

ANNUAL REPORT
OF THE
MINISTER OF MINES

FOR THE
YEAR ENDING 31ST DECEMBER,
1891,

BEING AN ACCOUNT OF
MINING OPERATIONS FOR GOLD, COAL, &C.,
IN THE
Province of British Columbia.



VICTORIA, B. C.:
Printed by RICHARD WOLFENDEN, Printer to the Queen's Most Excellent Majesty.

PROVINCE OF BRITISH COLUMBIA.

MINING STATISTICS FOR 1891.

Name of Bar, Gulch, Creek, or River.	No. of Companies working.	No. of Interests.	No. of Companies taking out gold.	No. of Companies prospecting.	Average number of men employed during season.		Rate of Wages.		Nature of Claims.					How worked.					Description of Machinery.		Value of Gold per ounce.	Estimated value of yield for the year.	Value of Silver per ounce.	Estimated value of yield for the year.	Total Divisions.		Total Districts.		Remarks.									
					Whites.	Chinese.	Whites.	Chinese.	Bar.	Creek.	Bench.	Hill.	Quartz.	Rocker.	Sluices.	Hydraulic.	Shaft.	Tunnel.	Water Wheels.	Steam Engines.					Gold.	Silver.	Gold.	Silver.										
CARIBOO.																																						
Barkerville Division:																																						
Williams Creek and tributaries	26		20	6	43	49	\$3.50	\$2.50		15				10	1		8	11	6	1	1	1			\$15.50 to 16.25	\$22,500												
Mosquito Creek and Red Gulch	5		4	1	7	2	"	"		2				2	1		1	2	1	1	1				17.25	11,500												
Hardscrabble and Edgar Creeks	5		3	2	8	12	"	"		3				2			3	1							17.00	5,000												
Lowhee Creek and vicinity	3		3		3	7	"	"		2				1			2	1							17.25	4,500												
Grouse and Canadian Creeks	9		5	4	10	12	"	"		5				4			5	8	1						16.00	5,500												
Antler Creek	5		3	2	5	7	"	"		2				3			4		1						16.25	2,750												
Cunningham Creek	3		3		1	10	"	"		1				2			2	1							16.00	3,000												
Stevens and Beggs Creeks	4		4		17		"	"		4							8	1							15.75	5,700												
Desultory					20																																	
Lightning Creek Division:																																						
Lightning and Cottonwood Creeks	14		6	8	17	19	"	"		7				6	1		6	2	4	1	1	1			16.50 to 17.50	6,000												
Chisholm and Slough Creeks and Devil's Canyon	7		6	2	2	24	"	"		3				4			3	2	1	1					"	8,500												
Nelson, Burns, and Conlter Creeks	6		6		3	23	"	"		3				3			4	2							"	7,600												
Last Chance and Davis Creeks	3		3		3	11	"	"		3				3			3								"	2,500												
Peters and Van Winkle Creeks	3		2	1	4	2	"	"		2				1			2			1					"	1,000												
Swift River and tributaries	2		2		5	5	"	"		2				2			2								"	750												
Rushon and Canyon Creeks	4		3	1	3	7	"	"		3				1			2	1	1						"	4,500												
Desultory					20																					"	8,000											
Quesnelmouth Division:																																						
Fraser River	6		6		80					1							5								16.00	7,500												
Quesnelle River	3		3		12					2				2			1								"	5,000												
Cottonwood River (lower)	5		5		15					1	4			5											"	6,000												
Hixon Creek and vicinity	6		5	1	3	20	"	"		1	4			1			4	1							15.00	8,150												
19-Mile Creek	1		1		5	5	"	"			1			1			4								16.00	2,000												
Desultory					15																					"	2,000											
Kelthley Creek Division:																																						
Kelthley Creek	9	30	7	2	6	28	4.50	"		4				5			3	3	1	2	1				17.40	8,500												
Do. Desultory					8	8	"	"																		"	1,200											
Snowshoe Creek	6	17	5	1	12	12	"	"		4				2			2	2	2	2					17.00	7,000												
French Snowshoe Creek	1	2	1		4	4	"	"						1											"	750												
Harvey Creek	3	10	2	1	4	6	"	"		3							2		1						17.40	3,000												
Pine Creek	1	2	1		2	2	"	"		1							1								"	500												
Spanish Creek	1	5	1		3	4	"	"						1											16.50	550												
North Fork, Quesnelle River	2	5	1	1	1	4	"	"						1			1			1					"	1,500												
Do. Desultory					6	6	"	"																		"	1,000											
Kangaroo Creek				1	2	3	"	"																		"	300											
Do. Desultory					3	3	"	"																		"	8,000											
South Fork, Quesnelle River	3	22	2	1	10	45	3.50	2.00						3			3								"	2,000												
Do. do. Desultory					10	10	"	"																		"	3,300											
Quesnelle River (from Forks 40 miles down)	3	11	3		11	11	"	"						3			3								"	2,000												
Do. do. Desultory					12	8	"	"									2									"	2,000											
Cedar Creek	2	8	2		10	50	"	"									2								"	3,500												
Coquet Creek	3	16	2	1	20		"	"									1			1					"	10,000												
Horsefly River	4	32	4		32		"	"									4								15.00 to 16.50	2,000												
Fraser River (6 miles below Quesnelle down to Riskle Creek)								\$35 per month.																														
Fraser River—Desultory					20																																	
CASSIAR.																																						
Laketon Division																																						
KOOTENAY.																																						
Western Division																																						
					35																					16.00 to 18.00	13,000											
Eastern Division:																																						
Wild Horse Creek	6		6		5	30	3.00	2.50						6			11	6							18.00	18,500												
Perry Creek	3		3		13	13	"	"		3							3								"	3,900												
Palmer's Bar	1		1		2	2	"	"		1							1								"	400												
Moyea River	1		1		3	3	"	"									1								"	350												
Weaver Creek	2		1	1	4	4	"	"									1	1	1						"	400												
Desultory mining on the streams mentioned							"	"																	"	5,000												
LILLOOET.																																						
Cayoosh Creek																										15.00 to 16.50	52,500*											
Bridge River					</																																	

REPORT
OF THE
MINISTER OF MINES,
1891.

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 1891,
is herewith respectfully submitted.

JNO. ROBSON,

Provincial Secretary.

Provincial Secretary's Office,

29th February, 1892.

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 1891.

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	.....	\$ 520,353	3,000	\$ 173	
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	2,801,888	933,962	3,735,850	.....	3,735,850	4,400	849	
1865	2,618,404	872,801	3,491,205	.....	3,491,205	4,294	813	
1866	1,996,580	665,526	2,662,106	.....	2,662,106	2,982	893	
1867	1,860,651	620,217	2,480,868	.....	2,480,868	3,044	814	
1868	1,779,729	603,243	2,372,972	.....	2,372,972	2,390	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	643	
1875	1,856,178	618,726	2,474,904	.....	2,474,904	2,024	1,222	
1876	1,339,956	446,662	1,786,648	.....	1,786,648	2,282	783	
1877	1,206,136	402,045	1,608,182	.....	1,608,182	1,060	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	1,898	551	
1882	795,071	„ 159,014	954,085	.....	954,085	1,738	543	
1883	661,877	„ 132,375	794,252	.....	794,252	1,965	404	
1884	613,304	„ 122,861	736,165	.....	736,165	1,858	396	
1885	594,782	„ 118,956	713,738	.....	713,738	2,902	246	
1886	753,043	„ 150,608	903,651	.....	903,651	3,147	287	
1887	578,924	„ 116,785	693,709	.....	693,709	2,842*	296	
1888	513,943	„ 102,788	616,731	.....	616,731	2,007	307	
1889	490,769	„ 98,154	588,923	\$ 47,873	636,796	1,929	330		
1890	412,029	„ 82,406	494,436	73,984	568,420	1,342†	423		
1891	358,176	„ 71,635	429,811	.....	429,811	1,199	353	
						\$53,234,984			

* 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 1891, is as follows:—

Bank of British Columbia	\$196,588
Messrs. Garesché, Green & Co.	144,654
Bank of British North America.....	16,934
	\$358,176

As will be noticed by reference to the preceding table the above amount shows a reduced export as compared with last year. The number of miners employed in alluvial mining is also less.

With the exception of Cariboo, which district continues to head the list as a gold producer, and East Kootenay, the returns from the other districts give a smaller product for 1891.

In consequence of the falling off in this branch of placer mining greater attention is being paid to hydraulic workings, more particularly in the Cariboo and Lillooet Districts, while in the Kootenay country great activity prevails in the development of quartz claims.

As a result of the duty imposed by the McKinley bill, added to the cost and difficulty of transportation, no shipments from West Kootenay of silver lead ore were made during the past season, though a considerable quantity of ore has been mined and is available for treatment.

CARIBOO.

MR. BOWRON'S REPORT.

" RICHFIELD, 19th November, 1891.

"SIR —I have the honour to submit for your information my seventeenth annual report upon the mining industry of the Cariboo District.

"In view of the fact that there has been an actual decrease in the number of men employed, and that several projects of considerable magnitude have been inaugurated, which naturally absorb a portion of the available labour supply, it is satisfactory to note that there has been no decrease in the total gold output of the district for the season.

"Several enterprises of magnitude have been entered upon during the season, from some of which great expectations are anticipated, and, I think, justly so. A visit to the hydraulic claims of the South Fork of the Quesnelle River (to which discovery I referred in my last report) but confirms the impression already expressed, that the finding of a large blind river channel in the hill is one of, if not the most important discovery ever made in placer mining in the Province.

"I found the South Fork Company, which is composed principally of working miners, had their large ditch cut some five miles, a large reservoir constructed; also a No. 1 monitor, and some 400 feet of steel pipe (15 inches diameter) on the ground, and were prosecuting their work with vigour. Having expended \$20,000 in preparation during the summer the company will be ready for piping next season,

"I speak of this company thus particularly to show the confidence reposed in these mines by representative miners.

"I found here also, although unavoidably prevented from visiting personally their mines, that the Victoria Hydraulic Company, under Mr. J. Hepburn's management, had constructed a ditch (having a capacity of 1,500 inches) a distance of seven miles, bringing the water from Spanish Lake to their mines near the South Fork Lake, having during the year expended, including the purchase of plant for saw-mill, \$30,000. This company will also be in readiness to commence operations next season. The other companies holding leases of mining ground in this vicinity have so far done but little work, presumably from lack of sufficient capital, although efforts are now being made to secure this necessary acquisition. The new road from the 150-Mile House into the Forks will be a great factor in the development of these mines, as a large quantity of machinery is now lying at the 150 ready to be brought in.

"I am pleased to report the probability of the deep ground on lower Williams Creek being worked next season on an extensive scale, with the latest and most approved appliances, by which the gravel will be raised into flumes by hydraulic pressure.

"A London syndicate, at the instance of Mr. A. D. Whittier, of Victoria (who had obtained a lease of ground), sent this spring an expert to examine the property, and whose report appears to have been satisfactory, as Mr. Whittier has since bonded a number of the claims adjoining his leased ground, and is now in England making final arrangements to commence operations.

"The company represented by Mr. Chas. Ramos, who last season obtained a lease of mining ground on Slough Creek, has not as yet commenced operations on the ground.

"It is reported that boring machinery, by which means it is intended to prospect the ground, has been purchased by this company, and is now on its way to Cariboo.

"The introduction of boring apparatus will be a new feature in Cariboo, and one which, it is believed by many who are acquainted with the operating of such appliances, will prove an important factor in the development of our deep diggings.

"Our district was visited this fall by a Monsieur Sampson, at present of Vancouver, but recently from Eastern Canada, the patentee of a machine for saving fine gold. His *modus operandi* is to immerse the appliance in a strong current and allow the sand and gravel containing fine particles of gold to pass over it, the machine catching the gold in transit. Mr. Sampson is very sanguine that there is a "bonanza" in Cariboo for him, but it was too late in the season for him to make a practical test, so he returned to Vancouver for the winter, intending to re-visit Cariboo in the Spring. Mr. Sampson appears to have good backing, and should his apparatus do half he claims for it, the millions existing in the sand bars and benches of our numerous small streams, to say nothing of the bars of the Fraser, will become a known factor in the general output of the district.

"In the Williams Creek polling division there is but little of especial interest, if I except the proposed working of lower Williams Creek by hydraulic pressure above referred to. At the upper end of Williams Creek, above the old works, Messrs. Taylor and Boyce have opened up a new hydraulic claim, which I understand presents most favourable indications for developing a channel in the hill.

"The Waverly Company, of Grouse Creek, are much gratified at the result of their season's work, the claim having yielded about twice the amount of any previous year, which shows that they are now coming into the paying gravel that the company has so long struggled to reach, and there can be no doubt that this claim will give good returns for the next quarter of a century.

"Messrs. Knott, Dibby & Co. obtained a lease of ground on lower Antler Creek, with the purpose in view of again attempting to bottom the deep ground, but so far they have not succeeded in enlisting sufficient interest in the undertaking to warrant them in making a start, but hope to do so during the winter.

"On Lightning Creek a lease of mining ground (which includes within its limits the ground formerly owned by the old South Wales Co.) was obtained by a company of local miners, who have been prosecuting the work of development uninterruptedly during the season.

"Mr. St. Laurent, of Quesnelle, reports the discovery this season of gold in paying quantities, by a party of Chinese miners, on a large creek, a tributary of Quesnelle River, which flows into that stream some 20 miles from its mouth on the north side. The creek is from 20 to 30 miles in length, and five Chinese, working about five miles from its mouth, took out about \$2,000 during the season. As this creek has not been visited by whites since this discovery of gold, I cannot speak definitely as to the importance of the find,

"The Blue Lead Hydraulic Mining Company, of Hixon Creek, have prosecuted their works of development during the season, but from last accounts had not reached the bottom of the deep channel in the hill.

"The total gold product of the district, exclusive of Omineca, for the year, I estimate at \$195,000, distributed as follows :

"Barkerville polling division, to 15th November, per statistics	\$ 63,450
"Lightning Creek " " " "	33,850
"Quesnelle mouth " " " "	30,600
"Keithley Creek " " " "	57,100
"Estimated product from 15th November to 31st December	10,000
"Total	\$195,000

"Quartz.

"Quartz mining during the season has remained almost in *statu quo*. Indeed, a fatality seems to follow every effort made to develop this most important branch of our mining industry in Cariboo. That we have numberless valuable gold-bearing lodes traversing the district in all directions, none, I think, who are acquainted with recent development, will be inclined to doubt; but it now would appear to have become a settled fact that until better means of communication are provided with the outer world, and consequent improved facilities for the reduction of our ores, little real progress will be made.

"A number of instances might be cited where foreign capitalists about to invest largely in our mines, upon learning that they were situated some 300 miles from railway or steamboat communication, at once abandoned the project. The erection of test works by the Government, in this district, it was hoped would be sufficient to give an impetus to quartz mining, and that these works have met expectations in so far as the treatment of ore is concerned, none will deny. Then why have those wealthy persons and companies, non-residents of the district, who hold valuable mineral claims in Cariboo, ceased development work and left it to a few impecunious miners (who have spent their all, perhaps, in the effort) to develop this industry? Because they are awaiting railway connection, when the further development of their mines will be less expensive. This is the only reasonable conclusion when we consider that three companies now hold charters for the construction of railways to or passing through this district. It is, therefore, important that the government and legislature, in considering any project affecting the building of a railway to Cariboo, will make construction at the earliest possible moment a *sine qua non* to any concessions granted.

"The Black Jack Quartz Mining Company is the only company which has during the season done anything to further develop our mineral resources. This company has sunk to the depth of 125 feet, and after running 75 feet of a drive through exceedingly hard rock, finally struck the ledge again, but too late in the fall to fully prove its value at the depth mentioned. The vein here, as far as developed, is about five feet in width. As the work during the season was all in bed-rock, their small mill was not started. Having proved the continuance of the ledge downwards, it is probable this company will, in the spring, start on the 70-foot level to take out and work the ore in their small mill, and have the sulphurets worked at the Government test works.

"Messrs. Martin, McArthur & Co, located and worked a mine on Island Mountain this fall, which is likely to prove valuable. The ledge is about 12 feet in width, assays \$25 per ton, and is nearly all free gold. The vein has been traced several hundred feet.

"Mr. Perkins, on Burnes Mountain, continues to work his man-power erasta, and manages to make his living from it while prospecting the mine.

"Mica.

"A Mr. Bennett and party, of Kamloops, who had been prospecting during the summer near Tête Juan Cache, recorded in this office 31 mica claims, which they had located near the Cache. Their applications to record coming to hand by mail, I cannot speak as to the value or importance of this discovery.

"I have the honour to be,

"Sir,

"Your obedient servant,

"JNO. BOWRON,

"Gold Commissioner.

"To the Honourable

"The Minister of Mines."

MR. STEPHENSON'S REPORT.

“QUESNELLE FORKS, B.C.,
“9th November, 1891.

“SIR,—I have the honour to forward herewith the estimated yield of gold for Keithley, Alexandria, and Williams Lake Polling Divisions, Cariboo District, during 1891.

“The estimated yield this year is a little less than last year, which can easily be accounted for when we take into consideration the amount of work that has been carried on in this vicinity in the way of digging ditches, and other work where miners or others, whether whites or Chinese, could get employment at good wages. These works, to my certain knowledge, absorbed a considerable number of the Chinese miners in this section. Also, owing to a light snowfall last winter, the hydraulic claims had a shorter season than usual; still, for other kinds of mining, the low stage of water was advantageous in many cases in this section.

“Our old mines in the creek bottoms and along the shallow benches are getting about worked out, and it is to hydraulic mining that we will chiefly have to look for our output of gold in placer mining for the future, and there is every reason to believe that the immense gravel deposits which are to be found along the rivers and creeks in this section of Cariboo will amply repay those who have the capital and enterprise to invest in hydraulic mining. So far, every hydraulic mine that has been opened in this section has proved good paying property.

“On the South Fork of the Quesnelle River, there are two companies—the Victoria Hydraulic Mining Company and the South Fork Hydraulic Mining Company—which, during the past season, have been pushing their works ahead as fast as it was possible for them to do, in the way of digging ditches and other work necessary to the opening up of their hydraulic mines, and, owing to the nature of the country they are operating in, both companies have certainly done a great deal of work for the season. The Victoria company has now something over seven miles of ditch, five feet wide on the bottom, seven feet wide on top, by twenty-four inches deep. This ditch brings the water from Spanish Lake upon the ground they are going to work, on Coquet Creek, at the lower end of Quesnelle Lake. This company has other locations, which they intend opening as soon as it is possible to get the necessary work done. During the season, they have employed, upon an average, a force of ten whites and fifty Chinese. Their works are well advanced, and early next season they expect to be in full operation. The South Fork company have about five miles of their ditch completed. Their ditch is four feet wide in the bottom, six feet on the top, by twenty-two inches deep. This part of their ditch is through a very rough country, a great deal of blasting and rock cutting having been done to avoid fluming. They have also completed a large reservoir, which will enable them to use their hydraulic pipe ten hours out of the twenty-four just as soon as they can get ready. This they expect to be able to do during the coming season. This company during the season has employed, upon an average, ten whites and thirty-five Chinese, and will continue to push their work as fast as possible until they get their mine opened. Both these companies will have an ample supply of water during the whole mining season when their ditches are completed and in working order.

“On Keithley Creek, two Chinese companies have hydraulic claims which are paying them well, although they are only just getting them opened. Two other Chinese companies on the same creek are also preparing for hydraulic workings, thus showing that the banks and benches on Keithley Creek will well pay for hydraulic mining.

“On Snowshoe Creek, there are now two good hydraulic claims, the well known Anderson & Smith claim and the Hayward Company claim, which is principally owned by Messrs. Veith & Borland, on Keithley and Snowshoe Creeks. There are still several claims working in the bed of the creek by wing-damming, and getting to the bed-rock at a low stage of water.

On snowshoe Creek, there has been a company of whites at work for a year past in trying to get to the bottom of the creek. They have sunk an eighty-foot deep shaft in the bed-rock, and the last time I heard from them they had drifted from the bottom of their shaft one hundred feet in the bed-rock toward the channel, but had not yet broken through. It is to be hoped they will find enough gold to pay them well for the work done. Over this channel lies a great depth of slum, and all attempts to sink a shaft through it have proved failures, but the company now going through the bed-rock will, in all probability, succeed in getting to the bottom of the channel.

“Harvey Creek is now abandoned by white men; the last company left lately, after having worked out what paying ground they could find. There are now three Chinese companies on the creek, working over old ground.

"The company of whites (three) on Spanish Creek still continue to drive their tunnel ahead. They are getting a little gold, but have not yet reached the old channel where they expect to find good pay.

"On the North Fork of Quesnelle River there is very little mining being done at present, only one white man working on the river, and a few Chinese. The former is driving a tunnel, and the latter working along the river.

"Kangaroo Creek empties into the North Fork about two miles above the Forks of the Quesnelle. This creek, in former years, paid well on the surface for a distance of two miles up from the river, but it has never yet been bottomed in the deep ground, although several parties have tried to sink shafts upon it. Last year, Mr. Theodore Thermahlon obtained a lease of one-half mile of the creek. He tried to sink a shaft, but was driven back by water. He then started a tunnel, and is now in about three hundred feet, and he thinks he will probably have to go three hundred feet more to find bottom. Two men have been employed at this work for over a year. On the main branch of the Quesnelle River, from the Forks down, nothing of any importance is being done; there are only a few Chinese miners scattered along the river engaged in desultory mining.

"On the South Fork River, outside of the two companies previously mentioned (the Victoria and South Fork), there is nothing new to report. The two Chinese hydraulic claims have done as well as usual, considering the very poor supply of water during the season. They depend for their water supply upon the small streams upon which they are located. Other work done on the river has been by Chinese during very low water in the winter and early spring, when they get as far out in the river bottom as they possibly can, sometimes by wing-damming. They also work from a raft, with very long handled shovels, bringing up what little dirt they can and rocking it out upon the raft. Very little work of this kind has been done for the last two years; it is evident they cannot make it pay now, or they would not abandon it.

"On the Horsefly River, in the Harper claim, now worked by Mr. R. T. Ward, some very good paying ground has been discovered during the season, and they have good prospects for the future, but the company will be put to considerable expense to get the ground in working order. Five miles further down the river from the Harper claim the Discovery Company have been operating their hydraulic claim with fair results, although their supply of water was light during the summer. At this place, two other companies have been driving in tunnels to reach the old channel, but have not yet got through the rim-rock.

"Along the Fraser River, in my section, there is nothing new to report for the season. The few hydraulic claims (four) keep working, while the desultory mining has been carried on about as usual.

"As to quartz mining, or even prospecting, I have nothing to report, as there has been nothing whatever done anywhere in this section that I am aware of.

"I have, etc.,
(Signed) "W. STEPHENSON,
"Government Agent.

"The Honourable the Minister of Mines."

WEST KOOTENAY.

MR. FITZSTUBBS' REPORT.

"VICTORIA, B. C., 20th January, 1892.

"SIR,—I have the honour, respectfully, to report that the mining industries of West Kootenay district, consisting chiefly of quartz mining, have progressed satisfactorily during the past season, and that well grounded hopes exist of continuous improvement.

"The following statement of records shows the transactions in the respective divisions:—

"Revelstoke Division.

Locations	73
Assessment Certificates	25

"Nelson Division.

Locations	416
Assessment Certificates	75
Transfers	251

"Trail Creek Division.

Locations	87
Assessment Certificates	33
Transfers	46

"Ainsworth Division.

Locations	363
Assessment Certificates	113
Transfers	179

"Goat River Division.

Locations	
Assessment Certificates	
Transfers	

[Not obtainable.]

"Summary.

Locations	939
Assessment Certificates	246
Transfers	476

"From the above statement it appears that prospecting has been prosecuted vigorously, chiefly in the Nelson and Ainsworth divisions.

"About 200 of the above location records are in portions of the district, namely, on the Slocan and Kaslo streams, which heretofore have been visited only by stray prospectors.

"The above statement shows, also, a satisfactory proportion (considerably larger, I believe, than hitherto) between the number of locations made and the number of assessment certificates issued; and further, that buyers of mineral claim prospects have been unusually active.

"Development work, in the sense of work to prove and not merely to hold the mine, has not been lacking, though no mine in the district is, as yet, fully worked with adequate capital and labour invested in the hope of realizing dividends, but the high offers made, and high prices paid, or agreed to be paid, for promising prospects, together with the steady work undertaken by claim owners, on their own well known claims, in the Toad Mountain, Ainsworth, Trail, Goat River, and Illecillewaet camps, indicate that there soon will be in the district mines worked systematically on a large scale, some of which, no doubt, will become dividend-paying properties.

"I regret that I am unable to report any considerable exports of mineral products from the district, though there is a good deal of ore on the dumps. Various circumstances connected with the principal high grade 'shipping ore' claims have prevented the export of their products during the past season.

"Silver lead ore of medium grade constitutes a large proportion of the mines in West Kootenay, and for this class of ore it has been found difficult to obtain a profitable market. The high freight rates and difficulties of transportation, together with the duty of \$30 per ton on lead ores, recently imposed by the United States, make unprofitable the shipment of any lead ore that averages less—so the opinion seems to be at Ainsworth—than about \$80 per ton. Claim holders, nevertheless, and mining men generally, believe strongly in the future, and have not been slow in spending their money in support of their opinions. There will probably soon be a home market for the above class of ores.

"The lead smelter already existing at Revelstoke, in the northern part of the district, is to be supplemented by the erection in the southern part of an 80-ton smelting and refining plant, with a concentrator of 100 tons a day capacity. These works are now in course of erection at Pilot Bay, on Kootenay Lake. They are owned by a wealthy American company, which already has large mining property in Kootenay. The enterprise will, undoubtedly, have

a most beneficial effect on the lead mining of the section. The promoters have planned so as to permit the increase of capacity, and the treatment of all kinds of ores in the works, when required.

"Some of the companies whose claims are what miners call 'concentrating propositions,' propose, in the coming season, to erect concentrators at their mines, to prepare the ore for shipment.

"The above gives a general view of the condition of mining in the district. I have now to state, more particularly, what is being done at the different camps.

"The quartz leads at Big Bend are at present neglected. Two placer companies are at work there, one on French Creek, with four men, and one on the west shore of the Columbia River, above Smith Creek, with five men. Both pay good wages.

"At Illecillewaet, the only continuous work is upon the Lanark claim, which is the property of the Lanark Consolidated Mining and Smelting Company. Their work, it is confidently expected, will be successful, and have the effect of aiding the progress of this valuable well placed camp, towards which attention is again directed. Several claims have been located along the upper waters of Fish Creek, above the Falls. Some of the prospectors who have been across the divide, in the neighbourhood of Trout Lake, express themselves in favourable terms as to the mineral appearance of parts of that country. It is a part of the Revelstoke division which may repay further prospecting.

"No important find has been made in the country along the Arrow Lakes, during the past season.

"Several mineral claims have been located at Sproat, which have yielded gold and silver, but the assays, so far, have not been very attractive.

"The camp at Trail has advanced this year in public favour. The principal leads are of silver-bearing copper ore, yielding also gold. There is also silver-bearing galena ore. The leads are very extensive, and the quality proves to be higher than was at first supposed. About 30 men have been at work in this camp. The Le Roi Mining Company, an active Spokane concern, has an 82-foot shaft, and a tunnel 130 feet. Assessment, and also some development work, has been done on other claims. The size of the leads and the presence of quantities of ore that will pay to 'matte,' are encouraging facts. Assays and returns have been satisfactory. The return from a ten ton shipment averaged \$86 per ton.

"In what is known as the 'free gold belt,' in this camp, several claims yield fine specimens of free gold, and the owners believe that further work will disclose defined ledges of paying gold ore. The supposed superior attractions of Slocan as a newer field, may draw men thither during the coming season, but the camp at Trail, no doubt, has an assured future. On the upper waters of Sheep Creek, which flows southerly across the boundary, several gold-bearing quartz claims have been recorded.

"The prospecting of the 'Whitewater' gold mine, near Rover Creek (south of the River Kootenay, about half way between Nelson and Robson), has been satisfactory to the owners, and will be continued, with more suitable appliances.

"The stamp mill on the 'Poorman' group of gold claims, near 49 Creek, has not been actively at work lately, for reasons not adverse, it is believed, to the character of the claims. Assessment, and in some cases additional work, has been done on other gold claims in that neighbourhood. The extensive copper deposit on the north side of the River Kootenay, in this quarter, continues to attract attention.

"On Toad Mountain, prospecting, also assessment and developing work, have progressed steadily. Ordinary prospect claims have been in demand, generally, at fair prices.

"A high price—it is said over a million dollars—was offered during the autumn for the well-known group of claims owned by the Kootenay Bonanza Company, but was not accepted. On one of these claims, the 'Silver King,' the tunnel is now in over 700 feet, and cross-cuts show abundance of fine ore. There appears to be about 500 tons of picked ore, probably worth several hundred dollars a ton, on the dump at this mine. The development work undertaken on the adjacent promising groups of claims, owned respectively by the Stadacona Mining Co. and the Helena and Frisco Mining Co., has been steadily prosecuted, I believe, to the satisfaction of these important companies, which are prepared to work their mining properties on an extensive scale, as soon as their value has been thoroughly proved. On a number of claims owned by individuals and private companies, the necessary assessment work, and also developing work, has been done. Confidence in the future of this established camp has been much strengthened during the past season.

"In the Salmon Valley, between Toad Mountain and the boundary, several promising leads exist, on which sufficient work has been done to warrant good hopes for the future.

"I am pleased to be able to report, further, that several gold placer claims on Hall Creek, in the above locality, have yielded, during the summer, good wages to the locators, who propose to continue to work.

"The Ainsworth, or Hot Springs camp, which is essentially a silver lead camp, has much more than maintained its repute. Comparatively few claims have been allowed to lapse, and on nineteen well known claims considerable development work has been done in excess of the required annual expenditure. The transfers represent over a quarter of a million dollars. The The Pilot Bay Smelting Works, already mentioned, will help this camp importantly, by affording a needed local market for ores. The largest amount of development work, during the past season, has been done on the properties of the Revelstoke Mining Co., McCune Co., of Salt Lake City, Ashworth & Jevons, of Billings, Montana, Howe & Co., of Duluth, and Dr. Coe, of Seattle. More than 2,000 feet of shafts, tunnels, etc., have been sunk or run during the past season in this camp.

"A shipment of 200 tons of ore produced an average of \$150 a ton at Helena, Montana; and another shipment of 10 tons realized \$600 a ton at Tacoma. Pumping and hoisting plants, chiefly of American manufacture, have been erected at four of the mines. In one case, a 30-horse power plant was procured in Toronto, with the exception of the pump, which, I am informed, could not be obtained in Canada. It is proposed to erect concentrators at several of these mines during the coming season. There are over 3,000 tons of ore on the dumps, some of it of very high grade.

"The extensive and valuable claims in the Hendryx camp, on Kootenay Lake, opposite Ainsworth, where about 70 claims are located, on some of which a great deal of development work has been done during the past season, will be greatly enhanced in value by the effect of the Pilot Bay Smelting Works, now in course of erection by Dr. Hendryx and his associates.

"Considerable attention has been directed to the twenty or thirty mineral claims which have been located in the vicinity of Goat River and Duck Creek, tributaries to Kootenay River, in the Goat River District. The ore, so far, does not appear to be high grade, but is in sufficient quantity to be regarded as promising. An American company proposes to undertake development work on some of their claims in this locality during the ensuing season.

"About 16 and 25 miles, respectively, north of Ainsworth, on the west side of Kootenay Lake, on Kaslo and Schroeder Creeks, valuable discoveries of lead and copper ore have lately been made, and 80 locations recorded. Owing to the lateness of the season, at the altitude of these discoveries, little development work has been done as yet on any of the claims, but the assays generally give a very high percentage of silver. The last advices confirm the existence of large bodies of silver, lead, and copper ores, in this section.

"Some of the prospectors on the Kaslo River, who proceeded westerly across the divide, made further very important discoveries of mineral claims on the Slocan slope, toward the close of the season. These lie, for the most part, from 10 to 15 miles easterly from the Slocan Lake, but claims have been located on the eastern margin of the lake. The existence of minerals in this region has been known for some years. The mines appear to be in the limestone belt, which Dr. Dawson noticed as running south-easterly from about the foot of Upper Arrow Lake. The discoveries were made so late in the fall that I was unable to visit the locality. The ores, so far as known, consist chiefly of silver-bearing galena and carbonites, but some of the ores have copper for a base. The assays on an average run high. Twenty assays ranged from low grade to 2,000 oz. per ton, the average being about \$175 a ton. As the prospectors had only a few weeks available before winter set in, it is difficult for any one at present to give a complete account of these discoveries. No work, of course, has been done on the claims. The prospectors, however, judging from surface showings, express a very favourable opinion as to the mineral character of the region. They say that large bodies of ore exist, and that access to the region, and the natural mining conditions, are favourable.

"That this opinion is generally entertained by prospectors, and by mining men generally, is attested by the number of records made, and the number of claims which, without any work being done on them, have been bought by investors. About fifty men, it is said, are wintering in Slocan. Storekeepers, packers, and steamboat men, have arranged their business for a large influx of persons into the Slocan country in the Spring. The people of Nelson have cut out a 25-mile trail from the Columbia and Kootenay Railway to Slocan Lake. The probability is that a large number—possibly a very large number—of miners and others will be attracted to West Kootenay in the early part of the year, by these Slocan discoveries.

* "Population.

"So far as I can judge of a population, which, as in all mining districts, is liable to much fluctuation, it probably somewhat exceeds 2,000, nearly all engaged in or dependent on mining. A considerable number of families have settled in the district.

"Respectfully submitting the above,

"I have the honour to be,

"Sir,

"Your obedient servant,

"N. FITZSTUBBS,

"Gold Commissioner.

"The Honourable the Minister of Mines,
Victoria."

EAST KOOTENAY.

MR. CUMMINS' REPORT.

"DONALD, B.C., February 1st, 1892.

"SIR,—I have the honour to submit to you the following report on the mining and mineral development of the East Kootenay District during the year 1891, together with the usual tabular statement regarding placer mining.

"PLACER MINING.

"The total value of gold derived from placer mining during 1891 amounted to \$28,500.

"The creeks from which the gold was taken all lie in the southern portion of the district.

"The hydraulic workings of Mr. David Griffith on Wild Horse Creek, which yielded last year about \$9,000, have, I understand, not been in continuous operation this year, pending negotiations respecting the sale of the property to an English company.

"I am glad to be able to state that it is proposed to test the deep ground on Wild Horse Creek. Some efforts were made in this direction over twenty years ago without success. The scheme has, however, been thought well of by good authorities on placer mining, and there is every reason to suppose that the ground is rich. A lease of one and a half miles of the bed of the creek has been granted to a company of ample means to carry on the work in a most efficient manner.

"The greater part of the placer gold derived from the various creeks, as will be seen by the tabular statement, was taken out by Chinese companies.

"QUARTZ MINING.

"Mineral development in this district has, during 1891, been carried on with more energy than heretofore. Capital derived from outside sources has been invested in the district, and is being expended in the development of some good prospects, under competent direction, in various localities. Work is going on steadily this winter on several properties, and satisfactory results may be looked for before spring. Assessment work has also been done with greater regularity and intelligence than heretofore. The possibility of now bonding or selling mineral claims has also led the discoverers to make greater individual effort in prospecting their claims. It may now, I hope, be fairly said that mineral development has commenced, and that progress will be more rapid during next year. Search for new discoveries has not been so active, most of the prospectors having been engaged in working on their claims. A few good prospects have, however, been found, especially in the southern portion of the district.

"Another feature to be mentioned is that the assays of mineral obtained from claims throughout the district show a marked increase in richness. As erroneous ideas have in some cases been formed, due to the results published in some of the reports of the geological survey, of specimens which happen to have reached Ottawa from time to time, I add, at the conclusion of this report, a list of assays obtained through the courtesy of Mr. Harvey, of Golden, which are perfectly reliable, and which confirm the fact that the ores of the district are mainly high grade in character, and in some instances run very high in both gold and silver.

"The trails and roads have been kept in a state of efficiency, owing to the liberal appropriations devoted to their improvement and repair last session.

"It is to be regretted that no funds were available during the summer for the collection of samples from the ore deposits of East Kootenay, as a very handsome exhibit could have been collected, at a moderate cost, to represent the mineral of the district for exhibition, the effect produced by the very fine exhibits of West Kootenay having resulted in great advantage to that district, and having been a credit to all concerned.

"MINERAL DEVELOPMENT IN THE SELKIRK RANGE.

"*McMurdo District.*

"The 'Bobby Burns' claim, situated near the head of the Middle Fork of the Spillemechene or McMurdo Creek, mentioned on page 373 of the Report of the Minister of Mines for 1890, has attracted much attention during the season. A five-stamp gold quartz mill was erected on the ground last summer. The water power was unfortunately not got into working order before the coming on of the winter. It is, however, expected to be in operation early next season.

"Some development done on the lead since the date of last year's report established the existence of a considerable quantity of free milling gold quartz on the surface, the quantity in sight justifying the erection of machinery. To what depth the lead will maintain its free milling qualities has not yet been conclusively tested. It is considered that at a depth a large quantity of gold will be contained in sulphurets, in which case it is assumed that additional plant will be needed. It seems highly probable that the enterprise, with experienced and practical management, will pay handsomely, and prove the forerunner of similar undertakings in the near future on other gold ledges which exist in the immediate neighbourhood.

"*Carbonate Mountain and Cariboo Basin.*

"Development prosecuted, for a time on a considerable scale, on the property of Messrs. Rand Bros.' Syndicate, on Carbonate Mountain, on the right bank of McMurdo Creek, has been temporarily suspended whilst organizing a larger company, which has lately been registered as the Carbonate Mountain Mining Company, Limited. It is understood that the company will prosecute development vigorously in the spring. As mentioned in last report, this property was reported on favourably in 1889 by Mr. Giffard, the expert, well known in connection with the undertakings of Messrs. John Taylor & Son, of London.

"*In Cariboo Basin.*

"On the opposite side of the creek, directly to the north-west of Carbonate Mountain, little more than assessment work has been done. Some of the claims are, however, reported to be showing very favourably.

"But little work has been done on the Copper Creek claims.

"*Vermont Creek.*

"Further to the south-east, on the left bank of Vermont Creek, a tributary of the South Fork of the Spillemechene River, three claims were bonded last autumn to the management of the Golden Smelting and Mining Company. A contract was let in the beginning of the winter to the owners of the claims for two hundred feet of tunnelling and cross-cutting. According to the last information received, a tunnel had been run into the face of the mountain in a north-westerly direction for one hundred feet, and a cross-cut to the right commenced.

"*The Vermont Claim.*

"One of a block of claims situated on the southern side of Vermont Creek, mentioned on page 374 of last year's report, has been steadily worked all this winter. The greater portion of the ground included in this block was bonded to Messrs. Osler & Hammond of Toronto, last summer, after being examined in their interests by Mr. George Attwood, the expert and mining engineer, on whose report, and according to whose directions, the present work is being carried on, under the charge of a qualified mining engineer.

"As stated in last year's report, this property contains a number of veins of silver-bearing galena and grey copper ore on the surface, ten of which, varying from six inches to twenty

inches in width, are confined to a comparatively small area on the Vermont Claim. A tunnel is being driven to cut those veins in the mountain, at a depth of about two hundred feet from the surface, to test their permanence, and ascertain to what degree they converge or run together to form larger veins at that depth. The tunnel has been driven in three hundred feet up to the date of last reports. At two hundred feet a vein was cut which does not appear in the face of the mountain. It was expected to cut some of the principal veins in the early part of January, and news is now shortly expected.*

"It has been estimated, from the surface showings of the veins, that their strike is about N. 65° W. and S. 65° E., with a dip varying from 50° to 80° southward. The veins all cut the formation in dip, and gain in strength as they attain depth in the mountain, generally pinching as they approach Vermont Creek. Some cannot be traced in the face of the bluff.

"The average of eighteen samples taken indifferently from the surface of the veins by Mr. Attwood assayed silver, 86.013 ounces; lead, 41.83%; whilst many high assays have been obtained at various times by the owners of the claims, the highest of which I am aware giving 1,169 ounces of silver to the ton.

"Crystal Creek.

"The claims on the south-eastern side of the divide between Vermont Creek and Crystal Creek would appear to contain extensions of the Vermont Creek veins. A tunnel of forty feet has been driven this winter on one of these claims, and good concentrating ore found in a vein of some size, which has all the characteristics of a true fissure.

"The mineral claims lying further south in this belt, many of which were noticed in last year's report, have not been developed to any extent beyond doing assessment work last season. There are, however, some promising prospects on Bugaboo Creek, Horse Thief Creek, and Toby Creek, which will, it is hoped, attract the attention of those possessing the capital to develop them in the near future, should ventures going on in neighbouring localities prove successful.

"Jubilee Mountain and Spillemechene Mountain.

"The claims on these mountains, lying near the foot of the Selkirks in the Columbia Valley, near the mouth of the Spillemechene River, have not been worked this year beyond the usual assessment work. Crown grants have been obtained for several claims, and the issuing of grants for others, delayed through litigation, now happily overcome. It is understood that a considerable amount of capital would be needed to develop the mineral of this locality effectively. Most of the properties are, however, with reason, considered valuable.

"The work which was being carried out last winter on the Spillemechene claim, alluded to in last year's report, brought to light some fine bodies of galena ore, which were considered to be of too low grade in silver to be profitably worked in the existing state of the lead market. It may, however, be reasonably expected that higher grade ore will be met with, as good assays have been obtained from the same lead.

"Thunder Hill Mine.

"Thunder Hill is a large butte situated in the foot-hills of the Selkirk Range, near Findlay Creek, and within about one and a half miles of the Upper Columbia Lake, on which a number of claims have been located.

"This discovery was made by Mr. James Brady, M.E., in 1884. Until this winter, but little development work was done on any of the claims. The work done from year to year was confined mainly to cutting trenches across the butte at various places, in order to locate the lead, which was, to a great extent, covered with soil.

"During the latter part of last summer, Mr. Brady formed a company, registered as the Thunder Hill Mining Company, Limited, of Victoria, to test and operate his claims. Work has been prosecuted in a most energetic manner this winter. The lead is of exceedingly large dimensions, running in a northerly and southerly direction. The country rock of the locality appears to be generally Cambrian slate.

* "Since the above was written, news of a very favourable kind has been received. At about three hundred and twenty feet in the tunnel, a vein reported to be three feet in thickness was cut. This is probably the first of the veins showing on the surface. The assays of the ore are stated to be most satisfactory.

"I have not had the advantage of examining the property since last fall, when the operations of the company were about to commence. The following particulars have, however, been obtained from several reliable sources:—

"The work done this winter consists of an open cut, about one hundred and fifty feet in length, running across the lead. The top width is about twenty feet, the average depth about eighteen feet. This cut has disclosed large quantities of concentrating ore, silver and gold-bearing galena, with some grey copper. The quartz, in some instances, contains a small quantity of free gold. The ore taken out of the cut has been stored for future treatment.

"It is understood that, should developments continue as promising, the proprietors intend to put up concentrating works on a very large scale, as, to judge from present shewing, the supply of ore would seem to be almost unlimited.

"The mine is exceptionally situated for operating at an exceedingly low cost. A tramway, not more than two miles in length, will connect with the Upper Columbia Lake, and the transportation facilities of the Upper Columbia Navigation and Tramway Co. The mill site would probably be located on or near the lake.

"Windermere Mountain.

"On this mountain, situated about four miles north of Windermere, on the Lower Columbia Lake, work has not progressed as rapidly as was anticipated last spring. A 10-ton lot of ore taken from the principal claim was sold in the early part of the summer for \$50 a ton to complete a shipment from elsewhere. The Windermere Mining Co., L'd., was organized at Spokane to work this claim, and a contract for 50 feet of drifting was let last fall.

"The Canal claim, on the east side of the Upper Columbia Lake, has been recently sold for \$3,000, but little work had been done on the claim. It is understood to be a very good prospect.

"In the valley of the Kootenay River, and in the adjacent Hughes' Range of the Rockies, a number of claims have been recorded. From reports received, there are sufficient grounds to look forward to this locality receiving more attention in the future.

"On Wild Horse Creek.

"Some claims have been staked on old discoveries in the neighbourhood of the Old Camp.

"The Pass claim, on the mountain above Wild Horse, is, I understand, shewing favourably. In the vicinity of this lead a small stringer was discovered last summer. A little pocket in this seam, which is situated on the mountain, far above the action of water, contained over \$100 worth of gold. The remainder of the seam, as far as it was explored was barren. This would tend to confirm Dr. Dawson's opinion as to the origin of the Wild Horse placers.

"Lost Creek.

"In last year's report the discovery of a new district was alluded to, on Lost Creek, in the Rockies, about 11 miles in a south-easterly direction from Fort Steele, from whence some high grade samples of ore were obtained. About two miles further down the creek two leads were discovered last summer, containing peacock copper ore of remarkably beautiful appearance. When I visited the claims there was a very fine display of ore in the face of the workings on one of the leads.

"The original discoveries, further up the creek, from which assays of 800 ounces to the ton in silver and \$46.60 in gold were obtained, have not been prospected sufficiently yet to determine the permanence of the veins, which are small at the surface. There is, however, a probability that further discoveries will be made in the locality, as the formation is very favourable, and larger leads should exist.

"Field.

"The Monarch mine, which was being actively worked during the beginning of the year, has closed down for the present. I am not acquainted with the exact reasons which led to this. The other claims near Field have only had the necessary assessment work done this year.

"Ottertail.

"Some new discoveries, which are stated to be of importance, have been made up the Ottertail Creek. The claims nearer the C. P. R. track have not been worked.

"Howse Pass.

"Discoveries were made in the early part of the season in the neighbourhood of the headwaters of the Bow River. Doubts exist if they are in British Columbia or the Northwest Territories.

"I regret not having had an opportunity of gathering any additional information regarding the vast coal fields of the Crow's Nest Pass, to add to the reports of former years.

"The more recently discovered oil fields in the extreme south-eastern corner of the district, are difficult of access from British Columbia, and will probably be operated from the Territories.

"The Golden Smelting Works are now in complete order, and I understand the management intends to make an effort to obtain sufficient ore for a run shortly.

"The following is a statement of a number of assays obtained from claims in different localities in the East Kootenay District previously referred to:—

"LIST OF ASSAYS OBTAINED FROM EAST KOOTENAY ORES IN 1891.

Date.	Locality.	Mineral.	Assays to the Ton (2,000 lbs.)
1891			
September	McMurdo Creek.....	Quartz.....	Gold \$326.70.
June	" "	"	Gold 15.43 oz.
"	" "	"	Gold \$546.30.
"	" "	"	Gold \$34.35.
"	" "	Galena.....	Silver 41.45 oz., lead 79%.
"	" "	"	Silver 177.29 oz., lead 74%.
July.....	Copper Creek.....	"	Silver 102.9 oz., lead 69%.
"	Vermont Creek.....	Grey Copper ..	Silver 1169.33 oz.
"	" " (average of 18	Galena and antimonial copper }	Silver 86.01 oz., lead 41.83%.
"	samples from surface of various leads.....		
"	Crystal Creek.....	"	Silver 50.05 oz.
"	"	"	Silver 1,113 oz.
"	Bugaboo Creek.....	"	Silver 249.66 oz.
"	"	"	Silver 61.97 oz., gold nil.
"	Jubilee Mountain.....	Copper ores...	Silver 129.91 oz., gold nil.
"	Howse Pass.....	"	Copper 12.7%, silver 38.23 oz., gold 19 dwt.
June	Windermere.....	"	Lead 46.7%, silver 38.75 oz., gold \$23.
May.....	Ottertail.....	"	Silver 19.25 oz., gold \$3.25, lead 60%.
"	East Kootenay.....	"	Silver 111.28 oz., gold \$35.15.
"	"	"	Silver 107.79 oz., gold \$1.25.
"	North-west of Golden.....	Antimonial cp'r	Silver 72.01 oz., gold \$14.62.
"	East Kootenay.....	"	Silver 80 oz., gold \$50.
"	Windermere.....	"	Silver 43.99 oz., gold \$1.00.
"	Lost Creek.....	"	Silver 71.16 oz., gold \$46.60.
November.	"	Grey copper...	Silver 610.58 oz., gold \$7.
"	"	"	Silver 300.18 oz., gold \$19.62.
"	Skookum Chuck.....	Antimonial ore	Silver 523.52 oz.
"	Hughes' Range.....	"	Silver 44.50 oz., gold \$1.
"	North-west of Donald.....	Copper ore....	Silver 243.95 oz.

"In conclusion, I beg to state that 253 Free Miners' Certificates have been issued during the year, the number of new claims recorded being 138.

"I have, etc.,
(Signed) "A. P. CUMMINS,
"Gold Commissioner,
"East Kootenay.

"To the Hon. Jno. Robson,
Minister of Mines, Victoria."

LILLOOET.

MR. SOUES' REPORT.

"GOVERNMENT OFFICE, CLINTON, B. C.,

"December 31st, 1891.

"SIR,—I have the honour to enclose herewith mining statistics, and submit my annual mining report for the District of Lillooet for the year 1891.

"The total yield of gold for the year (ascertained from reliable sources only) is \$52,506.

"This shows a decrease of nearly \$19,000 as compared with the ascertained yield of last year.

"This decrease does not infer by any means that the sources of supply are exhausted, but is attributable simply to the fact that the Chinese miners, for reasons best known to themselves, have almost deserted this district for the past two years.

"Considering the few miners there are in the district, and with the knowledge that several of the white miners, this year at least, have been non-producers, and the fact that there has been no new or rich strikes, I must confess to being surprised that the returns are so large.

"The various gentlemen to whom I am indebted for courteous information as to the amounts of gold dust bought by them during the year, keep a correct business account of their gold buying transactions, and knowing them all for many years I have every confidence that their statements to me are absolutely correct.

"The aggregate of their figures give the above-named total. I make no calculations or allowances from any other source of information.

"Mr. Phair, Mining Recorder at Lillooet, reports to me under date 26th instant. 'The yield of gold for the season of 1891 in this part of the district is \$39,091. This amount was shipped to San Francisco, through the Bank of British Columbia, by the following, viz:—

' A. W. Smith	\$22,399
' C. A. Phair	10,500
' A. McDonald	6,192
	\$39,091

"'You will observe the yield is smaller than usual, owing entirely to the departure of 'nearly all the Chinese to work on the railroad and on the mining ditches on the South Fork 'of Quesnelle River. The amount taken out by the Lillooet Hydraulic Mining Company, 'viz., \$6,192, is good considering the fact that two months of the working season were lost 'while enlarging ditches and flumes and opening out a new cut, otherwise they would have 'taken out considerably more. The company intend during next season to dig a new ditch 'four and a half miles to the 4-Mile Creek, and, when completed, it will give them double the 'water they now have. This mine is splendidly equipped for working by the Superintendent, 'Mr. A. McDonald.

"'This company has also a lease on the South Fork of Bridge River which prospects 'exceedingly well. They commenced mining this season with a large force of men, but their 'wingdam, unfortunately, was carried off by high water. They are replacing it this winter. 'The Mina Company, on Tyaughton Creek, have completed their flume and ditch and will 'commence mining in the spring. Their ground shows good prospects. Mr. Jensen, 'representing a Victoria company, intends to commence active operations under their mining 'lease on Cadwallader Creek as soon as the season opens.

"'The Vancouver Enterprise Mining Company, on Cayoosh Creek, have their tunnel in 'now over 500 feet, and expect to have it finished in three months.

"'A scheme is being developed for bringing water from Cayoosh Creek upon the benches 'on both sides of the Fraser River at Lillooet. If this were accomplished it would add greatly 'to our prosperity.'

"'With regard to the scheme to which Mr. Phair refers, viz., bringing in water for hydraulic mining purposes from Cayoosh Creek, two mining leases have been granted and three more applied for, all dependent on water from this creek. The supply is more than ample for all, and available at all seasons. For hydraulic mining, possibly, during the months of December,

January, and February, at intervals on account of frost, it might be necessary to shut off the water, otherwise work would be continuous, and there is no question as to the results. Were proof wanting as to the mineral value of the various benches in the immediate neighbourhood of Lillooet we have it in the returns from the Lillooet Hydraulic Mining Company and Messrs. Peters & Ward's mining leases. With a most inadequate supply both of these enterprises are doing very well, and at least settle the question as to what could be done with a powerful and well managed supply of water. Cayoosh Creek is the only source from which this supply can be had, and to bring it in sufficiently high to cover all the available benches will be a most costly undertaking, and I can only trust that the parties interested will carry out the scheme as they propose on a large and substantial plan. Hydraulic mining with any of the other small creeks in that neighbourhood is only time lost, for the inevitable small returns.

"In view of probable extensive hydraulic mining on the various benches of the Fraser River in this district in the near future it is, perhaps, not out of place here to refer to a similar method of mining in other lands, notably on the Feather, Yuba, and Sacramento Rivers in the State of California, where legislative action was invoked to put a final stop to it on account of filling up the rivers named with silt, and the practical destruction and flooding of unnumbered acres of, probably, the best alluvial lands in that state.

"From personal observation I am clear in saying the same conditions do not exist here, and capitalists investing largely in substantial, permanent works for the conveyance of water for hydraulic mining purposes, in this district at least, need not take into consideration the probability in the near or remote future of being met with legislative enactments or judicial injunctions compelling them to stop work.

"Of the leases issued last year, so far there are no returns, bringing in a sufficient supply of water, being the great and expensive barrier in every case.

"Quartz.

"In this class of mining I regret to say that I have absolutely nothing new to report.

"A number of mineral claims recorded in 1889 and 1890 have been practically abandoned, no work or prospecting having been done on them in the past year. On Cayoosh Creek sufficient work was done on the Bonanza Company's property in the early part of the year in compliance with the latter part of clause 73, 'Mineral Act, 1884.' Negotiations for bonding the above-named property, and two other locations on the same creek, by English capitalists have been in progress for some time, but up to the present no satisfactory terms have been concluded.

"Prospecting work on most of the locations on the North Thompson has been done during the year, notably by Messrs. Allingham, Craven, and McDonald. The whole of the miners in this part of the district are heavily handicapped by the innumerable natural obstacles in their way—remoteness from all centres of supply, total absence of roads or trails, and dangerous and rapid rivers to cross, all in combination with a very short season.

"The scheme for working Big Bar on the Fraser River, under water, by machinery, referred to in my report of last year, came to an abrupt ending early in the season. The large scow for carrying the dredging plant was jammed in the ice and carried off before any practical work was done.

"I understand the company propose building another scow this winter to be ready for active work at lowest water in the early spring.

"I have the honour to be,

"Sir,

"Your obedient servant,

(Signed) "F. SOUES,

"Gold Commissioner.

'Hon. Jno. Robson,

"Minister of Mines, Victoria."

YALE.

Kamloops Division.

MR. TUNSTALL'S REPORT.

"KAMLOOPS, 23rd January, 1892.

"SIR,—I have the honour to submit the annual mining report for the Kamloops Division of Yale District, for 1891:—

"Work on the Glen Iron Mining Company's ground, consisting of 200 acres of land, situated at Cherry Creek Bluff, about twelve miles west of Kamloops, has been prosecuted with commendable activity during the past year, with results which admit of no doubt in regard to its value.

"The veins, four in number, vary from 10 to 20 feet in width, and are visible on the surface at distances from three hundred to six hundred feet in length, and possess the great advantage of being situated near the track of the Canadian Pacific Railway. The works are supplied with a chute three hundred feet long, and an aerial wire tramway thirteen hundred feet in length, capable of delivering one hundred tons per ten hours on the cars.

"The ore is pure magnetite of the best quality, particularly adapted to the manufacture of Bessemer steel, and capable of being utilized for the purpose without any intermediate treatment. Seven hundred and fifty tons were shipped last summer to Tacoma, Wash., U. S., and two hundred tons to the Revelstoke Smelting Works for fluxing operations. There is every prospect of heavy shipments being made during the present year. This new mining industry is capable of wide expansion, and promises, in the near future, to assume proportions of great extent, which cannot be over-estimated in its influence on the prosperity of the surrounding country.

"Two locations containing copper have been made on Copper Creek, which empties into Kamloops Lake, about three miles east of Savona. Some splendid samples of native copper have been obtained from them, but sufficient work has not been accomplished to determine the importance of the deposit.

"Placer mining on the Tranquille River is pursued on so small a scale as not to be worthy of mention, and, I regret to add, I cannot report any operations in the gold or silver-bearing veins in this division of this district.

"I have, etc.,
(Signed)

"G. C. TUNSTALL,
"Gold Commissioner.

"To the Honourable

"The Minister of Mines, Victoria."

Yale Division.

MR. DODD'S REPORT.

"GOVERNMENT OFFICE,

"YALE, 5th January, 1892.

"SIR,—I have the honour to submit to you my mining report for the year 1891.

"A few of the bars on Fraser River, from Hope to Foster's Bar, have been worked by Chinese in a desultory manner. It is, however, impossible to obtain any reliable data as to their success, as most of their earnings (presumably small) are sold in small quantities to the various traders in the District.

"Hill's Bar Flats.

"An English syndicate commenced operations on these flats in April last, by washing the banks by means of a powerful Merriweather hydraulic pump, and continued work until the end of September, when, expectations not having been realized, work was discontinued for the season, after a large outlay for machinery and labour.

" Yale Creek.

"The owners of the Queen Mine have been actively at work all the season. Operations at this mine commenced in 1878, and up to the present time nearly 2,500 feet of tunnels have been driven, the last 100 feet giving indications of a very favourable character.

" Siwash Creek.

"PLACER MINES.—Rodney & Co. have wing-dammed the creek, laid a flume 450 feet long, 4 feet wide and 2 feet deep. They have also run a race, having expended during the past season, \$1,800. They have not reached bed-rock, but are washing a fine body of gravel 16 to 18 feet deep, out of which was washed 20 oz. of gold, including one piece valued at \$45.

"Siwash Creek syndicate, composed of a few of the leading men of Vancouver, obtained a lease of the lower end of the creek, and began work in a practical manner about two months ago by constructing a dam and sluice gate across the creek, laying a flume 135 feet long, 5 feet wide and 2 feet deep, blasting down two falls and sluicing to a depth of 22 feet. Very encouraging prospects have been found and I trust to be in a position in a few months to report that very good pay has been discovered.

"Roddick & Co. have also obtained a lease of a portion of the creek near the Forks, on which active operations will be under way as soon as the spring opens.

"About 20 quartz claims are located on Siwash Creek, on a large portion of which assessment work has been performed, with the exception of the Montrose and Roddick. On the latter several thousand dollars have been expended in driving tunnels, discovering such encouraging prospects of free gold, that a Crown grant has been applied for. This mine will be thoroughly tested by a company of Vancouver capitalists.

Boston Bar.

"Two leases have been applied for adjoining the Boston Bar farm by the side of the old waggon road. So far, the lessees are busy testing the ground by sinking a series of prospecting shafts on the land.

"Before closing my report I would respectfully submit, for the consideration of the Government, the urgent necessity of constructing a pack trail into Siwash Creek, as the only mode of transporting tools and supplies is packing by Indians, at a cost of four cents per pound. This, of course, would be greatly reduced in the event of a suitable pack trail being constructed.

"I have, etc.,

(Signed)

"WM. DODD,

"Government Agent, &c.

"To the Honourable

"The Minister of Mines, Victoria."

Okanagan Division.

MR. DEWDNEY'S REPORT.

"GOVERNMENT OFFICE, VERNON,

"11th January, 1892.

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

" Cherry Creek.

"Two whites and a few Chinese are still prospecting this creek, and the Chinese are taking out small wages from the abandoned claims.

"Mr. John Merritt, foreman of the Cherry Creek Mining Company, is still persevering in trying to find the old channel. The tunnel now extends about 800 to 850 feet, with very good indications ahead. He showed me from 4 to 6 oz. of coarse gold, which he took out from his last two or three sets of timbers.

"Mr. L. W. Riske and Donald McIntyre have during the summer been working their quartz mines on the Monashee Mountain, with good results, until compelled to shut down for want of water. They now intend to bring water, as proposed last year, a distance of two and a half miles, by ditch and flume, which will give them an ample quantity to operate the mill during the summer months.

"Rock Creek.

"A very little prospecting on the creek and at the quartz mines has been done during the summer, and until better facilities are offered for getting machinery into the Province there will still remain a dead-lock in mining enterprises.

"The placer and hydraulic mines at the mouth of Rock Creek have not done so well this past season, the output of gold reaching only from \$5,000 to \$6,000.

"Fairview Camp.

"Very encouraging reports come from this section, and I am informed that it is a most promising camp, several claims having already been bonded for large sums, but, for lack of machinery, they have not been thoroughly tested.

"Siwash Creek.

"There are one or two hill claims on this creek, the owners of which are developing their prospects by tunnelling.

I have, etc.,

(Signed)

W. DEWDNEY,

"Gold Commissioner.

*"The Honourable the Minister of Mines,
"Victoria."*

Similkameen Division.

MR. HUNTER'S REPORT.

GRANITE CREEK, November 9th, 1891.

"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 still continues to decrease, although the yield of platinum has increased considerably, both in quantity and value.

"On Granite Creek the yield of gold has increased, five companies are on fair pay, averaging about \$6.50 per day.

"On Newton Creek very little work has been done, the water having given out, although while it lasted fair wages were made.

"On Slate Creek a large amount of work was done, considering the few miners there. In most cases fair wages were obtained. This creek has proved to be rich, though only a small portion of it has been worked, on account of the ground being so deep and miners not being in possession of funds to prospect it.

"On Boulder Creek there is only one Chinese company, and they have obtained small wages.

"On the Tulameen River a large amount of work has been performed, principally mining for platinum, the price of which has increased, making it an object to mine solely for that metal.

"An hydraulic company has been started on the Tulameen, about 15 miles north-west of Granite Creek. The work is being pushed forward with all speed. A saw-mill, with a capacity of 25,000 feet per day, has been erected on the ground. The company expects to have the machinery in working order this fall, so as to be able to start up in the spring.

"About 20 Indians were mining on this river, with rockers, and obtained small wages.

"On the Similkameen, mining operations have been limited this year, the late season having kept the river high, and a scarcity of hands obliged Mr. Allison to shut down on his claim.

"On Whipsaw Creek, very little work was done, on account of the small wages obtained.

"Considerable work has been done this year in quartz mining. Three claims of peacock copper ore have been located on Friday Creek, a tributary of the Similkameen River. On one claim a tunnel 100 feet long has been driven. At that distance in, the vein is six feet wide. Over one thousand dollars have been spent on these three claims this season.

"About nine miles from Princeton, and about five from Friday Creek, another claim has been located, although little work has been done on it as yet.

"On the Bonanza Queen and Nevada, situate on the Tulameen River above Granite Creek, the owners have satisfied themselves with merely performing the necessary work to hold the location.

"I have, etc.,
(Signed) "HUGH HUNTER,
"Recorder.

"The Honourable the Minister of Mines."
"Victoria."



COAL.

The following table shows the output of each year from 1874 to 1891, inclusive :—

Year.	No. of Tons.
1874	81,000
1875	110,000
1876	139,000
1877	154,000
1878	171,000
1879	241,000
1880	268,000
1881	228,000
1882	282,000
1883	213,000
1884	394,070
1885	365,000
1886	326,636
1887	413,360
1888	489,300
1889	579,830
1890	678,140
1891	1,029,097

REPORT OF THE INSPECTOR OF MINES.

“NANAIMO, B. C., 19th February, 1892.

“SIR,—I have the honour, as Inspector of Mines, respectfully to present for your consideration my annual report for the year ending 31st December, 1891, in accordance with the provisions of the ‘Coal Mines Regulation Act’ of British Columbia.

“The collieries which have been in operation during the year are :—

- “Nanaimo Colliery, of the New Vancouver Coal Mining and Land Company, Limited.
- “Wellington Colliery, of Messrs. Dunsmuir & Sons.
- “East Wellington Colliery, of the East Wellington Coal Company.
- “Union Colliery, of the Union Colliery Company.

“The output of coal during the year 1891 amounted to 1,029,097 tons, produced by the several collieries as follows :—

Nanaimo Colliery,	output.....	527,457 tons,	15 cwt.
Wellington Colliery,	”	345,182	”
East Wellington Colliery,	”	41,666	”
Union Colliery,	”	114,792	”
Total output in the year 1891.....		1,029,097	” 15 cwt.
Add coal on hand 1st January, 1891		13,323	” 4 ”
Total coal for disposal in 1891		1,042,420	” 19 ”

"The exports of coal by the same collieries in 1891 were 806,479 tons, as follows:—

Nanaimo Colliery,	export.....	383,886 tons.	
Wellington Colliery,	"	282,452 "	14 cwt.
East Wellington Colliery,	"	36,181 "	
Union Colliery,	"	103,960 "	
Total coal exported in 1891.....		806,479 "	14 cwt.
Add home consumption in 1891		202,697 "	11 "
Add on hand 1st January, 1892		33,243 "	14 "
		1,042,420 "	19 "

"The coal shipped from Nanaimo, Departure Bay, and Comox, to foreign ports, was exported principally 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 been supplied with coal as usual.

"The returns of the collieries show a 'home consumption' of coal amounting to 202,697 tons, as against 177,075 tons last year (1890); it must, however, be noted that the coal used in the collieries is in most instances included under that heading.

"The progress of the coal mining industry of the Province is seen by reference to the following comparative table of output and export, from the year 1888:—

1888.....	Output	489,300 tons.....	Export	365,714 tons.
1889.....	"	579,830 "	"	443,675 "
1890.....	"	678,141 "	"	508,270 "
1891.....	"	1,029,097 "	"	806,479 "

"Continuing the statements of the various sources from which California, our chief foreign market for coal, is supplied with that commodity, I beg leave to submit hereunder a statement compiled up to the end of 1891, from an authentic commercial source:—

	1888.	1889.	1890.	1891.
	Tons.	Tons.	Tons.	Tons.
British Columbia	345,681	417,904*	350,388	517,477†
Australia	271,612	408,032	153,920	275,490
England and Wales	126,167	32,890	53,374	200,777
Scotland	10,680	12,727	1,490	34,225
U. S. Eastern States	30,118	18,950	32,701	42,237
Puget Sound.....	568,948	372,514	450,762	393,163
Coos Bay and Mount Diablo..	81,194	87,600	74,210	90,684
Japan.....	13,808	1,340	13,250	20,506
Carmel Bay.....				1,200
Alaska				150
Total at San Francisco	1,448,208	1,351,957	1,130,095	1,575,909
At Lower Ports, viz., Wilmington, San Pedro, and San Diego, in California	211,598	11,805	123,312	160,820
Total California.....	1,659,806	1,363,762	1,253,407	1,736,729

* Some of this export, as of other exports in this column, were delivered at Lower Ports in California, but the returns in 1889 did not distinguish the quantities, beyond the 11,805 tons. There were altogether 139,060 tons from various sources delivered at Lower Ports in 1889.

† In addition to this export of 517,477 tons from British Columbia, there was an export to and delivery at Lower Ports, from the Province, of 123,534 tons, which is included in the 160,820 tons, noted as delivered at Lower Ports.

"The totals above stated are of the quantities of coal actually received into California, while some of the coal shipped in 1891 from this Province, destined for that State, would be on the way and not arrive until 1892. And, on the other hand, some of the coal shipped in the Province in 1890 would have arrived there in 1891, and be included in the above statement. The last year's total of coal delivered by collieries of this Province and Washington State, also Coos Bay, in Oregon, called in the market "Coast Collieries," together with the totals of

"foreign" shipments (other than those of this Province), shows a growing power of absorption of our great 'natural product' of coal, by our friendly neighbours and customers of many years past, that is most gratifying from a commercial and industrial point of view. It will be seen that in 1888 California touched the present total within about 77,000 tons, so that it may be hoped that a total of two millions will soon become the normal amount of coal consumption in California, with a rapid progressive increase upwards, and that by wise legislation and negotiation on the part of Dominion statesmen, a treaty of reciprocity with the United States, in the article of coal, may enable our coal industry to hold its own against the severe competition it has now to sustain from the cheaper mined coal of other countries, as well as to maintain and increase our enormously developed capacity for production of this necessary staple article, of undoubted quality and utility, proved and established in the market.

"Owing to the absence of an equitable reciprocity treaty between Canada and the United States, within the past few months excessive shipments of coal from distant countries to California have so disturbed the balance of supply and demand that existed during the greater part of the past year, that a prudent diminution of output and shipment of coal took place generally from the collieries of this Province, in order to ease off the glut that was brought about by such extraordinary deliveries into California, and it is calculated that early in the spring the market will have assumed its normal condition, and that the collieries of British Columbia will be worked up to their highest power, with a brisk trade, which is a result devoutly to be wished for, on behalf of our very numerous and deserving body of miners in this Province, who have been for some time working only four days or less a week, while their personal, family and household expenses have been going on all the time at full rate. Otherwise, I can truly say that the collieries of Nanaimo, Wellington, and Comox were never in better condition than now, and that prospects never looked so well for putting out coal; and it may be expected that after the present lull in the coal market blows off, we shall see every mine worked to its full capacity and to the best advantage of all concerned.

"NANAIMO COLLIERY.

"With the exception of a few days at the end of the year, the coal has been in good demand from this colliery during the past year.

"No. 1 PIT, ESPLANADE, IN NANAIMO.

"This mine, being part of the Nanaimo Colliery, belongs to the New Vancouver Coal Mining and Land Company, Limited, and is a most valuable mining property, with resources of coal that are practically inexhaustible. Now, as in previous years, the workings from No. 1 Pit have been from what are known as the Nos. 1 and 2 North Levels. The No. 1 Level is from the bottom of the shaft (or pit), in a northerly direction, going under the water of Nanaimo Harbour, with its windings, for about two miles, being the longest underground hauling road of any colliery in the district. The face of the level is under Protection (or Douglas) Island. Coal in here has been very good. The level is not working at present, but it stands on good coal. The coal is worked from this level on the pillar and stall system, and will average about six feet in thickness. In some parts it is thin, but at other places it is thick, and will be about the average named. All the work, for about 1,400 yards, has been on the west side, and much of this is not started away from the level. On the east side it is all solid for the above-mentioned distance; except near to the face there is a slope down 300 yards in good coal all the distance. The object of this slope is to connect with the shaft being sunk on Protection Island, which I shall refer to under its own heading.

"No. 3 Level is also in good coal, and from this level a considerable quantity of coal has been taken out through the year. There has been much rock work here, but now they have got into good coal, about seven and a half feet thick, and to all appearances they have got into the same tract of excellent coal that they have been and are now working in the No. 1 Level, but a long distance to the eastward of No. 1.

"Ventilation in this mine is good. When I was down in December, I found that there were 59,600 cubic feet of air passing per minute for the use of 120 men and 18 mules—23,400 feet to No. 1 Level, and to No. 3 Level 36,200. The motive power to keep this volume of air

circulating consists of two double fans, on the Murphy principle, on the up-cast (or No. 2) shaft, driven by steam engines, with water gauge eight-tenths. Very little gas has so far been discovered in this mine, and there is also freedom from dust.

"The management have been making great preparations in the levels, tramways, underground, and also on the surface, for carrying out the purpose of the company to have the coal brought from those long roads to the shaft by electricity, so that in about a month, or as soon as the electric works are completed, an opportunity will be afforded of seeing the electric motors hauling the coal under the harbour, and the ships in the harbour taking the coal away to other countries.

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

"This mine of the New Vancouver Coal Company has worked steadily most of the year, excepting a day occasionally for repairs. The coal from this pit has been exceptionally good, both as regards hardness and quality. As I have previously mentioned the workings here are on the pillar and stall system, and during the year, up to 12th October, nearly all the mining had been at those pillars (coal), but on the above date the company ordered cessation from work, and the mules, etc., were taken out of the mine. There is, however, a considerable quantity of coal obtainable in the mine, and it is the intention of the manager to let it stand till the coming summer, or till late in the spring.

"Ventilation was always good; at the time the mine stopped 45,000 cubic feet of air were passing per minute for the use of 40 men and 8 mules. The motive power here was a large fan on the up-cast shaft.

"SOUTHFIELD MINES, NOS. 1 AND 2.

"Both are known as the Southfield Mine of the New Vancouver Coal Company. The mine is worked by a slope, down 800 yards, but there has not been much mining done near the bottom. It has been and is now the greatest producing mine of the extensive Nanaimo Colliery. The coal is hard and good. In some places the coal is 12 feet thick, much of it with a strong conglomerate roof close to the coal, making it safe to work with ordinary care. Much of the mining here is now done at the pillars (coal), which represent fully one-third of the whole original seam of coal. Besides this, coal has been mined in stalls. This has been and is now a valuable mine, but the company have had, and yet have, faults to contend with in the workings.

"Ventilation, good; motive power, a large fan. This mine is worked on the separate split system, having three splits—two to the south, and one to the north side of the slope. When I was down in December, there were 98,000 cubic feet of air passing per minute for 130 men and 9 mules. There is seldom any gas. The mine is also free from dust.

"No. 4, SOUTHFIELD MINE.

"In this slope a great deal of work has been done. The prospects not being encouraging, work has stopped for the present. Another shaft has been put down to the coal further to the dip—the shaft next mentioned as

"No. 5 PIT, SOUTHFIELD.

"In a previous report, you will have seen that this shaft of the New Vancouver Coal Company was down 100 feet, and that their trouble was then commencing, as the water was coming in freely, while the rock was very hard; but perseverance, in most cases, is sure to be rewarded, and in this case it was, for, after the company had persevered against water and hard rock, the coal was struck at the depth of 508 feet, and proved six and a half feet thick. It was somewhat soft in the bottom of the shaft, but as they worked out it got better, and is now much improved and a fine vein of coal. In starting a new work like this, after the coal is reached, there is a large amount of work to be done in the way of head gear, engines, railway, and many other things that an on-looker does not notice, and they all take time. Now they have started in earnest, and appearances are most favourable here for a good mine. This shaft is to the dip of both Southfield Nos. 1 and 2 and No. 4 mine, and is quite a valuable acquisition to the New Vancouver Coal Co.'s colliery, and it is sincerely hoped by all their well-wishers—and they are many—that this mine will roll out the coal for years to come. This coal is much wanted in the California market, and always commands the highest market price when it is taken there.

"PROTECTION ISLAND SHAFT.

"This is the property and new work of the New Vancouver Coal Company, and is on the south point of Protection (or Douglas) Island, and on the north side of Nanaimo Harbour. The workings of No. 1 Shaft, Esplanade, Nanaimo, extend under this island, and the company knowing that the coal was good, but having a long distance to haul it underground, and judging from the character of the formation on the surface along the coast line and into the sea that, in all likelihood, the coal extended for miles, concluded to put this shaft down on the island. The contract for the sinking of the shaft was let early in the spring of 1891, and on the 12th of March work commenced, and has continued on to the finish almost without a stoppage of any kind until the 12th of January of this year, when it was successfully finished at a depth of 670 feet. The size of the shaft is 18 by 12 feet in the finish, timbered with plank four inches thick, and with a partition dividing it into two compartments from top to bottom. Here, as was expected, the coal is five feet thick. On the 22nd January, 1892, they holed through on to the slope mentioned, as put down near to the face of No. 1 Level in No. 1 Shaft, and, after arrangements are complete, that will be the intake for the air of No. 1 Level, which will be a great relief to that mine. The air will only have to go through, in place of having to go in and come out. Although the shaft is down, there is yet much work to be done before they can say that they have got fairly started to ship coal from the Protection Island shaft.

"The company are now erecting a large double hoisting engine, which will be the machine for taking out the coal from this place. The cylinders of this engine are 26 inches, with 42 inch stroke. It was made by the Hamilton Manufacturing Co., Peterborough, Ont. The head gear is also framed and put together, ready for hoisting into position, but, in addition to what is already accomplished, there is much to be done, viz.: the putting up, and the fillings about the pit head. There is only a short piece of railway to make, and that is nearly ready for the rails. There is a complete set of new wharves to build, which will have to be done before much coal can be taken away from this new pit, but from what I have seen this company do, I am satisfied that all the works required here will be carried on with the greatest speed, so that they may be able to take coal into the ships for foreign ports. With the great prospects here for coal, and the largest ships being able to go within 400 feet of the mouth of the shaft, the company will be able to compete for putting coal into the market as cheaply, if not at less price, than any that can oppose them.

"The New Vancouver Coal Company has made a large outlay of capital, but it would be hard to represent the vast amount of coal that stands in view against the outlay, and, to all appearance, this is going to be the coal mine of Nanaimo.

"NORTHFIELD MINE, NANAIMO COLLIERY.

"This mine, mentioned in a previous report, is in the northern part of the extensive estate of the New Vancouver Coal Mining and Land Company, hence the name Northfield, which seems to be very appropriate, as in the other end of the estate there is the Southfield Mine. This mine is entered by a shaft, and from the bottom of the shaft there is the south level, and on the north side there is also a level of this name; but the principal part of the mining at present is from a slope starting from near the shaft on this side, running about north-east.

"Work has been going on steadily during the past year, except on occasions that could not well be avoided, as the repairing day must come to all works where machinery is one of the prime movers. The coal from the Northfield Mine is hard and of a very good quality. It is in brisk demand in the Victoria (B.C.) and California markets, and in other places where it has been introduced always commands the highest price.

"The coal is worked on the longwall system, from the levels and both sides of the slope, and is of a varied thickness of from two to four feet.

"Ventilation is good, but owing to the system in use the air goes along the face, and about shot-firing time in some of the places there is smoke, quite a large quantity of powder being used. The ventilation being on the separate split system the smoke soon goes past. When I was down, in December, I found that there were 62,640 cubic feet of air passing per minute for the use of 130 men and 5 mules, and in the following divisions: two main splits from the shaft to the north and south sides; to the north split there were 30,960 cubic feet; this goes down the slope, and is again divided to each side along the face of the workings to where it has to leave them, when it goes along the airway to the upcast shaft. On the south side there

was 31,680 cubic feet passing per minute. This went in by the south level, and returned by the way of the face (coal) to the upcast shaft. There is little or no gas in the mine, which is also free from dust.

THE HAREWOOD ESTATE (NANAIMO COLLIERY).

"This estate is now the property of the New Vancouver Coal Mining and Land Company. Considerable prospecting has been done on this estate at different times, but the company got the diamond drill to work during the past summer, at about one and a half miles in a south-east direction from the old Harewood mine. This bore hole got on well, and when down 150 feet they struck the coal, which proved by boring to be five feet six inches thick. They were so well satisfied with the prospects that they commenced to sink a shaft as soon as tools and machinery could be got on the ground, and expect to reach the coal early in the spring. It is to be hoped that this company will be successful in their enterprise. Previous to the company acquiring the property two parties attempted coal mining here, but both failed to make it a success, and I trust that it now remains for the New Vancouver Coal Company to be the winning party.

"PROSPECTING BY THE NEW V. C. Co.

"There has been much prospecting and exploring by the New Vancouver Coal Company. In addition to the sinking of the shaft mentioned, they have just put down a series of bores in their Northfield estate, and from the encouragement afforded by the prospects of those bores we may expect to see a shaft started in the Northfield estate soon.

"WELLINGTON COLLIERY.

"No. 1 PIT.

"This pit is near to Departure Bay, and was put down to the coal about fourteen years ago, but excepting a little coal taken out of one of the upper seams, no mining was performed. Work was resumed here about four months ago to erect machinery and all the necessary works for the sinking of a shaft. As this shaft was only a small hole, they started at the surface to enlarge it to the usual size of the shafts in this colliery, expecting to reach the coal early in the spring. The calculation is that good coal will be found here, which will be good for the district, as well as for Messrs. Dunsmuir & Sons.

"No. 3 PIT, WELLINGTON COLLIERY.

"With the exception of keeping the water out, there has been little or no mining done here, yet there is quite a large quantity of coal to come out of this shaft.

"No. 4 PIT, WELLINGTON COLLIERY.

"This pit is about 1,000 yards to the east of No. 3 shaft, and is connected by a good travelling road to the same. Here, as in all the working mines of this colliery, the men have been working regularly during the past year, except a day now and again to perform repairs that were necessary. The coal is in good demand in the California market and in other places to where it was sent, as well as by steamboats calling for fuel, and for home consumption.

"This mine is worked on the pillar and stall system, and in some districts there has been much mining done, in taking out the pillars, which are fully a third of the whole. The coal is hard, and of the usual good quality of the Wellington coal. This is a very extensive mine, being well spread out. It is worked in four districts, viz., south, east, north, and west. No expense is spared to make the works safe. Ventilation is very good. Motive power, a large fan on the up-cast shaft, which is about 500 yards north of No. 4 shaft. The south side is ventilated from No. 3 pit. You will have seen that this mine is ventilated on the separate split system. The air is split at the bottom of the shaft, taking what are called the north and south sides. That going to the south is diverted to the east level, and that to the north is for the north and west workings, and, as I have said, the south side is ventilated from No. 3 pit.

When I was down in December I found that there were 130,400 cubic feet of air passing per minute, with a velocity of 1,450 feet per minute, and this was for 196 men and 18 mules. The mine is free from coal dust, but in some places they have a regular system of pipes to put water on where or when it might be required.

"In addition to the manager there is a general superintendent, and the overman and fireman, besides a staff of shot lighters, to examine and see that everything is safe before a shot can be fired, and also to examine the place after the shot is fired, to see that the place is safe, and to give instructions if it is otherwise. This staff use safety lamps only, and in the absence of the overman have all the power that is necessary to have anything that may be found or appear to be dangerous made safe. There is now very little gas to be found in this mine.

"No. 5 PIT, WELLINGTON COLLIERY.

"As mentioned in a previous report, this is the only mine of the Wellington Colliery that has connection with the Esquimalt & Nanaimo Railway, by which the principal part of this famous coal which is used in Victoria finds its way to market. To this mine Messrs. Duns muir & Sons have also an extension of their own railway system in connection with their shipping point at Departure Bay.

"In this pit, as in the other mines of this colliery, the men have been working steadily the most of the year, except a day occasionally during the past two months.

"This is a very extensive mine. The coal is brought to the shaft from the east by a level, from the north by a slope, and from the south and west by a self-acting incline. In the east the coal is mined on the pillar and stall system; in the slope it is longwall, and in the south and west incline all the mining is at the pillars (coal) which contain fully one-half of the whole which was in the district. In the longwall, down the slope, there is a long face working of about half a mile in one stretch, all good coal, without a fault of the smallest kind, and from four and a half to eight feet thick, so that in all the districts of this mine it never looked better nor had as good an opening for taking out coal as there is now.

"Ventilation is very good. Motive power, a large fan on the up-cast shaft driven by a steam engine. When I was down in December I found that there were 112,222 cubic feet of air passing for the use of 197 men and 19 mules; fan making 99 revolutions per minute; water gauge, 8-10ths of an inch. This mine is ventilated on the separate split system, the three main divisions being at the bottom of the shaft, to the east level, 35,340 cubic feet per minute, which is again split away further in the level, for the use of 70 men and 10 mules. There were 32,860 feet per minute going down the slope, this being also divided into two currents down the slope, and being for 80 men and 3 mules. In the south incline and west level there were 44,020 cubic feet circulating per minute, for 47 men and 6 mules. In this division it will be observed, that there are the least men, but most air passing. That is owing to the fact that all the mining being done here is at the pillars (coal) and so that all the caves from the roof may be kept clear. There is very little gas now found here, but occasionally it is seen in the longwall workings, when there is a fall of rock, and then not often, as there is a strong air blowing along the face. This mine is also free from coal dust.

"In addition to the overman and fireman, there is a staff of shot lighters and examiners in each district. These men have to be in all the places at different times every shift, so that very little that happens can escape their notice. They cannot be long in one place unless something special requires them to stay.

"No. 6 PIT, WELLINGTON COLLIERY.

"This pit is mentioned in a previous report as being about 900 yards east of No. 4 pit, yet the workings of the two mines are quite close to each other, leaving a solid strip of about 40 yards, as it is not intended that the two should be connected. This will be an extensive mine, there being a very large area of ground solid in coal to be taken out. Coal is hard, and of the usual good quality of the Wellington seam, varying in thickness from four to eight feet. There is much of this mine worked on the pillar and stall system, which works well; but there are two other districts where longwall is found to work well, and this is the favourite work of this mine for getting coal.

"Ventilation is very good, and on the separate split system; there are five separate splits in the air, all of them near to the bottom of the shaft, three on the east and two on the west side from the shaft, and the air is well conducted to the face of the pillar and stall workings,

by brattice and otherwise. In the longwall works the air goes along the face, some escaping at each road, is caught when it gets to the face; this keeps the roadway free from any impurities. In December last, when I was down, there were 75,000 cubic feet of air passing per minute. The motive power of this is a fan on the same shaft as the coal is hoisted from, there being a tight partition in the shaft, and one half of the shaft being the intake and the other the exhaust.

"The air passing as above per minute is for the use of 130 men and 8 mules. There is very little gas found in this mine, but what is found comes mostly from the roof in the longwall, when it breaks up in holes.

"This pit is now connected and has a travelling road to No. 5 Pit; the connection is only in one place; and there are doors, so that one pit cannot injure the other by taking away the air; both being independent, except the travelling road.

"This mine is free from coal dust; it is not what can be called a wet mine, and yet it is not dry.

"NO. 2 SLOPE, WELLINGTON COLLIERY.

"There has not been any work done here during the past year.

"ALEXANDRA MINE.

"This mine belongs to Messrs. Dunsmuir & Sons, and is about one mile south of the Southfield mine of the New Vancouver Coal Company's Nanaimo colliery. There has not been any work done here during the last year, but I have been informed that it is expected something will be done with this place in the spring.

"EAST WELLINGTON COLLIERY.

"This colliery belongs to the East Wellington Coal Company, and comprises two shafts.

"In No. 1 Pit only a few men are mining coal, and that is near to the No. 2 Pit. The coal is of excellent quality, hard, but thin for what is known as the Wellington seam. The coal on the west side of this shaft is getting well worked out. On the east side, or what is called the east level, there has not been any regular vein of coal yet, but they are working in the place where the coal should be, and there are yet good hopes that there will be good coal got in this side, which is where the larger area of the Company's land is situated, and the expectation is that it will in the near future prove to the Company that it is the most valuable part of their property in this district.

"NO. 2 PIT, EAST WELLINGTON.

"In this pit they have been working steadily all the year, except when repairs have been needed. Coal is good and is in full demand in the San Francisco market.

"This mine, as well as the No. 1 mine of this Company, is worked on the longwall system, although the roof is very soft, and the coal has been considerably broken, which makes it very difficult to work. There is quite a large body of coal in sight, with narrow roads run into it. Some of the places look well, and it is hoped that these prospects will not disappoint the fair expectations raised by them, as the Company and its management have been persevering and pressing forward, and are highly deserving of success.

"Ventilation is good. Motive power a fan, erected near the top of No. 1 Pit, which is the up-cast for both No. 1 and No. 2 Pits. When I was down in December I found there were 20,000 cubic feet of air passing per minute for the use of 35 men and 5 mules. This current is split at the bottom of No. 2 shaft; 5,000 per minute going to those in the west side, and 15,000 to the east side, but both connect and go in one volume to the No. 1 Pit. This being longwall working, the greater part of the air goes along the face, the remainder escaping at the roads and keeping them clear. There is very little gas seen in this mine, there not being much chance for it to collect, the old works being well filled in nearly every particular, and every precaution is taken to prevent accidents of any kind. In addition to the manager and overman, there are three firemen, one on each shift of eight hours, going about the works. As there are not many miners working the fireman can see all the places frequently during the day.

“UNION COLLIERY, COMOX.

“This colliery belongs to the Union Colliery Company. The mines are only a few miles from the extensive farming settlement of Comox, with a good road thereto. There have been three mines on three veins here, but at present the Company are working in two of the veins. The upper seam (or vein) comes out on the hill in the south side of the railway, and into this there are the No. 1 and 2 tunnels or adit levels. No. 1, the lowest one, is in about 600 feet; No. 2 is in about 1,000 feet. Coal is hard and of a good quality, and from two to three feet thick, with a strong sandstone rock for a roof. This is mined on the longwall system, making very safe workings.

“Ventilation very good. Motive power a furnace; the air going in both tunnels and returning by the way of the face of the workings. There has not been any gas found in this mine, and it is free from dust.

“No. 1 SHAFT, UNION COLLIERY.

“There is nothing being done here at present, and there has been very little done during the past year.

“No. 1 SLOPE, UNION COLLIERY.

“This slope is mentioned in a previous report as down about 700 yards. There are three levels from this slope to the north side. The coal here is of good quality and very hard, but they are much troubled with faults, although it is improving as they go north, and now it varies in thickness from three to seven feet. This is worked on the pillar and stall principle; some of the places are very soft, and in other places it is very strong.

“Ventilation good. Motive power a fan on Murphy principle, driven by a steam engine. This mine is ventilated on the separate split system, the intake being the slope, afterwards it is split into two divisions, one for No. 4 level and the other for No. 3; after going round the working places it again gets into one volume and goes along the airway and out at the up-cast shaft. When I was down in December I found that there were 23,400 cubic feet of air passing in this mine per minute for the use of 70 miners. The mine gives off some gas, as the roof is soft in some places and it falls out, leaving a hole, and those are the places that give the trouble. There is a fireman on each shift to examine and attend to the safety of the mine, in conjunction with the overman. There is no dust in this mine, it being wet throughout.

“No. 4 SLOPE, UNION COLLIERY.

“This is the new mine mentioned in my former report as No. 2 Slope, and then just getting opened out. This is now down about 400 yards. The coal is of varied thickness, from five to eight feet for the whole distance.

“The coal is very hard and of good quality; in texture it resembles Wellington coal. The engineer of one of the large steamships that load here informed me that it gave better results than any coal he has used on the coast. At the face of the slope just now the coal is seven feet thick and hard, proving a most valuable piece of property to the company. This mine is worked on the pillar and stall system, the works being to both sides of the slope. They are now taking about 400 tons of coal per day from this mine.

“Ventilation is very good, and on the separate split system. The laying out of the mine is very well arranged for proper ventilation; motive power is a fan. In December, on my inspection, there were 39,200 cubic feet of air passing per minute, the fan running slow, for the use of 100 men. This mine is free from dust. There is no gas in the mine.

“From what the management know, by a series of bore holes, great work is expected from this place, and no expense is spared to put it in first-class order.

“There is a large trestle work from the entrance of this mine, rising gradually until it gets to the height required; then there is quite a long flat place where the cars that come out of the mine can stand, so that little energy is used to make them go either way. The car dumping or tipping appliances here are the finest and the easiest on coal, so as not to break it, of any in the Province, and quite a mechanical invention. The loaded car goes on to the tipper just enough to let the coal out, when it comes back again to the level and the next car comes along, sends the first car over the machine and gets on to a lower level, then runs back nearly to the top of the slope, or far enough to fill in when there is a train of them. The connection between the hoisting and tail ropes seems to work to perfection, one or two men being able to

handle all the coal that can be brought from the mine. At this mine there is also a large double winding engine, specially constructed and geared to double drums, which is the mode used here and seems to work very well. The steam engine and machinery for both the tipping and hauling came from the Eastern States.

"In this mine the Company have introduced, and have been working for the past five months, coal mining machinery from the Jeffrey Manufacturing Company, Columbus, Ohio; operated by electricity. With the exception of the coal mining machines, the engines, dynamos, and all other appliances are out on the surface about 300 feet from the entrance of the mine; the connection being made to the mine by heavy wire, which is easily connected to the coal mining plant, of which there are four different motors with coal cutters. Either one or all four can be used as required, and at any place, just to suit where work is wanted to be done. They do good work, and, what is about the hardest to do, viz., undermining, this being the work that they are made for. The machines, when at work, stand end on to the face of the coal, with the cutter bar three feet three inches long; this at regular distances from each other is set with teeth, so that there is four inches cut, neither more nor less. After the machine is set in motion, in four minutes it has undermined a hole close to the floor three feet three inches wide, six feet in the face and four inches high; when it has done this work it comes out again, and then it is put over for another cut, which takes about five minutes, and so on until the place is all undermined, when a shot in each corner will bring all the coal down that is undermined. About one of the best day's work that one of these machines has done here was to undermine ninety feet long and six feet deep; this must have been a great saving in powder and coal, not to say anything in the saving of labour.

"TUMBO ISLAND COAL MINING COMPANY.

"The island of the above name is situated at the south-east entrance of the Straits of Georgia, and about two miles north-west of East Point Lighthouse. There has been but little work done here during the past year. The old Company have negotiated with another party, who has started in earnest and is now sinking a shaft on the south side of the island, this having been previously bored to the coal at the depth of 325 feet. It is hoped that the Company will make a successful find in this valuable property. A colliery here will not be out of the way for steamboats going between Victoria and the mainland, and would also be most convenient for the coaling of the China steamships, as they go close past, within hailing distance. A good colliery here would be a fine thing for the Company having the same, and also for the Province in general.

"ACCIDENTS

"IN AND ABOUT THE COAL MINES, FOR THE YEAR ENDING 31ST DECEMBER, 1891.

- January 6—Thomas Thomson, miner, was slightly injured by a piece of rock falling on him while at work in No. 5 Pit, Wellington Colliery.
- " 7—Soaper, runner in No. 5 Pit, Wellington Colliery, was slightly burned on the neck by an explosion of gas from a pot-hole.
- " 10—Wilkinson Richards, who was seriously injured in No. 3 Pit, Nanaimo Colliery, 6th July, 1889, died to-day.
- " 10—M. Campbell, miner, working in No. 1 Slope, Union Colliery, was slightly injured about the hands by a piece of rock.
- " 13—Coone, miner, working in No. 1 Slope, Union Colliery, was burned about the face and hands from igniting some powder when preparing to charge a shot.
- " 22—Joseph Balance had his foot crushed by a fall of rock while at work in No. 1 Pit, East Wellington Colliery.
- " 22—Thomas Smith, miner, had his collar bone broken by a fall of rock while at work in No. 2 Pit, East Wellington Colliery.
- " 27—Duncan McNiven and John Stevenson, miners, working in No. 2 Pit, East Wellington Colliery, were slightly burned by lighting gas in a hole between two curtains,

- Jan. 31—John Woods and Walter Whyte, miners, working in No. 1 Slope, Union Colliery, were slightly burned on face and hands by igniting some gas in their working place.
- February 9—Charles White, brusher in the Northfield Mine, Nanaimo Colliery, was killed by a fall of rock when at his work.
- „ 17—Joseph and Matthew, miners, working in No. 6 Pit, Wellington Colliery, were slightly injured; they were at work again in a few days.
- „ 17—Joseph Baninia, miner, working in No. 4 Pit, Wellington Colliery, had his ankle broken by a fall of coal while at work.
- „ 17—Thomas Kallas, working in No. 5 Pit, Wellington Colliery, was very slightly injured on the leg by getting jammed between two boxes.
- „ 24—Max Dusykoski, miner, working in No. 5 Pit, Wellington Colliery, was injured by a fall of coal.
- „ 24—Ellis Roberts, stableman, was seriously injured by being caught by the cage at the bottom of No. 5 Pit, Wellington Colliery. Died on 3rd March, 1891.
- „ 25—Walter Mottishaw, miner, working in Southfield Mine, Nanaimo Colliery, was slightly burned about the body by the premature discharge of a shot.
- „ 26—Benjamin Schulson, miner, working in Southfield Mine, was severely hurt about the body by a fall of coal.
- „ 28—Isaac Jones was injured by falling off the cars on the Wellington Railway.
- March 31—John McAllister, miner, working in the No. 4 Slope, Union Colliery, was killed by a fall of coal and rock in his stall while at work.
- April 10—Antonio Guisepppe, miner, working in No. 5 Pit, Wellington Colliery, was seriously injured by being struck on the head by a small piece of rock while at work in his stall, from which he died shortly after.
- „ 11—Moses Rathmal, runner in No. 6 Pit, Wellington Colliery, was slightly injured by a fall of dirt and coal from the roof.
- „ 12—John Oushon, tracklayer, was severely injured in No. 1 Slope, Union Colliery, and died a few hours after the accident.
- „ 13—John McMurdo, miner, working in No. 5 Pit, Wellington Colliery, was instantly killed by the premature explosion of a shot.
- „ 19—Henri Vanhousenhoff, miner, working in No. 4 Pit, Wellington Colliery, was injured by the premature explosion of a shot.
- „ 22—Sam Shing was severely injured by falling off the pithead at the Northfield Mine, Nanaimo Colliery, and died the following day.
- „ 24—J. Schroder, miner, working in No. 4 Pit, Wellington Colliery, was killed by a fall of coal while at work.
- May 9—Robert Watson, shot lighter, and Thomas Haywood, miner, were slightly burned about the face and hands by lighting some gas in Haywood's heading, No. 6 Pit, Wellington Colliery.
- „ 14—John Pevetto was injured by a fall of rock while at work in No. 3 Pit, Wellington Colliery.
- „ 26—Joseph Recuee, miner, working in Northfield Mine, Nanaimo Collieries, had one of his legs broken and was otherwise severely injured by a fall of rock while at work.
- „ 28—Wan Yung and Ah Chue, were killed by a fall of rock in No. 2 tunnel, Union Colliery; a shot had been fired which knocked out some props, when putting them in again the roof came down, with the above result.
- „ 29—Charles Donner, working in No. 2 Pit, East Wellington Colliery, was injured by having his shoulder dislocated, and sustained some bruises on the side, by a car in the mine.
- June 5—John Cockburn, miner, got his leg slightly bruised by a piece of coal falling on him while at work in No. 2 Pit, East Wellington.
- „ 9—John Dand, miner, was injured by a piece of coal falling on him while at work in No. 2 Pit, East Wellington Colliery.
- „ 12—John Frankham, mule driver in No. 1 Pit, Nanaimo Colliery, was killed by a fall of rock while at work.
- „ 16—F. Weeks, runner in No. 1 Pit, Nanaimo Colliery, was hurt about the body by being jammed against the roof with a loaded car.
- „ 26—James Aves, miner, was injured by a fall of coal in No. 5 Pit, Wellington Colliery.

- July 1—Daniel Anthony, fireman in No. 1 Slope, Union Colliery, was very slightly burned about the face and hands by gas.
- „ 25—William Griffiths, brattice-man, James Bradley, and Archie McBroom, miners, were severely burned by an explosion of gas in the west side airway of No. 2 Pit, East Wellington Colliery. William Griffiths died on the 26th, and James Bradley died on 28th July.
- August 1—John Roche, miner, was injured by a fall of rock in the No. 6 Pit, Wellington Colliery, and died the following day.
- „ 5—George Hall, miner, was hurt about the body by a fall of rock, while at work in his stall, Southfield Mine, Nanaimo Colliery.
- „ 12—Fuke Hing, got two of his ribs broken when discharging prop wood from cars at Wellington Colliery.
- „ 18—G. Juritt, pump-man in Southfield Mine, Nanaimo Colliery, had his arm broken and was otherwise hurt by coal thrown from a shot.
- „ 22—Joachim Puechgub was badly cut on the face by the end of a stringer falling on him while trying to raise it, in No. 6 Pit, Wellington Colliery.
- „ 25—Hugh McDonald, miner, was struck about the hands and face, through a spark from his lamp igniting some powder in No. 4 Pit, Wellington Colliery.
- Sept. 3—Domenico Valeur, miner, was bruised on the back by a fall of rock, while at work in his stall in No. 4 Pit, Wellington Colliery.
- „ 4—Henry Beviloque, runner, got his thumb fractured while attempting to put a sprag in, in No. 6 Pit, Wellington Colliery.
- „ 5—Les Sokowastki, timberman in No. 5 Pit, Wellington Colliery, was injured about the head and back by a fall of rock.
- „ 7—John Clark, runner, was slightly injured by a mule knocking him down in No. 5 Pit, Wellington Colliery.
- „ 9—Samuel Demarco, Frank Page, and John Serino, pushers in No. 5 Pit, Wellington Colliery, were very slightly burned by igniting some gas where a cave had taken place during their shift; they were able to work in a week after.
- „ 15—Carl Cantina, runner, got his hand slightly injured by being jammed by a piece of coal on one of the cars in No. 5 Pit, Wellington Colliery.
- „ 15—Josiah Reed was very slightly burnt on the hands by gas in his stall in the No. 1 Slope, Union Colliery.
- „ 16—Peter Francisco, miner, had his leg broken by a fall of coal while at work in his stall in No. 1 Slope, Union Colliery.
- „ 16—Domenic Gasiant had his leg broken by a fall of rock while at work in his stall in Northfield Mine, Nanaimo Colliery.
- October 6—Andrew Ehro, miner, at Northfield Mine, Nanaimo Colliery, was hurt about the body by a fall of rock in his stall.
- „ 7—James Spooner, miner, working in No. 3 Pit, Nanaimo Colliery, was hurt about the back by a fall of coal.
- „ 9—Patrick Owens, miner, working in No. 6 Pit, Wellington Colliery, was injured on back and forehead by a fall of rock.
- „ 12—Thomas Steev got his breast bone hurt and received a wound on his eyelid, by being jammed between a car and a prop in No. 4 Pit, Wellington Colliery.
- „ 12—Albert Oyler, miner in No. 1 shaft, Nanaimo Colliery, got his ankle sprained, and received serious injuries internally.
- „ 15—Samuel Shirt, miner, working in No. 6 Pit, Wellington Colliery, got his leg broken by a fall of rock, while at work in his stall.
- „ 21—John Carraher, miner, working in No. 1 Slope, Union Colliery, was burnt about the face and hands, by powder igniting while charging a shot.
- „ 26—John Love, miner, got his leg broken by a fall of coal, while at his work in No. 1 Pit, Nanaimo Colliery.
- „ 30—Frank Croth, miner, got his ankle injured, by being jammed by a piece of coal in No. 4 Pit, Wellington Colliery.
- Novem'r 2—John Hargo, miner, got his foot slightly hurt by a fall of coal when at his work in No. 5 Pit, Wellington Colliery.
- „ 5—E. Bateman, stableman, got his body squeezed by a mule while feeding him in No. 4 Pit, Wellington Colliery.

- Nov. 11—Ling Venditti, miner, got his shoulder, face, and head injured by a fall of rock while at work in No. 4 Pit, Wellington Colliery.
- „ 20—David Daniels, miner, was slightly burnt by kindling gas in No. 1 Slope, Union Colliery.
- „ 20—Robert Alden, miner, had his arm broken, and was otherwise severely injured (crushed) by a fall of rock in his stall in No. 1 Pit, Nanaimo Colliery.
- „ 26—John Cansap, miner, brushing in No. 6 Pit, Wellington Colliery, got a severe scalp wound by a fall of rock while at work.
- Decem'r 1—Gusta Waltze, miner, was burnt about the face and hands by explosion of gas in No. 1 Slope, Union Colliery.
- „ 5—David Hardy, fireman, No. 5 Shaft, Nanaimo Colliery, got one of his eyes severely hurt by a piece of coal thrown from a shot.
- „ 15—Mah Kee, runner, had his leg broken by a mine car getting on him in No. 1 tunnel, Union Colliery.
- „ 18—David Steel, mule driver in No. 5 Pit, Wellington Colliery, got his thigh bruised and a rib broken by being squeezed between boxes and the side.
- „ 21—H. Waugh, sinker in Protection Island Shaft, Nanaimo Colliery, was hurt about the head by a piece of rock falling out of the side.
- „ 21—James Butler, mule driver in No. 4 Pit, Wellington Colliery, got his foot slightly injured, being squeezed by a box.
- „ 26—J. McAloney, miner, while timbering in Southfield Mine, Nanaimo Colliery, had his elbow joint smashed by a fall of rock.
- „ 30—Isaac Stevens, miner, working in No. 5 Pit, Wellington Colliery, was seriously injured by a small piece of rock falling from the roof. He died shortly after being taken home.
- „ 30—Henry Floyd, miner, working in No. 6 Pit, Wellington Colliery, was slightly burnt on face and hands by powder when in the act of charging a shot.
- „ 31—John Gold, mule driver in No. 4 Pit, Wellington Colliery, got his ankle injured by being squeezed by cars in the mine.

“It is with sincere regret that I have to make out the above list of accidents, both serious and fatal, which greatly exceed the number of the previous year. Altogether, I have received notice of seventy-one slight and serious, and fifteen fatal, accidents. Many of these accidents were so slight that the injured parties were able to resume work after three or four days. On the other hand, some men were so severely injured that it was a long time before they were able to work again.

“Of the seventy-one cases reported as slight and serious, there were nineteen which occurred from falls of rock, fourteen by falls of coal, fifteen by explosions of gas, ten by cars in the mine, eight by shots and powder, two by cars on the railway, two by mules, and one by a stringer.

“The fatal accidents were fifteen in number—nine of these by falls of rock, two by explosions of gas, one by a shot, one by falling off the pit head, and two by falls of coal.

“I have made enquiry into the circumstances and causes of all these accidents, and in many instances before I got notice (formal), as news of this kind generally travels faster than the mail, and whenever I heard of any casualty I got to the place as soon as possible.

“With respect to the fatal accidents, in most cases there was a public enquiry, and the evidence taken at these inquiries being on record, I beg leave to refer you to the same for full information.

“In looking down the list, you will observe that nearly all the accidents happened when the men were working, fully one-half of them being by falls of rock and coal in the places where the workmen were at work themselves, showing a reckless and venturesome disregard of careful propping of the roof and spragging of the coal by certain of the workmen, who thus contribute by their negligence to the very accidents which only the care and caution of the men can prevent; and as the number of accidents of this class can only be lessened by increased care and vigilance of the miner, subject, however, to the direction of the overman, fireman, shot-lighter, and any other person having authority from the manager, it behoves the workmen and the officials named to see to it that extra, or at least ordinary, care and precaution are exercised in this respect. The officials are continually going on their rounds of duty to all the places of work in the mines at different times during the day, and they have the opportunity of frequently seeing anything that may be dangerous, and to require the workman to make the same safe, or cause him to leave until the place is made secure by the persons who may be

employed for that purpose. If all proper precaution was used by the workmen in these matters, we should see throughout the year the good results, in fewer accidents and fewer people walking about recovering from the sufferings of such casualties. The above remarks apply not only to the coal miners, but to all those employed about the mines in all positions. We are liable to accidents in all employments, but let us use the best judgment so as to run the least risk, and at the end of the year we have just entered on there would be fewer casualties to report.

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

"I append the Annual Colliery Returns.

"I have, &c.,
(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, 1891.		No. of tons sold for home consumption.		No. of tons sold for exportation.		No. of tons on hand 1st January 1891.		No. of tons unsold, including coal in stock, Jan. 1st, 1892.	
Tons.	cwt.	Tons.	cwt.	Tons.	cwt.	Tons.	cwt.	Tons.	cwt.
527,457	15	140,761	—	383,886	—	6,072	19	8,883	14
Number of hands employed.				Wages per day.					
Whites.	Boys.	Indians.	Chinese.	Whites.	Boys.	Indians.	Chinese.		
1,331	46	.....	87	\$2.50 to \$3.50	\$1 to \$2	.....	\$1 to \$1.25
Total hands employed 1,464				Miners' earnings, per day \$3 to \$5.					

Name of Seams or Pits—Southfield No. 2, Southfield No. 3, Southfield No. 5, No. 1 Esplanade Shaft, and No. 1 Northfield Shaft.

Value of Plant—\$350,000.

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

Description of length of tramway, plant, &c.—Railway to Southfield, 6 miles, with sidings; railway to No. 1 Shaft, 1 mile, with sidings; railway from Northfield Mine to wharf at Departure Bay, $4\frac{1}{2}$ miles; rails are of steel, 56 pounds per yard, of standard gauge, viz., 4 feet $8\frac{1}{2}$ inches; 8 hauling and pumping engines; 15 steam pumps; 5 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, New Vancouver Coal Mining and Land Co., Limited.

WELLINGTON COLLIERY RETURNS.

Output of coal for 12 months ending December 31st, 1891.		No. of tons sold for home consumption.		No. of tons sold for exportation.		No. of tons on hand 1st January, 1891.		No. of tons unsold January 1st, 1892.	
Tons.	cwt.	Tons.	cwt.	Tons.	cwt.	Tons.	cwt.	Tons.	cwt.
345,182	—	54,724	11	282,452	14	2,495	5	10,500	—
Number of hands employed.				Wages per day.					
Whites.	Boys.	Indians.	Chinese.	Whites.	Boys.	Indians.	Chinese.		
824	33	.....	100	\$2.50 to \$3.50	\$1 to \$2	.....	\$1 to \$1.50
Total hands employed.....				Miners' earnings, per day.....					
957				\$3 to \$4.50					

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; 1 shaft sinking.

Description and length of tramway, plant, &c.—5 miles of railway, with sidings and branches; 6 locomotives; 250 coal cars; 13 stationery 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, 1891.		No. of tons sold for home consumption.		No. of tons sold for exportation.		No. of tons on hand 1st January, 1891.		No. of tons unsold, including coal in stock, Jan. 1st, 1892.	
Tons.	cwt.	Tons.	cwt.	Tons.	cwt.	Tons.	cwt.		
41,666	—	6,918	—	36,181	—	1,433	—
Number of hands employed.				Wages per day.					
Whites.	Boys.	Indians.	Chinese.	Whites.	Boys.	Indians.	Chinese.		
156	9	.....	23	\$2.50 to \$3.50	\$1 to \$2	.....	\$1 to \$1.50
Total hands employed.....				Miners' earnings, per day.....					
188				\$3.					

Name of Seams or Pits—East Wellington Coal Co.'s Nos. 1 and 2 Shafts.

Value of Plant—\$100,000.

Description of seams, tunnels, levels, shafts, &c., and number of same—1 seam, 2½ to 7½ feet ; 2 shafts ; 7 levels.

Description and length of tramway, plant, &c.—4½ miles standard narrow gauge ; 2 locomotives ; 31 (4½-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.

W. S. CHANDLER,
Superintendent, East Wellington Coal Co.

UNION COLLIERY RETURNS.

Output of coal for 12 months ending December 31st, 1891.		No. of tons sold for home consumption.		No. of tons sold for exportation.		No. of tons on hand 1st January, 1891.		No. of tons unsold, including coal in stock, Jan. 1st, 1892.	
Tons.	cwt.	Tons.	cwt.	Tons.	cwt.	Tons.	cwt.	Tons.	cwt.
114,792	—	294	—	103,960	—	3,322	—	13,860	—

Number of hands employed.				Wages per day.			
Whites.	Boys.	Japanese.	Chinese.	Whites.	Boys.	Japanese.	Chinese.
270	15	100	200	\$2 50 to \$3.50	\$1	\$1 to \$1.25	\$1 to \$1.25
Total hands employed			585	Miners' earnings, per day \$3 to \$4.50.			

Name of Seams or Pits—Union and Lake.

Value of Plant—\$100,000.

Description of seams, tunnels, levels, shafts, &c., and number of same—Nos. 1, 2, and 4 Slope, with airways and levels ; Nos. 1 and 2 Tunnels.

Description and length of tramway, plant, &c.—12 miles railway, 4 feet 8½ inches gauge ; 4 locomotives ; 100 coal cars, 25 tons each ; 1 diamond drill ; 3 stationery engines ; 3 steam pumps ; 1 steam saw-mill ; 2 wharves ; 1 pile hammer.

JAMES DUNSMUIR,
President, Union Colliery Co. of B. C., Limited.