

ANNUAL REPORT
OF THE
MINISTER OF MINES

FOR THE
YEAR ENDING 31st DECEMBER,
1890,

BEING AN ACCOUNT OF
MINING OPERATIONS FOR GOLD, COAL, &c.,
IN THE
PROVINCE OF BRITISH COLUMBIA.



VICTORIA, B. C. :
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REPORT
OF THE
MINISTER OF MINES,
1890.

To His Honour HUGH NELSON,
Lieutenant-Governor of the Province of British Columbia:

MAY IT PLEASE YOUR HONOUR:

The Annual Report of the Mining Industries of the Province for the year 1890
is herewith respectfully submitted.

JNO. ROBSON,
Provincial Secretary and Minister of Mines.

Provincial Secretary's Office,
19th February, 1891.

PROVINCE OF BRITISH COLUMBIA.

TABLE

Showing the actually known and estimated yield of gold and silver; the number of miners employed; and their average earnings per man, per year, from 1858 to 1890.

Year.	Amount of gold actually known to have been exported by Banks.	Add one-third more estimate of gold carried away in private hands.	Gold.	Estimated yield Silver.	Gold and Silver.	Number of Miners employed.	Average yearly earnings per man.
			Total.		Total.		
1858 (6 months)	\$ 390,265	\$ 130,088	\$ 520,353	.....	\$ 520,853	3,000	\$ 178
1859	1,211,304	403,768	1,615,072	.....	1,615,072	4,000	403
1860	1,671,410	557,133	2,228,543	.....	2,228,543	4,400	506
1861	1,999,589	666,529	2,666,118	.....	2,666,118	4,200	634
1862	3,184,700	1,061,566	4,246,266	.....	4,246,266	4,100	517
1863						4,400	482
1864	2,301,888	933,962	3,235,850	.....	3,235,850	4,400	349
1865	2,613,404	872,801	3,491,205	.....	3,491,205	4,294	813
1866	1,996,530	665,520	2,662,106	.....	2,662,106	2,982	393
1867	1,360,651	620,217	2,480,868	.....	2,480,868	3,044	814
1868	1,779,729	593,243	2,372,972	.....	2,372,972	2,890	992
1869	1,331,234	443,744	1,774,978	.....	1,774,978	2,369	749
1870	1,002,717	334,239	1,336,956	.....	1,336,956	2,348	569
1871	1,349,580	449,860	1,799,440	.....	1,799,440	2,450	734
1872	1,208,229	402,743	1,610,972	.....	1,610,972	2,400	671
1873	979,312	326,437	1,305,749	.....	1,305,749	2,300	567
1874	1,383,464	461,154	1,844,618	.....	1,844,618	2,868	648
1875	1,356,173	618,726	2,474,904	.....	2,474,904	2,024	1,222
1876	1,339,966	446,662	1,786,648	.....	1,786,648	2,282	783
1877	1,206,136	402,045	1,608,182	.....	1,608,182	1,960	820
1878	1,062,670	1-5th 212,534	1,275,204	.....	1,275,204	1,883	677
1879	1,075,049	" 215,009	1,290,058	.....	1,290,058	2,124	607
1880	844,856	" 168,971	1,013,827	.....	1,013,827	1,955	518
1881	872,281	" 174,456	1,046,737	.....	1,046,737	1,893	551
1882	795,071	" 159,014	954,085	.....	954,085	1,738	543
1883	661,377	" 132,875	794,252	.....	794,252	1,965	404
1884	613,304	" 122,861	736,165	.....	736,165	1,853	396
1885	594,732	" 118,956	713,738	.....	713,738	2,902	246
1886	753,043	" 150,808	903,651	.....	903,651	3,147	287
1887	573,924	" 115,735	689,709	.....	689,709	2,342 *	296
1888	513,943	" 102,738	616,731	.....	616,731	2,007	307
1889	490,769	" 98,154	588,923	\$ 47,573	636,796	1,929	330
1890	412,029	" 82,406	494,436	73,934	568,420	1,342 †	423
					\$62,805,173		

* This is exclusive of over 650 white men who, during the season of 1887, were working on or prospecting for mineral claims.

† This is exclusive of over 300 whites employed working on or prospecting for mineral claims.

REPORT.

GOLD.

The value of the Gold exported by the Banks at Victoria during the year 1890, is as follows:—

Bank of British Columbia	\$203,111
Messrs. Garesché, Green & Co.	183,587
Bank of British North America	25,331
	\$412,029

The Statistics show a further decrease in the Gold yield for the year, which is partly accounted for by the absence of returns from the Cassiar District, and may be attributed also to the exhaustion of some of the long-worked placer claims, and to the smaller number of men engaged in alluvial mining.

On the other hand there is an increase in the production of silver, and in the number of men engaged in working on and prospecting for mineral ledges.

CARIBOO.

MR. BOWRON'S REPORT.

"RICHFIELD, B. C., 29th November, 1890.

"SIR,—I have the honour to enclose herewith the Mining Statistics of the Cariboo District for the current year, and beg to submit for your further information my Sixteenth Annual Report upon the mining industry of the district.

"For the working of hydraulic claims the season has been most propitious, the open or working season being long and the rainfall excessive.

"The latter circumstance has, however, been against the successful working of the river or bar claims, from which now nearly one-half the gold is produced. Regarded, therefore, as an element affecting the output of gold, it is questionable whether the unusually wet season has been an advantage or the reverse.

"The statistics, while showing a decrease in the product of the mines, exhibit the fact that fewer persons were engaged on productive works (*i. e.*, paying claims). This is especially noticeable in regard to the Chinese.

"In the Barkerville Division there is but little to report respecting alluvial mining. Nearly all the creeks and gulches show a decline in the product, and but few claims have met expectations.

"The Waverly Hydraulic Co., of Grouse Creek, have not as yet reached bed-rock with their 'cut,' but their wash-ups improve as they advance, and, consequently, get nearer the bottom of the channel.

"The Jarvis Co. who at the time of writing my last report were on excellent pay, shortly afterwards ran against bluff rock; since which time they have taken out but little gold, but still continue running drives in search of the lost channel in the hill.

"The Nason Co, which has expended so much in the endeavour to prove the deep ground on Antler Creek, has done nothing this present season to further prove their claim, nor have any further efforts been put forth to bottom the deep ground on Lower Antler Creek.

"The Forest Rose, Taylor, and Black Jack companies, on Williams Creek, have paid fairly well.

"In the Lightning Creek Division some considerable prospecting has been going on; in one or two instances with some success.

"The Chinese late in the season discovered ground in the hill on the right bank of Burnes' Creek, which is said to pay from \$5 to \$10 per day to the hand, and, in consequence of such discovery, some two miles of hill claims have been recorded and are now being prospected.

"The discovery of pay by Mr. Jas. Donovan on a small creek which flows into Lightning Creek from the south-west, just above Beaver Pass house, has attracted some attention, and at the present time a company of white men, having taken up ground above Mr. Donovan's discovery, will prosecute work during the winter by driving in a tunnel. The richness or extent of the discovery is not yet apparent.

"A company has again applied for a lease of a portion of Slough Creek, which, it is hoped, will be more successful in raising the necessary capital to work the ground than the companies previously formed for that purpose.

"In the Quesnelle Division the only work of any magnitude under way is that of the Blue Lead Hydraulic Mining Co., of Hixon Creek, of which I wrote in my last year's report. This company is progressing favourably with the opening up of their mine; having obtained a satisfactory prospect in their tunnel, they have constructed a ditch, taken in a monitor and iron piping, and will be in readiness to commence the washing away of the bank in the spring.

"The Chinese continue to work the bars and benches of the Fraser, Quesnelle, and Cottonwood Rivers, as heretofore, with varying success.

"A discovery was made during the present season in the Omineca Country of a new creek from which was taken, I understand, gold to the amount of some fifteen or twenty thousand dollars, the particulars concerning which I have been unable to obtain.

"The Keithley Creek Division of the district has proven most prolific, both as regards the season's output, as well as in the importance of its developments, the particulars of which will, no doubt, be fully reported by Mr. Stephenson; but as a discovery has been made in this division which, I think, merits more than passing notice, a few words in addition to what may have been said on the subject will not here be out of place.

"The opinion has prevailed for many years among our most experienced miners from California and Australia that, judging from the formation of the country, there existed, and ultimately would be found, in this district immense obliterated river channels traversing the country upon a higher level than the present streams, which in crossing the former, in many instances, received therefrom their chief supply of the precious metal. The first of such ancient river channels would now appear to have been discovered on the south side of the South Fork of the Quesnelle River. A Chinese company working up Dancing Bill's Creek, three miles above the Forks (*vide* Mr. Bowman's map), when about a thousand feet from the Quesnelle River, and at an altitude of one hundred and twenty-five feet above the stream, came to a pitch-off in the bed-rock which they were unable to follow, owing to the quantity of water encountered. They continued working ahead as near on a level as the grade to the sluices would allow. This occurred some ten or twelve years ago, and they have continued since that time to work into the hill without finding bed-rock. They use hydraulic pressure in working; but as their water supply is limited, and the face of their cut is now nearly two hundred feet in height, they make but small headway, but are known to have been taking out, with six men working, from five to eight thousand dollars annually. The operations of this company having for some years been watched with interest by the white miners in the vicinity, and the developments seeming to confirm their pre-conceived ideas of an immense 'blind' river channel in the hill, Messrs. Barker, Polley, Burrill & Co. sank two shafts half a mile above the Chinese Company, and back some fifteen hundred feet from the river, behind the rim rock which forms the river bank, and although not reaching bed-rock, owing to the quantity of water encountered, they found similar prospects to those obtained in the Chinese claim. Subsequently, Mr. John Hepburn, of Victoria, located ground below the Chinese, and in running in cuts developed similar pay gravel inside the rim rock, which is regarded as settling the question of a paying channel in the hill beyond a doubt. Messrs. Whittier & Pomeroy below, and the Champion Co. above, have also located ground until there are nearly six miles of the channel claimed.

"Some are of the opinion that the channel will ultimately be traced to the Horsefly River, some twenty miles distant. However that may be, it is generally conceded that there must be at least ten miles of the old river bed. As to the richness of the pay, and consequent importance of the discovery, I can only say it is estimated that the Chinese Company are taking out at least one thousand dollars per lineal foot of the channel so far as they have worked, and as large river channels are usually very regular in the gold deposits, further comments are unnecessary.

"There have been during the year twelve applications for leases of alluvial mining ground, and as leases are given only of such ground as is presumably unworkable by individual miners, and upon the express conditions of a large annual expenditure by the lessees in developments, this fact indicates a confidence in our placer mines quite wanting for some years past.

"The following is an approximate estimate of the gold product of the district for the year 1890 :—

Barkerville Division, to the 15th November	\$61,200
Lightning Creek Division, " 	38,000
Quesnelmouth, " 	26,250
Keithley Creek, " 	62,000
Probable product from 15th November to 31st December, say,	8,000
	\$195,450

"Quartz.

"Regarding the development in our quartz or mineral claims, although I regret to say that there has not been that enterprise displayed we so much desire, this season has not been entirely fruitless of results. The destruction by fire of the Government Reduction Works last winter had a most depressing effect upon this branch of our mining industry, but, fortunately, these works, although in operation but a few weeks, had proven their capability to successfully treat the character of ore found here, and consequently justified the Government in rebuilding the same upon a somewhat increased capacity, which undertaking has been accomplished most successfully under Mr. Martin's supervision, and the works are now in operation again. It is a fact worthy of note that the gross product of the district has been increased by about \$5,000 produced from the working of quartz. The Black Jack Quartz Mining Co. have during the season prosecuted work on their mine; their shaft being now down to a depth of something over 100 feet, and exposing a valuable body of ore. Their small prospecting mill was kept running a good part of the time until stopped by frost. This company has taken another lot of sulphurets to the test works, which is now under treatment. A most satisfactory test of the ore from this mine was made at "The Cassell Gold Extracting Co.'s Works," Glasgow, Scotland. From 360 pounds of ore sent a result of something over \$80 per ton was obtained; the ore worked up to 90% of the assay value. The advantages of this company's method is that no roasting is required, and the company claim that in ordinary cases ore can be treated for one-fourth the cost of working by the chlorinating process, a circumstance which, if substantiated by further working tests, means wealth to this District.

"The Island Mountain Co. completed their ten-stamp mill, to which is attached four concentrators and an improved rock crusher, and the machinery was put into operation about 20th August, and was found to work satisfactorily. Rock crushing commenced on 25th August, and by 25th September several hundreds of tons were put through. Some difficulty was experienced in getting the silver plates to catch the gold, owing to the presence of some foreign substance coating the plates, but after a time this was partially remedied. Some fifteen or twenty tons of sulphurets were saved and brought to the Government Works for treatment. I learned from Mr. May, who put up the Island Mountain Co.'s mill and superintended the working of the ore, that the test made cannot be regarded as a fair result, inasmuch as the ore was taken from the dumps at the various tunnels belonging to the company, and was mostly surface rock, and only trial runs of each kind of rock.

"We trust that this company will be in a position to resume work in the spring and secure a satisfactory return from their operations.

"I have, &c.,

(Signed)

"JOHN BOWRON,
"Gold Commissioner.

"To the Hon. Jno. Robson,

"Minister of Mines, Victoria, B. C."

MR. STEPHENSON'S REPORT.

“QUESNELLE FORKS, B.C., 14th November, 1890.

“SIR,—I have the honour to forward herewith the estimated yield of gold for the Keithley Creek, Alexandria, and Williams Lake Divisions of Cariboo District.

“Owing to a plentiful supply of water the season has been in favour of hydraulic mining, but on the other hand this plentitude has militated against work in the beds of the different streams. Taken altogether, however, the year has been favourable for mining operations.

“On Keithley Creek two Chinese companies have been engaged in opening up their hydraulic claims, with good prospects for the future; but the creek claims have not done much. On Snowshoe Creek, Anderson & Smith have had a good season's work. A short distance below them the Hayward Company are opening up another hydraulic claim, which they expect will rival Anderson & Smith's claim; the other claims on this creek have been working with about the usual results. On Harvey Creek there has only been one company working. They have done fairly well with plenty of ground still ahead of them, which they expect will continue to pay. On the North Fork of the Quesnelle River there has not been much mining done for the season, and for the work done the results have not been satisfactory. On Spanish Creek there has been a company of white men prospecting for the last fifteen months; so far they have not found pay, but still they have confidence enough in the place to continue on for the coming winter.

“The South Fork of Quesnelle River is at present very promising for hydraulic mining. The Hop E. Tong, a Chinese company, have for years been working on Dancing Bill Gulch, a small stream that empties into the left hand or south side of the South Fork, about three miles above the Forks. The gulch has cut across what is now proved to be an old channel, with a heavy rim rock between it and the present river. This old channel contains an immense deposit of gravel, which pays them well for hydraulic mining. Last year (1889) the South Fork Hydraulic Mining Company located and leased a piece of ground next above the Hop E. Tong Company, up the South Fork. They did some prospecting, sinking two shafts, but did not get to the bottom of the channel. They got prospects in sinking those shafts that they considered warranted them in bringing water on to the ground. They have been engaged this season in making a trail to the claim, building a house, and running ditch lines. They have located a ditch line fifteen and three-quarter miles long, and have commenced cutting a ditch four feet wide on the bottom, two feet deep, and six feet wide on top. This ditch they will push ahead a considerable distance next season, and will also place in position an hydraulic pipe about 450 feet long, suitable to handle the amount of water which the ditch will carry. Next below the Hop E. Tong, and joining their lower line, the Victoria Hydraulic Mining Company have located and leased a considerable piece of ground. This company, under the management of Mr. John Hepburn, with a gang of six to eight men, have been engaged in prospecting for the last three months. Mr. Hepburn tells me he has obtained satisfactory prospects for the work done. Then up the river, and joining the South Fork Company, there has lately been another location made, and a company is about to be organized to prospect another section of the same channel.

“The opening of these mines is going to make a great change for the better in this place, and the outlook is now good for Quesnelle Forks; and although these mines will be very expensive to open, there is such an extensive body of gravel that it will take a long time to work them out even here, where hydraulic mining can be carried on for eight months in the year by those who have a supply of water. From the Forks down the main Quesnelle River there is nothing of any consequence being done, a few Chinese moving down and up the river working in a desultory manner. On the Horsefly River there has not been much done, only one company, the Discovery, taking out any pay, and another company prospecting. The Harper works, although reported several times during the season as about to commence operations, have not yet resumed work, and the Chinese have all left that section. Along the Fraser River from Quesnelle down to Riskie Creek, a distance of about 75 miles, there has been nothing new found.

“In regard to Quartz mining I have nothing to report, as there has not been any work done on any of the ledges in this section.

“I have, etc.,

(Signed)

“W. STEPHENSON,

“Government Agent.

“The Honourable the Minister of Mines.”

WEST KOOTENAY.

MR. TUNSTALL'S REPORT.

“REVELSTOKE, January 12th, 1891.

“SIR,—I have the honour to enclose the mining statistics and report on the mines in the West Kootenay District for the past year.

“*Placer Mines—Big Bend Subdivision.*

“Very little was effected in the Big Bend Mines last season. On McCulloch Creek the Last Chance Company's tunnel is in 1,150 feet, without any signs of bed-rock. The supposition was entertained that the bottom of the channel would be reached in 600 feet, but this has proved to be a mistake. During the last six months the ground has been so hard and obstructed with immense rocks as to require blasting to effect any progress, which is necessarily slow and expensive. There is a considerable amount of ground still existing which was not prospected in the early days of its importance as a gold-bearing stream owing to the difficulties encountered and the high rates of labour. On the success attending the efforts of this company will depend whether any further attempts will be made to obtain the gold it contains.

“The Ophir Bed-rock Flume Company have put in the amount of fluming to comply with the conditions of their lease; no ground has been worked in consequence of litigation between some of the shareholders. The Booth Bros., of Portland, Oregon, and M. Clemson acquired a lease of abandoned ground situated higher up the creek. Water was encountered at a depth of 25 feet in their shaft, and machinery will have to be erected to overcome this obstacle. Messrs. Jowett and Haig, of Revelstoke, are also interested in a lease of a desirable portion of this creek, on which mining operations will be pursued with diligence next summer.

“Lund & Co., at the mouth of Smith Creek, opposite to where Gold River empties into the Columbia, procured very good returns towards the latter part of the season.

“A new ditch will be constructed to obtain 300 feet of pressure, and iron piping and a monitor nozzle are to be forwarded by boat in the spring. The pay has been definitely located in the deepest portion of the channel, which is 200 feet wide. The bank is now 50 feet high and increases in height as the work progresses.

“No Chinese have mined during the past season on the bars extending from above Revelstoke to the Big Bend, owing to their having obtained more remunerative employment on the Columbia and Kootenay railway works.

“A company has lately recorded a bench, about two miles above this place, which is to be worked by hydraulic power.

“*Lardeau River Country.*

“On the 4th of August a party consisting of Peter Walker, Lochrie McDonald, Tom Downes and Charles Holden, purchased an outfit at Revelstoke and started in a small boat down the river. They proceeded to the head of Upper Arrow Lake and went up the East Arm, where the boat was left, and a trail cut to Trout Lake. They returned on the 20th November, and reported having prospected a creek which pursues a southerly course and flows into the lake at its head. Holes were sunk in a bench at the side of the canyon, about two miles above, and coarse gold found on the bed-rock, but not in sufficient quantities to prove remunerative. Below the canyon the water prevented their attempts to bottom the channel. The prospects obtained indicated that a heavy run of gold exists somewhere in the vicinity. It is their intention to return early in the spring and resume operations.

“*Toad Mountain.*

“Last fall John Loye and his partner made an important discovery on Hall Creek, which may lead to the existence of an extensive placer camp. The prospects obtained averaged about 20 cents to the pan, and consisted of coarse gold, worn smooth, exhibiting the appearance of having been carried a long distance from its parent source. It was found in a bench a short distance from the creek, in an old channel occupied by the stream in the remote past, long before it reached to its present position. The ground is about six feet deep and can be sluiced without difficulty, as there is an ample supply of water. The first companies recorded 2,500 feet, named respectively the Discovery, Ivanhoe, All Serene, Make or Break, and Delta, but since then forty-five more companies have located claims, which extend several miles up stream

"Hall Creek is about 12 miles south of Nelson, and falls into Salmon River. It takes its rise near the source of Forty-Nine Creek, and is situated in a well defined gold-bearing range, extending in a south-easterly direction, down the western slope of which the creeks hereafter mentioned pursue their course into the Kootenay River. The affluents of the Salmon have long been known to contain gold, but not enough had been found to attract attention. This may have been caused by the fact that prospecting is generally confined to the beds, or immediate vicinity of the present creeks, without any search for the old channels, which, in many instances, contain the run of auriferous gravel.

"On Forty-Nine Creek, five whites and seventeen Chinese have been at work during a part of the summer. The Barker Bros. have a hydraulic claim in operation which has paid very well. Their ditch is half a mile in length, and at its present level exerts a pressure of 75 feet. The returns have proved so good that another ditch will be constructed at a greater height and iron pipes substituted for the canvas hose at present in use. The Chinese on this creek are making from \$1.50 to \$2 per day, shovelling into sluices along the edge of the creek where it had not been previously worked.

"Two companies of Chinese are at work on Bird Creek, making from \$2 to \$2.50 per day to the hand. The gold found is very bright and of the shape and size of cucumber seed. This creek was discovered last summer. A heavy slide between two and three miles above its mouth dammed the water, which afterwards broke through, carrying before it large trees, rocks and gravel with resistless force, completely denuding the creek of its fluvial drift and laying bare the bed-rock for a considerable distance. This induced prospecting, which resulted in finding the pay streak, since worked to advantage.

"On Rover, the next creek encountered after leaving Bird Creek, nothing has been attempted, although there is no doubt it contains a run of gold supplied by the rich auriferous ledges situated some miles above the intersection of the Columbia River and Nelson trail. It is probable the deposit is concealed in a rock channel. However, efforts will be made this year to give it a decisive test and determine its value for placer mining.

"Illecillewaet Subdivision—Minerals.

"Under the able superintendence of Mr. Jas Brady, C.E., the tunnel in the Lanark is now over 500 feet long, 300 feet of which was completed this season. The lode in this claim is from 2½ to 5 feet wide and of a high grade character. Sixteen carloads, shipped some three or four years ago, returned in silver alone 89 oz. to the ton. The company has expended a large amount of money in developing its property and is deserving of the utmost success.

"The Maple Leaf has two shafts sunk, one at the upper end of the claim 35 feet deep, the other at the lower extremity, 45 feet. The vein is 4½ feet wide. Returns from a previous shipment yielded 90 oz. in silver, $\frac{175}{1000}$ oz. gold, and 28 per cent. lead. The Crystal adjoins the Maple Leaf on the west. In performing the assessment work on this claim last summer a solid body of good ore was struck, the width of which was not ascertained. A shipment of ore will be made to the sampling works to test its value.

"The Oak Leaf is owned by Messrs. Jowett and Haig, and with more work will probably become a valuable property. The vein is 2 feet wide, composed of galena existing in a slate formation. Assays range from 45 to 200 oz. of silver to the ton, and from 50 to 60 per cent. lead.

"The Cariboo Company have extended their tunnel 100 feet farther this summer. The vein is galena, lying between walls of porphyry, and varies from 6 to 12 feet in width. The assay value is \$30 per ton. This claim shows up a large body of ore, which can be made very profitable on being provided with cheap transportation to the railway.

"The Gladstone is owned by Messrs. McArthur and Kennedy of Illecillewaet. A shaft has been sunk 20 feet, and a tunnel run on the vein 30 feet; width of lode from 18 to 30 inches. The ore is of a high grade character. About 20 tons is on the dump ready for transportation by mule train.

"On Gold Hill are located the Cora, Spanish Fly, Crown Point, Vulture and some others. They are situated in a depression, about 12,000 feet long, which extends across the mountain. The vein matter is lead carbonates from 6 to 12 feet wide, possessing an assay value of 20 oz. in silver to the ton. A trail was constructed by the Government last summer, which starts from a point on the Cariboo Creek trail, about two miles east of Illecillewaet, and terminates at the above group of mines, a distance of about 5½ miles. This improvement will prove a great assistance to mining operations in that direction.

"The Goat Cave is located south of the railway track, back of the town of Illecillewaet, on the steep slope of a mountain. A specimen of the ore yielded an assay amounting to 120½ oz. in silver and 63 per cent. lead. A tunnel is in about 20 feet on the lode, which is composed of quartz and galena. One half of the claim was sold last fall by the proprietors, Messrs. Scott and Chisholm, to Mr. Sando, of London, England. I did not learn the amount, but one of the conditions is that the sum of \$4,000 be expended by the purchaser in development.

"At Albert Canyon, the Wild Fox, owned by Abrahamson Bros. of Revelstoke, has a tunnel 47 feet long; vein matter is galena, 3 feet wide; assay value 22 oz. silver to the ton, and 47 per cent. lead. There are two other locations of the same character upon which insufficient work has been accomplished to determine their value.

"It is a matter of surprise to every one that the Illecillewaet subdivision has not attracted more attention from capitalists and mining men in general. Many of the veins are rich and well defined, exhibiting large bodies of ore, and possessing the great advantage of being situated within easy reach of a railway, and, in some instances, quite close to this means of transportation. It is, therefore, not owing to the absence of any of these features that development has not been more actively prosecuted, but to the fact that here and elsewhere the majority of mine owners cannot afford the heavy expenditure required for that purpose, and they demand too high a price for their property to secure the investment of capital. Some of the richest mining sections in the adjoining States have experienced similar periods of depression, ascribed to the same cause, until the capitalist was offered sufficient inducements to come to their rescue. It is evident that a more liberal course will have to be pursued to attain the benefit of the great wealth lying dormant by this means in the principal mining districts of the Province.

"Fish Creek.

"The Dunvegan mine, which looked so promising last year, has remained idle since spring. The Kootenay Smelting and Trading Syndicate had it bonded for the sum of \$60,000 for three months. After the expiration of that time a further extension was demanded but refused, and work was shut down.

"The Mogul is an extension of the Dunvegan. It has a drift in the ledge 23 feet, exposing a fair body of high grade ore of the same character as that found in the last-mentioned claim.

"East Arm, Upper Arrow Lake.

"With the exception of assessment work little has been accomplished on the locations, about a dozen in number. The Kootenay Smelting Company have done some drifting on one of their claims without satisfactory results. The ore is rich, but the vein is broken and difficult to trace.

"Lardeau River Country.

"On the 29th of September J. W. Haskins recorded at the Revelstoke office five mineral claims discovered by him in the Lardeau country. They are situated about six miles east of Trout Lake, and, judging by the assays, indicate the existence of a rich mineral belt in that direction. Specimens from the different claims were assayed by Mr. Rosser, the assayer for the Smelting Works, and gave the following returns:—Alice, 1st assay, 10 oz. gold, 50 oz. silver, 72 per cent. lead, to the ton; 2nd assay, from different portions of the vein, 20 oz. silver, trace of gold, 40 per cent. lead. Homestake, 86 oz. gold, 102 oz. silver, to the ton, 16 per cent. lead; 2nd assay, from another portion of the lode, 75 oz. silver, to the ton. Copper King, 11 oz. silver; no assay made to ascertain percentage of copper. Clara, 31 oz. silver to the ton; traces of gold.

"The discoverer, during an absence of several months, explored Fish Creek and the mountain ranges bordering on that stream, without finding anything worthy of attention. East of the lake mentioned, however, he detected the presence of mineral indications, which he followed, and led to the discovery of these ore deposits. The veins average from 2½ to 3 feet wide, and are about 18 miles from the head of navigation on the East Arm.

"Toad Mountain Subdivision.

"The Poorman, on Eagle Creek, has been developed by shafts, tunnels and drifts for a depth of 125 feet and about 600 feet along the ledge. Sloping has been done from the 90 foot level. The stamp mill has not been worked during the whole of the summer, owing to the scarcity of water. About 1200 tons of quartz has been crushed, the returns from which can

only be conjectured, as the proprietors do not feel disposed to make them public. None of the sulphurets, which are rich, have yet been treated. The last clean-up produced a gold bar worth over \$7,000. Two men are engaged in running a tunnel at the upper end of the mine, which will strike the ledge in about 450 feet, and will be extended 400 feet further to reach the ore deposit in the White-Buchanan mine, which runs parallel to the Poorman, and is owned by the same proprietors. To advance the work as rapidly as possible a Burleigh rock drill will be set up and operated on the opening of navigation.

"On Gold Hill, about $1\frac{1}{2}$ miles south of the Poorman, are located the Wild Cat, Cata-mout and Forest mines. The first mentioned exhibits a large body of ore composed of quartz impregnated with sulphurets. A tunnel is now in a distance of 115 feet. The vein matter assays from \$15 to \$30, and is of a free milling character. The vein is 10 feet wide, and is in a formation of hornblende granite. One-half of the claim was bonded by H. Keefer, the railway contractor, for 30 days, which he has since obtained by payment of the amount mentioned in the agreement.

"About one year ago what will eventually prove to be a valuable property was recorded by Messrs. Atherton and Geraghty. It is a nickel mine, situated on the west bank of the Kootenay, about $2\frac{1}{2}$ miles below the present railway crossing, and over a mile from the river. The mine was discovered in the bed of a creek, which had intersected the vein and exposed it to view. A cross-cut eight feet long failed to reach the opposite wall. Assays have returned 30 per cent. nickel, but the average quality of the ore will probably yield from 10 to 15 per cent. In view of the enhanced value of this metal this may be considered an important discovery.

"One mile below where the trail crosses Eagle Creek several promising locations exist, the principal of them being the Paradise, Total Wreck, Pioneer, High Ore, and Wizard. The Paradise has a tunnel 30 feet long, exposing a vein three feet wide carrying excellent ore. The Pioneer shows a body of mineral from $2\frac{1}{2}$ to 6 feet wide. The High Ore has a number of open cuts and a prospect shaft, from which several tons of good looking quartz has been extracted.

"The Royal Canadian has two tunnels, one a distance of 75 feet, the other 65 feet; width of vein from $2\frac{1}{2}$ to 3 feet, existing in a slate country rock. The stated value of the ledge is said to be from \$20 to \$30 to the ton. Mr. Johnson, of Sydney, Australia, offered \$15,000 for one-half the claim, and agreed to erect a plant to cost as much more, provided one ton of average ore would return \$20 to the ton, at the sampling works, Revelstoke.

"On Rover Creek some locations have been made, which promise to become of great value. They are known as the Whitewater, Midas, Snow-water, and Columbia. The tunnel in the first mentioned is 90 feet long, showing a ledge 6 feet wide, of a free milling nature. It is a contact vein, the hanging wall being granite and the footwall slate. The average of fifteen assays made amounted to \$80 in gold. The return from $1\frac{1}{2}$ tons tested at the sampling works was \$110 in gold and \$9 dollars silver, to the ton. Assays of similar richness were obtained from the Snow-water, which is an extension of the former. A trail has been graded a distance of ten miles, and it is the intention of Mr. Davys, who is one of the principal owners, to obtain the two Huntington mills, belonging to the Cottonwood Gold Mining Company, Toad Mountain, and work them to their fullest capacity.

"The output of ore from the gold belt, extending from Eagle to Rover, is estimated at about 1,800 tons, 1,200 tons of which were extracted from the Poorman, and the remainder the result of prospecting work in the various claims referred to. Of course this will be greatly increased when operations are confined to the production of ore only.

"On the west side of Cottonwood Creek, about three miles south of Nelson, is an important group of locations which will prove profitable to their owners when in a position to make shipments. The vein is between four and five feet wide, possessing an average assay value of \$30 to the ton. The ore is capable of being concentrated. A shaft is sunk on the Lizzie Co. 38 feet deep, and one on the Umatilla and Uncle Sam, 40 feet. A drift has also been run on the two latter claims. These mines are well situated for transportation facilities.

"On the Sandy Creek slope of the mountain are some important locations, among which are the Toughnut and Evening. On the former a shaft has been sunk 80 feet, and a tunnel run 127 feet. The vein is from four to eight feet wide, and contains ore of a high grade character. This mine will be an ore producer next summer. A tunnel has been run in the Evening, which is an extension of the Toughnut, a distance of 137 feet, in addition to an incline 65 feet.

"On the Give Out slope are a number of mines, the principal ones being the following:— The Jim Crow, with a shaft 25 feet deep; the Dandy, a shaft 40 feet deep, which will be sunk to a depth of 100 feet this winter. The lode in this claim is changing from galena to grey copper, which returns high assays. The Grizzly Bear is opened up by a shaft 68 feet deep. The Iroquois, a tunnel 90 feet long. The Give Out, a shaft 30 feet. The Newmarket, a shaft 40 feet deep.

"All the foregoing mines show up excellent bodies of ore of a high or medium grade character, which will be industriously worked with the advent of cheap transportation.

"The celebrated Hall Mines, comprising the Silver King, Kootenay Bonanza, and American Flag, are situated on the summit of Toad Mountain. They would have employed a large number of men last summer had it not been for the litigation in which they were involved. The tunnel in the Silver King is 330 feet long, in which are employed fourteen men. A large amount of ore is on the dump awaiting the completion of the waggon road for shipment. One hundred and ten (110) tons of ore were forwarded last fall from this mine to Helena, Montana. It was taken from a cross-cut at the bottom of the incline, and sampled from \$404 to \$414 to the ton in silver and copper.

"On the north side of the Kootenay river, the Alaska, a late discovery, is located on a ledge over 30 feet wide, existing in a granite formation. The vein matter consists of dolemite, carrying galena and copper pyrites. The returns from the assays have not yet been learned.

"Assessment work merely has been done on the Copper Queen and other claims situated on the same side of the river.

Hot Springs Subdivision.

"Development in this subdivision has been prosecuted with diligence in the principal mines. The Skyline forwarded last fall 95 tons of ore to the smelter at Anaconda, which sampled 280 ounces of silver to the ton. An engine has been erected for pumping and hoisting purposes, and a shaft-house 70 by 31 feet. A contract for sinking 200 feet has been awarded, besides 200 feet of cross-cutting and drifting. A pack trail has been graded from the waggon road to the mine, a distance of 10 miles. The Union has an engine erected on the ground, and will sink to a depth of 200 feet. The Krao has also pumping and hoisting works about ready for operation. The Number One Company have struck the vein within fifteen feet of the bottom of their old incline. The ore is high grade and averages nearly four feet of solid ore. This claim was formerly considered a failure, but additional work has proved it to be one of the best locations in the camp. The lode will now be tapped and prepared for stopping.

"The Little Donald has changed hands, Mr. Stevens, of Spokane Falls, being the purchaser. This year a deep tunnel will be started provided with the best improved machinery for the purpose.

"The Crescent, Eden, Tenderfoot, Vancouver, Old Timer, and Neosha Companies have all within a few weeks struck bodies of rich ore, carrying native silver, and are sacking it for shipment. The Old Timer and Tenderfoot cover the intervening ground between the United and Krao, and demonstrate the permanent character of the ore body that extends through this mineral belt.

"The Maestro, Spokane, and Libby Companies are to drive their tunnels this winter. These claims are certain to develop into first-class properties. The contract for work on the Gallagher will be given this winter. The following work has been accomplished on the under-mentioned mines:—

Skyline, incline and drifts	490 feet.
United, shaft	60 "
Gallagher, shaft and drifts	220 "
Krao, shaft and drifts	350 "
Fourth of July, tunnel and drifts	100 "
Union, shaft	85 "
Arkansas, shaft	50 "
Spokane, tunnel and drifts	350 "
Maestro, tunnel and drifts	260 "
Lady of the Lake, tunnel	60 "
Dictator, tunnel and drifts	200 "
Number One, tunnel and drifts	1200 "
Lakeview, shaft	25 "

Little Donald, shaft and drifts	250 feet.
Black Chief, tunnel	30 "
Pataha, tunnel and drifts	120 "

Besides many others having shafts and tunnels from 30 to 50 feet.

"The intrusion of a 'horse' in the Union shaft for a time prevented satisfactory results. Since then the vein has assumed its proper position, and now looks as well as ever.

"The amounts of ore on the dump ready for shipment, which will be largely increased during the winter, are as follows:—The Skyline, 1,000 tons that will return 45 ounces to the ton; United, 1,200 tons; Krao, 1,000 tons; Number One, 2,000 tons, besides 50 tons of high grade. The quantity sacked by other companies has not been learned.

"Hendryx Mines.

"Development in the Blue Bell mine has been steadily carried on under the management of Dr. Hendryx. The tunnel and drifts have attained an aggregate length of 1,500 feet. The work accomplished last year has only corroborated the knowledge previously obtained as to the apparently inexhaustible supply of ore in this valuable property. I have been informed that the adjoining extensions, two in number, have been purchased from Mr. Ainsworth for the sum of \$100,000. This will necessitate the construction of a smelter to render the large body of mineral wealth controlled by the Hendryx Company available.

"Goat River.

"The Goat River Mines are situated about eight miles north of the boundary line. They were discovered about the latter end of July, by Jas. King. An Indian happened one day to show him a piece of float he had found, which Mr. King recognized to be rich. The latter at once instituted a strict search which was rewarded by finding the lode whence it had been detached. The ore is galena, possessing a width on the surface of about three feet, and assaying from \$30 to \$80 in silver to the ton. A tunnel 125 feet long has tapped the vein at a depth of 100 feet, which, at the point of intersection was found to be six feet wide. Twelve locations have been recorded. These mines are situated within four miles of the Kootenay river, and will enjoy the advantages resulting from cheap transportation. They will attract a number of men next summer. Anticipating the importance this camp will attain, the Government has lately appointed a gentleman residing in the vicinity to discharge the duties of a Mining Recorder.

"Trail Creek.

"Trail Creek is situated on the west bank of the Columbia river, about 20 miles below Sproat, and 10 miles north of the 49th parallel. The mines are scattered over an extent of country extending back from the river from three to eight miles, including Red Mountain, which contains some of the most promising locations. One hundred and sixteen claims have been recorded, which are divided into two distinct groups, the smaller one, containing about forty locations, possesses veins from two to ten feet wide, assaying as high as \$180 in the precious metals, silver predominating; the vein matter also carries lead, zinc, and antimony.

"The principal mines in this belt are the Lily May, Zwiloo, Blossom, and Homestake. A shaft in the Lily May at the depth of 20 feet shows a vein four feet wide, carrying about 80 ounces of silver to the ton, choice pieces running up to 180 ounces. The Zwiloo also shows up equally as well, and is considered one of the best locations in the camp.

"The larger group commences about two miles north of the first mentioned. Copper and iron are here the most widely disseminated ores, with a little antimony, more or less gold, and a small quantity of silver. A cross-cut in the vein of the Le Roi exposes a solid body of ore 18 feet wide, which will run about 8 per cent, copper, 10 ounces in silver, and varies from \$3 to \$500 in gold to the ton. A part of this mine has been bonded by a Spokane Falls Company, who are steadily working it with two shifts of men. There is every probability this will turn out to be a first-class mine. Three other locations on this vein exhibit similar favourable indications. The St. Elmo, Mountain View, and Spar have been bonded by Portland, Oregon, capitalists. These are the only claims that possess galena veins. Six or seven others are under bond, but work will not be actively carried on before the approach of spring. The Josie, owned by R. E. Lemon, which returned large assays, was also bargained for, but I have not learned whether the bargain was effected.

"The ore bodies in this district exist in a syenite formation, and are generally capped with iron rock. Some of them are of great width, varying from four to fifty feet, and cut the

stratification of the rock at right angles. Their general course is east and west, with the exception of the Lily May, and its extensions, which runs north-east and south-west. Excellent facilities for shipping are provided by the easy access to the Columbia river, whence freight can be cheaply transported to Revelstoke, or the Dalles, whence connection can be made with the Spokane and Northern Railway.

"The belief is entertained that with the attaining of greater depth copper will be found in paying quantities. This has proved to be the case in the Le Roi, the copper having increased from seven per cent. on the surface to fifteen per cent. at a depth of ten feet; also a perceptible improvement in the quantity of silver. The surrounding country presents an inviting appearance to the eye, consisting of level benches, covered with grass and timber. The latter is open and affords no obstacle to prospectors.

"The climate is mild and agreeable, and the snowfall amounts to only nine or ten inches in depth. About fifty men will winter there this year. A mining record office has been established, which is a great convenience to miners, who, previously, had to undergo the loss of time and expense incurred in travelling to Nelson on business connected with their claims.

"In consequence of mine owners withholding shipments for the completion of the Columbia and Kootenay Railway, but 205 tons of ore were exported for smelting purposes, of which 110 tons from the Silver King, Toad Mountain subdivision, sampled an average of \$409 to the ton in silver and copper, representing a value of \$44,990. The respective amounts of silver and copper were not ascertained; and ninety-five tons from the Skyline, Hot Springs subdivision, yielded 280 ounces in silver to the ton, which, at the present value of that metal in New York—\$1.09 per ounce—is equivalent to \$28,994, making an aggregate of \$73,984. The estimated yield of gold from quartz and placer mines is \$35,000, the Big Bend returning less than one half its usual output this year.

"The number of records effected at the various offices is as follows: Revelstoke, 203; Nelson, 665; Ainsworth, or Hot Springs, 700; Trail Creek, 65, during a period of ten weeks.

"Waggon road construction in the Kootenay Lake country has given wide satisfaction as being an important step in providing cheap transportation for the products of the mines, without which operations would have to cease in many of the locations. It is therefore needless to add the completion of the roads already begun is anxiously awaited. The road from Nelson to the Hall mines at the summit of Toad Mountain will be about thirteen miles long. It was surveyed by Mr. Davys, who spared no pains to obtain an easy grade throughout its entire length. Three and one half miles were completed last summer. It is 12 feet wide, and supplied with eight substantial bridges varying from 90 to 28 feet long, and from 14 to 20 feet wide; also 17 culverts of various sizes.

"The road at Ainsworth, better known as the Hot Springs, was placed under the careful supervision of Mr. Wheeler, with T. McGovern as foreman. The former gave his services without compensation, which materially decreased the expense of construction. This road is nine feet wide, and is finished a distance of a little over three miles. The cribbing is 3,500 yards long, and averages a height of four feet. The work also involved blasting at certain points. The requisite length will be about thirteen miles. The Revelstoke Mining Company has extended it a distance of one-half mile to the United mineral claim, which will also reap the advantage of its use. More development in the mines within its reach has been already performed in a few months than in the three previous years.

"The exhibit of ores from this district at the Toronto, and other fairs in Ontario, has greatly extended a knowledge of its mineral resources, and held out strong inducements for the investment of capital. Forty-three samples, from eight to ten pounds weight each, representing locations in the Illecillewaet, Toad Mountain, and Hot Springs subdivisions, and the Hendryx and Trail Creek mines were exhibited, accompanied with cards stating the name of location, its situation, width of vein, and assay value of the ore. It is needless to say the collection attracted considerable attention. The amount appropriated for this purpose by the Government was a judicious expenditure that will be attended with good results.

"Through the enterprise of Messrs. Beebe and G. B. Wright, a large collection of ores, principally from the Hot Springs and Toad Mountain mines, was forwarded to the Spokane Falls fair, held last October, which attracted a large number of visitors from the great mining centres of Montana, Idaho, and Washington. In a city whose business men are so deeply engaged in mining enterprises, and where judges of good ore abound, the specimens were keenly examined, with a deep interest not evinced in the eastern portion of the Dominion, where a similar knowledge of minerals does not prevail, and the opinion expressed that they excelled the best products of their camps.

"Everything points to a season of unusual activity this year. The mineral areas are steadily increasing in number and extent by the new discoveries made from time to time. With the increase of ore production other industries will spring into existence, and a large and prosperous population be sustained. The completion of the Columbia and Kootenay railway will be effected in the spring; and measures are now being taken for the erection of an ore shed, and construction of a wharf 600 feet long to deep water. The Columbia and Kootenay Steam Navigation Company are building a new steamer in the vicinity of Nelson, to ply on the lake, possessing a capacity of 135 tons, which, with barges and the addition of the present fleet, will be able to accommodate the increased demand for freight. It is also stated the Hendryx Company will build and equip a steel steamer to run between Nelson and Bonner's Ferry, stopping at way ports.

"The completion of the Spokane and Northern last summer to the Little Dalles is an event worthy of mention, as connecting the system of railways south of the boundary line, by means of the steamers running on the Columbia, with the Canadian Pacific Railway at Revelstoke. This new route will be an attraction to tourists from both countries, desirous of viewing the grand and lovely scenery that exists between these two points. For a distance of 200 miles this noble river presents a panorama of unvaried beauty replete with deep interest to the beholder. The Columbia and Kootenay Railway from Sproat to Nelson passes through a remarkably picturesque region, in which the rapids and waterfalls of the Kootenay River are seen to advantage. At Nelson the rich placer and silver mines in the vicinity can be visited without any inconvenience. To the mines at Ainsworth and Hendryx, situated on Kootenay Lake, a magnificent sheet of water one hundred miles long, is a delightful trip by steamer, which no one should fail to enjoy.

"Nelson and Ainsworth are destined to become towns of importance. During the past year a number of stores, hotels and dwellings have been erected, and other preparations made for a large increase of business. Three saw-mills have been constructed, having a capacity of 40,000 feet. Communication will be established next spring with the Spokane and Northern at the Little Dalles, and the Canadian Pacific at Revelstoke, by means of the Columbia and Kootenay Railway, and the steamers plying on the Columbia River, which will perform a daily service, to enable which a new steamer is to be built to run between the Little Dalles and Sproat to connect with the steamers for Revelstoke; and the Great Northern is already adopting measures for the extension of its line to Bonner's Ferry to connect with the steamers on Kootenay Lake.

"Revelstoke is also sharing in the general progress of the district. Its prosperity is assured beyond doubt from the commanding position it occupies at the head of navigation, and being situated in the centre of a rich mineral belt. For two or three years the uncertainty existing in regard to the ownership of the townsite delayed its advancement. Several buildings are now under construction, and a considerable number more will be commenced on the approach of spring. A saw-mill, with a capacity of 15,000 feet, is in operation. A church and an excellent school house have been lately completed, and two first-class hotels, one of which is under way, will be provided in time for the opening of navigation. These will increase the number of hotels in the town to six.

"The smelter and sampling works will be in full blast as soon as ore can be transported from Sproat. Arrangements have been made for the output of the Monarch mine at Field, estimated to be about 200 tons per month, and a supply of ore from the Illecillewaet mines will also be obtained.

"Before concluding I desire to return thanks to Messrs. T. H. Giffin, H. Anderson, and E. S. Topping, to whom I am deeply indebted for information supplied; also to Mr. M. S. Davys, and to Messrs. A. D. Wheeler, G. B. Wright, and Dr. Hendryx for acts of kindness and hospitality received. The latter gentleman added to the weight of obligations conferred by issuing orders that all Provincial Government officials be provided with passage and meals on board the steamer Galena free from charge. The kind and obliging courtesy of Captain Hayward, evinced at all times, I also desire to acknowledge.

"I have, etc.,

(Signed)

"G. C. TUNSTALL,

"Gold Commissioner.

"The Honourable the Minister of Mines, Victoria."

ERRATA.—On page 365, under head of *Lardeau River Country*, Homestake claim, for "86 ounces to the ton" read "0.86."

EAST KOOTENAY.

MR. CUMMINS' REPORT.

"Placer Mining.

"SIR,—It will be seen from the accompanying tabular statement relating to the placer mining of the district, that the total value of gold obtained from the various creeks this season amounts to \$37,400, an increase of \$1,100 on the results of last year.

"The yield from Wild Horse Creek exceeds that of last year by \$12,000, the increase being mainly due to the fact that a clean-up of between \$8,000 and \$9,000 was realized by Mr. David Griffiths, the result of several seasons' hydraulic working. Other creeks show a diminution. The creeks which have been this year productive of placer gold lie all in the southern portion of the district. Very promising prospects have been obtained on Quartz Creek, about 18 miles from Donald. A company of miners took up ground there last fall, and have been constructing a ditch about a mile and a half in length, and intend to put in hydraulic plant in the spring.

"Quartz Mining and Mineral Discoveries.

"The East Kootenay District offers at the present time probably, for many reasons, the most promising field for the prospector, and for prospecting and developing companies, in the Province.

"Although systematic prospecting can hardly be said to have commenced, experienced and successful mining men, who saw the development of the Cœur d'Alene and other rich mineral districts to the south, and who visited this district during the past summer, unhesitatingly state that the prospects they have seen in East Kootenay, and the extent of the mineral discoveries, promised better for the future than had been the case in any district to the south, at a *similar stage in their development.*

"The opinion of the best authorities who have reported on the minerals of British Columbia agree that the mineral zones and belts, which have been clearly defined in the various ranges in the United States to the south, extend regularly into British Columbia.

"The mineral belts of the Selkirk Range in Kootenay are direct *extensions* of those in the most prosperous districts of Idaho and Western Montana immediately south on the same range. The ores of these districts are found to be identical with those of Kootenay and their occurrence similar. Mr. James Brady, M.E., who is familiar with this district, pointed out this connection of the Kootenay mineral discoveries with those of Montana and Idaho very clearly in a paper read in 1889 regarding Kootenay.

"The portion of the district in which prospecting has been so far most active lies south of the Canadian Pacific Railway, extending up the Columbia valley to the Columbia lakes, in the ranges lying on both sides of the river, the Selkirk Range to the west, and the Brisco, Stamford and Hughes Ranges of the Rockies proper to the east, the latter exposing (according to Dawson) the limestone formations of the Devonian and carboniferous periods. The eastern slope of the Selkirks has not yet been examined by a competent geologist, but it may be safe to state that the formation is composed chiefly of the metamorphic slate and other rocks of an older period, with beds and intrusions of igneous rocks. The contact between the more recent limestones of the Rockies and the older formation of the Selkirks lying in a north-westerly and south-easterly direction along the Columbia valley, crosses into the Hughes Range on reaching the Kootenay River.

"The mineral of the district, as far as at present ascertained, lies in two main belts. The mineral at Ottetail and Field, in the Rockies, appears to be local, no continuation of large extent having been traced. The first of these belts commences in the Selkirk Range, at the head of the North Fork of the Spillemcheen River, near Mount Sir Donald, and runs thence in a south-easterly direction on the easterly slope of the Selkirks, passing through the McMurdo District, including Cariboo Basin, Carbonate Basin, and cutting McMurdo Creek, Copper Creek, Vermont Creek, Horse Thief Creek, Toby Creek, etc., gradually approaching the Columbia valley and passing into the Rockies to the south of the Columbia lakes.

"The minerals discovered up to the present in this belt are gold in sulphurets (free milling at the surface), silver-bearing galena and grey copper, antimony, bismuth and other minerals

occurring casually. The formation in the immediate neighbourhood is generally slate, with frequent dikes of syanites, mica schists and various granitic rocks, also true porphyry in certain localities. I have not met with any true granite *in place*, though float is found in the creeks, proving its existence, also diorites and greenstone abound in some of the creeks. The formation is thus seen to be that which has proved the most abundant source of the precious metals further south.

"The minerals of this belt are *high grade*, especially the grey copper and antimonial copper ores, assays as high as 1024 oz. to the ton having been obtained. Test lots of ore, amounting to about 50 tons, shipped last season from the neighbourhood of Vermont Creek, gave excellent results.

"The second important belt, mentioned above, runs about parallel to the Selkirk mineral belt, generally in the limestones and quartzites at or close to their contact with the slates (Cambrian) of the Selkirk formation, along the valley of the Columbia southwards, crossing the valley and passing into the Rockies near the Columbia lakes. The discoveries in this belt are probably some of the most important of the district, though less continuous than those of the Selkirk belt, viz.: Jubilee Mountain, Spillamcheen Mountain, Steamboat Butte, Windermere Mountain, and various promising discoveries of copper ore in the Hughes Range, east of the Kootenay River. The bulk of the ore so far extracted is of copper and lead, carrying silver. Some high assays in silver and gold have been obtained, principally from Jubilee Mountain.

"The Field discoveries, of which the 'Monarch' mine is the most important, also those in the neighbourhood of Ottetail, both quite close to the Canadian Pacific Railway in the Rockies, would appear to be more local in their character, no continuous belts having been traced for any considerable distance.

"The region down the Columbia to Canoe River, north of the railroad, has not yet been prospected for quartz.

"Communications of the District"

"The Columbia and Kootenay valleys are exceptionally favoured by their topography for transportation purposes. The present communication of the district is effected by the Kootenay mail line of steamers plying from Golden Station, on the Canadian Pacific Railway, southwards for 120 miles to the Columbia lakes; thence the Government waggon road carries the traffic to Fort Steele and Cranbrook in the southern portion of the district. This road has been likewise extended northward from the lakes down the Columbia valley to within 25 miles of Golden, and it is expected to complete the waggon communication with the railroad at that place next summer.

"The mines are at present reached by pack trails up the various creeks branching from the main line of transportation. As the mines develop, a trunk line of railway will be constructed up the Columbia and down the Kootenay River, to join the projected Crow's Nest road in the southern portion of the district; the mines being reached by branch mineral lines and waggon roads up the creeks.

"The climate of the Columbia and Kootenay valleys is comparatively mild, and will offer no hindrance to continuous working of the mines or to communication.

"A decided stimulus has been given to mining and prospecting by the erection of the Golden Mining and Smelting Company's works at Golden, which are now complete, particulars of which are given elsewhere.

"The mineral discoveries have been steadily extending in the district during the past few years, and are unquestionably of the greatest promise, but the prospectors are as a rule without means to develop them. Opportunities are, therefore, exceptional for the acquisition of mineral ground by individuals or companies having the necessary capital to develop mines and place them in a marketable shape, as well as for greater undertakings.

"NOTICE OF VARIOUS IMPORTANT CLAIMS IN THE DISTRICT.

"Field.

"The 'Monarch' mine, situated on Mount Stephen, near the summit of the Rockies, a quarter of a mile from and at an elevation of 880 feet above the Canadian Pacific track, is at present the only fully equipped working mine in the district. The company has resumed work

this fall. A force of ten miners is now at work, terms having been arranged to supply the Revelstoke Smelter Company with 200 tons of ore per month. The shipping ore averages about 60 per cent. lead with 10 of silver to the ton.

"The ore occurs in somewhat irregular chambers, pockets and other deposits in the limestone, with but little gangue, and seems abundant. It is expected that the mineral will lie in more regular form and even greater body when more depth into the mountain has been reached. The mine was discovered in 1884. About 1500 tons of ore have been extracted and shipped up to the present time. The underground workings amount in the aggregate to about 450 feet of tunnelling, with larger chambers opened out in places where ore was more abundant. A considerable amount of work has also been executed on the outside, consisting of a tramway, galleried out of the face of the mountain, leading to the principal ore bins, and a gravity road from thence to the bins on the railroad, together with all the necessary plant for working the mine.

"On the various other claims in the vicinity of Field, little more than prospecting and assessment work has been done, though some of the prospects look as favourable as the 'Monarch' did before it was opened up.

"The ores so far found in the locality have been very pure galena ores, low grade in silver, containing occasionally a small percentage of zinc.

"Ottertail.

"No work of consequence has been done in this locality for several years.

"Selkirk Mineral Belt, including McMurdo District.

"Cariboo Basin,

"On the north side of the Middle Fork of the Spillemcheen, or McMurdo Creek, on which a number of claims, showing good croppings, have been located, has not received much development work this season beyond assessment work on some of the claims.

"Carbonate Mountain,

"On the south side of McMurdo Creek, has many important claims. Messrs. Rand Bros., of Vancouver, on behalf of English capitalists, purchased a property of ten claims in the fall of 1889, to which they have added other locations. The most important of these prospects, showing on the surface, occur on the 'Monitor,' 'Southern Cross' and 'Polly Brown' claims. The previous development done on these claims was unimportant. The vein can be traced continuously along the whole length of the property, extending from McMurdo Creek along the summit of Carbonate Mountain into Copper Creek. This main lead, like most of the mineral in the belt, runs in a south-easterly and north-westerly direction, lying almost vertically between walls of slate, mica-schist and granitic rock. The width of the vein on the surface is estimated as varying in width from 2 to 5 feet, fairly well mineralized. The property was examined by Mr. Giffard, the well known English expert, in the summer of 1889, in the interest of Messrs. Rand Bros., prior to their purchase, whose report, of course a private one, was understood to be favourable. Messrs. Rand Bros. have been actively at work since that time prospecting their property, and are at present engaged in driving a tunnel and cross-cut from McMurdo Creek, which is expected to cut the lead at a depth of 2,500 feet from the croppings along the top of the mountain. From the latest reports the tunnel was in 300 feet and the cross-cut commenced. The ore of the croppings is composed of sulphides of lead, iron and antimony, averaging about 50 oz. to the ton of silver.

"About three miles further up McMurdo Creek from the above line of claims, near the summit of the range, a number of claims have been located, amongst the most important of which are the 'Bobby Burns' and 'Chief of the Selkirks,' the original discovery claims of the locality. Little work has been done heretofore on these. The 'Bobby Burns' contains a large vein of gold quartz, free milling on the surface. A 3-stamp mill has been purchased by the owners, and is now at Golden, to work on this claim next summer. Gold is visible in some of the surface rock, and assays of 35 oz. of gold have been obtained.

"The 'Chief of the Selkirks' and adjoining claims at the summit contain galena and grey copper ores.

"Continuing south-eastward from the Carbonate Mountain claims, between Copper Creek and the South Fork of the Spillemcheen, several claims have been located on which only assessment work has been done. These are favourably reported on. On the southern slope of this divide, running down into Vermont Creek, occur the 'Dark Horse,' the 'Agnes,' and the 'Syanite Bluff.' A 6-ton sample lot of galena ore was shipped from the Dark Horse claim last summer, also a shipment from the Agnes claim. Both gave very favourable results.

"On the south side of Vermont Creek, near its junction with the South Fork, a block of claims, discovered in the summer of 1889, contain a number of veins of galena and grey copper, about ten in number, varying in width from 2 inches to 20 inches, in the slate formation. It is considered that these veins will in some cases run together. Thirty-five tons of ore were packed out on horses from these veins to the Columbia River, a distance of about 21 miles, thence by steambot to Golden and by rail to Revelstoke, realizing, under all these difficulties, a handsome profit to the owners. The ore was pronounced to be of excellent quality at Revelstoke.

"Good prospects have been located, further south, on Crystal Creek and Bugaboo Creek in the same belt. The country between this point and Horse Thief Creek has been but little prospected. In this latter locality, and on Toby Creek, very promising new discoveries were made last season and a number of claims recorded. The 'Little Fella' claim, on Horse Thief Creek, is described by a reliable and disinterested person as a magnificent prospect. It is stated to be a well-defined lode in talk slate, about 20 feet in width. Assays from 20 to 50 per cent. of copper and 20 to 100 oz. of silver have been made. Several other good copper prospects have been located on this creek.

"New discoveries, stated to be large veins, containing high grade galena, are also reported from about 20 miles up Toby Creek.

"MINERAL LOCATIONS ALONG THE COLUMBIA VALLEY BELT REFERRED TO IN GENERAL DESCRIPTION.

"Jubilee Mountain,

"Situated about 42 miles up the Columbia River from Golden, on the Canadian Pacific Railway, has mineral claims located along its ridge and western slope for a distance of over four miles. A large amount of work has been done on this mountain for several years back in searching for the principal mineral body, pronounced by experts of high standing employed to examine some of the properties, to lie on a contact between the limestone and slate formation on the western slope of the ridge. The ore extracted so far is supposed, on this theory, to have been forced up through the limestone formation from the larger and more continuous body supposed to exist on the contact. About 30 tons of copper glance and carbonates of very fine quality, averaging 55 per cent. copper, were shipped from the 'Lancaster' claim, owned by John McRae, during last summer to Swansea, as a sample lot, by C. F. Law, agent for Toronto capitalists. A good body of silver-bearing galena ore has been opened up on the 'Constance' claim this winter, and development work on a large scale is looked forward to in the spring. The claims on which most development work has been done are the 'Constance,' 'Lancaster,' 'Horseshoe,' and 'Alice.'

"Spillemcheen Mountain.

"A considerable amount of work has been done on various claims on this mountain during the past few years. Messrs. Wells and Pollock have been at work this winter driving a tunnel to reach the 'Big Lead,' understood to lie at the contact between the lime quartzite and the slate, at a low depth. They have drifted altogether 260 feet up to date, and expect to cut the lead within 20 feet further. The results of other prospecting work recently done on the mountain have been very favourable; a large quantity of ore has been taken out. The claims showing most development work are the 'Spillemcheen,' 'Homestake,' 'Rothschild,' 'Tiger,' and 'Eureka.'

"Windermere Mountain,

"Situate about four miles north of Windermere, on the Lower Columbia Lake, has been drawing much attention during last summer. Mr. O. A. Brown, of Spokane, became interested in claims on this mountain in July last, and has been actively developing with excellent results,

having exposed a large body of copper glance and carbonates. He has from 75 to 100 tons of ore on the dump at present, and expects to make some shipments in the spring. Two shafts, 40 feet and 20 feet respectively, have been sunk, and a tunnel to tap the lead in depth is contemplated. The ore consists of copper glance, carbonates and red oxides. A large number of assays have been obtained, ranging from 10 to 80 per cent. in copper, and from \$3 to \$130 in silver, to the ton. Two principal ore bodies have been cut through, one 18 feet in width, the other 7 feet. There are fourteen claims taken up in this locality. Some of these promise to prove valuable.

"In the neighbourhood of Wild Horse Creek some development has been done on a galena ledge about three miles above the old camp. It would appear that a large quantity of concentrating ore, carrying silver, has been met with.

"Prospectors have brought in samples of ore from about 25 miles up Wild Horse Creek, which are stated to have assayed \$225 in gold, silver and copper.

"The discovery of a new mineral district is reported about 11 miles in a south-easterly direction from Fort Steele. A sample from this locality assayed: gold, \$96; silver, \$300; and copper, 12 per cent.

"One hundred and forty-three new claims have been recorded in the district during 1890.

"Three Crown grants have been issued up to the present in the district and two applications made.

"Two hundred and forty-one Free Miner's Certificates have been issued.

"PARTICULARS OF THE GOLDEN SMELTING AND MINING COMPANY'S WORKS AT GOLDEN.

"*Smelting Furnace (Water Jacket).*

"Thirty-three feet by seventy-two feet at level of tuyeres.

"Maximum capacity, 50 tons a day.

"*Roaster.*

"It is estimated that from one-third to one-half the ore likely to be received will require desulphurizing. One roaster, of a capacity of from 12 to 15 tons, is provided. Space is reserved for putting in a second roaster when the output of the mines justifies the addition.

"*Power.*

"The power provided at the works consists of a 35 h. p. steam engine with a 40 h. p. boiler.

"*Proposed Copper Furnace and Desilverizing Process.*

"The Company has decided that it will be necessary to put in a copper furnace, should their expectation of the copper yield of the district be realized. The erection of a desilverizing plant is under consideration.

"The works have been laid out in first-class style. No expense has been spared to secure everything of the best quality. The machinery was supplied by Messrs. Frazer & Chalmers, of Chicago.

I have, &c.,
(Signed) A. P. CUMMINS,
Gold Commissioner.

"The Hon.

"The Minister of Mines,
"Victoria."

LILLOOET.

MR. SOUES' REPORT.

"GOVERNMENT OFFICE, CLINTON, B.C.,

"December 24th, 1890.

"SIR,—I have the honour to enclose herewith mining statistics and my annual mining report for the District of Lillooet for the year 1890.

"The total yield of gold (ascertained from reliable sources only) is \$71,455. This shows an increase of over \$11,000 as compared with the ascertained yield of last year.

"Mr. Phair, Mining Recorder at Lillooet, reports to me that 'outside the leases granted to the different companies, there has been very little mining done in that portion of the district, as the majority of the Chinese miners left in the early spring.

"The Lillooet Hydraulic Mining Company located near the Fraser River Bridge, have been working all the season, day and night, most of the time with good success. This same company have just diverted the south fork of Bridge River for over half a mile, and will commence to mine the old channel in the early spring with a strong force of men, using three parallel lines of sluices.

"They sank two prospect holes and found good indications; from one they took out \$24.75 in coarse gold. This company is deserving of every success, as they have spent over \$13,000 in opening the two claims.

"Messrs. Peters and Ward, who have a lease of the bench immediately behind the town of Lillooet, have averaged \$8 a day each. The pay streak is eight feet in depth and fully three-fourths of a mile in length. If they had sufficient water to work their ground, they could make \$20 a day to the hand. They are willing to give any company a large interest in their claim, that would bring water on the ground from Cayoosh Creek, the cost of which, it is estimated, would be in the neighbourhood of eight thousand dollars.

"The Vancouver Enterprise Company have their tunnel in 270 feet, over half-way, which will be completed in the spring, as the company propose keeping steadily at work during the winter. This tunnel will enable them to work their leased ground on Cayoosh Creek to bed-rock, and as the Chinese miners, who were the discoverers of the gold in this creek, took fully \$160,000 from the surface workings, it is reasonable to suppose that the company will find it proportionately rich near to and on bed-rock. The Deadwood mine, owned by Messrs. Whittier and Co., has been worked night and day most of the season with good profit.

"Under the Mineral Amendment Act, 1890, five leases for hydraulic mining have been granted during the year. On three of these active work has been done. On the other two, which are located on the east side of Fraser River, opposite to the town of Lillooet, it is proposed to bring in water from Cayoosh Creek, which will necessitate a very large outlay of capital. On the leased ground on St. Mary's Creek, and on that of the Fraser River Cable Company, there has not been any work done during the past season. Both of these claims are practically abandoned. Very little has been done in alluvial mining on Cayoosh Creek, Bridge River, and tributaries during the season.

"Quartz.

"Very few mineral locations have been recorded in the district during the past year, and but a small number of locators have applied for a certificate under the provisions of the Mineral Act. On a number of mineral claims recorded in the past few years, no work has been done, notably of those, the Foster Gold Mining and Milling Company; also the locations on Cayoosh Creek, and those in the eastern portion of the district, and at the upper end of Anderson Lake.

"Prospecting has been done on the mineral location on Mad River, owned by Mr. F. Allingham and others, but I am unable to say to what extent. A company has been formed for the purpose of working Big Bar under water. Machinery has been procured for raising the gold bearing gravel, and the company intend commencing work at the earliest opportunity, and lowest water, next spring.

"I have, etc.,
(Signed)

"F. SOUES,
"Gold Commissioner.

"The Honourable John Robson,
"Minister of Mines, Victoria."

YALE.

Kamloops Division.

MR. HUSSEY'S REPORT.

"KAMLOOPS, B.C., 31st December, 1890.

"SIR,—I have the honour to enclose my annual report for the Kamloops Division of Yale District for the year 1890.

"Stump Lake Mines.

"This locality was fully reported upon last year. During the past twelve months, assessment work has been done on a number of claims, but I regret to say that the Nicola Milling and Mining Company have, for the present, discontinued working their mines. It is expected, however, that they will resume operations early next spring. No new discoveries of quartz have been made during the past season.

"Iron.

"Mr. J. W. Mackay's iron mine, consisting of 160 acres situated at Cherry Creek Bluff, about twelve miles west of Kamloops on the line of the Canadian Pacific Railway, was located by Mr. Mackay about eighteen months ago. The ore is magnetic iron of the best quality, assaying about sixty-six per cent of iron, with very little or no sulphur. Some of the leads discovered contain no sulphur at all. The claim is now being developed, and shipments of ore have already been made, which have turned out satisfactorily.

"Placer Mining.

"The mines on Tranquille Creek continue to yield a large quantity of coarse gold, but as all the claims are controlled by Chinese, it is impossible to obtain any reliable information as to the quantity of gold obtained. About twenty Chinese have been employed in mining on this creek during the past season.

"I have, &c.,

(Signed)

"FREDERICK HUSSEY,

"Gold Commissioner.

"The Hon. Jno. Robson,

"Minister of Mines, Victoria."

MR. DODD'S REPORT.

"YALE, B.C., 22nd December, 1890.

"SIR,—I have the honour to submit my mining report for the current year.

"The placer mining I may state is chiefly carried on by Chinese between Hope and Foster's Bar, Fraser River, with what degree of success it is difficult to ascertain, but presumably their returns are small.

"The number of Chinese mining between the points above may be estimated at 150, and of that number about 20 companies only record their locations, many of them working in a desultory manner. Their gold dust is bought in small quantities by the merchants between Lytton and Hope, and from what information I can gather may be approximately placed at \$9,000.

"Hill's Bar Flat.

"The 'Fraser River Gold Gravels Syndicate,' composed of English capitalists holding a lease of 600 acres, have employed a strong force of men nearly all the season, and have expended a large amount of money in labour and expensive mining machinery, but I regret to say their raft was wrecked while attempting to cross Fraser River to begin active operations on the 5th September last, thereby losing a valuable boiler, etc., and causing suspension of their undertaking for the season, to some extent. But I am glad to say, that nothing daunted by their mishap, a new and improved boiler is en route from England, therefore I hope their commendable undertaking will be resumed early in the spring.

" Yale Creek.

"The owners of the Queen silver mine, in which extensive tunnelling and sinking has been done, still persevere at heavy outlay to develop their property, from which very rich prospects in silver have been obtained, assaying as high as \$500 in silver, and \$140 per ton in gold.

" Siwash Creek,

"Seven miles north-east from Yale, on which about 20 hardy and industrious miners have worked the entire season, many of them performing assessment work only, there has been found rich quartz carrying free gold.

"The Roddick Company, I may state, have expended nearly \$3,000 in opening their claim by driving tunnels and sinking, finding very rich deposits in free milling ore. Test assays have been made in the Province and in California that range from \$150 to \$2,000 per ton in gold.

" Silver Peak, near Hope.

"The Eureka and Victoria Companies have not been carrying on work of late years, but I am pleased to say the company (composed of wealthy Victorians) has been remodelled in the past year, with a view to resume vigorous operations next season. Rich assays have been obtained from these mines, ranging from \$100 to \$800 per ton in silver.

Iron.

"About ten miles east of Lytton, by the side of the Canadian Pacific Railway track, Mr. James Wilson, Superintendent of the C. P. R. telegraphs, is the fortunate owner of an extensive iron deposit, which is represented to me as having indications of becoming a valuable property a few years hence. Already about \$1,000 has been expended towards developing this mine by sinking and drifting.

"I have, etc.,
(Signed)

"WILLIAM DODD,
"Government Agent.

"The Honourable Minister of Mines,
"Victoria."

*Okanagan Division.***MR. DEWDNEY'S REPORT.**

"GOVERNMENT OFFICE,

"VERNON, 10th December, 1890.

"SIR,—I have the honour to enclose herewith the mining statistics and my annual report for the Osoyoos Division of Yale District.

" Cherry Creek.

"There are in all two white men and 13 Chinese working on this Creek, taking out on an average \$2 per diem to the hand.

"The Cherry Creek Mining Company are still running their tunnel into the hill with good indications.

"Mr. Jack Merritt, foreman of the company, informs me that they are now in 1,100 feet, and within 18 feet of the old channel, and find gold in small quantities, in and on the bed rock.

"Mr. L. W. Riske, in company with Mr. Donald McIntyre, have completed the erection of their quartz mill on the Monashee Mountain, and hope, after getting their ditch constructed, to convey the water a distance of two or two and a half miles to the mill, when they will at once commence crushing the ore, which is pronounced to be very rich.

"Rock Creek.

"The reports from this camp are still favourable.

"Mr. John Douglas, Manager of the Douglas Mine, who has spent in the neighbourhood of \$30,000 in opening up the mine, has been absent during the summer in New York trying to come to some arrangement with the shareholders, with a view to bringing machinery on to their mine. But until there are better facilities offered in the shape of a waggon road from the boundary line, or a railway built to connect with the Spokane and Northern Railroad, I am afraid the scheme will fall through, as it is a moral impossibility to ship either ore or heavy machinery, unless there are roads of some sort constructed to transport the material required for the construction of a mill, say from 75 to 100 stamps.

"Great quantities of ore are lying on the dumps ready for shipment if cheap transportation is secured.

"The owners of mineral claims in the new camp Okanagan, now called Fairview, are confident of soon having their properties developed, and a number of the mines have been bonded for good figures, and the claims are gradually coming into the market.

"The owners of the Brown Bear and Stenwinder are already down about fifty feet, and they both show good strong ledges at that depth, with every prospect of their becoming valuable. Good assays have been obtained from these claims, and Mr. Barrington Price, of Keremeos, has forwarded a quantity of ore to London, England; and if the rock proves as rich as expected, an expert will be sent out during the winter to inspect the properties, with a view to purchasing for an English syndicate.

"The placer mines at the mouth of Rock Creek have done better this last season than for some years previous.

"The Laura Hydraulic Mining Company, under the able management of Mr. J. W. Jensen, have paid this summer, over and above expenses, \$10,000. This is without a doubt very valuable property, and will, in course of time, give the shareholders large returns for the capital invested in opening up the mine.

"Siwash Creek.

"Very little mining has been done on this creek during the past summer, the output of gold being about \$1,500 to \$2,000. The Discovery is the only claim that I know of that has paid small wages during the season; a few other claim holders are prospecting, running tunnels into the hills.

"Mission Creek.

"This creek is virtually abandoned, and I cannot gain any information in regard to it.

"I have, etc.,

(Signed)

"W. DEWDNEY,

"Gold Commissioner.

"The Honourable John Robson,
"Minister of Mines, Victoria."

Similkameen Division.

MR. HUNTER'S REPORT.

"GRANITE CREEK, November 10th, 1890.

"SIR,—I have the honour to forward the annual mining statistics for the Similkameen Division, from which you will observe that the yield of gold continues to decrease, principally owing to the claims that paid being worked out, and few new ones being opened out.

"On Granite Creek the yield has been small in comparison with the amount of work that has been done. The Pogue Company's claim still continues to pay fair wages, and also the Eagle. The Old Timer Company, formerly the owners of the Gladstone claim, have just got their new claim into working order, and have begun to get out pay.

"On Newton Creek, or second South Fork of Granite, a considerable amount of money has been taken out, although it has only been worked for a couple of months, and water has been scarce.

"The gold found is similar to that on Granite Creek. Several large pieces of quartz and gold have been found by Indian women who were mining there; and a miner by the name of James Kelly is said to have made from one dollar to ten dollars per day.

"On Slate Creek a considerable amount of work has been done, and a fair quantity of gold has been taken out, especially by the Last Chance Company, which has been most fortunate this season.

"On Boulder Creek there is only one Chinese company working, but they have done an immense amount of work with good results.

"On the Tulameen River some work has been done, one company of two Chinese having taken out about thirty ounces. The yield of platinum on the upper portion of this river continues to be very large. One Chinaman had forty ounces in his possession obtained there this season.

"There were over a hundred Indians engaged in mining with rockers, but they were not as successful as in previous years.

"On the Similkameen, mining has not been so brisk, although a quantity of gold has been taken out. Mr. Allison's claim at Princeton is the only one of consequence, and pays about four dollars a day per man.

"On Whipsaw Creek, which is about ten miles from Princeton on the Hope Trail, three white men have been employed and fair wages obtained. A miner named Reardon introduced a self-acting reservoir similar to the kind used in California, on this creek, and it was found to work to great advantage, especially where water is scarce and gold is not in paying quantities.

"Very little has been done in quartz mining, the owners of mineral claims having satisfied themselves with merely performing the necessary work to hold the location.

"I have, etc.,

(Signed)

"HUGH HUNTER,

"Recorder.

"The Honourable Minister of Mines,
"Victoria."

"The exports of coal by the same Collieries in 1890 were 508,270 tons, as follows:—

	Tons.
Nanaimo Colliery, export.....	292,809
Wellington Colliery, export.....	106,281
East Wellington Colliery, export.....	35,132
Union Colliery, export.....	74,048
Total coal exported in 1890.....	508,270
Add home consumption in 1890.....	177,075
Add on hand 1st January, 1891.....	13,323
	698,668

"In addition to the above exports, the Canadian Anthracite Coal Company, sent by the Canadian Pacific Railway, via Vancouver, to the United States, 2,300 tons; and the Canmore Mines sent 10 tons, as appears in the Customs record of the Port of Vancouver.

"The coal shipped from Nanaimo, Departure Bay and Comox was exported chiefly to San Francisco and other ports in California. Shipments were also made to Alaska, Hawaiian Islands and to China and Japan (per C. P. R. steamers). Fuel has been supplied to H. M. Navy and to U. S. war vessels and revenue cutters. The ocean mail steamers and vessels calling for fuel have also received their coal as usual.

"The Colliery returns show a 'home consumption' of 177,075 tons in 1890, as compared with 124,574 tons last year (1889), but the coal used by the Collieries is, in most instances, included.

"The progress of the coal industry of British Columbia may be seen by the following statement of output and export from the year 1887:—

	Output.	Export.
1887.....	413,360	334,839
1888.....	489,300	365,714
1889.....	579,830	443,675
1890.....	678,141	508,270

"Following up the statements which I have inserted in previous reports as to the various sources from which the State of California, our principal foreign market, is supplied with coal, I beg to submit hereunder a statement compiled up to date from the best commercial authority to which I have access:—

	1888. Tons.	1889. Tons.	1890. Tons.
British Columbia.....	345,681	417,904	350,388
Australia.....	271,612	408,032	153,920
England and Wales.....	126,167	32,890	53,374
Scotland.....	10,680	12,727	1,490
Eastern States.....	30,118	18,950	32,701
Puget Sound.....	568,948	372,514	450,762
Cocs Bay and Mount Diablo..	81,194	87,600	74,210
Japan.....	13,808	1,340	13,250
Total at San Francisco.....	1,448,208	1,351,957	1,130,095
At lower ports in California .	211,598	11,805	123,312
Total California.....	1,659,806	1,363,762	1,253,407

"The authority from which I quote states the above as the total receipts of coal into California, exclusive of several thousand tons received by rail from Utah and Wyoming. Included in the total for 1890 there are about 18,000 tons of coke. And it should be observed that in the above totals, in California for 1889, at San Francisco, there were 127,805 tons which belonged to the Lower Ports, and that this amount added to 11,805 tons, the amount appearing to have gone to the Lower Ports in 1889, will make up the 139,660 tons which are reported as having been delivered at these Ports in 1889.

"The above totals are apparently not progressive, but this is, at least partly, accounted for, in 1890, by the hand to mouth state of the coal dealers' yards at San Francisco during the scarcity of the article at that port last year (1890).

"Of course it will be borne in mind that the above totals are of the quantities of coal actually received in California, and not of the quantity shipped from this Province in the year, some of which would be on the way to its destination, only.

"I feel that having regard to the special circumstances of the coal industry of this Province the above figures speak for themselves sufficiently without comment from me, other than if it had not been for the unfortunate diminution of the output and shipment of coal from the Wellington Colliery during the latter part of the year, the year's totals would have been about a fifth as much more than they are, with a good market for the same.

"While all the mines are being worked with vigour and unprecedented energy, and with an immense investment of capital, for which there is the best prospect of a safe and profitable return to the lucky proprietors, I sincerely trust that the unhappy differences which have existed lately in this district will be adjusted, and harmonious relations be restored between differing employers and employed, as such a consummation would tend greatly to advance the coal industry and the prosperity of the community, as well as to place this Province in a proud position as commanding the market of the Pacific Slope, whether as to quality, quantity or price of the great staple article of necessary utility—coal.

"The outlook for the year we have now entered upon (1891) is the most promising that it has been my good fortune to experience for the coal industry; the harbours of the port of Nanaimo are replete with shipping of every possible size, from the largest ocean ships and steam vessels to the small towing craft and capacious barges, and the powers of the Collieries have been strained to the utmost to fill orders to the many comers. I need hardly say that the City of Nanaimo has been a large participant in this stream of prosperity that has visited the district, and I trust that it may long continue and increase.

"NANAIMO COLLIERY.

"The coal from this colliery was in good demand during the past year.

"No. 1 PIT, ESPLANADE, IN NANAIMO.

"This mine, forming part of the Nanaimo Colliery, belongs to the New Vancouver Coal Mining and Land Company (Limited). As in the previous year, the workings in this pit have been from what is known as No. 1 and No. 3 North Levels. All the workings from these levels are under the water of the Nanaimo Harbour, and are getting to be very extensive. The No. 1 Level with its windings is in about 2,800 yards from the shaft in a north and westerly direction. In this division of the mine they have taken much coal during the past year, the coal being of a first-class quality, hard, and will average about seven feet thick. They have drifted or run the level in about 800 yards, without a fault or hitch of the smallest kind. Here they have as many employed, considering the distance, as they can take coal away from; and at present they have coal won where they could employ 100 more men than what are now employed in this district of the mine. At the back of the level they are only a few yards from working under Protection Island, under all of which, I have reason to believe, lies this famous and valuable coal. In No. 3 level there has been much prospecting and exploring done. They are now getting out a considerable quantity of good coal, but they do not seem to have got into the extensive field where No. 1 is, although they are working towards it and expect to get in soon.

"Ventilation is good. Motive power, two fans, both on the Murphy principle, worked by two steam engines. The fan machinery is erected near the top of the up-cast shaft. The last time that I was down (in December) I found that there were 60,000 cubic feet of air passing per minute for the use of 90 men and 15 mules. The air is well conducted into the face by brattice or otherwise.

"This mine is ventilated on the separate split system. The main division being near to the bottom of the shaft; the part or current going to the No. 1 level, and the other down the slope for the No. 3 level workings. Here they are extensively using brick to build stoppings to conduct the air in the main airways. There is very little gas now found.

"In this mine, as in all other mines of the colliery, a deputation of men is sent once in each month to examine the mine under Section 79, General Rule 31. The finding of the condition of the mine is recorded in a book kept for that purpose; and a notice is put up where all may see it.

"No. 3 PIT: (CHASE RIVER), NANAIMO COLLIERY.

"This is mentioned in a previous report as being near to the mouth of Chase River. With the exception of a short stoppage in the early part of the summer this mine has been worked steadily. The coal from here is of a very good quality, and hard. As it is worked on the pillar and stall system and that by a slope, and having got as far as it is intended to go at present, all the mining is at the pillars (coal), which were left behind to support the roof; those pillars being fully one half of the coal that was in the mine at the start, so that there is yet a large output to be got here.

"Ventilation is good. Motive power, a fan on the surface near the top of the up-cast shaft. The last time I was down I found that there were 50,400 cubic feet of air passing per minute for 69 men and 9 mules.

"This mine has been free from gas since the start, and it is also free from dust.

"SOUTH FIELD MINE, NO. 1 AND NO. 2.

"These mines are now what are known as the South Field Mine.

"This mine is worked by a slope from the surface, and is now down about 800 yards, but at present it is not worked in the bottom, and nearly all the coal came out from the south side. It has been the greatest producing mine of the colliery. This coal is of a very good quality, and in some parts is about 18 feet thick, but as in the other mines it had faults now and again to contend with. The coal is mined on the pillar and stall system.

"Ventilation is very good. Motive power, a large fan, on the up-cast shaft. This is also ventilated on the separate split system. The air is taken in by both No. 1 and No. 2 slopes, the up-cast shaft being put down between them, and is found to work well in ventilating the mine. The last time I was down in December there were 40,000 cubic feet going down the No. 1 slope, and 80,000 going down the No. 2 slope, total 128,000 per minute for the use of 149 men and 18 mules. There is now very little gas found in this mine, which is also free from dust.

"No. 4, SOUTH FIELD MINE.

"This is the slope mentioned in a former report, and about half a mile from No. 3 pit. It is down about 1,000 yards with a long level to the south side. The company have been to a great expense here, and at times prospects looked favourable, and it was reasonably expected that good coal would be early found here, as they have good coal coming this way from No. 3, and also from bores they put down away to the dip only a few hundred yards ahead; yet, with all those encouragements, the prospects are not looking very favourable; but it is to be hoped that there will before long be a profitable mine here, the location being good, and well situated for other works.

"No. 5, SOUTH FIELD MINE.

"This is a new shaft which the company are putting down to the dip and north of the working of No. 2 slope, after having put down a series of bore holes. The prospects from those holes gave them encouragement to start the above shaft, which is now down 100 feet; and they expect to reach the coal a little over 500 feet from the surface. As the company have got machinery and head gear up, to be used in the sinking, it may be expected that, in the absence of unforeseen accident, the company will get to the coal early in the summer, and this will be quite an acquisition to the proprietors.

"NORTH FIELD MINE, NANAIMO COLLIERY.

"This mine is mentioned in a previous report as being in the northern part of the New Vancouver Coal Company's extensive estate. The mine has been worked continuously during the past year, the coal varying in thickness from three to six feet, and is very hard and of a very good quality. It is in good demand both in the Victoria and California markets, and commands the highest price.

"The coal is worked on the long wall system, by a level, and slopes from the bottom of the shaft. This is the only coal mined upon that system in this colliery, and on account of the thinness of the vein the system works well.

"Ventilation is good. When I was down in December I found there were 23,400 cubic feet of air passing per minute for the use of 56 men and 3 mules. This is conducted on the separate split system, the intake being the east level and slope; this comes back by the returns, and eventually rises up and out of one apartment of the shaft walled off. Close to the top on the surface is erected a fan.

"During the past year the company have been sinking another shaft, which is about 70 yards west of the hoisting shaft, and had got down to the coal and connected with the works at the end of December, so that once they get these works arranged this second shaft will be their return or up-cast shaft, and will also form a second connection or outlet with the surface.

"Little or no gas has ever been seen in this mine.

"Two years ago there was nothing but woods here, but now that the New Vancouver Coal Mining and Land Company have extended their works, and the Hamilton Powder Company have also started their works in this neighbourhood, there is quite a town springing up, which is likely to grow, and flourish correspondingly with the progress of the Coal and Powder Works, of which progress there can be no doubt.

"WELLINGTON COLLIERY.

"No. 3 PIT, WELLINGTON COLLIERY.

"This pit, as has been mentioned in a previous report, is in the valley of the Millstone River. The workings are all by way of a slope from the south side of the shaft.

"In this pit much of the work is under the valley, which is sometimes overflowed at very high stages of the river. As well as mining underneath the valley, a great deal of work has been done below the high bluff overlooking the valley. The workings here have only been at pillars (coal), and that under the bluff, as it is not the intention of the manager to take any of the pillars from under the valley, until every other part is worked out; this is done as a safeguard against an inflow of water from the surface. They were working at the pillars up to the 16th May, when there was a strike, and up to the present time there has not been any coal taken out of this mine. Water was being pumped out as usual up to the 26th August, when I was there and went down the mine with Mr. Bryden, the manager. We were satisfied that the gob was heating from the steam and smoke that travelled along the return airway. Since that date no water has been taken out, and during the same time the old ventilating fan has been removed and a new one put in its place.

"Ventilation was good. I never found less than 39,000 cubic feet, and at the time of the stoppage there were 35 men and 6 mules.

"No. 4 PIT, WELLINGTON COLLIERY.

"This pit is about 1,000 yards east of No. 3, but on the top of the bluff, overlooking the Millstone Valley.

"Here, as in all the mines of this colliery, the men worked regularly on to 16th May, when they came out on strike, and little or no coal came out of the mine till August. At this time a few men started to work, and they kept gradually increasing. When I was down in December there were 120 men working.

"This pit is worked on the pillar and stall system, and is a very extensive mine. The coal is generally good, yet it is not without some faults. Here there is a connection with No. 3 pit, as well as the fan shaft.

"Ventilation is very good; motive power, a large fan on the up-cast shaft, worked by a large steam engine. This mine is ventilated on the separate split system; two main divisions at the bottom of the shaft, and this is again split further in in the workings, when, after going round all the works they meet again near the bottom of the up-cast shaft. The last time I was down, in December, I found that there were 108,000 cubic feet of air passing per minute for the use of 120 men and 20 mules. The mine is free from dust, having a regular system of pipes for watering where required.

"In addition to the overman and firemen, there is a staff, called the shot lighters, to examine and see that everything is safe before a shot can be fired. This staff use only safety lamps.

"No. 5 PIT, WELLINGTON COLLIERY.

"This is as yet the only pit of the Wellington Colliery that has railway connection with the Esquimalt and Nanaimo Railway; and also with the company's own system of railway to Departure Bay.

"In this mine, as in all the other mines of this colliery, the men worked steadily up to the 16th May, when the strike started, and this mine also was at a stand until August, when a start was made by a few, who have been followed by others, until, when I was there in December, there were 111 men at work.

"This is about the most extensive mine in this colliery. The coal is worked here from the east and west sides, also from an incline on the south, and a slope to the north. As this has been on the pillar and stall system (with the exception of part of the slope that is long wall), there has been much good coal worked here. Now at the south incline and west side, all the mining is at the pillars, which contained about two-thirds of the entire coal; but of course there are many of them by this time taken out. On the east side they are working in the solid coal, and also at the pillars. Down the slope to the north the long wall system works well, but it has to be closely attended to.

"In this slope there is also a considerable amount of work done on the pillar and stall system. Down this slope and also in the east level there is the prospect of having a very extensive mine for many years to come.

"Ventilation is very good. Motive power, a fan driven by a steam engine. When I was down in December I found that there was 116,560 cubic feet of air passing per minute; that is to say, to the west and south incline, 51,460; to the east side, 28,090; and to the slope, 37,010 cubic feet of air per minute; total as above, for the use of 111 men and 14 mules; this after being conducted well into the face and around the pillars, by brattice or otherwise. As all the above splits are within a few feet of the bottom of the down-cast, they do not get together again until they are close to the up-cast shaft.

"This mine is also free from dust, and everything is arranged to keep it so, as there is a regular system of pipes for taking water along wherever it is likely to be required, with the mains along the levels and main roads, and smaller pipes leading therefrom to the stalls. In addition to the pipes there are sprayers connected to them at different places in the mine; the water coming out of them is so fine that the air carries the moisture along, so that there is no place it cannot reach—in the roof as well as the floor and sides. The pipes are connected with a large reservoir on the surface; the pressure being the depth of the shaft, 260 feet. Here they have also got their staff of shot lighters and examiners.

"No. 6 PIT, WELLINGTON COLLIERY.

"This is the same mine as mentioned in a former report, and about 900 yards east of the No. 4 Pit. Although working, the two shafts are only a short distance from each other; but that small piece is to remain, as it is not the manager's intention to connect those works for some time. This is going to be a very extensive mine, the coal almost lying flat, so that the working is all around the shaft, with a great extent to spread out. The coal is very good and hard, from six to eight feet thick, and worked on the pillar and stall system, which seems to be the best way of mining in this colliery, all things being considered.

"In this pit there has been the same draw-back during the past year as has been in all the mines in this colliery, namely a strike, starting on the 16th May; and, as in the other mines, a few men went to work in August, who have been gradually added to, so that when I was down in December there were 55 men at work, with 20 men working in the afternoon.

"Ventilation is good; motive power, a fan on the Murphy principle, and when I was last down I found that there were 36,000 cubic feet of air passing per minute for the use of 55 men and 10 mules.

"This mine is ventilated on the separate split system, the two main divisions being at the bottom of the shaft, and conducted well into the face by brattice or otherwise. In this mine the Company are at present restricted to a certain number of men, but they are trying with all haste to get connection with No. 5 Pit, in what is known as the East Level. The coal is good in both sides, and that may almost be counted on all through. It is expected to accomplish this in about a month or two. Then we may anticipate that the output of coal from No. 6 will exceed that of any of the other mines in this colliery.

“No. 2 Slope, Wellington Colliery.

“There has been little or no coal mined or work done here during the past year, but the Company intend to resume work early in the Spring.

“EAST WELLINGTON COLLIERY.

“This property of the East Wellington Coal Company comprises two shafts, known as No. 1 and No. 2, which are in the valley of the Millstream. The shafts are about half a mile apart by a direct course, and are worked as one mine.

“In No. 1 Pit, coal only comes from a few men, and that from the west level, towards the No. 2. The coal is of the usual good quality, and hard, but the Company are much troubled with faults of one kind and another. On the east side they are now in a long distance which has proved one continuous fault, with a little black dirt here and there; but as this side is the greater part of their estate, they are determined to find out what is in it, and it is to be hoped that they will yet find a good piece of valuable coal as they have incurred a large outlay. I might say it has been up-hill work all the way.

“No. 2 Pit, East Wellington Colliery.

“In this pit the Company have been working steadily all the year, except for a day now and then. The coal has kept good, and is in good demand in San Francisco, where most of it goes.

“This pit is worked on the long wall system, as has been the general way of working here. The roof is not quite so strong as it was some time ago, yet the mine works well, and the prospects for coal look good for the year we have now entered on, and I hope that expectations will not be disappointed, as the company are persevering and highly deserving of success.

“Ventilation, good; motive power, a fan on the Murphy principle. The fan is erected at the top of the No. 1 Shaft, and worked by a steam engine. When I was down in December I found that there were 23,000 cubic feet of air per minute for the use of 50 men and 7 mules, the air going down No. 2 Shaft, along the faces, except what escapes at different roads, but it is always caught up again at the face when it winds its way along the airway and out of No. 1 Shaft. There is very little gas given off in this mine, and there is not much chance for it to collect, the old works being well filled up in every particular, and due precaution is used to prevent accidents.

“UNION COLLIERY, COMOX.

“This colliery belongs to the Union Colliery Company. The mines are only a few miles from Comox. This Company are working two veins of coal, two mines, known as No. 1 and No. 2 Tunnels, or Adit Levels, going in on the hill side on the south side of the railway, and high above its level. Both of these levels are in about 600 feet, in good hard coal, and from two to three feet thick, overlaid by a strong sandstone. The mines here are on the pillar and stall system, and are very safe workings.

“Ventilation, good; motive power, a furnace, the air going in the travelling and hauling road, and returning by way of the face. There is no gas found in here, and it is free from dust, the mine being wet throughout.

“No. 1 Slope, Union Colliery.

“This slope, which is now down about 2,000 feet, has not been extended any distance during the past year, but the levels from it to the north side have been working steadily the most of the year, that is by three levels with the stalls therefrom. The coal has kept good and very hard, and improving a little in thickness, being from three to five feet thick, with a strong roof. There are good indications to show that this seam of coal will improve in thickness, going to the north.

"Ventilation, good; the motive power, a fan on the Murphy principle, driven by a steam engine. This mine is also ventilated on the separate split system, going down the slope, and then going in the levels, coming around to the up-cast shaft by way of the stalls, so that the air goes down the slope to the lowest place there, then ascends until it again comes out at the top. The last time I was down I found that there were 24,000 cubic feet of air passing per minute for the use of 36 men. The mine gives off some gas, but not so much as to trouble the working of the mine when attended to. There is no dust in this mine, which is wet throughout.

"NO. 1 SHAFT, UNION COLLIERY.

"This is the shaft mentioned in a former report. There has been much prospecting done here during the past two years, but there has been very little coal taken out. Now it is looking better, and the Company have the prospect of yet getting good workable coal, and it is hoped that they will do so after going to so much expense.

"NO. 2 SLOPE, UNION COLLIERY.

"This is a new mine, started during the past summer, and about one mile north of No. 1 Slope. Here the coal was easy to get at, and now the Company have put a slope down 260 yards. The coal will average six feet thick. This coal is very hard, of good quality, and resembles the Wellington coal, and I may say that it is the most valuable strike of coal that has been made here by this Company, and is a good thing for them, also for the settlers of the extensive district of Comox, as well as for the Province in general. The Company have put down a series of bore-holes away ahead of this slope, which have proved the coal for a long distance.

"PROSPECTING

"BY THE NEW VANCOUVER COAL MINING AND LAND COMPANY, LIMITED.

"The workings from the No. 1 Shaft have now got through under the harbour, with one and three-quarters of a mile to haul the coal, this being about under Protection Island. There was a bore-hole started in this island about three months ago, and pushed with all haste. When at the depth of 588 feet coal was struck, and as it was gone through it proved to be a good workable seam. After going through this the bore-hole was continued, and at the depth of 650 feet from the surface another seam of coal was struck, which was thought to be a continuation of the first seam of coal that was worked on Newcastle Island, and also in the old No. 3 Pit, Front Street, Nanaimo. As the coal from both those places was of a good quality, there is no reason to think that it is not as good under Protection Island and the waters of Nanaimo Harbour. Near to this bore-hole the company is preparing to sink a shaft, making every preparation to start, so as to lose no time, in order that they may be able to ship coal from this island at as early a date as possible. There is now a wharf built on the island for landing the machinery and materials.

"This Company put down a bore on Mrs. Frew's estate, which is the delta of Nanaimo River. Six feet of coal was passed through at a depth of 910 feet from the surface. They did not find the lower seam here.

"The bore-hole mentioned in a previous report as being down 1,460 feet was continued until they reached the depth of 2,220 feet, making the deepest hole in this district. No coal of any apparent value was struck, except that stated in my last report, namely, twelve feet of coal.

"COMOX.

"The New Vancouver Coal Mining and Land Company, Limited, have also been making some extensive researches in the Comox Valley. A powerful drilling machine was imported, and taken to Comox about mid-summer last. It was got to work as soon as possible, and continued drilling until a depth of over 2,000 feet was reached, and this was accomplished in less than six months. The results cannot be published at present, but it is sufficient to state that the coal measures undoubtedly extend into the north-westerly portion of the Comox Valley, but at a considerable depth. It remains to be proved whether the measures contain workable

coal seams at a depth that will lead to their being worked. This Company are proceeding with other bores, and it would be a great benefit to the settlers of the important settlement of Comox if the Company should be successful in their enterprising exploration, as a home market would be provided for the settlers' produce.

"The New Vancouver Coal Mining and Land Company, Limited, are about to bore on Texada Island, where there are indications of coal measures. They are going to prove what is in them.

"The same Company are also starting to bore No. 4 in their North Field.

"In looking over this underground prospecting, you will see that this Company are exploring over a large area of Vancouver Island, and it is to be hoped that they will be successful in their undertakings, as it requires a great outlay of capital. The Company possess both the capital and the management necessary to insure success.

"There was other boring done in Rupert District of which I cannot give the results.

"OYSTER HARBOUR.

"The diamond boring drills were removed from Oyster Harbour after considerable expenditure and an energetic search for coal.

"Negotiations, I am informed, are in progress for a renewal of operations, and it is to be hoped, in the interest of the Oyster Harbour Coal Company, as well as of the Province at large, that further exploration will prove successful.

"According to Mr. Richardson, the geologist, the whole of this section contains coal-bearing measures, which are a continuation of, and about the same formation, as we find at Nanaimo, but the covering seems there to be somewhat greater than it is hereabout.

"TUMBO ISLAND COAL MINING COMPANY.

"This island, lying at the south-east entrance of the Straits of Georgia, has been prospected for coal by the above Company for the past three years. There was one hole put down two years ago; then they started a shaft having a steam engine and air compressor. They worked away at this shaft until they got down over a hundred feet, when they quit work in the shaft, and put down another bore-hole near to the first one. This was put down through hard sandstone rock for about 220 feet. Here a bituminous shale was struck. This continued most of the distance, up to 325 feet, when coal was struck. I was at the bore-hole, saw and helped to bore and take out a considerable amount of coal, as well as some of the shale referred to. The coal that I saw taken out, the coal which I saw that had come out before I got there, and what was got out after I left, is enough to satisfy the Company that there is a large seam of coal under all this island, which the above Company owns. The above mentioned shale, when burned in a retort, was found to contain much gas, which burned with a clear white light. This may be very valuable for illuminating purposes. Altogether, this Company has got a valuable property, and we hope, that when once it is opened out, that it may be profitable for the Company, as well as beneficial to the Province at large. I am indebted to Mr. Charles Gabriel, who has charge of the works, for such of the above facts as are not within my personal knowledge.

"ACCIDENTS

"IN AND ABOUT THE COAL MINES ON VANCOUVER ISLAND FOR 1890.

"January 29th—James Devlin, miner, working in the South Field Mine, was slightly burned about the hands and face by explosion of gas.

"February 13th—George Williams, miner, was injured about the back by a piece of coal falling on him while at work in his stall in No. 4 Pit, Wellington Colliery.

"February 18th—Yun Yon, Chinaman, was killed on No. 1 Slope, Union Colliery, by being jammed by the boxes.

"March 13th—William Jackson, miner, working in No. 4 Pit, Wellington Colliery, was severely injured about the back by a piece of coal falling on him while at work.

"March 16th—Huey, Chinaman, was killed by a fall of rock while at work in his stall of No. 1 Slope, Union Colliery.

"March 22nd—W. J. Collard, miner, in the South Field Mine, had his leg broken by a fall of coal.

"April 19th—William Griffiths and William Young were burned by an explosion of gas. They were drilling a prospect hole in No. 1 Pit, East Wellington. The gas came so free from the hole that it kindled at their light, with the above result.

"April 24th—John Hoag, miner, was burned about the face and hands by an explosion of gas in No. 1 Slope, Union Colliery.

"April 25th—J. Gilerduck, mule driver in No. 5 Pit, Wellington Colliery, had his shoulder dislocated by being caught on the roof when riding on the boxes.

"May 7th—Josen Quilette, miner in No. 4 Pit, Wellington Colliery, was slightly hurt by a piece of coal falling on him in his stall.

"May 8th—Ah Gow, Chinaman, slightly burned about the hand by an explosion of gas in his stall in Union Colliery.

"June 5th—Joseph Lindholm, miner, was burned about the face and arms by an explosion of gas in No. 1 Slope, Union Mines.

"June 16th—Ezra Bramley, miner in South Field Mine, was hurt about the back by a fall of coal while at work in his stall.

"August 1st—Thomas Wilson, miner, working in No. 3 Pit, Chase River, was hurt about the body by a piece of coal falling on him.

"August 4th—Carlo Johnny, miner, working in No. 1 Shaft, Nanaimo Colliery, was severely injured by a fall of coal while at work in his stall. The above Carlo Johnny died the following morning.

"August 19th—William Rothery, miner, working in South Field Mine, had several of his toes broken and his foot otherwise injured by a fall of coal while at work in his stall.

"August 20th—Victor Musek, miner, working in North Field Mine, had one of his ankles broken by a fall of rock while working in his stall.

"August 28th—Jacob Mallie, miner, working in No. 1 Slope, Union Mine, was burned on face and hands by kindling a small quantity of gas.

"September 4th—George Langham, miner, working in South Field Mine, was killed by a fall of coal while at work in his stall.

"September 10th—Joseph Lindholm, mine labourer, was injured about the head by striking it against the roof while riding on a car in No. 1 Pit, East Wellington Colliery.

"September 25th—Musino Camot had one of his fingers crushed by a car in the East Wellington Colliery.

"September 27th—James Fitzsimmons, miner, working in No. 3 Shaft, Nanaimo Colliery, had one of his legs severely bruised by a fall of coal while at work in his stall.

"October 5th—Daniel Donnelly, miner, working in No. 3 Shaft, Nanaimo Colliery, had his leg broken by a fall of rock from the roof while at work in his stall.

"November 17th—Lester Newman, a runner in the Southfield Mine, had his thigh hurt by a piece of coal while assisting a miner in his stall to load a box.

"November 27th—George Richards, mule driver, in No. 5 Pit, Wellington Colliery, was injured by the cars while at work.

"November 28th—James Pinder, miner, while at work in No. 4 Slope, Nanaimo Colliery, was slightly burned about the back of his neck and one arm by explosion of gas.

"December 31st—Robert Orr, miner in No. 5 Pit, Wellington Colliery, was slightly injured by one of the mine cars running over his foot.

"It is with sincere regret that I make out the above long list of accidents, some of which were serious and fatal.

"There were twenty-four cases reported as serious, some of which, however, I am glad to say turned out very slight, so that the injured party was able to resume work after a few days. On the other hand, there were several persons who had much suffering for a long time, and were months before they were able to work.

"The fatal accidents were four in number: two by falls of rock, and one by cars in the mine.

"Of the serious accidents in the list, nine were by falls of coal, eight by explosions of gas, four by cars in the mines, and three by falls of rock.

"I have enquired into the circumstances and causes of all those accidents, and in nearly every instance, as soon as I got notice, went and saw the place directly, when I had reason to believe that it had not been disturbed, and even in some of those cases I went and made an examination.

"With respect to the fatal accidents, there has not been any inquest held, as the friends knew the nature of the accident and considered a public enquiry not necessary, therefore none was held.

"As the result of my inquiries into all those accidents I could not discover that any blame or negligence could be attached to any one.

"In looking over the list, you will perceive that nearly all the accidents took place where and when the men were at work, and when they were presumed to know when they were in danger at the different work in which they were employed, subject to the direction of the overman, fireman, shotfirer, and any other person having authority from the manager; and as those officials are continually going from one place to another in the mines, they are sure to have anything that they may see dangerous made safe.

"As Inspector, I am always ready to attend to any matter that may be brought to my notice by any one who thinks he may have a cause of complaint.

"I will now conclude my report, hoping that the year we have entered on may be free from any serious accidents, and that, as in the past year, the casualties may be much reduced, while the output of coal is largely increased; and that by using the greatest caution there may be freedom from accidents; and also that the employers and employed may work in harmony with each other, so that when the year comes to a close both master and workman can look back and say that the past has been a prosperous year to our mining industry and the workmen alike.

"Appended are the annual Colliery Returns.

"I have, etc.,

(Signed)

ARCHIBALD DICK,

Government Inspector of Mines.

"The Honourable the Minister of Mines."

COLLIERY RETURNS.

NANAIMO COLLIERY RETURNS.

Output of coal for 12 months ending December 31st, 1890.		No. of tons sold for home consumption.		No. of tons sold for exportation.		No. of tons on hand 1st January, 1890.		No. of tons unsold, including coal in stock, Jan. 1st, 1891.		
Tons.	cwt.	Tons.	cwt.	Tons.	cwt.	Tons.	cwt.	Tons.	cwt.	
389,505	12	98,340	3	292,809	2	7,716	12	6,072	19	
Number of hands employed.				Wages per day.						
Whites.	Boys.	Indians.	Chinese.	Whites.	Boys.	Indians.	Chinese.			
1,296	25	2	170	\$2.50 to \$3.50	\$1 to \$1.75	\$2.50	\$1 to \$1.25			
Total hands employed				1,493	Miners' earnings per day				\$3 to \$5.	

Name of Seams or Pits—South Field No. 2, South Field No. 3, No. 1 Esplanade Shaft, and No. 1 North Field Shaft.

Value of Plant—\$350,000.

Description of seams, tunnels, levels, shafts, &c., and number of same—South Field No. 2, worked by slope; seam 6 to 10 feet; South Field No. 3, worked by shaft; seam 5 to 10 feet; No. 1 Esplanade Shaft, worked by shaft; seam 5 to 12 feet; No. 1 North Field Shaft, worked by shaft; seam 4 feet 6 inches.

Description and length of tramway, plant, &c.—Railway to South Field, 5 miles with sidings; railway to No. 1 Shaft, 1 mile with sidings; railway from North Field Mine to wharf at Departure Bay, 4½ miles; rails are of steel, 56 pounds per yard of standard gauge, viz., 4 feet 8½ inches; 8 hauling and pumping engines; 12 steam pumps; 4 locomotives; 200 coal cars (6 tons), besides lumber and ballast cars; fitting shops for machinery repairs, with turning lathes, boring, drilling, planing, screw-cutting machines, hydraulic press, steam hammer, etc., etc.; diamond boring machinery for exploratory work (bores to 4,000 feet); wharves, 1,070 feet frontage, at which ships of the largest size can load at all stages of the tide.

SAMUEL M. ROBINS,
Superintendent, *The New Vancouver Coal Mining Co., Limited.*

WELLINGTON COLLIERY RETURNS.

Output of coal for 12 months ending December 31st, 1890.	No. of tons sold for home consumption.		No. of tons sold for exportation.		No. of tons on hand 1st January, 1890.		No. of tons unsold, including coal in stock, Jan. 1st, 1891.		
	Tons.	cwt.	Tons.	cwt.	Tons.	cwt.	Tons.	cwt.	
May 31st, '90, 127,095 Dec. 31st, '90, 47,401 <u>74,496</u>	68,769	15	106,281	1	3,050	1	2,495	5	
Number of hands employed.				Wages per day.					
Whites.	Boys.	Indians.	Chinese.	Whites.	Boys.	Indians.	Chinese.		
May 31st, 590 Dec. 31st, 437	36 20	.....	126 85	\$2.75 to \$5.90 2.75 to 6.00	\$1.50 to \$2 1.50 to 2	.....	\$1 to \$1.50 1 to 1.50		
Total hands employed				646		Miners' earnings per day .....\$2.75, \$5.90, and \$6			

Name of Seams or Pits—Wellington.

Value of Plant—\$150,000.

Description of seams, tunnels, levels, shafts, &c., and number of same—4 shafts with slopes, airways and levels; 3 air shafts.

Description and length of tramway, plant, &c.—5 miles of railway, with sidings and branches; 6 locomotives; 250 coal cars; 13 stationary engines; 9 steam pumps; 4 wharves for loading vessels, and bunkers.

R. DUNSMUIR & SONS.

EAST WELLINGTON COLLIERY RETURNS.

Output of coal for 12 months ending December 31st, 1890.	No. of tons sold for home consumption.		No. of tons sold for exportation.		No. of tons on hand 1st January, 1890.		No. of tons unsold, including coal in stock, Jan. 1st, 1891.		
	Tons.	cwt.	Tons.	cwt.	Tons.	cwt.	Tons.	cwt.	
44,602	—	8,484	—	35,132	—	447	—	1,433	—
Number of hands employed.				Wages per day.					
Whites.	Boys.	Indians.	Chinese.	Whites.	Boys.	Indians.	Chinese.		
150	5	.....	15	\$2.50 to \$5	\$1 to \$2	.....	\$1 to \$1.37½		
Total hands employed				170		Miners' earnings per day .....\$3 to \$6			

Name of Seams or Pits—East Wellington Coal Co.'s No.'s 1 and 2 Shafts.

Value of Plant—\$100,000.

Description of seams, tunnels, levels, shafts, &c., and number of same—1 seam $2\frac{1}{2}$ to $7\frac{1}{2}$ feet; 2 shafts; 7 levels.

Description and length of tramway, plant, &c.— $4\frac{1}{2}$ miles standard narrow gauge; 2 locomotives; 31 ($4\frac{1}{2}$ -ton) coal cars; 2 hoisting engines; 2 donkey engines; 1 steam pile driver; 1 steam saw-mill, capacity, 12,000 feet per day; 5 steam pumps.

EAST WELLINGTON COAL CO.

UNION COLLIERY RETURNS.

Output of coal for 12 months ending December 31st, 1890.		No. of tons sold for home consumption.		No. of tons sold for exportation.		No. of tons on hand 1st January, 1890.		No. of tons unsold, including coal in stock, Jan. 1st, 1891.	
Tons	cwt.	Tons.	cwt.	Tons.	cwt.	Tons.	cwt.	Tons.	cwt.
69,537	2	1,481	—	74,048	2	9,314	—	3,322	—

Number of hands employed.				Wages per day.			
Whites.	Boys.	Indians.	Chinese.	Whites	Boys.	Indians.	Chinese.
150	200	\$2.50 to \$4	.....	.....	\$1 to \$1.25
Total hands employed.....350				Miners' earnings per day.....\$3.50 to \$4.50			

Name of Seams or Pits—Union.

Value of Plant—\$25,000.

Description of seams, tunnels, levels, shafts, &c., and number of same—No. 1 Slope with air-ways and levels; No.'s 1 and 2 Tunnels; No. 2 Slope; No. 4 Slope.

Description and length of tramway, plant, &c.—12 miles of railway, 4 feet $8\frac{1}{2}$ inches gauge; 2 locomotives; 50 coal waggons; 1 diamond drill; 4 stationary engines; 4 steam pumps; 1 steam saw-mill; 2 wharves.

JAS. DUNSMUIR,

President, Union Colliery Co. of British Columbia, Limited.

VICTORIA, B. C.

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