to a coarse screen being used. The gold taken from this mine has been used by Ryrie Bros. in the Queen's Jubilee Casket to be presented by the city of Toronto. It is essentially free-milling quartz, with not many sulphurets, only iron and copper being noticeable. Several specimens showing free gold were picked up from the bottom of the shaft as well as from the surface of the vein, some 350 feet south, which was loosened by the firing of a shot in sight of the party. "A mighty nice-looking vein," was the opinion expressed by Mr. Carey, a prominent mining expert of British Columbia.

At this point it is proposed to sink a second shaft to the depth of 100 feet, another some 200 feet to the north, and will commence drifting and blocking out the ore at once. The new company proposes to at once put in a steam hoisting apparatus, and erect a small Tremaine stamp mill for testing purposes. The work of development is now to proceed rapidly with three shifts of men.

Mr. Hamilton Merritt says in his report to the directors on the 26th ult.:—"My assay proves that the vein is uniformly auriferous, for in no case did I fail to obtain gold. And, in connection with the Kingston School of Min-

ing mill test, they prove that there are knots or bunches of ore which will pay handsomely. The average of my assays indicates that the whole body of the quartz exposed could be mined and milled profitably, provided operations were carried on on a large scale. I may say that taking into consideration the locality, which enjoys the advantages of labor at a reasonable price, and farm produce close at hand, I do not know of a more attractive prospecting mining proposition in Ontario. You are," he continues, "amply warranted in my opinion, in sinking and drifting on your vein to open ground, and if your further work reveals to you similar conditions to that which you now have, which you may reasonably expect, you will be justified in arranging for a large mill and for the necessary adjuncts for mining and milling."

If the property justifies the showing already made it may fairly be accepted that the Craig will become a good paying mine. There appears such quantities of ore in sight as to warrant the belief that when properly developed there will be a large yield of the precious metal.

The officers of the Gold Hills Co. are J. D. Edgar, president; Dr. Oronhyatekha, 1st Vice-president; W. J. Douglas, 2nd Vice-president; J. B. Laing, Sec.-Treasurer, and F. A. Hilton, Solicitor.

The Craig mine was located in the early seventies and held by Peter Van Kleek, Jas. Maitland, Jas. Brown, Geo. Keith and D. H. Robertson, but little or nothing was done on the property until purchased by the Tudor Co.

There is ample timber for all purposes and water for the mill can be obtained either close at hand from a small creek that runs through the property or in large quantities from the lake some half-a-mile distant.

Along the line of Central Ontario Railway, a number of mines were pointed out; the Delora at Marmora, referred to elsewhere; the Crescent at Malone; the old Richardson mine at Eldorado, so famous in its time, and which has yielded over \$200,000 worth of gold. It is now about to be reopened and under experienced management and increased knowledge of treating ore, greater results are looked for even than during the hey day of its former prosperity.

ON TO BANNOCKBURN.

On Wednesday of this week a number of Toronto gentlemen, at the invitation of the Bannockburn Gold Mining Co., visited the Bannockburn mine in North Hastings, and spent several hours inspecting the property. The main shaft is down some 62 feet, and some very fine specimens of ore, with large showings of free gold, were brought home by some of the visitors. The work, under the superintendence of Mr. W. A. McNaughton, is proceeding in a very satisfactory manner; the shaft has been squared and well timbered, and all appliances for doing good work, including a steam hoisting apparatus, stamp mill, etc. The whole operation of gold mining was in progress, from blasting and removing the ore from the mine to the production of the gold, and proved most interesting to the party.

The vein, which shewed only about 18 inches at the surface, has increased with the depth till it is now about 4 feet 6 inches in width. It is described by Mr. A. Slaght, Inspector of Mines, in the fifth report of the Ontario Bureau of Mines, as follows:—"The vein, which consists of three main stringers in a band or fissure of micaceous and calca schists, has been exposed to an unbroken length of 700 feet. It is also accompanied by a granitic band which alternates with diorite, and forms a foot wall of the fissure, the hanging wall being more or less of

mica and calca schists. Between the stringers bands of schist rock are met, which cut out as the bands come together, and meet again as greater depth is attained. In sinking, several of the stringers are already united, and become auriferous as they join the western vein. The veins, of small width at surface, invariably increase as they go down, and form one vein of auriferous quartz along the entire length of 700 feet of working. From the surface to the deepest workings gold is found by panning, and is visible in the quartz, and numerous specimens were shown to me, some of which contained several dollars' worth of gold. A single specimen taken from the north pit contained \$15 worth, and some from the Lee pit were of much greater value. In the south pit specimens are found varying from \$1 to \$8. Numerous assays have shown the exceeding richness of the deposit."

Until quite recently the difficulties of extracting the gold from some of the refractory ores in this district, made mining often unsatisfactory; though rich in metal, it did not pay the expense of getting it out, and in consequence many rich mines were abandoned, which will now be opened up again and doubtless produce good results.

The story of the discovery of Bannockburn mine is as follows:—"In '68 a farmer's wife, hunting for her cows, saw some bright stuff shining in a rock, and concluded it was gold. She broke some off as best she could with the back of an axe, and hid it away in the house, saying nothing to anybody; afterward, on a trip to Belleville, she took it there, and sold it for \$68. A Mr. Brown, who owned the stamp mill at Bannockburn, heard of it, hunted up the woman, and finally persuaded her, in consideration of the sum of \$1,000, to show him the spot, which was where the shaft is now being sunk. He immediately applied to the Crown for a deed for the property, which he secured. Afterward the farmer and his wife, thinking they had not had enough for their find, began grumbling about it, and Mr. Brown, in order to satisfy them, gave them an additional thousand dollars. Shortly after this, and just as he was about to develop the new vein, he died suddenly, and the property went to heirs, who did not take the same interest in the locality, and the mill was closed up and nothing further done at the mine for many years."

RATHMULLEN CONSOLIDATED MINING AND DEVELOPMENT CO., LIMITED.

ATTENTION is called to the advertisement of this Company which appears on the outside cover of this journal. The remarkable activity at present in progress throughout the entire province of British Columbia, induced by the enormous mineral wealth of the country, now being opened up, is attracting the attention of the civilized world, causing an immense influx of people and capital for investment in these mines.

This Company has been incorporated by men who know the province of B. C. thoroughly, and who have been interested in the mines there for ten years, and who have brought the practical knowledge gained during that time to their assistance in bringing out this Company, and selecting the group of claims which it is the company's intention to operate at once.

The property owned absolutely by this Company consists of twelve mineral claims—aggregating 600 acres in extent—and through which at least six ledges, varying in width from 6 to 130 feet, have been traced for over a mile. It is situated in the Kettle River Mining division of Yale district, B.C., a section that is placed by experienced mining men very high among the mineral regions of the globe. Mr. C. E.

Huff, a prominent mining expert, of Spokane, reports most favorably of this company's property. He says: "I can say absolutely, that, in my opinion, no better properties exist in the province of British Columbia or claims that are more sure to repay the investment of heavy capital than the above group." And again: "I have not, during my 30 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., North Fork of Kettle River." Surrounding the Company's property is some of the greatest mineral deposits in Western America, which have been opened up and show bodies of ore of wonderful size and strength. In view of all these facts the Company choose their present property, as the point at which operations will be commenced, rejecting propositions from all over the country in its favor, and they believe they have in this property a supply of copper-gold ore that is practically inexhaustable. The first block of treasury shares is now on the market.

LOCAL NOTES.

MESSRS. WRIGHT & Co., brokers, have received word by wire that the Montezuma Gold Mining Co., has purchased the Mague mine, close to the Slocan Star, and the stock will be advanced to 7½ on the 20th inst.

A FURTHER meeting of Toronto mining brokers was held in the offices of E. L. Sawyer & Co., Thursday afternoon, when it was decided to form a Brokers' Association, and a committee was appointed to see those who were not present and obtain their signatures to the rules and regulations which were endorsed by those present, who were not nearly so numerous as at the previous meeting. The admission fee is placed at \$10 and the annual subscription \$3.

A PROSPECTUS has been received of the New Victor Mining Co., owning three claims on the White Horse Creek, near Nelson, B.C. The principal officers of the company are Mr. G. I. Wilson, president of the Pacific Packing Co. of Vancouver, and Mr. D. W. Gillies, manager of the British Columbia Market Co. of Vancouver and Victoria. The capital is \$175,000 in 25 cent. shares, which are now being offered at 15 cents. They expect to be shipping in about a month.

THE Great Northern Mining, Exploration, and Development Corporation of Ontario have just issued a report of the further progress of its affairs, which appears to be very satisfactory. The company is devoting considerable attention to the Wahnapiatae Lake district where they are securing some rich claims "on the development plan," the company getting a three-fourth interest in them. Samples assaying \$35 to the ton and appearing perfectly free milling. The Corporation is also considering the advisability of extending its operations to the Jackfish and Schreiber districts, the Seine River, Rainy Lake and Thunder Bay districts.

It seems to be a well settled fact that the first quartz mill ever built in the State of Montana was put up in Bannack in 1864. This mill was built of wooden stamps, on which pieces of wagon tires and other old iron plates were used for shoes. This mill was intended to work gold quartz ores entirely. The first silver mill was unquestionably the old Pioneer, now owned by the Hope company, near Philipsburg. The pans for this mill were shipped by wagon all the way from San Francisco, and in crossing the Rio Virgin, in southern Utah, the wagon and teams sunk in the quicksands, and the pans were buried there for several weeks, until they could be dug out and raised by derricks.—*Western Mining World.*

ONTARIO NEWS.

Rat Portage.

La Mascotte people have now 425 sacks of ore on the dock ready to come in.

The Hay Island Gold Mining Company has finished all its camp buildings, and Mr. Smaile informs me that actual mining operations will commence during the coming week.

The Mikado mine are making great preparations for a vigorous season's work and are erecting a large building, one of the largest in the Lake of the Woods district. Their machinery will soon be installed and a 20 stamp mill will be placed in position. A large body of ore is now ready for treatment and from indications it would appear that there is enough in sight for a 40 stamp mill.

Mr. Livingstone, of the Grimsby Gold Mining Company, has completed the purchase of four new properties for his company in the Wabigoon country. Development work will commence at once upon them. The property now under operation by the company on Eagle Lake is turning out most gratifying results. Mr. Livingstone has just had an assay made from the shaft at a depth of 25 feet. The ore tested gave \$18 per ton.

The Ontario Prospectors' Mining Company have started work on two locations near Andrew Bay, S 86 and S 87. The "Stella Mine" shows up wonderful, three assays made from surface rock averaging \$171 to the ton. The "Contact Mine" vein is 16 to 20 feet wide and gives an average assay value of \$14. This company has not as yet placed any stock on the market, nor do not intend to until sufficient development work has been done to show up the value of the properties. The above locations have been bought and paid for, and are now the exclusive property of the company.

A Winnipeg syndicate are the fortunate owners of a number of 40-acre claims near Dryden station, which promises to be very rich. Some 14 veins run parallel to each other and about 60 yards apart. The veins crosscut the rock formation almost at right angles, indicating that they are true fissures. One vein is 160 feet wide on the surface, and another is 30 feet. The company have been quietly prosecuting development work for some time and have a shaft down 60 feet in one vein and are now cross-cutting. The ore gradually increased in richness from the surface downwards. On another vein a shaft has been sunk to a depth of 30 feet with equally good results. At the bottom of the 60 feet shaft there is an abundance of free gold. The company will develop every vein and it is understood that the property is not to be put on the market. There is a fine water-fall on the property which will furnish power for running heavy mining machinery.

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Seine River.

Wiley & Co. are going to put in a 10 stamp mill. Hammond & Co. talk of putting in stamps this season. They have 3 different camps at work at present. There are 20 teams hauling freight from Bonheur station.

The Seine River and Rainy Lake Exploration Co. have purchased the Randolph or Hard Scramble mine. This property consists of 80 acres, and the purchase price was \$30,000, or \$375 per acre. This property is adjacent to the famous Ferguson mine and is one of the best and most favorably known mines in the district. It has not been developed as yet to any considerable extent, but so far as test pits have been sunk it makes a splendid showing and as it is on the same vein with what is now

known to be one of the richest mines in the country, the company now owning the mine are confident that in it they have a bonanza. The company are to send up a development crew at once.

Something like 800 tons of supplies, machinery and mining material have since about the middle of February been taken into the Sawbill district. When one thinks that the whole 800 tons had to be moved an average of 35 miles by teams across the lakes where the snows of winter had drifted deeply, and over rough portages, some small idea may be gathered of the work entailed. It has taken nearly 50 teams and as many men to handle this quantity of stuff. A miner told your correspondent recently that more supplies had gone into the Sawbill district than into the combined camps on the Lake of the Woods during the same period. Of course this statement does not mean that there is more mining being done in the Sawbill country than on the Lake of the Woods, but it is simply that owing to the inaccessibility to the Sawbill country in the summer time, for anything but canoes, that an average of ten months' supplies have to be laid in before the opening of navigation; and if one wished to build a mill next season it has also to be taken in, otherwise its erection necessarily has to be postponed for a year, while in the Lake of the Woods country, owing to the splendid transportation facilities by steamer and tug boat, supplies can be got in at any time during the summer, and as most of the mines are quite close to Rat Portage it is no serious undertaking in winter.

Crown Timber Agent Margach returned last Friday from an extensive trip to the Seine and Upper Seine districts. Interviewed by a *News* reporter Mr. Margach said:—"The objective point of my trip, outside of the timber business, was the great Folger-Hammond dyke. The great, long ridge of ore, miles in length, and from a quarter to half-a-mile wide, has been named a 'dyke,' for dyke it is sure enough. There are 4 engines and boilers which will be used to operate the steam drills, which are to be used at the location. Tunnels are being run crosswise through the ore body, with a view of getting an estimate of the value of the ore right across the lode. The machinery of a 10 stamp, which will be used to test the ore as milled, is now on the ground, and is being rapidly placed in position. Two other companies, the Golden Fissure and the Wampum, are also working on the dyke." Mr. Margach also visited the Saw Bill and Hawk Bay mines, where work is being pushed with all possible speed. "The Seine districts," said the Crown Timber Agent, "look like a mining camp that is booming." No less than 40 teams have been employed all winter transporting supplies and machinery from Bonheur station on the C.P.R. Mr. M. Dwyer, the Inspector of Government roads, it may be said in conclusion, is now travelling over the route between Bonheur and the Seine, with the object of mapping out a government road, for which a sum of money has been appropriated by the Ontario Government.

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North Hastings.

A number of heavy options held by the Canadian Gold Fields Co. (Ltd.), who are operating at Deloro, 16 miles west of Tweed, fall due this month, and the date of payment is being watched with much interest. The payment of these options will undoubtedly settle the question as to the profitable treatment of the mispickel ore for which this district is now famous.

Mr. Joseph James' actinolite mills at Bridgewater are running steadily, turning out a car-

load of actinolite every day. This product is being shipped to Chicago, Montreal, Buffalo, Toledo, Niagara Falls, Winnipeg, Toronto, and other cities for roofing purposes. Some of the best buildings in the United States are covered with this material, among others the new public library building in Chicago.

Another syndicate, it is stated, is taking over 10,000 acres hereabouts, and options are, besides, being taken on many properties.

It is announced that Messrs. C. W. Volney, the inventor of smokeless powder, and Theo. A. Baker, M.E., of South Africa, have purchased 1,200 acres of land in Marmora township, 5 miles north of this place. The property is said to have free-milling ore veins, and the new owners are to soon start operations, with a view to erecting a stamp mill of sufficient capacity to be used as a customs mill.

THE SOVEREIGN GOLD MINING CO.

People are now beginning to believe in the mineral wealth of North Hastings, and among those who have contributed most largely to that belief is Mr. O. R. Sprague, organizer and manager of the Sovereign Gold Mining and Development Corporation, with headquarters in Toronto. For the past three or four years he has been persistently but unobtrusively prospecting in that vicinity, and secured control of a large number of promising properties amounting in all to some eleven thousand acres, including, he claims, some of the richest mineral land in Eastern Ontario. Three years ago, when Mr. Sprague told the people of Madoc that they had a gold mine right in the village, they laughed at him; to-day they have justified the truth of what he said, and proved that he knew what he was talking about. The Hastings County *Review* states they have several valuable mines in the village. 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 \$116,269 to the ton, another piece taken at a depth of 20 feet pales into insignificance with a paltry \$52,905.20 to the ton. These of course are wonderful exceptions, but they go to prove how rich in the precious metal are the rocks in that immediate vicinity, from which Mr. Sprague expects to reap a magnificent fortune. These are no visionary hopes but built on a strong basis of actual shewing and tests of the ore. Last week the Sovereign Gold Mining and Development Corporation received an offer from a Colorado mining man of \$20 per ton for all the ore on one of these properties in Hastings, but as it is believed that it will prove to be worth much more, the offer has not yet been accepted. The company intends to start work on this prospect in about 10 days; they will put up a hoist and have a 10 stamp mill in operation by the end of May. It is proposed to organize subsidiary companies for the development of the various mines. Options are being obtained on some 2,000 acres besides the 750 acres the company now owns. Prospectuses will be out next week and they think they have the best thing that has been offered to the public, most of the property being of approved value and not mere prospects.

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On Missisauqua River.

A peculiar circumstance, says a *Globe* correspondent, has come to light in connection with the Missisauqua River Mining Company's placer mine on Missisauqua River. Some men in charge of a drive of logs were obliged to camp for a considerable time at a rapid just below the deposit, and had a fire on the sand for cooking, and drying their clothes, etc. This fire was kept constantly burning for several days and nights, and when about to leave, and the

dying embers were being scattered, their attention was attracted to the sand underneath, and on washing it two small nuggets about the size of wheat grains were discovered, which proved to be gold. It is supposed the action of the fire had melted the fine gold. It is expected work will begin in a few days now on the big copper vein in Rose, just near the Ophir mine. Mr. Dobel's find at Spanish River is proving a very promising one, and it is the intention to sink 50 or 100 feet as soon as possible. The Missisauqua River Mining Company have secured a splendid vein four miles from Thessady. Surface specimens only yield a few dollars to the ton, but the vein is large, and the quartz looks very like the Ophir quartz, which is known to be very rich. Work is to begin at once.

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Mines Centre.

A recent letter from Mines Centre contains the following interesting items of news from the mining district:—"In spite of the fact that the spring travel has not yet commenced, there are so many newcomers in the district that the hotels are full and it is almost impossible to get accommodation. The weather has not yet broken up, but it is only a matter of days when the ice will no longer bear."

On account of the death of Mr. Ferguson abroad, the Ferguson mine is partially shut down, but it is expected that this is only temporarily.

Work on the Golden Goblin is progressing favorably. Free gold continues to be found after every blast; a night shift of men have been put on, and work will be prosecuted vigorously day and night until the development work decided upon is complete.

Preston, who is getting in a two stamp mill, is making a determined effort to get all his plant in before the roads become impassable, nine teams arrived there in one day with parts of his plant, and more are expected. He is putting up a new style of mill, with two stamps, each weighing a thousand pounds and having a drop of 100 to the minute. It is claimed that they will have the same capacity as an ordinary five-stamp mill.

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In the Manitou.

The property known as HP 301, on Upper Manitou lake, discovered by Crawford, of Koochiching, and others, and sold for \$15,000 cash, is now under development, and is showing up wonderfully well. At 60 feet free or visible gold has been struck in great quantities.

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White River.

Reports from White River, some 300 miles east of Port Arthur, are very encouraging in their nature. Gold has been discovered in more than one instance, and it is also said that splendid samples of iron ore, going at 62 per cent., metallic iron have been brought in. If this thing keeps on every C.P.R. station along the line from Sudbury to Rat Portage will be turned into a mining camp. The list of stations and towns now recognized as mining or semi-mining camps includes White River, Jackfish, Schreiber, Nepigon, Ouimet, Port Arthur, Fort William, Finmark, Savanne, Bonheur, Ignance, Wabigoon, Rat Portage, and it may be added that the same will be the case between Sudbury and the Sault.

The Canadian Miner will help you to make money. A showing is made of the mining industries of the country every week, and the really important mining events recorded, rather than the unimportant, or rumors circulated for selfish purposes.

BRITISH COLUMBIA.

The last *Gazette* contained the names of 34 new mining companies representing \$31,275,000 of capital.

The influx of people into the mining regions of British Columbia that was anticipated with the advent of spring has already begun to show itself in the Kootenay districts. The reports from Kaslo state the hotels are taxed to their utmost to accommodate the daily increasing arrivals. At Nelson and Rossland the arrivals by train show a perceptible daily increase.

The new furnace at the Cinnibar mine, near Savonas, has just been completed, and is working satisfactorily, condensing about 25 tons per day. It is expected the first shipment of quicksilver, the initial one of this product in this whole province, will soon be made. A large body of ore is in sight, and everything connected with the mine is in good running order.

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Rossland.

Iron Mask is shipping fine ore.

Ten men are working at the Gold Bar.

The Gopher tunnel at 275 feet gives a remarkable showing of ore.

Solid ore is now in evidence in the winze and in the east chute on the Josie.

It is reported that a large body of high grade ore has been struck in Red Mountain mine by the diamond drill.

The vein on the Crown Point has been tapped by a drift from Long Crosscut tunnel at a depth of 160 feet. This is considered an event of first importance in the camp, especially to the south belt.

John Taylor, manager of the Mysore mines, India's leading mining concern and one of the richest gold mining companies in the world, is sending a representative next week to British Columbia to inspect mining properties there on behalf of the Mysore company.

The Iron Horse Fraction has a very fine showing in the bottom of its shaft. The shaft is now down 60 feet, and the ore body has widened to a little more than 4 feet. There are two as pretty walls as were ever seen in the camp, and it is just 5 feet between them. It looks as though the ore would soon fill the entire fissure.

Work is progressing rapidly on the Golden Drip. The north drift has been run 131 feet, and the new tunnel recently started near the level of Sheep creek is 40 feet in. There have been run altogether 705 feet of tunnels, drifts and upraises. The north drift has been in ore most of the time, and now has a good showing in the face.

A special to the *Miner* says:—It is quite probable the Commander option will be taken up by the Gunnis-Neame syndicate, which is backed by Vivian Gray & Co., one of the leading firms of brokers in the city. The deal depends to a large extent on politics. If the situation in the Levant improves, it is almost a certainty the sale will be closed.

The latest assays from the Dundee mine of the Parker group, in the Salmon river district, are of the most encouraging character. The last one brought over was assayed yesterday, and two samples being taken, one went \$32 in gold, 17 ounces in silver, and 12 per cent. lead; the second \$35 in gold and six ounces in silver. The totals were \$49.82 for the first and \$38.85 for the second.

The Great Western shaft is now down 60 feet and is said to be looking better every day. The shaft is going down on the foot wall at an

incline of about 80 degrees. There is a fine body of clean ore on the foot wall and the whole shaft is in mixed ore. The assays show an average value of over \$16, the last general sample running \$19.20 in gold. There is more or less quartz through the ore and it is of a milling and concentrating character.

A great strike has been made in the Alberta. The ore was first encountered Sunday. When the shot was made in the face of the tunnel for that day a foot of ore was blown out and a solid face of ore was presented. The drill was in ore all day Monday and late in the afternoon of that day a shot blew out five feet, still having ore in the face and no hanging wall in sight. The ore is a fine looking pyrrhotite carrying a considerable percentage of copper.

The shipments of ore from Rossland, last week were only 865 tons, owing to blockades on both railways. The War Eagle shipped 400, Iron Mask 60, and the balance was from the Le Roi. All the ore bins are full again at the latter mine, and it has been compelled to close down again until it can get more cars, all the cars now in the yards having been filled with ore. The blockade on both the Red Mountain and Nelson and Fort Shepard railway is very bad. It is not expected to get the snow slides cleared away for some time.

Recent developments in the Gold Star have been of the most encouraging character. The shaft has now been put down 72 feet and in that distance the ore body was cut through entirely and the foot wall entered, the dip of the vein being greater than the incline of the shaft. A cross-cut was run at the 60-foot level towards the foot wall and the ore found to be about 23 feet wide. It is one of the finest looking ore bodies yet found in the camp. It is low grade, though every ounce of it carries some gold.

In the Evening Star a shaft was put down 30 feet on the vein and was in ore all the way down, and at the bottom. A drift was then started west on the vein and this has been run about 35 feet. There is a fairly good hanging wall, but no foot wall. The drift has had almost a solid face of ore from the start and is in ore now. The clean ore appears to be from 3 to 4 feet wide with heavily mineralized matter on both sides. The ore shows a good deal of arsenical iron and some ordinary pyrrhotite, all in a quartz matrix. The assays are very good. One made a few days ago showed \$115 in gold, but the average is about \$23.

The Monte Cristo has a magnificent showing of ore in the face of the No. 1 tunnel. This tunnel is now in over 600 feet and the face is directly under the shaft sunk near the middle of the claim last fall. This shaft was put down 50 feet and it is 200 feet from the bottom down to the level of No. 1 tunnel. The face of the tunnel is therefore 250 feet below the surface. Depth is being gained very rapidly now and in another 100 feet there will be secured a depth of about 850 feet. It is just 600 feet from the face of No. 1 tunnel to the east end line of the claim, so that there is plenty of room for more than one big ore chute.

An important strike is claimed in the Daly mine which may prove a record breaker. The Daly is on the gulch on the east slope of Record Mountain, and is owned by the Kootenay Safety Mining Co., which was recently incorporated. Work has been going on there, off and on, for over a year and a half, and the company has now a shaft down 65 feet, and a crosscut running west into the mountain of 75 feet. This latter has been running across a ledge of gabbro, well mineralized with iron

pyrites, copper pyrites and some galena. Near the bottom of the shaft, where the crosscut begins, ore has been taken from the foot wall that assayed \$75. In the crosscut at the beginning of March picked specimens averaged \$44.40 gold and copper. An assay of ore from the new strike made last night showed 72 per cent. lead and 90 oz. silver, or \$103.27 per ton.

(Rossland Miner.)

The ore in the face of the lower tunnel of the Flossie L. is very silicious and looks much like the Jumbo ore. No assays have yet been made.

The ore body in the west drift of the Le Roi is widening all the time and is as solid as ever. It is now over 10 feet wide. The ore in the shaft continues to be about the same width.

The face of the Kootenay and Columbia tunnel continues to be in solid ore. Progress is slow owing to the difficulty of breaking the ore down with ordinary blasts. The ore is very tough and the holes have a tendency to blow out.

The strike in the Commander is genuine. It was made in a short crosscut from a 100-foot drift run east from the shaft on the 100-foot level. The ore was encountered almost immediately after starting the crosscut to the south. The drift appears to have been run just north of the ore body.

The Diadem Gold Mining company, composed of Toronto capitalists, with William Lount, Q.C., M.P., president, has sent a gang of men to commence operations on their claim, known as the Tailor Boys, which adjoins the Gold Bar in the South belt. Crawford, Anderson & Co., are the company's representatives in Rossland.

(Rosslander.)

The Fourteen Gold Mines Co., consolidated, has let a contract to sink a 100 foot shaft on the Edna mine.

A small smelter with a capacity of 5 tons daily has been erected at Seattle by the Canopy Smelting and Refining Co.

The Rossland and Trail Creek Mining Co. is making arrangements to let a contract for a 100 foot opening in the Southampton, one of the six mines owned by the company. This property adjoins the Deadwood.

A new strike has been made on Bonanza Creek, Alaska, that goes from 10 cents to \$207 to the pan. This surpasses the celebrated Klondike, when claims have been located which yielded as high as \$60 to the pan.

Harry White has resigned from the position of general manager of the Rossland and Trail Creek Co., in order to devote his entire time to the management of the affairs of the Fourteen Gold Mines Co. M. A. Green has succeeded Mr. White as manager of the Rossland and Trail Creek Mining Co.

E. J. Kelly, manager of the Deer Park mine near this city, is here and is about to resume work on the property. The shaft on the mine is now down for a distance of over 100 feet. It is the intention to sink this shaft to a depth of 300 feet. The vein is to be explored by drifts and cross cuts. The intention is to place the Deer Park mine in the list of ore shippers before the summer is over.

The contractor has completed the contract for putting in the machinery in the Red Eagle mine. It consists of a complete lighting, pumping and power drill plant of the most modern make. The mine has a vein of from 4 to 6 feet wide of ore of a high grade and has a bright future before it. As soon as the proper depth is reached levels will be run and then the Red Eagle will be added to the list of ore shippers and bullion producers. From the rapid

manner in which the work is being pushed it will not be long ere this mine begins to ship ore

Kaslo.

The Kaslo-Montezuma Mining and Milling Company was organized on Monday last at Seattle, under the laws of the State of Washington.

C. F. Caldwell has on exhibition at his office some fine specimens of high-grade ore, which he brought down from the Carbonate on Wednesday afternoon.

W. H. Cain of Burke, Idaho, has transferred to T. G. Proctor all his interest in the mineral claims Bullion and Mayflower, situated on Goat creek, not far from Bear lake, for the sum of \$225.

O. G. Labaree has secured a bond on the Beaver and two other claims on Beaver creek four miles from the Kaslo and Slocan railway, at the price of \$45,000. There has been a good deal of work done on these properties, one tunnel having been run 245 feet.

It is rumored that a group of claims consisting of the Alpy, Impy, Ceala, Stockholm and Ewalo, situated at the head of Whitewater basin above the timber line, belonging to Matt Oledo, Matt Erickson and C. Bjerkness, had been bonded to the local representative of some eastern partie.

A. E. Cross of Calgary has purchased from E. A. McNaughton of this city his two-thirds interest in the mineral claims, Kootenay Star, Treadwell and Democrat, located about one and one-half miles from Sproule's on the line of the Kaslo and Slocan Railway, and between Jackson and Spring creeks.

J. Couch Flanders, of Portland, Ore., has purchased from J. W. Lewis and L. A. Lemon the two mineral claims Lotus and Duplex, owned by them on the north fork of Woodberry creek, three miles from Ainsworth and a mile from the shore of Kootenay lake. He pays \$3,000 for each claim, or \$6,000 in all.

M. Ediams, acting for Andrew Jardine of this city has sold to Ben Herman, of Spokane, the mineral claim Liberal, which adjoins the Dublin Queen, one of the Northern Belle group which has been taken over by the Jackson Mines Company, and which has the Hon. J. H. Turner, Attorney-General Eberts, George Alexander and Robert Jackson, amongst others, on its directorate.

F. J. Walker, of Rossland, has transferred to the Silver Bear Mining and Concentrating Company his mineral claim Silver Bear, situated about 16 miles from Kaslo, on the south fork of Kaslo creek, and about 500 feet west of the Lily May. Through his agent, J. A. Kirk, Mr. Walker is applying for a certificate of improvements for this claim. The consideration named in the agreement of sale is \$25,000.

A short document has been recorded in the office of the mining recorder, whereby Wilhelm Hansen and Kenneth L. Burnet give O. G. Labaree an option to purchase the Silver Bell fraction, recently located by them on the south fork of Kaslo creek, while engaged in the survey of the Silver Bear, upon the terms and conditions contained in an agreement executed on the 29th March and deposited in the Bank of British North America in this city.

James C. Ryan, manager of the Antoine in the Slocan mining divisions, and representative in this district for several years of the Messrs. Green, of East Saginaw, Mich., has bought from Edward Jennessen a three-quarter interest in the Great Northern, located on the east side of White Grouse mountain. He pays \$800 cash, and the balance of \$7,000 at intervals until the whole is paid on December 30, 1898. He will

begin work on the claim as soon as possible, and the prospects are said to be most promising.

The receipts of ore at the Kaslo station of the Kaslo & Slocan railway have again mounted upward during the past week, reaching a higher figure than on any previous week since the completion of the road. The Noble Five Consolidated Company has again been sending forward its output, and the Slocan Star continues to forward a portion of its ore to Omaha by this route. The smaller shippers have also been shipping after a brief respite. A small shipment from the Ibex also enters into this week's returns, although it came down previously. The following are the receipts for the week ending April 1st:

Mines.	Pounds.
Payne Group.....	634,000
Ruth.....	360,000
Slocan Star.....	150,000
Noble Five Group.....	131,635
Reco.....	108,000
Whitewater.....	90,000
Rambler.....	60,000
Jackson Group.....	30,000
Slocan Boy.....	27,800
Antoine.....	26,000
Montezuma.....	15,500
Ibex.....	15,000

These make a total of 1,647,935 pounds, or within a few pounds of 824 tons. The bulk of this ore goes to Pueblo, Colorado, and the remainder is divided between the smelting companies from Omaha, Nebraska, to the Puget Sound reduction works at Everett, Washington.

Around Vernon.

(Vernon News).

Another small claim, the Pussy Cat, also changed hands in the hundreds. No development work had been done on it.

Last week the Oro Fino mineral claim at Fairview changed hands. The owners were Sheehan, Buchan, Stephens and another, and the purchasers were the Cascade Mining Syndicate.

Mr. Dixon, manager of the Smuggler claim, is getting into very rich rock three feet by eight and one-half feet wide, showing free milling gold visible to the naked eye. It assays over \$800 to the ton.

The directors of the Camp Hewitt Mining Co. have let a contract to Messrs. Hewitt, Craig & Hardy to sink 10 feet and put in 20 feet of cross-cutting in the No. 1 shaft on the Gladstone claim. The work is to be completed within fifty days.

A force of men are at work on the Falcon claim and have now got the shaft down about 20 feet. Very rich specimens of rock are being obtained, and Mr. Latimer will probably put up a small one stamp mill on the property this spring, as the quartz is sufficiently rich in free gold to make it pay even when worked in such a small way.

The splendid gold bearing quartz referred to in our last two issues has been almost eclipsed by further specimens brought in on Tuesday from the Morning Glory Company's claim, the Sarah. The rock was taken from near the surface and has been honey-combed by the action of the air. In the little cells thus formed may be seen many pieces of free gold ranging in size from a pin point to a small pea, while similar particles appear in the pure white quartz, which forms the matrix of the mineral.

Messrs. Dier, Davidson and Russell are prosecuting development work vigorously on several of their claims. A tunnel is being run on the Tin Horn by three shifts of eight hours each. The ledge shows up splendidly. Ten assays

give \$17.70 gold to the ton. The tunnel is in 100 feet and 65 feet from the surface. Work on the Fortune is mainly driving two tunnels on two different veins, showing up a large body of ore of a low grade. Eight men are working day and night. On the Fanny Morris they are running a tunnel in 60 feet. This is contract work at \$9.50 per foot. This tunnel will strike the ledge at 145½ feet, per measurement. A tunnel is also being run on the Mammoth, on which four men are employed. The tunnel is in 100 feet and will strike the ledge at a depth of 118 feet. Men are also employed on the Rob Roy, White Swan and Silver Bow. Messrs. Dier & Co., are also working 14 men at constructing a road to the Tin Horn and their mill site, a distance of about one and three-quarter miles—a road that is absolutely necessary before the milling machinery, to arrive shortly, can be placed on the ground.

Texada.

The general prospects on Texada Island are indeed looking bright, and a prosperous summer is anticipated.

The Texada Mining and Land Company's shaft is down 54 feet, and improving with every foot of depth.

The Van Anda claim is also showing up well, there being at least 50 tons more of ore ready for shipment to the smelter.

The Raven shaft is also deepening with the most encouraging prospects, and they have some ore also ready for shipment.

The Victoria (Raper) claim is also making most satisfactory progress, with the brightest of indications. A cross-cut tunnel is being run to connect with the large vein.

The report published a few days ago in the Free Press about a Victoria company striking a vein with free gold, is corroborated. It was stated that in one place a piece of gold was seen as large and about the same shape as a man's index finger. This claim is near the beach.

Nelson.

A strike has been made on the White, one of the Poorman group on Forty-Nine creek. The men engaged in stoping ran across several half inch seams which are wondrously rich and thoroughly impregnated with free gold.

A strike of much importance is reported on the Sunset claim on Anderson creek, almost within the city limits of Nelson. No assays have yet been obtained but the ore speaks for itself and will probably run many hundred dollars in gold, silver and copper. The mine was recently sold for \$1,500 by H. G. Neelands to Herbert Cuthbert, manager of the British Canadian Gold Fields.

Cariboo.

Several old Cariboo claims are being re-opened, under more favorable auspices. One of these, on the B. C. ledge, near Barkerville, on which a 100-foot shaft has been sunk, has been bonded to a French syndicate for \$70,000. Ore from another, at the head of Conklin's Gulch, three miles from the town, is being hauled by teams in quantities to keep the reduction works busy. In 1878, three tons of this ore averaged \$30 in gold.

Boundary Creek.

The pay streak on the D. A. has widened out to one foot. The tunnel is now in some 50 feet.

James Punch, ex-M.P.P., is now working on the Boundary Falls No. 2, owned by a Nova Scotia syndicate which he represents. He ex-

pects to begin development on the Spotted Horse in Greenwood camp, a claim owned by the same syndicate.

The Rob Roy in Central camp is being developed by the owner, Alexander Wallace, and the vein is looking well.

A large force of men will soon be put to work on the Combination claim in Providence camp. A whim is now being placed in position.

On the D. A., one of the properties of the Boundary Creek Mining and Milling Company, the pay streak now is 14 inches in width and averages over \$200 per ton.

Seven men are now at work on the Canadian in Skylark camp. This claim is owned by Jos. Sutherland, who is giving a Toronto Syndicate a specified interest for one-half the development work. Some very high grade ore has been found here, running as high as 360 ounces silver and \$40 in gold.

Work is shortly to be begun on the Rathmullen group of mines, in Summit camp, between the R. Bell and Volcanic mines. A large force of men will be employed and Carl S. Neilson, of Rosland, will have the management of the development. It is said that fine surface showings exist on these claims, but little work has been done on them as yet.

Today the tunnel in the Mother Lode in Deadwood camp reached the porphyry wall. This tunnel is 247 feet long, 205 feet of which are in ore. The width of the ore body is thus practically 200 feet from lime wall to porphyry. The walls stand nearly perpendicularly and there is every indication that the ore body extends to a great depth. The Boundary Mines company expects to sink a winze from the tunnel to a depth of from 100 to 200 feet. The work done here shows the Mother Lode to have the widest ore body yet actually cross-cut at depth in the Boundary district.

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Ainsworth.

In the Pilot Knob group on Toad mountain, one and a half miles beyond the Silver King, Superintendent Hutchinson and a number of men are working on a 5-foot ledge assaying from \$98 to \$104.

On Sunday last the vein on the Star mine at Ainsworth, a part of the property of the Ainsworth Mining and Smelting company doubled in width. It is now 36 inches wide and an average assay gives a result of \$67.70.

The Hall Mines smelter is now treating, daily, from 15 to 20 tons of War Eagle ore, and during the past 8 or 10 days has treated about 20 carloads. Superintendent Johnson states that the ore works finely with that taken from the Silver King.

The Goldendale mine on Toad mountain, adjoining the Democrat and to the west of the Silver King, has struck it rich, and two assays give respectively \$21.19 and \$23.33 in gold and silver. The mine is the property of the Primrose Mining company, which also owns the old Dominion hard by.

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Midway.

At Midway, during the last four days of March, 16 mining locations were registered from the Kettle River district. The snow is still deep on the ground.

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Quartz Creek.

E. Charles, timber agent of the Nelson & Fort Sheppard railroad land grant, has returned from the Salmon river country, and he gives a glowing account of the new town of Quartz Creek and of the mines in that vicinity. He visited the Tennessee, and says the reported strike is correct. The ore looks much like the

War Eagle ore. Mr. Charles also visited the Black Cock, Ymir, Alabama and Elise, all of which have good ore and seem to be very promising mines.

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Salmon River.

The Parker Group is situated on Bear Creek, about two miles from Quartz. The shaft is now down about 75 feet and is giving employment to eight men. The ore at this depth is of a very fine quality, and in all probability when once they get in machinery so that work can advance more rapidly it will prove a paying proposition. At present the ore is drawn up by hand and this proves to be a very slow process of working at that depth.

SULMAN BROMO-CYANOGEN PROCESS.

THERE seems now to be no doubt, says the special correspondent to the *Toronto World*, who has just returned from a visit to that district, that mispickel ores of Hastings county readily yield to treatment by the Sulman bromo-cyanogen process. This at least is the conclusion I have come to after enquiring into the operations going on at the Deloro gold mines. Six months ago, when I visited this property, the Canadian Gold Fields Co., Ltd., of London, Eng., the owners, were engaged in erecting their mills, installing their plant and otherwise, at a total expenditure of some half million dollars, preparing for active development work. But now—mark the difference—they are regularly turning out gold bricks. But what appears to place the question of the success of the Deloro enterprise beyond peradventure is the fact that the syndicate are just now adding big blocks of mineralized land to their already extensive holdings of property. Were they not absolutely assured of the success of their project they would not be taking such steps. Only the other day they paid \$1,500 for a mispickel proposition held by Tom Farrell, and it is believed that they will, before the week is out, take up options they hold on a number of other properties in the neighborhood.

It is exceedingly difficult to obtain official information concerning the doings at the Deloro mines and mills. Messrs. A. J. G. Swinney and Pickard, the manager and chemical expert, respectively, of the syndicate, maintain the proverbial English mining man's reticence regarding their company's affairs, and refuse to admit outsiders to their shafts and mills, but from some of their employees I have managed to procure some interesting particulars of what is being done.

At the mines, a mile-and-a-half from Marmora station, three shafts are down a considerable distance—one of them nearly 200 feet—upon the main vein. Two gangs of about 40 men each, or 80 in all, are working night and day above and below the ground, and turning out ore as fast as may be. In addition to these miners the company have 25 prospectors looking over the adjoining lands under option. The miners, it may be here stated, are not working for daily wages, but are sinking these shafts on the contract system at so much per foot.

The transportation of the ore from the dump to the mill, a mile-and-a-half distant, is likewise done by contract. Six teams are at present hauling from 50 to 55 tons per day to the crusher, and the daily tonnage is shortly to be increased to 75 tons, pending the construction of the proposed tramway from the mine to the mill. This and other teaming being done in connection with the other mines in the district are forming a welcome addition to the weekly revenue of many North Hastings farmers.

And now, to come to the mills themselves, a collection of several extensive buildings located within a stone's throw of the Marmora station

on the Central Ontario Railway. About 30 men are here employed, night and day, in operating two crushing and pulverizing plants. The mill, which is kept going all the time, crushes 26 tons every 24 hours, and the other, which is run at intervals, crushes at the rate of 2 tons per hour, or 48 in a day.

So far three lots of pulverized ore have been put through the leeching vats, that is to say, three complete mill runs have already been made, and as a result it is estimated that in everyday work 89 per cent. of the gold contained in the ore is saved.

The value of the ore seems to vary considerably, as will be seen by what follows. The first run gave, it is understood, nearly an ounce, or about \$16 to the ton; the second over an ounce and-a-half, or \$26 to the ton, while the third resulted in a saving of between three and four ounces, or upwards of \$60 to the ton. The ore used in the second and third tests must have been picked lots.

It may be added that from the third run, concluded on Saturday last, the syndicate secured a gold brick worth \$600.

These statements and the news that the company are buying up more property will prove encouraging reading for those interested in the mines in mid-east Ontario.

ALIENS EXCLUDED.

A SPECIAL to the *Mail and Empire* from Victoria, B.C., gives a report of a Committee of the Legislature which if carried into effect will revolutionize the mining laws of the province:—

That British Columbians have not forgotten the blow aimed at Canadians in the famous alien labor clause of the Corliss amendment, has been evidenced in a striking manner by the action taken during the past few days in the Mining Committee of the Provincial Legislature. This important body has for several weeks had under consideration an amendment in the mining law of the province.

Suggestions have been pouring in upon them from all quarters, and after sifting these the majority of the committee have signed the report recommending that hereafter "aliens" which may be interpreted as specially referring to American citizens, shall be prohibited from taking up mining claims in this province.

Heretofore no restrictions have been placed on American enterprise, and even with the red flag of the Corliss amendment before them, the committee would not go the length of forbidding the ownership of claims by Americans.

Another important amendment adopted by the committee provides that persons making an "adverse" must prove that the first location has been improperly made, the original locator having heretofore been required to establish his position.

Still a third section of the majority report provides that anyone obtaining a Crown grant to mineral property is by it empowered to purchase from the Government all surface rights at \$5 per acre. These changes practically revolutionize the mining law of the country, and will provoke the hottest debate of the session when laid before the Legislature.

Friends of The Canadian Miner would do us a kindness to mention in writing to any of our advertisers that they saw the advertisement in our Journal. There are very many men, who from temperament, occupation or otherwise do not do so. There are advertisers who only measure the value of advertising by what they actually see, and cannot see further. This is not the true way to judge the value of advertising. The quiet mention of an advertising medium may do good to the medium.

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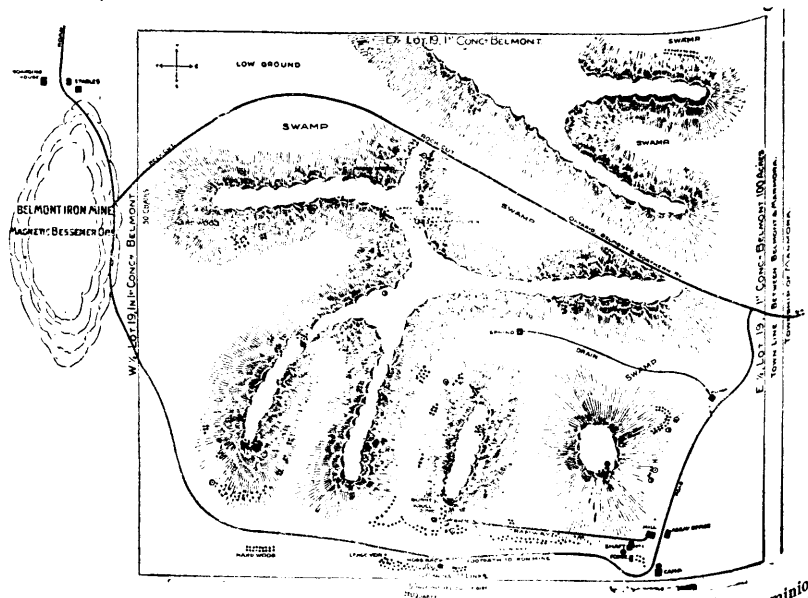
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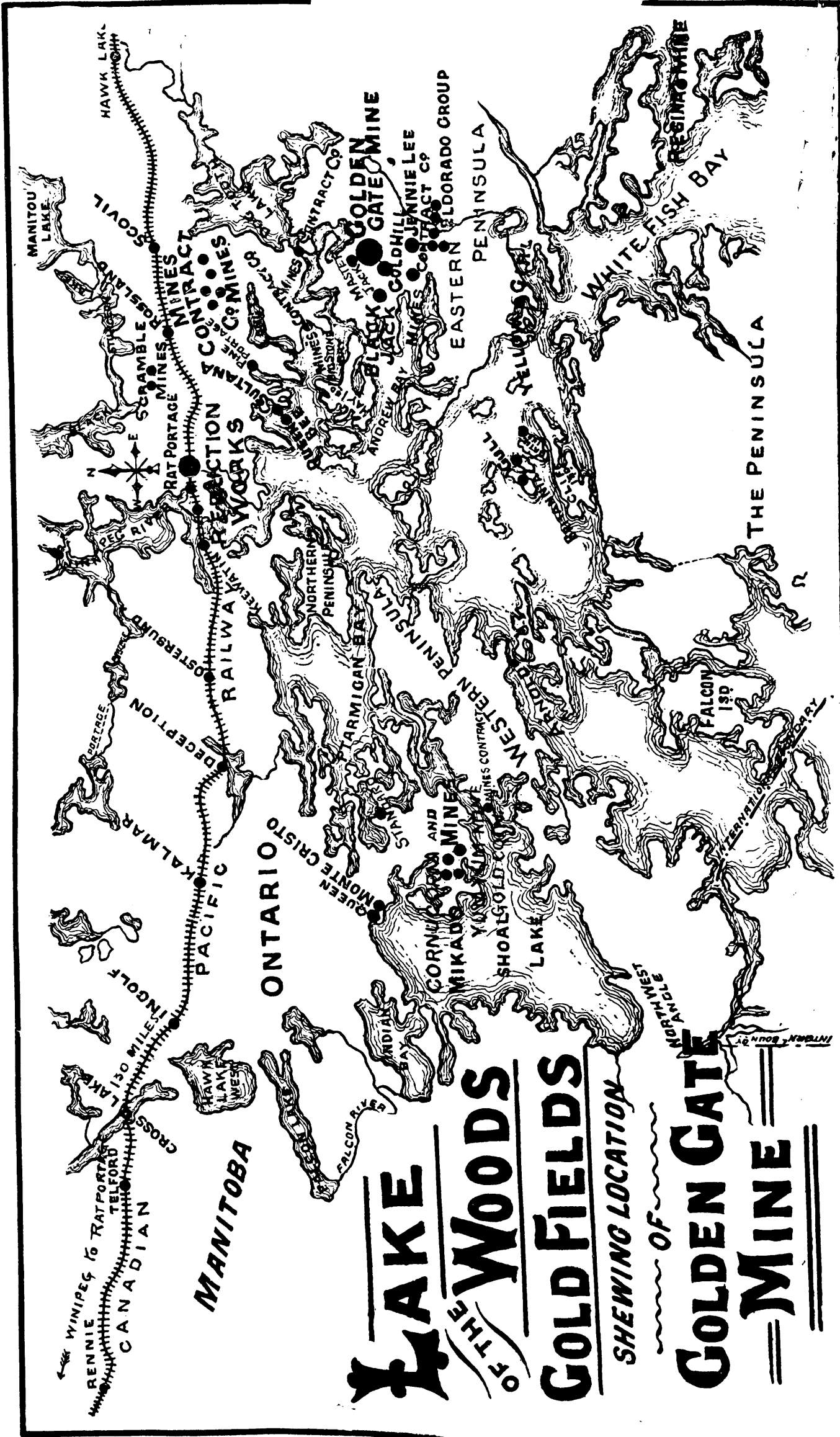
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Mining Properties Developed and Reported on.

Choice Mining Properties for Sale in the Lake of the Woods, Seine River, Manitou and all known Rich Districts.

Offices: RAT PORTAGE---75 Canada Life Building, TORONTO---and 411 Board of Trade Buildings, MONTREAL.

HIGHEST AWARD TO

Vinolia Soap

SOLD : : : : :
ALL OVER : : :
THE WORLD :

FOR

Sensitive Skins



Vinolia

GUARANTEED HARMLESS.

50 CENTS PER BOX.



A Plastic Emollient Cream

.. FOR ..

MINOR SKIN AILMENTS.

Vinolia

Shaving Stick . .

CAUSES
NO
BLOTCHES.

Does not leave the Skin
Leathery and Shrunken.



Price, - - 15 Cts.

SOLD ALL OVER THE WORLD.

Offices: RAT PORTAGE---75 Canada Life Building, TORONTO---and 411 Board of Trade Buildings, MONTREAL.

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

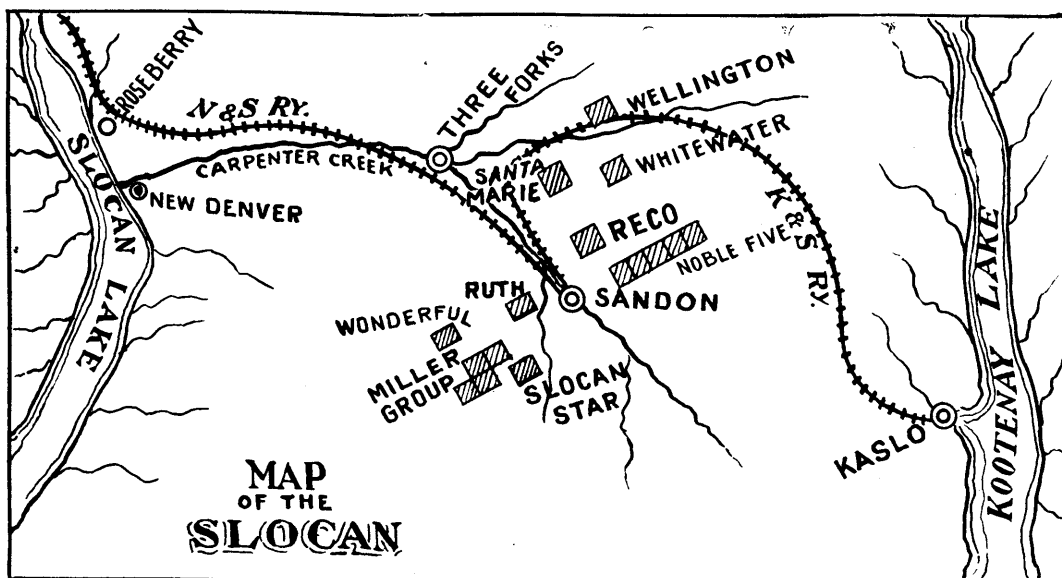
21 Adelaide Street East, Toronto

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 13	Kootenay-Cariboo Min. & Invest. Co	2,500,000	\$1 00	\$0 25
Aife	1,000,000	1 00	0 11	Kootenay (London).....	1,000,000	1 00	0 12
Arlington Con.....	1,000,000	1 00	0 10	Lake Harold.....	1,000,000	10 00	2 50
Bannockburn	500,000	1 00	0 20	Ledyard	2,500,000	5 00	7 50
Big Three.....	3,000,000	1 00	0 09	LeRoi.....	1,000,000	1 00	0 20
Bondholder.....	1,000,000	1 00	0 14	Lily May.....	1,000,000	1 00	0 08
British-Canadian Gold Fields.....	2,500,000	1 00	0 15	Lloyd Gold Mining and Dev. Co..	150,000	0 25	0 10
Butte.....	1,000,000	1 00	0 04	London Hill Dev. Co.....	1,000,000	1 00	0 15
Caledonia Con.....	1,000,000	1 00	0 10	Mabel.....	1,000,000	1 00	0 14
California.....	2,500,000	1 00	0 10	May Flower.....	£250,000	£1	7 50
Canada Mutual.....	2,500,000	1 00	0 15	Mikado.....	\$1,000,000	1 00	0 07½
Cariboo M. C. C.....	800,000	1 00	0 50	Miller Group (Slocan).....	2,500,000	1 00	0 10
Colonna.....	1,000,000	1 00	0 26	Mines Dev. Co.....	1,000,000	1 00	0 15
Colorado.....	1,000,000	1 00	0 12	Minnehaha	1,000,000	1 00	0 10
Columbia and Ontario.....	750,000	1 00	0 10	Monarch.....	750,000	1 00	0 20
Commander.....	500,000	1 00	0 20	Monita.....	1,000,000	1 00	0 12
Consolidated Sable Creek.....	1,000,000	1 00	0 10	Monte Cristo.....	1,000,000	1 00	0 07½
Confederation Mines Dev. Co	2,500,000	1 00	0 10	Montezuma	1,000,000	1 00	0 12½
Cornucopia.....	£100,000	£1	7 50	Morning Star.....	1,000,000	1 00	0 10
Cracker Jack.....	\$1,000,000	\$1 00	0 09	Norway.....	1,000,000	1 00	0 10
Crown Point.....	1,000,000	1 00	0 48	Novelty.....	1,500,000	1 00	0 10
Deer Park	1,000,000	1 00	0 21	Old Flag	1,000,000	1 00	0 29
Dellie.....	750,000	1 00	0 15	O.K.....	1,000,000	1 00	0 11
Eagle Nest.....		25 00	25 00	Old Ironsides.....	1,000,000	1 00	0 08½
Eastern Mining Syndicate.....	1,000,000	1 00	0 09½	Ontario Gold Fields.....	250,000	1 00	0 12½
Eldon.....	1,000,000	1 00	0 10	Ottawa and Ivanhoe.....	700,000	1 00	0 09
Elsie.....	1,000,000	1 00	0 08	Orphan Boy.....	500,000	1 00	0 15
Empress.....	500,000	1 00	0 21	Phoenix.....	1,000,000	1 00	0 15
Enterprise.....	1,000,000	1 00	0 20	Pug.....	500,000	1 00	0 25
Ethel Group (Preferred).....	1,500,000	1 00	0 75	Princess	500,000	1 00	0 07½
Eureka Con.....	500,000	1 00	0 10	Poor Man.....	2,500,000	1 00	0 12½
Evening Star.....	1,000,000	1 00	0 15	Rathmuller Con. M. & Dev. Co	1,200,000	1 00	0 08
Exchequer.....	1,000,000	1 00	0 10	Red Eagle.....	1,000,000	1 00	0 10
Foley.....	1,000,000	5 00	3 50	R. E. Lee.....	1,000,000	1 00	0 12½
Germania	1,000,000	1 00	0 20	Rossland Gold Mining and Dev. Co.	2,500,000	1 00	0 25
Gertrude.....	500,000	1 00	0 15	Rossland Red Mountain.....	1,000,000	1 00	0 10
Gold Exploration Co.....	1,000,000	£1	5 00	Royal Five.....	1,500,000	1 00	0 06
Gold Hills.....	1,000,000	\$1 00	0 10	Santa Marie (Slocan).....	1,000,000		2 85
Gold Quartz.....	1,000,000	1 00	0 10	Saw Bill	1,000,000	1 00	0 06
Gold and Silver Mines Dev. Co.....	1,000,000	1 00	0 20	Silver Bell.....	500,000	1 00	0 10
Golden Cache	500,000	1 00	1 75	Silverine.....	1,000,000	0 10	0 10
Golden Gate Min. and Dev. Co.	300,000	1 00	1 50	Slocan Cariboo	1,000,000	0 50	2 63
Good Hope.....	500,000	1 00	0 10	Slocan Star.....	1,000,000	1 00	0 19
Great Western.....	1,000,000	1 00	0 16½	Smuggler.....	900,000	1 00	0 10
Great Western Mutual.....	2,500,000	1 00	0 15	Spokane-Kaslo	1,000,000	1 00	0 11
Hansard	1,000,000	1 00	0 10	St. Elmo.....	1,000,000	1 00	0 12½
Heather Bell.....	1,000,000	1 00	0 20	St. Paul	500,000	1 00	0 25
High Ore.....	500,000	1 00	0 07	Sweden.....	250,000	1 00	0 75
Homestake.....	1,000,000	1 00	0 17	The Industrial Mining and Dev. Co.	240,000	0 30	0 31
Ibex.....	1,000,000	1 00	0 03½	Two Friends.....	1,000,000	1 00	0 10
Ibex of Slocan	300,000	0 25	0 30	Victory-Triumph.....	500,000	1 00	0 13
Investors Prospecting G. and M. Co	1,250,000	1 00	0 10	Virginia.....	1,000,000	1 00	0 10
(Cripple Creek).....				Waneta.....	1,000,000	1 00	1 04
Iron Colt	1,000,000	1 00	0 20	War Eagle (Con.).....	1,000,000	1 00	0 26
Iron Mask.....	500,000	1 00	0 45	Washington.....	500,000	1 00	0 27
Iron Queen.....	1,000,000	1 00	0 04	West LeRoi and Josie.....	2,000,000	1 00	0 12
Josie.....	700,000	1 00	0 52	White Bear.....	1,000,000	1 00	0 10
Josie Mack.....	1,000,000	1 00	0 12½	Winnipeg and Eureka.....	1,000,000	1 00	0 02½
Jumbo.....	500,000	1 00	0 60	Yale.....	1,000,000	1 00	0 15
Kelley Creek.....	1,000,000	1 00	0 13	Zilor.....			

(OVER)



Miller Creek Mining Company

DIRECTORS.

A. J. ROSS, Vice-President Exchange National Bank,	C. H. THOMPSON, Vice-Pres. "Wonderful Group" Mining Co.
J. M. ARMSTRONG, Treasurer LeRoi Mining Co.	H. C. BELL, Secretary "Wonderful Group" Mining Co.
W. C. JONES, Member of Congress.	E. J. FIELD, Manager "Wonderful Group" Mining Co.
F. A. DAVIS, Superintendent Summit Mining Co.	

OFFICERS.

President, C. H. THOMPSON, Treasurer,	A. J. ROSS,
Vice-President, J. M. ARMSTRONG, Secretary,	H. C. BELL,

CAPITALIZATION.

Capitalization at 1,000,000 Shares of \$1.00 Each, with 400,000 SHARES Appropriated for Treasury Stock. Shares fully Paid-Up and Non-Assessable.

THE PROPERTY.

It owns in fee the three claims known as the "New Springfield," "Sampson," and "Wonderful Fraction," comprising in all about 130 acres of mineral land, directly adjoining the famous Wonderful Group Mining Company's property in Slocan Mining District, West Kootenay, B.C., only one and one-half miles from the town of Sandon, in the very heart of the Slocan country, which stands without a rival in mining history; and so far every prospect which has been systematically developed has proven a mine. Among the most noted of which are the "Slocan Star" with its record of \$300,000 paid in dividends, and its shares with a par of 50 cents, are eagerly sought for at \$2.60. The "Reco" with its \$150,000 paid to shareholders during the past year. The "Idaho and Alamo" with their \$135,000 to shareholders; the "Goodenough," "Noble Five," "Payne Group," "Ruth," "Wonderful Group," "Reed and Robinson," the "Whitewater," "Wellington," and a host of others.

SITUATION.

On the mountain lying south of Carpenter creek and close to the town of Sandon is the "Slocan Star," next west is the "Ruth," next west is the "Wonderful," and adjoining this on the west is the "Miller Creek" properties. The Wonderful has extracted a large amount of ore from surface workings by hydraulic mining, and in prosecuting this work their tail race down the steep mountain side has cut a large strong vein (see Field's Report) which courses directly through the entire length of the Miller Creek property, and should it continue that far would give us over 3,000 feet of this heretofore unknown vein, and in that distance several ore chutes ought to be discovered, and one means a fortune.

This vein, and that exposed by the work on Miller Creek, make this group of claims have great prospective value. Title to the property is perfect and lies absolutely in the Company. It was passed upon by W. C. Jones, Attorney-General of the State of Washington. Application will be made for a Crown Grant, and as there are no adverse claimants, the Crown Grant will unquestionably be issued during the summer of 1897.

Adjoining as it does directly on to the Wonderful on the north and east, it ought to have the same veins and character of ore and in order to show what that is, it may not be amiss to here quote from the smelter returns received by the Wonderful from the first five carloads of ore shipped by them (since which time they have shipped many additional cars of like ore).

SMELTER RETURNS.

DATE.	TO WHOM SHIPPED.	TONS.	NET PER TON.	NET PER CAR.
1896				
July 28	Tacoma S. & R. CO.	18.197	\$ 87 07	\$1,392 95
August 4		21.211	99 47	1,871 28
" 4	Puget Sound R. Co.	15.897	95 98	1,346 52
" 8	" " "	16.165	99 30	1,420 66
" 10	" " "	15.952	102 14	1,449 92

TRANSPORTATION.

The Canadian Pacific Railway track is within one-fourth of a mile of the Miller Creek Company's property; down hill. Easily reached by a gravity tram. Kaslo and Slocan Railway at Sandon, one and one-half miles distant. A good trail is now built to the property from the wagon road on Carpenter Creek, and can be easily and cheaply converted into a wagon road.

DEVELOPMENT.

There is about one hundred feet of work done where Miller Creek crosses the vein and a few prospect holes. Where Miller creek crosses the property it has made a deep gorge, and exposed the vein at the point described by Mr. Field; it is here the company propose doing the first work, and they will be enabled to drive both east and west on the vein and gain considerable depth from Miller Creek without sinking any shaft or requiring pumps or machinery, except an air compressor and drills which if supplied will enable the work to be done in one-half the time required by hand.

While the company does not claim to have a developed mine, they do believe they have a very valuable property and one which on proper development will take rank with the best of them. And as they own their property in fee, and are absolutely out of debt, and with the assurance that all money received from the sale of treasury stock will be honestly and judiciously expended in developing the property, they offer their shares to the investing public with the fullest confidence that they will be readily taken up by investors, and those who buy this stock now and hold it until the property can be developed, will undoubtedly find themselves shareholders in one of the big mines of the famous Slocan.

Following is a letter from Richard Shea, Esq., superintendent of the Rambler-Cariboo property, giving his opinion of the property of the Miller Creek Mining Company:

H. C. BELL, Esq., Sec'y Wonderful Group Mining Co.,
311-312 Hyde Block, Spokane, Wash.

RAMBLER MINE, MCGUIGAN SIDING, B.C.
February 24, 1897.

DEAR SIR: - Yours of February 12th at hand. You must excuse my delay in answering as I was away when it came. I beg to report as follows on the New Springfield, Sampson and Wonderful Fraction: - There are two (2) ledges running across the Springfield, namely, the Queen Bess and Palmetto which I sold the other day. My opinion of the property is that it is as good a prospect as there is in this country. Hoping to hear from you soon, I remain, yours respectfully,

RICHARD SHEA, Supt. Rambler-Cariboo.

A limited number of Treasury Shares are now offered at 7½c. per share.

Apply to COULTHARD & CO., Mining Brokers, 28 VICTORIA STREET, TORONTO.