# ANNUAL REPORT

OF THE

# MINISTER OF MINES

FOR THE

YEAR ENDING 31ST DECEMBER,

1887,

BEING AN ACCOUNT OF

MINING OPERATIONS FOR GOLD, COAL, &C.,

IN THE

Province of British Columbia

VICTORIA : Printed by RICHARD WOLFENDEN, Government Printer,
at the Government Printing Office, James' Bay.

# PROVINCE OF BRITISH COLUMBIA.

## MINING STATISTICS FOR 1887.

| 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. | Total Divisions. | Total Districts. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Whites. | Chinese. | Whites. | Chinese. | Bar. | Creek. | Bench. | Hill. | Quartz. | Rocker. | Sluices. | Hydraulic. | Shaft. | Tunnel. | Water Wheels. | Steam Engines | | | | |
| **CARIBOO.** | | | | | | | | | | | | | | | | | | | | | | | | |
| Barkerville Division: | | | | | | | | | | | | | | | | | | | | | | | | |
| Williams Creek and tributaries | 20 | | 16 | 4 | 30 | 40 | $3.50 & 4 | $2.50 | | 10 | | 10 | | | 4 | 11 | 3 | 2 | | | $16 00 | $22,900 | | |
| Mosquito Creek and Red Gulch | 6 | | 5 | 1 | 10 | 4 | ,, | ,, | | 3 | 2 | 1 | | | 2 | 3 | | 1 | | | 17 25 | 9,000 | | |
| Hardscrabble and Sugar Creeks | 3 | | 3 | | 6 | | ,, | ,, | | 3 | | | | 1 | 1 | 1 | | | | | 16 60 | 1,500 | | |
| Lowhee Creek | 5 | | 5 | | 5 | 8 | ,, | ,, | | 5 | | | | | 4 | | 1 | | 1 | | 17 00 | 4,425 | | |
| Grouse and Canadian Creeks | 9 | | 7 | 2 | 7 | 23 | ,, | ,, | | 3 | 2 | 4 | | 2 | 3 | 4 | | | | | 16 00 | 4,000 | | |
| Antler Creek | 12 | | 11 | 1 | 12 | 33 | ,, | ,, | | 5 | 4 | 3 | | 4 | 4 | 4 | | | | | 16 00 | 12,000 | | |
| Cunningham Creek (Upper) | 8 | | 8 | | 1 | 35 | ,, | ,, | | 2 | | 6 | | | 6 | 2 | | | | | 16 50 | 6,500 | | |
| Conklin and Stouts Gulches | 4 | | 4 | | 13 | 10 | ,, | ,, | | 3 | | 1 | | | | 2 | 2 | | | | 16 & 17 | 9,300 | | |
| Stevens, Beggs, and California Gulches and Creeks | 3 | | 3 | | | 13 | ,, | ,, | | 3 | | | | | 1 | 2 | | | | | 16 00 | 2,500 | | |
| Goat River | 1 | | 1 | | 5 | | ,, | ,, | 1 | | | | | 1 | | | | | | | 16 50 | 248 | | |
| Desultory | | | | | | 35 | | | | | | | | | | | | | | | | 7,000 | | |
| | | | | | | | | | | | | | | | | | | | | | | | $79,373 | |
| Lightning Creek Division: | | | | | | | | | | | | | | | | | | | | | | | | |
| Lightning Creek | 10 | | 5 | 5 | 17 | 35 | 3.50 & 4 | 2.50 | | 6 | 22 | 2 | | | 4 | 1 | 4 | 1 | 1 | | 17 00 | 5,000 | | |
| Van Winkle, Chisholm Creek, and Perkins Gulch | 5 | | 2 | 3 | 4 | 12 | ,, | ,, | | 3 | | 2 | | | 4 | | 1 | | 1 | | 17 00 | 1,500 | | |
| Devil's Canyon and Slough Creeks | 7 | | 7 | | | 30 | ,, | ,, | | | 3 | 4 | | | 5 | 2 | | | | | 17 25 | 7,500 | | |
| Nelson Creek | 4 | | 4 | | | 11 | | | | 2 | | 2 | | | 2 | 1 | 1 | | | | | 3,500 | | |
| Burns Creek | 2 | | 1 | 1 | | 5 | | | | 1 | | 1 | | | 1 | 1 | | | | | 17 30 | 800 | | |
| Last Chance and Davis Creeks | 3 | | 3 | | 1 | 10 | | | | 2 | | 1 | | 1 | 2 | | | | | | 17 00 | 1,500 | | |
| Rushon and Deadwood Creeks | 3 | | 3 | | 4 | 6 | | | | 3 | | | | | 2 | 1 | | | | | 17 & 17 25 | 1,900 | | |
| Basford, Campbell, and Peters Creeks | 3 | | 2 | 1 | 2 | 9 | | | | 2 | | 1 | | | 3 | | | | | | 17 00 | 2,500 | | |
| West end of Swift River | 3 | | 3 | | | 15 | | | | 3 | | | | | 3 | | | | | | 16 25 | 1,500 | | |
| Desultory | | | | | | 30 | | | | | | | | | | | | | | | | 5,000 | | |
| | | | | | | | | | | | | | | | | | | | | | | | 30,700 | |
| Quesnellemouth Division: | | | | | | | | | | | | | | | | | | | | | | | | |
| Fraser River (commencing 6 miles below Quesnelle and 20 miles above) | 8 | | 8 | | | 85 | 3.50 | 2.50 | | | | | | 10 | | 8 | | | | | 16 50 | 38,500 | | |
| Quesnelle River (20 miles up) | 2 | | 2 | | | 15 | ,, | ,, | | | | | | 5 | | 2 | | | | | | 4,900 | | |
| Cottonwood River | 2 | | 2 | | | 15 | ,, | ,, | | | | | | 4 | | 1 | | | | | | 4,200 | | |
| Hixon Creek | 4 | | 4 | | 10 | 12 | ,, | ,, | | | | | 1 | | 4 | | 1 | | | | | 3,400 | | |
| | | | | | | | | | | | | | | | | | | | | | | | 51,000 | |
| Keithley Creek Division: | | | | | | | | | | | | | | | | | | | | | | | | |
| Keithley Creek | 5 | 10 | 4 | 1 | 10 | 15 | 4.00 | 2.50 | | 3 | | 2 | | | 1 | 1 | 2 | 1 | 2 | | 17 40 | 10,000 | | |
| Do. Desultory | | | | | | 10 | | | | | | | | | | | | | | | | 1,000 | | |
| Snowshoe Creek | 5 | 15 | 4 | 1 | 7 | 12 | | | | 3 | | 2 | | | 3 | 1 | | 2 | | | 17 00 | 6,000 | | |
| Do. Desultory | | | | | | 5 | | | | | | | | | | | | | | | | 500 | | |
| French and Snowshoe Creeks | | | | | | 10 | | | | | | | | | | | | | | | 16 50 | 1,500 | | |
| Harvey Creek | 2 | 6 | 1 | 1 | 6 | | 4.00 | | | 2 | | | | | | | 2 | | 2 | | 17 40 | 6,000 | | |
| North Fork Quesnelle River | 3 | 12 | 3 | | | 12 | | 2.00 | | 1 | 2 | | | | | | | | 2 | | 16 50 | 4,000 | | |
| Do. Do. Desultory | | | | | | 8 | | | | | | | | | | | | | | | | 1,000 | | |
| South Fork Quesnelle River | 4 | 15 | 4 | | | 15 | | ,, | | | 3 | 1 | | | 3 | 1 | | | | | ,, | 7,000 | | |
| Do. Do. Desultory | | | | | | 10 | | | | | | | | | | | | | | | ,, | 3,000 | | |
| Cedar Creek | 2 | 8 | 2 | | | 8 | | ,, | | 2 | | | | | 2 | | | | | | ,, | 2,400 | | |
| Quesnelle River (from Forks 40 miles down; no organized companies, all desultory mining) | | | | | | 20 | | | | | | | | | | | | | | | ,, | 5,000 | | |
| Horsefly River | 3 | 10 | 2 | 1 | 4 | 9 | 4.00 | 2.00 | | | 1 | 2 | | | | | 1 | 2 | 1 | | ,, | 3,000 | | |
| Fraser River (6 miles below Quesnelle down to Riskie Creek) | 8 | 65 | 8 | | | 65 | | $35 ℔m. | | | 8 | | | | 4 | 4 | | | | | | 15,000 | | |
| Fraser River—Desultory | | | | | | 12 | | | | | | | | | | | | | | | | 1,200 | | |
| | | | | | | | | | | | | | | | | | | | | | | | 66,600 | |
| **CASSIAR.** | | | | | | | | | | | | | | | | | | | | | | | | $227,673 |
| Laketon Division: | | | | | | | | | | | | | | | | | | | | | | | | |
| Dease Creek | 23 | 50 | 23 | | 9 | 41 | 5.00 | 4.00 | | 17 | 3 | 3 | | | 17 | 2 | | 4 | 6 | | 15 30 | 18,430 | | |
| Thibert Creek | 14 | 39 | 14 | | 15 | 12 | ,, | ,, | | 8 | 2 | 4 | | | 12 | | | 2 | | | 16 00 | 10,000 | | |
| Desultory mining | | | | | | | | | | | | | | | | | | | | | | 3,000 | | |
| | | | | | | | | | | | | | | | | | | | | | | | 31,430 | |
| McDame Creek Division: | | | | | | | | | | | | | | | | | | | | | | | | |
| McDame Creek | 16 | 55 | 16 | | 8 | 47 | 6.00 | 5.00 | | 13 | 2 | 1 | | | 14 | 1 | | 1 | 1 | | 17 00 | 22,775 | | |
| Walker Creek | 1 | 5 | 1 | | | 5 | | 4.50 | | 1 | | | | | | | | | | | | 1,000 | | |
| | | | | | | | | | | | | | | | | | | | | | | | 23,775 | |
| Skeena Division: | | | | | | Indians. | | | | | | | | | | | | | | | | | | |
| Lorne Creek | 7 | 12 | 5 | 2 | 14 | 4 | 4.00 | 2.00 | | 3 | 2 | 3 | | 1 | 3 | 1 | | 2 | 2 | | 16 50 | 3,795 | | |
| Bones Gulch | 1 | 2 | 1 | | 3 | | | | | | | 1 | | | | | | 1 | | | 16 50 | 1,485 | | |
| | | | | | | | | | | | | | | | | | | | | | | | 5,280 | |
| **KOOTENAY.** | | | | | | | | | | | | | | | | | | | | | | | | 60,485 |
| Northern Division: | | | | | | Chinese. | | | | | | | | | | | | | | | | | | |
| Fernie Creek | 1 | 2 | 1 | | 2 | | | | | | | | | | | | | | | | 18 00 | 50 | | |
| Smith Creek | 15 | 15 | 15 | | 20 | | 4.00 | | | 15 | | | | | | | | | | | 18 00 | 1,500 | | |
| McCulloch Creek | 4 | 8 | 1 | 3 | 27 | | ,, | | | | | | | | | | | | | | 18 00 | 1,500 | | |
| French Creek | 4 | 37 | 2 | 2 | 28 | | ,, | | | | | | | | | | | | | | 17 50 | 3,000 | | |
| Carnes Creek | 5 | 70 | 3 | 2 | 23 | 20 | 3.50 | 1.50 | | | | | | | | | | | | | 18 00 | 2,500 | | |
| | | | | | | | | | | | | | | | | | | | | | | | 8,550 | |
| Southern Division: | | | | | | | | | | | | | | | | | | | | | | | | |
| Wild Horse Creek | 6 | 17 | 4 | 2 | 6 | 50 | 3.00 | 3.00 | | 2 | | 4 | | | 20 | 5 | | | | | 18 00 | 26,000 | | |
| Palmer's Bar | 2 | 9 | 1 | 1 | | 9 | | | 1 | | | | | | 3 | | | | | | ,, | 600 | | |
| Moyea River | 1 | 3 | 1 | | | 3 | | | 1 | | | | | | 1 | | | | | | ,, | 500 | | |
| Bull River | 2 | 7 | 2 | | 7 | | 4.00 | | | 2 | | | | | 2 | | | | | | ,, | 2,250 | | |
| | | | | | | | | | | | | | | | | | | | | | | | 29,350 | |
| **LILLOOET.** | | | | | | Chinese and Indians. | | | | | | | | | | | | | | | | | | 37,900 |
| Bridge River | | | | | | | | | | | | | | | | | | | | | | 106,000 | | |
| Cayoosh Creek | | | | | 50 | 400 | | | | | | | | | | | | | | | 15 00 to 16 50 | | 106,000 | |
| Bars and benches of Fraser River | | | | | | | | | | | | | | | | | | | | | | | | 106,000 |
| **OMINECA** | | | | | 12 | Indians. 18 | | | | | | | | | | | | | | | 16 00 | 13,000 | | |
| | | | | | | | | | | | | | | | | | | | | | | | 13,000 | |
| **YALE.** | | | | | | | | | | | | | | | | | | | | | | | | 13,000 |
| Hope, Yale, and Lytton Divisions: | | | | | | | | | | | | | | | | | | | | | | | | |
| Desultory mining on bars and benches of Fraser and Thompson Rivers | | | | | | Chinese. 200 | | | | | | | | | | | | | | | 15 00 | 20,000 | | |
| | | | | | | | | | | | | | | | | | | | | | | | 20,000 | |
| Kamloops Division: | | | | | | | | | | | | | | | | | | | | | | | | |
| Scotch Creek | | | | | 6 | 8 | | | | | | | | | | | | | | | 17 00 | 4,500 | | |
| Tranquille River | | | | | | 8 | | | | | | | | | | | | | | | 16 00 | 700 | | |
| | | | | | | | | | | | | | | | | | | | | | | | 5,200 | |
| Okanagan Division: | | | | | | | | | | | | | | | | | | | | | | | | |
| Cherry Creek | 9 | 21 | 9 | 3 | 9 | 30 | 3.00 | 2.00 | | 7 | | 1 | 1 | | 7 | | 1 | 1 | | | 14 50 | 5,000 | | |
| | | | | | | | | | | | | | | | | | | | | | | | 5,000 | |
| Similkameen Division: | | | | | | | | | | | | | | | | | | | | | | | | |
| Granite Creek | 40 | 160 | 36 | 4 | 70 | 120 | 3.00 | 1.50 | | 28 | 10 | 2 | | | 36 | | | 4 | 30 | | 17 25 | 90,000 | | |
| Tulameen River | 28 | 90 | 22 | | 9 | 80 | ,, | ,, | 6 | 18 | 2 | | 6 | | 18 | | 2 | | 15 | | 17 25 | 12,000 | | |
| Slate Creek | 4 | 10 | 3 | 1 | 10 | | ,, | | | 4 | | | | | 4 | | | | | | 17 25 | 2,000 | | |
| Boulder Creek | 8 | 40 | 8 | | 4 | 50 | ,, | 1.25 | | 8 | | | | | 8 | | | | | | 17 25 | 14,000 | | |
| Similkameen River | 19 | 57 | 19 | | 9 | 75 | 2.50 | ,, | | 18 | 1 | | | | 19 | | | | 12 | | 16 to 17 25 | 10,000 | | |
| | | | | | 495 | 1,847 | | | | | | | | | | | | | | | | | 128,000 | |
| | | | | | | | | | | | | | | | | | | | | | | | | 158,200 |
| | | | | | | | | | | | | | | | | | | | | | | | | $603,258 |

# PROVINCE OF BRITISH COLUMBIA.

## TABLE

Showing the actually known and estimated yield of gold; the number of miners employed; and their average earnings per man, per year, from 1858 to 1887.

| Year. | Amount actually known to have been exported by Banks, &c. | Add one-third more, estimate of gold carried away in private hands. | Total. | Number of Miners employed. | Average yearly earnings per man. |
|---|---|---|---|---|---|
| 1858 (6 months) | $ 390,265 | $ 130,088 | $ 520,353 | 3,000 | $ 173 |
| 1859 | 1,211,304 | 403,768 | 1,615,072 | 4,000 | 403 |
| 1860 | 1,671,410 | 557,133 | 2,228,543 | 4,400 | 506 |
| 1861 | 1,999,589 | 666,529 | 2,666,118 | 4,200 | 634 |
| 1862 | 3,184,700 | 1,061,566 | 4,246,266 | 4,100 | 517 |
| 1863 | | | | 4,400 | 482 |
| 1864 | 2,801,888 | 933,962 | 3,735,850 | 4,400 | 849 |
| 1865 | 2,618,404 | 872,801 | 3,491,205 | 4,294 | 813 |
| 1866 | 1,996,580 | 665,526 | 2,662,106 | 2,982 | 893 |
| 1867 | 1,860,651 | 620,217 | 2,480,868 | 3,044 | 814 |
| 1868 | 1,779,729 | 593,243 | 2,372,972 | 2,390 | 992 |
| 1869 | 1,331,234 | 443,744 | 1,774,978 | 2,369 | 749 |
| 1870 | 1,002,717 | 334,239 | 1,336,956 | 2,348 | 569 |
| 1871 | 1,349,580 | 449,860 | 1,799,440 | 2,450 | 734 |
| 1872 | 1,208,229 | 402,743 | 1,610,972 | 2,400 | 671 |
| 1873 | 979,312 | 326,437 | 1,305,749 | 2,300 | 567 |
| 1874 | 1,383,464 | 461,154 | 1,844,618 | 2,868 | 643 |
| 1875 | 1,856,178 | 618,726 | 2,474,904 | 2,024 | 1,222 |
| 1876 | 1,339,986 | 446,662 | 1,786,648 | 2,282 | 783 |
| 1877 | 1,206,136 | 402,045 | 1,608,182 | 1,960 | 820 |
| 1878 | 1,062,670 | 1-5th 212,534 | 1,275,204 | 1,883 | 677 |
| 1879 | 1,075,049 | ,, 215,009 | 1,290,058 | 2,124 | 607 |
| 1880 | 844,856 | ,, 168,971 | 1,013,827 | 1,955 | 518 |
| 1881 | 872,281 | ,, 174,456 | 1,046,737 | 1,898 | 551 |
| 1882 | 795,071 | ,, 159,014 | 954,085 | 1,738 | 548 |
| 1883 | 661,877 | ,, 132,375 | 794,252 | 1,965 | 404 |
| 1884 | 613,304 | ,, 122,861 | 736,165 | 1,858 | 396 |
| 1885 | 594,782 | ,, 118,956 | 713,738 | 2,902 | 246 |
| 1886 | 753,043 | ,, 150,608 | 903,651 | 3,147 | 287 |
| 1887 | 578,924 | ,, 115,785 | 693,709 | 2,342* | 296 |
| | | | 50,983,226 | | |

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

# REPORT

OF THE

# MINISTER OF MINES,

1887.

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*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 1887, is herewith respectfully submitted.

JNO. ROBSON,

*Provincial Secretary and Minister of Mines.*

*Provincial Secretary's Office,*

*31st January, 1888.*

# REPORT.

## GOLD.

The value of the Gold exported by the banks at Victoria during the year 1887, is as follows:—

| | |
|---|---|
| Bank of British Columbia | $320,794 |
| Bank of British North America | 58,774 |
| Garesche, Green & Co. | 199,356 |
| | $578,924 |

This shows a large decrease from the bank exports during 1886, and it is undoubtedly the case that the old placer mines, worked now for so many years, are commencing to fail. Fewer men, however, sought employment in diggings of this nature, and the average yearly earnings has not fallen off.

The discovery of ledges of ore carrying the precious metals in varying richness is reported from all parts of the Province, and it is confidently expected that substantial progress will be made during the coming season in the development and successful working of our quartz mines.

### CARIBOO.

MR. BOWRON'S REPORT.

"RICHFIELD, November 26th, 1887.

"SIR,—I have the honour to submit, for the information of His Honour the Lieutenant-Governor in Council, my thirteenth annual report upon the mining industries of the Cariboo District, accompanied by the usual statistics.

"You will no doubt regret to observe that the statistics show a slight decline in the gold product of the district. There are, however, two principal causes to which this result may safely be attributed, viz., the extraordinary dry season, which compelled most of the hydraulic claims to shut down after but a few weeks' work, and the limited number of men employed on productive works.

"Upwards of one hundred men have been employed during the season in the development of our quartz veins, either working for companies erecting machinery, &c., or on their own account.

"Some forty white miners spent most of the season on a prospecting tour to Goat River and the waters of the Upper Fraser, while a larger number than usual was employed upon public works,—notably the new waggon road between Stanley and Barkerville; and as there was no material increase in population, it will be readily seen that the number of miners working in the alluvial claims must of necessity have been less than in previous years.

"The prospectors to Goat River and the tributaries of the Upper Fraser, although not successful in striking anything to create an excitement, obtained on some of the streams such prospects as would appear to warrant the assumption that this part of the district will shortly prove a valuable acquisition to the gold-fields of the Province.

"The party, owing to the lateness of the spring and consequent delay in getting the new trail through, did not arrive on Goat River till the latter part of July, at which place, the

result not proving satisfactory, most of the party pushed on to the Fraser, and, after building boats, ascended the river as far as Tête Jaune Cache, prospecting on the bars and benches and small tributaries. Returning to Goat River, some of the party returned to Barkerville, while others descended the Fraser to Smoky River, a tributary from the north, some distance below Goat River. Ascending this stream, very encouraging prospects were obtained on the bars and benches.

"It is said that from $3 to $4 per day with rockers could be obtained; and although attempts were made to bottom, bed-rock was not reached in any instance, either on this or the other streams visited, owing to the want of proper appliances to contend against the water. Some 15 ounces was taken from a bar on Goat River by one party; but there, too, it was found impossible, from the same cause, to find bed-rock in the channel; so that, on the whole, we may conclude that the season's explorations were of the most cursory nature. However, a tolerably good trail has been made through to the Fraser, some 75 miles below Tête Jaune Cache, of which, no doubt, exploratory parties will avail themselves to further prove the value of this hitherto unexplored region.

"Few claims in the Barkerville Polling Division have paid even fair wages. Among the most fortunate may be mentioned the Forest Rose and Bradley-Nicholson Companies, on Williams Creek; the Narrow Escape Company, on McArthur's Gulch; the Ontario Company, on Conklin Gulch, and one or two other claims on Mosquito Creek.

"On Antler and Cunningham Creeks the gold product of the season is almost entirely in the hands of the Chinese; consequently, it is very difficult to get correct returns.

"The Nason Company, Antler Creek, have persevered during the season with the prosecution of their extensive works, having erected their mill, sawed lumber, and flumed the creek for some 1,000 feet, the flume being of sufficient capacity to carry the whole creek. They are now ready, once more, to pump out their diggings and start work underground again.

"In the Lightning Creek Division there is a marked decrease in the gold yield the present season. A few of the old claims continue to be worked, but with indifferent success. Harry Jones & Co., having obtained a lease on Peters Creek, are actively engaged in pushing forward their works, preparatory to sinking. They purpose to continue work during the winter months.

"In the Quesnellemouth Division, the bars and benches along the Fraser and Quesnelle Rivers would appear to have yielded about the same as last season, those being worked exclusively by Chinese. While the Keithley Division has yielded a trifle in excess of last year's product, as the Chinese here are enabled during a dry season to work the river bars, which in an ordinary season are covered with water.

"On Horse-Fly River Mr. T. Harper has a large force at work opening up his mine, where work will be prosecuted during the winter.

"The gold product of the district (exclusive of Omineca) for the year 1887, I estimate as follows, viz.:—

| | |
|---|---|
| "Barkerville Division—1st January to 15th November ..... | $ 79,373 |
| "Lightning Creek Division ,, ,, ..... | 30,700 |
| "Quesnellemouth Division ,, ,, ..... | 51,000 |
| "Keithley Creek Division ,, ,, ..... | 66,600 |
| "Desultury mining of which no acccount can be obtained ..... | 10,000 |
| "Yield of whole district from 15th November to 31st December.. | 10,000 |
| | $247,673 |

"The re-opening of the Barkerville Assay Office, under the charge of Mr. E. A. Martin, has given much satisfaction, as he appears to thoroughly understand his business, and being a man who has had much experience in the treatment of refractory ores, by the latest known methods, will be a valuable acquisition in the development of our

"*Quartz Mining Interests.*

Upon which subject it would, perhaps, be presumptuous in me to say much, when so many reports by professional experts have, from time to time, been published. I will, therefore, confine myself to a statement of facts as to the progress made in development during the season, only venturing the opinion that my next annual report will contain in the 'tabulated statement' an account of bullion produced.

"The B. C. Milling and Mining Co. have, during the season, employed a large force under Mr. Craib as superintendent, in putting down a permanent shaft to the 100-foot level, from which depth a drive has been run along the vein a distance of 100 feet and the vein cross-cut, which is some 26 feet in width and shows some very rich rock, although much the greater portion is considered worthless to work, under any process known at present.

"It is to be regretted that this company did not continue sinking their main shaft, as the indications are that higher grade ore would soon have been reached. This company has also sunk a shaft and run a tunnel in the American location adjoining, in which the vein has not yet been reached.

"The Island Mountain Company has employed from 40 to 60 men during the season, in removing their 10-stamp mill from its former site at the old Kurtz and Lane works to Jack of Clubs Lake; putting up buildings, erecting machinery, burning brick for furnace, and taking out ore, and would, I understand, but for the non-arrival of a portion of their machinery from San Francisco, have been crushing ore this winter. As it is, work on the mill has been suspended. Some half-dozen men are, however, working in the mine taking out ore, which it is intended shall continue during the winter, and be hauled to the mill for crushing as soon as the mill is ready in the spring. I understand some excellent ore is being now brought out of this mine.

"The Quesnelle Quartz Mining Co., of Hixon Creek, has employed a number of men during the season, but with what result I have been unable to learn. Work has been suspended for the season.

"The Burns Mountain Co. has done but little during this season to further prove their mine.

"About 100 quartz claims in all have been recorded during the year 1887. Many are new locations, some of which show most promising indications.

"On Lowhee Creek, Messrs Pinkerton and the Flynn Brothers are at present putting up an arastra, to more thoroughly test their ore. They inform me that they will be prepared to crush early in the new year, and will work any ore brought them (that is to say, a few tons) for one-half of the bullion produced.

"The Black Jack Claim, just above Barkerville, has developed a very rich body of ore, and is now taking out rock, from which (upon being pounded in a mortar) a good prospect of free gold is readily obtained. This company (should their present prospects hold good at a greater depth) will put up a small mill and at once commence crushing.

"The Boyce Co., on the Pomeroy lode, south-east of Barkerville, being so well satisfied with the results obtained, have entered into an arrangement with Mr. I. B. Nason to remove the small 4-stamp mill from Richfield on to their mine and start crushing ore at once. The mill is now being removed.

"There are many other promising locations worthy of mention, but enough has been said to show that the people here have a confidence in our quartz veins, and that an earnest effort is being made to prove that this confidence is not misplaced.

"I have, &c.,

(Signed) "JNO. BOWRON,

"*Gold Commissioner.*

"*To the Honourable*
"*The Minister of Mines.*"

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## *Keithley Division.*

### REPORT OF MR. W. STEPHENSON.

"FORKS QUESNELLE, 5th November, 1887.

"SIR,—I have the honour to forward herewith the estimated yield of gold for the Keithley and Williams Lake Polling Divisions, Cariboo District, for 1887.

"I cannot notice any material difference in the total yield from last year: although in some kinds of mining, such as hydraulic and ground-sluicing claims, the season has been very short, owing to the fact that we have had no rain during the entire summer, and there being no further supply of water than that received from the melting snow. Fortunately for the miners there was a very heavy snowfall last winter which gave a good supply of water for a longer period than usual from that source during the summer.

"As the principal part of the mining in this section is done by Chinese, they generally take advantage of a dry season to work in places that cannot be got at during a wet season, or when there is an abundant supply of water; as soon as they cannot any longer work their claims they scatter off in pairs, or small parties, and get away to places where they will work in a desultory manner for the remainder of the season, until the cold weather drives them into winter quarters, where they lay off until early spring, when they again start out to take advantage of the low stage of water in the rivers.

"On Keithley and Snowshoe Creeks things have been rather better than usual for the white men mining there, as several of the claims have done very well. The Onward Claim, chiefly owned by Messrs Vieth & Borland, is turning out fairly well, and from present prospects promises to be a good claim. This claim is very deep drifting diggings, the shaft being about 135 feet deep. It was a very expensive claim to open, but with the aid of good machinery it is now in splendid working order, with good drainage.

"Messrs. Anderson & Smith also have what promises to be a good hydraulic claim, situated well up towards the head of Snowshoe Creek, which they have got well opened up with a good set of iron pipes, monitor and all late improvements, and although they are away up on the mountain, where the working season is very short, they express themselves well satisfied with the season's work, and good prospects of improvement next summer.

"Several other parties on Keithley and Snowshoe have also done tolerably well for the past season, but the Great Snowshoe Company, better known as the Long Tunnel, which looked so promising a year ago, has not turned out as anticipated, and although at the present time is shut down for awhile, the owners say they are not beat yet, as they intend to still further prospect the ground.

"On Harvey Creek, the Cosmopolitan Company did fairly well last season, and a short time ago another claim, part of the old Last Chance ground, struck a good prospect, and both claims are likely to pay well for the winter; that being the season when these claims can be worked to the best advantage.

"Kangaroo Creek, emptying into the North Fork Quesnelle River, two miles above the Forks of Quesnelle, is being prospected. This creek has never been bottomed from the cañon down to the river, although it has been rich on the surface down to the clay, or rather a hard dry slum. The surface diggings have been from a depth of 4 to 6 feet, and have been very thoroughly worked over by the Chinese. About a year ago Messrs. Polleys & Birrell got up a company to try and get to the bed-rock. At about 30 feet deep the water in the shaft made a wheel and pump necessary, the building of which occupied the greater part of last summer; then they handled the water very easily and went down to a depth of 45 feet when they struck a stratum of quicksand and slum, through which they could not go in the ordinary manner. They therefore had to shut down They are now preparing to enlarge their shaft from the surface down, so that they can adopt other methods of going through the bad ground. Altogether it is a difficult and expensive operation. Last spring there was a prospect that something new had been found on Horsefly River. During the winter three men—McCallum, Brodie and Chambers—drove a bed-rock tunnel into the hill, on the left-hand side of the river, about five miles below the old diggings; at a distance of about 180 feet they broke through the rock, and obtained quite a prospect. There were a number of claims taken up, and the new companies joined in with the Discovery Company to extend their tunnel, and find the bottom of what they thought would prove a hill channel. After driving ahead some 60 feet, sinking an air shaft and other work, the ground not improving, the outside companies dropped off. I hear McCallum is making small wages drifting out the ground. I believe, from what I saw of it when there during the summer, that the ground would undoubtedly make good hydraulic diggings if there could be a good supply of water obtained at a reasonable outlay, but I am afraid that is not possible. Mr. Harper has put on quite a force of men on his claim at Horsefly. He has also bought out the company of Chinamen that were located alongside of him, thereby getting their ditch water-right and all their plant, which he thinks will enable him to take out gold this fall. He has also opened a store in there, which will be a great help to parties working in that vicinity. It is sincerely hoped his enterprise may prove a success. Messrs. Kyse & Hilton did not go back this season to further prospect what they found on the South Fork Lake, they being among the party that went into Horsefly early in the spring, and they were engaged in prospecting there until they thought it too late in the season to make a start.

"Quartz does not seem to attract much attention in this section, probably owing to the limited number of white miners which we have. As I mentioned last year, Messrs. Vieth & Borland made a location on Snowshoe Mountain, and took out some rock which they sent to San Francisco (500 lbs.), and had worked, the return from which proved to be satisfactory, and they tell me they are going to prospect this ledge thoroughly this winter. There has been several other locations made on different ledges on Snowshoe Mountain, but no prospecting done.

"I have, &c.,
(Signed) "W. STEPHENSON,
"*Government Agent.*

"*The Honourable*
"*The Minister of Mines.*"

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## CASSIAR.

### *Stickeen Division.*

MR. CRIMP'S REPORT.

"LAKETON, CASSIAR,
"15th October, 1887.

"SIR,—I have the honour herewith to transmit the Mining statistics of the Cassiar District for the current year, and for your further information to submit the following report.

"The accompanying statistics will be found to show a decrease from last year, on account of many of the old claims being worked out and no new ones having been discovered.

"On Dease Creek there were two hill claims that did pretty well, the balance did not pay wages. There were but few white miners on this creek; most of the gold was taken out by Chinese, of whom there were about 40, working in the bed of the creek with wing-dams on ground that has been worked over several times before. No new discoveries having been made this year on this creek.

"On Thibert Creek there were a few white miners more than on Dease, but fewer Chinese. This creek, with the exception of a few hill claims, is nearly worked out, and some of the miners have left for good, and you will see by the returns that there is quite a falling off in the amount of gold from last year on this creek.

"McDame Creek has held its own; the amount of gold is a little over that of last year. Most of the miners are Chinese. One company, situated on the flats below the cañon, took out $12,000. It is a large company, working eighteen men. The other companies did not do very well. This creek is like the others, very near worked out. The yield of gold for the past season, as you will see by the statistics, has been $55,205, as near as I can ascertain, which, I think, is pretty accurate.

"Very little prospecting has been done this year, for the reason that few miners have the necessary means. There were three miners, Donald McDonald, George Thompson, and O. Barry, spent most of the summer on the south-west branch of the Muddy River. They built a boat at Sylvester's Trading Post and ascended to its head, but did not discover anything that would pay.

"There were two miners worked on a bar 15 miles below the Post on the Muddy, and I hear did fairly well with rockers.

"The prospects for next year do not look encouraging, but I hope that some new discoveries will be made, for there is a considerable portion of this district that has not been prospected. The great drawback is that the seasons are so short and provisions are high; consequently there are not many miners that can afford to prospect.

"There will be about twenty white miners and about seventy Chinese winter in the district. Provisions are plentiful, and at usual prices.

"I have, &c.,
(Signed) "J. L. CRIMP,
"*Gold Commissioner, Cassiar.*

"*The Honourable*
"*The Minister of Mines.*"

*Skeena Division.*

MR. DEMPSTER'S REPORT.

"ABERDEEN, B. C, 20th October, 1887.

"SIR,—I have the honour to enclose statement of proceeds of this season's mining. I regret to have to report so small a yield, owing, in part, to the unfavourable season; water remaining high till late in July; with heavy rain and high water again on the 1st September, which made the season very short for those working in the bed of the creek.

"The prospects of the hill claims are looking more favourable. Those who are down to bed-rock are making good wages, with the prospect of it continuing for several years.

"Hoping to be able to give you a more favourable report next season,

"I have, &c.,

(Signed) "W. H. DEMPSTER,

"*Collector.*

"*The Honourable*

"*The Minister of Mines.*"

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## KOOTENAY.

*Northern Division.*

MR. SPROAT'S REPORT.

"FARWELL, 24th December, 1887.

"SIR,—I have the honour to enclose memorandum on the new mining field near Fort Shepherd which, for various reasons, I treat separately. Reports from other subdivisions will be included in my general report, which will be sent to you soon.

"I have, &c.,

(Signed) "G. M. SPROAT, G. C.

"*The Honourable*

"*The Minister of Mines.*"

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"*Memorandum on the silver mining field discovered lately in the Fort Shepherd Subdivision,*
"*Kootenay.*

"In my last year's report I stated that 'the block of country about Fort Shepherd, chiefly 'on the east side of the Columbia, bounded by that river, the Kootenay River, and the U. S. 'boundary—a country in which the well-known 49 Creek and Salmon Creek head—will, I think, 'prove to be a mineral section, but, at present, without a steamer on the Columbia, that corner is 'an appendage of Colville.'

"This anticipation has been realized. There will probably be a good camp there. The records made here during the past season for that section (which, as it is always desirable to use familiar, well-known names, I call the 'Fort Shepherd' subdivision) are of 11 mineral claims (one of which is on Arrow Lake), 3 certificates of expenditure and 4 transfers of interests, but, for reasons presently to be stated, these figures do not show the importance of the mining field.

"As the pressure of other duties prevented me from personally visiting Fort Shepherd, I have collected information by conversation and correspondence respecting the discoveries in that neighbourhood.

"*Topography of the Fort Shepherd Subdivision.*

"The above description, and the accompanying map, will show the boundaries. The locality of the largest group of claims—the Toad Mountain group—is marked by a chequered square (red) on the map. There are other claims on the Pend d'Oreilles and elsewhere.

"The land rises from the valleys of the Columbia and Kootenay by low roughly wooded hills, backed by mountains about 5,000 feet high, which rise still higher to the eastward, over by Big Kootenay Lake.

"The drainage, chiefly, is by 49 Creek and Cottonwood Creek which enter the Kootenay,—by Salmon Creek which flows southerly into the Pend d'Oreilles River, and by Bear Creek which flows into the Columbia River nearly opposite Fort Shepherd. I do not think there is any important drainage into Big Kootenay Lake. The general slope is westward.

"The Kootenay River Valley—a rough trough somewhere about 20 miles long from the outlet of Big Kootenay Lake to the Columbia—forms, as above said, the northern boundary of the Fort Shepherd subdivision.

"Upon the southern wall of that valley, six or seven miles from the river, and situated about the headwaters of 49 Creek—a little east therefrom I think—is a mountain called 'Toad' Mountain, variously estimated as of the height of 4,000 or 5,000 feet; it is at any rate high, for the snow this year was on it till July, and snow showers fell in autumn.

"The largest group of claims, at present discovered in the Fort Shepherd subdivision, is on Toad Mountain.

"*Description of the new Mining Field.*

"Mr. C. H. Montgomery, a well-known storekeeper of Colville, wrote to me as follows on 6th December, 1887:—

"'Those mines were discovered late in autumn of 1886 by Winslow, Hall & Co. Nothing 'was done until spring of 1887, after the discovery had become known. I outfitted two men 'who went to the mines with about ten others, and all made locations, working them during the 'summer. I myself went there in September last, to look at the mines and see what my men 'were doing. I found about thirty men in camp, and more coming every day—the mines the 'best ever discovered on the Pacific Coast,—ledges there running from ten to thirty feet in width, 'and all looking well.

"'Mr. Cobaugh, who went in there with his assay office with Messrs. Hall & Co., made 'assays from the rock of the different ledges as high as 1,600 ounces in silver. The average assay 'of ore at the time I was there ran a little over $300, and without a doubt this will be one of 'the best camps in British Columbia.

"'At the time I left this camp, the last of September, there were about thirty claims 'located, and men working on about eighteen of them. Experts were coming in from all parts of 'the country examining the mines. I am informed there have been about twenty-five more 'locations since I left.

"'Montana and country south, as well as our own, are all excitement now over these mines, 'and there is no doubt but that as early as they can get there in the spring there will be 1,000 'or 1,500 men in that camp. The only drawback there now is an outlet.

"'The only easy way to go to this camp now is by Northern Pacific Railway (Kootenay 'Station), 40 miles land travel to Bonner's Ferry, from which excellent water navigation, down 'Kootenay River and through Big Kootenay Lake to the western outlet, six or seven miles from 'the mines.

"'If we had a waggon road from mouth of the Kootenay River running up the river say 'twenty miles, thence six to the camp, we could have an easy outlet for our ores by Columbia to 'C. P. R. at Revelstoke, thence to Victoria or wherever we wished to go, and goods and people 'could get to the mines easily that way.

"'There is one thing we need in that camp very much, and that is a recorder, as there are 'several parties there who have done work and are unable to record it, the season of the year 'preventing them going either to Revelstoke or Wild Horse Creek, which works a hardship, for, as 'a general thing, prospectors do not have an overplus of money, &c.

(Signed) 'C. H. MONTGOMERY.'

"The opinion expressed by Mr. Montgomery from his own observations in September is confirmed by other letters, and by conversation with miners who have come hither from Fort Shepherd on mining business. Their impression is that the Toad Mountain mines will be more attractive next season than those at Rock Creek.

"I am not able to describe the nature of the silver-bearing rock; some that was coming to me did not reach as the boat was stopped by ice last week; it is said not to be galena. A miner here lately from Toad Mountain said that some thought that the rock would yield more gold than silver when sunk into. To show the size of the ledges—a matter as to which all accounts agree—he said that one was stripped over fifty feet without finding the walls, and the rock averaged over $300 to the ton; and another ledge was stripped for twenty feet without finding walls. These might be masses instead of veins, but he said the general belief was that they were veins.

"*Question of Access and Supply.*

"Assuming that this new mining field is valuable as stated, this question is most important, and demands immediate attention.

"During the past season Colville has had the trade of Toad Mountain as well as much of Rock Creek Mines. But Colville itself is nearly 100 miles from the Northern Pacific Railway, and goods suppliable thence—except flour of local manufacture—have their price increased by nearly 100 miles waggon freight from N. P. R. to Colville.

"Goods and passengers for Toad Mountain have this year been brought by boats to the mouth of Bear Creek, opposite Fort Shepherd, say two and a half miles north of boundary line; and about fifty pack ponies have been employed between that point and Toad Mountain.

"Except, however, in the articles of flour, vegetables, and perhaps cattle, Colville cannot compete permanently for this trade until the Northern Pacific make a railway thither. The Canadian Custom House might not permit boats to cross the line at the boundary.

"This place is the natural place of supply both for Toad Mountain and Rock Creek (except cattle in the latter case) owing to the great advantage of the Columbia River, and the produce of the mines at Toad Mountain must come this way too.

"The competition, however,—and the question involved is whether the States or Canada will supply these mines—will be somewhat close as between this place and some town on the North Pacific Railway that can send goods to Bonner's Ferry. The road from Kootenay Station on the North Pacific Railway is, I believe, a species of waggon road and a toll road. When there (40 miles from North Pacific Railway) a boat will take them, as above stated by Mr. Montgomery, to the 'outlet' of Big Kootenay Lake, which is within six miles of the mines.

"Goods from here, delivered by boat at mouth of Bear Creek, will have to be packed sixty or seventy miles by the miner's trail used this last year.

"Even considering the duty and the more handling on the Bonner's Ferry route, the comparison is so near that much of the trade, inwards, probably will remain in the hands of those who start it.

"But if Toad Mountain could be supplied by trail or road from mouth of Kootenay—say twenty-six or twenty-seven miles—instead of the sixty or seventy miles of the miner's trail from mouth of Bear Creek to Toad Mountain, Canada would command the trade from this place without possibility of competition, and the miners would be more cheaply supplied, besides which the outward traffic—the transport of ore—would be provided for, and would go to Vancouver or Victoria.

"The annexed rough sketch shows the Bear Creek Trail. It is long and circuitous owing to the nature of the surface. You cannot get to Toad Mountain, *it is said* by some, by the valley of the North Fork of Salmon Creek, but the trail, rough though it be, is passable and fairly good until you actually get to Toad Mountain; then it is an abrupt climb. The mountain is accessible both from south and north. Looking northward from the elevated mining camp the Kootenay River, in its course westward to the Columbia, crosses the view.

"I said above that I would explain—what Mr. Montgomery has touched upon, namely,—why the actual records made here do not show the importance of the mining field.

"The recorder got records, with fees, by letters from Colville, but none of the records distinctly described the locality. This I have only lately ascertained, and I do not yet know how far east the place is from the Columbia, as that river bends there, and is not correctly laid down on any map—a remark which applies to the whole western leg of the Columbia.

"When Mr. Vowell and I discussed what would be a suitable division of the whole district of Kootenay, for mining purposes, into two divisions, we considered, as stated by us to the Government, that a line drawn south from about the outlet would, in that part of the district, suffice.

"As Wild Horse Creek is out of the question, owing to distance and expense of travel, and as the whole of the Kootenay Lake section is by topography and water-ways connected with the western leg of the Columbia River, commercially and otherwise, I thought that the administrative division should be in conformity; but as Mr. Vowell wished to have Big Kootenay Lake in his division, we agreed to the above recommendation.

"The Gazette notice, however, states that the eastern line of North Kootenay Division is ten miles from the Columbia, between the railway belt and the boundary.

"Probably the Toad River Mines are more than ten miles from the Columbia; but this we did not know until lately; and they, therefore, may be in Mr. Vowell's district.

"When records, &c., reached this office in the autumn—some being on the Pend d'Oreilles (unquestionably within North Kootenay Division), and others being in a locality not distinguishable by the descriptions—the Recorder, Mr. Kirkup, communicated with Mr. Vowell, and it was arranged, as I understood Mr. Kirkup, that the business would continue to be done here, pending developments.

"The arbitrary ten mile line, in that quarter, is not workable (the Fort Shepherd subdivision naturally is homogeneous), and it would have this effect, that a Pend d'Oreilles miner could come quickly and cheaply to see the Commissioner here, and his neighbour on part of Salmon Creek, or at Toad Mountain, would have to pass through here and have to spend two, or possibly three, days, and $15, to visit the Commissioner at Donald.

"We have done the best we could in this matter so far, under the circumstances above stated; but the matter should be arranged, or, possibly, legal questions might arise as to the holding of claims. A miner was here from Toad Mountain a few days ago, and I have a record from there this morning. The topography is not clearly known, so that arbitrary lines will not do. For instance, a southern line from the 'outlet,' as we now know the surface, might, perhaps, cut a group of mines in two. The whole block should be in one or the other jurisdiction for mining and magisterial purposes.

(Signed) "G. M. SPROAT, *G.C.*"

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"NORTH KOOTENAY,
"30th December, 1887.

"SIR,—While waiting for a little information daily expected, in order to close my particular report, I beg to send you, herewith, some 'general remarks' on this district, supplementary to the report made as to Toad Mountain Mines; and I also send a box of mineral specimens, which will give you some idea of the prevalent silver ores at Illecillewaet.

"I have, &c.

"*The Honourable*
"*The Minister of Mines.*

(Signed) "G. M. SPROAT,
"*Gold Commissioner.*"

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"*General Remarks.*

"About 500 miners, of whom only 20 were Chinese, have been employed in this district during the past season.

"Skilled prospecting and under-ground miners have been scarce. The Perry Creek Company, in South Kootenay, sent here for miners. A company at Big Bend had to send to the coast for men. This scarcity checks development, as amateur prospecting is not satisfactory and is seldom successful.

"Still, a considerable amount of prospecting has been done during the past season, and the result tends to confirm my impression of the great value of the country along the western 'leg' of the Columbia River, for products of gold and silver, and also, I may add, of timber. The climate is very good; there are hay and arable areas interspersed among the mining grounds, and the Columbia offers the longest stretch of river navigation, I think, in the whole of Canada. These facts make the district valuable, though the actual development of its resources is not yet important.

"For this there are obvious reasons. Quartz mining is proverbially slow in its first stages. This is particularly the case when the ore is of low grade, as such ore can be handled profitably only by rich companies. Such companies invest cautiously in new districts. Again, our placer mining is considerably hampered by the character of most of the streams and by the duration and uncertain volume of the summer floods in them.

"But there cannot be any doubt that both these branches of mining industry, in this district, will grow to be very important.

"It is erroneous to suppose—as some, perhaps, do—that McCulloch and French Creeks are the only placer-yielding creeks in the northern part of this district.

"The colours of gold, and in some instances, pay gold, are to be found in more than a dozen other creeks in that section. There are nine large creeks on the west side of the Columbia, and three on the east side, between Gold Creek and Boat Encampment, a distance of fifty miles. Pay gold has been lately got on two of these without good appliances. On Canoe River, Frenchman's Creek was worked in the old days during a short season.

"The scarcity of skilled prospectors, the difficulty of access, the high cost of transport (10 cents a pound hence to Gold Creek by the Government trail), keep all that country back.

"What is greatly wanted is a steamboat on the Columbia River, and some improvements in its channel. The $10,000 voted for the latter purpose by the Dominion Parliament have not been spent, and it is considered that the railway bridge here would block navigation by the class of boats required on the river.

"Again, south of Gold Creek, between it and Carnes Creek, also, are many likely placer streams that have not been prospected. Farther south, the streams in the neighbourhood of Farwell, do not promise to be auriferous, but Fish River, Upper Arrow Lake, the Slocan on the Kootenay River near the Columbia, and also Pend d'Oreilles River, are known to be auriferous.

"The above, additionally to Carnes, French, and McCulloch Creeks, are a fair showing of placer creeks, many of which, I anticipate, will be worked to advantage.

"As regards quartz, it is now proved that a metalliferous formation, composed, mainly, of black or dark pyritous slates, yielding gold and silver, chiefly silver, so far as known, runs on the west slope of the Selkirks (and of course on the east side of the Columbia River) longitudinally, and, as far as can be judged, continuously, in a strip of varying breadth, north and south, throughout the district, and probably, for a long distance north and south, beyond.

"This formation appears, for example, in the Fort Shepherd subdivision—on Big Kootenay Lake,—also in the section immediately east of Lower Arrow Lake (which I call the 'Slocan' subdivision), again, upon the shore of Upper Arrow Lake, and, as you already know, at Illecillewaet, Carnes Creek and Big Bend.

"Notwithstanding the rough, deeply covered surface of the country, the continuity of the formation is traceable, or fairly inferable, throughout the above distance—the general trend being a little west of north. Innumerable quartz veins, ramifying and crossing in all directions, are found in it.

"They are to be seen on the stony scarps of lofty mountains; they pierce and sometimes climb up and over ridges; they burrow under hills, crop out on benches, traverse valleys and variegate lake margins and the beds of streams. A large part of the formation is hidden, and always will be hid, under vast mountains, but the numerous valleys enable it to be attacked in many parts of its length.

"Judging by the little that 200 men have been able to do in examining a circumscribed, small bit of this elongated mineral strip, during the past season, on the South Fork of the Illecillewaet River, I should say there will be plenty of prospecting work to be done in this district, a hundred years hence, even with a mining population numbered by thousands, instead of hundreds.

"The smallness of developing work done, so far, forbids generalizing, but my impression is that the northern part, and perhaps the extreme southern part, of the district will yield more gold than silver, which latter may be found chiefly in the central part. What other valuable metals exist is not known. The presence of cinnabar is vaguely reported. Silver ores, so far, are the commonest. These consist, generally of galena and gray copper, as the main constituents. In some veins the above two ores are mixed; in others, one or other predominates, and the galena occasionally occurs in considerable purity. The cupreous ores, as a rule, have the highest silver contents. The veins often lie close together, and, as above said, they frequently cross. In such a broken country, the course of a particular vein is not easily detected. And with so much cover on the surface, examination is difficult on the lower parts of the mountains. But anybody on the mountain side may get a good general idea of the greater work of nature in the surrounding area, by observing, as he constantly may do, the ramifying and crossing, the swelling and dwindling of veins, and some of the hidden causes of mining misadventure, depicted as a picture lesson in miniature quartz tracery, on the smooth face of a yard square of split slate that may be lying near his feet.

"The question whether there are many so-called true 'fissure' veins or lodes in given parts of the great metalliferous strip, probably is not important. The metal is where you find it, and adventurers in mining have to satisfy themselves as to its nature and presence before investing their money. The upholders of one theory as to the cause, or causes, of the presence of metal in the veins, say that fissure veins are more likely to be metalliferous. The upholders of another theory say that you are just as likely to find metal in ores that are not contained in 'fissure' veins.

"I said above that low grade ores, as a rule, required large capital to handle them. We have plenty of these ores, chiefly galena, in the district, but it is also very probable (though, indeed, only croppings have been tested) that we also have veins—generally yielding gray copper and smaller in size than those yielding galena,—which are distinguished by having a small quantity of rich ore, commonly silver-bearing, it would appear. There thus may be room for individuals, or small companies, whose concern with the ores from the mine will be simply their extraction and sale to the highest bidder on the spot. Such sales would be made through the managers of sampling works, and the cash received would enable the mining to be continued. But this industry cannot exist without sampling mills and smelters, which are to the miner very much what grist mills are to the farmer.

"I have the pleasure to send to you a box of mineral specimens from various veins at Illecillewaet, for which I have to thank Mr. Kirkwood, a pioneer miner there.

"In conclusion I have to add that the respect for the law shown by the mining population generally in this district, has been remarkable. Most of the mining disputes—some of which looked serious— have in the end been left practically to the friendly arbitration of the Gold Commissioner, without the institution, or at least without the prosecution, of regular suits.

"The suits in the Mining Court have been connected chiefly with miners' wages, or supplies to miners."

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## *Illecillewaet Subdivision.*

"NORTH KOOTENAY, 2nd January, 1888.

"No placer diggings have been found in this Subdivision, but it is thought that the North Fork of the Illecillewaet, Fish River (which enters the head of Upper Arrow Lake), and some other streams may prove to be placer streams.

"The great feature at Illecillewaet is quartz mining, which, accordingly, I have studied with some closeness. I frequently visited the camp, and on one occasion ascended the dividing ridge in the company of Professor Selwyn, C. M. G., and examined the veins at the highest elevation.

"The records of mineral claims number 205; certificates of expenditure 59, transfers 77, during the past season.

"The largest owner of claims there is the Selkirk Mining and Smelting Company, Limited. They are interested in more than a score of claims. Messrs. Corbin, Kennedy & Wood have about half that number. A dozen other claims are distributed in the hands of holders, many of whom probably could find more or less capital to work them, or to open them, for a satisfactory test. A few are held by men who have been able to expend the necessary $100, and hold the claims for what may turn up. The remainder, say 146 claims out of the 205 recorded, would appear to be vacant.

"The largest and almost the only large transaction in mineral claims at Illecillewaet has been the sale of $\frac{2}{3}$ of one claim for $16,000. The other 76 transfers have been for amounts ranging from $3,000 and $1,000 down to the small or nominal sums which constitute the consideration in most of the cases.

"The shipments of ore, other than small lots for assay, have been made solely by the above-named Company, and consist of about 250 tons of selected ores, betweeen the 25th of July and 7th of November, which represent a gross value of $21,000, and a net value at the smelter of about $15,000, say nearly $63 per ton as the average net yield at smelter. The range of the percentage of lead was from 17 to 52, and of the silver assay from 36 to 149 ounces per ton.

"The ore got out, and now at the mines and on the dump, by the above-named two mining companies, may be roughly estimated as worth $15,000.

"The Selkirk Company has spent $5,000 on 8 miles of trails to its different claims, and Messrs. Corbin have spent a large sum on similar work.

"The crushing and sampling mill, capable of sampling 100 tons of ore per day, and with a very complete assay office attached, has been erected by the former company at a cost of about $8,000, and this company, further, has made considerable expenditure on ore sheds, workmen's houses, &c.

"I understand it is probable that Messrs. Corbin, who have spent the summer in tunnelling and testing some of their best-looking claims, with satisfactory results, may erect sampling works next summer, if means of access to their valuable claims on the North Fork is provided.

"Mineral claims have been recorded which are situated both north and south of the C. P. R. line all along from Illecillewaet to Glacier Station, but most of the claims are on the north side of the line, about two miles east from Illecillewaet Station. They extend almost from the track up to the summit—4,000 feet high—of the divide between the South and North Forks of the Illecillewaet, and some of the veins run through or over the summit, and re-appear or continue on the North Fork slope, and in the bed of the North Fork stream.

"The latter valley cannot be thoroughly prospected, or its mines utilized, until means of access are provided up it from Albert Cañon. The divide is steep on both sides, and snow lies long on it.

"Owing to the migratory character of the population it is difficult to estimate the number of miners, but I think that an average of about 200 prospectors at Illecillewaet would be approximately correct.

"The visits of a number of experts from the United States and England show that the locality is becoming known outside the Province.

"The energy and enterprise of Mr. G. B. Wright have been mainly instrumental in starting the Illecillewaet camp, and Messrs. Corbin, Kennedy & Wood are the pioneer prospectors of both North and South Forks.

"A small village of about 30 houses has sprung up around the railway station and sampling mill, with the usual small hotels and shops, but there has not been any active competition to secure lots at Illecillewaet. The buildings are partly on the land of the railway company, and partly on Dominion land.

"The slackness of competition for ground is not owing to any doubt of the goodness of the mines, but perhaps from some notion that Albert Cañon, at the junction of the two streams, may be a better place for a village than Illecillewaet.

"The formation, locally at Illecillewaet, so far as examined, presents commonly a heavy limestone caprock, and foot-wall of slates—black or dark pyritous slates.

"Iron sulphurets, highly coloured on the surface, form part of the veins and hanging walls.

"The ore itself consists usually of galena, carbonates of lead and gray copper.

"The gangue of the veins is generally a reddish quartz, which lies in regular veins varying from 4 to 12 feet in thickness, and is sometimes closely mixed with streaks of pure limestone. The carbonates run through this quartz in streaks from a size of a few inches up to two feet, and generally carry from 20 to 40 ounces of silver to the ton, and from 10 to 25 per cent. of lead. Some streaks, however, are found which assay from 100 to 300 ounces to the ton.

"Mixed with these carbonates is the pure galena ore in pieces varying from an ounce up to a ton in weight, and lying in veins from 3 to 18 inches in thickness. This ore, when free from gangue, gives from 65 to 70 ounces of silver per ton, and 55 to 60 per cent. of lead.

"The gray copper ore lies in solid veins, from 4 to 18 inches in thickness—sometimes mixed with galena—and assays from 200 to 800 ounces silver per ton, and from 6 to 30 per cent. of copper. Some of the decayed copper ore of a greenish hue has run as high as 1,800 to 1,900 ounces, and one specimen gave 2,825 ounces to the ton.

"If one might generalise from very limited data, the claims on the southern side of the mountain divide appear to be richer in lead and carbonates, while those on the northern side show more gray copper. Ore from several of the latter, packed over the ridge on the backs of men, with copper, galena and gangue mixed, gave returns of about 250 ounces to the ton.

"The specimens sent to your address, in a small box, will show the different kinds of ores above-mentioned.

"The Isabella, Carnmony, Shamrock, Lanark, Maple Leaf, &c., are on the south side of the divide—the Lanark being the mine now most worked. The Shark, Whale, and other claims called by the names of fishes, are on the north slope of the divide.

"The claims being on the slopes of a lofty divide between the South and North Forks, it is obvious that a railway or road up both valleys is essential. The C. P. R. furnishes the south valley with this. The North Fork valley, where many think the richest claims are, is in a state of nature.

"The next consideration will be to have the best means of getting the ore down the slopes to the railway or road. This has been done on the South Fork by the trails already mentioned. On these pack mules have carried, each, 320 to 400 lbs. of ore from mines at a height of 3,500 feet to the railway, but this must be considered a temporary arrangment. Wire tramways probably must be used. Such a tramway, 1½ mile long, and at an angle of 20 to 30 degrees, would transport from 60 to 100 tons in 24 hours. It would cost about $12,000. No machinery would be required, as the weight of the loaded buckets would run it. Until some such cheap means of transport to the railway is provided, so that all the ore can be shipped as it comes from the mine, a heavy expense is incurred at the mine in assorting the better from the poorer grade.

"A further and vital consideration is the provision of a smelter. In connection with this question it has to be borne in mind that nearly ¾ of the ore found thus far will not average over 30 or 35 ounces of silver to the ton, and consequently will not bear expensive transportation. It is, however, of a class which carries most of its own fluxes.

"There is not, I believe, a single smelter in any part of Canada. The present annual consumption of lead and its products in Canada is of the value of $250,000. The import duty is $12 a ton. A very large demand for lead exists in China.

"I am not able to express any opinion as to the description of smelting works required, or the best locality for them. As to the latter question, much depends upon the transportation rates on the C. P. R. Possibly the cheaper prices of coke, coal, limestone and iron ores on the coast may show an advantage in having the works there, particularly as municipal subsidies may be available, in aid of the cost of plant.

"Looking to the nature of the Illecillewaet ores, as described above, I should suppose that suitable smelting works would not be a small affair. There ought to be refining plant to separate the silver and gold from the lead, furnaces to reduce the copper and roast the sulphurets, &c.

"It is a slow, difficult and great business to make a successful quartz camp, even when a railway runs through it, but when once established, the industry is valuable and, often, permanent. Illecillewaet is in its infancy, but, upon the whole, I think that the camp may succeed and grow. It won't amount to much though if the North Fork section remains undeveloped.

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## *Big Bend.*

"Smith's Creek (opposite Goldstream) and Fernie Creek, on west side of Columbia (8 miles north of Smith's), are the two creeks of the group of a dozen large creeks, between Goldstream and Boat Encampment, from which pay gold has been taken this season. All these creeks show fine colours, and are well worth careful prospecting. Several of them were proved to be auriferous 20 years ago.

### "*Smith's Creek (placer).*

"During the latter part of the season, about 15 white miners worked on bars and benches. The highest daily yield (only in one case) was $11.20 to one man; another $10, and the range was from these sums down to $2. The season before last, a miner got $100 in five days with a rocker. The old diggings, about a mile north from the present mouth (possibly an old mouth of the creek), yielded $3 to $5 a day per man, and now yield $2 to $3. There is probably plenty of gold at Smith's Creek, when the right way to work it is found. There may be room for many hundred Chinamen. The men this season had no appliances. They went to try it on being flooded out at Carnes Creek. The stream bed is boulder-strewn, like most streams here, and is plagued also with high water. If the few prospectors in the country are not drawn to Toad Mountain, &c., Smith's Creek will be tried again in spring. The creek is 25 miles long, from head of south or main branch. There is the usual expansion of the bed at the mouth; the stream narrows for about five miles up. You next come to five miles of flats, at the head of which is the three mile cañon just below the forks, one from south, the other S.S.W. Gold has not been found on the latter.

### "*Fernie Creek (placer).*

"Four men in the old days made high pay, $8 a day per man, for a whole season; one of whom tells me he thinks the same can be done again. Two prospectors went there this fall, and sank a shaft of 12 feet and got pieces of gold worth $2½ each, in the gravel. Having a small

stock of provisions they had to leave. The stream is wide—250 feet at mouth—cañon begins half a mile up, and continued four or five miles; whether flats occur above is not known. The creek is as large as Carnes Creek; could be worked cheaply—water easy for wheels—a fall at mouth of cañon.

"These numerous, large northern placer streams, possibly rich, remain untested and undeveloped, owing to the scarcity of prospectors, and the want of a steamboat on the Columbia.

"The glittering prizes of quartz mining attract prospectors, but the blanks are greater than in placer mining. There must have been 100 men at Illecillewaet for instance, this summer, who, after spending their money in outfit and keep, and doing the hardest kind of work, had nothing at the end of the season but a bare record which they could not fortify by the required $100 expenditure. They expected, vaguely, that somebody would buy their interest. A placer miner is more likely to have something in pocket for winter.

"Frenchman's Creek, the second creek up Canoe River on the east, gave good pay formerly.

"*McCulloch Creek (placer).*

"The Ophir Bed-Rock Flume Co., on their one and a half miles of leased ground at mouth of this creek, have not washed up yet, owing to the quantity of water that runs out of the face. They will remedy this by a new flume, and wash up in spring, until then, work is suspended. The most expensive part of the work is done, and the prospects are considered good. The derrick, worked by a hydraulic giant, hoists rock and timber well. Several thousand tons of rock have been moved. Bed-rock has been reached—sloping rim and bed-rock on falls at mouth of creek—and the work advances to more favourable bed-rock. The company, this season, have put in about 170 feet of flume, the end of which is on bed-rock. About $1,500 worth of coarse gold has been picked up, lying at the mouth of the flume, where new boxes were put in.

"The summer was practically lost to this company by a sudden flood, which covered with a jam of stumps and boulders the whole works and destroyed 70 feet of flume. By this flood, an American gentleman visiting the mine, Mr. G. P. Maule, lost his life. His property was sent to his administratrix through Messrs. Drake, Jackson & Helmcken.

"One twelfth interest in the above company was sold in September last for $3,000.

"*Bald Head Company.*

"This company, after spending $11,000 on a tunnel which they have driven for 1,300 feet, without finding bed-rock—the tunnel, as is now generally admitted, being on too high a level—have decided on applying for a lease to facilitate the obtaining of fresh capital. The Blue Bell Company, immediately above them, join in this. The applicants, being *bonâ fide* working miners, whose enterprise and tenacity deserve success, and there being no objections to their application by any miner on the creek, I propose to recommend it to the favourable consideration of the Government, and I thus hope work will be resumed on these claims in spring.

"*The Selkirk Company.*

"This company have run their tunnel in for 500 feet without finding bed-rock, and inform me that they propose resuming work in the spring.

"*Ericson Company.*

"Mr. Glover's Company have temporarily abandoned work on this claim and removed to Gold Hill, French Creek, where they are taking out good pay.

"*French Creek (placer).*

"The prospects of this creek are good. The Glover Company on Gold Hill, on the west bank, near mouth of creek, are making $10 to $15 a day to the man. They did not get to work until late in the season, but will work all winter. They have a tunnel in about 90 feet, log-house, dump-house, and new shoot. Having no water on Gold Hill, they dump the stuff down to French Creek. Water could be got at a roughly estimated cost of $2,000, and, looking to the large area of ground, believed to be as good as that now being worked, this improvement, doubtless, will be effected. I think there is plenty of ground for hydraulic mining on French Creek. Mr. Glover's well merited success will give confidence to others.

"The French Creek Tunnel Company have practically lost the season, owing to disputes among the members, which caused several suits in the Mining Court. This caused a stoppage of work, and, again, after work had been resumed. Happily these disputes have terminated.

Everything is in good shape for work—tools on the ground, excellent houses, and provisions for the winter. The foreman was here lately for men, and took half a dozen back with him. There having been so many interruptions owing to the above causes, he could not estimate the yield, but said they were on pay, and hoped to do well throughout the winter. This company, which is chiefly composed of eastern men with considerable means, have informally mentioned that a lease would enable them to invest more largely, but the difficulty is that the ground immediately above them is held by a working company; otherwise, in the absence of objections, I would recommend the grant.

"*French Creek (placer).*

"The May Mining Company, the company last above named, have sunk a shaft of fifty feet, and have indications of approaching bed-rock. The gravel is good wash gravel, and contains fine gold. The shaft is 2,600 feet up stream from that of the French Creek Tunnel Co.'s shaft, where bed-rock was struck at 35 feet. The Company have good log-house, wheel-house, and an excellent 5-inch iron pump. The men worked until middle of December, when they could not keep the pump going, owing to severe weather. The foreman will return in February to prepare for spring work.

"Two miners have taken up claims below the French Creek Tunnel Co.'s claim, and were about to work by sluicing the old $3 diggings, near mouth of the creek, but the water, following the fall rains, became too high for them. They are wintering on French Creek.

"*Carnes Creek (placer).*

"This creek continues to promise well as a placer creek, and on its north side, about two and a half miles up, a quartz ledge which may turn out good, has been discovered. Assays of croppings gave from 26 to 43 ounces of silver per ton, and were heavy in lead. The extraordinary and prolonged floods have sadly interfered with the miners, of whom from 30 to 20 whites have been at work and 20 Chinamen. The Cameron Co. only finished their dam a short time before the frost came. They got from $1 to $3 on ground which I think had been worked before. The White Elephant Co. made a flume 425 feet long, 12 feet wide, and 4 feet high, with which to work the cañon. This has never been worked, but is probably very rich, as high pay has been got immediately above and below it. A flood, caused by rains in the fall, damaged the flume, and as soon as it was repaired the frost set in. This enterprising company proposes, now, to attack the cañon in spring before the water rises.

"The Carnes Creek Consolidated Co. (Limited), immediately above the cañon, lost their flume too, and were making a wingdam at the close of the season. Their ground is good. Four men sluicing got $126.85, in one day; another day $70.27 to five men, and another day $72.50 to five men, and so on, getting irregularly smaller amounts per day, with an aggregate, notwithstanding interruptions and mishaps, of about $1,500. In consequence of this, the Balfour Co. have taken up 1,000 feet, immediately above the last named, and propose to work in spring. A mile farther up, the McVitty Co. held very likely ground and had sunk a shaft 32 feet, but could not keep it clear of water, and the principal member of the company having become amenable to a criminal charge and absconded, work was stopped. The Rip Van Winkle Co., above McVitty's, ran an 80 feet tunnel, but getting only $28, stopped work. Some of that company, however, propose to try it again in spring. There are four or five miles of the creek open up to the forks, and on these there is also ground, so that the creek has great possibilities though work is difficult owing to the floods. I have no doubt some of the benches on both sides are suitable for hydraulic mining.

"*Big Bend (Quartz).*

"A few claims have been recorded, but nothing spent on them. Confidence in Big Bend quartz continues, and some think it will yet be the best quartz subdivision of the district, but the difficulty of getting in machinery discourages practical action. From letters received, however, it is not unlikely that several quartz claims there will be examined and, perhaps, opened next season."

## *Southern Division.*

### MR. VOWELL'S REPORT.

"DONALD, B. C., December 31st, 1887.

"SIR,—I have the honour to forward herewith my report, together with mining statistics for the year ending 31st December, 1887.

"There has been a marked falling off in the number of companies mining on Wild Horse Creek. The claims worked have done fairly, owing to there having been plenty of water and good dumpage. These companies, four in number, took out about $23,000, which, with the estimated sum of $3,000 derived from desultory mining, carried on by Chinese having no regular employment, makes the total output from Wild Horse Creek $26,000. Mr. David Griffith, who has been on that creek for the last twenty years, put, last summer, a No 2 giant to work upon his claims, but, owing to a late start, has not cleaned up this year, as it entails some heavy work to do so. It is thought that there is considerable gold in his flumes.

"Palmer's Bar has yielded very little. There were some 13 Chinamen upon that creek who did not make wages.

"Moyea River has also fallen off, but $500 having been taken out by the few Chinese working there.

"Bull River, which has given evidence of some very rich deposits, has had no steady work done upon it, owing to continuance of high water. There were seven white men engaged in mining in that locality, and they, in a very short time, took out collectively about $2,250 in coarse gold dust.

"Weaver, Nigger, Dutch, Toby and Cañon Creeks have been abandoned as unprofitable fields for placer mining.

"Upon the whole, the outlook for placer mines, of any extent, is not encouraging.

### "*Deep Diggings.*

"The Perry Creek Gold Mining Company have, at considerable expense, succeeded in putting down a shaft some fifty feet in their mining ground. Owing to quicksands having to be contended with while sinking, it was an undertaking requiring great care and skill. Mr. Billsland, an old Cariboo miner of large experience, is the company's foreman, and he has been successful where others in the past have failed. Upon completing the shaft it was found that the bed-rock was pitching, and that the company would have to drift for the channel. In consequence, however, of the amount of water coming into the shaft, the work had to be stayed until the arrival of pumps of sufficient power from Victoria, and it is hoped that they will be placed upon the ground this winter. In the meantime, the company's men have been engaged in erecting substantial buildings for winter quarters, and in getting out timbers, &c., for future operations.

"In the Mount Cennis Tunnel work is being carried on vigorously, day and night shifts being constantly employed. As yet nothing can be determined as to the results. Mr. Billsland speaks very highly of the indications, &c.

### "*Findlay Creek Mining Co. (Hydraulic).*

"Messrs. Cochrane & Brady have conveyed their rights, under the mining lease granted to them on Findlay Creek in 1886, to a company formed in London, England, called the Findlay Creek Mining Company, Limited. Cochrane & Brady have constructed a ditch of 1,000 miner's inches capacity, and a saw-mill of sufficient power to turn out about 5,000 feet, board measure, of lumber per day, and have also completed hydraulic works capable of washing 1,000 cubic yards of gravel per day of 24 hours.

"They had got fairly started in opening up their first ground, near the mouth of White Tail Creek, when the heavy frosts of October 23rd and following days obliged them to shut down for the winter.

"During the season the company's engineer has thoroughly prospected a considerable portion of their ground, and the results have been so satisfactory that the present works will be increased by another pipe and giant, and another set put in about two and a half miles further down Findlay Creek, early next summer.

"Quartz—auriferous and argentiferous—seems to abound throughout the district; some very rich 'gray copper ore' has also been found; but as no capital has as yet been invested towards the development of any of the ledges discovered, it is unnecessary to particularize them.

"In time, no doubt, *bona fide* experts and capitalists will come in, and then these mines will be developed and worked to advantage.

"The Otter-tail Gold and Silver Mining Co., which had commenced operations for the development of some ledges containing respectively gold, silver, copper, and galena ore, in the Rocky Mountains, were, unfortunately, burnt out last June. Considerable property was destroyed, consisting of stamping mill, saw-mill, store and dwelling-houses, tramways, tools, provisions, &c. The total loss is estimated at $60,000

"Kootenay Lake has again caused considerable excitement by the discovery last fall of some very rich gray copper ore in that locality.

"These mines are situated about twenty-five miles from the lake, viz., 19 miles by water down the outlet, and thence six miles south from the outlet over a heavily timbered ridge or divide 2,700 feet above the river or outlet. The west fork of Cottonwood, Smith's Creek, heads at the mines and flows east, with Salmon River and 49-Mile Creek flowing to the west.

"The mineral belt is, as near as could be estimated, from one and a half to two miles wide, running about 20′ west of north, and extending, so far as has been discovered, about five miles north and south. The ore found is very rich in silver, as will be seen by the assay returns enclosed, which show an average of $105 to the ton for first twelve assays, and $127 for twelve others. I also forward some samples of the ore, duly labelled. It is claimed that some of the rock sent out assayed from 1,000 oz. to 1,160 oz. of silver to the ton.

"Three claims upon the same lead have been taken up by the discoverers, and are known as the property of the Kootenay Bonanza Co. One of these, the Silver King, shows an immense body of ore between the walls (granite and mag. limestone) from 20 to 25 feet wide. The other two promise equally as well.

"There have been some twenty-five mineral claims taken up, and with the exception of two of them, which show galena, they all contain gray copper ore.

"About twenty-five men have built houses and intend wintering at the new mines, should they be able to get in provisions before the winter sets in. These men are mostly from Colville, and seemingly are all Americans of a very intelligent class, and anxious to conform to the laws of the country.

"There is no doubt but that there will be at least 100 men at these mines next spring, and I would recommend that provision be made for an acting recorder and constable at that place during the summer months.

"The trail from the landing on the outlet to the mines, at present, is a very rough one, having been made in a hurry last fall by the miners. The latter are very desirous that a waggon road should be constructed over that route, so as they could get in machinery, &c. I think that a very good trail could be made at a cost of from $1,000 to $1,500. It is a steady climb all the way, and upon present trail a horse can with difficulty pack 150 pounds. There is a trail from the mines to Colville, which was made by the miners when coming in after first excitement.

"Only three men were living at the old camp on the lake, who appeared to be doing nothing except existing upon locations.

"*Coal,*

As discovered in the Crow's Nest Co.'s mines in the Rocky Mountains, Kootenay, is to be found in vast quantities. There are in all fifteen seams in sight, three of which are respectively 14 feet, 25 feet, and 30 feet in width; the remaining twelve are from 3 to 7 feet wide. This is the most extensive showing of coal, I think, on record, being an aggregate width of 130 feet, situated on one hill, the belt being one-quarter of a mile wide. Mr. Dawson, in his report, classifies some of this coal as semini—anthracite.

"The waggon-road, with bridges, completed this year, from a point known as 'Steamboat Landing,' on the Columbia River (about 50 miles above Golden), to the old camp (south), a distance of about 140 miles, is looked upon by all interested in the country as one of the most important works ever undertaken in the district, assisting, as it must, to a degree incalculable, the future development of mineral and other resources in this part of the Province. * * *

"A considerable amount of prospecting is being still carried on for quartz, and fresh finds are continually recorded, but all by poor men who can do nothing towards opening up such mines. In this office some 61 mineral claims have been recorded this year, in addition to those previously taken up.

"I have, &c.,
(Signed) "A. W. VOWELL,
"*G. C. & S. M., &c.*

"*The Honourable*
"*The Minister of Mines.*"

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"*Certificate of Assays.*

"ASSAY OFFICE KOOTENAY BONANZA MINING CO.—I. C. COBAUGH, Assayer.

"Assay in silver of Silver King:—Ounces per ton—111, 631, 92, 204, 24, 102, 38, 82, 46, 30, 145, 19.

"Assay in silver of Kootenay Bonanza:—Ounces per ton—150, 29, 408, 68, 68, 97, 38, 29, 213, 25, 38, 43.

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## LILLOOET.

### MR. SOUES' REPORT.

"GOVERNMENT OFFICE, CLINTON,
"December 16th, 1887.

"SIR,—I have the honour to enclose herewith mining statistics and my annual mining report for the District of Lillooet for the year ending 30th November, 1887. The total ascertained yield of gold for the year is a little over $100,000, itemized thus:—

| | |
|---|---|
| "A. W. Smith, Lillooet | $65,696 |
| "F. W. Foster, Clinton | 20,432 |
| "E. Bell, " | 5,000 |
| "All other reliable sources | 8,894 |
| | $100,022 |

"This is under the amount of last year, but I have no doubt the yield of the district is fully up to that of last year, when I take into consideration that the Chinese are the principal miners, and their claims on Cayoosh Creek the richest in the district. Mr. Smith is again the largest buyer, nearly two-thirds of the whole amount having passed through his hands. The largest proportion of this is from the alluvial claims on Cayoosh Creek, owned and entirely worked by Chinese; the balance from Bridge River and the bars of Fraser River, all within a very small compass in the district.

"Mr. Phair, Mining Recorder at Lillooet, reports to me 'that there were 198 mining claims 'and 26 mineral claims recorded by him during the past year. The mining claims are situated 'on Cayoosh and McGillivary Creeks, Fraser and Bridge Rivers, and the mineral claims are 26 'on Cayoosh Creek, 3 on Anderson Lake, and 1 on Pemberton Portage. The great proportion 'of the alluvial mining claims are recorded by Chinese, and the whole of the mineral claims by 'whites. The Chinese took a great deal of gold out of Cayoosh Creek this year, and many of 'them have left for China. A company of 7 Chinese on the South Fork of Bridge River took 'out $2,000 last spring. There were 14 whites mining on the same stream, and all did fairly 'well except a company of six, who were opening out a hydraulic claim, but they did not reach 'the pay strata until the season was closing. They have good prospects for the coming year.'

"The alluvial mining claims on Cayoosh Creek are all situated along the lower end of the creek, commencing at a point a short distance above its confluence with Seaton Lake Creek, and thence in a S. S. W. direction for about ten miles to a point intersected by free gold-bearing ledges, discovered early last September. Beyond this point the creek for several miles has been prospected by the Chinese, but evidently without satisfactory results. *Above* the line of the quartz ledges they have not done any mining. The alluvial mining on the creek, so far as at present known, may, therefore, be said to be confined to the lower ten miles. Intervening in this ten miles is a

deep cañon of nearly two miles in length, through which the water of the creek moves at a comparatively slow rate, the lower end having been filled in by mountain slides; from the nature of the surroundings of this cañon the Chinese have not been able to get at it, the claims being both above and below it. Accepting the theory as correct, that the gold found in the Chinese claims has been liberated from the quartz ledges above, and this theory seems well borne out by so much gold being found in their claims with quartz attached, I can see no reason why this cañon should not be equally rich in gold. It is a matter for the consideration of capitalists, as the creek would require to be flumed, and it is a wild stream to handle at all seasons. The Chinese must abandon their claims sooner or later, as they can only work down so far as their Chinese pumps, set at an angle of 45°, will keep the ground dry. Not one of them will ever reach bed-rock. I would, therefore, infer that the best paying ground remains untouched. The ground once abandoned, capital might step in and flume the creek at different points and work the whole bed of the stream, which has, without doubt, proved itself already one of the richest spots that has ever been found in the district.

*The Fraser River Cable Company.*—This company was formed early last spring; they obtained a lease of certain abandoned mining grounds situate between the 11 and 13-Mile Posts, but on the west side of Fraser River where there is no water available for mining purposes. To surmount this difficulty, they stretched a wire cable of 400 feet in length across the river, and to this cable suspended a hose connecting with a ditch on the east end, and by this means convey the waters of the 11-Mile Creek to the west side of the river. Unfortunately, the preliminary works were placed too low; at considerable expense the company have raised the ditch and cable, and are now in a position to commence active work in the early spring. Their outlay up to the present is, I believe, in the neighbourhood of $3,000.

"*Quartz.*—On the mica ledges at Clearwater and the auriferous ledges on Mahood Lake and Deception Creek no work has been done during the past season. On Mad River, a tributary of the North Thompson, a gold and silver-bearing ledge has been discovered by Mr. Allingham, and one claim recorded thereon. Assays of the ore of this ledge at Ottawa gave very good returns in both gold and silver.

"*Foster Gold Mining and Milling Company, located on the Big Slide.*—I regret that the very favourable expectations entertained last fall regarding this company have not so far been realized. Various obstacles to the chlorinating process required to separate the gold from the ore resulted last spring in shutting down the works and discharging the whole of the workmen. Up to the present nothing further has been done, the whole of the works and costly plant of the company being now in charge of one watchman. Grave errors have been made by the management, notably in the construction of the road into the mine, the location of the buildings too near to the high water mark of the river, and others of a minor nature, but it is sincerely to be hoped that the company will ere long see the way clear to going on with the work. If sulphuret ores, even of a low grade, can be worked on a paying basis in other lands I fail to see why they cannot be made to pay here.

"The result of the failure of this company to extract the gold from the sulphurets has, in this district at least, been most disastrous; prospectors will not touch anything that shews sulphurets, and, since the discovery of free gold-bearing quartz on Cayoosh Creek, have run to the other extreme, and will not look at anything unless shewing gold to the naked eye, or under the magnifier. The claims recorded on the extension of the Big Slide Ledge have all been abandoned, and, in fact, sulphuret ledges everywhere in the district.

"A gold-bearing ledge was discovered by Messrs. Gould and Ward on Cayoosh Creek, about 10 miles above its confluence with Seaton Lake Creek, early in September last, and six claims were then located. This ledge has been subjected to violent upheavel, as fragments of it are found far from the line of ledge. It seems strange that, like the alluvial workings on Cayoosh Creek, this ledge, and others in the immediate neighbourhood, should have remained so long undiscovered, as nearly any piece of the surface croppings shews free gold. The Chinese miners found some fine specimens in their claims below the line of ledge, notably one in the possession of Mr. Smith, valued between $70 and $80.

"Several assays and milling tests from different places on the ledge have been made in Victoria and San Francisco, the former shewing from $4 to $105, and the latter from $5 to $48 per ton.

"A shaft is being sunk on the Discovery claims, and at the present writing has reached a depth of 25 feet, the ore from the shaft at different points, tested by reducing to powder and

washing, shewing excellent prospects at any point in the shaft. The ore in the ledge is composed of a yellow-tinged quartz, thickly interspersed with slate; both quartz and slate carrying free gold. A continuation of the Discovery ledge has been found on the north side of Cayoosh Creek, and several claims located, on one of which a shaft will shortly be commenced. A supposed continuation of this ledge has also been discovered on Anderson Lake, and three locations recorded on it. From one of the latter an assay made in Victoria gave $17.50 per ton. The value of these ledges being established by thorough prospecting in the first instance, there should be no difficulty in inducing capital to take hold of them for practical working. They are naturally placed in excellent position for working either by tunnels or shafts, not difficult of access, and the motive water-power for driving machinery unsurpassed.

"Five mineral claims, said to be free gold-bearing, were located on a ledge on Big Bar Creek a short time ago, but at present I am not well enough acquainted with their nature to report on them.

"I have, &c.,
(Signed) "F. SOUES,
"*Gold Commissioner.*

"*To the Honourable*
"*The Minister of Mines.*"

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## YALE.

### *Kamloops Division.*

MR. DODD'S REPORT.

"KAMLOOPS, B. C., 24th December, 1887.

"SIR,—I have the honour to forward my mining report for the Kamloops Division of Yale District.

"*The Stump Lake Mines.*

"A new and enormously rich mining district. Thirty miles south of Kamloops, by a good wagon road, in the Nicola District, a number of claims have recently been located, and considerable prospecting work done. The principal locations are among the hills in the valley between Stump and Nicola Lakes. The former lake is about seven miles long and one mile wide. It derives its name from the number of stumps projecting alove the surface of the water, indicating that a forest formerly covered the ground which now forms the bed of the lake.

"The formation of this district is dorite, flanked in the east and in the west by granite ranges, and is similar to that of the richest silver mining districts in Mexico. Bukart, a mining expert, who lived many years in Mexico, classes this rock as dorite, but Bustamante, an authority of great weight, calls it syenite. It presents many of the characteristics of chlorite slate, a blue chloritic slate and a blue agillaceous slate. In the Mexican mines this formation has been found to be the chief feeder of the silver-bearing lodes, which have been worked for centuries, and yielded enormous fortunes. Messrs. Scott & Palmer, of Nicola, discovered valuable ore near Stump Lake some five years ago, and took up a number of claims. Very little development work was done for some time. A Mr. Winters became interested in the property; he worked for a few months on the claims, and then abandoned them in the fall of 1885. Mr. John Morrison, formerly of Montana, who was prospecting in the valley at this time, re-located the claims, and organized a company to prosecute the development. The company, known as the Nicola Milling and Mining Company, was composed of parties in Victoria, New Westminster and Nicola, with Mr. Morrison as manager; under his supervision work was carried on for two years at a cost of $12,000. Eight claims were taken up, and five shafts were sunk to a depth of from 20 to 50 feet, a number of leads were struck from two to three feet wide, containing gold, silver, copper and galena, all assaying from $40 to $80 per ton in gold and silver, besides copper and galena. This year the property was sold to the Nicola Mining Company, a strong syndicate of capitalists, of London, England, who are represented by Messrs. Wilson and Turner, of Victoria. This company took possession of the property in August last, and have been working from 14 to 20 men for the last three months; six shifts of men have been working night and day for some time, sinking shafts, building

shaft houses, leveling dumps. They intend sinking four of the most promising shafts to a depth of 110 feet, and if the outlook is as encouraging at that level as it is at the present time, the work will be continued.

"During the past 12 months 200 claims in the district have been recorded in the Government Office, at Kamloops, many of them being taken up by residents of the neighbourhood. The limited prospecting done has demonstrated the existence of over fifty ledges on Mineral Hill and Idaho Mountain, all of which carry more or less mineral. Mining men from California, Nevada, Idaho, Montana and Colorado, who examined the locations during the past season, have expressed their surprise at the large number of quartz veins highly mineralized near the surface, and have freely admitted that they never before were in a mining camp where, from the grass-roots down, there was such a prospect to rich mines. The majority of the veins on Mineral Hill run almost due north and south with an easterly dip, but there are a dozen or more which have a north-west and south-east course, and several which run almost east and west, and intersect the north and south and the north-west and south-east ledges, the whole forming a complete network of mineralized veins. It is considered highly probable by experienced miners that at a certain depth some of these veins will come together and unite in large ore bodies, as has been the case in other mining countries of somewhat similar characteristics.

"*The Leading Mining Claims.*

"The Nicola Mining Company have a number of claims on Mineral Hill, east of Stump Lake, prominent amongst which are the Joshua, a vein three feet wide; has two shafts, one being 30 feet deep, and the other 90 feet deep. These shafts will be run down to a depth of 120 feet. There are about 200 tons of good ore taken out at this claim, running from $40 to as high as $350, and averaging $100 per ton. The King William has four shafts, from 20 to 55 feet, with various cross-cuts on a vein about three feet wide, on which work is still being carried on. There are 100 tons of ore taken out, assaying from $35 to $250 per ton, and averaging about $70 per ton.

"The Gentle Annie has one shaft about 50 feet deep, which will be continued to a depth of 100 feet. The ledge is three feet wide, and there are about 15 tons of ore taken out, averaging from $20 to $50 per ton. This shaft is being sunk by contract.

"The Tubal Cain is the most promising ledge in the district; has been prospected on three different ledges, and about 10 tons of ore taken out. A shaft has been sunk some 35 feet, and will be carried down 100 feet. The width of the ledge, which is very rich, is two feet; it averages about $150 per ton—one assay going about $400 per ton.

"The Schomberg has a ledge 4 feet wide, and a shaft has been sunk 36 feet. The ore is estimated at $50 to $60 per ton, but no assay has been made yet.

"The No Surrender is about a 10-inch ledge. There are some 20 tons of ore on the dump, assaying from $25 to $60 per ton. The character of the ore in the above shaft is grey copper, galena and sulphurets.

"Mr. Morrison, who has resigned his position as manager of the Nicola Mining Company, will be succeeded by Mr. Wm. Craib, who has been manager of the British Columbia Mining Company, at Cariboo, for the past year. The Company have recently secured three sections of land for grazing, timber and water purposes, with a view of erecting smelting and reduction works if prospects continue to reward the enterprise. A blacksmith's shop, cook-house, storehouse, and a number of camps for the employés have been erected. The pay-roll of the company for October was $500, for November $2,000, and this month it is estimated $1,200 at least. Between $17,000 and $18,000 has been spent on this property, directly and indirectly, and it is estimated that there is at the present time about $20,000 worth of rock on the various dumps. In all of their claims ore was taken out from the surface; not more than six inches of excavation was required in any case to strike the ore veins.

"Shipments of ore have been sent to Idaho, San Francisco and Denver, but it is expected that next spring will warrant arrangements for treating the ore in the vicinity of the mines.

"The Star claim, adjoining Tubal Cain, and running parallel with it, is at present the deepest shaft on Mineral Hill. It is owned by Messrs. G. Henderson and W. D. Patterson. The shaft is down 110 feet on a three-foot ledge of good ore. Some drifting has been done at the bottom of the shaft, and prospects are most encouraging, the ledge holding out and increasing in body and value. The ore runs from $30 to $150 per ton. Work will be resumed on this property in the spring. The gangue of ore in the Star is porphyry and quartz, each

forming a separate body, and may be called a dyke lode. The surrounding country rock is a metamorphic slate. Messrs. Kinstall & Co., of San Francisco, who have worked the ore by various processes, state that, although it is of a refractory character, it will not be difficult to treat. The breadth of ore body at the surface having a quartz gangue was two feet; at 100 feet in depth the quartz increases in breadth, forming an ore floor, and partially cutting out the porphyry; this floor shows mineral throughout the mass.

"The Planet claim, at the foot of Mineral Hill, is also owned by the above firm. The depth of the shaft is 35 feet; the ore on the dump is good, averaging from $35 to $150 per ton, gold predominating.

"Messrs. Wright and Fletcher are the owners of several promising claims, among them are the Minnie, on Minnie Hill; the Eureka, on Rockford Hill; the Banner and Idaho, on Idaho Mountain. No great amount of sinking has been done upon any of these claims so far, but there has been enough work to show ore richly mineralized. There is every prospect of American capitalists, in conjunction with Messrs. Wright & Fletcher, pushing the development of their claims early next spring in a vigorous manner.

"The Hepburn group of mines, on Idaho Mountain, owned by Messrs. J. Hepburn, W. Wilson and R. Dunsmuir, of Victoria, gives promise of developing into a valuable property. Besides the work required by the Mineral Act, a shaft has been sunk 33 feet on the Robt. Dunsmuir. The width of the ledge is two feet, and there are 12 tons of ore in sight, assaying from $65 to $800 per ton.

"The Mary Reynolds has two shafts, one 35 feet, and the other 90 feet; the latter will be sunk deeper. The width of the ledge is from four to six feet, and there are 70 tons of ore on hand, the lowest assaying $350, and the highest $900 per ton.

"Gold Cup shows a wide ledge opened up with a shaft 10 feet deep, the assay goes $90 per ton.

"The Giant is also a wide ledge, an 8-foot shaft, and about 12 tons of ore, assaying $200 per ton. The ore on Mineral Hill carries carbonates, galena, and black sulphurets of silver.

"Elk Horn, a 15-foot shaft, with a wide, ledge has 30 tons of ore in sight, assaying fair.

"The King Hiram, one of the most promising claims in the claims on the hills, is tapped in three places, and assays from $30 to $80 per ton; the width of the vein is 26 inches. Mr. W. McCulloch, Drs. Jones and Dearden are the owners of a number of claims, called the Jenny Long, Longfellow, Dentist, Nellie Grant, and Last Chance. The Jenny Long is evidently a first-class claim, carrying telluride of gold, which assays into the thousands. There is also quite a pile of ore on the dump, which will average $80 per ton at least. Very little work has been done on the other locations as yet. The ore is composed of galena sulphurets and blende in a quartz matrix, between walls of syenite.

"Messrs. Turner, Wm. and Joseph Wilson have about 20 claims, besides their interest in the Nicola Mining Company.

"Messrs. W. Palmer and R. Scott, of Nicola, have five or six claims, on which have been sunk from 12 to 20 feet, with encouraging results.

"*Placer Mining*

"The placer mines are still being operated on Tranquille Creek by Chinese exclusively. No definite information has been obtained as to the productiveness, but it is believed to yield only small returns.

"On Scotch Creek some $3,000 was taken out by white miners, who have abandoned the property, and only half a dozen Chinese were left at the Creek last month.

"The mining prospects for next year are excellent, and the Nicola District promises to prove one of the richest mineral regions yet discovered. The influx of capital necessary to properly develope this valuable property will prove of great benefit to Kamloops, the business men being fully alive to the advantages which will issue from the successful operation, on a gigantic scale, of this wonderfully rich mineral district.

"I have, &c.,
(Signed) "WILLIAM DODD,
"*Mining Recorder.*

"*To the Honourable*
"*The Minister of Mines.*"

## *Okanagan District.*

### MR. DEWDNEY'S REPORT.

"GOVERNMENT OFFICE, VERNON,
"OKANAGAN, 9th December, 1887.

"SIR,—I have the honour to enclose herewith the mining statistics and my annual report for the District of Okanagan:—

"The amount of gold taken out on Cherry Creek averages about the same as last year.

"During the summer I visited this creek and tested some of the Chinese claims by panning out several pans of dirt, and satisfied myself that they were very slightly remunerated for their work after stripping from 20 to 25 feet of a bank to get down to the pay streak, which is about four inches from the bed-rock. Seven white men have been prospecting—running tunnels trying to find the lost lead.

"The Cherry Creek Mining Company have been working steadily running a tunnel all summer, and expect to strike the channel some time during the winter. Mr. Donald McIntyre has been working with a party of men on the Monashee quartz ledge, and taken out some very good ore, some of which he has taken with him for the purpose of having it assayed, and he informs me that he is as sanguine as ever that he has a rich silver-bearing ledge.

"The Cherry Creek waggon road is now completed within four or five miles of the Monashee quartz claims, and with a small expenditure being put on the unfinished portion next summer a good road could be built to the claims, which would be a great boon to the miners who have to go in every summer to work them.

"The Mission Creek Hydraulic Company did considerable prospecting this summer, but found that the hydraulic apparatus they were using had not sufficient force to remove the cemented gravel fast enough to remunerate them, and from what I can learn the company intend putting on their claim next summer a hydraulic giant, with iron pipes, as they are confident with a sufficient force of water they will overcome the difficulty, and in time will be remunerated for their perseverance and outlay.

"I have, &c.,
(Signed) "W. DEWDNEY, *G. C.*

"*The Honourable the Minister of Mines.*"

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## *Similkameen Division.*

### MR. TUNSTALL'S REPORT.

"GRANITE CITY, December 24th, 1887.

"SIR,—I have the honour to forward the mining statistics of the Similkameen District for the season, exhibiting a yield of $128,000. The high stage of water, which existed until the middle of July prevented the river claims, and those operated in the channel of Granite Creek, from being worked before the beginning of August, has had the effect of lessening the output of gold to a perceptible degree.

"The greater portion of Granite Creek worked last year, was again mined by Chinese, in many instances with good results. The benches on which gold was found yielded from $4 to $16 per day to the hand. The Pogue Company lately struck pay in their tunnel, which returns a litle over 2 ozs. to the set; and the Gladstone Company, about one-half mile below, is breasting out twenty-four feet wide, in gravel, which pays from three to four ozs.

"It is now the general opinion that these benches possess the continuation of an auriferous deposit which extends for a much greater distance than hitherto supposed, and finds an outlet above the mouth of Granite Creek in a low sag in the mountain. Two companies have been recently organized for the purpose of testing the existence of this old channel.

"Collins, Cedar, Slate, and Bear Creeks attracted very few miners the past season; whilst Champion, Hines, and Eagle Creeks have remained deserted, although no work has been done on them to determine their value.

"Boulder Creek has been industriously mined for near a mile from its mouth, and paid from $3 to $4 per day to the individual. Above the cañon some good spots are being worked by a few white men, but the lead is not sufficiently regular to be relied on. The claims are principally owned by Chinese.

"The auriferous deposits of the Tulameen River have proved remunerative only in certain localities, where the high bed-rock enabled mining operations to be pursued without the erection of expensive wing-dams and pumping machinery. Some of the bars have yielded good returns; but many of these placers have been exhausted of their wealth in past years, and stretches of a couple of miles, or more, frequently intervene where a single miner cannot be encountered.

"The same can be said of the Similkameen River, which has been continuously worked by Chinese for a period of over twenty-six years. It is, therefore, no wonder that the majority of the claims should yield only small wages. The day is not distant when the search for gold in its present channel will be confined to a few solitary miners. Mining on this river has been prosecuted for a distance of twenty-five miles, and since 1860 has produced many thousands of dollars of which no reliable record has been obtained.

My remarks in reference to the streams mentioned only apply to the localities which have hitherto been worked. Many of the gravel benches, which extend up these two rivers, afford a wide and remunerative field for the investment of capital, in the construction of ditches, and the purchase of the necessary apparatus for working them by the hydraulic process. As the country becomes opened up the wealth possessed by the more remote districts will attract public attention, and advantages such as these will no longer remain neglected.

"During the autumn an excitement was caused by some Indians finding coarse gold on Five Mile Creek, which is about 60 miles long and empties into the Similkameen River. It takes its rise in the same divide as Nicola Creek and follows a southerly course.

"Messrs. Donald Rankin, James Turley, and Angus Lamont, three experienced Cariboo miners, purchased an outfit and travelled down the stream a distance of thirty miles. They returned after an absence of five weeks, and reported having found mines which will pay $2 per day to the hand. The gold is fine, and exists in a stratum of gravel near the surface. It extends for a distance of ten miles, after which a granite formation intervenes in which no prospects could be obtained. The country is described as having an altitude of about 3,000 feet, and encumbered with burned timber in every direction. The creek has a favourable grade, possesses a large quantity of water, and fine looking benches exist along its course.

"A large body of Chinese will proceed there next summer, and probably some whites will follow in hopes of obtaining something better. I may mention that the production of platinum for the past season is estimated at 2,000 ounces. It now commands from $2.60 to $3 per oz., according to quality. It is a remarkable fact that many thousands of ounces of this rare metal has been thrown away by the miners as worthless, in consequence of the prevailing ignorance as to its true value. Last year samples were sent to various places, but the information elicited was so vague and contradictory that it only commanded 50 cents per ounce. The most favourable reply was received from Manchester, England, which stated that it would be worth $2.50 per ounce in Germany if consigned in large parcels; $3.50 per ounce is at present readily obtained for it in Portland, Oregon.

"Wm. Jensen, a reliable gentleman, whose long and varied experience in California and elsewhere constitute him an excellent authority in mining matters, visited this place on his way to Rock Creek, whilst representing the interests of several prominent business men of Victoria and the Mainland, and spent two weeks on the Upper Tulameen, above Bear Creek, examining the quartz ledges and benches which exist in the vicinity. At my request he embodied the result of his investigations in a report, which I take the pleasure of forwarding for publication.

"As it contains all the information concerning some lodes discovered a few weeks before his arrival, it will not be necessary for me to comment upon a subject, the particulars of which he has supplied in his communication.

"Before I conclude it may not be irrelevant to mention the great hardship inflicted by the neglect of the postal authorities to provide a mail to this place. The official returns show a population of 437 persons engaged in mining, exclusive of the inhabitants in the town and ranchers in the Upper Similkameen Valley, all of whom obtain their mail matter at Granite City, which may be considered a distributing centre for five hundred men.

"It seems very unreasonable that whilst small settlements, containing not one-fifth the population, are supplied with postal facilities, an important community such as this should be completely excluded from the outer world.

"The lack of a mail service subjects the Provincial Government to considerable expense for the transmission of official documents; is detrimental to public and private interests, and imposes an amount of inconvenience which cannot be expressed in words.

"I have, &c.,
(Signed) "G. C. TUNSTALL,
"*Gold Commissioner.*

"*To the Honourable*
"*The Minister of Mines.*"

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MR. JENSEN'S REPORT.

"GRANITE CITY, September 21st, 1887.

"DEAR SIR,—In accordance with your request of even date, in regard to my impressions of the values and character of the quartz lodes and gravel deposits of this portion of British Columbia, I beg leave to make the following answer:—

"I arrived at Granite City on the 4th of the present month. The following day I started up the Tulameen river, a distance of twenty miles from this point, and on my way closely observed the formation of the country, and its possibilities, both in regard to quartz and gravel; and the following are the conclusions I have reached:—

"To prelude my remarks about the general character of the country, I beg your permission to describe partially a few of the claims met with on the way. I first visited the quartz location made by Messrs. O'Donnell, Kelly, Buttermore, and others. These gentlemen are at present engaged in bench mining, and meeting with fair success; but as this class of mining has necessarily to stop for the season, on account of the near approach of winter, they have turned their attention to quartz, and this is the result of their efforts: Mr. O'Donnell and his associates have located a ledge, called the 'Hidden Treasure.' It is situated on the north bank of the Tulameen River, about 16 miles north and west from this place. The ledge is about 8 feet in width; it is enclosed in slate walls, and is, no doubt, from close observation, a true ledge. It is very free in gold; any part of the rock, broken up by the mere primitive method and washed in a common miner's pan, showing innumerable particles of gold. Rock has been sent from this location for assay, but returns had not been received at the time of my departure. My belief, however, is that it will reach $100, and over, in free gold.

"Extensions on this lode, called the Gold Hill, Evening Star, and one more, whose name now escapes me, have been made. They show the ledge cropping freely across the divide into Bear Creek, a tributary to the Tulameen. The croppings show similar rock to the Hidden Treasure. No work has as yet been done upon these extensions, but preparations are now being made to do so.

"About three-quarters of a mile south and east from the above ledge, and up the Tulameen, another location has been made. It is owned by Mr. Buttermore, the locator; Mr. Jensen, of Victoria; and Mr. Fell, of the same city. Rock from this ledge, which is called the Bonanza Queen, has been sent to Victoria for assay, and has yielded the handsome return of $88 in gold and $12 silver per ton. Two hundred pounds of rock have also been sent to San Francisco for a milling test; the returns have not yet reached here. I understand it is the intention of the owners to immediately begin the construction of a tunnel, near the base of the mountain, which will penetrate the ledge at a depth of 600 feet. This lode is between three and four feet in width, and very promising. It is also easily traceable across the divide to Bear Creek by its croppings, and has, as all the ledges here have, a general course of N. 21° W. to S. 21° E. The extensions of this ledge have also been located, under the name of the 'Star' and the 'Genesta,' upon both of which work will soon be commenced.

"Some two miles further up the river a location has also been made, named the 'Union.' This ledge is owned by three parties, two of whom are residents here, and one a gentleman residing in Victoria. It is a large ledge, being about 12 feet in width, and showing unmistakeable evidences of being a rich mineral deposit. My opinion, however, is that silver predominates. A shaft is now being sunk upon this ledge, to more fully prove its character. Upon the south-east bank of the Tulameen two other locations are made, one called the

'Albion.' The other is named the Cascades, and is an extension of the former. They are both four feet in width on top, and carry a little free gold, and though not rich, it is my belief that by sinking on they will be found valuable properties. They are both owned in Victoria, and I understand that work will shortly be begun upon them.

"This is all that has yet been done in this vicinity in regard to quartz, though I understand that prospectors are now in the field looking for veins, and I have no doubt their labours will be well rewarded.

"In regard to gravel deposits, I would like to say that I have examined both banks of the Tulameen River up to Eagle Creek, a distance of 20 miles, and also Granite Creek (the principal tributary of the Tulameen) 6 miles, and find that along both streams numerous benches, both high and low (as they are here termed), exist, embracing from 10 to 50 acres in extent each. They are from 20 to 100 feet in height, and have a dumping facility of 50 feet into the rivers. The wash, however, is what is known as a river wash, and therefore necessarily very heavy in character, and requiring a large body of water to move the gravel sufficiently rapidly to insure success. Inspecting the various creeks that empty into the Tulameen, to ascertain if they contained water in sufficient quantities to successfully work the various benches, under or with the hydraulic process, I found that though very flush for about three of the spring months, the volume of water thereafter rapidly diminishes, owing to the steep nature of the country, which causes the rain rapidly to run off. The same steep character of country also precludes the idea of successfully erecting storage reservoirs. On this account, the idea of working the benches by the hydraulic process, successfully, would be a very difficult matter. There is, however, a solution to this difficulty, by which sufficient water may be obtained to successfully work those extensive gravel benches, and extract profitably the immense wealth which they contain.

"If a company were formed for a ditch enterprise, and proper surveys made to determine its feasibility, I believe that a dam might be constructed across the Tulameen, where it is joined by Champion Creek, a distance of 24 miles from Granite City. The cost of the dam would be about $2,000; the cost from the dam to ditching ground, on top of bench, $2,000; after which fair ditching ground at a cost of $1,000 per mile—affording a sufficient and continuous flow of water. The whole distance, of course, need not be built at once. If this or something similar be not done, the immense and almost incalculable wealth now contained in these gravel beds will forever remain dormant.

"With your permission, I will add these remarks: The country is almost untrodden, and has vast mineral resources, both in quartz and gravel, that only await time to discover, pluck and energy to develop.

"I am, &c.,
(Signed) "J. N. JENSEN.

"*George Tunstall, Esq.,*
"*Gold Commissioner.*"

# COAL.

The following table shows the output of each year from 1874 to 1887, 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 |

## REPORT OF THE INSPECTOR OF MINES.

"NANAIMO, B. C.
"27th January, 1888.

"SIR,—I have the honour to respectfully submit my report as Inspector of Mines for the year 1887 for your consideration, in pursuance of the 'Coal Mines Regulation Act, 1877.'

"The following collieries have been in operation during the year, viz.:—

"Nanaimo Colliery, of the Vancouver Coal Mining and Land Company, Limited.

"Wellington Colliery, owned by Messrs. R. Dunsmuir & Sons.

"East Wellington Colliery, of R. D. Chandler, Esq.

"The output of coal for the year ending 31st December, 1887, amounted to 413,360 tons, as follows:—

| | | |
|---|---|---|
| Nanaimo Colliery, output | 138,712 | tons. |
| Wellington Colliery " | 239,217 | " |
| East Wellington Colliery " | 35,431 | " |
| Total output in 1887 | 413,360 | " |
| Add coal on hand 1st January, 1887 | 23,593 | " |
| Total coal for disposal in 1887 | 436,953 | " |

"The exports of coal during the same period amounted to 334,839 tons, as follows:—

| | | |
|---|---|---|
| Nanaimo Colliery, export | 114,815 | tons. |
| Wellington Colliery, " | 187,193 | " |
| East Wellington Colliery " | 32,831 | " |
| Total coal exported in 1887 | 334,839 | " |
| Add home consumption in 1887 | 99,216 | " |
| On hand 1st January, 1888 | 2,899 | " |
| | 436,954 | " |

"The exports were made principally to the ports of San Francisco, Wilmington, and San Diego, in California; numerous shipments were also made to Portland, Oregon; Alaska; Petropavloski; the Hawaiian Islands; China and Japan (per C. P. R. steamships); and coal has been regularly furnished to H. M. Navy; and to U. S. war and revenue vessels; also to ocean mail steamers, and other vessels calling for supplies of fuel.

"The aggregate quantity of coal produced and exported by the Vancouver Island collieries in the year 1887 exhibits a very gratifying increase over previous years' results, as will be seen by the following table, viz.:—

| | Output. | Export. |
|---|---|---|
| 1884 | 394,070 tons | 306,478 tons. |
| 1885 | 365,596 „ | 237,797 „ |
| 1886 | 326,636 „ | 249,205 „ |
| 1887 | 413,360 „ | 334,839 „ |

"The 'home consumption,' which includes coal used in the collieries, was 99,215 tons for 1887 against 85,787 tons returned for 1886.

"The following statament gives the standing of British Columbia in the State of California, the largest market for our coal, during the past four years, viz.:—

| | 1884. | 1885. | 1886. | 1887. |
|---|---|---|---|---|
| | Tons. | Tons. | Tons. | Tons. |
| British Columbia (including 64,395 tons to Wilmington and San Diego in 1887) | 291,546 | 224,298 | 253,819 | 324,949* |
| Australia | 190,497 | 206,751 | 287,293 | 155,649 |
| England and Wales | 108,808 | 170,656 | 160,869 | 91,248 |
| Scotland | 21,143 | 20,228 | 19,795 | 12,615 |
| Eastern States (Anthracite, &c.) | 38,124 | 29,834 | 19,517 | 24,102 |
| Seattle | 125,000 | 75,112 | 57,552 | 199,079 |
| Carbon Hill | 122,060 | 157,241 | 124,527 | 179,526 |
| Green River, Mount Diablo, and Cedar River | 77,485 | 71,615 | 90,664 | 121,791 |
| Renton, Newport, and South Prairie | 60,413 | 67,604 | 73,654 | 69,314 |
| | 1,035,076 | 1,023,339 | 1,087,690 | 1,178,273 |

"The above statement includes a few cargoes of coal hauled from Banff over the Canadian Pacific Railway last year, and shipped at Burrard Inlet for San Francisco. It should also be mentioned that, excepting in the case of British Columbia, the statement does not comprise the coal received into Wilmington and San Diego in 1887, which has been computed by commercial authorities (in the absence of Customs returns) to aggregate from 175,000 to 200,000 tons. So that even at a moderate estimate the State of California alone is a customer for coal to the extent of about a million and a quarter tons per annum. This market, together with other usual avenues of trade, gives considerable scope for the expansion of the coal industry of British Columbia, of which, I have no doubt, our enterprising colliery proprietors will fully avail themselves during the coming year by increasing the output of mines already in operation, and by starting other mines which have been held in reserve awaiting the revival of trade, which has at last been realized.

* These totals represent the quantity of coal actually *received in* San Francisco and other ports in California during the years indicated.

## "NANAIMO COLLIERY.

"The coal in this colliery, as in all other collieries in this district, has been in good demand during the past year.

### "No. 1 Pit, Esplanade, in Nanaimo.

"This mine, belonging to the Vancouver Coal Mining and Land Company, Limited, was fully described in a previous report. Everything about this mine, previous to the 3rd of May last, seemed to be in good order, no expense whatever being spared to make things safe. Ventilation was good, the motive power a large fan, as mentioned in my report, which fan, on 6th April last, was keeping in circulation 75,400 cubic feet of air per minute for the use of 142 men, or 530 cubic feet per minute for each person employed. The system of the ventilation at that time was on three separate splits—one division to what is known as the diagonal slope, which is to the south side of the main slope; and two divisions to the north side of the main slope, one of which went in the No. 2 North Level and connected with No. 1 North Level about 700 yards in from the shaft, where it went in and ventilated No. 1 North Level, which is now driven about 1,700 yards; the other division went down to the lower levels, where it also returns to and joins again at the bottom of the No. 2 air, or upcast, shaft. The main slope goes directly under the water of Nanaimo harbour for about 1,100 yards; and the 'diagonal' slope branches off the main slope about fifty yards down from the head, and at an angle from the main slope of fifty-four degrees; this diagonal slope is down about 700 yards. Here the coal is from seven to fifteen feet thick. In this part of the mine a considerable quantity of gas was given off, but the ventilation was so good that there was no chance for it to collect; and at no time previous to the 3rd May did I see any gas there. Sometimes I took a safety lamp (Clanny), and at other times I carried a naked light. I generally made my inspection when the mine was at work, so that I could see the general condition of the mine and hear if there were any complaints to be made. I went into the old works, as well as into the places where the miners were working. There were two shifts of men working in all the stalls, and in some of them three shifts worked, the one shift relieving the other. There was a fireman on each shift going through the workings and examining through all the places. On the 3rd May all the places had been examined by the firemen as usual, and everything appeared to be in good order, and all the works went on apparently in safety, when a few minutes before six o'clock p. m. those on the surface were alarmed by a noise from both the hoisting and air shafts, accompanied by smoke and timber flying out of both shafts, and it was evident that a dreadful explosion had taken place in the mine. Shortly afterwards the No. 2 or air upcast shaft kept sending out smoke, which showed that the mine must be on fire. At the same time there were 154 men in the mine. The downcast was somewhat deranged, but the cage was got down as soon as possible, and when close to the landing it was seen that the cars, both loaded and empty, were piled up and twisted into every conceivable shape. By the time I got to the shaft I could see the flames coming out of the upcast shaft, and the ventilating fan and fan house were on fire. In a short time all the wood work of the fan was consumed, leaving a mass of iron distorted and ruined; also the large driving engine of the fan, all destroyed by the intense heat. On getting to the shaft the cage came up and I went on, other four along with me, this being the second descent of the cage after the explosion. After some delay we got to the bottom, and went from amongst the piled-up cars to the entrance of the engine-room. I could see the fire getting into it, and as there was so much air travelling the fire soon had the timbers burned out, and was making good headway for the level road at the head; but before all this had taken place I, as well as others, went down the slope, and also in the levels as far as could be got for afterdamp, but could not find any person. A party also went towards the bottom of the upcast shaft, where it was known there were some men working, and about the engine-room; and there, and on the other side of the shaft (where the foreman was found), seven persons in all were got out, who were all that were got out alive of the 154 that went down to work on the afternoon of the 3rd May. Everything was done to get in to the men that it was possible for men to do; and amongst the exploring party there was one man, Samuel Hudson, was overcome by afterdamp and died from its effects. In the meantime the fire in the engine-room had got almost into the level, and this had to be mastered or no hope could be given for getting out any of the men alive, and nothing could have saved the mine but flooding it from the sea. Buckets with water kept the fire back until the fire engine from the city was got down, there being plenty of water close at hand. The engine was

worked mostly by the seamen from the shipping in the harbour. The pumps were kept going for about two weeks before it could be said that the fire was extinguished; and during all that time there were exploring parties in the mine looking for the lost, of whom none were got out alive excepting those already mentioned, and who were near to the bottom of the shaft; and there are still some bodies in the mine, viz.:—Jonathan Blundell, Robert Nicholson, George Biggs, Thomas Dawson, Thomas Hughes, and two Chinamen. There had been a continuous search for the bodies up to the 27th July, when it was discovered that the *debris* in the workings of diagonal slope was heating, and liable to burst out to an active fire at any minute, so that this part of the mine had to be filled with water, and that is how it stands at present, but the company intend soon to commence taking out the water. This operation will take a long time. Another engine has been erected at the head of the slope in place of that which was destroyed by the burning of the engine-room. The main slope is being cleared up, and it is expected to get into the face of No. 3 North Level in a week or two, when coal can be again taken out. The No. 1 North Level has been put in order some months ago, and this is the only place from which the company have got out any coal since the explosion, and here there are only a few men working. Ventilation here is very good; there has been little or no gas seen in this division, and it is free from dust. The motive power of this ventilation is a 'Murphy's Mine Ventilating Fan' imported by the company from Chicago; but they have on hand a duplicate of the fan and driving engine, which were destroyed as above mentioned.

"After the public enquiry that has been made into the terrible accident of the 3rd May, conducted by Mr. Eberts for the Crown, at which enquiry the Vancouver Coal Company were represented by Mr. Drake, Q. C., and Mr. James Young appeared for some of the widows and orphans, I do not think I can do better than refer you to the record of the inquisition filed in the office of the Hon. Attorney-General, in case you should desire to ascertain further details of the lamentable occurrence.

"No. 3 PIT (CHASE RIVER).

"This shaft was put down last summer by the Vancouver Coal Company, on the east side, and near the mouth of Chase River. The coal was struck in the shaft on 14th July, at the depth of 67 feet from the surface; the coal, in the shaft, was 8 feet 6 inches thick, making the total depth of the shaft 75½ feet. Work has been continued here steadily since the shaft was put down, and the coal has proved to be very good and hard, although varying in thickness from 8½ to 3½ feet. As this pit is near to the crop-out, the company, as well as running the level to south-east, are driving a slope.

"Ventilation is good; motive power a furnace. There has not been any gas found in this mine; there is no dust, as the floor is wet throughout. To the south east of the above pit the company have started to put down another shaft, and are making good headway with it. They expect to reach the coal in about one month from the present time. This is to be the return from the No. 3 Pit, and as the level is close to the place where the shaft comes down, there will be a connection made at once, after they get the coal. From this mine the company have got out a considerable quantity of coal, considering that they only started to sink on the latter end of May last; and to all appearances they are going to have a good mine.

"SOUTH FIELD MINE.

"At the time of my last report this mine was not working, but it was standing in a position that would allow of its being opened in three or four days; whenever trade would justify it; and that long-looked-for time came early in the year just passed, when it was opened again. The slope, which was down 600 yards, has not been extended. There are three levels from the slope to the east side, and two to the west side. The coal continues to keep very good, although there is some of it not very thick, and as a general rule the roof is good.

"Ventilation is very good; motive power a large fan on top of an up-cast shaft. This mine is also ventilated on the separate split system; there are three divisions—one to the west side, one to the east side from the slope, and one from the old South Field Mine. The lower workings give off some gas, but with ordinary care there cannot be any danger, as the current of air the last time I tested the air was 50,000 cubic feet for the use of 80 men. The floor of this mine is also wet throughout.

"On the 24th of November last, during the night, when there were only a few men in the mine, somehow or other the mine got on fire; but all the men soon came out. As the air

travelled so fast, the flames soon spread. It occurred at the entrance of No. 2 East Level, and the fire was so fierce that the management had to stop the fan, put in a line of stopping to keep the fire down, and afterwards had to fill the mine with water up to, or nearly to, the line of stoppings; after which, when they were satisfied that the fire was extinguished, they started to take the water out. During a great part of the time occupied in pumping out the water, the miners were employed in taking out pillars (of coal) from the upper old works, to help to keep up the supply. Now they have got the water cleared so as to be about to start at the bottom levels again. Here the workmen have not, as they have in the other mines, taken the liberty given to them by section 46, General Rule 31. I think it would be better for both the workmen and the company if there was a monthly inspection made of the whole mine by a party of those employed in it.

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## "WELLINGTON COLLIERY.

"This colliery belongs to Messrs. Robert Dunsmuir & Sons, and is situated in Mountain and Wellington Districts.

### "WELLINGTON MINE.

"This mine has been fully described by me in previous reports. It is the original 'Wellington Mine,' being the place where the colliery was first opened. In this mine they have worked steadily up to about three months ago, taking out pillars (of coal). To the north-east, in connection with this mine, there is a piece of ground which the colliery proprietors have not yet worked. Here they have put down a shaft 37 feet to the coal, and they have the prospect of getting some more good coal.

### "ADIT LEVEL.

"This is really a continuation of the Wellington Mine, coming out on the valley of the Millstone River. Here, at present, they are only taking out pillars.

### "NO. 3 PIT (WELLINGTON COLLIERY).

"This is the shaft worked in the valley of the Millstone by Messrs. Robert Dunsmuir & Sons (with the exception of the shaft used as a fan or upcast shaft); and, as you will have seen in one of my previous reports, all the workings in this mine are by way of a slope. The coal is worked on the pillar and stall system, being the system upon which all the mines in this colliery are worked, and very large pillars are left to support the roof. Here they have a long stretch of workings in progress. The coal is very hard, and of the usual good quality of the Wellington coal. The miners have worked steadily the most of the year, there not having been anything unusual here to cause any delay. The coal is from 6 to 11 feet thick—all hard and good.

"Ventilation is very good. When I was down I found, on testing it, that there were 43,200 cubic feet per minute for the use of 68 persons. This mine is ventilated on the separate split system—two divisions to the north side and one to the south side of the slope,—the stall farthest away getting the air first on each division, then returning by way of the stalls to the upcast. The motive is a large fan on the top of the upcast shaft, this fan being the first fan erected in this district on a large scale. Now fans are the motive power in the ventilation of all our coal mines, that are of any extent. There is now little or no gas seen in this mine. Everything is kept in the best of order, with plenty of all kinds of material that is or may be wanted for the successful working of a mine. Here, as is the case in the other three extensive mines of Messrs. Robert Dunsmuir & Sons, the workmen send a committee every month to examine every part of the mine. (See section 46, General Rule 31.) This puts the workmen in a position to know the condition of the mine, as to its safety. The result of these examinations is recorded in a book kept for that purpose, and left open for inspection; so that it is useful for both manager and workmen.

"No. 4 PIT (WELLINGTON COLLIERY).

"This pit is put down on the top of a high bluff which overlooks the valley of the Millstone River. Mining in this pit is carried on very extensively by Messrs. Dunsmuir & Sons. Here, as in the other mine, they have been working steadily the most of the year, except when they have had to lay off for a day or two for necessary repairs.

"The coal is worked from what are known as the north and south side workings. These workings are by pillar and stall. The coal in this mine is very good, particularly on the north side, where they have had very little to trouble them in the shape of faults in the coal. On the south side the coal is also good, but they have been somewhat more troubled with faults, yet nothing serious, and not anything to hinder much. This mine is connected in different places with the No. 3 Pit, and if at any time it was necessary those in the No. 3 could come to No. 4, or those in No. 4 could go to No. 3; and besides this, there is an air shaft, which is called the No. 6 Pit, here, by means of which the men in the mine could be taken out or let down if occasion required.

"Ventilation is very good; motive power, a large fan on top of upcast or No. 6 shaft. This mine is also ventilated on the separate split system; the two main divisions are from the bottom of the one to the north, and the other to the south side; this on the north is again divided further in in the workings. In this mine I have seen it tested 104,000 cubic feet per minute for the use of 150 men and 8 mules; and on this place where the above-mentioned air was registered it was travelling about 1,300 feet per minute. This mine gives off some gas, but the fireman seldom sees any in going his rounds, when making his examination, as it has not got any chance whatever to collect. Everything is kept in the best of order, there being no expense spared to keep the mine in order and to make the works safe.

"Here, as in all the other mines belonging to Messrs. R. Dunsmuir & Sons, the workmen send a deputation every month to examine all the mine, and they enter the condition in which they find the mine in a book kept for the purpose, which is left open for inspection. These examinations are made when the mine is in its usual condition with the miners all at work.

"No. 5 PIT (WELLINGTON COLLIERY).

Messrs. Dunsmuir & Sons have worked this mine steadily the most of the year, the demand for their coal being good. To this mine there is a branch line of railway in from the Esquimalt & Nanaimo Railway, and coal is sent by this line. The Railway Company's locomotives go under the shutes of this pit and take in their own supply of coal. This No. 5 Pit is now, and to all appearance is going to be a very extensive mine. They have run a slope from the bottom of the shaft to the northward and eastward for about 300 yards, and in this they have got a fine seam of good hard coal; and away in front of the workings in this slope, quite a few hundred yards, they have put down a bore-hole, and in this they found the coal to be about eight feet thick, which proves that they have a very extensive field of thick and good coal. Messrs. Dunsmuir & Sons, as well as the community at large, may be congratulated on this extensive find of coal.

"Ventilation very good; motive power, a large fan on top of the upcast shaft. This mine is also ventilated on the separate split system, with five main divisions—two to the west, two to the east side, and one for the slope. The air is split into three parts close to the bottom of the downcast to east, and west, and slope; the east and west divisions being split further in in the slope. These divisions travel until they come back close to the upcast shaft, where they all connect into one volume and go out the upcast shaft. The last time I was down I found that the total coming from the different splits was 90,275 cubic feet per minute for the use of 170 men and 10 mules.

"In some of the places I was in I pointed out to Mr. Jones, the overman, that the brattice was a few feet too far back from the face; but I was told by the men working at the places I referred to that if the brattice was any closer they would have to quit working, as the air would be so strong they would not be able to get their lamps to burn, and I could see this was correct. There is one grand feature here, as in all the Wellington mines, and that is, that the airways are generally large. Here, as in all the mines of both Wellington and Nanaimo Collieries, in addition to the fan working, there is a steam jet ready to turn steam into the upcast in case anything should go wrong with the fan, or with the engine that drives the fan. Here there is also plenty of timber on hand, and every other thing that is necessary for carrying on an extensive mine.

"In this mine, also, in accordance with Section 46, General Rule 31, of the Coal Mines Regulation Act, the miners send round a deputation to examine the mine every month, the manager supplying them with all things requisite to enable them to make a thorough inspection, the result of which is entered in a book, which is left open so that those who sent the deputation can see the report of their examination. This practice cannot be too highly recommended, as it gives the miners confidence in their safety when they find everything in the mine as it should be, and on the other hand it lets them know if danger is lurking somewhere, where everything was supposed to be safe, and in such case they know where to apply.

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## "EAST WELLINGTON COLLIERY.

"This mine is the property of R. D. Chandler, Esq., of San Francisco. The coal worked here is what is known as the Wellington coal. The mine has been worked steadily most of the year, but as the proprietor has been limited to a certain number of men for the greater part of the year they could not get out much coal. What was got out was very hard and of good quality.

"This mine is worked on what is called the long-wall system, and it is very successfully carried out. The coal will average about three feet thick, and has a hard roof. The refuse from mining the coal, and rock taken from the roof to make the roadway, nearly fills the waste workings full, so that the roof does not settle much; and as the roof is strong and of a tough nature it bends down gradually behind the miners as they work out the coal, and as it generally keeps solid at the face the workmen hardly know that it is settling.

"Ventilation is very good; motive power a furnace, and at any time on making my examination I never found less than 185 cubic feet of air per minute for each person employed in the mine; and as the face of the coal where the mine is working is all one stretch, and no brattice required, the air having a direct road along the face of the working, except what escapes at the curtains, and that keeps the roadways clear from any bad gasses; and the coal being worked here 'long-wall,' the weight from the bending roof is on the coal face, so that very little powder is required to blast the coal, as after it is mined underneath the weight of the bending of the roof breaks it down. There is little or no gas found in the mine; and it is also free from dust.

"In my previous report mention is made of the west level being in 400 yards; but it should have read 1,400 yards; and here they had got a fault, putting the coal up thirty-four feet. Up over this fault they have only been working in the levels to find if the coal keeps good, and if it would justify them in putting down another shaft. Now they have been rewarded by proving a good field of coal, varying in thickness from five and a half to seven feet, of good quality and hard. As they have got confidence in their prospects, they are now putting down Shaft No. 2. This shaft is also in the valley of the Millstone River, and about half a mile nearer to Wellington than No. 1 Shaft. They have now got down eighty feet, and as the coal will be about 200 feet from the surface, they expect to get down to it in about two months. The railway is already extended to this new shaft, so that after coal is struck they will soon be in a position to send out quite a large output of coal per day from the new shaft, and also to greatly increase the output of the No. 1 Pit. The above-mentioned extension of works will be a great improvement in this district, and a benefit to the country in general; and it is to be hoped that it will be beneficial to the proprietor, as he is deserving of such success, seeing the perseverance and push he has made here in bringing about the present position and prospect of this colliery.

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## "PROSPECTING.

"There has been a considerable amount of work of this nature done during the past year. The most extensive was that of the Vancouver Coal Company in sinking or deepening what is known as their No. 2 or Air Shaft. This has been put down to what is thought to be the 'lower seam,' being 71 feet below the Douglas seam. In this shaft the lower seam is about six feet thick, but is much mixed with brown shale. This recent sinking makes the No. 2 Shaft nearly 700 feet deep. The Vancouver Coal Company are also putting down a bore-hole in their estate in Mountain District. They have now got down 384 feet, but have not got coal. Here they are looking for what is known as the Wellington seam. This company are engaged in putting down another hole with their diamond drilling machine, but this time it is in Gabriola Island, on

the south side and near to the False Narrows. This hole is down over 1,000 feet, but they have not struck any coal as yet. This is now the deepest hole in the district.

"Messrs. Dunsmuir & Sons have also put down one hole in which they found the coal; it is good and hard, and about eight feet thick. They are also putting down another hole away ahead of the workings of their No. 5 Pit, but at last account had not struck coal. In this hole they went through 184 feet of gravel, sand, and boulders, which makes very slow work.

"It is fully expected that all these places will give a good account of themselves before long.

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## "ACCIDENTS

### "IN AND ABOUT THE COAL MINES FOR THE YEAR ENDING 31ST DECEMBER, 1887.

"January 7th—John Culligan, miner, when at work in the No. 1 Pit, Nanaimo Colliery, was severely hurt about the head by a blow from a prop, the prop having been knocked out by runaway cars on the diagonal slope.

"January 10th—Frank Coyne, miner, was seriously injured by a fall of coal, while at work in his stall in the No. 4 Pit, Wellington Colliery. The above-mentioned Frank Coyne died on January 16th.

"January 11th—Aaron Barnes, miner, was slightly burned by the flame of a blown-out shot in the No. 4 Pit, Wellington Colliery.

"January 20th—Charles Gullion, mule-driver in No. 1 Pit, Nanaimo Colliery, was killed by falling off a run of cars drawn by a mule, the cars running on top of him.

"February 4th—A Chinaman, running coal in No. 5 Pit, Wellington Colliery, was injured by a car going over him.

"March 14th—Ah Clam and King Lun (Chinamen), running coal in No. 4 Pit, Wellington Colliery, were seriously injured by a fall of coal from the roof. The cars went off the rails on a self-acting incline, knocking out some props. The Chinamen above named went to put the cars back on the rails, when the roof came down on them. The above-mentioned Chinamen died, King Lun on 17th and Ah Clam on 22nd March.

"March 30th—John McNeil, miner, working in No. 5 Pit, Wellington Colliery, was slightly injured by a fall of rock from the roof, while at work in his stall.

"April 5th—S. Lorenzo, miner, got his leg broken by a fall of coal, while at work in his stall in No. 1 Pit, Nanaimo Colliery.

"April 19th—Thomas Harris, miner, was killed by a fall of coal, while at work in his stall in the No. 1 Pit, Nanaimo Colliery.

"April 25th—Ah Tong (Chinaman) got his fingers crushed by a piece of coal falling on them while pushing a car in No. 4 Pit, Wellington Colliery.

"May 3rd—The following persons were injured and killed by the explosion in the No. 1 Pit, Nanaimo Colliery (that is to say):—

"*Injured.*

"George Davis, John Jones, James Stove, senior, John Lynch, Jules Michael, Richard Gibson, overman at time of explosion.

"*Killed.*

"Bodies got out May 3rd—John Linn, Frederick Mattison, William L. Davis, William L. Cochran, John Smith, Samuel Hudson, one of the explorers; Chinamen, names unknown, Nos. 3, 71, 72, 73, 77, 83.

"Body got out May 5th—Michael Lyons.

"Bodies got out May 6th—James Davy, William Davy, Andrew Muir, Thomas Evans, Evan Jones, Hudson Lee, John Stove, James Hoggan, James Isbister, Robert Stove, William Ridley, Herbert Bevilockway, John Morton, Andrew Morton, George Old, William Lukey, senior, George S. Bertram, Harry Westfieldt, William Lukey, junior, Abraham T. Lewis, Henry Lee, James Byres, Copley Woobank, John Woobank, Andrew Hunter, Joseph Forest, John Meakin; Chinamen, names unknown, Nos. 89, 100, 95, 84, 123, 117, 102, 104, 86, 87, 105, 97, 88, 92.

"Bodies got out May 8th—James Thomas, John Richards, Thomas Martin, Edward Wilkins, William Bone, Joseph Watson, James Milton, Edward Johns, John J. Smith, Edward Benton, Joseph Thompson, David Morgan, John C. Fallen, Jonathan Bramley, Arthur Ellis, James Campbell, George Bowden, George Simmons, John Stevens, William Gilbert, David Ellis, John Malcolm, John McGuffie, Benjamin Popplewell, Robert Buffington; Chinamen, names unknown, Nos. 107, 128, 136, 106, 108, 112, 90, 93, 96, 101.

"Bodies got out May 9th—Archibald Muir, H. Burn, G. Bartolero, Samuel H. Myers, Malcolm McLean, Roderick McDonald, W. John Morgan, Nicholas Johns, John Zermani, William Campbell, F. Allen, Peter Ducca, Michael Corcoran, Anderoti Fillippia, Arthur Meakin; Chinamen, names unknown, Nos. 98, 113, 114, 116, 118, 119, 120.

"Bodies got out May 11th—Chinamen, names unknown, Nos. 125, 122, 131.

"Bodies got out May 13th—Daniel Dawson, William Burns, Thomas Gorman.

"Bodies got out May 14th—Frank Tully, John Johnson, William Morris, Alexander McDonald, William Henry Stephenson, John Thompson, William Hoy, Charles Drake, Caton Willis, William Hagne, James Lyons, John Myles, William Scales, Allan Smilley; Chinamen, names unknown, Nos. 135, 127, 124, 133, 129.

"Body got out June 20th—Chinaman, name unknown, No. 132.

"Body got out July 28th—Thomas Perry.

"Bodies got out Octobor 15th—Chinamen, names unknown, Nos. 137, 142.

"Bodies got out December 10th—Chinamen, names unknown, Nos. 139, 140.

"*Missing.*

"Robert Nicholson, Jonathan Blundell, George Biggs, Thomas Dawson, Thomas Hughes; Chinamen, names unknown, Nos. 143, 145.

"June 20th—Alexander Orr, miner in East Wellington Colliery, had his leg broken by a fall of rock from the roof while at work in his stall.

"June 27th—Ah Tap, a Chinaman employed on the Departure Bay Railway, got his ankle slightly crushed between buffers of cars.

"July 8th—William Storrie, mule-driver in No. 4 Pit, Wellington Colliery, was slightly injured by being jammed between the cars that were being drawn by the mule.

"July 30th—Daniel Kilkpatrick, miner in No. 4 Pit, Wellington Colliery, was injured by a fall of coal from the roof while at work in his stall.

"August 19th—William Connick, miner in No. 4 Pit, Wellington Colliery, was severely injured by a fall of top coal while at work in his stall.

"August 19th—Ah Line, a Chinaman in No. 3 Pit, Wellington Colliery, got his leg jammed by a car in the mine.

"September 8th—Song Swen, a Chinaman, running coal in No. 1 Pit, Nanaimo Colliery, was hurt by getting his head jammed by a loaded box.

"September 16th—James Fisher, miner, working in No. 3 Pit, Nanaimo Colliery, was killed by a fall of rock from the roof while at work in his stall.

"September 19th—William Boyle, miner in South Field Mine, Nanaimo Colliery, was seriously wounded in the abdomen by a pick which he was carrying coming in contact with an empty car which was being pushed along the level.

"September 19th—V. Bogo, a miner working in No. 3 Pit, Wellington Colliery, by a piece of coal falling and striking him on the head and causing a severe cut over the eye.

"October 1st—Thomas Hardy, miner working in South Field Mine, Nanaimo Colliery, had his right arm seriously crushed by a fall of rock from the roof while at work. The right arm had to be amputated above the elbow.

"October 10th—Chung, Chinaman, mule-driver in the No. 3 Pit, Wellington Colliery, had his leg broken by a box running over him.

"October 19th—William Cope, miner, working in the No. 4 Pit, Wellington Colliery, received a compound fracture of the leg by a fall of coal from the roof.

"October 22nd—Ah Hin, a Chinaman working and timbering in No. 3 Pit, Wellington Colliery, was killed by the caving of two sets of timber, smothering him before he could be got out.

"November 11th—Thomas Renfrew, miner, working in the No. 4 Pit, Wellington Colliery, was injured by a fall of coal and dirt while at work in his stall.

"November 15th—A Chinaman, No. 209, was jammed about the body by cars in South Field Mine, Nanaimo Colliery.

"December 1st—James Rosewall, sinker in No. 2 Shaft, East Wellington Colliery, received a severe wound on the head by the falling of a plumb-bob down the shaft.

"December 7th—Jim, Chinaman, working with John McNeil, miner, was seriously injured about the head by a shot in No. 5 Pit, Wellington Colliery.

"December 20th—Ah Ling, a Chinaman, working with William McCullock, miner, in No. 5 Pit, Wellington Colliery, got his hip dislocated by a fall of coal on going into their stall after blasting.

"December 22nd—Chinaman No. 167, while cleaning the hoisting engine at the No. 1 Pit, Nanaimo Colliery, got his hand seriously crushed between the connecting rod and bed-plate of the engine.

"December 22nd—John Hall, miner, working in No. 5 Pit, Wellington Colliery, got his arm broken by falling on it.

"I am sorry to have to make out such a numerous list of accidents, both serious and fatal. There were 32 serious and 157 fatal accidents during the past year.

"On looking over the list you will observe that of the above-described accidents, 150 of those that were fatal, and 5 of the serious ones, occurred on the occasion of that sadly memorable explosion of the 3rd May last. Eleven of the casualties in the list were caused by falls of coal, four of them being fatal; eight were from falls of rock, two being fatal; eight by cars in the mine, one of which was fatal; two from a shot in the mine; one on a railway; one in a shaft during sinking; one by a pick; one by a hoisting engine, and one through a fall of the person injured.

"I have enquired into the circumstances of all those accidents, and public inquest has been held when necessary, at which all the evidence that it was possible to obtain was taken, and as the depositions and proceedings of all the inquisitions so held are filed in the Hon. Attorney-General's office, I beg leave to refer you to the same for any further information which may be needed.

"With respect to all the accidents that have happened, I have not discovered that any blame or negligence could be attached to any one. The workman is presumed to be skilful enough to know when there is danger in his working place, and to judge for himself when he is at work, subject to the directions of the overman or fireman.

"In view of the terrible calamity that has befallen this district during last year, it is incumbent upon every one of us, in the year on which we are entering, to be watchful, as we are surrounded by the elements of danger at all times, and I trust that the greatest care will be taken so as to prevent all accidents, even of the slightest kind, so that at the close of the year the chapter will be short and of no serious nature. I also hope that the year before us will be prosperous to the mining industry and the workman in common.

"Appended hereto are the annual colliery returns.

"I have, &c.,

(Signed) "ARCHIBALD DICK,

"*Government Inspector of Mines.*

"*To the Honourable*

"*The Minister of Mines.*"

## COLLIERY RETURNS.

### NANAIMO COLLIERY.

| Output of coal for 12 months ending December 31st, 1887. | | No. of tons sold for home consumption. | | No. of tons sold for exportation. | No. of tons on hand 1st January, 1887. | | No. of tons unsold, including coal in stock, Jan. 1st, 1888. | |
|---|---|---|---|---|---|---|---|---|
| Tons. | cwt. | Tons. | cwt. | Tons. | Tons. | cwt. | Tons. | cwt. |
| 138,712 | 11 | 23,491 | 12 | 114,815 | 882 | 10 | 1,288 | 9 |

| Number of hands employed. | | | | Wages per day. | | |
|---|---|---|---|---|---|---|
| Boys. | Whites. | Chinese. | Indians. | Whites. | Chinese. | Indians. |
| 10 | 386 | 220 | 2 | $2 to $3.50 | $1 to $1.25 | $2 |

Total hands employed..... 618

Miners' earnings, per day..... $3 to $4

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

Value of plant—$350,000.

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

Description and length of tramway, plant, &c.—Railway to South Field, 5 miles with sidings; railway to No. 1 Shaft, 1 mile with sidings; rails are of steel, 56 lbs. per yard of standard gauge, viz.: 4 ft. 8½ inches; 8 hauling and pumping engines; 10 steam pumps; 4 locomotives; 112 coal cars (6 tons), besides lumber and ballast cars; fitting shops for machinery repairs, with turning lathes, boring, drilling, screw-cutting machines, steam hammer, &c.; diamond boring machinery for exploratory work (bores to 2,000 feet); wharves, 770 feet frontage, at which ships of the largest size can load at all stages of the tide.

SAMUEL M. ROBINS,

*Superintendent of the Vancouver Coal Mining and Land Co., Limited.*

## WELLINGTON COLLIERY.

| Output of coal for 12 months ending December 31st, 1887. | | No. of tons sold for home consumption. | | No. of tons sold for exportation. | No. of tons on hand 1st January, 1887. | No. of tons unsold, including coal in stock, Jan. 1st, 1888. |
|---|---|---|---|---|---|---|
| Tons. | cwt. | Tons. | cwt. | Tons. | Tons. | Tons. |
| 239,217 | 4 | 72,464 | 4 | 187,193 | 20,711 | 271 |

| Number of hands employed. | | | | Wages per day. | | |
|---|---|---|---|---|---|---|
| Boys. | Whites. | Chinese. | Indians. | Whites. | Chinese. | Indians. |
| None. | 308 | 258 Employed by miners—149 | None. | $2 to $3.75 | $1 to $1.25 | |
| Total hands employed..... 715 | | | | Miners' earnings, per day ..... $3 to $4.50 | | |

Name of Seams or Pits—Wellington.

Value of plant—$250,000.

Description of seams, tunnels, levels, shafts, &c., and number of same—Six to 10 feet thick; 3 shafts; 1 adit level; 3 air shafts.

Description and length of tramway, plant, &c.—10 miles of railway; 6 locomotives; 197 waggons; 10 stationary engines; 9 steam pumps; 4 wharves, for loading vessels, with bunkers.

R. DUNSMUIR & SONS.

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## EAST WELLINGTON COLLIERY.

| Output of coal for 12 months ending December 31st, 1887. | No. of tons sold for home consumption. | No. of tons sold for exportation. | No. of tons on hand 1st January, 1887. | No. of tons unsold, including coal in stock, Jan. 1st, 1888. |
|---|---|---|---|---|
| 35,431 tons. | 1,000 | 32,831 | 2,000 | 1,340 |

| Number of hands employed. | | | | Wages per day. | | |
|---|---|---|---|---|---|---|
| Boys. | Whites. | Chinese. | Indians. | Whites. | Chinese. | Indians. |
| 1 | 83 | 47 | None. | $2 to $3 | $1 to $1.25 | |
| Total hands employed..... 130 | | | | Miners' earnings, per day..... $3 to $5 | | |

Name of Seams or Pits—East Wellington, No. 1, Shaft and a Sinking Shaft.

Value of plant—$119,000.

Description of seams, tunnels, levels, shafts, &c., and number of same—One seam 2½ to 6 feet; 4 levels; 2 shafts; 1 heading working.

Description and length of tramway, plant, &c.—Railroad, 3-foot narrow gauge, 4 miles; 2 locomotives; 20 4½-ton coal cars; 1 pair hoisting engines; 1 large donkey engine; 1 steam pile driver; 1 steam saw-mill complete, capacity, 12,000 feet per day.

EAST WELLINGTON COAL CO.

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TOTALS OF THE ABOVE RETURNS.

| Output. | Home Consumption. | Export. | On hand 1st January, 1887. | On hand 1st January, 1888. |
|---|---|---|---|---|
| 413,360 tons. | 96,955 * | 334,839 | 23,593 * | 2,899 |

Hands employed, 1,463.

* The East Wellington Colliery return is slightly inaccurate, and consequently these totals are only approximately correct.

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