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THE B. C. MINING EXCHANGE AND INVESTOR'S GUIDE

And Mining Tit-Bits.

VOL. II.—VANCOUVER, B. C., FEBRUARY, 1900—No. 2.

ELECTRIC MINING IN THE ROCKY MOUNTAIN REGION

BY IRVING HALE, DENVER, COLO.

The largest electric hoist in the world is on the Free Silver shaft at Aspen, Colorado. It is an over-balanced double reel, flat rope hoist, equipped with a 100-Kw. 4-pole motor, capable of developing 120 H. P. continuously and 150 to 175 H. P. intermittently. An auxiliary 60-H. P. motor, ordinarily doing other work, is arranged so that it can be geared to the hoist counter-weight and assist the large motor if necessary. Each shaft has 1500 feet of 4 by $\frac{3}{8}$ -inch flat rope, weighing 1375 pounds per foot. The cage weighs 1375 pounds, and ore (hung from cage in sinking) about 2400 pounds, car and ore about 3500 pounds, and bailer, containing 111 cubic feet of water, about 9000 pounds. Two counter-weights are used, one for the cage and one for car, the two being combined when bailing. Two armature pinions are provided (the motor sliding on rails), one for ordinary hoisting giving a speed of 100 feet per minute, and the other for bailing at 1000 feet per minute, which, with a maximum load of about 10,000 pounds (bailing), would require over 300 H. P. exclusive of friction in gearing and rope, were it not for the over-balanced arrangement. Actual tests have shown that the average current consumed in hoisting with counter-weight is only about one-third of the amount required when the hoist is unbalanced.

Pumps.—The electric pump presents a somewhat more difficult mechanical problem than the hoist, on account of conversion of rotary into reciprocating motion, and importance, in most cases, of compactness and protection of the motor against water. That the problem has been satisfactorily solved, however, is proved by the large number of electric pumps of various kinds and sizes in successful operation.

Duplex and triplex pumps, both vertical and horizontal, are suitable for operation by electric motors. For small pumps, where plenty of space is available, a belt motor affords the cheapest arrangement and gives satisfactory results. In the majority of cases a geared pump with motor on the same base is best. Both spur and worm gears have been used successfully, various devices being employed with the latter to neutralize the thrust. In the Virginus 70-H. P. pump, the armature shaft carries two worms, one right and one left-hand, working into two gears which mesh into each other. In the 15-H. P. pump in the same mine, the armature is placed vertically, and its weight approximately offsets the thrust. In most of the electric pumps made during the past few years, spur gearing has been used, and with good results.

The sinking pump is the most difficult to design, on account of the small space available for the motor, and the necessity of enclosing it in a practically watertight case; but numerous successful pumps of this kind

have been made and installed. The three-phase induction motor is specially adapted to this work, as it has no brushes or moving contacts, and the wires can be carried through water-tight bushings in the case to the stationary terminals on the field.

Speed control is an important question in electric pumping. Where waste of power is unobjectionable, a rheostat in armature circuit is suitable. If high efficiency is imperative, and the required variation in speed is not great, it may be economically accomplished by varying the field strength of the motor, either by commutating a sectional field or by use of a rheostat. When the generator supplies nothing but the pump, an excellent method is to vary the generator voltage by changing its speed or field strength, or both. In some cases a water by-pass can be advantageously used. In others it is best to pump at full capacity intermittently. The most suitable method is a matter of judgment in each case.

Blowers.—The running of blowers and exhausters is another simple operation, the motor being either belted, geared or direct connected to the blower shaft. Small outfits of this kind, placed at various points throughout the mine, run continuously with very little attention, and afford the most economical and satisfactory ventilation—far superior to the vitiated air that has passed through air-compressors and drills.

Percussion Drills.—To obtain with electricity the rapid reciprocating motion with varying stroke and necessary elasticity required in a percussion-drill, and at the same time get a machine that will stand unlimited abuse, has been the hardest problem in the mining field that the electrician has had to solve.

Two general methods have been followed. One employs the ordinary rotary motor, connected to the drill by a flexible shaft and producing the oscillatory motion by cranks, cams, levers, springs and similar devices. The other uses the solenoid principle, the plunger being moved back and forth within two solenoids, placed end to end, by currents sent through the two alternately, these currents being shifted automatically at the drill or generator—generally and preferably at the latter.

The solenoid type of drill is the only one that has been used commercially and successfully in this country. These drills were tried in several mines in Colorado and elsewhere about four years ago, but were only partially satisfactory. The principal defects were lack of pulling power, heating of solenoids, unsoldering of connections and breaking of drill chucks, due to the crystallization of the bronze of which they were at that time made. These defects have been remedied by better electrical and mechanical design of solenoids and connections, and the adoption of an all-steel plunger and chuck. The improved drills have been used successfully for some time in quarrying and tunneling in

the East; and a few plants have recently been installed in this vicinity, the operation of which will throw much light on the exact value of the drill for mining use.

Diamond Prospecting Drills.—In contrast to the percussion drill, the rotary diamond drill is more easily and satisfactorily operated by an electric motor than by any other power, not only because the rotary motion of the motor can be applied directly to the drill, while the reciprocating motion of a steam, or air engine must be converted, but also because the former is much steadier than the latter, and causes less wear and breakage of carbons. Moreover, the transmission of power into a mine by electricity is more economical than by steam or air, and the electric drill, with its wires, can be more conveniently moved from place to place than the steam or air drill and pipes. On account of these advantages the electric diamond drill has become a favorite wherever current can be conveniently obtained.

Coal Cutters.—Electricity was successfully used for coal cutting even when the direct current motor was the only kind available. The application to the chain cutter of the three-phase induction motor, without commutator, collector or brushes, and avoiding all possibility of sparking, has produced an almost ideal machine for this work. Another valuable characteristic of the induction motor for this kind of service is the fact that, when overloaded beyond a certain limit by striking a hard stratum or by sticking of the cutter, it stops, thus relieving both motor and machine from excessive strains.

These coal cutters are being rapidly introduced in the East, but have not yet been used in this country.

Locomotives.—Electric haulage in mines, under ordinary conditions and where distance and tonnage are not too small, is without much question superior to any other system available. It is more flexible than rope haulage and more economical than mules or compressed air.

Electric locomotives have been principally employed in coal mines on account of larger tonnage and longer hauls; but they are coming into use in metalliferous mines, and will be used more widely as long tunnels, tapping numerous veins, become more common.

Mine haulage is similar in most respects to street railway service; but the locomotives must generally be adapted to narrower gauge, the motors should be better protected, the speed is slower and the weight on driving wheels greater.

The series-parallel controller, now so widely used in street car service, which throws the motors in series for starting and slow speeds, and in parallel for higher speeds, is not so suitable for a mining locomotive, for the reason that the slipping of one pair of wheels (which is more liable to occur than on a street car, the load being behind the locomotive and the rails more slippery) increases the speed of the motor on that axle, raises the counter-electromotive force and cuts down the current through both motors, if in series, thus reducing the power of both. For this reason some form of rheostat controller is generally used.

The essential requirements in a mining locomotive are compactness, strength, simplicity, convenience of

handling and especially in durability and freedom from repairs.

Placer Mining Machines.—Electric power has been very satisfactorily applied to the operation of placer mining machines, several motors being employed to run the different parts of the dredge and gravel-treating apparatus. One motor generally raises and lowers the dipper; one forces it into the bank; another works the turn-table for depositing the gravel in the hopper; and a fourth operates the cylinder, tailings-carrier, amalgamator, etc. All of these motors are supplied by a generator located at any convenient point. The peculiar adaptability of electric motors to such work is evident; in fact it would be difficult to operate such a machine in any other way.

The Bennett Amalgamator Manufacturing Co. is operating a plant of this kind for the South Park Mining Co., at Green River, Utah, and the Gold Dredging Co. has a similar installation at Bannock, Montana.

ELECTRO-METALLURGY.

Copper Refining.—The principal application of electricity to metallurgical operations in this part of the country is copper refining, which is carried on extensively at Anaconda and Great Falls, Montana. The plant at Anaconda consists of eight electrolytic generators, aggregating 1870 Kw., and its capacity is 125 tons of refined copper per day, the average output being about 100 tons per day. They also have a 100-Kw., 110-volt power generator, supplying two 25 H. P. locomotives and three travelling cranes, for handling and transporting materials and product.

The commercial success of the process is too well established to require discussion. Its economy is principally a question of the cost of power and the scale on which operations can be conducted.

Gold and Silver extraction.—Electricity has been applied as an auxiliary in various processes for the treatment of gold and silver ores by cyanide, chlorination and amalgamation. While some of these processes are based solely on the faith of the inventor that a current of electricity sent through his mixture will produce results that he cannot easily otherwise obtain, others undoubtedly possess merit, as they are founded on well established laws of electro-chemical action. These processes are usually conducted with considerable secrecy, and it is impossible to give any reliable data as to the actual results accomplished or the economy of the operations. There is reason to believe, however, that with the proper combination of chemical, metallurgical and electrical knowledge brought to bear upon this subject, good results may be expected.

FUTURE DEVELOPMENT.

During the past eight years, and principally in the last four years, 52 distinct companies in the Rocky Mountain district alone have installed electric power machinery for mining and ore reducing purposes, comprising 62 generators, aggregating 7988 kilowatts, and 135 motors, aggregating 4816 horse-power, operating every variety of mining and milling machinery.

Electric apparatus, formerly regarded as delicate and peculiarly subject to break-downs, has been brought to such a degree of perfection that depreciation and re-

pairs may be considered as less on this than on almost any other kind of machinery.

The multiphase high-voltage system has brought nearly every mining district within economical reach of water power.

The induction motor, without commutator, collector or brushes, is the acme of simplicity and durability.

Electro-metallurgical operations are increasing and give promise of success.

Under these conditions it may be safely predicted that during the next five years much greater progress will be made, and the application of electricity will become one of the most attractive and important features of mining economy.

MINERAL DETERMINATION AND MINERAL TERMS.

COMPILED BY T. R. HARDIMAN.

Continued.

CLASSIFICATION AND KINDS OF ROCKS.

1. Fragmentary rocks, *except limestone.*
2. Limestone or calcareous rocks.
3. Crystalline rocks, *except limestone.*

First, or Fragmentary Class, embraces—1. Conglomerates, made up of pebbles and boulders; 2. Grit, coarse sandstone; 3. Sandstone; 4. Sandrock, made of sand not siliceous; 5. Shale, uneven slaty rock of varied colors; 6. Argillite, flagstone; 7. Tufa, volcanic sandrock; 8. Sand and gravel; 9. Green sand; 10. Clay; 11. Alluminum, silt; 12. Tripolite, infusorial earth.

Second, or Limestone Class, divides into two sections: 1. Non-Crystalline; 2. Crystalline.—1. Massive limestone; 2. Magnesium, limestone or dolemyte; 3. Chalk; 4. Marl; 5. Travertine; 6. Stalagmite, included in the first section.

Third, or Crystalline Class, embraces the siliceous rocks, and all the crystalline rocks except marbles and is divided into nine Groups.

1st Group—Siliceous Rocks: 1. Quartzite, siliceous sandstone. 2. Stacolumyte, schistose mica and quartz grains. 3. Siliceous slates. 4. Chert and impure flint. 5. Jasper rock, flinty red or yellow rock. 6. Bahrstone, cellular flinty rock. 7. Floryte, opal or pearl silica.

2nd Group—Mica and Potash (Feldspar series): 1. Granite. 2. Granolyte, contains no mica. 4. Protogene. 5. Mica schist. 6. Paragonite schist, contains soda. 7. Minette. 8. Greisen. 9. Mica-Argillye, variety of flagging stone. 10. Felsyte, compact orthoclase. 11. Porcelanyte, baked clay. 12. Trachyte, mainly of feldspar. 13. Pearlstone, including obsidian and pumice. 14. Leucitite.

3rd Group—Mica and Soda, Lime (Feldspar series): 1. Kersantyte. 2. Kinzigyte. 3. Miascyte. 4. Dytroyte. 5. Phonolyte, clinkstone.

4th Group—Hornblend and Potash (Feldspar series): 1. Syenyte, of which the Pyramids are made.

2. Syenyte-Gneiss, like gneiss, with mica replaced by hornblend. 3. Hornblend schist. 4. Amphibolyte. 5. Actinolyte. 6. Unakyte. 7. Zitcon-syenyte. 8. Foyayte.

5th Group—Hornblend and Soda Lime (Feldspar series): 1. Dioryte freestone. 2. Andesyte. 3. Labradorite. 4. Corsyte. 5. Isenyte. 6. Euphotide.

6th Group—Pyrosene and Soda Lime (Feldspar series): 1. Augite-andesyte. 2. Noryte, gabbro. 3. Hypersthenyte. 4. Doleryte, basalt, trap. 5. Eucryte. 6. Amphigenyte. 7. Nephilinyte. 8. Tachylyte.

7th Group—Epidote and Chrysolite Rocks, with little or no Feldspar: 1. Pyroxenyte. 2. Garnetyte. 3. Eclogyte. 3. Eulytyte. 4. Epidosyte. 5. Eulytyte. 6. Chrysolyte. 7. Sherzolyte. 8. Piricyte. 9. Limbargyte.

8th Group—Hydrous Magnesian and Aluminous Rocks: 1. Chlorite-schist. 2. Chlorite-argillyte. 3. Tacose-schist. 4. Steatyte, soapstone. 5. Serpentine, greasy green rock. 6. Ophiolyte, verd antique marble. 7. Pyrophylyte, slate of a soapy feeling.

9th Group—Iron Ore Rock: 1. Hematyte, specular iron ore. 2. Itabyryte, mica schist, with hetatyte leaves. 3. Magnetyte, magnetic iron ores. 4. Menaccanyte, titanite iron ore. 5. Franklinaryte, with zinc and manganese.

CHARACTERISTIC PROPERTIES OF MINERALS.

The physical properties of minerals are useful in their determination, and will usually establish their identity without a chemical test. These properties are cleavage, fracture, hardness, tenacity, specific gravity, luster, color, fusibility, transparency, malleability, sectivity, elasticity, taste and odor. The manner of crystallization, since each mineral generally is crystallized in only one distinct system.

Hardness, Fracture, Lustre, Fusibility, Specific Gravity, Crystallization, and Ores generally, will be dealt with in our next issue.

THE REASON WHY!

The following letter has been received in our office from a well known mining engineer of London, England, which may be of interest to mine owners of B. C.:

"There are many people willing to invest in B. C. mines, but unfortunately do not believe the reports from owners, or their engineers. Now I think it possible that investors may be interested if an independent English engineer was to go over and send his independent report of as many prospects as he could examine, that business would result. If you think the same you should try and arrange with the owners to share amongst them the expenses of such engineer, and, as I have already visited the Western States and British Columbia, I would willingly come over and examine the prospects and mines, and have the reports widely circulated in London and elsewhere, as I am convinced that fortunes await those investors who go into sound mines in B. C." We publish this letter in the interests of mine owners and the country generally, and shall be glad to give the matter all the aid possible to promote development, and circulate our possibilities.

MINING EXHIBIT AT EARL'S COURT,
LONDON.

The Canadian Mining Gazette says: "We seem to drum along in a quiet way, each man or company representing itself; but when an opportunity occurs such as that now gone, there seems to be no man at the helm with the necessary authority and means to interest himself on behalf of the whole people. We have Mines and Minerals Departments at Ottawa and Bureaus of Mines in Ontario, but we have so far failed to see that when an opportunity presented itself they were ready to take advantage of it.

"One has no authority, the other no money, but we claim that each and all of them should have both if Ontario is ever to be properly presented to the world as one of its richest mining sections.

"Thousands of pamphlets such as are annually issued by our governments are of no avail unless they are followed up and the facts presented, not only to our own small population, but to the world generally. We have just received from the *Mining Journal*, of London, England, a souvenir copy of their issue, showing and describing in detail the exhibits made at Earl's Court of the mining exhibits of Great Britain.

"Australasia is given a large place in the number, and Ontario, which could have and should have occupied an important position, comes in at the tail end with a laudatory notice of one undeveloped mine, the 'Alice A,' and that placed at the instance of a gentleman who is not even a British subject, Col. Hillyer, of Duluth,

"Surely at the present time, when all the world is looking to mining as a great field for investment, our Government could have exerted itself and done something in the interests of Ontario. It did nothing, and so one of the greatest opportunities that could have or will present itself for the advertisement and advocacy of Ontario as a mining country has been lost."

Our views have been given to our readers repeatedly since our inception, over a year since. On matters such as the above, which we consider opportunities lost, since advantages of such obviously helpful character are invariably overlooked by the departments whose duty it is to secure every medium or avenue which will lead to our solid advance, in our november number we stated: "We are one accord with The British Columbian Review in expressing regret, nay, even disgust, at the want of enterprise on the part of British Columbians in allowing such an opportunity as the greater Britain Exposition, at Earl's Court, London, Eng., to pass by without representation. The U. S., Australia and Ontario, at the last moment—and that through the energy of one individual—were represented, or the entire Dominion would have conspicuous by its absence.

"Such a lack of enterprise is simply inexcusable and the consequences are only too evident when gauged by the capital invested in British Columbia, compared to the Cape and Australia, both of which are solid in the support of every medium which advances the interests of their separate colonies. Hence millions sterling have been and can be obtained for mining, or for the industrial development of either of these go-a-head colonies."

Conan Doyle says: "I would build a monument to President Kruger of the size of St. Paul's Cathedral, putting him under it, and I would write across it—'To

the memory of the man who federated the British Empire.' We would go further and write it in red, across the map of the world. Our earnest hope is that the Chamberlain policy will be carried out in toto with regard to the African future. So soon as England shows any sign of weakness by mistaken generosity, surely will she be taken advantage of by her enemies, and just as surely will she alienate her colonies, whose support she has gained, and will hold, just as long as her policy is on the side of strong and earnest manhood and good government. Surely the Emperor has spoken in no uncertain tones, tones which echo from one end of the earth to the other, and prove to our enemies that we are not to be trifled with now or here. In fact, it's "hands off."

The Dawson Telegraph Line paid an aggregate of \$13,000 for Oct. and Nov., 1899, in tolls. Four hundred dollars was taken in one day at Skaguay.

DETROIT COPPER COMPANY'S MINES

The El Paso (Tex.) News publishes an interview with Mr. Gordon McLean, Superintendent of the Detroit Copper Mining Company of Morenci, Ariz., which the latter says the company has 160 claims covering 3,200 acres of land.

"There have been" Mr. McLean says, "over twenty miles of underground work done on the company's property. There have been five hundred men engaged thereat. There have been five hundred men at work at and around the smelter and reduction plant and about two hundred on the outside. The underground work alluded to does not include stopping, the extraction of ore by that procedure, but of sinking shafts, driving levels, cross-cutting, winzes, and the various connections necessary for safety and expeditious hauling of the ore reserves.

"There is being built, and about completed, perhaps the largest concentrating plant in the United States. Its capacity is 500 tons per day, and will treat ore valued at 60 cents per ton at a profit. That sounds like a fairy tale doesn't it?" said Mr. McLean. "I can make that comment because I have read so much about marvellous discoveries in your local papers of mammoth ledges of copper ore that runs 50, 60 and 70 per cent.

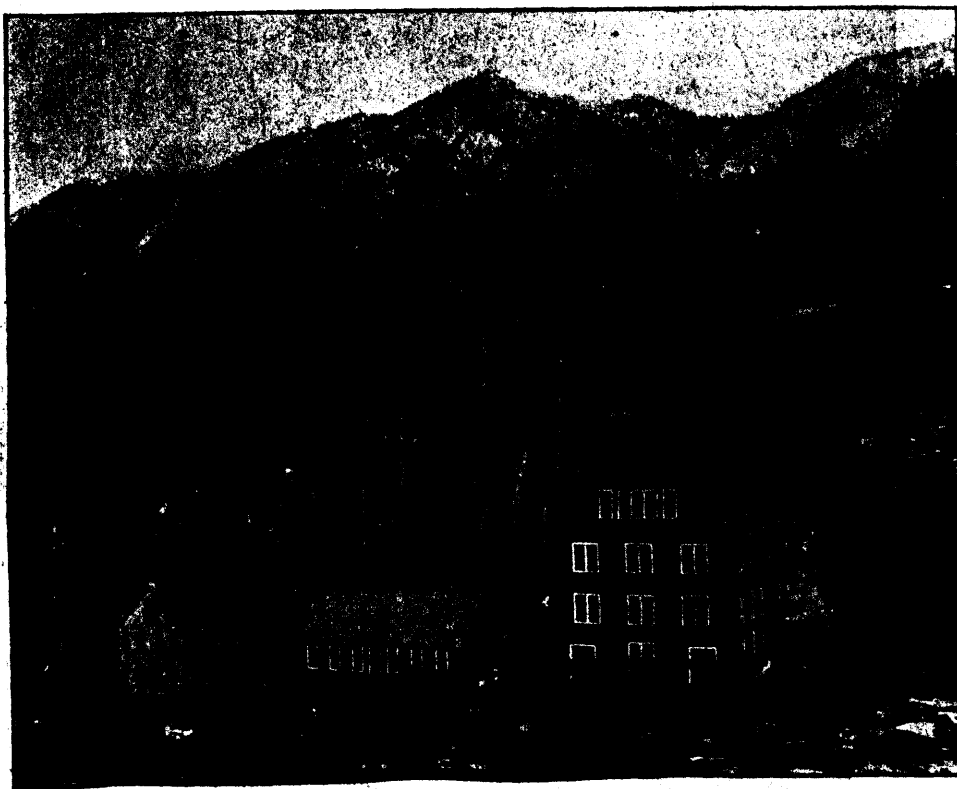
In addition to the above, there have been put in place six 125-horse-power gasoline engines. These engines were manufactured in England and are great factors as fuel economizers. They furnish power to run the concentrators, crushers and furnaces of 600 ton capacity. The matte is converted by the pneumatic process and the output is 28 tons of ingot copper per day of 90 and 90½ fineness. The bulk of the ore comes from the company's old group of mines, known as the Yankee, Montezuma, Rynerson, Morenci, Arizona, Central and Copper Mountain." Regarding the company's proposed railroad Mr. McLean said: "The road will be known as the Morenci South-Eastern, and its terminus will be Guthrie on the Gila river, connecting with the Arizona & New Mexico Railway. It will be nineteen miles long, and will have only 2½ maximum grade from Morenci to the San Francisco river which it will cross and continue up the north bank of the Gila river to the terminus. The road will be standard gauge, but will be operated as a narrow gauge to begin with."

THE B. C. MINING EXCHANGE AND INVESTORS' GUIDE circulates throughout the Empire and the U. S. We shall always be happy to give the fullest information in our power to those correspondents who are subscribers. Laterly, however, we have had so many enquiries from non-subscribers on matters British Columbian, that to reply to all takes both time and money, and, while always ready to oblige correspondents as far as possible, we shall in the future expect non-subscribers to remit sufficient to cover postage. The subscription is \$2.00 yearly, postage free. Further, we would say that our office is at the disposal of subscribers, for use of maps, books and general reference, in connection with British Columbia industries generally.

Canada produced in 1898, 17,951,421 lbs. of copper, valued at \$3,159,556. Gold valued at \$13,700,000. Iron ore, 58,161 lbs., value \$152,510. Lead, 31,915,319 lbs., valued at \$1,820,838. Silver, 4,434,085 ounces, value \$2,583,289. Nickel, 4,517,690 lbs., valued at \$1,820,838. Total value being \$21,622,601. We believe that the totals for 1899 will be almost double. The coal areas of Canada are estimated at 97,200 square miles as far as known, large portions of territory being as yet unprospected.

The gold production of the world for 1899 amounts to \$313,704,672, Canada being fifth on the list.

The sum of £9,150,269,000 passed through the books of the Bankers' Clearing House of London, England, in 1899. This amount equals \$44,561,810,030, or about 91,502 tons of gold.



B. C. INDUSTRIES—MINING.

RENTS AND BOARD IN THE KLONDIKE.

The hotels in Dawson City, in the Yukon Country, have electric light and other conveniences, and average \$100 a month each for rooms. Board at restaurants and other places costs \$100 to \$150 a month, but good board can be obtained at the clubs and messes at \$75 a month. Several new hotels and other buildings have been erected. They are two or three stories high, the upper floors being devoted to offices and lodging rooms.

The Mikado Mine, Lake of the Woods, produced in December, 1899, \$18,000.

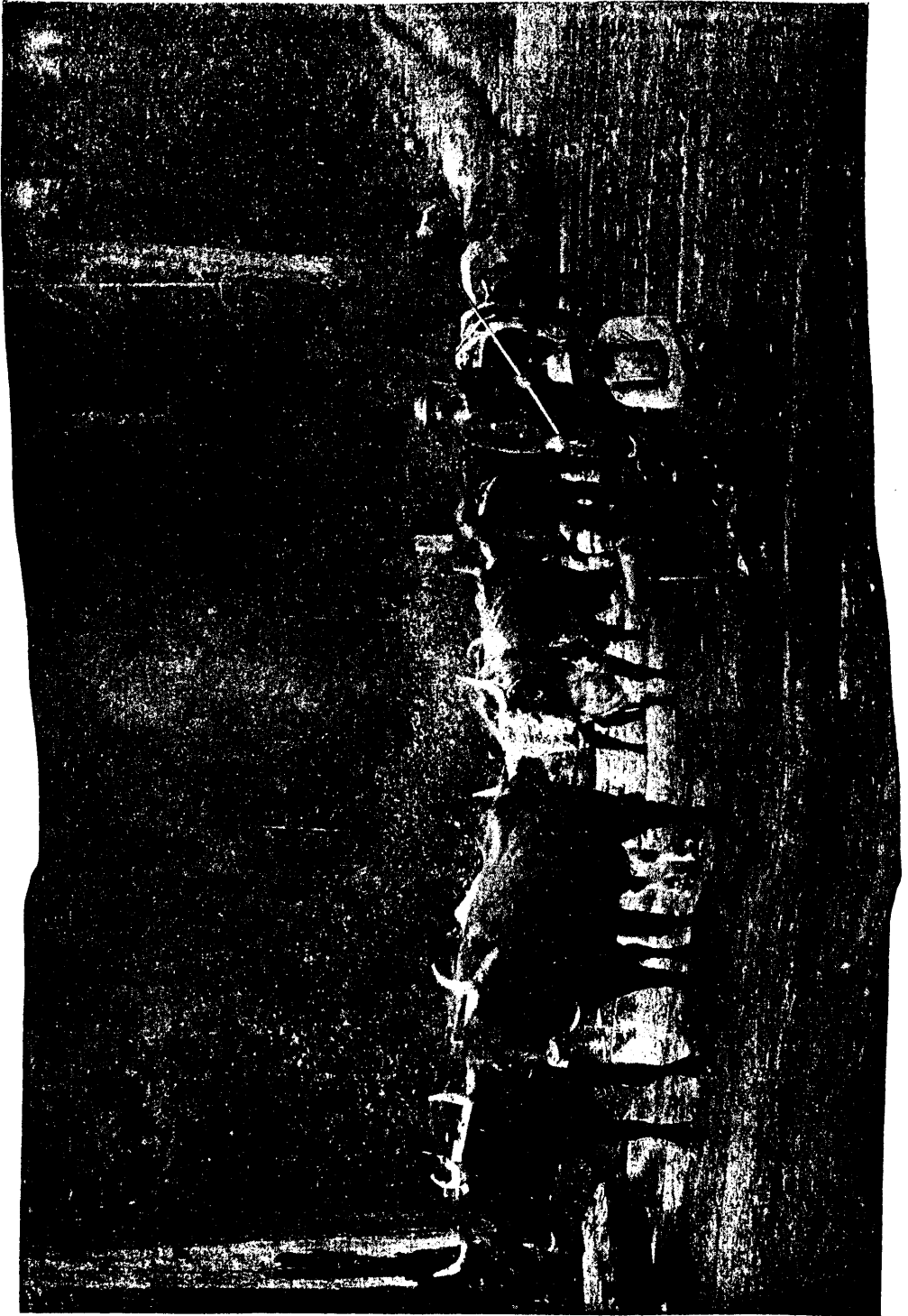
Mexico's export for 1899, will, it is said, reach a value of \$60,000,000.

The world's production of tin in 1898 has been estimated at 77,300 tons.

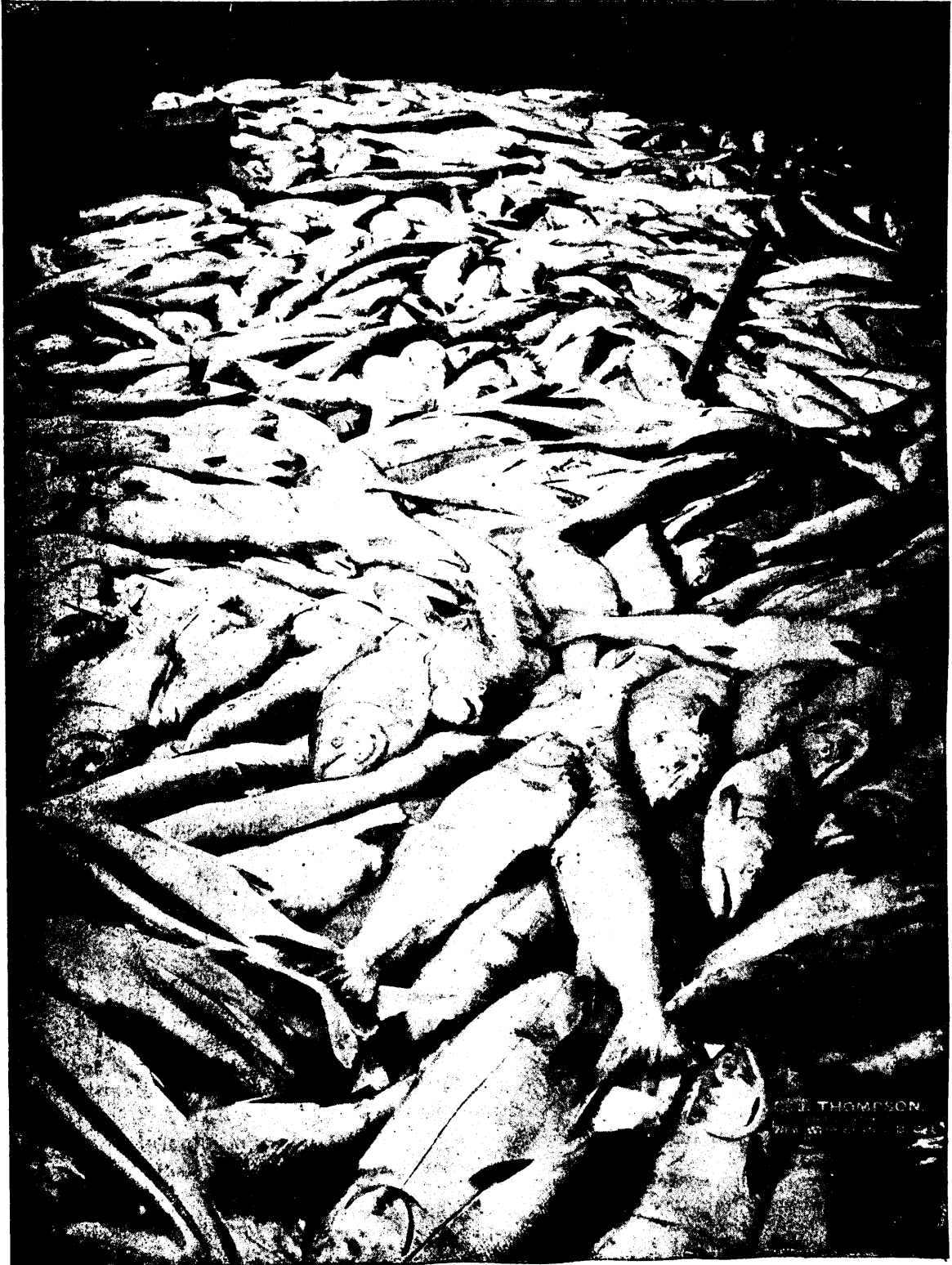
The ore shipped over the Kalso and Slocan Railway for the year 1899 was 25,700,224 lbs., a decrease of 16,902,891 from that of 1898.

TRANSVAAL GOLD OUTPUT.

The Mining Journal of London publishes the official returns of the gold output of the Transvaal mines during November last, amounting in all 61,780 ounces and made up as follows: Robinson, 17,252 ounces; Bonanza, 8,265 ounces; Rose Deep, 1,021 ounces; Ferreira Deep, 5,902 ounces; Ferreira, 8,982 ounces; Worcester, 1,442 ounces; Village Main, 10,467 ounces; Wemmer, 6,360 ounces; Johannesburg Pioneer, 2,089 ounces; Langlaate Deep has been allowed to crush the ore at grass. The other companies have been allowed similar privileges.



B. C. INDUSTRIES - LOGGING.



B. C. INDUSTRIES—FISHERY.

RESTRICTIVE LEGISLATION

The effect of restrictive legislation, as applied by this province against capital invested for the mineral development of the country, has culminated in the whole or partial closing down of some of our principal mines and smelters; Unless the Government decides to reconsider their handicapping policy, and substitute in its place the broad lines of political economy, in the best interests of the province, as against class legislation, we predict a still greater set back. The requisite thing is a fair field and no favor, no interference with the individual rights of capital or labor; demand and supply of itself is sufficient to balance the whole question. The Mining and Metallurgical Journal of New York, in an article treating on the effect of unions, says, and justly we think, "There is no more sure way to prevent the future investment of capital, than to let it be known that the miners' union is in force and attempts to dictate terms to the owners and their non-union fellow workmen. By such lawless actions, the labor element, which contains the largest number, suffers the greatest loss, for their own actions strike back with greatest force and effect against themselves. Capital is like a sensitive plant, which needs certain essential conditions to promote its growth, and those requirements must be encouraged. Since our last issue, we are glad to note that the Government has decided to repeal the Alien Law. We trust this is an omen of still greater import to our progress.

THE ALIEN ACT.

The Government will repeal the Alien Act and are introducing a bill to that effect. We quote as follows:

2. Section 3 of chapter 136 of the Revised Statutes, 1897, as enacted by section 2 of chapter 50 of the Statutes of 1899, is hereby repealed, and the following section substituted therefor:—

"3. Every person over, but not under eighteen years of age, and every joint stock company, shall be entitled to all the rights and privileges of a free miner, and shall be considered a free miner, upon taking out a free miner's certificate. A minor who shall become a free miner shall, as regards his mining property and liabilities contracted in connection therewith, be treated as full age. A free miner's certificate issued to a joint stock company shall be issued in its corporate name. A free miner's certificate shall not be transferable."

3. Chapter 50 of the Statutes of 1899, being an Act to amend the Placer Mining Act, is hereby repealed.

John Hays Hammond, the well-known American mining engineer whose African experiences are well known and therefore reliable, expresses himself as follows in a British publication concerning the Boer war: "The year 1899 has ended in the sternest war of the last quarter-century—a war springing solely from the struggle of the new spirit of industrial progress against the old forces of political repression. And sooner or later by force of arms or by sheer moral power, the conflict is sure to end in the emancipation of enterprise and the freedom of engineering effort to develop to the utmost the economic resources of one of the richest mineral regions of the world. The solution of the present crisis will, no doubt, have a strong, though indirect, influence in that development of the African contingent of which Cecil Rhodes is the leading exponent. It is not to be believed for a moment that he,

or any association of men, has directly influenced the precipitation of the present struggle, nor that it would have been possible for him to do so had he been so disposed. It is part of an organic progress toward fuller life in a region destined to play a large part in the world's economic future. Mr. Rhodes is keen to discern the march of events, and to place himself in the lead in ordering and directing them. The Boer government has been in the hopeless attitude of striving to stay them. It is obvious that the whole world is vitally concerned in the wise and permanent adjustment of the South African problem. It is an economic question, in which the engineer's insight is clearest and his influence strongest. Every man in the profession should array himself on the side of sound and enlightened policy, to the end that the English Government may not only make such a policy the basis of its dealings with future Africa, but may clearly and promptly declare the justice, honor and liberality of its purpose, and so enlist the moral adherence of the civilized world."

We clip the following from the Los Angeles Mining Review: "The wish may not be a pious one, nevertheless we feel, to use the words of a celebrated editor 'constrained to utter it.' It is, that dementia may lay hold of a majority, if not all, of those infernal fool-idiot, who still keep on trying to make it clear to you that you are living in the twentieth century. What in thunder difference does it make whether you are living in the twentieth or fiftieth century so long as you are living? There will be a whole lot of these 'century idiots' slip a cerebrine cog, as many of them did in the case of the fifteen puzzle, and then they will be safely stowed away in the Napa Asylum, where it is to be hoped they will remain."

Copper is fairly steady at from 16 to 16½ cents, and no downward tendency. Average for 1898 was 12'03c., and for 1899, 17'61c. per lb.

Eight mines in Montana have paid in dividends to their owners last year the large sum of \$12,598,856 and since their operations commenced, \$34,276,739.

There is no duty on copper, tin, or platinum in the United States. On quick-silver there is a duty of 7c. per pound.

EXCEPTIONALLY RICH.

The following assay certificate on a nugget of gold brought down from Last Chance, Hunker Creek, Klondike, by M. Marks, proves beyond a doubt that some of the richest gold in the world exists on this creek, which is valued at over \$4 per oz.:

MEMO. OF GOLD BULLION,

Deposited in Assay Office, of U. S., Seattle, Washington, February 8th, 1900.

Description—Nugget, original weight,	6'35 oz.
Weight before melting	5'64 oz.
Gold, after melting	5'64 oz.
Value,	\$113 54-20.
Silver	@ 53 .03
Melting charge, net value	\$112 18
Value per ounce	\$20 13 on weight after melting.

(Copy) F. A. WING, Assayer and Charger.

Pure gold is valued at \$20 67 per oz. by the mints generally. This nugget comes very near the standard of purity.

Mining News.

ROSSLAND.

(FROM OUR OWN CORRESPONDENT.)

The decision of the management of the War Eagle and Centre Star mines, to partly close down on further operations until machinery was overhauled and if necessary replaced, has had a depressing effect throughout the camp. That the lay-off is only temporary and for the purpose stated hardly be doubted, in the face of known facts as to the working actualities. Some 400 men have been laid off leaving about 200 men still employed. The manager could give no definite time as to starting up again though it is expected here that a larger force than before will be put on early in the summer, after the proposed alterations are made.

which was the sum netted after the freight and treatment charges had been deducted. The ore went \$28.80 to the ton. It was from the drift on the 125-foot level, which is now in for a distance of over ten feet. The ore on this drift has run as high as \$40 to the ton.

The annual general meeting of shareholders of the Montreal-London Gold and Silver Development Co., Limited, was held to day, a large number of shareholders being present. It was shown by the financial statement that the company has a net surplus of \$146,000, after carrying \$25,000 to contingent account. Mr. Clarence J. McCuaig explained the satisfactory condition of development at the Dufferin mine, one of the properties owned by the company, and the reports were unanimously adopted without discussion. The retiring directors were all re-elected.



B. C. INDUSTRIES—SALMON CANNING—HOT TEST BATH.

On the ninth of Feb, the Le Roi Mining Company discharged about 100 men, which coming so soon after the partial close down of the War Eagle and Centre Star intensifies the position. I also hear that the Hall mines and smelter at Nelson were shut down the same day, and unless changes are made in the regulations, conditions throughout the Kootenay will be rather acute. The eight hour law is no doubt responsible to a great extent for the trouble and to say the least the outlook is rather blue.

The following circular has been sent to the shareholders of the War Eagle and Centre Star mines :

In accordance with the advice of the management at Rossland, as set forth in the accompanying letters, the directors have decided to close down the mines for the present. We desire to add that we have every confidence in the future of the mines, when the plant, etc., is in good working condition.

Yours truly, GEORGE GOODERHAM, President.

TEXADA ISLAND.

The ore from the 400 ft. level of the "Copper Queen" is most encouraging and will smelt like butter. An immense body is struck in contact.

The returns from a carload of ore sent from the Evening Star to the Trail smelter were received by the Manager in the shape of a check for \$662.20,

NELSON.

The clean-up for January of the Athabasca mine in the Slocan shows a total return of \$13,300 for 405 tons, being an average of \$32.83 per ton. The former figure is better by \$1,700 than that of any previous month's run. The concentrates are expected to give an additional profit of \$3,000.

BOUNDARY CAMP.

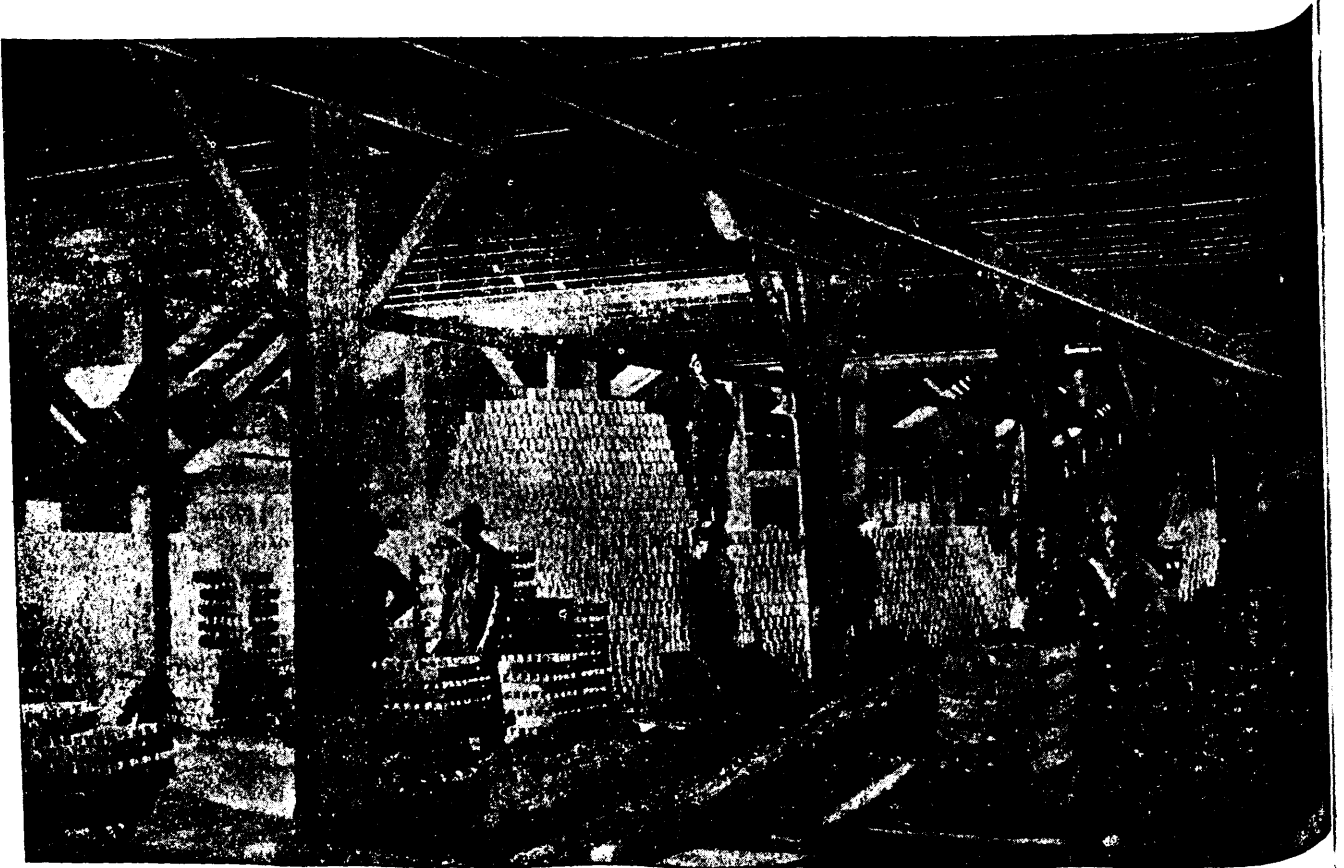
The experiments which are being conducted by Mr. S. H. Johnson, the London metallurgist, on the treatment of Republic ore by what is known as the "Johnson" process, have been eminently satisfactory, although better results are expected. His experiments were made with roasted ores of the Republic mine, and resulted in the extraction of 80 per cent. in two

basis of \$3.25 per day. Shipments will follow in regular order. The effect on New Denver of the resumption of work on the Bosun is most encouraging and thus, with the other mines now operating, promises a good season for this section.

Upwards of 90 men are now employed on the Payne, and the ore shipments are increasing at a rapid rate, averaging now 40 tons per day.

Last week's ore shipments were at the 350-ton figure, and were made up from the Payne, American Boy, Queen Bess, Rambler, Emily Edith, and Arlington. Since January 1st. the ore shipped amounted to 1,218 tons.

The Enterprise is employing 14 men, and expects soon to have a full force. Heavy ore shipments will ensue from this property.



B. C. INDUSTRIES—SALMON CANNING—THE "SOUND" TEST.

hours, and 86 per cent. in three hours' treatment. Mr. Johnson is now proceeding to make tests with treatment occupying four, five and six hours. The process is one of forced filtration, and Mr. Johnson states that the filtration in his experience has taken but one minute, and the washing and displacing of the solution take five minutes.

NEW DENVER.

Operations have been resumed on the Bosun mine. It is the intention to swell the force to the full number. Most of the men are picked miners, and the Bosun will have a good working crew. It is understood the wages paid are on the recent compromise

HOWE SOUND.

We hear the Britannia Copper Co., are working their group with, we hear, good encouragement.

When we have personally examined this property our readers shall have the correct thing with regard to its possibilities.

The projected railway up the Columbia Valley should give a decided impetus to mining in this extremely rich district as there are excellent prospects everywhere only waiting means of transportation to become mines.

SMILKAMEEN.

Mr. R. A. (Volcanic) Brown of the "Sunset" in this camp reports that an experimental shipment to Tacoma smelter, will average \$50 per ton all values.

KLONDIKE.

A recent arrival in Vancouver from the northern gold fields was Mr. J. E. Doherty, one of the representatives of Alex. McDonald, of Bonanza fame. Mr. McDonald is down for the purpose of purchasing machinery, plant, etc., for general machine and repair shops, which they are establishing for their use in the north. McDonald is interested in seventy-four claims on Sulphur, El Dorado, Dominion, Bonanza and Hunker Creeks. Mr. Doherty says that winter sluicing will be adopted generally in the future, so that the miner will not have to wait till the summer to know what the result will be.

The sluicing plant used in the winter, comprises two large boilers capable of running three or more steam plants, together with two engines for working hoists and pumps.

Adjoining the engine and boiler room, is a sluice room, say 16 x 200 ft. The water for sluicing is the leakage caused by the thawing which is collected from the different tunnels by ditches which lead to a reservoir underground and is pumped to the surface by a duplex pump, which discharges in a reservoir at the lower end of the sluice room. A five-inch centrifugal pump lifts the water from a second and third tank, both connected with the first reservoir at a slightly higher elevation, thus being free from sediment and forces it to the head of the sluice boxes, seven in number, with 100 feet of iron-shod riffles. The boxes are 11 x 18 inches and 12 feet long and are set in a 10 inch grade, so that the water rushes through carrying most of the bed-rock and gravel below into a seven-foot grizzly, made of $\frac{1}{4}$ x 2 inch steel bars, set $\frac{1}{8}$ inch apart and moving at the rate of 75 to 80 strokes per minute. The bed-rock and gravel are thus cleansed of sediment and shot out into the tailing car. This car is run up an incline to a height of 60 feet and dumps on either side by a cleverly arranged lever and trigger. Thus the ever-perplexing tailing proposition is settled, and at a saving of several men's labor. Two cars are along the line of boxes and the heavier tailings forked out into them and run out, and the car returning by the gravity system. The water is kept warm by 72 feet of steam-pipe running through the upper boxes, utilizing the exhaust from the boilers. The men's comfort is provided for by means of a hot air box, the warm air being collected from over the boilers and fanned to the sluice room, being at no time less than 60 degrees above zero. In this room four men are employed, two constantly shoveling into the sluice boxes, one running the car from the shaft to the platform and the other attending to the brakes on the tail shute. It was feared at first that the sediment in the lower tank would prove troublesome; for that reason two tanks were put in, and as fast as the sediment collected in one the water is taken from the other while the first can be shoveled out. An average of 1,600 to 2,000 tons of gravel is hoisted every twenty-four hours, 50 men being employed at present, and working day and night. The whole plant is lighted by electricity, including the tunnels. The inventor of the scheme, Mr. Stiles, is an old-time Colorado miner, who came into the Yukon in 1895, and since the Klondike discovery has been associated with Mr.

McDonald in many large mining deals. At present he occupies the position of general mining superintendent over all Mr. McDonald's mining property, as well as a co-owner in some. Mr. McDonald's success is largely due to having such a man as Mr. Stiles, whose long experience with frozen ground, together with his mechanical genius, has made him a most valuable adjunct. The present property which the plant now stands on was one year ago let out on lays and abandoned after being worked a short time; so were a number of adjoining claims on Sulphur creek, and claims almost anywhere could have been bought for a song. Now Sulphur creek property is considered to be the leading mining property in the Dawson district. As far as prospected it has proved itself to be good from Discovery to No. 65 above and from Discovery to No. 95 below. Very little or no prospecting has been done on the hillsides or benches on the creek, the work being mostly confined to the creek. About 50 steam-thawers are in operation at the present time. Dominion Creek was in the lead last winter, but this winter Sulphur seems to have the preference; although there are about 40 steam-thawers on this creek and benches from Upper Discovery to No. 133 below Lower Discovery. Excellent pay has been found on No's 14 and 21 above Upper Discovery. The benches below Lower Discovery are being quite extensively worked; also especially on the left limit. Steam-thawers can be seen puffing smoke all the way from Lower Discovery to 172 below. Excellent pay is being taken out on the hillside claims on the left point between No's 133 and 150 below Lower Discovery as high as \$62.50 to the cubic yard.

While there are not many steam-thawers on Gold Run Creek, yet it is being quite extensively worked from the mouth to No. 43 above, and if the dumps turn out as good as the pannings it bids fair to become a rival creek of Sulphur.

While there are about 60 claims on Eldorado Creek only about 16 of them are being operated; the remainder will probably be worked during the summer seasons, the owners of same being on the outside. Bonanza Creek is pretty much like Eldorado; a great many of the claims are in the hands of English people who will probably commence active work as soon as they can get in the necessary machinery. Bonanza Creek benches, on the left limit from the mouth of Eldorado to 60 below Discovery, are turning out wonderfully well; it is safe to say that \$2,000,000 of last year's output was from those benches, including the Eldorado benches, French Hill and Gold Hill.

Hunker Creek, being one of the three principal creeks since the discovery of gold in the Klondike, and which was thought to be quite spotted in places, is being quite actively operated this winter, the pay streak being located down in the seventies and even further, where it was supposed the gold existed mostly on the benches.

THE NETTIE L.

Situated on a mountain about $1\frac{1}{2}$ miles from Ferguson is the Nettie L., a wonderful mine, owned by the Great Western Mines, Limited, a Revelstoke Company, in which many of the cattle kings across the Rockies in the ranges of sunny Alberta own big interests. The Nettie L. is one of a group known as the Pool group from W. B. Pool, its locator, who is now manager of the Nettie L. and Maybe mines on the group.

The Nettie L. has for the amount of development done shown up a body of ore unequalled in Kootenay.

both for extent and value. The workings consist of a crosscut tunnel (No. 1), which has been driven into the lead, which it cut at 160 ft., proving it to be at that depth 30 ft. wide and consisting, as at the surface of quartz and carbonates, iron pyrites, galena and grey copper ore.

Drifts have been run on the vein about 75 feet each way, and in addition there are two crosscuts and a 25 ft. winze. Stopping is now going on in these workings, and a considerable quantity of high grade ore is already sacked up in the ore house and a good deal more is in the bins.

Some 400 feet lower down the hill No. 2 tunnel is now being driven to catch the lead at nearly right angles at that depth. It has been driven in over 500

feet through a black graphite schist, and has struck the footwall of the No. 2 lead, after cutting 60 feet of the iron pyrites which parallels the ledge in the upper workings.

The ore in the upper workings has averaged on assay as high as 590, 740, 961, and even 3,170 oz. of silver to the ton, and the iron pyrites has given a pretty constant value of \$8.00 to the ton in gold.

The Great Western Mines, Limited, whose head office is in Revelstoke, (Secretary, A. H. Holdich) own as well as the Nettie L. and Ajax, a group on the north-east arm of Arrow Lake, where an immense body of concentrating ore has been shown up for development right on the edge of the lake.

LONDON, ENG. FINANCE.

Bank rate is now down to 4 per cent.

Grand Trunks are in favor of becoming an especially strong market. American Rails make a good second.

The Amalgamated Copper Co. are still attempting to corner the market. The combiner's capital is to be doubled. With the falling off of the demand both in England and Germany, and continuous fluctuation of copper, we fail to see where they will come in.

The chief organ of the Transvaal Government, the "Volkstein" is making the Witwatersrand shareholders feel rather uneasy, by hinting at the destruction of the mines, together with the city of Johannesburg, so soon as the British should enter the Transvaal.

The Bank of British North America has declared a dividend of six per cent., payable in April, besides transferring £25,000 to the reserve fund and carrying forward £6,000.

Give the London Stock Exchange the least chance, and it is as optimistic as the combination of several hundred personifications of Hope can make it. Heaven knows there has been but scant materials for cheerfulness in the financial outlook recently, and yet the position of things on 'Change has materially improved. The monetary situation has been relieved by long delayed consignments of gold to the Bank of England, and just a little more of business in the same direction and the New Year's limited liability promotion will be upon us in full force.

The number of new companies, etc., floated in this country during 1899 numbered 468, with a total capitalisation of \$885,581,500. In 1898, the figures were 500 issues totaling up to \$935,421,125. In 1897 there were no fewer than 621 of these new public issues. There

is evidently, therefore, a pretty stiff and steady decline, but in looking at the 1897 total it must not be forgotten that in that year the cycle boom was at its height, and cycle company prospectuses came in by every post.

The figures for December also show a diminution upon those of the previous month. In November thirty-seven companies, etc., with a capital altogether of about thirty-two million dollars, December shows up with but fifteen flotations. It is true that the entire capitalisation equals nearly sixty-two million dollars, but it must be remembered that nearly fifty millions of this is contributed by one issue, the Calico Printers' Association. The balance of the capital-total affords the best comparison.

Mention of this latest gigantic trustification reminds one that all through the year there has been a strong, and, on the whole, successful tendency towards huge aggregations of capital, notwithstanding the diminished totals shown in the first paragraph. Some of these ventures have proved something in the way of white elephant. A case in point is the Amalgamated Copper Company of New Jersey, which is included in the above totals, because it was placed over here for partial subscription.

Many of the members of the Stock Exchange and their clerks have volunteered for the war, the committee of the "House" has announced that this year's subscription will not be charged to them during their absence, nor will entrance fees be charged upon those clerks who replace those who have gone to the front. Capel Court has come out well over this campaign. It has given men, goods, and money—having, perhaps created a record in the last class by Warnher, Bert & Co.'s donation of \$250,000.

If there had been no war, the output of gold for the year from

the Witwatersrand it is believed would have exceeded a hundred million dollars. This would be raised within a radius of twenty-five miles from Johannesburg, and, in fact, more than three-quarters of it would be produced in the twelve mile central section stretching from Knights to the Langlaagte Estate.

General mercantile prosperity was very marked throughout 1899. In ship-building the output equalled over sixteen hundred thousand tons. Railway, tramway and electric lighting extension has been of a more than usually vigorous nature, especially the electric lighting, which has been put more and more to domestic use.

Building operations have been on an important scale. The Iron and steel industries show an increase of thirty million dollars in their year's exports. The coal trade has boomed and, much to the disgust of the thrifty housewife, retail prices have boomed as well. In the wholesale clothing trade a record year has been registered—the war stimulating demand here considerably. In the leather trade overtime has been universally worked during the last six months.

And so on, through all the tale of trades and industries almost without exception. The New Year also, notwithstanding the uncertainty of the political outlook and dear money gives promise of a continuance of this prosperity. Of course it must fall over into a slump by-and-bye, but that is not an imminent danger.

Reports from all branches of industry speak of 1899 as above all a year of buoyant trade. The exports for the year as shown in the Board of Trade totals, exhibit an increase of 9½ per cent., and the import 3 1-10 per cent. over 1898—the 1899 figures being \$110,530,000 and \$ 73,484,655 respectively.

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MANAGING EDITOR . . . T. R. HARDIMAN.
SUB-EDITOR . . . C. R. GRAVES, M.E.

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Who keep your native seats
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The fighting man's defeats;
Ye turkey-carpet warriors
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Of what could be accomplished
If things were left to you:

My paper-map civilians!
One cannot but admire
With how sublime a courage
You face the club-room fire;
With what prophetic wisdom
You speak the warning word,
Choosing the happy moment
When things have just occurred!

There runs an ancient proverb,
Good for the swollen head,
How fools rush in serenely
Where angels fear to tread;
But here the common mortal,
The stroller down the street,
Knows better than to follow
Your rash, intruding feet.

Is not our task enough, sirs,
To bear the present hurt,
That you on wounded honor
Must dump your little dirt?
You from your padded arm-chair,
Safe in a sea-locked land,
While those you smirch are holding
Their lives within their hand.

When we are short of Critics
To sum the final blame,
We'll ask a fighter's verdict
Upon a fighter's game:
But you who pass opinions
On work but half begun,
Please give us your credentials,
Show something you have done!

—Punch.

Canadian Pacific Railway Co., have declared dividends for the half year ending Dec. 31, 1899, as follows:—On Preference Stock 2 per cent. Common Stock 3 per cent.

Finance.

SLOCAN.—The total ore shipments from January 1, '99 to June 30, '99 were 15,113 tons. From July 1, to December 31, '99 4,310 tons. From January 1, 1900 to February 10, 1900, 1667 tons, the Payne mine heading the list with 875 tons.

The Slocan labor troubles are it is stated, settled by the Miner's Union agreeing to accept \$3.25 for the eight hour day.

LONDON ENG. RECENT REGISTRATIONS.—Anglo-Klondike Mining Co., Ltd., Capital, £10,000 in £1 shares.

STOCK EXCHANGE.—The favorable war news has created quite a stir in Kaffirs, excitement running high on the news of the relief of Kimberly. Both the Banks of England and France have lowered the rates of discount. Canadian and American Rails have advanced and are in favor. B. C. Three-per-cents. and Canadian Government issues are higher, and Hudson Bay shares are also in request.

B. C. AND KLONDIKE QUOTATIONS.

Alaska Goldfields, ¾.
Athabaska ¾.
British America Corporation, 15s. 6d.
B. C. Development Assct, 1½
B. C. and New Find Goldfields, ½
Dominion Mining Development and Agency ½.
Duncan Mines, ¾
Hall Mines, 4s.
Klondike Bonanza, ¾
Le Roi 5 and 7-16.
London and B. C. Goldfields, 1¾.
McDonald's Bonanza, 15-16.
New Goldfields of B. C., 1 and ½.
Queen Bess Proprietary, ¾.
Velvet, 1½
Whitewater Mines, ½
Yukon Goldfields, (new) 1 and ¼.
Ymir Gold Mines, 1 and ¼

Shares in locally registered companies dealt in in London, (dealt in in multiples of 500 shares) Alf. Gold Mining Co., \$1; Dundee, \$1; War Eagle, \$1, Price ½s.

LATEST POINTS.—Bank Rate, 4 per cent. Open market rate three months bank bills, 3½ per cent. Silver, 27 7-16d. per oz. (bar) Standard. Copper, £71 per ton. Pig Iron, 68s. 8d. Tin, £122 10s. Lead, £16 10s. Consols, 100¾. Canada Three per cent., 101. British Columbia Three per Cent. Inscribed stock, 94. Canadian Pacific Railway Shares, 96¼. Bank of British Columbia, 17. Bank of British North America, 61. Bank of Montreal, 510. Hudson Bay, 22½.

A great deal of activity in British centers is being caused by the war. In the iron and steel trade government contracts for all sorts of bridge, railway, and other work are being rapidly given out, and quick deliveries are wanted. Besides, there is a large number of orders outstanding from 1899, and, what with the rush of work and the continuance of high prices, even the coal difficulty is being taken very calmly.

The Westralian gold production for 1899 amounts to 1,176,312 ounces, or fifty per cent. better than 1898.

LOCAL STOCK MARKET.

	PAR VALUE.	PRICE
Alberni Con	1 00	5½
Alberni Mountain Rose..	1 00	5½
Athabasca	1 00	32
Big Three..	1 00	6½
Cariboo Hydraulic	5 00	\$1.40
Cariboo McKinney	1 00	83
Canadian Goldfields....	—	6½
Crow's Nest Coal.....	25 00	36 00
Dardanelles..	1 00	8
Deer Park	1 00	2
Evening Star	1 00	8¾
Grand Forks of Bonanza	25	50
Hall Mines	1 00	—
Iron Colt	1 00	—
Iron Horse	1 00	—
Iron Mask	1 00	50
Knob Hill	1 00	80
Le Roi	£5	£5
Mineral Hill	1 00	05
Minnehaha	1 00	12
Monte Christo.....	1 00	4
Montreal Goldfields....	1 00	8
Morrison	—	5
Noble Five	1 00	8
Novelty	1 00	03
Old Ironsides	1 00	—
Payne	1 00	1 06
Rambler Cariboo	1 00	49
Rathmullen	1 00	05½
Slocan Star.....	50	—
St. Elmo	1 00	4
Van Anda.....	1 00	6
Victory-Triumph	1 00	05½
Virginia	1 00	—
Waterloo	10	10
War Eagle	1 00	1 59
White Bear	1 00	3
Winnipeg	1 00	25

The Metal Market.

UNITED STATES.

	SILVER.	COPPER.	LEAD.
Jan. 1 ...	—	—	—
" 2 ...	58¾	16 50	4 75
" 3 ...	59	16 50	4 70
" 4 ...	59	16 50	4 70
" 5 ...	59½	16 50	4 70
" 6 ...	59	16 50	4 70
" 8 ...	59	16 50	4 70
" 9 ...	59	16 50	4 70
" 10 ...	58½	16 50	4 75
" 11 ...	58½	16 50	4 75
" 12 ...	58½	16 50	4 75
" 13 ...	58½	16 50	4 70

SILVER.—The market has been steady and dull, showing only small fractional changes during the week and closing at 26¾d, in London.

COPPER.—Prices remain unchanged from those quoted last week. Lake copper, 18½c. Electrolytic in cakes, wirebars and ingots, 17 @ 17½c. Cathode, 16¾ @ 16¾c. Casting copper, 17c. nominal. The foreign market is still dominated by the difficulties between England and Transvaal. London is quoted, English tough, £78 15s. @ £79 5s. Best selected, £80 5s. @ £80 15s. India sheets, £83 @ £83 10s.

LEAD continues in good demand and no change in prices. New York being quoted at 4.55c. @ 4.60c. The foreign market has been irregular but the tendency is upwards. Spot is quoted at £15 17s. 6d. @ 16l. 2s. 6d. for Spanish. and £16 5s. @ 16l. 7s. 6d. for English, while futures are at a discount of 5s. to 10s.

SPELTER.—The disquieting news from the ore-fields stirred up consumers and a good business has resulted at stiffening prices. New York is quoted at 5.45 @ 5.50. The foreign market is also firmer, and again higher good ordinaries being quoted at 22l. 12s. 6d. Specials 22l. 17s. 6d.

Answers to Correspondents.

T. J. S.—(1) We thank you for remarks re the Journal, (2) Your proposition is a good one, and we shall endeavor to carry out the business in the way you advise.

G. R. TORONTO.—Our advice under the circumstances is, hold them tight, you bought at the bottom of the market and the property is good.

ENGINEER, LONDON.—We will see what can be done and write you personally.

F. CRAWFORD, JERSEY CITY.—(1) We won't take the responsibility of advising you to come here for the purpose stated, unless you have a reserve fund to fall back on. (2) Yes, you can doubtless obtain work. (3) You can get all necessary tools and outfit here. (4) \$500 each at least.

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