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V9B 5N2
March 5,1989

Mt. Sicker Camp
827344
92B/13

Mr. Gary Wells
Senior Project Geologist
Minnova, Vancouver, B.C.

Dear Mr. Wells:

Further to our conversation of several weeks ago concerning my research on Mount Sicker and the surrounding area, I am enclosing a few items which you may find to be of interest. I think we both agree that the geology of the Mount Sicker area includes a number of puzzling aspects and I believe that I have many clues that would be of use to you in your work.

As also discussed, I am enclosing a copy of my son's resume in the hopes that you might be interested in employing him in this year's exploration work. While he's just 21 I believe that some of his training and experience might be useful to you. He is a trained Army Field Engineer and has some knowledge of explosives and their use as well as in the use of wheeled equipment and heavy vehicles. If you wish to speak to him about the possibilities of employment, you could contact me at 478-8995 in Victoria and I could arrange for him to call you from Ontario prior to his arrival here in the third or fourth week of April.

I'd like to thank you once again for taking the time to discuss Mount Sicker with me. I enjoyed our conversation very much and would be pleased to show you my research work at a convenient time either here in Victoria or in Chemainus after you come over to start the exploration season.

Yours Truly,
Darryl E. Muralt

Nov. 1901

The B. C. Mining Exchange and Investors' Guide

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MOUNT SICKER CAMP, V. I.

In the earth and underground
Full a mile or more below
Where the busy Gnomes abound,
Where their strange gold houses grow.

Where the dusky Gnomes sit glum,
Rabbit-faced, knock-kneed and low,
Where the days may never come,
Where the nights may never go.

There, with gleaming rod in hand,
Smitten rock and earthquake shock,
A smiling plain, a gladdened land,
A Moses and the desert rock.

The visitor to Mount Sicker and the surrounding country cannot fail to be profoundly impressed by the mineral wealth of the district, the promise which it gives of reward to the investment of capital, and the part which those mines, opened out and developed, are bound to play in the future, not only in their own locality, but in the coast cities as well. Situated in a position the most advantageous for the shipment of ore and the obtaining of supplies of all kinds, and most happily so for the successful operation of a smelter, the most skeptical is forced to believe that the next few months are bound to witness an influx to the district which has indeed already begun, and which will result in the upbuilding of a thriving and prosperous town in a district that is already past the prospective stage of its history. A smelter at Osborne as well as Maple bay is now an assured fact of the near future, and the abundant and contiguous supply of iron, limiter, coal and coke, with direct and special railway connection with the mines and direct ocean shipment from the smelter, the product can be handled so inexpensively that the lowest grades of ore will give

PROFITABLE RETURNS,

which the high-grade ore now being shipped to the smelter at Tacoma, will prove all the more remunerative. And so extensive are the finds, not only on Mount Sicker, but throughout the canyon and on the neighboring Mount Brenton, that the district affords many opportunities for the investment of capital quite as promising as were the now profitable Lenora and Tyee mines. Quite recently, prospectors in Mount Brenton claim to have made finds which have proved beyond peradventure, that she is as well endowed with mineral wealth as her neighbor that has so well repaid the efforts spent in development there, and it is a shrewd guess that when the smelter at Osborne bay becomes a reality, the narrow-guage road now operating the Lenora will be supplemented or replaced by a wide-guage road along the banks of the Chemainus river, where the grade is a regular low per cent. one to the bay eight or ten miles distant. The ore could be economically conveyed to the road from either side by wire-rope haulage, and in many instances the mine could be operated by tunneling from a level that would enable them to dispense with shaft and hoist and allow the ore to be loaded directly into the car. This system is already in use in the Lenora, the management of those details is due to Mr. Croft, its manager. Mr. Croft has been from the first the promoter of the district, and his success in management has been due not to fineness in the manipulation of factions, but in placing a strong shoulder to the wheel.

The Chemainus river itself, with its current of fully six miles an hour, would be easily available to furnish an inexpensive motor power for the operations of claims at almost any point in the district. Thus it will be seen that many natural advantages offer their assistance to the working of the mines, entirely obviating many of the difficulties met with in other mining localities, not the least of which allows the winter operations to be carried on with comparative comfort. Conditions such as these render the mines at least 25 per cent. more valuable than equally rich ones less advantageously situated, and guarantees that their development will be correspondingly more rapid.

Although the Mount Sicker mining district has been so recently opened, the place is already assuming the proportions and

APPEARANCE OF A THRIVING TOWN,

and offers to the professional man, the tradesman, and the merchant, good inducements at present with better in prospect. At the present time there are in course of erection at the mines a school-house and at least one church as well as a saw-mill to meet the demands of the mine and the carpenter in the erection of the rapidly rising town. A first class hotel has been put up by Mr. Croft himself, who anxiously encourages all legitimate industry. Many of the miners' families reside in the town, in homes a little more than comfortable. As in the course of his visit, the Exchange man walked down the mountain side from the Tyee, amid the gathering shadows of night, the musical notes of

MORE THAN ONE PIANO

floated upwards to his ears from the village below. About 150 men are employed in the Lenora alone and about 75 in the Tyee, while many more are employed in opening out or doing assessment work on the numerous other claims.

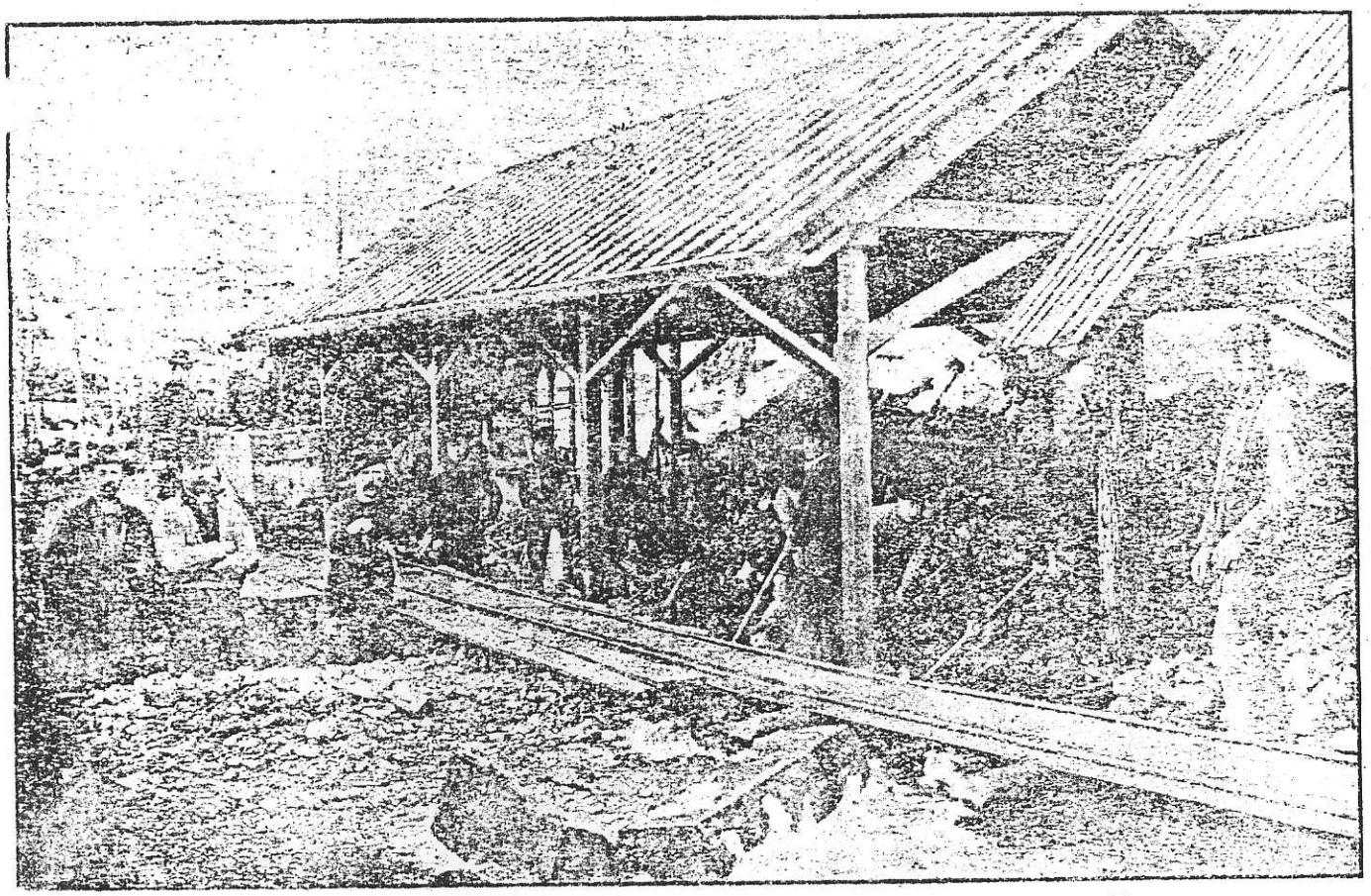
The Lenora mine is close to the townsite, and is the best developed property in the district. It is situated on the east banks of the Chemainus river at a distance of about seven miles from the E. & N. station of Westholme and is connected with it by a narrow-guage railroad, on which two engines are engaged in hauling ore to the smelter. The ore being shipped by the company runs about 16 per cent. copper with a gold value of 4 to 19 ounces and silver 4 to 10 ounces. The copper usually occurs in the form of a rich copper-sulphide, a very convenient form for smelting purposes.

THE DEVELOPMENT WORK

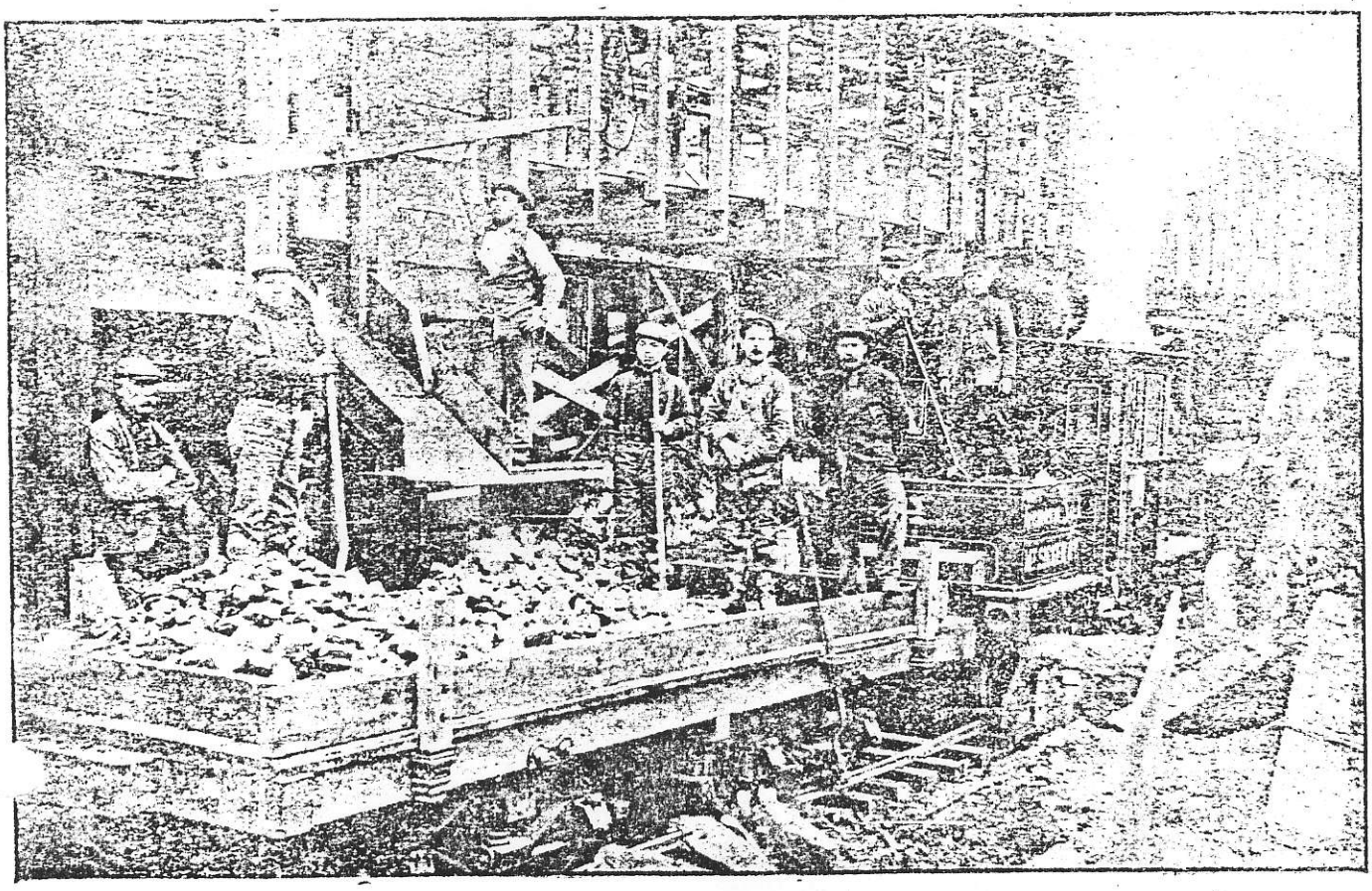
done on this property consists of three tunnels at different elevations with cross-cuts to explore the dimensions of the ore body. In the first of these, called No. 1, the main tunnel is over 500 feet of cross-cuts. It is carried through 22 elevations or a height of 200 feet, and runs due east along the course of the vein which varies in width from 3 to 40 feet. The ore formation is a very soft rock, and very easily worked. Tunnel No. 2 also runs due east a distance of 340 feet and has four floors. Here, at a distance of 30 feet from the entrance, was first struck the rich vein of ore which has been so lately followed through the entire length of the Tyee. Later it was again met with in No. 1, at a distance of 300 feet or near the Tyee claim, and again at the bottom of the winze, 40 feet lower than No. 2. Where first met with this vein was 40 feet in width, but at the winze its width is as yet unascertained. The whole claim has thus been proved to a depth of 200 feet, and, if copper follows its usual course as in other countries, its dimensions in this body alone will not fail to make it practically inexhaustible. Next in order

COMES THE TYEE,

which lies directly in line of the Lenora ore-body, and carries practically the same grades and proportions, the last strike of the vein mentioned, however, being of unusual richness. It has thus far been explored to a distance of 16 feet and on the outer edge is to be seen the graphite formation, the sure leader to gold in this district. The last strike, however, has shown some indications of a divergence, which if followed, would lead this vein of ore through the Yankee, instead of the Richard III, or diagonally through both. So far, little can



LENORA SORTING SHEDS.



LENORA MINE—NEW SORTING SHED AND ORE BUNKERS.

be definitely stated, however, but in going through the district the numerous out-croppings soon convince the visitor that it contains many, or at least several other veins of ore and that the question has ceased to be one of prospect, and now means opening out and development with assured returns. On the same vein of ore as the Lenora and the Tyee, and below the Lenora are situated the Key city, the Victoria and the Susan, the property of Mr. Dier, all of which have shown good evidences of being equally as profitable as the best, and on which the opening out process is being carried forward at the present time. The Key city is also making a good showing in the work being done as well as many others that would require too much space to mention. Indeed, just as a few years ago, the question of the existence of these same mines was a matter of conjecture only, so now, nothing but conjecture can be made as to what will be the result or what their magnitude when Vancouver Island opens her treasure houses, and pours her wealth steadily and continuously upon the world's markets. Certainly the opening out of two or three other such mining centers as the Mt. Sicker district would in a few years turn the city of Victoria into a veritable bee-hive of shipping and manufacture.

On another vein of ore, but situated close to the Lenora and the Tyee is the

QUEEN BEE GROUP

which is composed of the following claims, viz., the Queen Bee, the York, and what are known as the Dot and the Georgia fractions, all in close proximity to the Lenora and the Tyee mines. They have an elevation of upwards of 1,200 feet. These properties all lie in a schist formation, a part of the same series, and running parallel to the schist bodies of the Lenora and the Tyee. This belt is about a mile and a half wide and runs from Alberni canal right across the island to the Gulf of Georgia. On the Queen Bee there are three distinct veins of schist, all running parallel to each other, the widest of these being almost 172 feet across.

These veins of schist run almost due east and west and have a "dip" to the north of about 20 or 30 degrees. They lie between walls of diorite to the south, and what might be termed as "diabase" to the north. In the widest belt of schist two veins appear having a width of 14 and 15 feet respectively, being separated on the surface by what appears to be an overflow of diorite, whose presence here is evidently due to some surface disturbance only, as in the shaft which is sunk some distance below these surface showings, no diorite has been met with. Mention might be made that precisely the same thing occurs in the Lenora and the Tyee. The above is in itself a sufficient reason to conclude that these veins will unite with depth and become one solid ore-body.

The development work on this claim consists of two tunnels, one of 40 feet and the other 20 feet in length. In the longest of these a cross-cut was driven which shows the ore body to be at least 15 feet wide, with neither wall in sight. A short distance below this a shaft has been sunk to a depth of 82 feet, a drift runs for 108 feet and a cross-cut of 25 feet all in schist, which shows strong indication of copper. It is estimated, judging from the surface showing of the Seattle, an adjoining claim, within 200 feet of the Queen Bee shaft, that the cross-cut will have to be continued a further 30 or 40 feet in order to meet the vein of ore. It is quite safe to predict that a valuable body of ore will be encountered when this work is completed. The shipping facilities are favorable, as a railway, (narrow-guage) runs within 300 feet of the property. No. 2 shaft has been sunk to a depth of 50 feet, and is distant about 400 feet from No. 1 shaft. In sinking this shaft, three ore-shutes have been passed through, each having the characteristic 'dip' to the north. The first of these showed only slight indications of copper, the second very much stronger, while in No. 3 at a distance of 22 feet from the surface, the showing was 3.3 per cent. of copper, with gold and silver values.

The capping of this vein is upward of 100 feet wide, which has been determined by an open cut. Some very fine surface showing is to be seen on the York, Nome and the Georgia fraction, all carrying sulphide copper ore. No work of any account has been done on these properties.

THE LORD ROBERTS.

The Lord Roberts is situated on Mount Richards, a distance of about six miles from the Mt. Sicker claims. The formation is the same on this property as on Mt Sicker, being a continuation of the same series of schists, and has actually been traced the entire distance. The width of the vein on this property appears to be over 150 feet. The development work on this claim consists of a shaft that has been sunk to a depth of 74 feet. It is considered that the capping has been only cut through, though several bodies of ore, a heavily mineralized rock have been passed through during the continuance of the work. The rock (schist) now coming out shows a considerable quantity of sulphide copper, and is very similar to what was passed through on the Lenora and the Tyee before their ore-bodies were uncovered. The owners confidently expect to strike first-class shipping ore before the 100 foot level is reached. The company have installed a steam drill, manufactured by the Sullivan Machine Company, of Chicago, which appears to be doing good work. A sixteen-horse power boiler supplies the power for the drill, and a steam hoist as well.

The property is very conveniently situated as it is only two miles from Maple bay, on the Gulf of Georgia, via a good wagon road. Also the proximity of this property to the contemplated smelters (two) to be built by the owners of the Lenora and the Tyee mines, absolutely guarantees the cheapness with which its ore can be treated. It is only a question of time before all these properties will be numbered amongst the shippers.

The Queen Bee group and the Lord Roberts are controlled by the Vancouver and Mt. Sicker Syndicate, Limited, whose offices are in Vancouver, B. C.

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ELECTRICAL ORE FINDER.

In the Slocan, an electric ore finder is being used with considerable success as several promising ledges have been located by it. The device has nothing in the nature of a divining rod about it, but it is based on scientific principles. It is true that it is something new, but if it can be used to advantage there should be no prejudice against it on that account. It is claimed that the ore finder will not only indicate the approximate quantity of ore in a ledge but will also approximately give its depth below the surface. It should therefore be valuable in locating ledges which are covered by alluvial and gravel deposits. The method of operating the apparatus is as follows: Rods are driven into the earth at any given distance apart, which may be 100 or several thousand feet, and these are connected by wire on the surface. The electrical current is sent over this wire from one terminal to the other. The current will make a circuit through the ground so as to get back to the point from which it started. In making the circuit the electrical current obeys the immutable law of all electric currents of moving along the line of the least resistance. If there is a conductor in its path more favorable and easier to traverse than the earth, it will follow it. A vein of ore of large body would form this conductor. With the apparatus are delicate instruments which measure the power of the resistance. The posts or terminals are moved a number of times over the area which is being prospected and by this means the exact location of the metallic body is determined. While the principal is not new, it is the application of it that is. It is simply the application of the idea of an electric circuit to the finding of minerals and there is nothing that is mysterious or strange about it. The same principal is used on telegraph and telephone lines and on electric railways.

--The Nelson Miner.

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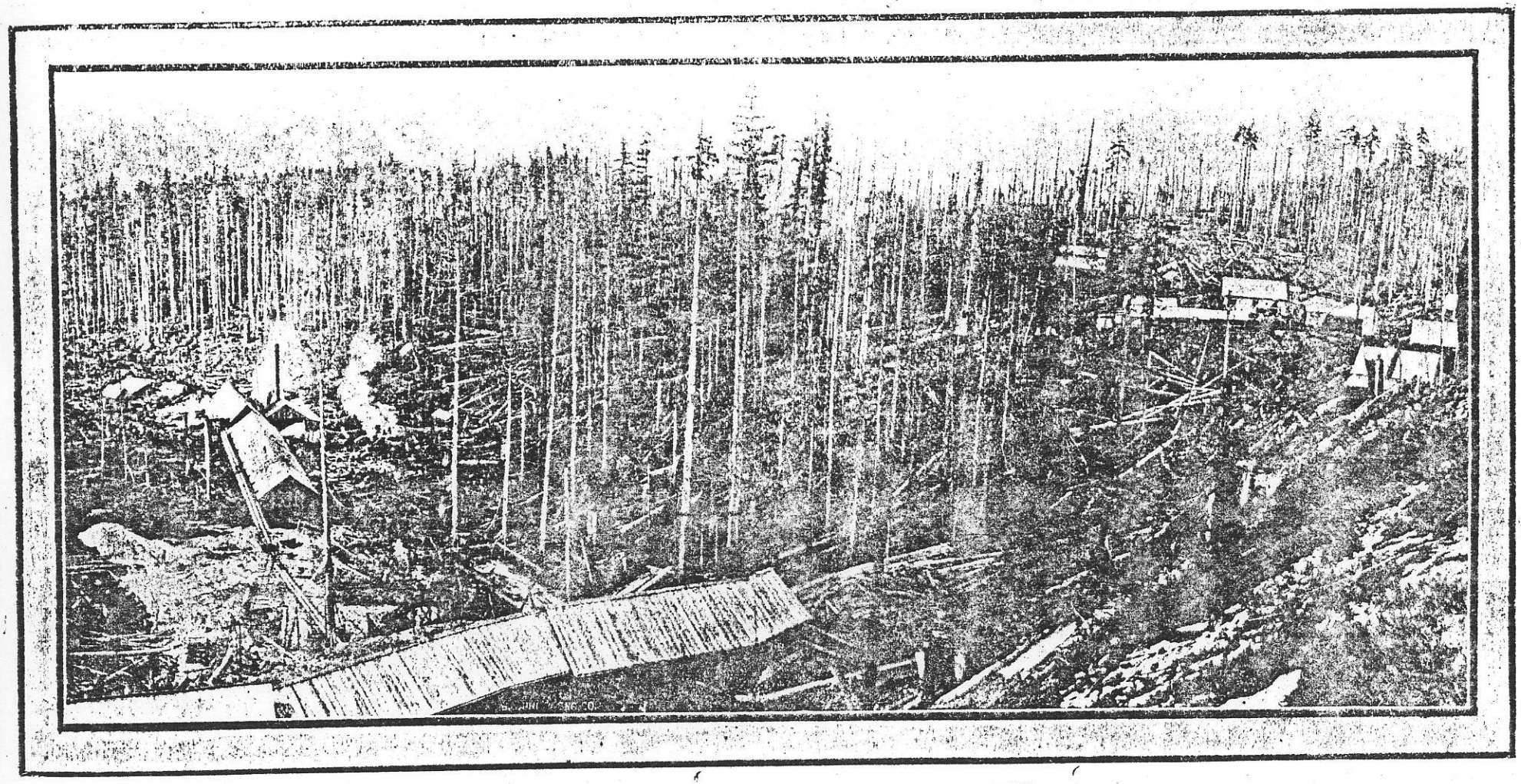
Mining around Kamloops is dull, but the future of this much abused camp is excellent.

The work on the Chieftain is being done by contract in order to prove the vein and ascertain values, etc. On the surface cross-cutting has disclosed a length of 700 feet. The work below the surface is confined to drifting and cross-cutting on the No. 2 shaft at 52 feet. Work will be done on the No. 1 shaft shortly.

The owners of the Iron Mask are experiencing the gratifying sensation of having their judgement vindicated. The shaft is down about 300 feet on the vein, which still shows four feet of high grade ore, while the values of the lower grade are increasing. About a car a week will soon be the shipments and this without stopping or shipping anything but what is removed in the ordinary way of work. The average value so far is 15 per cent. copper and $4.00 in gold.



GENERAL VIEW, MTS. SICKER AND BRENTON IN DISTANCE.

sufficient washing, prussian blue came down, but we took care to run on caustic soda, which broke it up according to the equation.

$$3\ Fe\ Cy_2\ 12\ Fe_2\ Cy_6 + 13\ Na\ OH = 3\ Na_4\ Fe\ Cy_4 + 2\ Fe_2\ (OH)_6$$

and any free acid was neutralized at the same time. The solution was then strengthened with fresh KCy and run through the zinc boxes.

We never succeeded in reaching a normal consumption of KCy, owing to the fact that the ferrous hydrate precipitated in the vat by the caustic soda acted on the cyanide to form caustic potash,

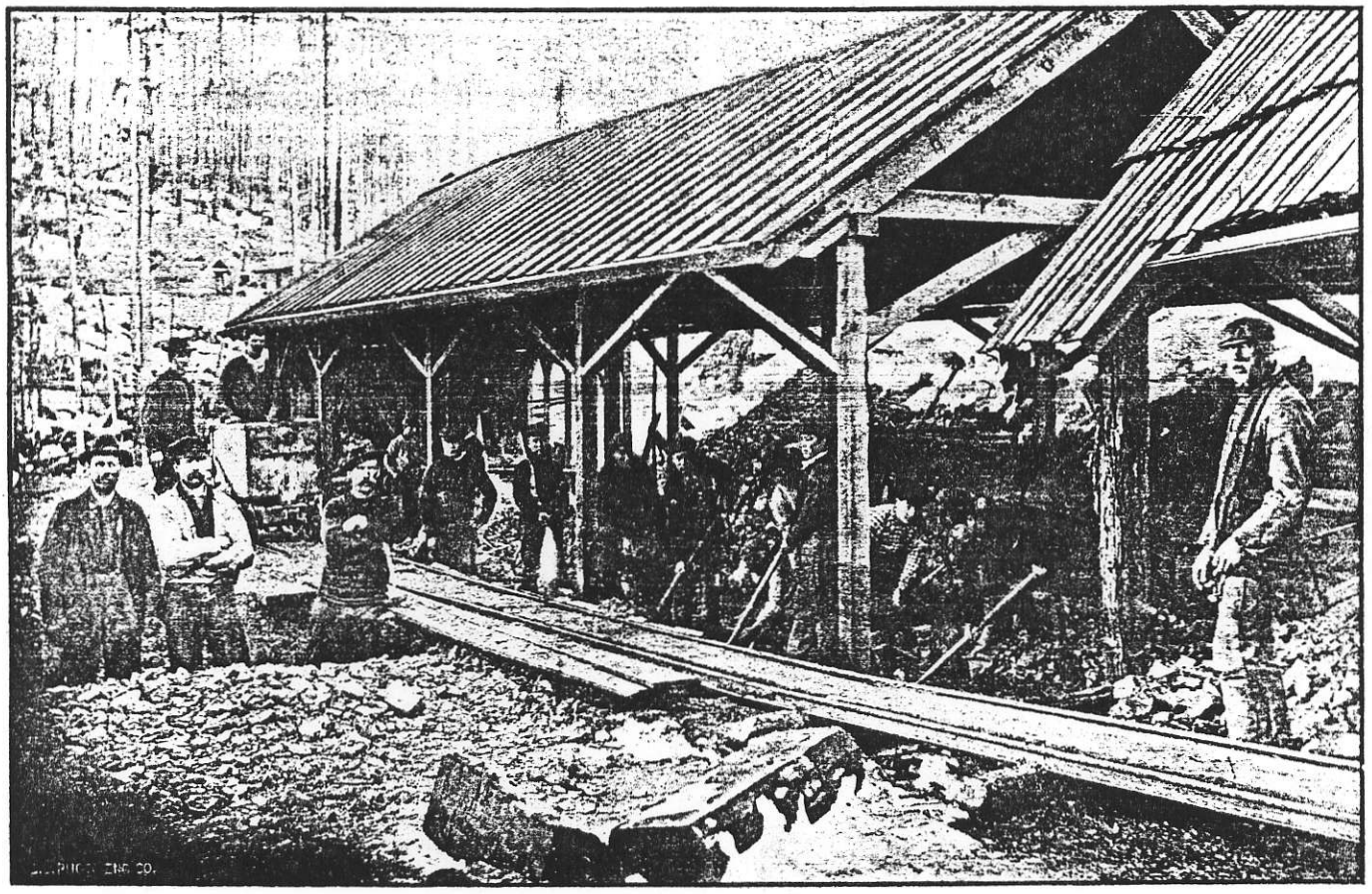
$$Fe\ (HO)2 + 6\ KCy = 2\ KHO = K4\ Fe\ Cy2$$

and this difficulty could not be got over. The ferric hydrate has no action on cyanide, and fortunately, ferric sulphate is the principal sulphate formed when iron pyrites undergoes oxidization. Covering the bottoms of the tailings vats with a layer of lime effectually stopped the iron hydrate from reaching the zinc boxes, and the solution came through quite clear. The slimes in many dams were far more acid than the tailings, not through their containing more pyrites, but owing to the fact that the rain water washed the iron salts out of the tailings, and they were absorbed by the slimes, which, after a stretch of dry weather became ready to absorb more acid, and no matter how heavy the rain was, it never washed any acid out of the slimes. The lumps of slime that got into the vats along with the tailings invariably went out rather than they went in. The slime lumps went into the vat comparatively dry and absorbed gold carrying cyanide solution, and no amount of washing would wash that solution out. Such lumps of slime when broken showed concentric rings of prussian blue which, however, very seldom penetrated more than an inch. Some managers used to break up the slime in fine lumps and mix with clean tailings. This might answer where the slime was dry and consisted of very fine quartz sand, but with clayey slimes I doubt very much whether it is not a waste of time owing to the absorption of solution by such material.

THE MINES OF VANCOUVER ISLAND.

THE MOUNT SICKER DISTRICT.

DURING the past year the area known as the Mount Sicker district, on the East coast of Vancouver island, has been the scene of much mining activity and development. The result of operations has been to justify, in the most satisfactory manner, the earlier high expectations entertained concerning the extent and value of the ore deposits of this locality. While the actual ore production is at present, relatively speaking, inconsiderable — only one mine being on a productive basis, it can now only be a question of a short time before the district contributes in an important respect to the annual copper and gold output of the Province. The principal properties, or rather those in the more advanced stage of development, of the district, are the "Lenora" and "Tyee," while there are several prospects and groups of prospects in the near neighbourhood of unquestionable promise.



THE LENORA SORTING SHED.

The country rock is a belt of quartzose schists having an average strike of N. 60° E., tilted up at an angle of 80° and dipping S. E. The ore occurs as bedded lenticular veins, lying parallel and conformable with the enclosing schists, and occupying fissures and bulges in

them. Therefore the strike and dip of the ore bodies and country correspond. The lode matter consists of a quartz gangue, unusually dark blue in colour, carrying chalcopyrite (copper pyrites), and ordinary iron pyrites (FeS) with same value in gold. They are thoroughly typical copper ores of their class, and not likely to present any difficulties in treatment by ordinary methods.

THE LENORA MINE.

We are indebted to Mr. Henry Croft, M.E., for the following description of the Lenora mine:

The Lenora mine is situated at an altitude of about 1400 feet above sea level, on the western slope of Mount Sicker, and is connected with Westholme and Duncans, V. I., by wagon roads seven and nine miles in length respectively; it is also connected with Westholme by The Lenora-Mount Sicker Railway which is 6¼ miles in length, the gauge being three feet. The railway is graded to Osborne bay (with the exception of about a ¼ of a mile) a distance of 5½ miles.

The country rock in this mineral belt consists of talcose quartz schist, in places almost chlorite schist, graphytic schists also occur in large bodies. The rock is not very close grained and is easy to work. In places outcrops of diorite occur and overflow the schists in some cases. The main Lenora vein has a strike of about 12 degrees north of east magnetic, and appears to be the result of a fissure filled.

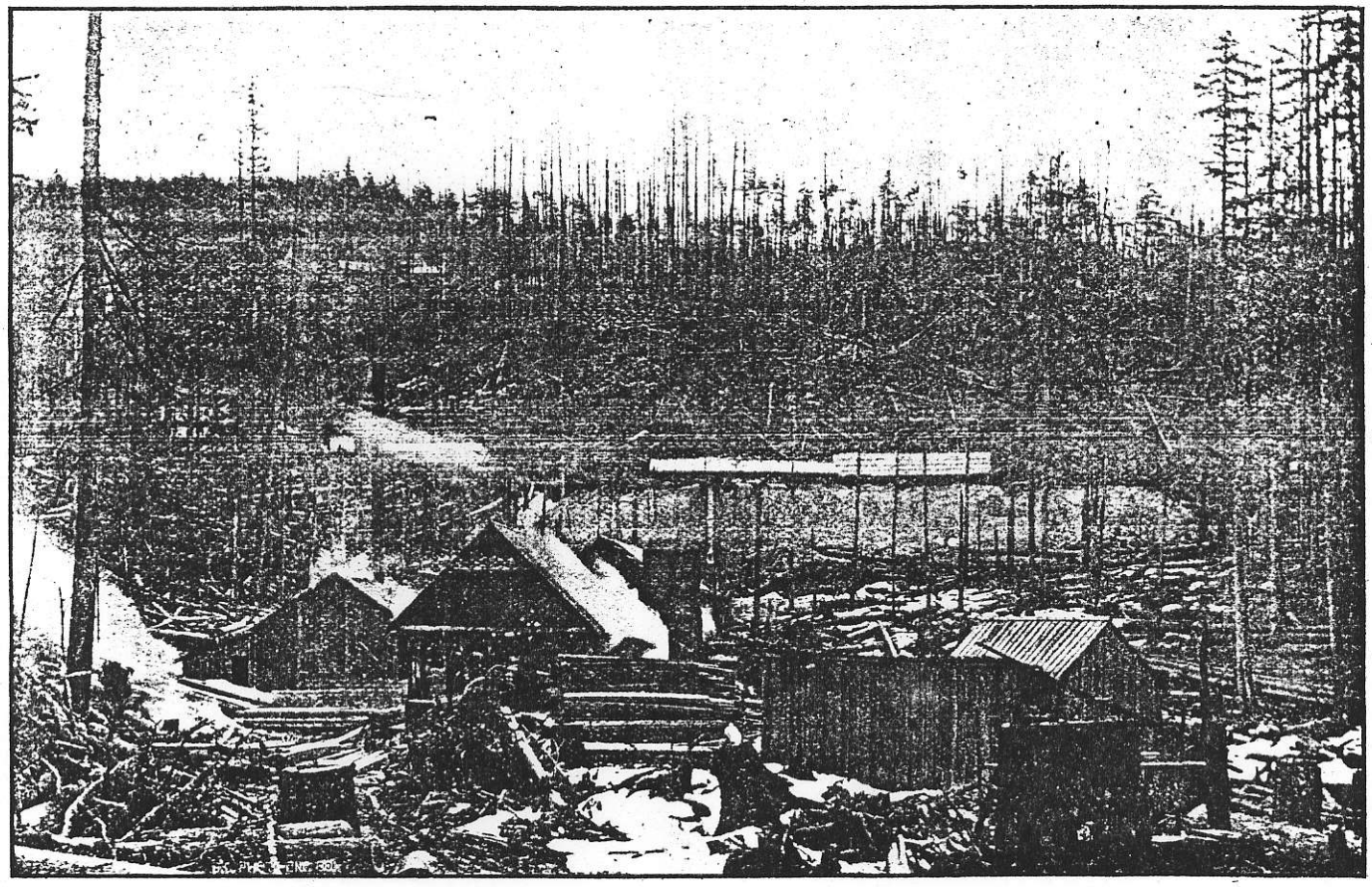
Mining can be economically carried on in the Mount Sicker schist belt; tunnels 5 by 7 can be driven for $4.50 per foot.

The railway has cost about $45,000 and is operated by a Shay-geared locomotive and self-dumping cars of 15 tons capacity each. A new locomotive will arrive about the 1st of June, when passengers and freight will be taken to the camp from the Mount Sicker siding.

A saw mill has been erected at the Lenora mine, and has been the means of starting the townsite upon which about eighteen houses have been erected. A large hotel is being erected, which will be a boon to the district.

On the Tyee, which joins the Lenora to the east, over $100,000 have been expended in development work; two 50 h. p. boilers, one air compressor and two steam hoists comprise the machinery on this mine which has the same veins as the Lenora.

The country rock has been in some cases impregnated with the copper sulphides on each side of the vein. The vein dips to the north at about 80 degrees; the ore body is composed principally of chalcopyrite with an admixture of iron in places and varies in width from 15 to 35 feet. Some portions of the main vein contain antimonial ore carrying silver and gold; this occurs principally in the quartz generally along the north wall. The vein is about 40 feet in width, the principal ore bodies lying along the two walls. The outcrops show heavy iron capping, and the ore runs to the surface in many places. Quartz and baryta and quartz with schist form the gangue of the deposit. A north vein parallel to the main vein has been found. This vein contains antimonial ore and free gold, and high assays have been found in this vein which is about 30 feet in width, the first assay went $130 in gold; 696 ozs. in silver and 14 per cent. copper.



THE SAW MILL AT THE LENORA MINE.

Numbers of assays went over 200 ozs. in silver, and in the Tyee vein which joins the Lenora on the east, coarse free gold has been found. The Lenora is worked by two tunnels the lower being 60 feet below the upper; a new tunnel has been started 80 feet below the present No. 2 tunnel. This No. 2 tunnel will

be run by air drills which are about to be installed, and will be 1300 feet long on the vein. No. 1 tunnel and drifts are about 1100 feet long besides stopes which contain 17 different floors. No. 2 tunnel and drifts are about 600 feet in length.

It is estimated that above No. 1 tunnel there are at least 50,000 tons of shipping ore; the lower tunnel has proved the existence of other ore bodies, and the developments on this level prove conclusively that the ore body is wider at the lower level.

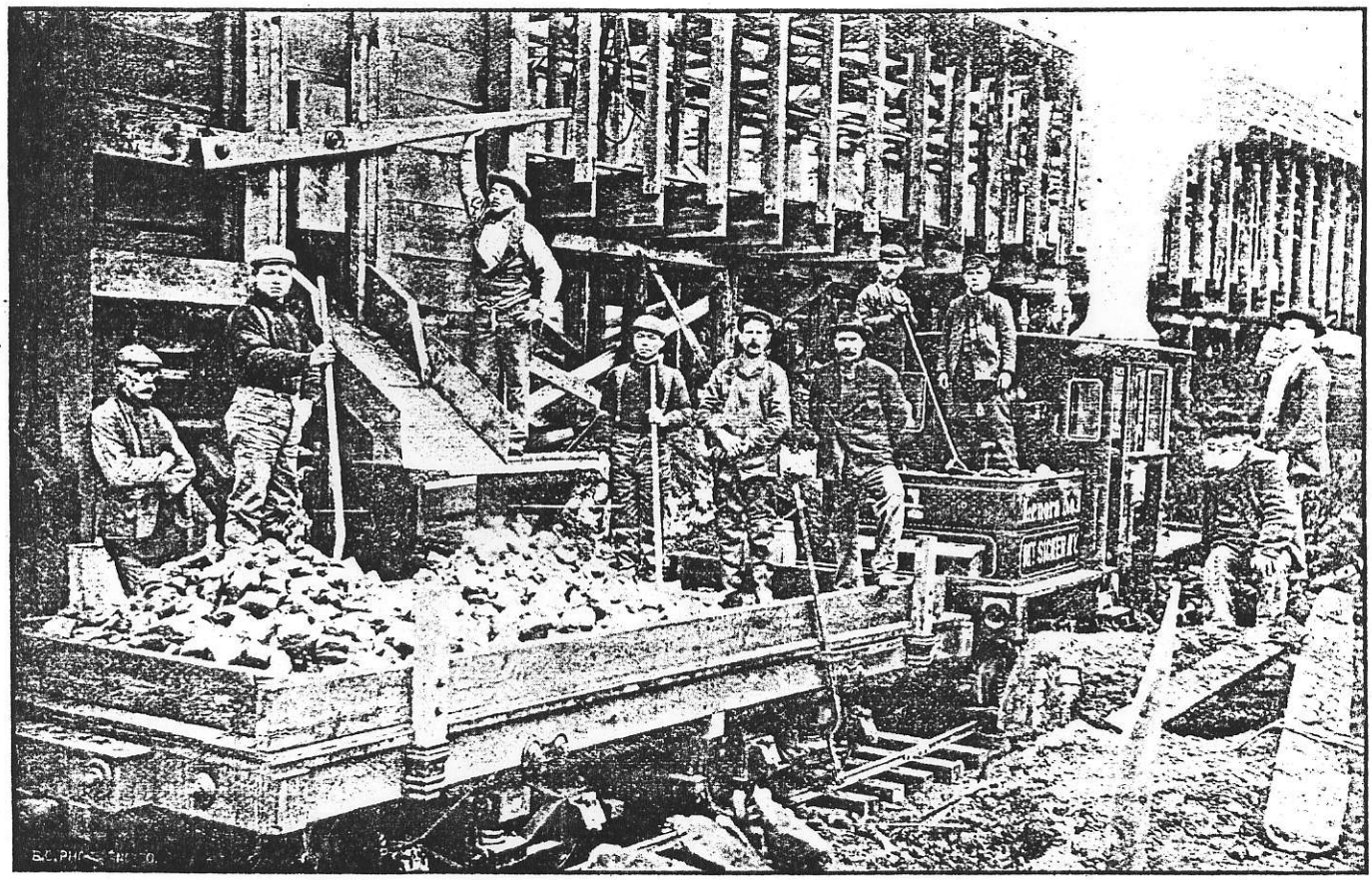
To March 23, 1901, the Lenora mine shipped 11,867 tons; value $175,831.42 as per smelter returns.

March 23 to May 6, 1901, 2276 tons of similar ore have been shipped.

In addition there are about 16,000 tons of ore that will pay to concentrate or ship to the smelter which is expected to be erected near the mine.

Several other veins appear on the surface, the veins upon which the property was staked being on the north side of the Lenora; this is a very strong vein of quartz and schistose matter. No work has at present been done on this vein, but it shows good indications.

The ore at present is shipped by the three-feet gauge railway, owned by the Lenora company, to Mount Sicker siding near Westholme in self-dumping cars carrying 15 tons each, then loaded by shutes into 30-ton cars of the Esquimalt & Nanaimo Railway and afterwards conveyed to Ladysmith from which port it is taken by steamer to Tacoma smelter. Ere long it will be shipped direct from the mine in the Lenora company's cars to Osborne bay, thereby saving the high freight rate of $1.00 per ton charged the company by the Esquimalt & Nanaimo Railway Co., which conveys the ore from Mount Sicker siding to Ladysmith. These high charges have forced the Lenora company to arrange to ship at Osborne bay.



THE NEW BUNKERS AND SORTING SHED AT LENORA MINE.

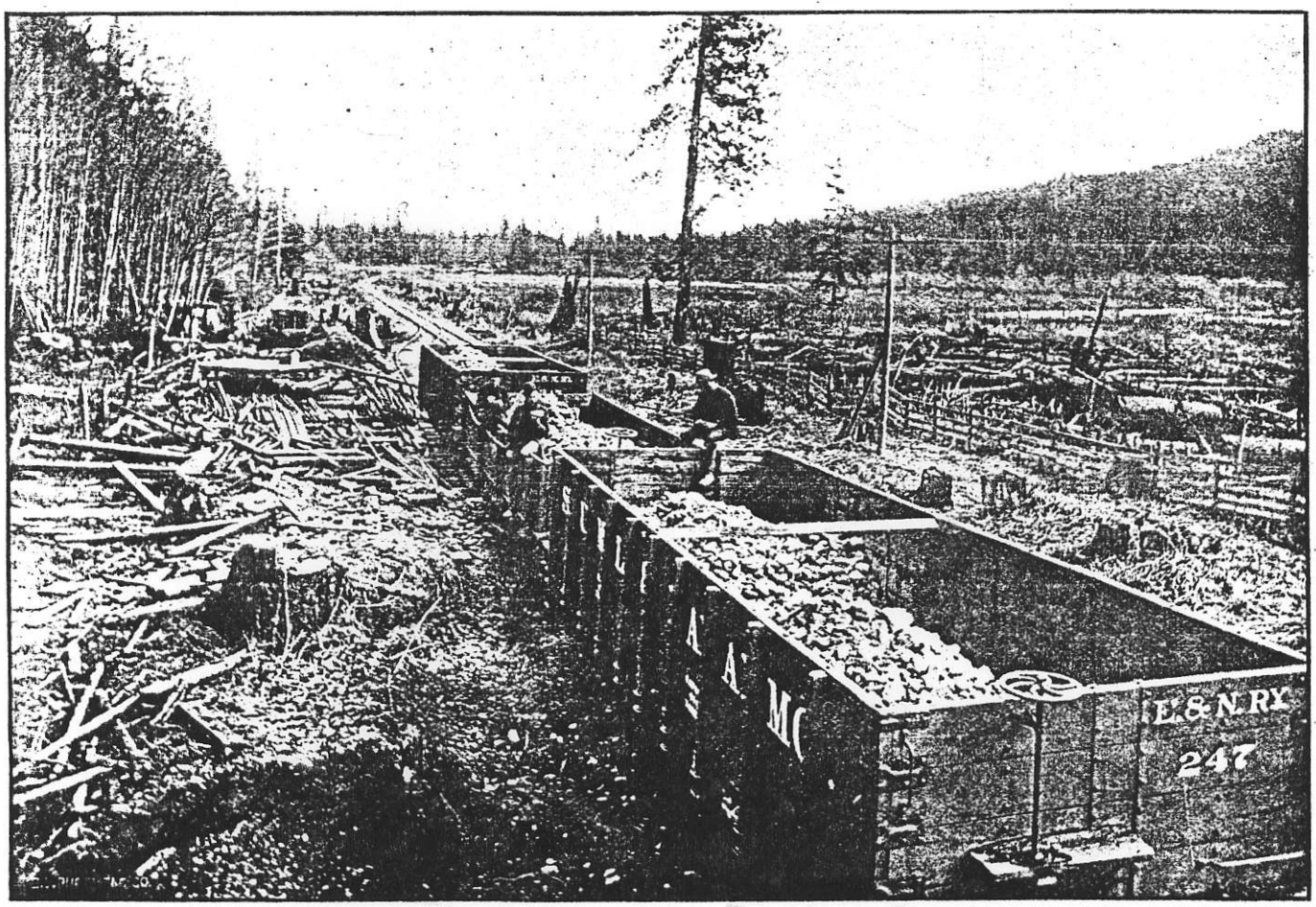
THE TYEE MINE.

We are indebted to Mr. Edward C. Musgrave, B. A. Sc., for the following description of the Tyee mine:

The Tyee Copper Company commenced operations at this mine on the 1st of July, 1900, but prior to this the property had been opened up by the Tyee Development Company, a shaft 6 x 8 having been sunk to a depth of 200 feet with crosscuts north and south from the 160-ft. level, and a crosscut north from the bottom of the shaft.

This shaft was sunk on an exposure of copper ore which was an extension of a series of exposures on the adjoining mine, the Lenora, and proved in that mine to be the outcroppings of a large and valuable ore body. The shaft is situated one hundred and twenty-five feet from the Lenora boundary line, and was sunk on ore for a depth of thirty feet, when the ore twisted away to the south, but at seventy feet it was again encountered in the shaft, but thenceforward as sinking was continued no more ore was discovered. In the crosscuts to the north at the 160 and 200-ft. levels the ore was encountered and crosscut, showing a width of about sixteen feet. This ore body lies in a shattered zone of schists, the width of which has not yet been ascertained, about twenty-two feet from the south wall of the zone near the surface, and sixty-eight feet from the wall at the 200-ft. level. Imbedded in the schists masses of graphitic schists have been found, varying in thickness from three feet to one hundred feet, and near these schists the ore bodies have been found to lie. From the north crosscut at the 200-ft. level of the Tyee shaft, a drift has been driven in an easterly direction for a dis-

tance of three hundred and fifty feet. This drift was started on the ore encountered in the crosscut and for fourteen feet was in solid ore, at which point the ore was cut off and graphitic schists took its place, the drift being along these for the remainder of the distance. Crosscuts have been driven at intervals of one hundred feet, which show the existence at this level of large bodies of ore bearing schists. Upraises have been made from these crosscuts and have in every case, after going up a few feet, touched a large body of solid ore of good values. None of these upraises were carried far up into the ore body as it is intended to explore it by other means which will be explained later. There is very little doubt that this ore body is a part of the same deposit which has been explored in the Lenora. Its outcroppings have been discovered in several places on the Tyee, and the lower part of it has been touched by the upraises, a short distance above the 200-foot level of the Tyee shaft, so that there is good reason to believe that between that level and the surface, over a distance from the boundary line of the Lenora to the eastern extremity of the drift along the graphitic schists or a distance of nearly 500 feet, there is a large and valuable body of ore, also there is no reason to think that its eastern end has yet been reached and how much farther east it extends can only be discovered by future development in that direction. A few months ago a new ore body was discovered in the Lenora mine about ninety feet north of the No. 1 ore body. This, although much smaller, was found to be very rich, some samples from it being assayed gave returns running into the hundreds of dollars per ton. In order to find this in the Tyee, the north crosscut from the shaft at the 200-foot level was extended and cut this ore body at a distance of 150 feet from the shaft. The two spots where so far the ore body has been met, that is in the Lenora and Tyee, are six hundred feet apart, and in each case it occupied the same position with relation to the south wall of the ledge and was similar in appearance and size. In the Tyee this ore body has not been sampled for assay, but a selected sample taken from it gave returns of copper, 11.1 per cent.; gold, 1.2 oz.; silver, 64.2 ozs., or a total value of $83.72 per ton. A crosscut is now being driven from the eastern extremity of the drift along the graphitic schists, which will have to be carried for a distance of eighty feet to cut the ore body, but when it is completed it will show a continuity of 350 feet. As this ore body outcrops about 400 feet east of the shaft, and where it has been encountered in the first crosscut it is solid and in place. There is no doubt that it will again be met with in the crosscut now being driven. As the body is three feet in thickness and apparently extends for a long distance in an easterly direction and down from the surface to at least a depth of 200 feet, it is evident that its discovery has greatly added to the value of the property. During the past winter equipment consisting of two 50 horse-power boilers, a hoisting engine and a three-drill Ingersoll-Sergeant air compressor has been installed, and a working shaft with two 4 ft. x 5 ft. hoisting compartments and one 5 ft. x 5 ft. man and pump way has been sunk to a depth of 120 feet. As soon as this shaft is sunk to the 200-foot level of the old shaft, and is connected with the workings from it, all work will be carried on through it. Levels will be run from this shaft and all the blocking out of the two ore bodies



LENORA ORE ON E. & N. RAILWAY CO'S CARS.

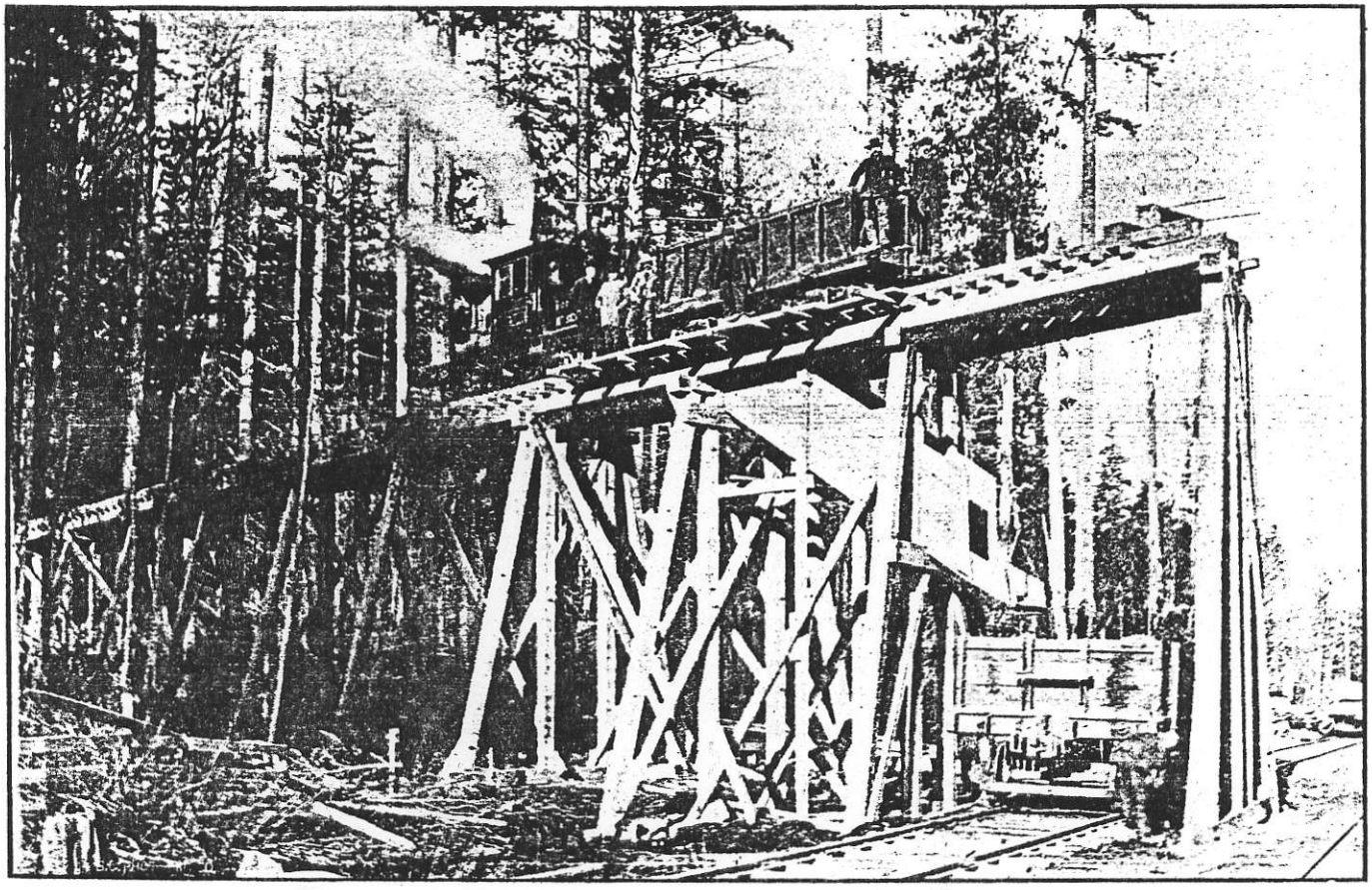
that have been already discovered will be done from it.

Machine drills are being used for sinking this shaft and they will also be used in future operations from it, such as drifts, crosscuts, etc.

It is the intention of the company to ship no ore for some time but to confine operations to a systematic exploration of the ore bodies already discovered and to defer any extensive system of operation until these bodies are blocked out and show a considerable tonnage in sight.

THE COPPER CANYON GROUP.

Another very promising group of claims known as the Copper Canyon, situated on the western slope of Mount Sicker and on the southeastern slope of Mount Brenton, has recently been acquired and a company known as the Mount Sicker & Brenton Mining Company incorporated for the development and operation of the property. On one of the claims, the Victoria, an outcrop of silicious schist occurs and forms a bluff known as Red Hill, owing to the gossan resulting from the decomposition of the pyrites in several veins of ore forming an iron capping. An open cut has been put in across the formation and three separate veins exposed. The work done is insufficient to permit of exact data being given but the indications demonstrate the existence of ore. At the Chemainus river bank a drive has been run for thirty-seven feet, with a shallow winze in face five feet deep. Strike of ore N. 60° E. (mag.) dip 80° S. E. The average variation of width of ore is from a few inches to twelve or eighteen feet, and at places three feet width was found when driving. Some fifteen tons of good quality ore are upon the dump assaying 14 per cent. in copper ($28). Certain small work along the bank shows other ore bodies, but nothing worth mention has been done to exploit these. The work is valuable as showing that a belt of about 150 feet in width forms a mineralized zone and anywhere in that belt development will strike more or less ore. At the present time three parallel veins have been found on the properties, the distance between the outside walls being about 142 feet. It may be that these three apparent veins are only one vein, as no great amount of development work has been done on them, but there is every indication by taking into consideration the direction of the strike of the Lenora lead with the strike of the Victoria lead that the veins are the same ; at a distance easterly from the above work of about 1000 feet two shafts have been sunk, each about six feet deep on two veins of exactly the same formation as the river,



TERMINUS OF MOUNT SICKER MINE.

the vein matter consists of quartz carrying white iron which is likely to be replaced with copper at depth. On the Susan also a similar vein has been found with identically the same iron capping as exists on the Lenora. The workings of the Victoria claim are about 500 feet above the Chemainus river, and the workings on the Susan, which consist of stripping, are about the same height above the Chemainus river. It may be discovered when adequate development work has been done that the schistose matter, which is mainly silicious impregnated with calcite and often having the structure and appearance of steatite and which contains the mineral, is one vein. If this is so it will be the same formation as exists in the Lenora mine.

Owing to the soft character of the schist formation development work can be conducted at a comparatively low cost, and a tunnel, for instance, 5 x 7 feet can be driven for $4.25 per running foot. Power is obtainable from the Chemainus river ; there is an abundant supply

of timber and the proximity to deep water admits of economical transportatian of ores. In fact the economic conditions are eminently favourable and with the undoubtedly large and rich ore exposures in the neighbourhood there is no longer room for doubt but that the Mount Sicker district will shortly become a valuable addition to the productive copper-gold area of British Columbia.

THE LENORA ENGINE AND RAILWAY LINE.

THE COAL AND ASPHALTUM DEPOSITS OF THE QUEEN CHARLOTTE ISLANDS.

(By W. F. Best.)

RECENT legislation providing for a railway between the sea coast and the interior of Graham island, has served to awaken interest in the almost unexplored Queen Charlotte group.

It has long been recognized as a remarkable geological fact that, while the productive coal areas of the Eastern States and Nova Scotia belong to the true Carboniferous formation, those of the Pacific coast are found in a more recent series of rocks, viz., the cretaceous division of the mesozoic. Lower cretaceous rocks cover a considerable area in British Columbia, and embrace within their limits the coal measures of the Crow's Nest Pass, on the mainland, and of Graham island and part of the adjacent Moresby island.

The Nanaimo and Comox coal areas on Vancouver island also belong to a period more recent than the true carboniferous age, viz., the upper portion of the cretaceous.

Graham island, which is some 60 miles long by 40 wide, is divided for more than half its length by a broad and deep arm of the sea, called Masset Sound, which has its entrance near the village of Masset on the north side of the island. The banks of this inlet are for the most part low and flat, with occasional lines of hills and isolated cones of volcanic origin. At its upper extremity in the interior of the island, the inlet enlarges to form a lake-like expanse of water, with many bordering lagoons and small lakes.

Between the upper end of Masset inlet and the waters of Skidegate inlet on the south of Graham island, are the most important of the known coal areas of the island. This coal district has never been explored in a systematic manner, although a few surface showings of coal have been followed for a few feet in several cases. The exposures of coal seams in the district are the result of distortion of the strata by pressure and upheaval of the west coast mountain range. A few square miles of coal land have been taken up in the district northwest of Skidegate, but there is reason for the belief that extensive areas of undisturbed coal measures exist in basins beyond the boundaries of lands already taken up, some of which were seen by the writer during a visit to the island in the summer of 1900.

Exploration work which was undertaken some thirty years ago in the vicinity of the Ya-koun river resulted in very little information being gained as to the extent of the coal deposits of the district. The chief difficul-

Coast and Island Mining

News of the Month—Rich Strike on Lenora — The Richard III Commences Shipping — The Crofton Smelter — The Garrettson Furnace—The Tyee Mine—The Mts. Sicker & Brenton Mines, Ltd.—West Coast Mining—Mineral Wealth Near Vancouver—Notes.

ISLAND MINING.

Very few claims were recorded during the month of December in the office of the Recorder for the Victoria Mining Division. This was mainly due to the inclement weather prevailing at this season of the year; a factor which also acted as a deterrent upon outside development work. The following are the claims recorded:

Great Surprise—Sugar Loaf Mt., Chemainus, A. Newhouse.

Champion—Lot 18, Range 6, Somenos, G. H. Holmes.

C. L. Fractional—Mt. Sicker, Clermont Livingston.

W. G. Fractional—Mt. Sicker, C. H. Dickie.

The following certificates of work were issued during the month of December from the office of the Recorder for the Victoria Mining Division:

Dora Fractional—Julius West.

Dixie Fractional—Henry Fry, P. L. S.

Lion Fractional—James L. Hird.

Lawarance—James L. Hird.

Frank—W. E. Lamming.

Star—Leon Benoit.

Venue—Leon Benoit.

Prince William—Wm. Ralph.

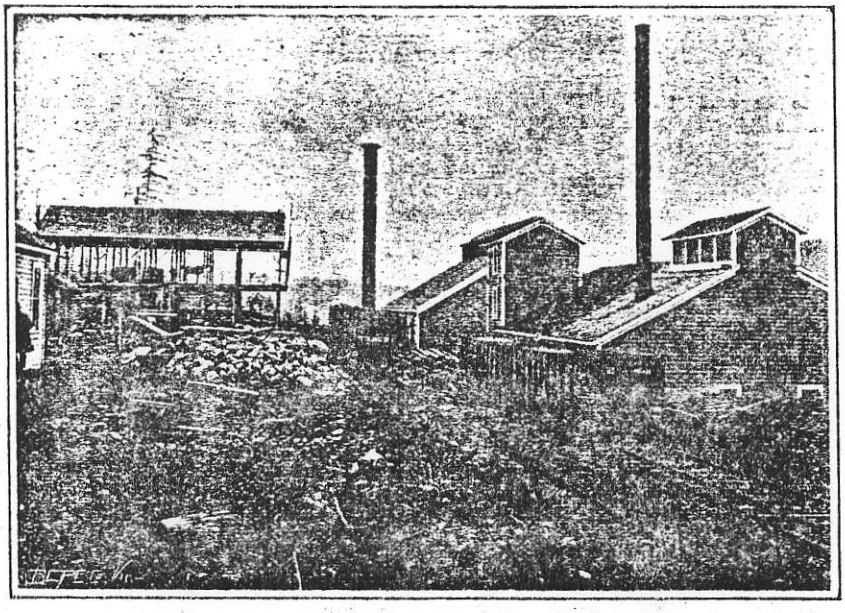
Springfield—F. C. Beech.

THE LENORA MINE.

The news of an important strike of high-grade ore on this property, now being operated by the Northwestern Smelting & Refining Co., of Crofton, B. C., was made public in the early part of the present month, and the details obtainable were of so great moment that it was deemed advisable, in the interests of the readers of the B. C. Mining Exchange, that a representative of this journal should make a personal visit to this mine, the success of which means so much to the coast.

Leaving Victoria on the 13th inst., our representative travelled by the Esquimalt & Nanaimo Railway as far as Westholme, whence a stage runs daily to Crofton, some five miles distant. The night was passed at Crofton and a start made for Mt. Sicker at 7.30 the following morning, by way of the Lenora-Mt. Sicker Railway, a narrow-guage line which runs some twelve miles across Mt. Richard and up Mt. Sicker to the camp. Our illustration of the Mt. Sicker terminus of this line, which appears in the present issue, will give our readers an excellent idea of the present appearance of this busy and prosperous camp.

Although this narrow-guage line has been both described and illustrated on several previous occasions in the columns of this journal, we have not had occasion to refer to it at length since the completion of the arrangements whereby, some eight months ago, it and the Lenora mine, whose ore it conveys to the Crofton smelter, came under the management of the Northwestern Smelting & Refining Co. It is, therefore, of interest to note, in passing, the present condition of this line, the work it is doing, and the character of its handling and equipment. Concerning all these points it is pleasant to be able to speak in the highest terms. The writer has been acquainted with the road almost ever since it commenced operations; has travelled over it repeatedly; and is therefore in a position to form an adequate and trustworthy opinion both of the progress it has made since its commencement and the present high state of efficiency to which it has been brought. These two points are sufficiently remarkable. The line ascends the mountains to its destination by a succession of tremendous gradients, while the nature of the country traversed involves a number of abrupt curves. Yet, so excellent is the condition of the road-bed, and so thoroughly efficient are both the men and engines employed upon it, that even slight accidents are extremely rare, while serious ones are practically unknown. And this in spite of the enormous amount of heavy traffic upon it, a traffic of which some idea may be gained when we state that the regular service involves no less than four daily return trains between Mt. Sicker and Crofton, bringing down heavy ore to the smelter and carrying up to the mines no less ponderous machinery and supplies. The trip each way takes but a couple of hours. Looked at from every point of view, the management are to be heartily compli-



A VIEW OF TYEE SMELTER, LADYSMITH, B. C.

Please Turn Page

mented upon their very efficient transportation system.

Arriving at Mt. Sicker, our representative proceeded at once to the Lenora mine, where the scene of the new strike was first examined, before going over the rest of the mine. This strike is a most important one, both to the Lenora mine itself and to the Mt. Sicker camp in general. Situated in No. 2 tunnel, and first encountered one hundred and fifty-two feet north of all present workings, the body of ore exposed by the cross-cut is no less than seventeen feet wide. This solid mass of ore extends obliquely downwards, widening at the floor of the tunnel. It is apparently the top of a large ore lense which has been cut, and it extends, without doubt, from this point on the 200-foot level to beyond the 300-foot level below. This is obviously one of the great lenses of valuable ore which constitute the wealth of Mt. Sicker; and, assuming that it conforms in size to those previously discovered—which can hardly be doubted in view of the large showing already exposed—a conservative estimate can very well place the amount of ore at from 60,000 to 100,000 tons.

It is difficult to sum up judicially and dispassionately the extraordinary bearing this new strike will have on the fortunes of the Mt. Sicker camp. It is not as though the new lense had been located within the zone of the old workings. Directly the contrary is the case, and the wisdom of the Northwestern Smelting & Refining Co. in carrying on exploratory development in a hitherto neglected direction, while at the same time developing the large ore bodies already known to exist in the mine, has been triumphantly vindicated. To put the matter in a few words, this discovery practically guarantees the whole camp. It assures the capitalist of a reasonable show for his money, if invested in developing claims in this camp. Much as it means to the Lenora—already a wealthy and successful producer—it means more to the numerous claims adjoining and adjacent to that mine and the Tyee property. Of its effect on the Richard III. we speak elsewhere.

Nor is this the only piece of good fortune which the new year has brought to the Lenora. By cross-cutting on the twelfth floor, the continuation of the lense which was there supposed to have ended has been found. While not of as high a grade as that encountered in No. 2 tunnel, it is yet a fine ore and in large quantity.

Our representative was conducted over the mine by Mr. H. C. Bellinger, of the Northwestern Smelting & Refining Co., and Mr. N. Tregear, superintendent of the Lenora. It is perhaps needless to say that both these gentlemen are highly elated at the satisfactory outcome of their labors. Their exultation is well warranted. We have only been able, in an article of this scope, to deal with the more striking features of this property. There are, however, many magnificent ore showings throughout the mine, besides those we have here briefly described. A very brilliant future lies before the Lenora—a future which the results we have mentioned ensure also to the whole camp.

THE RICHARD III A SHIPPER.

Another very gratifying event which has marked the commencement of the new year in Mt. Sicker camp is the advent of the Richard III as a shipper. This property commenced shipping ore to the Crofton smelter in the middle of the present month, at the rate of 50 tons per day. This is the third shipping mine at Mt. Sicker, and there is every prospect that this property will, at no distant date, prove as big a producer as its older neighbors, the Tyee and Lenora.

Our representative paid a visit to this mine while at the camp, and descended the long shaft to inspect the fine body of ore in which the management are working. The main shaft is 490 feet deep. Getting off at the 430 foot level, a body of fine ore is to be seen; but the management concluded to endeavor to locate it further down. This was successfully done at the 490 foot level, where stoping operations in magnificent ore have been carried on with such energy that the miners were, at the period of this visit, within ten feet of the floor of the 430 foot level.

The work done on this property is astonishing, when it is remembered that active operations have been in progress for only a year. Commodious shaft and bunk-houses, engine-room, forge and other necessary buildings have also been erected.

An important point to be noticed in connection with the Richard III is that ore has been encountered here in paying quantities at a greater depth than anywhere else in the camp—a fact which effectually disproves the assertion that no ore bodies existed on the mountain at any considerable depth. The ore at present being worked practically conforms as to location with No. 3 tunnel of the Lenora. The position of the Richard III is directly above the Tyee property, looking up the mountain, while the Lenora, again, lies almost exactly below the Tyee.

Another gratifying feature in the Richard III ore is its extraordinarily high gold and silver values. These are from three to five times as high as those of the Lenora.

Our representative was conducted over this property by Mr. W. C. Rennells, the superintendent, who is justly proud of the remarkable showing, both in work and results, which is presented by the mine in so short a period of development.

THE GARRETTSON FURNACE.

Correspondence from various quarters has, we regret to say, led us to the conclusion that our statement in our December issue with regard to the Garrettson furnace was so inadvisedly worded as to convey the impression that all the objects of the designers had been successful at every point, and that the direct production of copper in the furnace was an accomplished fact. This is by no means the case as yet, and we are extremely sorry that the wording of our report should have been liable to such a misconstruction. The plain facts of the case are that the Garrettson furnace is treating raw ore, without any preliminary process, and is making a very excellent matte of it; but, owing to the character of the ore, the direct reduction thereof to copper in the furnace has not yet been accomplished. On the raw ore, however, the furnace is running steadily, and has been for some four months past; a most satisfactory thing in itself, as it means the doing away with the roasting process, thus saving two handlings. We are given to understand, further, that the furnace itself is doing very economical, as well as excellent, work.

THE CROFTON SMELTER.

Operations by night and day continue briskly and without cessation at this centre of industry. With a full supply of coke, and ore in large quantities coming in steadily, the smelter presents an exceedingly busy scene. The output of one car-load of blister copper every other day is being steadily maintained.

THE TYEE COPPER CO., LTD.

A cable received at the London office of the Tyee Copper Company gives the following results of smelting for 14 days of December: Smelted—Tyee ore, 2,987 tons; customs ore, 527 tons—3,514 tons. Matte produced from same, 311 tons. Gross value of contents (copper, silver and gold) after allowing for cost of refining and purchase of customs ore, $35,221. N. B.—Aerial tramway running most satisfactorily. Smelter shut down to allow for accumulation of roasted ore; will be started about the middle of this month for steady run.

Operations were resumed at the date mentioned in this cablegram, and the smelter is now running steadily with a large supply of ore on hand and fresh supplies from various points constantly arriving. The Company has, in addition to the regular supply of ore from the Tyee Mine, numerous contracts for custom ores, extending over several years.

The operations of this Company for the past year have been of a most successful and encouraging nature. Some idea of their magnitude may be gained by our readers when we say that we are informed that, since the smelter was blown in on the 16th of December, 1902, or little over a year ago, over 50,000 tons of ore have been smelted, producing 4,700 tons of matte, valued at about $590,000.

We regret that our representative, whose visit to Mount Sicker in the early part of the month, is referred to elsewhere in this issue, had not sufficient time at his disposal on that occasion to go over the Tyee Mine. We are, however, making arrangements by which we hope, at an early date, to give our readers an extended and illustrated article on this Company's magnificent property.

THE MOUNT SICKER AND BRENTON MINES, LIMITED.

This property comprises seven Crown granted claims crossing the Chemainus River and extending east and west on both Mounts Sicker and Brenton sides, and all in the well known schist formation. There has been about $50,000 judiciously expended in the exploitation and development of these properties up to date. This includes compressor plant, hoisting machinery, &c., all of a good type, also complete mine, comfortable mine dwellings.

The showing is as good as anything on the mountain for the amount of development work done. The entire debt of the property is $5,300, which the bondees have undertaken to wipe off before asking for additional capital to make the mine a shipper.

It is estimated that an expenditure of $50,000 will make the mine a permanent and profitable producer. It is a well known fact on the mountain that the Mounts Sicker and Brenton Mines (with a reasonable expenditure for transportation facilities) can transport ore to the Crofton or Ladysmith smelters or to the seaboard at a less cost than any mine on the mountain. The management of the work will be placed in the hands of Mr. J. H. Brownlee, of Atlin, as also is the important matter of furnishing cheap power to all the producing mines on Mount Sicker who may wish to avail themselves of it.

The controlling interest in these mines has recently been purchased by Dr. Henry E. Young, of Atlin, and associates, through their agent, Mr. Brownlee.

MINING WEALTH NEAR VANCOUVER.

The following excellent article is from the columns of the Vancouver "Outing", a new monthly publication to which we refer more specially elsewhere. The writer is Mr. W. Thomas Newman, M. C. M. I., a gentleman whose name is well and favorably known in British Columbia mining circles, and a very highly qualified authority upon the subject whereof he writes:

Just across the northern boundary line of the Municipality of North Vancouver and within some six miles as the crow flies of the saltwater harbor of the city known as Burrard Inlet lies a very interesting mining camp. This mineral belt has furnished proof that a considerable tonnage of ore can be relied on and its close proximity to the city limits and tide water afford unusual interest to the citizens. The country is among the most rugged and heavily timbered class in British Columbia. Precipices from a hundred to perhaps one thousand feet in perpen-

. most efficient and yet most g
ll complaints arising from a slug
morning on rising brings gentle,

Feb. 18, 1904

Richard III. Is In Fine Form

Splendid Reports Presented at Annual General Meeting of Shareholders.

Company In Good Financial Condition and the Outlook Most Promising.

The annual meeting of the Richard III. Development Co., Ltd., was held at Ivanhoe on Wednesday, the 17th inst. The meeting was well attended and represented [illegible] of all the shares. After submitting the balance sheet and directors' report, Mr. C. H. Iverson, the chairman, stated that the balance sheet needed no explanation from him as it spoke for itself, showing the cheapest work done in B. C. mining, and he was also happy to state that the results justified the expenditure owing to the showing of ore at the mine. At the present time the showing extends beyond what the early developments had led the directors to believe, both in richness and extent, and the mine superintendent reported to him that the rich ore shute extends fully 125 feet in an easterly direction, with a width of at least four feet and widening. The assays on this ore would run well over $100 per ton in gold silver and copper. The ordinary barytic ore of Mount Sicker exists side by side with this ore, and is running parallel to it. The Tyee mine developments are rapidly approaching our west boundary with the greatest amount of ore ever yet showing in the stopes in their mine, and the company under the able management of Mr. C. Bishop-on, has erected an up-to-date hoist and compressor plant on the claim to the east of our boundary, who stand from present indications both of the trend of the ore on our property and the direction of the wall of the lode, to reap as rich an harvest as ourselves.

The meeting ratified the reconstruction of the company, and of the [illegible] shares which the chairman stated would be open for subscription in the new company (Richard III. Mining Co.), a large number were applied for by the present shareholders at par value, $1.

Mr. W. C. Rannells, the superintendent at the mine, reported enthusiastically, astonishing those shareholders present who had not seen the property for themselves. The only complaint he made was that the ore was not removed quickly enough from the dump, which would contain, roughly, 1,000 tons of ore, this delay being owing to the state of the roads.

The chairman intimated that the shares in the new company will be available for subscription in about two weeks, and will be issued at par and the proceeds of these shares will be applied to the final payment of the bond and equipment of the mine, so as to be able to raise ore on a larger scale than heretofore. He stated that from present prospects the new company would be able to pay dividends when the transportation facilities were improved.

The retiring directors were re-elected and after a vote of thanks to the chairman, directors and secretary for their efficient services, the meeting adjourned. Vancouver Island and Port Townsend capital only is represented in the company.

Following is the directors' report:

The directors beg to submit herewith, balance sheet, covering the period from the date of incorporation to the 31st of January last.

The company has steadily pushed the development of the mine, and now have a total of 2,650 feet of workings, which includes, shaft 500 feet, drifts, upraises and crosscuts, 2,650 feet.

Ore has been found in all of the four drifts west of the shaft and in the 430-foot drift ore bodies were encountered, of which the shareholders were informed by a circular letter in September last. Before stoping on this ore it was decided to sink to the 50-foot level. This has been done, rich ore was encountered, and stoping is now being proceeded with from this level.

The balance sheet shows the estimated value of ore raised during the carrying on of the development work. Sufficient work has not been done to make it possible to determine with any accuracy the tonnage of ore in sight, but undoubtedly large bodies will be encountered as stoping continues. The mine is in good shape to guarantee a small daily tonnage for at least several months, but the indications are such as to lead the directors to expect that large bodies of high grade ore will be encountered in the immediate future.

A sample ton of ore was shipped to the Ladysmith smelter, and the assay shows values of 3.20 per cent copper (w-4); silver, 25.85 ozs. and gold, .66. The smelter returns show the value per ton, after deducting their charges, of $24.91. This, it should be noted, is the value on a commercial basis.

A contract has been entered into with the Northwestern Smelting & Refining Company, of Crofton, V. I., for the treatment of our output. To the arrangement of this contract the directors gave careful consideration, and with the result that the terms are as advantageous as could be expected.

The retiring directors are Mr. H. Smith and Mr. T. A. Wood. Both these gentle-

Victoria Daily Colonist Feb. 27, 1904

offices being closed at 4 o'clock.

Feb. 27, 1904

Richard III. Mine.—Mr. Harry Smith, one of the directors of the Richard III. mine is in town. Yesterday afternoon Mr. Smith showed a Colonist reporter their last assay from the government office. The specimen was of rock matte and copper glance and assayed 6.28 gold, 470.8 silver and 14.08 copper, which certainly speaks volumes for this mine. The specimen was taken from one of the newest veins they have opened up, the shaft being 170 feet long with a face from 1 to 6 feet in width, 500 feet below the surface. Mr. Smith says they have now a dump of over 1,200 tons or ore and are taking out over twenty tons a day, which is immediately shipped on to the Crofton smelter. Later on, when the snow is off the ground they expect to take out from 50 to 75 tons a day. The mine has been proven in four levels, and from the many remarkable assays that have been taken there can be no doubt that the Richard III. will yet prove one of the richest mining ventures in the country.

Colonist Feb. 8, 1904

Copper Canyon Mine.—Active work in connection with the Copper Canyon mine, Mount Sicker, will commence on April the 1st, and from that time regular shipments will be made to the smelter. About thirty men will be employed, and in the neighborhood of 100 tons a day shipped. This statement was made by J. H. Brownlee. He is the representative of Eastern capitalists who recently paid over the sum of $50,000 for a controlling interest in the Mount Sicker & Brenton Mining Company. He says that everything is in readiness for a start, the plant installed some time ago being in perfect condition. Mr. Brownlee expects one of the principal investors in this property to visit the coast some time next month. While here he will spend a few days at Mount Sicker.

entered into with European smelters, and bulk shipments to Antwerp are being made at a freight rate of $13 per ton. In the course of the ensuing year it is expected, while the capacity of the works will be increased and costs reduced, a still higher grade of zinc will be produced. London price of spelter, which has remained steady for some time at £22 per ton is favourable, and generally speaking, the future for zinc is most encouraging. The earning power of the mine has been materially increased by the production of this valuable by-product.

In connection with the zinc plant an iron by-product is obtained from the magnetic separating machine, for which a market has been found with local lead smelters. This product has all the qualities of an excellent flux. It contains about 7 ounces of silver, beside 50 per cent. of combined iron and manganese. It is being produced at the rate of about two tons per day and nets approximately $3 per ton.

The bounty granted for five years to the lead miners by the Dominion Government, which at your present rate of production equals a yearly bonus of $12,000—will offset the low prices of lead. It is, however, to be hoped that the Government will grant still further assistance to the miners by a bonus on the production of zinc in a similar manner, to offset the high cost of transportation of zinc ores to the markets in foreign countries.

With the present prospects for opening up valuable ore bodies in tunnel No. 8 at the Payne mine together with the means now available for handling and treating all silver-lead and zinc ores mined, the outlook for the property is decidedly favourable.

A YEAR'S DEVELOPMENT AT THE TYEE MINE.

MR. E. C. MUSGRAVE, the mine superintendent, in his annual report to the directors, states that work during the past year was confined to winning ore from the stopes at the 100-ft. and 165-ft. levels, and to exploration work on the 100-ft., 165-ft. and 300-ft. levels, while a small amount was done on the 400-ft. level.

Development Work.—While the development work at the 300-ft. level has not given as satisfactory results as was hoped for, at both the 100 and 165-ft. levels valuable discoveries of ore have been made, and it is expected that during the coming year the work that has been started at the 400-ft. level, and work which will soon be begun below that level, will result in finding further ore-bodies. The work done during this year has proved that instead of having a series of detached lenses, as was always supposed to be the case, the mine has in the upper levels one huge ore-body branching out in different directions through the schists, from the 165-ft. level. This ore-body appears to be distinct from the Lenora body (a portion of which runs into the Tyee ground), and it has now been proved over a length of 1,000 feet for a depth of 160 feet, and widths varying from 5 to 40 feet. Having proved this to be the case is a very encouraging sign, as the chances for such a large ore-body repeating in depth are much more favourable than if there were a series of detached lenses.

100-ft. Level.—The main drift at this level has been continued for a distance of 259 feet, and 140 feet of cross-cutting has been done from it. The only discovery of ore made on this level was that part of the ore-body on which No. 6 stope has been worked.

165-ft. Level.—The drift was continued for a distance of 337 feet, and 603 feet of cross-cutting was done from it. Early in the year the drift ran into ore, and on a cross-cut being made, thirty feet of ore was passed through, and from this cross-cut No. 4 stope (165-ft. level) was broken out. Later in the year a cross-cut was started from the sill floor of this stope and driven for a distance of 350 feet, which brought its face 380 feet from the main south wall. At 140 feet from the wall the north ore-body was met with, and after passing through this, the cross-cut passed through the ordinary schists of the lode, with two small intrusions of diabase; when at 300 feet from the wall it passed into diabase, in which it remained to the end. A small amount of work was done on the north ore-body, but although there were small pockets of rich ore in it, the bulk of it, at this point, was found to be too low grade to be of commercial value, so work on it was stopped. Another cross-cut was started 150 feet further east, and although it was carried far beyond the point at which the north ore-body should have been met with, had it lived to the east at this level, no sign of it was met with. This north ore body, besides having been struck in several places in the Tyee ground, has been worked to the western boundary of the Tyee in the Lenora mine, and to the eastern boundary of the Tyee in the Richard III., and as rich pockets have been found in it, large enough to yield a large tonnage of ore, both in the Lenora and Richard III., they doubtless occur in the Tyee and will be found in future workings.

300-ft. Level.—The drift at this level was run for a distance of 972 feet, and 440 feet of cross-cutting was done from it. With the exception of small stringers, no ore was found at this level. The probable reason for this was that the schists throughout were broken and twisted in every direction, by a movement subsequent to the formation of the ore-body, and it will be necessary to get below this line of movement before finding any large body of ore.

As the drift passed below the large ore-body of the upper levels, and showed no evidences of ore (the stringers having been found in the cross-cuts) a raise was put through to the 165-ft. level.

This raise, after having been carried up to a height of 85 feet, encountered ore, and remained in it, till it holed through.

A drift was run from the raise, eastward, from the point at which the ore was first met with, for a distance of 125 feet. This was in ore for the entire distance, and there is 12 feet of ore in the present breast.

400-ft. Level.—Work was started on this level near the end of the year. Stations were cut on the north and south sides of the shaft, and a drift was run for a short distance to the east, along the main south wall. So little work has been done to date that it is impossible to form a definite opinion as to whether this level is below the line of shattering found at the 300-ft. level or not; but so far the ground does not seem nearly so broken, and the schists are more like those in the upper levels, that is to say they are softer and less silicious than those in the 300-ft. level. The main south wall is as strong and well defined as ever, and retains much the same strike and dip as it had at the upper levels.

Raises.—During the year 364 feet of this work has been done, but as it has been principally for purposes of ventilation it presents no special features of interest.

Stopes 100-ft. Level.—Six stopes have been worked on this level, and from them a total of 15,026½ tons of ore has been won.

Stopes 165-ft. Level.—From these stopes, and from the drift from the raise between the 300 and 165-ft. levels, 33,507 tons of ore have been won.

Intermediate Level (300-165).—This level was run from the raise between the 300 and 165-ft. levels. It is 40 feet below the stopes at the 165-ft. level, and shows a good width of ore throughout its length. As the ore on the sill floor of the stope immediately above this level has been very wide, a large tonnage of ore may be expected between the levels.

Ore Reserves.—The difficulty of giving an estimate of the ore reserves is even greater than it was last year. The ore-body makes and pinches so quickly that, under the present conditions, any estimate of tonnage in sight would be guess work. The only thing that can be said is that from experience in the past, and the general appearance of the stopes, it is safe to calculate on having enough ore left in the mine, in the known body, to continue regular shipments for another year, with the probability of there being a great deal more than this.

Cost of Work.—The cost of winning the ore, and transporting it to the Esquimalt and Nanaimo Railway Company have been $2.21 per ton, which is divided as follows:—

	Per ton.
Stoping and raising ore	$1.325
Proportion for development	.485
Transporting to Esquimalt and Nanaimo Railway Company	.14
Surface, etc.	.22
Ore dressing	.04
	$2.21

Under the heading of Surface, in the above costs, are included maintenance and repairs to buildings and plant, pumping from the Chemainus River, odd surface works, and general administration at the mine. The total costs chargeable against the ore are slightly higher than those of last year; this being due to the delays caused by the tramway. The stoppages due to this meant extra expense at the mine, as some of the expenses did not stop while the tram was idle. Also the cost of maintenance and repairs to buildings and plant was higher in proportion to the ore shipped, as the plant used was larger than that used last year, while it could not be worked to its full capacity until the capacity of the tramway was increased.

The amount of development work done during the year was: Drifting, 1869 feet. Cross-cutting, 1,251 feet, and raising, 364 feet. The costs have been considerably reduced from those of last year, being: Drifting reduced from $9.15 to $7.15 per foot. Cross-cutting reduced from $6.77 per foot to $5.19 per foot. Raising reduced from $11.59 per foot to $10.61 per foot.

Tonnage Delivered to the Smelter.—The total tonnage delivered to the smelter during the year was 48,623½ tons, which was all won from the mine, and the average values of this, from assays received from the smelter during the earlier part of the year, and from assays taken at the mine from the daily mine run during the latter part, have been: Copper 4.61 per cent., silver 2.77 oz., and gold 0.144 oz. per ton, which would give the gross contents as being about, copper 4,483,000 lbs., silver 134,680 ozs. and gold 7,000 ozs.

"X. L." Mineral Claim.—A considerable amount of trenching was done on this claim, and the results have been most satisfactory, as they prove beyond a doubt that the lode runs through this ground. In several of the trenches a good iron capping was found on the direct line of the lode, and the schists are similar to those surrounding the Tyee ore-body. A cross-cut from a trench close to the southern boundary line of the Lenora encountered the main south wall of the lode, and some small stringers of barytic ore were found near it, so that the prospects for finding ore-bodies in this claim are good.

Prospects of Ore in Depth.—Now that preparations for developing the lower levels have been completed, it is hoped that during the coming year ore will be found in depth. Although it is possible that some time may elapse before discoveries are made, there is, I think, very little doubt but that ore in large quantities will be found as soon as the workings reach a point below the line of movement found at the 300-ft. level. The indications in the small amount of work done at the 400-ft. level are favourable, and although too little has been done there to prove it, the ground appears less broken than at the 300-ft level. The ore-body in the upper levels has been proved to be of such a great size, that although it has been cut off temporarily by the broken ground at the 300-ft. level, it is certain to make again in depth. Even though no large body was found at the 300-ft. level, stringers of barytic ore were found, and the mineralization was heavy throughout. The graphitic schists, although in a shattered state, were found there, and they have been found again at the 400-ft. level. No ore has ever yet been found in the mine without there being graphitic schists in the vicinity, and they have undoubtedly had something to do with the deposition of the ore. Where these graphitic schists occur at the 400-ft. level, they do not show anything like the amount of shattering that they do at the 300-ft. level, and besides them there is a selvage full of nodules of quartz containing copper. It is possible that this selvage represents the top of an ore-body, and if it does, the ore-body should be encountered in the main shaft, between the 400-ft. and 500-ft. levels. Had some intrusion of foreign rock, such as diabase, cut off the ore at the 300-ft. level, there might be grounds for thinking that the cut-off was permanent; but the only diabase met with at that level was a narrow intrusion lying parallel to the main south wall, and this, when cross-cut, was found to have graphitic schists to the north of it.

From the conditions so far found there is no reason to think that the ore has been permanently cut off; and indeed the very nature and form of the schists would lead one to expect to find the ore in masses, with zones between them showing stringers, as the channels through which the ore passed when in a molten or gaseous state; the large masses forming in the weak places in the schists.

In conclusion, I would say that, although as before remarked, the developments at the 300-ft. level have not been as successful as hoped for, I consider the future prospects of the mine very bright. The conditions are favourable for doing fast and cheap exploration work, and the great size of the ore-body in the upper levels gives time for a large amount of exploration work to be done while still keeping up regular shipments of ore, and also gives reasons for believing that the finding of other ore-bodies in depth is only a matter of time.

SMELTER MANAGER'S REPORT.

Mr. T. Kiddie, the smelter manager, reports as follows:

During the year the following additions and extensions to the plant have been made:—A general office, consisting of main office, manager's office, draughting room, vault and cellar was built. In order to provide additional roasting capacity and spread the roast piles over a larger area to facilitate their removal, eight additional roast beds were added during the year, and trestles extended with cuttings between, on the same general plan as those already installed. A brick-making plant, consisting of two one-horse power pug mills and drying shed, was installed for the making of raw ore fines into brick form. The buildings are 132 feet by 30 feet and 100 feet by 34 feet. The pug mills are the ordinary brickmaking mills, while the drying floor is a bottom heated floor, fired from both ends, with flues of red brick tiling between each fire box, with two separate stacks, one for each set of furnaces, the flues, being covered with clay and rolled, forming the drying floor. This has proved a practical and very economical mode of drying, the capacity of the plant being 8,000 bricks, equal to 28 tons of ore per day. A similar one-mill plant, 58 feet by 30 feet and 30 feet by 30 feet, for the making of flue dust into brick form, was erected west of the smelter building. The burnt ore tramway between the roast yard and the smelter was doubled in order to handle the increased tonnage of ore for the furnace. The coke track of the Esquimalt and Nanaimo Railway Company was extended 150 feet and ground graded 150 feet by 30 feet by 5 feet, and floored with 2-in. plank for the storage of coke against any possible accident or shortage; and on the east side of the burnt ore bins a temporary sampling mill was erected for the sampling of custom ores. The Esquimalt and Nanaimo Railway Company supplied and we installed a 6-in. Duplex steam pump, placed at high-water mark in the lagoon, and connected with our fresh water system. A dam of slag was run across to the "spit," which gives a large reservoir of salt water at all stages of the tide for fire or slag-shotting purposes. In addition to the above, we are now laying a 4-in. pipe line to connect with the city water mains. These, with our supply from Rock Creek, put us in a safe position against fire, or possible accident to the Rock Creek flume.

During the year a large amount of finishing work has been done to the plant. Steam pipes covered, boiler feed-water heater put in, additional cast-iron floor plates laid in the smelter shed, and steel plates on the charging platform; cast iron flume plates for slag shotting; engine and boiler room roof covered with corrupated iron; a machinery shed or storage warehouse, 20 feet by 30 feet erected; electric light system extended; drains dug and the grounds around the smelter and office generally cleared and graded; while the machinery, plant and buildings have at all times been kept in thorough order and repair.

SMELTING OPERATIONS.

Ore Receipts.—The receipts of ore from the Tyee mine for the year ending 30th April, were as follows:—

	Wet Weight Tons.	Moisture. Per. Cent.	Dry Weight. Tons.
"Rough" ore	33,320.770	1.284	32,892.933
"Fine" ore	15,302.695	2.649	14,897.317
Total ore	48,623.465		47,790.250

equals 31.17 per cent. of fine ore.

	Tons.	
Customs ore "Rough"	2,957.1755	
Customs ore, "Fine"	3,278.1755	
	6,235.3510	
Custom rough flux ore	891.1380	
		7,126.489
Total ore receipts, dry weight		54,916.739
Plus—Ore stocks on hand at 1st May, 1903		4,421.360
		59,338.099
Less—Ore stocks on hand at 1st May, 1904		3,245.837
Total tons of ore smelted		56,092.262

a total of 68 per cent. rough ore and 32 per cent. fine ore; the Tyee ore assaying:—

Copper (wet) (Per cent. by electrolytic assay)		4.56
Silver	ozs.	2.87
Gold	"	0.14
Iron	per cent.	11.94
Zinc	"	6.60
Silica	"	13.50
Alumina	"	3.95
Barium Sulphate	"	37.30
Lime	"	2.20
Magnesia		Trace
Sulphur as sulphides	per cent.	16.62

It will be noted in connection with the analysis for copper that the percentage of copper in the "ore" is figured upon the wet assay, while those of the "matte" and "yield" are figured upon the dry assay upon which the matte is sold; that is, the electrolytic assay, less 1.3 per cent., equals dry copper assay.

Roasting.—During the year we have roasted and trammed to the smelter 34,947 tons of ore the roasting operations being carried on without intermission and with satisfactory results. In order to treat the large accumulation of raw ore fines (some of which had previously been smelted, producing a low grade matte—which was slow, troublesome and expensive), experiments were instituted with a view to binding the fine sulphide ore into brick form, which could be roasted in heaps, instead of the orthodox practice of roasting in mechanical furnaces and afterwards briquetting the roasted fines. The final results of these experiments were highly satisfactory, both as to the oxidation of the copper, zinc, iron, sulphur, etc., and the hardness of the brick produced. After confirming these experiments on a larger scale, and the results being satisfactory, the brick-making and drying plant was erected at the north end of the roast yard, while horizontal oscillating screens were used under the ore bins to screen the mine fines to ⅜-in. size and less, reducing by 50 per cent. the quantity to be made into bricks, the oversize being sent to the roast heaps direct. The fine ore is trammed direct to the pit of the pug mill, covered with water, shovelled into the pug mill and made into brick form, as in slop brick making, and then dried on the drying floor, which requires twenty-four hours. From there the bricks are wheeled direct to the roast beds, piled and burnt.

The brick produced after burning is hard, compact, and stands rough handling and usage; being sufficiently cintered it forms a porous homogeneous mass, and is a valuable addition to the furnace charge of ordinary burnt ore, increasing the furnace capacity at least 25 tons per day. The oxidation of the copper, zinc and iron is remarkably complete, average samples of large piles of burnt bricks giving 1.5 per cent. to 2.5 per cent. sulphur as sulphides, as against 7.00 per cent. in the ordinary burnt ore.

Burnt Ore.—The average analysis of the burnt ore trammed to the smelter during the year is as follows: Iron, 10.50 per cent.; silica, 17.90 per cent.; barium sulphate, 38.90 per cent.; zinc, 7.50 per cent.; magnesia, trace; sulphur as sulphide, 7.09 per cent., a decrease of .64 per cent. zinc, and an increase of 4.82 per cent. barium sulphate compared with the analysis a year ago.

Smelting.—During the year the furnace has been in blast 276 days of 24 hours each, and smelted as follows:—

	Tons.
Tyee burnt ore and bricks	34,947.9230
Tyee raw ore	14,490.0410
Custom ore	6,611.5530
Total ore	56,049.5170
Silica flux	1,132.3985
Iron	447.5545
Flue dust	725.0285
Slag and barrings	3,109.4235
Low grade matte	2,751.8665
Total smelted (Tons of 2,000 lbs.)	64,215.7885
Coke used (Tons of 2,240 lbs.)	6,790.75

being an average of 203.077 tons of ore and 232.665 tons of mixture smelted per day, an increase of 52.69 tons of ore and of 55 tons of mixture smelted per day over that of 1903. The ratio of coke to ore was 1 ton of coke to 8.25 tons of ore, and 1 ton of coke to 9.45 tons of mixture smelted. The concentration was 10.28 tons of ore to 1 ton of matte.

Dividing the above operations into two periods of six months each, we have for the first period an average of 166 tons of ore smelted per day, and for the second an average of 243 tons per day, an increase of 77 tons smelted per day. The smelting operations during the year resulted in a steady increase in the amount of ore smelted per day, a result due to several factors, viz.—experience in handling this class of ore; to experiment; purchase of suitable fluxing ores; changes in the manipulation of the furnace, and the substitution of burnt bricks for raw ore fines in the furnace, making a shipping matte in one operation and using an average of 30 per cent. raw ore.

Slags.—An average sample of the slags for the year, sampled from the slag dump, assayed as follows:—

Copper	Per cent. by calorometric assay	.39
"	Per cent. by electrolytic assay	.40
Silver	Oz.	.12
Gold	"	.004
Iron oxide	Per cent.	17.98
Silica	"	28.25
Barium oxide	"	27.63
Calcium oxide	"	7.00
Zinc oxide	"	6.95
Alumina	"	10.88
Magnesium oxide		Trace.
Sulphur	Per cent.	.88

The betterment in the slag assays being due in part to the addition of the flux ores, which were not available last year, and to doubling the settling capacity at the furnace.

Product.—During the year we shipped 5,454.113 tons of copper matte, containing: 4,446.987 lbs. fine copper, 143,303.01 ozs. of fine silver, 8,778.034 ozs. of fine gold. Total value, less refining charges only $678,836.62. An average matte of copper (dry) 40.767 per cent., silver 26.277 ozs. per ton of 2,000 lbs., gold, 1.609 ozs. per ton of 2,000 lbs., and containing barium sulphide 7.47 per cent., zinc sulphide 12.66 per cent., equivalent to a yield of copper (dry) 3.96 per cent., silver 2.55 ozs., gold 0.156 ozs.

satisfied that the explosion properly so called, did not pass through the main entry; though if the dust theory be accepted that is the place of all others throughout the length of which it must have passed in the condition of that mine. There is nothing in my opinion, in the conclusions of the Coal Dust Committee (second report, 1894, p. viii) which, having regard to the circumstances of this case, conflicts with this view; though it is apparent that there is still much to be learned on the interesting and important subject of dust in coal mines.

Such being the opinion I have arrived at, it is not necessary to consider any other matters, which become immaterial, nor to refer to the cases cited, because on the above facts so found no negligence can be attributed to the defendent company.

It follows that the test actions must be dismissed with costs.

COMPANY NOTES AND CABLES.

TAMARAC MINES, LTD. (Ymir).—The financial statement for the year ending March 31st, 1904, shows a balance in hand of $535.53. The sum of $1,690.44 was expended in development work during this year.

ARLINGTON MINE (Erie).—Shipments were resumed on 1st June, and returns were received during the month from the smelter for three carloads. The receipts amounted to $3,116.77 and the expenses for the month of June were $3,026.65.

YMIR MINE (Ymir)—The mine manager sends the following report for the month of May: Forty stamps ran 28 days 19 hours and crushed 2,950 tons (2,000 pounds) of ore, producing 789 ounces of bullion. The estimated realizable value (gross) of the product is $8,450; 220 tons of concentrates shipped, gross estimated value $6,250; cyanide plant treated 2,090 tons (2,000 pounds) of tailings, producing bullion having estimated gross value of $1,100; sundry revenue $900—$16,700. Working expenses $15,000. Profit, $1,700. There has been expended during the month on development $1,690.

CARIBOO CONSOLIDATED.—Cable from the resident manager, dated June 20th: "West drift is now in 100 feet. Bedrock (reached). Value increased to $14 per cubic yard. Little, if any gravel (yet taken out). There is every indication that the gravel is very rich. Have obtained out of west drift 5 ozs. of gold. Present appearances most encouraging.' A later cablegram states: "West drift is now in 120 feet; gravel at the bottom of cap; bedrock values continue to improve; $22 (about £4 10s.) per cubic yard; the east drift is now in 78 feet; present appearances most encouraging.'

LE ROI (Rossland)—Cable reports for the month of May and June are as follows: (May) from Mr. A. J. McMillan: "Shipped from the mine to Northport during the past month 6,226 tons of selected ore, to mix up with silicious ores already at Northport smelter, containing 2,612 ozs. of gold, 3,600 ozs. of silver, 172,300 lbs. copper. Estimated profit on this ore, after deducting cost of mining, smelting, realization, and depreciation, $7,750; expenditure on development work during the month, $4,500. The manager and mine superintendent have resigned, and a number of others have left service of company. Manager Northport smelter resigning, but remains for several weeks." (June.) From the manager: "Shipped from the mine to the Northport smelter during the past month 6,055 tons of specially selected ore, containing 3,117 ozs. of gold, 4,217 ozs. of silver, and 188,800 lbs. of copper. Estimated profit on this ore, after deducting cost of mining, smelting, realization and depreciation, $20,000. Expenditure on development work during the month, $4,500."

LE ROI NO. 2.—Returns for May estimated tonnage shipped at 1,976 tons. The net receipts for the month were $44,990, representing approximately 2,000 tons previously shipped. There has been a temporary enrichment due to rich ore met in stope 25 during development. The tonnage shipped during the month of June amounted to 1,600 tons. The net receipts were $47,263, being 90 per cent. payment for 2,939 tons shipped; $2,020, being 10 per cent. payment deferred on 1,953 tons previously shipped; $3,905 being payment for 125 tons concentrates shipped—in all $53,188."

TYEE COPPER (Mt. Sicker).—The following report for the month of June has been issued: "Smelter ran 24 days during the month, and smelted—Tyee ore, 5,070 tons; Customs ore, 225 tons—5,295 tons; matte produced from same, 467 tons; gross value of contents (copper, silver and gold) after deducting costs of refining and purchase of customs ore, $59,245. N.B.—Main shaft is now down 483 feet. There is a very favourable change in the rock, showing thin seams of copper ore. Appearances are in favour of striking ore body.'

COMPANY MEETINGS AND REPORTS.

TYEE COPPER CO.

ON July 7th the fifth ordinary general meeting of the Tyee Copper Company, Limited, was held in London, Eng., Mr. T. H. Wilson (the chairman of the company) presiding.

The Chairman said: "Before moving the adoption of the report and accounts I think I ought to make some few explanations, so that a clearer understanding as to the true results of the past year's working may be arrived at than the accounts, on their casual reading, may have given to the shareholders generally. Doubtless many were surprised to note that the profit for the year was so low as £25,390, the amount mentioned in the report, whereas the gross profit is £25,390, plus the amount placed to reserve as agreed, £22,125; the amount spent out of the revenues upon mine and smelter during the year, £9,500; amount of depreciation written off, £3,990; income tax, extra on the previous year, say £2,281; London expenses, £1,877—a total of £65,163. This, of course, is only taking intoaccount the larger items. I now ask you to refer to the balance sheet. On the debtor side sundry creditors, £3,367 15s. 3d.; of this amount £493 15s. 3d. has already been paid, the balance is a debit made for income tax, which, although only one-third will have to be paid this year, yet it is felt by the board it is a liability to be spread over three years, and should be reserved. The next item to be dealt with is the profit made, 1903, £9,021 18s. 1d. This amount, though made, was spent upon buildings etc., at the mine and smelter. The board were in this position: Spent as mentioned 1903 say £9,000; 1904 say £9,500; total, £18,500. It was decided, therefore, to take this amount from the profit account, not having the money available for dividend purpose, and to dispose of it as follows: From the mine account, on the credit side, which in reality should be, in round figures, £19,167, they reduced by £8,000, making it £11,167, The smelter stood at £21,848, but that they reduced by £8,000, making it £13,848; and the aerial tramway stood at £8,502, which they reduced by £2,500, making it £6,002. This will explain why the amounts against these respective heads are much less than they appear in the report of 1903, notwithstanding the many additions made. The fact is your property is worth more than the figures give. The other items on the debtor side explain themselves.

Turning to the credit side, properties, concessions, &c., is increased by £343 4s. 7d., as per items named. I have already explained about the reduction at the mine, smelter, and aerial tramway. Stocks on hand are of the actual value as per stocking sheet. The reserve fund is as per arrangement settled upon last year; only the two-fifths of the sum has been found this year, and only half that amount will have to be provided in the three following years. Of the cash (£13,724), paying the proposed final dividend will take £9,000, leaving £4,724 to carry forward. Of the amount standing for sundry debtors, £3,896 has by this time been received. The reserve to be made for this year, £11,062, is well in hand; so that we have a hopeful future. Before moving the resolution I should like to refer to the report of Mr. Musgrave (our mine superintendent) as to the ore reserves. The conservative statement made by him has alarmed some of the shareholders, and inquiries have been made at the office:

"Is the life of the mine limited to one year?" In reply to this I should wish you to read carefully Mr. Clermont Livingston's report on this subject. In the past he has proved himself to have such an excellent grasp of the facts. Mr. Musgrave refers only to the ore body on which he is at present working. I have no doubt that during the present year our developments will prove large bodies of ore in depth, likewise in our adjoining properties. New machinery for sinking a shaft on the X. L. claim has just been ordered. I have much pleasure in giving the results for the month of June, just to hand by cable, a copy of which will be posted as usual: Result—"Smelter ran twenty-four days during the month and smelted: Tyee ore, 5,070 tons; customs ore, 225 tons; total, 5,295 tons; matte produced from same, 467 tons; gross value of contents (copper, silver and gold), after deducting costs of refining and purchase of customs ore, $59,245. N. B.—Main shaft is now down 483 ft. There is a very favourable change in the rock, showing thin seams of copper ore. Appearances are in favor of striking ore body." Mr. C. Livingston also informs us, by cable, in reference to Mr. Musgrave's annual report—which you will find on page 13, under No. 2 stope—as follows: "No. 2 stope—This has been worked on seven floors, which equals about 50 ft. in height, and what has been said of No. 1 stope applies to this; that is, there is still ore on the upper floors. There is in this stope a heavy seepage of water from the roof of the upper floor, which makes it appear probable that the ore makes again a little higher up. After raising 5 ft. a good body of ore was struck, and a further 15 ft. has been carried, with roof still in ore." He also adds: Mine and stopes look exceedingly well." Before closing my remarks there is one subject that I would like to say a few words upon—that is, the aerial tramway; that, although we had new ropes intsalled in December last, yet the hauling rope is not wearing so satisfactorily as we could wish; but arrangements are being made for a stronger rope, which may cause slight delay occasionally in the shipment of ore to smelter. There is a glass model of the mine in the room, showing developments, for your inspection. I have now much pleasure in moving the adoption of the report and accounts.

Mr. J. A. D. Hancke seconded the motion.

A long discussion ensued, one or two of the shareholders taking exception to the various sums written off for depreciation, and one proprietor moved as an amendment that the final dividend proposed by the board—5 per cent.—should be increased to 10 per cent. This was ruled out of order, and the accounts as presented were finally adopted, several shareholders cordially supporting the cautious policy of the directors. The Chairman in his reply defended the conservative attitude of himself and his co-directors, and said that although they might be blamed for this policy of caution, they hoped that the shareholders would later on see the wisdom of this course, and be able to congratulate themselves on the great success of the company. Cordial votes of thanks were passed to the board, the local directors and general manager, Mr. Clermont Livingston, and to the staff generally for their services during the year.

NORTH STAR.

At an extraordinary meeting of the shareholders of the company held at the office of the company at Montreal on June 29th, it was resolved: "That the directors are hereby empowered to liquidate the company, also to sell the properties of the company at East Kootenay or elsewhere in such manner as may appear to them advisable and to distribute among the shareholders the proceeds of said sale, together with any other funds in their possession. The above resolution to be put into effect only after consultation and approval of the majority of the board, and a majority of the committee of shareholders composed of Messrs. John Beattie, R. Reford, H. S. Holt, Alexander Woods and R. C. Gillett."

It was also resolved: "That a distribution of the cash on hand be made to the shareholders of record on the 9th day of July, 1904, at the rate of seven cents per share."

In accordance with the above resolution the transfer books of the company will be closed at noon of Saturday, the 9th day of July, 1904, and a distribution at the rate of seven cents per share will be made to shareholders of record of above date, payable on the 15th of July.

SOME NOTES FROM THE MINING CAMPS.

YUKON.

THE Detroit-Yukon Mining Company is operating extensively on Bear Creek, and recently there were received at the mine machinery weighing 200 tons in the aggregate, including two steam shovels and sluicing plant capable of handling 800 yards a day.

The Ogilvie Company's prospecting dredge on the Stewart river is giving very satisfactory results, making a profit of a big percentage over operating expenses. In consequence large dredges will next season be placed on the river.

A despatch from Dawson announces that No. 16 claim on Eldorado Creek, which at one time yielded a very large quantity of gold, but worked only in a desultory fashion during the past two seasons, is again about to be operated on an extensive scale, it being believed that by handling the gravel economically, sufficient gold yet remains to pay for recovery. As a means to this end it is proposed to drive a bed-rock tunnel the full length of the claim.

ATLIN.

First consignments of gold from Atlin are beginning to arrive at Coast ports. Recently the amalgamated McKee Creek Mining Co., made a first and the largest individual clean-up ever made in the district of over five hundred ounces. The undertaking was formerly known as the Atlin Mining Co.

Mr. W. J. Robinson, of the British America Dredging Co., operating on Pine Creek, Atlin, who recently returned from a visit to the district, states that Dixie Creek, situated beyond the boundaries of auriferous area at present being worked, is likely ere long to become importantly productive. The Creek has already been prospected and, it is said, heavy, coarse gold found there. The Company, Mr. Robinson stated, propose installing a dredge on Dixie Creek, there being ample water here for the development of power. The Company also announce their intention of operating two additional dredges on the Atlin leases, at an estimated cost of $500,000; while the British Columbia Dredging Co. is installing a dredge on Spruce Creek.

COAST.

It is reported that arrangements are being made for the reopening of the Hayes Mines on Alberni Canal.

LILLOOET.

The big dredge is now in steady and successful operation, although the river being now in flood precludes the obtaining of the best possible results.

CARIBOO.

Prospects for a successful season in this district are reported to be most promising, there being an abundant supply of water for the working of the hydraulic mines in the vicinity of Barkerville. The Waverly, it is said, is likely to pay substantial dividends this year, while good reports come from China and other Creeks. The last report from the manager of the Cariboo Consolidated is most encouraging, bed-rock having been reached in the West drift of La Fontaine, where values have increased to $20 per cubic yard, with every indication that the gravel is exceedingly rich.

A first clean-up at the consolidated Cariboo Hydraulic Co's. Bullion mine resulted in the production of three gold bricks valued at $60,000.

Rich gravel has been encountered on the Horsefly Gold Mining Company's property.

KAMLOOPS.

It is reported that a Vancouver Island syndicate has purchased the Copper King mine at Cherry Creek, and propose developing the property on an extensive scale.

The new concentrator at the Iron Mask mine is now completed, and the machinery, it is thought, will be put in operation early in August.

The B.C. Mining Exchange and Investor's Guide

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THE MINING OUTLOOK ON VANCOUVER ISLAND

SOME PRESENT CONDITIONS ON MT. SICKER—ENCOURAGING NEWS FROM THE TYEE—THE KEY CITY—THE RICHARD III.—THE MTS. SICKER & BRENTON MINES—KOKSILAH CAMP—THE CROFTON SMELTER.

TO OUR READERS.

In view of the recent re-opening of the Crofton smelter, referred to briefly in our January issue, the encouraging developments in the Tyee mine, and the generally promising outlook for the coming season for the mineral industry on the coast of British Columbia, the management of the B. C. Mining Exchange has considered the time appropriate for somewhat more extended reference to the operations of the most prominent among the numerous coast properties now forging to the front than has been possible in ordinary issues.

For this purpose, therefore, a representative of this journal has, during the past month, been making a tour of inspection among the more prominent properties, securing much valuable information and illustrations, which we now place before our readers.

The season of the year has made this work unavoidably slow, and the gloomy weather of late winter has militated considerably against successful photographic work; but the task set itself by the management of this paper has, we hope to be fairly justified in saying, been carried out with a tolerable degree of success.

The difficulties of travel inseparable from the time of year have thus caused delay in the completion of the work, which must be our excuse for a somewhat late appearance this month. For the same reason we are unable to complete in time for this issue a most interesting and profusely illustrated article on the Britannia mines at Howe Sound, 28 miles from Vancouver. This will, however, appear in our March issue.

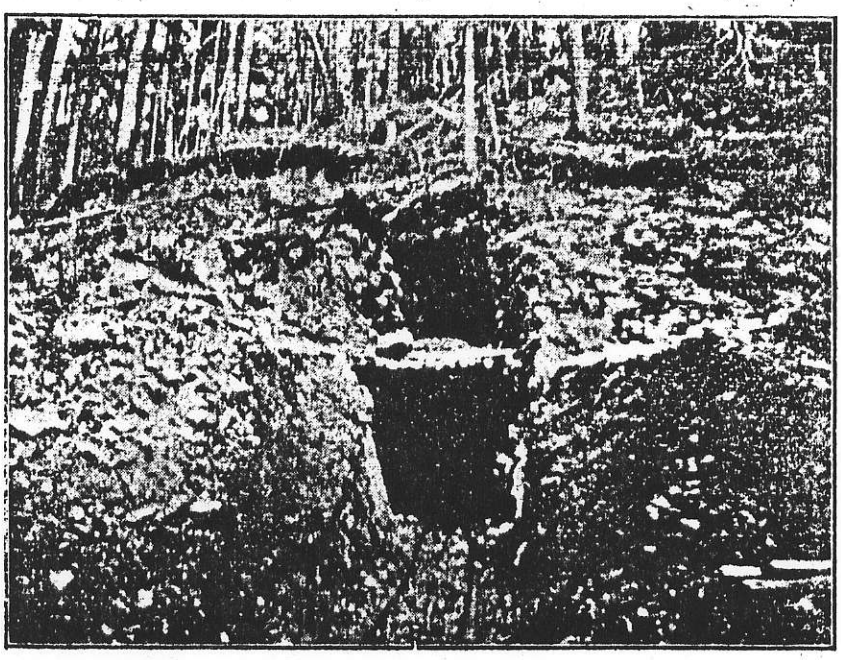
THE TYEE MINE.

(From Our Own Correspondent.)

The Mount Sicker ore body was discovered in the Spring of 1897. In the Summer of 1896 a forest fire swept the Western slope of the Mountain and this laid bare the outcrop of the lode. In the Autumn of 1897, Mr. Clermont Livingston purchased the interest of Messrs. Smith and Buzzard (the original locators of the Tyee) and other interests were also secured.

In the early Spring of 1899 Mr. Livingston formed a Development Company in London to open up the Tyee from the prospect stage. This preliminary work was successful in proving the ore body to a vertical depth of 200 feet. Additional capital was then required to bring the prospect to a shipping mine and Mr. Livingston went to England in the Winter of 1899 to assist in the formation of a larger Company. This was carried through, notwithstanding the deterring influences of the South African War.

Mr. E. C. Musgrave was then placed in charge of the mine. A three-compartment shaft was sunk and the necessary equipment installed and by the latter part of 1901 sufficient ore was developed to justify the erection of a smelter.



Portal of Tunnel, King Solomon Mine, Koksilah Camp.

This necessitated further capital and the Tyee Copper Company was increased to 180,000 shares of £1 each, £50,000 of which was in actual cash and used for the erection of the Company's smelter at Ladysmith and the installation of an aerial tram connecting the mine with the Esquimalt & Nanaimo Railway.

Shipments of ore to the smelter commenced in September, 1902, and have been continued ever since. From that time until now 138,250 tons of ore have passed over the tram and been treated at the Tyee Company's smelter.

The results obtained from this ore have proved the Tyee to be one of the best paying mines ever worked in British Columbia, and good reserves of ore are still standing in the upper levels of the mine. From 1903 the Tyee passed through the usual vicissitudes of other large copper mines. Below the 300 foot level a barren zone was encountered that extended downwards to the 1,000 foot and crosscuts and drives failed to disclose the continuation of the ore body worked so successfully in the levels above. No one connected with the mine, however, believed that an ore body of such strength and unique character as that of the Tyee could have petered out at such a shallow depth. Quite recently a crosscut to the south of the shaft intersected about 3 (three) feet of mineral bearing rock.

This ore is of low grade, but containing as it does the same gangue and characteristics of the ore body in the upper levels, it augurs well for the de-

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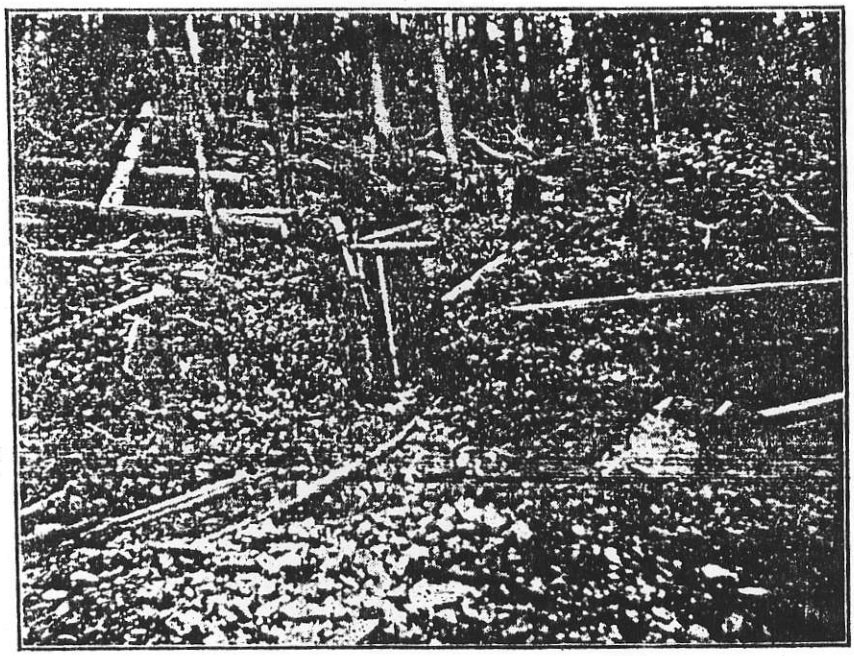
velopments at greater depths which will shortly be commenced.

The position of this mineralised rock recently encountered is near the boundary of the "Herbert," which is one of the numerous mineral claims belonging to the Tyee Company, and as the Company own in an unbroken line the entire ground between this point and Chemainus River, it seems that they are owners of many thousands of feet on the run of the lode.

If mining at great depths on the Tyee Company's property produce results as it is now warranted to expect that it will, the benefits to Vancouver Island and the adjacent coast will be very great.

Up to now the current belief has been that ore bodies in this country do not go down, but once prove this theory to be wrong and it will be a great incentive to the influx of capital from London and the other great money centres of the world.



Portal of Tunnel on the Blue Belle, Koksilah Camp.

KEY CITY.

When at Mount Sicker our correspondent called on Capt. Wasson, of the Key City, a mine directly south of and adjoining the Lenora. Capt. Wasson authorized the statement that during diamond drilling operations he had located a very promising body of ore and that it was the intention of his company to start active mining operations within a short time.

RICHARD III.

Mr. C. H. Dickie, of Duncans, one of the principal shareholders in the Richard III. company, informed our correspondent while at Duncans that, in view of the fact that the ore body in No. 6 stope at the 100-ft. level of the Tyee, was now within less than 100 feet of the Richard III. boundary, the outlook for a very profitable season's work was most promising.

The Tyee lode is steadily rising toward the Richard III. ground and at the face, when seen by the writer during a recent visit, was fully 10 feet wide.

It is expected that the Richard III. company will endeavor to locate this body from their present shaft. It is thought that the ore body can be struck with a small outlay of capital.

THE MOUNTS SICKER AND BRENTON MINES, LTD.

(From Our Own Correspondent)

Directly west of Mount Sicker and on the other side of the Chemainus river, rises Mount Brenton, on which are staked many promising mining claims, and at the base of which is situate the principal property of the Mounts Sicker & Brenton Mines, Limited, viz., the Copper Canon. There is a fairly good road from Mount Sicker camp to the river which was, until the last day of 1905, spanned by a sound, serviceable bridge. During the evening of the day in question, a large tree was blown down by a strong north wind, and although the tree was leaning heavily to the north, the wind was blowing at such velocity as to slew it up-stream and up-root it. In its fall it totally demolished the bridge. The Provincial government was appealed to and at the time of a visit made to the camp by our correspondent on the 16th inst., a gang of men, employed by the Department of Lands and Works, was busy hauling out timber from the woods on the Mount Sicker side to rebuild the bridge. The span is about 100 feet and it is not expected that the new structure will be ready for use until after the end of the present month.

This accident was, unfortunately, the direct cause of the cessation of active work on the properties of the company above mentioned, and at the time of our correspondent's visit there was no work going on of any importance.

By appointment, on the date of the visit, the writer was met at the eastern boundary of the Victoria claim, one of the company's properties on the east side of the river, by Mr. Alexander Young, the superintendent, and in his company and under his guidance conducted an exhaustive inspection of the Victoria and the Copper Canon, both of which are being extensively developed and exploited by the owning company.

We take this opportunity of expressing our appreciation of Mr. Young's assistance and courtesy and also the kindness of the company in placing, through Mr. Young, every possible information and opportunity for judging the merit of their properties from a mineral standpoint.

The comments following are not those of a mining expert, rather those of a man who has endeavored to place on record what was actually seen. As far as is possible actual facts have been strictly adhered to.

When the Tyee Copper Company were sinking on the main shaft and endeavoring to locate the ore at depth the one and only indication that ore existed was the presence of a small gouge of baryta, a substance which to the uninitiated might easily be mistaken for very fine clay, which was cross-cut a few feet south of the shaft on the 1,000 ft. level of the Tyee in the drift on the floor of which the apex of the new ore-body was discovered quite recently.

This seam runs practically due east and west, with perhaps a variation of 10 degrees to the north of east. The same seam, or one exactly similar in character, was always found in the Lenora, the next claim west of the Tyee, alongside of the ore, and was, so the writer is told by many men who worked on the Lenora, always a sure indication of the proximity of ore. The same thing exists, so our correspondent is assured, in the Key City, the next claim west of the Lenora. Whether it exists or has ever been found in the Tony or Alida, a claim and a fraction, west of the Lenora, we have no means of finding out, but it, or one exactly identical, does most certainly exist on both the Victoria and Copper Canon claims, as it was most carefully traced and found extending clear across the former and seen in the extreme west drift of the latter, and, by means of a good compass, the trend taken in three places in three cross-cuts at the 60-ft. level. In each case, allowing 24 degrees for variation, the direction was 10 degrees north of east.

In the Tyee the new ore body exists to the south of the seam, in the Victoria and Copper Canon both the veins are to the north.

On the Victoria claim the company has done extensive surface stripping by ground sluicing, thus exposing, for a considerable distance, the outcropping of the two veins on the property, one to the south and the other to the north of a diorite dyke which runs clear through the claim. There are also

three tunnels. No. 1, the upper tunnel, has been driven on the vein for a distance of 160 feet. From thence a cross-cut has been run north for 60 feet cutting through 14 feet of ledge matter, the north vein, which carries gold, silver and copper.

Tunnel No. 2 is about 100 feet lower and is in 30 feet. At the end there is a 7 ft. winze in ore about 12 inches wide and of exceptionally good quality. Assays from this vein have given $10.40 gold, 10.62 ozs. silver and 19.32 per cent. copper.

Tunnel No. 3 is run on the south vein, above No. 2.

On the Copper Canon the great bulk of the work accomplished by the company has been done. There is at present a two-compartment shaft, 4x8 feet in the clear, down 144 feet and in ore at the bottom. This shaft connects at 60 feet with an old tunnel run from the river bank, a distance of 90 feet. At the portal of this tunnel, a cement bulkhead has been constructed with valves at the floor level for draining the seepage water. The bulkhead has been placed there to prevent the mine being flooded in case of extremely high water in the river. It has been so arranged that, while it keeps the water out, it supplies, at the top, any amount of fresh air, and by means of a water blast all powder smoke can be driven from the mine in a short time through the same opening, thus ensuring an easily cleared mine.

To the west of the shaft the drift, an extension of the old tunnel, extends 65 feet on the vein, from which point it is deflected to the south for a distance of 160 feet more. From this west drift there are five cross-cuts, three to the south and two to the north.

Another cross-cut runs from the shaft north 114 feet, ending at the north ledge. The other two cross-cuts to the north are 28 and 33 feet respectively. The former runs to the black schist lying south of the north vein, while the latter reaches the main vein, from which, as has already been stated, the drift is deflected. At this point the vein is two feet in width and shows up clean and strong. Samples taken during this visit looked well up to the standard.

The south cross-cuts are 18, 8 and 54 feet respectively. The first ends at the seam of baryta, the second ends at the same but the last cuts through it and was originally intended to be the main working level of the mine; as an upraise was started from the end of the cross-cut for 47 feet, with the intention of continuing the same to the surface a few feet north of the engine house. This upraise is two-compartment, 5x5 feet and 5x3-6. This was raised on ore.

The main shaft was sunk on ore the entire distance of 114 feet; at this depth the vein averages two feet in width. The ore is of very good quality and much improved in value from that obtained from the upper workings. Assays of this ore have given $51.70.

As soon as the bridge is finished it is the intention of the company to start active development work at the 144 foot level. As soon as the mine at this level is proved the shaft will be continued down.

The shaft house is a splendidly constructed building 42x30 feet, equipped with a one-horse whim for present use, and good until the 500 ft. level has been reached, and all accessories such as gallows frame, automatic dumping bucket, car and line.

The blacksmith's shop, close by, is fully equipped and will serve the purpose of the mine for many years.

The framing shed is also close by. It is 14x28 feet in size and is well supplied with a good outfit of all necessary tools.

The engine house, now that the company has decided to make the shaft the main working of the mine, is in the wrong position, and will have to be dismantled. With a view to this the shaft house has been made sufficiently large to accommodate all the machinery. The boiler can be placed in an addition on the north at small cost. The machinery consists of a five-drill compressor, a 27 h. p. hoist and a 40 h. p. boiler. Since the company has decided on the hydro-electric plant, dealt with later in this article, the boiler will be simply held as auxiliary power, in case of accidents.

The cook house, situate about 100 yards south of the shaft house, is equipped for 100 men and is in every respect a credit to the company. Large, airy, scrupulously clean, it shames many a dining hall in which the writer has had the privilege and misfortune to eat.

The bunk house is another fine building with accommodation for 36 men.

The stables are due west of the bunk house, with accommodation for two teams of horses and feed. Two fine sheds extend each way the full width of the building, which is built of logs and the spaces between filled with good mortar, making altogether a splendid warm home for the horses.

There are two comfortable dwelling houses on the property, one occupied by the superintendent, and another fitted with bath and all conveniences for the use of officials on their visits. This very comfortable house was the resi-

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dence of the writer during the visit, which, owing to circumstances related later, was extended to two full days.

Water for all purposes is obtained from a reservoir about 600 feet from the cook house and 50 feet above. This supply practically insures the company against fire as mains are laid to all buildings. This system also supplies the necessary force for the water blast used for clearing the powder smoke from the mine.

The company owns exceedingly valuable water rights, which, owing to the fact that, on the morning of the 17th inst., it was found impossible to cross the river on the log fallen for the purpose, as the river had risen during the night over two feet owing to the very heavy rainfall, which prevented the writer taking any views on the property, but gave the opportunity for paying a visit to the creek from which the power will be obtained.

King Solomon Mine, Koksilah—House of Superintendent Wm. Lewis.

This creek, named Holeyoke, drains a lake called Lake Hyrg, so called by the discoverers, G. C. Hinton, of the Hinton Electric Company, Alex. Young, the mine superintendent, A. C. Routh, one of the Hinton Co's. employees, and Harry Graham, ex-Alderman of Victoria. The name is composed of the initials of the surnames of these gentlemen. This body of water is one and a half miles long by from one quarter to one half mile in width. It is situate at the summit of Mount Brenton, 3,100 feet above the Chemainus river. The company has 500 miner's inches of water recorded, and the amount available at the point at which the flume will start is about 280 inches. According to aneroid barometer observations taken, the head from the beginning of the flume to the site of the power house is 470 feet. So far the work done is considerable; the flume foundation has been dug and the trench for the pipe line made ready for the better portion of the distance. Power will be generated by means of a Pelton water-wheel, which will, in turn, operate dynamos. When completed, the company will have sufficient power to operate all their own machinery and enable them to augment their earnings by providing power for other mining companies, which are bound, sooner or later, to operate in the vicinity, in view of the enormous development which is bound to take place in the district within a comparatively short space of time. The wagon road from the company's buildings has also been made to the site of the power house.

In addition to the two claims referred to, the company owns the Yankee, adjoining the Tyee to the south-east, the Victoria fraction, between the Victoria and the Copper Canon, the Elmer fraction, adjoining the Copper Canon on the west, the Susan, adjoining the latter to the west, and a group of three claims named Anoka, May and Star on Anoka creek, two and a half miles to the south west.

To sum up, there appears to be no doubt that this company has the very best prospects, and it would be no surprise to hear that, by next fall, the properties will be developed sufficiently to be in a position to start shipping.

The Victoria Lumber & Manufacturing company owns very valuable timber limits up the river and has had surveyed a railway line, which it is understood would be immediately built were a decent ore tonnage offered.

MANAGING-DIRECTOR ILL.

We regret to state that for the past nine weeks Mr. W. A. Dier, managing-director of the Mts. Sicker & Brenton Mines, Ltd., has been confined to the hospital, and has had to undergo a very severe operation for trouble brought on by exposure while at the company's mines. He is now, however, on the mend.

KOKSILAH CAMP.

(By Our Own Correspondent.)

Prospectors are, as a general rule, most courteous men, and when the special staff correspondent of the B. C. Mining Exchange approached Mr. Robert McLay, Jr., with the request that he would accompany the scribe through the Koksilah mining camp, the request was at once and most readily granted. To Mr. McLay, therefore, far more than to the writer, is due the thanks of readers of this journal for the facts produced herewith.

There are few camps in British Columbia with better facilities in the shape of good approach roads, than the Koksilah mining camp, situate about nine miles from the prosperous town of Duncans on the line of the Esquimalt and Nanaimo railway, which for the benefit of readers not local, is a branch of the Canadian Pacific Railway which runs from Victoria, the capital city of the province, to Nanaimo, one of the great coal producing districts of Vancouver Island. Last summer the Provincial government laid out and constructed a three mile road branching from the road running up the Koksilah river from Cowichan station. Although only constructed so recently, already two cars of ore have been hauled over the road, during the softest weather, and it speaks volumes for the department under whose direction the work was carried on, that the road shows little, if any, signs, at present, of any hard usage. Since the road was completed as far as the department felt it necessary to make it, the King Solomon's Mines, Limited, has, at considerable expense, continued the road to their workings, with the result that they were able to ship two cars of ore during the winter.

Although there have been mining claims at the base of the mountain and on the Koksilah river front for years, it was not until the year 1902 that any prospecting was undertaken for mineral claims on the mountain.

Mr. McLay was the first man to stake on the hill and in that year, in partnership with Charles Ryan, recorded the Bluebelle, which claim was afterwards sold to the Vancouver Island Mining & Development company, who will, it is expected, develop the property this coming summer. During the same year the same men staked the Copper Hill and R. H. Whidden of Duncans staked the Wallce. In this year also the property, known then as the Beaver, and now as the King Solomon, was staked by Messrs. Shaw, Tyhurst, Hicks-Beach and Frank Price, all of Duncans. These gentlemen threw up the claim after the first year and it was restaked by McLay in July, 1903, and subsequently bonded to the present operators, the King Solomon's Mines, Limited, for $12,500 at three years. This deal was made on 5th January, 1905. Interested with McLay in this bond are J. McDonald and Charles Ryan.

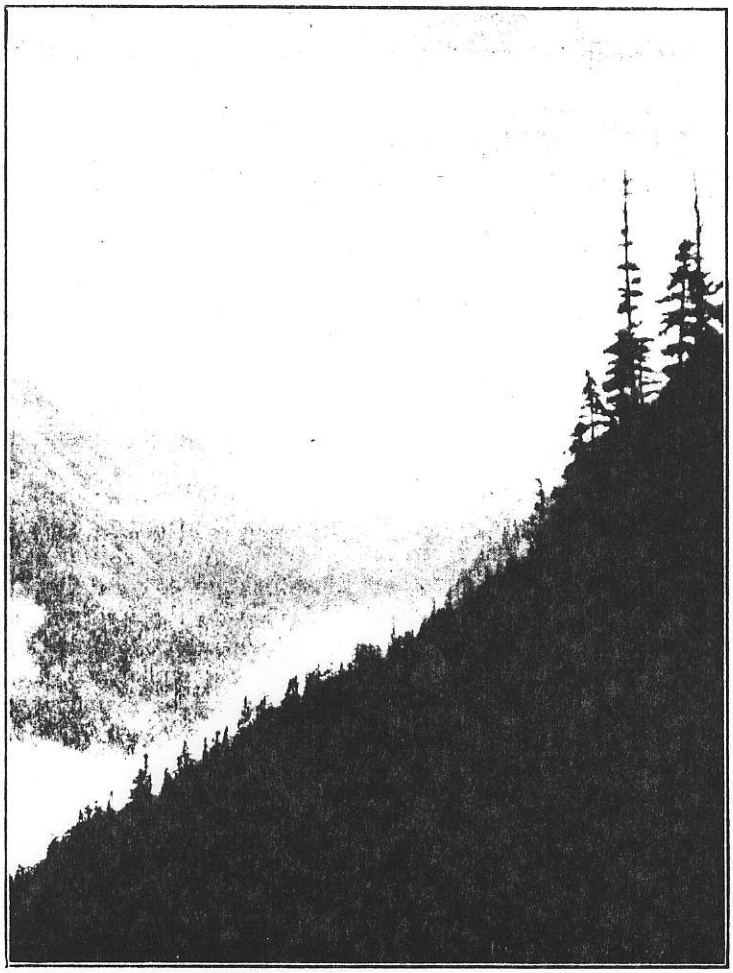
Sherberg & McDonell; the Independence, by H. A. Thorn, and the Dundee, by D. A. McDonell.

"The Andrew, owned by Frank Patterson, has recently been sold to a Seattle syndicate and work is already started. Only a few days' actual mining has been done since the camp was established. A few sacks of copper sulphide ore were shipped by last steamer for a smelter test.

"West Arm.—The iron property situated on the north side of West Arm comprises 36 claims and is owned by J. A. Moore & Wm. Pigott, of Seattle, Wash. A considerable amount of work has been done on the different claims during the year consisting of numerous open-cuts, pits and shallow shafts. The two largest cuts are 425 ft. long, 4½ ft. wide, 7 ft. deep; and 200 ft. long, 2 ft. wide and 4 ft. deep, all in ore. Some of the shafts are sunk 14 ft. deep. The results from this year's work are most satisfactory and large bodies of hematite have been opened up.

"A new discovery of iron was made by Chris. Jacobson & James W. Jackson and four claims, the Iron Meadow, Iron Meadow No. 1, 2, and 3 were located. This property is situated about 10 miles farther up the arm than that above mentioned and quite a distance back from salt water.

"The Nel and Stella No. 1, owned by James A. Moore & Ray C. Price, are other promising properties which were located last summer, and from the work done showings are very satisfactory. The ore is bornite.



Looking up the Kemano River, Gardner Canal, Skeena Mining Division.

VICTORIA MINING DIVISION.

The mining recorder's report of mining in this division contained the following:—

"Vancouver Island Mining and Development Company, Limited.—The work done by this company has been concentrated on Koksilah Mountain, about five miles from Cowichan, a station on the Esquimalt & Nanaimo railway. From the Bluebell five carloads of ore have been shipped, ranging from 5 per cent. to 8 per cent. copper; several prospect shafts have been sunk, which have proved the existence of good copper to a depth of 60 ft. below the outcrop. Work was suspended at the end of November, as weather conditions were an obstacle to the extensive surface work that was being undertaken; it will be continued in the coming spring. Although it is too early yet to speak definitely, conditions appear to be favourable for the development of marketable ore.

"Tyee Copper Company, Limited.—While the

Tyee mine has been regularly reported on for the last few years, a few remarks on the past year's work will prove interesting. Tyee ore to the amount of 23,823 tons was smelted at the company's smelting works at Ladysmith. This produced 2,115,617 lb. of copper, 3,776 oz. of gold, and 77,085 oz. of silver, the cash returns, after deducting refining and freight charges, being $396,500. The Tyee main shaft has attained a depth of 1,250 ft., and the same low-grade ore body has been met with that had been previously intersected at the 1,000 and 1,150-ft. levels. A winze has been commenced at the 1,150-ft. level, and this will be sunk from 200 to 300 ft., which will prospect the mine to a depth of about 1,500 ft. from the actual surface of the ground. At the same time, heavy prospecting work in the form of drifts and cross-cuts will be done in the lower levels, to follow up and explore the ore that has been exposed. Concentration tests are also being made, in order to find out the best method of utilizing the large tonnage of low-grade material which has been developed in the mine.

"In addition to the work at the Tyee mine, a shaft has been sunk to a depth of 500 ft. on the neighbouring claim, called the I. X. L., which is also the property of the Tyee Company. Several thousand feet of work have been done on this ground on a formation very similar to that on the Tyee, and the indications are distinctly favourable for pay ore.

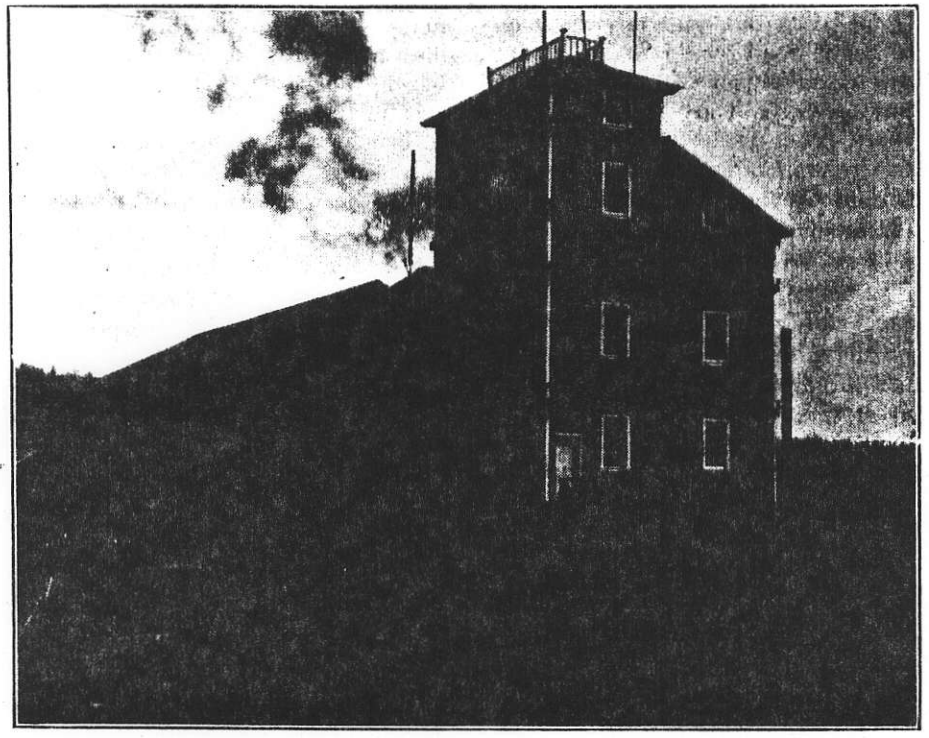
"The diamond drills are also working continuously on the property. One of these has a capacity of 3,000 ft.

"Richard III. Mining Company, Limited.—The Tyee smelter has secured the contract for the ore from the Richard III. There is now some 400 tons on the dumps ready to be shipped, and regular shipments will be made.

"San Juan District.—The necessary annual assessment work has been performed on a number of claims, but no reports of any import have come to my knowledge."

NEW WESTMINSTER MINING DIVISION.

"The number of claims recorded," stated the local mining recorder in his annual report, "exhibits a considerable increase over the year before, and shows that there is greater activity in prospecting than there had been for the two preceding years. Some good prospects have been found between Salmon Arm and Howe Sound, and it is the intention of the holders of the mineral claims recorded in that locality to do considerable development work during the year 1907. There has been a great deal of prospecting in Howe Sound and vicinity, and also throughout the whole mining division, and it is expected that the year 1907 will show an increase over the preceding years."



Sampling Mill at Tyee Copper Company's Smelter, Ladysmith, Vancouver Island.

During this summer the geological survey of Alaska is to be continued by 11 United States Geological Survey parties, several of which are already in the field. By further subdivision there will be 14 separate groups of explorers, comprising 20 technical men and 21 assistants. Five parties will study economic geology, five will make topographic maps in the Yukon-Tanana, one party will map the Kasaan Peninsula on Prince of Wales Island, and two hydrographic parties will study the water resources of the most important placer districts.

COMPANY MEETINGS AND REPORTS

TYEE COPPER COMPANY, LIMITED.

The eighth ordinary general meeting of shareholders in the Tyee Copper Company, Limited, was held in London, England (where is situated the company's head office), on July 10, ult. The chairman of the company, Mr. T. H. Wilson, presided, and the following reports and statements of accounts were submitted:

DIRECTORS' REPORT.

"The directors herewith submit the audited Statement of Accounts from May 1, 1906, to April 30, 1907.

"The prospecting and developing at the mines have been carried on persistently during the past year, both at the Tyee and X.L. mines. The results, however, up to the present, have not disclosed any new ore-bodies, although the general manager, as you will see from his report, owing to his local knowledge, continues to maintain a hopeful attitude, and this seems justifiable in view of the large area of the company's property still unexplored.

"You will be asked to approve of a recommendation by the board to pay a dividend for the year at the rate of 7½ per cent. per annum. This dividend will be payable on August 1 to all names standing on the Register of Members of the company on June 4, 1907.

"It is a matter of congratulation that at this stage of our history, when the present known ore-bodies in the mine are being depleted, that the business in smelting custom ores has satisfactorily increased, and the directors look forward to considerable improvement in this department for the future. This may necessitate some additions to our smelting plant, and proposals to that effect are being considered.

"The retiring directors at this time are Messrs. T. H. Wilson and H. Loeffler, the latter gentleman having succeeded to the vacancy caused by the death of Mr. Ludwig Loeffler. These gentlemen are eligible and offer themselves for re-election.

"The retiring auditors, Messrs. Everett, Morgan & Grundy, also offer themselves for re-election."

The reports of the general manager, the mine superintendent and the smelter manager, which give details and represent the opinions of these officials in their respective departments, follow:

GENERAL MANAGER'S REPORT.

Mr. Clermont Livingston, local director and general manager, reported:

"I beg leave to enclose annual reports from the mine superintendent and smelter manager for the financial year ending April 30, 1907, which I confirm. In reviewing these reports, I shall follow my usual course and take the mine first.

"As you will see from the mine superintendent's report we have, during the past financial year, shipped 21,567 tons of ore to the smelter, which has yielded a good profit.

"Mr. Bryant in his report has dealt exhaustively with the various development works that have been carried into effect during the past twelve months. This work we consider has practically proved that the main ore-body of the Tyee mine has been formed in a synclinal fold of the graphitic schists. This main ore-body has, moreover, been practically exhausted, and all that is now left is a small quantity of good ore lying near the surface and situated between the old No. 2 shaft and the western boundary of the Tyee claim. The north lode is so broken that no calculation of tonnage from that quarter can possibly be made, and, although this lode probably traverses the entire claim, the ore contents may be so separated by barren material as to make it unprofitable to work. If this should prove to be the case, shipments from the mine may shortly have to be suspended until another ore-body has been found.

"Although the not finding a payable ore-body immediately below the main ore-body that has been so successfully worked on the Tyee claim has been a great disappointment to us all, this work has shown us what formation is necessary for the deposition of a similar body of ore, and so should aid us in our future search.

"If the Tyee claim itself formed the entire holding of the Tyee Copper Company, the prospects for finding another ore-body vertically below the one worked out would not be as bright as they appeared twelve months ago. Fortunately, though, the company owns a large number of claims outside of the Tyee, and on several of these the work of the past year has demonstrated the existence of graphitic schists.

"On the X. L., although a payable ore-body has not yet been proved, the graphitic schists and the formation generally is identical with that on the Tyee, and further development work, both by shaft and diamond drill, has been laid out. In reference to this I may remark, that on many parts of the Tyee less than 100 ft. of ground vertically would have entirely covered the ore, and so work above or below these points would have been in barren ground. This adds greatly to the difficulties of prospecting, as another trough may exist in the X. L. and yet so far have been missed. The knowledge we have gained from recent work has, however, enabled Mr. Bryant to formulate a scheme for further testing this ground and which I trust may be successful.

"With regard to our property to the south, graphitic schists have been found on the Doubtful, Thelma, and Imperial, all of which claims are the property of the Tyee Company. This gives us a stretch of ground 4,000 ft. in length, or nearly three times greater than the ore-bearing zone of the Tyee from which such good results have been obtained. These claims will be carefully prospected during the coming summer, and if the carbonaceous material contained in these schists is a necessary factor in forming the ore, we should have a good chance of finding another ore-body in this ground.

"The ore-bearing zone on the Tyee has a length of 1,400 ft., and from this small stretch of ground, as you will see from the mine superintendent's report, we have so far shipped 165,983 tons of ore, containing 14,715,336 lb. of copper, 465,466 oz. of silver, and 24,013 oz. of gold. This is a good record, and one which has not so far been equalled by any copper mine on the North American coast, from the International Boundary line to and including Alaska. It would appear almost impossible for such an ore-body as that to live alone, and I still believe the future will prove there is more ore in the hill than has yet been discovered. I cannot close this portion of my remarks on the mine without saying that Mr. Bryant has proved himself to be a first-class mining engineer, and that the works entrusted to his care have been carried on with skill and energy.

"Turning now to the smelter—you must bear in mind that the business carried on by the Tyee Copper Company is of a two-fold nature, viz., mining and shipping the products of its own mine to its own smelter, and a smelting business for outside or custom ores. I am much gratified in telling you that, although the work carried on for the past twelve months at the mine has been of a negative character, the smelting part of the business has shown a marked and positive improvement.

"The smelter is, as you know, situated with a deep water frontage on a calm land-locked bay, where the largest ocean steamers can discharge with safety, while spurs from the main line of the Esquimalt & Nanaimo Railway bring ores from the Vancouver Island mines. The Tyee smelter is also the most northerly smelter in British Columbia, and is right in the track of the northern shipping that passes through the sheltered waters of the East Coast on its way south.

"It is a debatable point whether the position of the Tyee smelter is not the most northerly situation at which ores can be economically treated. Farther north, the arctic winters and the attending difficulties of obtaining labour and fuel are obstacles in the way of cheap work. On the other hand, large ocean steamers are being placed on the various routes as the trade expands, and it is probable that it will be found more economical to move the ores from the various mines to a smelting centre such as Ladysmith, rather than treat them in the far north. I am pleased to say we have given satis-

faction to all the mine-owners who have shipped ores to us, as we make a point of prompt payments and scrupulous care in following their wishes.

"I wish to here record the high esteem in which I hold our smelter manager, Mr. W. J. Watson, who is a man of great ability and energy and is doing everything in his power towards making his department a sound financial success.

"The accountant's work has, as usual, been done by Mr. E. J. Hearn, who has carried out his duties efficiently and well.

"In conclusion, I trust our next twelve months' work will be marked with the success I feel sure we shall attain."

MINE SUPERINTENDENT'S REPORT.

Mr. J. W. Bryant, mine superintendent, reported:

"I beg to submit my report of the work done on the company's properties on Mount Sicker during the year ending April 30, 1907.

"Tyee Mine.

"Main Ore-body.—The richest part—that is, above the 100-ft. level—has been exhausted of ore from the main shaft to the eastern boundary; this includes Nos. 6 and 7 stopes. There is a small tonnage of this high grade ore left close to the surface near the western boundary, but this cannot be mined until all work is abandoned below it, as its removal would let into the mine a large quantity of water during the winter months.

"Below the 100-ft. level, the ore-body comprised of low-grade ore has all been exhausted east of the main shaft, and most of it to the west, which includes Nos. 1 and 2 stopes. This portion of the ore-body, particularly towards the western boundary, has been broken up by horizontal and vertical faults, which make it expensive to mine.

"North Lode.—A considerable amount of development work has been accomplished in prospecting this lode, and a lens of ore has been discovered which is on the same horizon as those found in this lode in the Lenora and Richard III. mines respectively. This lens has proved to be small and irregular both in size and value. The average grade of the ore is much lower than that of the main orebody, and from the conditions met with in the adjoining properties, both to the east and west, I fear that this is one of a series of small lenses connected by long intervals of barren lode.

"Stopes.—The following table gives the particulars of the ore produced by the various stopes, all of which are exhausted, with the exception of No. 1 stope (intermediate level) on the north lode.

"From Main Lode or Ore Body.

	100-ft. Level. Tons.	165-ft. Level. Tons.
No. 1 stope	.....	2,812
" 2 stope	.....	1,905
" 6 stope	5,142.5	.....
" 7 stope	6,210	.....

"From North Lode.

	100-ft. Level. Tons.	Intermediate 165-300-ft. Levels. Tons.
No. 1 stope	27	2,170

"Summary of Production.

	Tons.
From Main lode or orebody	16,069.5
" North lode	2,197
" Development work	620.5
" Surface heaps	2,680
Total	21,567

"Development Work.—More development work has been accomplished this year than in any previous one, as we have carried our developments to a point 435 ft. deeper, and a diamond drill hole has reached a depth 139 ft. below this, making in all 574 ft. deeper.

"The following tables give particulars of the work done and show the nature and distribution of the footage cut during the year:

"Main Lode or Ore Body—

Level.	Drifts. Ft.	Raises and Winzes. Ft..	Cross-cuts. Ft.	Stations. Ft.
A	132	..	..	..
100-ft.	99	22	..	..
165-ft.	..	14	10	..
Intermediate	..	..	67	..
300-ft.	..	60	..	..
"North Lode—				
100-ft.	21	..	109	..
200-ft.	126	..	..	..
Intermediate	172	..	50	..
300-ft.	..	50	28	..
"Below 300-ft. level—				
600-ft	..	15	..	..
1,000-ft.	..	..	56	..
1,150-ft.	118	..	198	76
1,250-ft.	659	205	263	74
1,450-ft.	..	..	..	15

"The main shaft was sunk a further depth of 250 ft.

"The graphitic schists have been proved to be in the form of a syncline, whose trough runs through the Tyee from west to east; the main orebody is in the south arm of these schists, and the north lode is in the north arm. These graphitic schists unite at the 300-ft. level, and below this no pay ore has been found. As will be seen in the table, the greatest amount of work has been done below this level, principally between the 1,000 and 1,450-ft. levels, and, in addition to this, 1,213 ft. of diamond drilling has been done below the 1,000 ft. level.

"The ore met with in the 1,000-ft. level has also been found at the 1,150 and 1,250-ft. levels, but it is in a less concentrated form in the two lower levels than in the 1,000-ft. level. It appears that the schist is very much sheared about the main fault, and this ore occurs in stringers and small lenticules in this shearing plane.

"From the 1,000-ft. level down to the 1,450-ft. level we have everything that is congenial for the occurrence of another orebody similar to that found in the upper levels, with one exception, and that is the absence of the graphitic schists. I see no reason to doubt that the carbonaceous matter in these schists, as in other localities, has played an important part in the deposition of the Tyee orebodies, and after the large amount of development work that has been done in the deep levels, it looks as if the graphitic schists were a necessary accessory for the creation of an orebody in this formation.

"Average Costs of Development Work.

Drifting	1,386 ft. at	$8.14	per ft.
Cross-cutting	781 "	6.08	"
Sinking	455 "	32.64	"
Stations	165.5 "	28.77	"
Raising	160.75 "	12.53	"

"Total Costs per Ton of Ore Produced.

Stoping	$1.523 per ton.
Surface heaps	0.030 "
Ore-dressing	0.043 "
Development	1.074 "
Fuel	0.064 "
Retimbering	0.041 "
Freight and hauling	0.075 "
Transport to railway	0.142 "
Pumping (Mine)	0.102 "
" (River)	0.123 "
General charges	0.337 "
	$3.554

"These costs are higher than those of the previous twelve months owing to the lesser tonnage shipped, but principally to the greater amount of development work incurred. This development work has also caused a considerable increase in the mine pumping plant.

"Tonnage Delivered to the Smelter.—The total amount of ore shipped to the smelter during the year was 21,567 tons, with an average assay value of copper 3.471 per cent., silver 2.504 oz., gold 0.127 oz. This brings the total tonnage the mine has produced to 165,983 tons, and the gross contents to copper 14,715,336 lb., silver 465,466 oz., gold 24,013 oz.

"Aerial Tramway.—This has worked very economically throughout the year; the ropes are wearing remarkably evenly, and there are no signs as yet of any part being worn sufficiently to warrant their replacement by new ones. But this even wear will entail a large outlay in new ropes within a short space of time when once a sign of weakness occurs.

"X. L. Mine.

"The shaft has been sunk a further distance of 202 ft., and drifts have been driven along the line of fault at the 450 and 550-ft. levels respectively. Cross-cutting has been done at both levels. So far no pay ore has been met with, but seeing that the graphitic schists have occurred in the selvage of the fault from the 350-ft. level down to the 550-ft. level, with occasional stringers of copper pyrites, it is possible an orebody may exist at a greater depth near this fault plane. A considerable quantity of water was met with in the bottom of the mine, which necessitated the installing of an additional pump; it also caused drifts to cave, and, in consequence, they were close timbered.

"The amount of footage cut and costs per foot were as follows:

Sinking	202 ft.	at $29.57 per ft.
Drifting	1,661 "	10.85 "
Cross-cutting	166 "	12.84 "

"Doubtful Mineral Claim.—The graphitic schists discovered on this claim were further examined by deeper trenching, and traces of copper were found in this schist.

"On the northern boundary line of this claim a gossan outcrop was developed by trenching and tunnelling. It exposed the existence of a quartz vein containing copper pyrites, but not of sufficient quantity so far to make it of any commercial value. From the strike and position of this vein I am of the opinon that it is the continuation of the caunter vein found in the Tony mineral claim.

"Tony Mineral Claim.—The vein of quartz containing copper was thoroughly examined by diamond drill boring, which proved it to be a narrow caunter vein too small to be of value.

"Thelma Mineral Claim.—Diamond drilling proved the continuation of the graphitic schists met with in the Doubtful claim, but no ore was discovered.

"Diamond Drilling.

"This has had a severe test during the last twelve months, for over 50 per cent. of the holes bored have been horizontally, or at a slightly inclined angle. The small drill has bored holes both at surface and in the mine. The large drill completed one hole to a depth of 2,008 ft., which cut across the lode formation below the deepest workings in the Tyee mine. It has now reached a depth of 1,775 ft. in a hole inclined 15 deg. from the horizontal, which is cross-cutting the X. L. and Doubtful claims from north to south.

"The small drill bored 2,664 ft. at $2.07 per ft.; large drill bored 3,372 ft. at $3.42 per ft. A total of 6,036 ft. was drilled at a cost of $2.83 per ft.

"Machinery and Plant.

"Mine Pumps.—Five extra pumps were obtained to cope with the increase of water met with in sinking the Tyee and X. L. mines during the year; also considerable renewals have been made to parts of the old pumps owing to corrosion caused by the mine water.

"Surface Maintenance.—The surface of the property has been generally cleaned up, stream and water pipes being recovered and buildings repaired. An ore bin and tramway have been built to facilitate the transportation of the Richard III. ore.

"Hoist and Headgear.—Owing to the rotting of the wood foundations on which the hoist stands, a considerable amount of maintenance has been incurred to keep the hoist running. The headgear was strengthened to enable the development of the 1,250-ft. level to be accomplished.

"The remainder of the machinery has worked satisfactorily. During the past winter the machinery at the Tyee was worked to its utmost capacity, and did good duty considering the conditions under which it was operated.

"In conclusion, I may say that the main orebody is practically worked out, and now the principal portion of the ore produced comes from the north lode, which has hitherto proved so precarious that future shipments will be very uncertain."

SMELTER MANAGER'S REPORT.

Mr. W. J. Watson, smelter manager, reported:

"Herewith I beg to submit the fifth annual report, covering the smelting operations for the year ending April 30, 1907.

"Ore Receipts.—The receipts of ore for the year were as follows:

	Wet Weight. Tons.	Moisture. Per cent.	Dry Weight. Tons.
Tyee ore	21,544.160	2.1	21,091.836
(Of which 1.32 per cent. was made into bricks.)			
Custom ore			11,401.561
Total ore receipts, dry			32,493.397
Plus—Ore in stock, May 1, 1906		3,432 tons	
Less— " " " 1, 1907		5,030 "	1,598.000
Total tons ore smelted, dry			30,895.397
Custom flux ore		none.	
Plus—Flux in stock, May 1, 1906		309 tons.	
Less— " " " 1, 1907		154 "	
Total tons flux smelted, dry			155.000

"The Tyee ore assayed as follows:—

Copper (wet)	3.51	per cent.
Silver	2.53	oz.
Gold	0.129	"
Iron	10.19	per cent.
Zinc	7.08	"
Silica	23.64	"
Barium sulphate	31.81	"
Lime	2.8	"
Alumina	6.33	"
Magnesium oxide	Trace	
Sulphur in sulphides	13.85	"

"Roasting.—During the early part of the year we roasted 6,722 tons of Tyee ore; latterly, however, the ore has been delivered to the furnace just as received from the mine and therefore no roasting, screening or brickmaking has been necessary. This is entirely due to the fact that the custom ores we have been receiving carry considerably less sulphur than the Tyee ore and in consequence the necessity for roasting has been done away with.

"Smelting.—The furnace has been in blast during the year 153 2-3 days of 24 hours each, an average of 12.77 days per month, and smelted as follows:—

	Tons.		Per cent.
Tyee raw ore	14,389.638	=	40.50
Tyee roasted ore	6,486.160	=	18.25
Tyee roasted brick	261.400	=	0.74
Custom ore	9,835.123	=	27.69
Total ore smelted	30,972.321		
Flux	2,100.280	=	5.91
Flue dust	861.036	=	2.42
Slag and barrings	315.325	=	0.89
Low-grade matte	1,282.445	=	3.60
Total mixture smelted	35,531.407		100.00

Coke used 3,475 tons (2,240 lbs.)

"Above shows an average of 201.993 tons of ore and 231.727 tons of mixture smelted per day. The ratio of coke used was 1 ton of coke to 8.91 tons of ore and 1 ton of coke to 10.22 tons of mixture, as against 9.93 tons of ore and 11.52 tons of mixture in the previous year. The concentration was 11 tons of ore into 1 ton of matte. Of the ore smelted it will be noted that 46.46 per cent. of Tyee was smelted raw, 21.78 per cent. being roasted, and 31.76 per cent. of custom ore was smelted raw, a total of 78.22 per cent. smelted raw and 21.78 roasted as against 64.12 per cent. smelted raw and 35.88 per cent. roasted in the previous year. The flue dust produced and resmelted amounted to 2.42 per cent. of the total smelted, this was dampened and fed back into the furnace in such a way that little or none of it was carried back into the chamber. The slag and barrings amounted to 0.89 per cent. of the total smelted.

"An average sample of the coke used contained: Ash, 19.92 per cent.

"Slags.—The average analysis of the slags for the year is as follows:—

Copper	0.3 per cent.
Silver	0.09 oz.
Gold	Trace.
Iron oxide	19.43 per cent.
Silica	33.8 "
Barium oxide	21.15 "
Calcium oxide	9.77 "
Zinc oxide	5.46 "
Alumina	10.00 "
Magnesium oxide	0.16 "

"Flue Dust.—The following is an average analysis of the flue dust:—

Copper	3.05 per cent.
Silver	2.2 oz.
Gold	0.1 "
Iron	12.2 per cent.
Silica	21.41 "
Barium sulphate	13.87 "
Lime	1.7 "
Zinc	8.73 "
Alumina	8.07 "
Magnesium oxide	Trace.
Sulphur in sulphides	6.45 "

"Product.—During the year we shipped 2,815.816 tons of copper matte, containing 2,237,276 lb. of fine copper; 73,127.52 oz. of fine silver, and 3,700.638 oz. of fine gold; total value, less refining charges only, $556,604.06, and an average matte of copper (dry) 39.72 per cent., silver 25.97 oz., gold 1.314 oz. The yield from Tyee ore was: Copper 3.23 per cent., silver 2.57 oz., gold .137 oz.

"Taken at an approximate average value of 18 cents for copper, 64 cents for silver, and $20 for gold this is equivalent to a yield of $16 per ton of Tyee ore smelted.

(N.B.—These figures are not absolute as the final settlements for the later shipments of matte are not to hand.)

"Hot Blast.—The average temperature of the blast for the year was 224 deg. Fahr., and the question now arises, is the benefit derived from this warm blast sufficient to justify the installation of another heating arrangement for the proposed second furnace The furnace was run on cold blast several times last year but no difference was noticeable either in the quantity of ore smelted, grade of matte made, or percentage of coke used. It is my intention, however, to make a more thorough test as soon as possible.

"Plant.—The additions made to the plant during the year were as follows:—

"A sample bin, capacity 60 tons, steel lined and roofed with corrugated iron was built at the roast yard. In the centre of the receiving bins at the roast yard a space was left, which is now being filled in; this will increase the capacity of these bins by 300 tons. The coke floor has been extended out over the dust chamber for a width of 28 ft. and a length of 117 ft., so that now the cars can be unloaded from both sides, thus lessening the time required to discharge them.

"Water Supply.—The flume which carries the water to the smelter is about to be replaced by a 10-in. wooden pipe. This will give a higher pressure at the works, and will also be more economical, as we shall be able to control the supply. The survey has been made for this pipe line, and the pipe is now on the ground. The work is being done by the Canadian Pacific Railway Company, as per contract between the Tyee Company and the Esquimalt & Nanaimo Railway, which latter they have recently acquired.

"In conclusion, I would say that the machinery and plant have been kept in thorough repair, and many minor improvements made."

PROFIT AND LOSS ACCOUNT FOR YEAR ENDED APRIL 30, 1907.

Dr.

	£	s.	d.	£	s.	d.
To Mine Expenses—						
Maintenance, repairs and depreciation of plant buildings and permanent works, aerial tramway, etc	2,606	17	10			
Live stock account, cost of fodder, etc.	415	14	4			
Wagons	6	5	0			
Timber	1,026	13	8			
Stores	1,016	4	3			
Transport and freight	2,334	13	7			
Hauling	1,010	15	4			
Salaries and wages	10,693	1	10			
Stationery and office supplies	44	4	1			
Telegrams and postages	217	10	6			
Travelling expenses	156	0	0			
Petty expenses	193	3	11			
Prospecting and developing	12,532	10	6			
Insurance	698	0	4			
				32,951	15	2
To Smelter Expenses—						
Maintenance, repairs and depreciation of plant, buildings and permanent works, etc.	2,182	15	7			
Live stock account, cost of fodder, etc.	132	3	6			
Coal and coke	4,683	0	0			
Fluxes	611	13	5			
Timber	119	3	2			
Stores	500	18	2			
Salaries and wages	8,322	6	1			
Stationery and office expenses	32	8	8			
Telegrams and postages	103	2	7			

Travelling expenses			11	12	4	
Advertising			205	11	5	
Petty expenses			196	2	8	
Insurance			492	5	0	
Assay office			581	18	3	
Transport and freight			588	6	4	
Brickmaking			35	1	3	
						18,798 8 5
To London Expenses—						
Office rent			100	0	0	
Petty expenses			118	8	6	
Salaries and wages			724	11	8	
Stationery			94	8	6	
Cables			10	16	0	
Directors' fees			790	4	3	
Legal expenses			12	19	3	
Travelling expenses			68	18	7	
Audit fee			52	10	0	
Assays			6	6	0	
						1,979 2 9
To Revenue taxes paid to British Columbia Government			1,472	1	7	
" Difference in exchange			442	6	7	
						1,914 8 2
						55,643 14 6
" Balance to Revenue Account						22,506 7 5
						£78,150 1 11

Cr.

	£	s.	d.	£	s.	d.	£	s.	d.
By Net proceeds of matte sales				110,252	18	10			
Ores on dump and at smelter at cost of labour and mining charges as at May 1, 1906	2,091	7	1						
Less ditto, April 30, 1907	1,006	5	0						
				1,085	2	1			
				109,167	16	9			
Less purchase of custom ores				31,218	3	7			
							77,949	13	2
By Rents				158	15	0			
" Transfer fees, etc.				20	0	0			
" Discounts at mine and smelter				21	13	9			
							200	8	9
							£78,150	1	11

REVENUE ACCOUNT, APRIL 30, 1907.

Dr.

		£	s.	d.
1906.				
July 13,	To Dividend at 5 per cent. on £180,000, ordinary shares, as per resolution passed in general meeting held on July 12, 1906	9,000	0	0
1907.				
April 30,	" Amount written off properties and concessions, being 10 per cent. off £62,548 15s. 8d.	6,254	17	8
	" Amount written off plant, buildings and permanent works, etc., at the mine and smelter, being the additions made during the year	3,221	14	11
	" Income tax	2,631	3	0
	" Balance to Balance Sheet	19,341	6	3
		£40,449	1	10

Cr.

	£	s.	d.	£	s.	d.
By Balance as per last account				14,870	3	2
" Balance from Profit and Loss account				22,506	7	5
" Interest received on investments	2,917	12	10			
" Do do deposits	154	18	5			
				3,072	11	3
				£40,449	1	10

(To be concluded next month.)