# ANNUAL REPORT

OF THE

# MINISTER OF MINES

FOR THE

YEAR ENDING 31ST DECEMBER,

1892.

BEING AN ACCOUNT OF

## MINING OPERATIONS FOR GOLD, COAL, ETC.,

IN THE

## Province of British Columbia.

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

# PROVINCE OF BRITISH COLUMBIA.

## MINING STATISTICS FOR 1892.

| Name of Bar, Gulch, Creek, or River. | No. of Companies working. | No. of Interests. | No. of Companies taking out gold. | No. of Companies prospecting. | Average number of men employed during season. | | Rate of Wages. | | Nature of Claims. | | | | | How Worked. | | | | | Description of Machinery. | | Value of Gold per ounce. | Estimated value of yield for the year. | Value of Silver per ounce. | Estimated value of yield for the year. | Total Divisions. | | Total Districts. | | Remarks. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Whites. | Chinese. | Whites. | Chinese. | Bar. | Creek. | Bench. | Hill. | Quartz. | Rocker. | Sluices. | Hydraulic. | Shaft. | Tunnel. | Water Wheels. | Steam Engines | | | | | Gold. | Silver. | Gold. | Silver. | |
| CARIBOO. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Barkerville Division: | | | | | | | $3.50 & | $2.50 & | | | | | | | | | | | | | $15.50 to | | | | | | | |
| Williams Creek and tributaries | 23 | | 10 | 4 | 31 | 40 | 4 00 | 3 00 | | 10 | | 11 | 2 | | 10 | 10 | 1 | 2 | | 1 | 16.25 | $22,500 | | | | | | |
| Mosquito and Red Gulches | 4 | | 4 | | 10 | 9 | " | " | | 2 | | 1 | 1 | | 2 | 2 | | | 1 | | 17.25 | 14,700 | | | | | | |
| Sugar, Hardscrabble and vicinity | 5 | | 4 | 1 | 7 | 9 | " | " | | 3 | | 2 | | | 3 | 1 | | 1 | | | 17.00 | 6,200 | | | | | | |
| Lowhee Creek and vicinity | 5 | | 3 | 2 | 4 | 9 | " | " | | 3 | | 2 | | | 3 | 1 | | 1 | | | 17.25 | 5,000 | | | | | | |
| Grouse and Canadian Creeks | 8 | | 5 | 3 | 16 | 16 | " | " | | 5 | | 3 | | | 4 | 2 | 1 | 1 | | | 16.00 | 6,500 | | | | | | |
| Antler Creek | 5 | | 4 | 1 | 10 | 9 | " | " | | 2 | | 3 | | | 4 | | 1 | | 1 | 1 | 16.25 | 4,500 | | | | | | |
| Cunningham Creek (upper) | 5 | | 4 | 1 | 2 | 16 | " | " | | 3 | | 2 | | | 3 | 1 | 1 | | | | 16.00 | 5,500 | | | | | | |
| Stevens and Beggs Creeks | 4 | | 4 | | | 16 | " | " | | 4 | | | | | 3 | 1 | | | | | 15.75 | 6,500 | | | | | | |
| Shepherd and Valley Creeks | 2 | | 1 | 1 | 4 | 1 | " | " | | 2 | | | | 1 | 1 | | | | | | 17.50 | 1,200 | | | | | | |
| Desultory | | | | | | 20 | " | " | | | | | | | | | | | | | | 4,000 | | | | | | |
| Lightning Creek Division: | | | | | | | | | | | | | | | | | | | | | $16.50 to | | | | $76,600 | | | |
| Lightning and Cottonwood Creeks | 14 | | 7 | 7 | 14 | 26 | " | " | | 7 | | 6 | 1 | | 6 | 2 | 4 | 2 | 2 | | 17.50 | 9,500 | | | | | | |
| Van Winkle and Perrin's Gulch | 3 | | 2 | 1 | 2 | 6 | " | " | | 2 | | 1 | | | 2 | | | 1 | | | 17.25 | 2,000 | | | | | | |
| Slough Creeks and Devil's Canyon | 5 | | 3 | 2 | 5 | 21 | " | " | | 2 | 1 | 2 | | | 3 | 1 | 1 | | | 1 | " | 10,000 | | | | | | |
| Nelson, Burns, and Cobiter Creeks | 7 | | 6 | 1 | | 26 | " | " | | 4 | 1 | 2 | | | 5 | 2 | | | | | " | 9,100 | | | | | | |
| Last Chance and Davis Creeks | 5 | | 4 | 1 | | 12 | " | " | | 4 | | 1 | | | 4 | | 1 | | | | " | 4,000 | | | | | | |
| Rushon and Canyon Creeks | 3 | | 3 | | 4 | 4 | " | " | | 3 | | | | | 3 | | | | | | 17.50 | 2,300 | | | | | | |
| Anderson, Timon, and Poor Man's Creeks | 3 | | 2 | 1 | 5 | 3 | " | " | | 2 | | 1 | | | 3 | | | | | | 17.25 | 1,600 | | | | | | |
| Desultory | | | | | | 15 | | | | | | | | | | | | | | | | 3,000 | | | | | | |
| Quesnellemouth Division: | | | | | | | | | | | | | | | | | | | | | | | | | 41,500 | | | |
| Fraser River, from 6 miles below Quesnelle up stream | 9 | | 9 | | | 30 | | | 5 | | 4 | | | 5 | 2 | 2 | | | | | 16.50 | 2,500 | | | | | | |
| Quesnelle River, from mouth to 20 miles up " | 7 | | 7 | | | 29 | | | | 4 | 1 | 2 | | | 5 | 2 | | | | | " | 7,000 | | | | | | |
| Cottonwood River, from bridge down stream | 5 | | 5 | | | 17 | | | 1 | 2 | 2 | | | 1 | 4 | | | | | | " | 4,500 | | | | | | |
| Hixon Creek and vicinity | 5 | | 5 | | 3 | 15 | | | | 3 | 1 | 1 | | | 4 | 1 | | | | | 15.00 | 6,500 | | | | | | |
| Desultory | | | | | | 15 | | | | | | | | | | | | | | | | 3,000 | | | | | | |
| Keithley Creek Division: | | | | | | | | | | | | | | | | | | | | | | | | | 23,500 | | | |
| Keithley Creek | 8 | 28 | 8 | | 6 | 28 | 4.00 | 2.50 | | 3 | | 5 | | | 3 | 4 | 1 | | 1 | | 17.40 | 8,000 | | | | | | |
| Do. Desultory | | | | | | 12 | | | | | | | | | | | | | | | | 1,800 | | | | | | |
| Snowshoe Creek | 4 | 18 | 4 | | 10 | 10 | " | " | | 2 | | 2 | | | 1 | 2 | 1 | | 1 | | 17.00 | 6,500 | | | | | | |
| Do. Desultory | | | | | | 3 | | | | | | | | | | | | | | | " | 350 | | | | | | |
| French Snowshoe Creek, desultory | | | | | | 5 | | | | | | | | | | | | | | | | 750 | | | | | | |
| Harvey Creek | 3 | 10 | 3 | | | 10 | | | | 2 | | 1 | | | 2 | | | 1 | | | 17.40 | 2,750 | | | | | | |
| Pine Creek | 1 | 3 | 1 | | | 3 | | | | | 1 | | | | 1 | | | | | | " | 720 | | | | | | |
| Spanish Creek | 1 | 5 | 1 | | 3 | | " | | | | | 1 | | | | | | 1 | 1 | | 16.50 | 1,050 | | | | | | |
| North Fork, Quesnelle River | 2 | 5 | 1 | 1 | 1 | 4 | | | | | 1 | 1 | | | 1 | | | 1 | | | " | 1,500 | | | | | | |
| Do. do. Desultory | | | | | | 7 | | | | | | | | | | | | | | | | 1,000 | | | | | | |
| South Fork, Quesnelle River | 3 | 21 | 2 | 1 | 10 | 34 | 3.50 | 2.00 | | | | 3 | | | | 3 | | | | | 16.50 | 7,500 | | | | | | This includes the South Fork Hydraulic Co. |
| Do. do. Desultory | | | | | | 10 | | | | | | | | | | | | | | | " | 2,000 | | | | | | |
| Quesnelle River Forks, 40 miles down stream | 3 | 12 | 3 | | | 12 | | | | | 3 | | | | 3 | | | | | | " | 3,500 | | | | | | [draulic Mining Company. |
| Do. do. Desultory | | | | | | 12 | | | | | | | | | | | | | | | " | 2,000 | | | | | | |
| Coquett Creek | | | | | 7 | 23 | " | " | Leased | ground | in hill. | | | | | | | | | | " | 500 | | | | | | Prospecting by the Victoria Hy- |
| Horsefly River | 3 | 16 | 1 | 2 | 20 | | " | | | | | 2 | | | 1 | 1 | | 1 | | | " | 2,500 | | | | | | Very little work done on leased ground this season. |
| Fraser River (6 miles below Quesnelle, down to Riskie Creek) | 4 | 32 | 4 | | | 32 | | $35 p m. | | | | 4 | | | | 4 | | | | | 15.00 to 16.50 | 8,000 | | | | | | |
| Fraser River—Desultory | | | | | | 20 | | | | | | | | | | | | | | | 15.00 | 2,000 | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 52,420 | | $194,020 | |
| CASSIAR. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Laketown Division: | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dease Creek | 10 | | 10 | | 4 | 12 | 5.00 | 3.00 | 2 | | | 8 | | | 10 | | | 6 | | | 15.50 | 8,000 | | | | | | |
| Thibert Creek | 7 | | 6 | 1 | 12 | 20 | " | " | 1 | 2 | 1 | 3 | | | 6 | 1 | | 4 | | | 16.00 | 5,900 | | | | | | |
| Desultory mining | | | | | | | | | | | | | | | | | | | | | | 1,300 | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 15,200 | | | |
| McDame Creek Division: | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| McDame Creek and tributaries | 6 | | 6 | | 6 | 22 | 6.00 | 4.00 | 1 | 3 | | 2 | | | 6 | | | | 2 | | 17.50 | 8,500 | | | | | | |
| Desultory mining | | | | | | | | | | | | | | | | | | | | | | 700 | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 9,200 | | | |
| Liard River Division: | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Desultory mining | | | | | | | | | | | | | | | | | | | | | | | | | 3,600 | | | |
| Stikine Division | 3 | | 3 | | 9 | 3 | 4.00 | 2.50 | 3 | | | | | | 3 | 2 | | | | | 15.00 | 800 | | | | | | |
| Desultory mining | | | | | | | | | | | | | | | | | | | | | | 150 | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 950 | | 28,950 | |
| KOOTENAY. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eastern Division: | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wild Horse Creek | 26 | | 24 | 2 | 13 | 60 | 3.00 | " | | 16 | | 5 | 10 | | 10 | 5 | 1 | | 5 | 1 | 18.00 | 25,000 | | | | | | On Wild Horse Creek, owing to the early winter, one of the Chinese Hydraulic Companies did not finish cleaning up. Mr. Griffith's property has been idle during summer, owing to its transfer to an English company, who are putting in improved machinery, and who intend to work the claim to its full capacity next summer. |
| Perry Creek | 5 | | 5 | | | 10 | | | | 5 | | | | | 5 | | | | | | " | 3,000 | | | | | | |
| Moyea River | 2 | | 2 | | 4 | 3 | 3.50 | | | 1 | | 1 | | | 1 | | | 1 | | | " | 1,500 | | | | | | |
| Weaver Creek | 1 | | | 1 | 7 | | | | | 1 | | | | | | | 1 | | | | " | 200 | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 29,700 | | | |
| Western Division | | | | | | | | | | | | | | | | | | | | | | 10,000 | | | 10,000 | | 39,700 | |
| LILLOOET. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cayoosh Creek | | | | | | Chinese and Indians. | | | | | | | | | | | | | | | | | | | | | | |
| Bridge River | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bars and Benches of Fraser River | | | | | 25 | 60 | | | | | | | | | | | | | | | 15.00 to 16.50 | 39,763 | | | 39,763 | 39,763 | | Value ascertained from buyers. |
| YALE. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Osoyoos Division: | | | | | | Chinese. | | | | | | | | | | | | | | | | | | | | | | |
| Cherry Creek | 6 | 13 | 2 | 4 | 8 | 8 | 3.50 | 2.00 | | 3 | | | 3 | | 4 | | | 2 | 1 | | 14.50 | 1,800 | | | | | | Approximate. |
| Siwash Creek | 7 | 13 | 4 | 3 | 15 | | 3.00 | | | 4 | 1 | 1 | 1 | | 4 | | | | | | 16.00 | 1,200 | | | | | | Approximate. |
| Swan Lake, East | 17 | 17 | | 4 | 6 | | 2.50 | | | | | | 17 | | | | | | | | | | | | | | | A little prospecting done only. |
| Mission Creek | 2 | 5 | | | 2 | | | | | | | | | | | | | | | | 16.00 | 100 | | | | | | Approximate. |
| Harris Creek | 6 | 7 | | | | | 3.50 | | | | | | | | | | | | | | | | | | | | | Prospecting. |
| Okanagan Lake, east side | 6 | 9 | | 6 | 4 | | " | | | | | | 6 | | | | | | | | | | | | | | | Only a little prospecting done. |
| Rock Creek | 7 | 76 | 6 | 1 | 11 | 13 | " | 1.50 | 1 | 5 | 2 | | 70 | | 5 | 1 | 1 | | 1 | | 16.50 | 5,600 | | | | | | |
| Boundary Creek and Kettle River | 10 | 231 | 1 | 9 | 30 | | " | | | 1 | | | 230 | | 1 | | 10 | | | | | 200 | | | | | | |
| Osoyoos | | 40 | | 5 | 6 | | " | | | | | | 40 | | | | 5 | | | | | | | | | | | |
| Keremeos | | 30 | | 3 | 3 | | " | | | | | | 30 | | | | 3 | | | | | | | | | | | |
| Fairview | 50 | 160 | | 50 | 75 | | " | | | | | | 160 | | | | 40 | 5 | | 2 | | | | | | | | Ore to the value of several hundred thousand dollars is now on the dumps at the different camps. |
| | | | | | | | | | | | | | | | | | | | | | | | | | 9,600 | | | |
| Similkameen Division: | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Similkameen | 10 | 28 | 8 | 2 | 10 | 18 | 3.00 | 1.50 | | 8 | 1 | | 1 | | 9 | | | 1 | 4 | | 17.75 | 4,500 | | | | | | |
| Tulameen | 18 | 47 | 15 | 3 | 19 | 42 | " | " | | 9 | 5 | | 4 | | 10 | 4 | 2 | 2 | 5 | | " | 8,000 | | | | | | |
| Granite Creek | 8 | 21 | 5 | 3 | 11 | 16 | " | " | | 3 | | 5 | | | 8 | | | 5 | 2 | | " | 4,500 | | | | | | |
| Slate Creek | 4 | 4 | 4 | | 4 | | | | | 4 | | | | | 4 | | | | 1 | | | 1,500 | | | | | | |
| Boulder Creek | 2 | 3 | | 2 | 1 | 3 | " | " | | 2 | | | | | 2 | | | | 1 | | | 750 | | | | | | |
| Newton Creek | 3 | 4 | 3 | | 4 | | | | | 3 | | | | | *3 | | | | | | | 2,000 | | | | | | * Indians mining with rockers. |
| Whipsaw Creek | 2 | 4 | 1 | 1 | 4 | | | | | 2 | | | | | 2 | | | | | | | 250 | | | | | | |
| | | | | | 467 | 873 | | | | | | | | | | | | | | | | | | | 21,500 | | 31,100 * | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | $333,583 | | |

The yield of Platinum for the season is estimated at $3,500.

# REPORT

OF THE

# MINISTER OF MINES,

# 1892.

*To His Honour* EDGAR DEWDNEY,
*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 1892, is herewith respectfully submitted.

JAMES BAKER,
*Minister of Mines.*

*Minister of Mines' Office,*
*31st December, 1892.*

# PROVINCE OF BRITISH COLUMBIA.

## TABLE

Showing the actually known and estimated yield of gold and silver; the number of miners employed; and their average earnings per man, per year, from 1858 to 1892.

| Year. | Amount of gold actually known to have been exported by Banks. | Add one-third more estimate of gold carried away in private hands. | Gold. Total. | Estimated yield Silver. | Gold and Silver. Total. | Number of Miners employed. | Average yearly earnings per man. |
|---|---|---|---|---|---|---|---|
| 1858 (6 months) | $ 390,265 | $ 130,088 | $ 520,353 | ..... | $ 520,353 | 3,000 | $ 173 |
| 1859 | 1,211,304 | 403,768 | 1,615,072 | ..... | 1,615,072 | 4,000 | 403 |
| 1860 | 1,671,410 | 557,133 | 2,228,543 | ..... | 2,228,543 | 4,400 | 506 |
| 1861 | 1,999,589 | 666,529 | 2,666,118 | ..... | 2,666,118 | 4,200 | 634 |
| 1862 | 3,184,700 | 1,061,566 | 4,246,266 | ..... | 4,246,266 | 4,100 | 517 |
| 1863 | | | | | | 4,400 | 482 |
| 1864 | 2,801,888 | 933,962 | 3,735,850 | ..... | 3,735,850 | 4,400 | 849 |
| 1865 | 2,618,404 | 872,801 | 3,491,205 | ..... | 3,491,205 | 4,294 | 813 |
| 1866 | 1,996,580 | 665,526 | 2,662,106 | ..... | 2,662,106 | 2,982 | 893 |
| 1867 | 1,860,651 | 620,217 | 2,480,868 | ..... | 2,480,868 | 3,044 | 814 |
| 1868 | 1,779,729 | 593,243 | 2,372,972 | ..... | 2,372,972 | 2,390 | 992 |
| 1869 | 1,331,234 | 443,744 | 1,774,978 | ..... | 1,774,978 | 2,369 | 749 |
| 1870 | 1,002,717 | 334,239 | 1,336,956 | ..... | 1,336,956 | 2,348 | 569 |
| 1871 | 1,349,580 | 449,860 | 1,799,440 | ..... | 1,799,440 | 2,450 | 734 |
| 1872 | 1,208,229 | 402,743 | 1,610,972 | ..... | 1,610,972 | 2,400 | 671 |
| 1873 | 979,312 | 326,437 | 1,305,749 | ..... | 1,305,749 | 2,300 | 567 |
| 1874 | 1,383,464 | 461,154 | 1,844,618 | ..... | 1,844,618 | 2,868 | 643 |
| 1875 | 1,856,178 | 618,726 | 2,474,904 | ..... | 2,474,904 | 2,024 | 1,222 |
| 1876 | 1,339,986 | 446,662 | 1,786,648 | ..... | 1,786,648 | 2,282 | 783 |
| 1877 | 1,206,136 | 402,045 | 1,608,182 | ..... | 1,608,182 | 1,960 | 820 |
| 1878 | 1,062,670 | 1-5th 212,534 | 1,275,204 | ..... | 1,275,204 | 1,883 | 677 |
| 1879 | 1,075,049 | ,, 215,009 | 1,290,058 | ..... | 1,290,058 | 2,124 | 607 |
| 1880 | 844,856 | ,, 168,971 | 1,013,827 | ..... | 1,013,827 | 1,955 | 518 |
| 1881 | 872,281 | ,, 174,456 | 1,046,737 | ..... | 1,046,737 | 1,898 | 551 |
| 1882 | 795,071 | ,, 159,014 | 954,085 | ..... | 954,085 | 1,738 | 548 |
| 1883 | 661,877 | ,, 132,375 | 794,252 | ..... | 794,252 | 1,965 | 404 |
| 1884 | 613,304 | ,, 122,861 | 736,165 | ..... | 736,165 | 1,858 | 396 |
| 1885 | 594,782 | ,, 118,956 | 713,738 | ..... | 713,738 | 2,902 | 246 |
| 1886 | 753,043 | ,, 150,608 | 903,651 | ..... | 903,651 | 3,147 | 287 |
| 1887 | 578,924 | ,, 115,785 | 693,709 | ..... | 693,709 | 2,342* | 296 |
| 1888 | 513,943 | ,, 102,788 | 616,731 | ..... | 616,731 | 2,007 | 307 |
| 1889 | 490,769 | ,, 98,154 | 588,923 | $ 47,873 | 636,796 | 1,929 | 330 |
| 1890 | 412,029 | ,, 82,406 | 494,436 | 73,984 | 568,420 | 1,342† | 423 |
| 1891 | 358,176 | ,, 71,635 | 429,811 | ..... | 429,811 | 1,199 | 358 |
| 1892 | 332,938 | ,, 66,587 | 399,525 | ..... | 399,525 | 1,340 | 298 |
| | | | | | $53,634,509 | | |

* This is exclusive of over 650 white men who, during the season of 1887, were working on or prospecting for mineral claims.
† This is exclusive of over 300 whites employed working on or prospecting for mineral claims.

# REPORT.

## GOLD.

The value of the gold exported by the banks at Victoria during 1892 amounted to $332,938. Commencing with 1887 the export has kept decreasing, and last year proved no exception.

Returns from the several districts, excepting Cariboo and East Kootenay, show a falling off in the quantity of gold mined, which is attributed to the well worked placer claims having in some cases become barren, and to the absence of new ground from which the deficiency could be supplied.

Though the prosecution of the mining industry throughout the Province is on the increase, there is at present little to report concerning the result of the developments of the different mineral ledges and hydraulic workings in so far as relates to the production of gold and silver.

In the West Kootenay District, the activity in mining mentioned last year still continues, and one quartz mine is reported to have produced $10,000 in free gold, while many claims have shipped ore, the results of which are not stated.

With regard to hydraulic claims, the applications for mining leases of bench lands during the past year have been more numerous than at any former period, and it is anticipated that the output of gold for 1893 will be considerably enhanced by the hydraulic companies operating in the Yale Division of the Yale District, and also in the Lillooet and Cariboo Districts.

### PLATINUM.

It will be noticed that the yield for the season, estimated at $3,500, falls far short of the amount ($10,000) mined in 1891. A decline in the market value of the metal is offered in explanation of the reduced production. There is reason, however, to think that certain claims on the Tulameen River, in the southern portion of the Yale Division, which have been acquired by the Tulameen Hydraulic Company, have not received the same attention during the past season as of late years. An amount exceeding $20,000 has already been expended in the development of the property, and steps are now in progress for the purpose of obtaining the necessary capital to work the claims to advantage. Should the Company succeed in their efforts mining operations will be resumed without delay on an extensive scale.

## CARIBOO.

### MR. BOWRON'S REPORT.

RICHFIELD, November 26th, 1892.

SIR,—In transmitting the enclosed mining statistics in tabular form, which shows approximately the result of mining operations in Cariboo District for the season of 1892, I have the honour to supplement such information with the following brief summary, being my eighteenth annual report on the mining industry in this district.

It will be satisfactory to observe that, while a large number of miners have been engaged during the season in constructing ditches and other non-productive work, the returns show an increase in the gold product over that of last year; and in taking a comprehensive view of the operations throughout the district, there is abundant evidence to inspire confidence in the future.

As in all enterprises of an experimental character, the introduction of new appliances in works of unusual magnitude, is frequently accompanied by disappointment, inasmuch as unforeseen obstacles arise, which have not been provided for by the projectors; hence a longer period of time is often required to place a claim on a paying basis than was at first estimated. These remarks apply to a large number of enterprises in the district, among which might be mentioned the hydraulic claims now being opened on the South Fork of the Quesnelle River. The owners of these claims have every evidence of the value of their property, as developments made this season further prove the correctness of their previous opinion, but they were disappointed in not getting their appliances in position so as to have had a "wash up." Next season, however, two companies, at least, viz., the South Fork Co. and the Victoria Hydraulic Co., will undoubtedly contribute their quota to the general output of the district, as their pipes will be in position, and they will be able to commence operations as soon as the spring opens. The absorption by these two companies of a considerable amount of the available labour of that section has had the effect of reducing the output of Keithley Division.

The Barkerville Division shows a material increase in its output, and there are at the same time several enterprises in various stages of development, which are not yet productive.

The Slough Creek Mining Co., using the hydraulic jetting process of boring, after sinking several holes, finally succeeded in locating the deep channel at 245 feet. The pipes used by this company varied from 3½ to 6 inches in diameter, the smaller pipe being used as greater depth was obtained. While using the larger pipe, the value of the ground was in a measure tested, but when it became necessary to use the smaller pipe it was impossible to do so. Upon satisfying himself that the deepest part of the channel had been reached, the manager, Mr. Chas. Ramos, at once engaged a force of men, who are now sinking a working shaft, which is at present about 30 feet down.

Considering the extent of undeveloped ground in Cariboo, similarly situated to that of the valley of Slough Creek, such as Williams Creek meadows, Willow River, Lower Lightning Creek, Lower Antler Creek, Bear River, and many other streams, known to have deep channels, which have never been exploited, we are impressed with the fact that the boring machine will become an important factor in the development of the district. In using such means to prospect deep ground, it would be advisable that a larger hole be bored, so that the value of the gravel on the bottom might be tested without the great expense of sinking a working shaft.

The Nason Co., of Antler Creek, having purchased a steam pump and placed it in position, are now starting again to pump out their diggings, and with this addition to their former pumping machinery, the company will doubtless be able to keep the water out, and so finally determine the value of their claim.

The Waverley Co., of Grouse Creek, continue to improve in their output, although the shareholders have been somewhat disappointed that the claim did not pay expenses this season.

The Clear Grit Co., of Canadian Creek, have discovered what they suppose to be a large river channel, entirely independent of present water courses, and parallel to that in which they have been working with varying success for the past twenty years. The new found channel, which is about 40 feet to the west of the old channel, contains paying gravel 30 feet in depth, but the width is not yet ascertained.

Mr. Geo. Ferguson has formed a company, and is now sinking in the hill on the ground adjoining. Should he succeed in finding similar pay gravel to that discovered in the Clear Grit ground, he considers the find of more importance than the discovery of Williams Creek.

The only discovery made in the district this season, which may be regarded as entirely new, was that of Mr E. C. Shepherd and partner, on a small stream which flows into Antler Creek, and is now known as Shepherd Creek. The discovery was made near the source of the creek in Downie Pass, two and a half miles east of Williams Creek meadows. As the gold is of a coarse character and well washed, hopes are entertained that the discovery may lead to something of importance.

The Forest Rose claim, of Williams Creek, continues to maintain its reputation of being one of the most productive in the district.

The accompanying statistics also show that the placer mines on Mosquito Creek have somewhat exceeded the usual output.

The company which obtained a concession of one mile of the valley of Willow River have not as yet commenced operations; but, I learn, have recently interested English capitalists in their enterprise, and expect shortly to proceed with the work. This is one of the most promising enterprises ever offered to capital as a mining investment.

Mr. Whittier, who obtained a lease of ground on the meadows of Williams Creek, has apparently failed to induce London capitalists to take hold of his undertaking.

The Lightning Creek Division shows quite a falling off in the product of its mines. A company, which applied for and obtained a lease of a portion of the old South Wales ground, have been working continuously for the past two years, endeavouring to find benches upon which auriferous gravel was supposed to exist, have at last been rewarded, and are now taking out fairly good pay. This company will continue working during the winter.

The Big Bonaza claim, prospecting the deep ground on Lower Lightning Creek, were unfortunate in having a portion of their dam washed away during the spring freshet. A contract to repair the break is now let, upon completion of which the Company will pump out their diggings and resume work underground.

In the Quesnelle Division there has been a slight decrease in the gold product. The Blue Lead Co., of Hixon Creek, although continuing operations during the season, have not as yet succeeded in developing pay in the hill channel.

Another branch of our mining industry, and one which hitherto seems to have been quite overlooked, or at least has attracted but little attention, is destined in the near future to add much to our resources. I refer to the gravel bars in our rivers and large creeks. In 1891 a Mr. L. Samson visited Cariboo, claiming to be the patentee of a gold saving apparatus, which being immersed in the bottom of a stream caught every particle of gold passing over it. Although having the plant with him, and spending much time in examining various streams for the purpose, Mr. Samson gave no practical test of his ability to do what he claimed. He again visited Cariboo in the spring of 1892, and applied for a concession on certain streams, but suddenly left the district again without making a trial. His advent among us has had the effect, however, of directing the attention of some of our old miners and practical men to the fact that the gravel bars in our rivers, which are now worked exclusively by Chinese during low water by means of the old-fashioned rocker, may, by the appliance of proper machinery, be made to yield thousands where now but dollars are produced.

Chinamen have been known to work over the same surface ten years in succession with profit, fresh deposits of auriferous sand and gravel being washed down during each year's high water.

A few persons of undoubted mechanical invention, associated with old Fraser River miners, adepts at saving fine gold, have the matter in hand, with every prospect of producing machinery which will cause the working of these bars to become a profitable investment for capital.

A large number of mining leases have been applied for during the year, mostly by non-residents. I regret to say, many of the applicants, after obtaining the option, have failed to complete their title. I would, therefore, suggest that applicants for leases be required to make a deposit of the amount of rent proposed to be paid for the first year, upon filing their application with the Gold Commissioner, the same to be forfeited in case of failure to complete their title.

Mr. Hobson, one of California's most skilled and experienced placer miners, visited the district this summer, and expressed much surprise at observing the almost unlimited extent of what he regards as auriferous gravel, which, worked with the modern and improved appliances now in use in California, must, he believes, contribute greatly to the wealth of the Province. But he is of the opinion that railway connection—providing cheaper labour, cheaper supplies, and cheaper transportation—will be essential to carry on the work on a sufficiently large scale to insure paying investments.

*Quartz.*

Our quartz mines, which, for the past three years, have not received the attention which their importance would seem to merit, attracted some little notice recently, in consequence of a visit of Mr. A. J. Colquhoun, a representative of the Gold and Silver Recovery Syndicate of Glasgow, Scotland. This company are the patentees of what is known as the McArthur-Forrest process of treating refractory ores, which entirely does away with the expense of roasting, which forms a part of all other known processes. The successful working of 300 pounds of ore from the Black Jack, and a similar amount from the Island Mountain mine, sent to Glasgow about two years ago, induced this company to send Mr. Colquhoun to Cariboo, who, before leaving here, bonded a number of mineral claims. That gentleman informed us that his company will probably erect a plant for the reduction of ore in Cariboo next season; and, after visiting the Government Reduction Works, stated that the chlorinating plant there could be easily utilized in working his process.

The Black Jack is the only company which has done anything worthy of mention in the way of mineral development during the past season. This company baled out their shaft to the 64-foot level, and commenced taking out and milling ore with their one stamp mill. The concentrates were sent to the Reduction Works for treatment, but after producing a small $425 gold bar, it was found that, with their present crude manner of working, the claim could not be made to pay; and therefore the works were shut down. I am informed by the secretary of the company that it cost over $50 per ton to mine and mill the ore worked, which under favourable circumstances should not exceed one-fourth that sum. This is but one instance, in perhaps hundreds in Cariboo, where valuable mining properties lie unworked or undeveloped, awaiting railway construction to render them profitable investments.

I estimate the gold product of the district for the year (exclusive of Omineca) will exceed $200,000, basing such conclusion upon the following actual and approximate figures:—

| | |
|---|---|
| Barkerville Division, to 15th November, 1892 | $76,600 |
| Lightning Creek " " " | 41,500 |
| Quesnellemouth " " " | 23,500 |
| Keithley Creek " " " | 52,400 |
| Estimated output, from 15th November to 31st December | 10,000 |
| | $204,000 |

I have, etc.,
(Signed,) JOHN BOWRON,
*Gold Commissioner.*

*To the Hon. the Minister of Mines,*
*Victoria, B. C.*

MR. STEPHENSON'S REPORT.

QUESNELLE FORKS, B.C.,
November 15th, 1892.

SIR,—I have the honour to forward herewith the estimated yield of gold for the Keithley, Alexandria, and Williams Lake Polling Divisions of the Cariboo District, for 1892.

The season has been favourable for mining operations all through this section of Cariboo, as the water supply held out well during the season; still the estimated amount of gold falls short of last year, which I think is owing to a steadily decreasing mining population, especially as regards Chinese miners. The reason for which is, that they, the Chinese, have pretty well worked out the shallow benches and small streams where gold was easily obtained, often by the individual miner, and always by small companies of from four to eight men, who, by doing their own labour, could at a small outlay for material open such claims by one season's work. Such claims of course were soon worked out; but it is mining of this nature that the Chinese engage in, and now that the opportunity for such mining is growing less the Chinese are leaving this part of Cariboo. But this does not mean that mining is generally finished in this section, as, I believe, we are only just beginning to find out that we have plenty of good mining ground in hill channels along the Quesnelle, and both on the South and North Forks of this river; also, on other streams in this vicinity. With the continuance of work now being carried on by three different companies, another season will probably see

the development of some of the claims, if not of all three; then, should the results be satisfactory, capital will be easily found for other works of the same kind.

The result of mining operations on the Snowshoe Creek has not answered expectations. The Golden Gate Company, which went to a heavy expense to sink a shaft in bed-rock near the lower end of the creek, effected their object, and drove into the deep ground; at times very good prospects were met with, but upon the whole, the return has not proved satisfactory to the owners. The two hydraulic claims up near the head of the creek have paid in excess of expenses for the season, but the dividends were lighter than usual; while the company of Chinese working their claim by an open cut in the bed of the creek, will not admit that they are making much, still they seem quite satisfied with what they are getting.

On Keithley Creek, three out of the four hydraulic claims working have done fairly well, while the fourth has not yet reached ground where they expect to find pay. The creek claims which are worked by open cuts in the bed of the creek, have not not done very well, as the unusually high stage of water in the creek has caused trouble in the endeavour to keep the wing-dams in good condition. On the North Fork of Quesnelle River there is not much doing, beyond desultory mining; one white miner still continues to drive a tunnel into the hill, looking for a back channel, but it is slow work, single handed. The company of whites on Spanish Creek still keep on with their work, drifting up stream and into the hill; they have mined a little gold with prospects of better pay ahead.

The two Chinese hydraulic companies on the South Fork of the Quesnelle River, have made about an average season's work, while some desultory mining has also been going on as usual. Both the Victoria and South Fork hydraulic mining companies have been pushing their work ahead as fast as possible; the former, with an average gang of eight white men on the claim, and about twenty-five Chinamen on ditch work, by contract; the latter, with ten white men on the claim, and about twenty-five Chinese on ditch work, by contract; and still there is work to be done by both companies before any returns can be looked for.

The Horsefly section is again receiving attention, and it is likely that there will be quite a number of men working there the coming season, as a company of capitalists have obtained the Discovery Company's ground, with their water right and other privileges; they are also about obtaining some ground by lease adjoining the Discovery Company's ground. Although the expense of bringing on a good supply of water will be heavy, still there is every reason to believe that with plenty of water the ground will pay well for hydraulic mining. The company is working a gang of ten men during the winter to thoroughly prospect the ground before going to the expense of bringing on water. The Harper claim (lease), on Horsefly, has done very little during the season, as the Horsefly River has kept very high nearly all the season, which was very much against the working of the ground, in fact, making it almost impossible, owing to the nature of the work to be done.

Along the Fraser River, the regularly organized companies that have water for hydraulic mining, have done about the usual amount of work, while the desultory mining has been less than that of last season.

I have the honour to be,
Sir,
Your very obedient servant,
W. STEPHENSON,
*Government Agent.*

*The Honourable,*
*The Minister of Mines.*

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## CASSIAR.

### MR. PORTER'S REPORT.

LAKETON, CASSIAR, B. C., 17th October, 1892.

SIR,—I have the honour to forward herewith the Mining Statistics for 1892, together with such particulars as may be of interest, in connection with my district.

The returns for the present season, as will be observed, show a considerable falling off in the yield of gold when compared with last year.

During the season some sixteen miners, who would have been working on Dease or Thibert Creeks, and taking out gold, were employed by a Mining Company from California that

acquired leases of mining ground on Thibert Creek, and have been during the summer engaged building a ditch and doing other work pertaining to their claims.

A rumour of the existence of rich ore on the Hyland River and its tributaries induced certain miners to visit that section of country. On their return they reported the discovery of a ledge, and duly recorded a claim under the "Mineral Act," with the intention of thoroughly testing the same next spring.

The mining carried on now in the old creeks is chiefly by Chinese, who keep working the old claims over, some of which have been worked many times.

One or two tunnel claims on Thibert Creek are doing fairly well.

The mining prosecuted both on the Stickeen and Liard Rivers, with one or two exceptions, is chiefly on the bars below high water mark, and of a desultory nature.

As closely as can be estimated, the number of miners and others in the district this year, exclusive of Indians, amounted to about 120, of these 65 were Chinese.

The following returns are as correct as it is possible to have them, owing to the many difficulties in the way of obtaining accurate information.

| | |
|---|---|
| Dease Creek | $8,700 |
| Thibert Creek | 6,500 |
| McDame's Creek | 9,200 |
| Liard River | 3,600 |
| Stickeen River | 950 |
| Total | $28,950 |

Next year it is generally expected that our population will exceed the present, and the returns, it is confidently believed, cannot be less than the figures given above.

I have, &c.,

JAMES PORTER,

*Gold Commissioner, Cassiar.*

*The Honourable the Minister of Mines.*

## WEST KOOTENAY.

### MR. FITZSTUBBS' REPORT.

VICTORIA, 31st December, 1892.

SIR,—I have the honour to submit for your information the mining report for West Kootenay District for the year 1892.

### REVELSTOKE DIVISION.

*Lardeau District.*

In this district there have been seventy-one mineral locations recorded during the present year, and seven transfers of interest in claims. Assessment work will be done on the majority of the locations taken up, and the work recorded during the 12-month limit. This division shows signs of becoming a very rich one, the lowest assay of ore taken from various claims being 40 ounces in silver, and ranging as high as 200 ounces, and in some cases showing a good percentage of gold.

*Big Bend District.*

Very little prospecting has been done in this district, only four claims having been recorded during the present year, and on those no work has yet been recorded. There is a little placer mining going on, and I am informed that in this enterprise about eight men are steadily employed.

### ILLECILLEWAET DIVISION.

In this district ninety-eight claims have been recorded, on the greater part of which assessment work will be done. Forty transfers and agreements for sale have also been filed, amounting to over $47,000. Between $25,000 and $30,000 have been expended in development work during the current year.

SLOCAN DIVISION.

In this district, during the current year, 750 locations have been recorded, on the greater part of which assessment work will be duly recorded.

Three hundred and forty transfers and bills of sale have also been recorded, aggregating $550,000, and it is estimated that the sum of $201,000 in cash has changed hands by reason of transfers up to date.

To illustrate the activity in mining in this district, the following statistics, which have been kindly furnished by Mr. J. L. Retallack (whose accuracy and sources of information may be safely relied upon), may be of interest:

On the Noble Five group of claims, situated on Carpenter Creek, the sum of $6,000 has been expended, principally in driving a tunnel 150 feet, and a trail seven miles long. Only samples of ore have been shipped from this camp, but a large body of ore has been exposed.

On the Slocan Star claims, situated on Sandon Creek, development work, consisting of 180 feet of tunneling has been done, and a trail of two miles has been built. Extensive machinery will be put on this group during the spring, when the output is expected to reach 300 tons of concentrates per month.

On the Payne group of claims, situated on Carpenter Creek, upwards of $4,000 have been expended in development work and trails. No ore has been shipped at present.

On the Blue Bird Claim upwards of $10,000 have been expended on 600 feet of tunneling, and also six miles of trail. One hundred tons of ore from this mine have been shipped *via* the Kaslo waggon road.

On the Freddy Lee, situated on Cody Creek, upwards of $20,000 have been expended in development work, and $4,500 on trails, etc. Over 400 tons of ore have been shipped from this mine.

On the Washington, situated on Carpenter Creek, 200 feet of tunnels have been driven, and good mountain trails have been built. It is estimated that 1,500 tons of ore will be shipped from this claim during the present winter.

On the Dardanelles group, situated on McGuigan Creek, about $4,500 have been expended on development work, and a trail four miles long has been built. About ten tons of ore have been shipped from this camp, showing satisfactory returns.

On the Best Claim, situated adjacent to the Dardanelles, over $10,000 have been expended on development work, and a trail three miles long has been built. About fifteen tons of ore have been shipped from this claim.

On the Idaho Claim, situated between Four-Mile Creek and Hansen Creek, about $2,400 have been expended on development work, and a trail, costing about $1,000, has also been built. About fifteen tons of ore have been shipped from this claim.

On the Great Western group, situated about one mile east of the Washington, 200 feet of tunnels have been driven, and three miles of trail have been built. No ore has been shipped from this group.

On the Queen Bess, situated on Cody Creek, the sum of $5,000 is at present being expended on development work, and a trail, costing $500, has been built. No ore has been shipped from this claim.

On the Lucky Jim and Roadley group, situated on Seaton Creek, about $10,000 have been expended on development work and trails. No ore has been shipped from this group.

Of other claims in this district, on which considerable development work has been done, may be mentioned:—

The Northern Belle, on Jackson Creek. This claim has been bonded for $45,000.

The Slocan Boy, adjoining the Washington. On this claim there is a large quantity of ore in sight.

The Reco and Wonderful, situated between the Noble Five and Blue Bird. There is a large amount of ore in sight on these claims. Thirteen men are steadily employed developing.

The Silver Glance group, situated two miles north-west from the town of Watson. Development work has been going on all summer, and the claims have been bonded for $45,000.

The Sunset claim, near the Blue Bird, has been bonded for $20,000.

The R. E. Lee, situated about three-quarters of a mile south of the Washington, has been bonded for $20,000.

The Chambers group, situated on Cody Creek, has been bonded for $50,000.

The Big Bertha, an extension of the Dardanelles, has been bonded for $45,000.

The Utica, on the same creek, has been bonded for $30,000.

### AINSWORTH DIVISION.

During the current year in this district there have been 470 mining claims recorded, and 274 transfers have been filed. Of the 470 claims recorded, assessment work will be done on the greater part.

Immediately in the vicinity of Ainsworth, rich strikes have been made, among which may notably be mentioned the Mile Point claim, assaying as high as 400 ounces in silver per ton.

On the Skyline silver claim it is the intention of the owners to erect a stamp mill during the coming spring.

On the Highlander claim considerable development work has been done.

On the Lady of the Lake group of claims, it is estimated that $25,000 will be expended during the coming season on development work and general improvements.

*Kaslo portion of Ainsworth Division.*

On the Solo group, situated on Lyle Creek, extensive development work has been done, and good trails built. There is a large body of ore in sight.

On the Wellington claim, situated on Whitewater Creek, steady work has been done, exposing large bodies of ore. It is the intention of the owners to put extensive machinery on this property in the spring. Ten tons of ore have been shipped from this mine, showing good returns.

On the claims of the Brennand group, situated on Lyle Creek, about $2,000 have been expended on development work and a good trail has been made.

On the Whitewater claim, situated on Whitewater Creek, about $2,500 have been expended on development work. About eight tons of ore have been shipped from this claim.

The Beaver group of claims, situated fifteen miles north of Kaslo, have been bonded for $75,000.

On the Montesuma and Mexico claims about $3,000 have been expended in getting in supplies and erecting buildings preparatory to developing the property, which is now bonded for the sum of $20,000.

The Twilight, situated on Twelve-Mile Creek, has been bonded for the sum of $20,000.

The Fourth of July and Viola claims, situated on Spring Creek, have been bonded for the sum of $50,000.

The Yosemite, Homestake, and Eureka, in the Brennand Camp, have been bonded for the sum of $65,000.

The aggregate sum of the above, and bonds given for smaller amounts on other claims, amount to nearly $334,000.

A waggon road has been built from Kaslo to Bear Lake by private subscription, costing in the neighbourhood of $20,000

*Lardeau and Duncan portions of Ainsworth Division.*

Late in the season several good prospects were discovered, assays ranging very high, and on the Duncan slope, near Upper Kootenay Lake, a gold strike has been made, showing free milling ore, assays of which have been made as high as $1,000 per ton.

Good placer ground has been reported on the bars of the Duncan River. It is expected that a big rush will be made into this part of the district during the coming summer.

On La France Creek about fifty locations have been made. The ledges are very strong, being composed chiefly of galena and copper, with a fair percentage of gold.

On Pilot Bay, Kootenay Lake, a smelter is in the course of construction, attached to which will be a refinery. It is estimated that the cost of these extensive works (which will be completed early next summer) will be not less than $250,000.

The buildings are built of brick, and roofed with corrugated iron.

The following dimensions of the building may be of interest:—

| | |
|---|---|
| Concentrator Building | 85x100 |
| Sampling Works | 100x108 |
| Roaster | 100x170 |
| Smelter | 58x 98 |
| Refinery | 120x245 |
| Assay Office | 20x 80 |
| Boiler House | 40x 48 |
| Blacksmith Shop | 20x 40 |
| Machine Shop | 20x 40 |
| Office | 30x 45 |
| Boarding House | 25x 60 |

### GOAT RIVER DIVISION.

Several claims have been taken up and recorded, and assessment work done on most of them.

The quality of the ore assayed from this district is good, being composed of galena, copper, and a percentage of gold. It promises to be a rich district.

### TRAIL CREEK DIVISION.

In this district sixty-seven mining claims have been recorded, and eighty-eight transfers and bills of sale filed. Assessment work will be done on nearly all claims taken up.

The principal claims are as follows:—

The Le Roi and Centre Star. On these claims work has been prosecuted continuously, and development work has exposed large bodies of ore. The ore assays $40 in gold, 4 ounces in silver, and 8% copper per ton.

On the O. K. claim a fair amount of work has been done, showing up a large body of ore, composed of iron pyrites and galena, assays varying from $200 per ton upwards.

Twelve miles of waggon road from the LeRoi mine, the centre of the Trail Creek group, have, by private subscription, been built to the International boundary. Over this road *$4,000 worth of ore has been taken from the O. K. mine, and supplies shipped in.* A refund of $2,025, the cost of this undertaking, is asked.

On the Pen d'Orielle River valuable placer ground has been discovered. It is estimated that $50,000 is being expended on this river in building saw-mills, ditches, etc., so as to work this ground on a very large scale.

### NELSON DIVISION.

In this district 244 locations have been recorded, and 197 transfers filed. On the majority of locations assessment work will be done and recorded in due course. To illustrate the mining enterprise in this division, the following may suffice:—

On the Whitewater and Snow-water gold claims, situated on Rover Creek, tunnels to further develop the properties have been driven. Work on the latter is being prosecuted all the present winter.

On the Poorman gold mine, situated on Eagle Creek, there has been a large amount of work done. This mine has a 10-stamp mill on it, and it is estimated that $10,000 has been taken out of this mine in free gold during the last summer.

On the Silver King mine, situated on Toad Mountain, the main tunnel has been extended 150 feet, and other development work, aggregating 912 feet. This mine stands at the head of all discoveries so far made in West Kootenay, and is now bonded to a Scotch syndicate for nearly $2,000,000.

On the Grizzly Bear claim, situated on the same mountain, about $14,000 have been expended on development work. No ore has been shipped.

On the Silver Queen, adjacent to the Silver King mine, $9,000 have been expended during the past summer.

On the Dandy mine, also adjacent to the Silver King, a large amount of development has been done, and large bodies of ore exposed. The Dandy, as regards value, ranks next to the Silver King.

On Morning Mountain several claims have been located, and show great promise of future richness.

On Mineral Mountain, the Lizzie C. claim shows a great deal of development, but no ore has as yet been shipped from this claim.

Between Mineral and Toad Mountains several good gold claims have been discovered, showing returns of 40% copper, and $30 in gold per ton.

*Placer Claims.*

The following records have been made:—

| | |
|---|---|
| Locations | 15 |
| Transfers | 8 |
| Leases | 4 |

On Forty-Nine Creek some very good ground is being worked.

On Hall Creek, about twelve miles south of the town of Nelson, good prospects have been found, yielding from $4 to $8 per day to the man.

On this creek also a strong ledge of gold-bearing quartz has been discovered, showing returns of $10 to $30 per ton.

On Salmon River extremely good prospects have been found, and leases have been granted to parties who intend working their properties on a large scale next summer.

Owing to the very rich finds in the Slocan District, prospectors have been naturally attracted to that part of the country, who would otherwise have stayed round Nelson and further prospected and developed claims in the immediate vicinity, and this also applies to other recording divisions outside of Slocan.

The following is a recapitulation of claims, etc., taken up in West Kootenay District during the current year:—

| | Claims Recorded. | Transfers Recorded. |
|---|---|---|
| Revelstoke | 75 | 7 |
| Illecillewaet | 98 | 40 |
| Slocan | 750 | 340 |
| Ainsworth | 470 | 274 |
| Goat River | No report | ... |
| Trail Creek | 67 | 88 |
| Nelson | 244 | 197 |
| Totals | 1,704 | 946 |

The revenue from Free Miners' certificates and records for West Kootenay District during the present year is $14,892.

I have the honor to be,
Sir,
Your obedient servant,
N. FITZSTUBBS,
*Gold Commissioner.*
West Kootenay, B. C.

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

## EAST KOOTENAY.

### MR. CUMMINS' REPORT.

DONALD, B. C., February 1st, 1893.

SIR,—I have the honour to submit the following report on the mining operations and mineral development of the District of East Kootenay during the year 1892, together with the usual tabular statement shewing statistics relating to placer mining for the same period:—

### PLACER MINING.

The accompanying statement shows the estimated yield of placer gold from the various creeks to be as follows:

| | |
|---|---|
| Wild Horse Creek | $25,000 |
| Perry Creek | 3,000 |
| Moyie River | 1,500 |
| Weaver Creek | 200 |
| Total | $29,700 |

being an advance of $12,000 on the production of last year. It should be stated that owing to the unusually early advent of winter, one of the Chinese companies on Wild Horse Creek did not finish cleaning up. Mr. Griffith's hydraulic property has also been unworked during the summer, pending negotiations for a transfer to an English company, which are now understood to have been satisfactorily concluded. The company is entitled "The East Kootenay Exploration Syndicate, Ltd., of London." Mr. McVittie, the manager, informs me

that his company has purchased and will put in next spring an additional pipe line, fourteen inches diameter, which, with the pipe already in position, will enable him to use three giants. The property consists os 2,100 feet of patented ground and 1,700 feet of recorded ground, all bench claims. The company holds 1,900 inches of water, with a working head of over 300 feet.

The operations being carried on to test the deep ground on Wild Horse Creek, about eight miles from its mouth, alluded to in last year's report, met with a check, owing to trouble experienced in dealing with the surface water. It has, however, been determined to continue operations by sinking a shaft in a more favourable situation. This company built a road about three miles in length last summer, to enable them to bring in pumping machinery.

About two miles from the mouth of the creek, where it leaves the foot-hills, Mr. M. Phillips, of Fort Steele, and associates, is sinking a shaft to reach the bed-rock. The shaft is being sunk in the rim rock, with the idea, I presume, of avoiding surface water. It is the intention to drift across the channel when a sufficient depth has been reached. This ground is being worked at present under record as an ordinary claim. A lease has, however, been applied for.

Some excitement was caused during the early part of the season by the discovery of deposits of black sand on the St. Mary's River, near the St. Eugene Mission. Samples of the sands on being assayed gave results as high as $4,000 to the ton of black sand. I am not in a position to state if the sands underwent concentration by panning before the samples were selected. I assume that the gold was principally placer gold in the free state. It is, however, contended that the magnetic oxide of iron (black sand) in itself also contained a considerable quantity of gold.* The discoverers are satisfied that with modern gold saving plant these sands can be profitably worked, and four leases have been applied for. It is stated that large deposits of black sand also exist on Gold Creek, which runs into the Kootenay River about five miles north of the International boundary.

To the north of Donald some promising placer prospects have been reported to have been found late in the season, and a number of applications for leases have been made on the Blue Water River. I am not in a position to report on the importance of these discoveries. The discoverers claim in each case to have obtained good prospects.

The intended hydraulic operations on Quartz Creek were stopped by an injunction of the Supreme Court, forbidding the company from turning their tailings into the creek, to the prejudice of the interests of the Columbia Lumber Company.

## QUARTZ MINING.

Prospecting for quartz leads has, during the past season, not been as active as could have been desired, especially in the northern portion of the district. The southern portion has received more attention, with some most important results, a number of new discoveries having been made in the Fort Steele Recording Division of the district. The most important of these is the "North Star" claim, situated on the St. Mary's River, about 20 miles' travel from Fort Steele, a more particular description of which will be found further on.

Mining operations in the McMurdo District have been confined to the Vermont Creek locality and to the neighbourhood of the "Bobby Burns Basin," on the left bank of the Middle Fork of the Spillemechene River, whilst the most important and extensive work has been in progress on the Thunder Hill Mining Company's property on Thunder Hill, near the Columbia Lake, both as regards development of the property and its exploitation as a mine.

A very handsome and representative collection of minerals, considering the stage of mining development in the district, has been collected to be forwarded to the World's Fair, Chicago.

### *McMurdo District.*

The "Bobby Burns" claim. It is to be regretted that the expectations of an immediate output, looked forward to this season, have not yet been realized with respect to this property. There is, however, not any reason to retract the favourable notice in last year's report, as to the probable paying qualities of the claim, under competent and experienced management. A road has been built for a distance of about three-quarters of a mile from the mine to the

*The following anyalsis of a sample of the black sand may be of interest: Iron, 52%; oxigen, 21.80%; silver and gold, 0.75%; lead, 3.50%; insoluble, 21%. The gold was in the form of brilla, or colours.

Five Stamp Mill. About 30 tons of rock were crushed, and a considerably larger quantity taken out. From some accidental cause, apparently in connection with the working of the mill, the quantity of gold saved does not seem to have realized expectations, nor corresponded with the samplings of the ore. It is stated that since the shutting down of the mill, negotiations have been on foot for the sale of the property.

There are several promising gold quartz claims, similar in character to the "Bobby Burns," in the immediate vicinity; notably, the "International," formerly known as the "Chief of the Selkirks," the "Flying Dutchman" claim, and others. The ore in these leads is free milling, as far as seen on the surface. Where depth has been reached, sulphurets become more abundant. With the recent advances which have been made in the treatment of gold ores under these conditions, this locality should contain some valuable gold properties. Many things point to the existence of a gold belt, of as yet unknown extent, in the neighbourhood of the backbone of the range, of which these outcrops are a part. The formation in which the claims lie may be stated to consist mainly of chlorite slates and schists, the latter assuming in many cases such a granular form as to be characterized locally as granites.

*Carbonate Mountain and Cariboo Basin.*

Nothing but assessment work has been done on Carbonate Mountain this season. Crown grants have been applied for in respect of four claims owned by Messrs. Rand Bros.' Syndicate.

In Cariboo Basin, an aggregate of 350 feet of tunnelling has been done, in various places. It is to be regretted that this work could not have been done in one place, and one of the leads thereby tested. One of the most promising claims at the present time in this locality is the "Ellen D." The development work has exposed a vein from 3 to 4 feet in width, well mineralized with gelena, grey copper, and iron sulphurets. Assays of 1,755 ounces in silver and about $20 in gold have been obtained.

Only assessment work has been done on Copper Creek.

*Vermont Creek.*

A tunnel has been run on the claims bonded by the Golden Smelting Company, on the north side of this creek. I am informed that it is intended to cross-cut to the right to reach the lead.

The Vermont claim, on the southern side of Vermont Creek (mentioned on page 568 of last year's report), which was bonded to Mr. H. C. Hammond last year, has been released by him. The owners, on resuming possession, took out a car-load of ore, which they shipped to Tacoma Smelter, in September last, as a practical test of their ore, with the intention of making larger shipments during the coming season.*

The result, as evidenced by the statement in foot-note, must be considered to be very satisfactory, considering that the ore was packed for a distance of 21 miles on horses, and that the charges for freight and duty were so high, the facilities for local treatment not having yet been put in operation. With respect to the cost of mining, it may be mentioned that the ore was taken out of tunnels at a low depth, with a view to development, leaving the ore above to be stoped out in the future at much smaller expense.

No development work of importance has been done on the creeks between the South Fork of the Spillemechene and Toby Creeks, though, as mentioned in former reports, promising prospects exist in this region.

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| | | | |
|---|---|---|---|
| * Cost of mining 20¾ tons of ore | | | $ 492 00 |
| Packing to Columbia River | $615 00 | | |
| Freight by Steamboat to Golden | 31 15 | | |
| Freight to Tacoma | 177 20 | | |
| Duty | 368 31 | | |
| Sacks | 21 00 | 1,212 66 | |
| | | $1,704 66 | |
| Net returns from Smelter | $2,060 87 | | |
| Total cost | 1,704 66 | | |
| Profit | $356 21 | | |

Lead quoted at $3.80; Silver, 84⅞ cents.

### JUBILEE AND SPILLEMECHENE MOUNTAIN.

There is no important progress to be reported regarding the claims on Jubilee Mountain. Some very fine specimens of copper ore were contributed from this mountain to the World's Fair collection.

Work was again resumed on the large lead on Spillemechene Mountain, a tunnel about 150 feet in length being driven on the lowest point on the lead at which any work has yet been done. It is supposed that the tunnel will have to go some distance farther before ore is reached, at this point.

### THUNDER HILL MINE.

As stated above, work has been active this summer on and in connection with the Thunder Hill Mine. Two Ingersoll steam drills have been in use, which have worked to great advantage. Large quantities of concentrating ore have been taken out and stored in the bins, ready to be transported to the concentrating works on the shore of the Columbia Lake, a distance of about one and three quarter miles, as soon as the erecting of the machinery is completed and the tramway leading from the mine to the works in running order. The concentrating plant, manufactured by the Chicago Iron Works Company, is of a capacity of fifty tons a day.

The ore passes from the crushers to the rolls, then to the screens, and descending to the jigs. The concentrates resulting from this treatment are here withdrawn, whilst the slimes undergo fine concentration on double revolving buddles or slime tables of approved type. The buildings are roomy and substantial, everything being laid out in a most convenient yet compact manner. I understand that the works will be in running order about June next. The tramway is on a descending grade from the mine, and will be worked by gravity in bringing down the ore; whilst for the present the trucks will be returned to the mine by horse power. The immense bodies of quartz which are exposed by the workings at the mine, are of increasing size as greater depth is attained, and would appear to be more heavily mineralized. Several careful samplings of the ore body thus far exposed have been made during the past summer, as the work progressed, which are stated to have furnished favourable results.

It is understood that the Company contemplates working the mine on a much larger scale, with a 250-ton plant, when the present plant shall have proved itself an established success in dealing with the ores from the mine.

A force of about forty-five men has been engaged in connection with this mine during the past season.

It is hardly necessary to point out the vast importance of this undertaking, and the results which would follow its success, when it is stated that the lead extends for several miles and is covered by claims owned by this Company and others, and that there are many outcrops on it, which are stated to be similar on the surface to those on the Thunder Hill claim.

No important advance has been made at the Copper claims on Windermere Mountain.

The Canal claim on the east side of the Columbia Lake, about opposite Thunder Hill, alluded to in last report as having been sold for $3,000 cash, has received but little work this year, the attention of the owners being taken up with their other ventures in the district.

### RECENT DISCOVERIES IN THE HUGHES' RANGE, BETWEEN SHEEP CREEK AND WILD HORSE CREEK.

A number of discoveries have been made in the Hughes Range of the Rockies, on the eastern side of the Kootenay River. A lead of large size runs along this first range, and has been traced almost continuously for about ten miles in the Cambrian slate formation, which, as described in the report for 1890, crosses the valley from the Selkirk, or western side of the Columbia Lakes, into the Rockies, forming the front range along the eastern side of the Kootenay Valley. Portions of this lead are found to be almost barren quartz, whilst in other places it is found mineralized with grey and antimonial copper ores, containing both silver and gold. A sample of grey copper from the lead near where it cuts Rock Creek, assayed 119 oz. in silver, $9.27 gold, and 29.45% copper.

Claims have been staked almost continuously along this lead for over five or six miles. The lead varies in width from two feet to twenty feet. A small amount of work done on one of the claims north of Rock Creek did not give favourable results.

It would be premature to estimate the importance of these discoveries, as but little work has yet been done anywhere on the lead.

### LOST CREEK.

Some work done on this creek has led to the discovery of a vein of larger size than those heretofore found on what is known as the "Dibble" claim. It is proposed to make a shipment early next season.

### NORTH STAR MINE.

During the past summer a most important discovery of an immense body of steel galena was made near the St. Mary's River, about twenty miles north-west of Fort Steele. The lode occurs on the eastern slope, near the ridge of a mountain, or butte, about 2,000 feet above the river, in the foot-hill range of the Selkirks, near the extreme western end of the St. Mary's Prairie. The mountains in this locality show but little exposed rock, being generally covered with several feet of wash and soil, and are to a great extent timbered. The lode is covered with six to eight feet of wash material. Its trend, as evidenced by the portion which has been uncovered, and by the float and boulders of iron ore and galena on the surface, appears to be north and south. The discoverers commenced by making a cross-cut in an easterly and westerly direction, at a place where a quantity of boulders and nodules of ore lay on the surface. After sinking through six or eight feet of wash material and decomposed mineral, they bared and sunk into an immense body of pure steel galena, showing no gangue whatever, and being perfectly solid, without the least sign of cracks or displacement, measuring 23 feet across, no distinct wall being discoverable at this stage. On the eastern side, decomposed lead matter is found, seven or eight feet in width, consisting of lead carbonates, iron and antimony, making the total width of the lead, or deposit, about 30 feet at this place. Since the date of my examination of the discovery, I am informed that a shaft, 36 feet in depth, has been sunk in the soft portion of the lead mentioned above, and that to that depth no change in the character of the ore body had taken place; the wall, found to be the foot wall, was more defined, and was dipping to the west. The hanging wall has, apparently, not yet been uncovered. The country rock, where cropping to the east of the lead, is silicious in character, carrying little if any carbonate of lime, and would probably be termed quartzite. The foot wall of the lead where recently bared in the shaft is, however, stated to be limestone. It is also stated that outcrops of granitic dykes exist to the west of the lead. I did not, however, see any of the outcrops, nor would the greenstone float, found in the locality, appear to be of local origin. Iron outcrops occur at various places on the mountain, which may possibly be cappings to deposits of galena.

A sampling of the galena body, taken from the open cut, gave the following assay results: Silver, 47.31 oz.; gold, *nil*; lead, 67.50%; iron, 6.63%; zinc, 1.90%.

It would be premature to make any statements as to the precise character and permanence of this lode, or in what degree the portion so far uncovered represents the permanent width.

Towards the end of September last the discoverers, Messrs. Bourgeois and Langill, bonded the property to Messrs. Woods Bros., of Quebec, who have since transferred four-fifths of their interest to Mr. D. D. Mann, of Montreal. The bond expires on the 1st July next. The development of the property is now being prosecuted under the superintendence of Mr. Leslie Hill, M.E. I am informed that it is intended to continue sinking the present shaft to a depth of 100 feet, and to cross-cut westward to the west wall of the lead without delay.

With regard to the future exploitation of this mine, it may be assumed that at first shipments of the ore would be made *via* Kootenay River and Jennings on the Great Northern Railway, to smelters in the United States. It might, if favourable terms are obtained, for a time be shipped north to the smelter at Golden, as the duty would thus be saved, as a set-off against the extra freight in reaching a market. It is, however, manifest that before long, if the mine realizes expectations, it must be opened up on a very large scale, the ore being smelted on the spot. The natural outlet for the bullion would probably be to the States, or to the English market, shipped through the States in bond.

Timber suitable for a supply of charcoal for smelting would be available in the locality for some years, but coke, manufactured from the Crow's Nest coal, will ultimately have to be relied on. It is a matter for congratulation that this property has, at such an early stage, got into the hands of men with sufficient capital to do it justice.

### THE PORTION OF EAST KOOTENAY NORTH OF THE C. P. R.

As mentioned in former reports, the portion of the district north of Donald has not yet received much attention from the prospector, owing principally to difficulty of access, from

want of practicable trails beyond Bush River. One of the field parties of the Geological Survey, under Mr. McConnell, spent a portion of last season exploring that region. Mr. McConnell is understood to have been very favourably impressed with the appearance of the formations on both sides of the Columbia River, with regard to probable mineral wealth. It would be of great practical benefit were the results of such explorations, when made by the experienced geologists of the Survey, promptly published by the Department, as a guide to prospectors. Such a course would also be of benefit to the Provincial Government in estimating the advisability of extending trails to give access to likely mineral regions. The reports, if published a year or two afterwards, are necessarily looked upon as of somewhat diminished practical value, though they are no doubt the results of more mature scientific deliberation.

There are no new developments to report from the Ottertail and Field localities.

Some trials were made at Golden by an agent of the Gold Recovery Syndicate of Glasgow, to test the suitableness of the McArthur-Forrest, or Cyanide, process for the extraction of the precious metals from the ores of the district. The process was found eminently successful as regards gold ores. The silver extraction was not attended with such good results. Ores containing even a small percentage of copper cannot, at present, be successfully treated by this process.

There were 295 free miners' certificates issued, and 134 mineral claims recorded in the district during the year 1892.

I have, etc.,

A. P. CUMMINS,
*Gold Commissioner,*
*East Kootenay.*

*To the Hon. the Minister of Mines,*
*Victoria, B. C.*

## LILLOOET.

### MR. SOUES' REPORT.

GOVERNMENT OFFICE, CLINTON, B. C.,
December 31st, 1892.

SIR,—I have the honour to enclose herewith mining statistics, and submit my annual report for the District of Lillooet for the year 1892.

The total yield of gold for the year (ascertained from reliable sources only) is $39,763.

This return, as compared with that of last year shows a decrease of upwards of $12,000.

I regret that I have to report the mining industry during the year at lower ebb than any time during the past decade. Miners—principally Chinese—have deserted the district; there have not been any new discoveries, and prospecting has been entirely neglected.

Mr. Phair, Mining Recorder at Lillooet, reports to me to date: "I regret to say the gold "taken out of this part of the district for 1892 is about $15,000 less than for the previous "year.

"The desultory mining on the Fraser River by Chinese has almost ceased, and they have "nearly all left the district.

"The Vancouver Company, on Cayoosh Creek, have completed their tunnel for hydraulic "mining, costing $25,000, and will commence active work as soon as the season opens.

"The Lillooet Hydraulic Mining Company's claim, employing five men, has yielded about "the same as the previous year, viz., $6,000. This company have again had the misfortune of "losing their dam on the South Fork of Bridge River. It is a serious loss, the company "having expended $11,000 in its construction without the slightest benefit. They intend to "replace it next year, having found excellent prospects.

"On account of the want of water, very little mining has been done on the North-"American Hydraulic claim in the past year.

"The Victor Hydraulic Mining Company, on Cadwallader Creek, have finished their "ditch and placed on the ground a good hydraulic outfit. Mr. Jensen, the manager, informed "me that he worked it for about a month, and found good pay."

"The Mina Company, on Tyaughton Creek, have worked during the season with good "results.

"The work done on mineral claims on Cayoosh Creek has been almost *nil*."

Leases for hydraulic mining purposes have been issued to sixteen different parties in this district, from which, so far, there are no returns, other than those referred to by Mr. Phair.

*Quartz.*

In this class of mining I have nothing to report. No new discoveries; no locations during the year; and, with the exception of two or three claims on the North Thompson, there has been practically no work done on any of the mineral claims in this district in the past year.

I have, etc.,
F. SOUES,
*Gold Commissioner.*

*To the Hon. the Minister of Mines,*
*Victoria, B. C.*

## YALE.

### *Kamloops Division.*

MR. TUNSTALL'S REPORT.

KAMLOOPS, January 19th, 1893.

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

Work in the Coal Hill Mine, situated near the Guerin Ranch, about three miles south of Kamloops, has been pushed with commendable vigour since the latter part of the summer, under the superintendence of Major Vaughan. An incline has been run on the vein a distance of 220 feet, with the assistance of a stationary eight horse-power engine for hoisting purposes.

The face shows several seams of coal, varying in thickness, the principal ones being two feet four inches and one foot, respectively. These, with the addition of smaller strata, make an aggregate depth of four feet six inches. The fractured and irregular appearance of the seams leads to the supposition that they will unite further on, and form a compact body beneath the point of upheaval. The coal is unexcelled for steaming, and capable of being converted into coke.

The Glen Iron Mining Company of Cherry Creek has employed an average of eighteen men during the summer, and exported 2,300 tons of ore to Tacoma, Wash., and Portland and Oswego, in Oregon. As the superior grade of the ore becomes more generally known, an increased demand will exist for its production. This is an industry that will not fail to assume great importance in the near future, particularly when the coal mines up the North Thompson shall have been sufficiently developed to supply all demands.

Four applications for leases of bench lands, situated on the west bank of Tranquille River, have been lately filed at this office, for a term of five years. Some good prospects were obtained on a bench forty or fifty yards from the river. The gold was found on the surface, but the lateness of the season precluded the possibility of ascertaining whether it exists in the gravel at any depth.

On Six-Mile Creek, a tributary of Salmon River, thirteen mineral locations have been made on an argentiferous lode, stated to be from fifty to one hundred feet wide. Little or no work has been done on any of them, and the assays indicate that the vein is of a very low grade.

On the north-east fork of Salmon River, Messrs. Butler and Stump have recorded two locations containing an extensive bed of gypsum, which, judging from its purity, is of a first-class character. The deposit is 50 feet or more wide, and is visible on the surface a distance of 2,000 feet. Mr. Atwood, the mining engineer, has secured a sample for a test, and will report as to its value.

The most important discoveries made last summer are on the north side of Kamloops Lake, a few miles east of the old town of Savona. They consist of copper and cinnabar.

The Caledonia is owned by Messrs. Squires, Bruce and McRae, and is situated one mile east of Copper Creek. Assessment work of a superficial nature has been done in stripping the lode, which is from 12 to 14 feet wide. The vein matter is a porphyritic trap, with native copper disseminated through it in small particles, and containing a certain quantity of silver.

Assays give a return of 18 per cent. copper and 10 ozs. silver to the ton of 2,000 lbs. The country rock is red sandstone, very much disturbed and broken up with volcanic trap dykes, in which copper is found.

The Thistle owned by A. Hardie, adjoins the Caledonia in the east. A shaft 20 feet has been sunk, and a cross-drive run. Some good specimens of copper have been obtained; but more work will be required to determine the value and extent of these locations.

The next claim is the Tenderfoot, owned by Messrs. Redpath and Christie. The vein is in a porphyry formation: width of lode, 10 feet; vein matter, heavy spar, containing carbonates and copper glance. Assays from samples across the vein yielded 15 per cent. copper and 10 ozs. silver to the ton of 2,000 lbs. This is the most promising of the copper properties. A considerable amount of work has been performed on the surface. It is the intention of the shareholders to sink a shaft as early as possible in the spring.

In addition to the above other locations have been made, concerning which too little is known to need mention.

The group of cinnabar claims, four in number, is situated on the west side of Copper Creek. The most extensive deposits are found in a serpentine formation. The width of the vein, so far as known, is about 50 feet. A considerable amount of stripping has been accomplished. About five tons of ore have been taken out, giving an average assay of 10½ per cent. of mercury to the ton. It is safe to say all the vein matter will pay to work. A tunnel has been started to tap the lode at a lower level, and the vein will probably be struck in about 20 feet farther. These mines have attracted considerable attention from parties at a distance. They have been visited by mining experts from San Francisco, Denver, and Spokane, and good offers to bond have been refused by the company.

Mr. Ingall, of the Dominion Geological Survey, a gentleman whose attainments and experience add great weight to his opinion, inspected these locations last fall. Unfortunately, other engagements, which demanded his presence elsewhere, did not allow him sufficient time to make any other than a hasty examination. He will, however, probably return next summer, and report more fully on the value of these deposits.

Unusual activity is expected next summer. The mines are conveniently situated, being within a few hundred yards of Kamloops Lake, whence transportation to the Canadian Pacific Railway, on the opposite shore, at Van Horne, a distance of about four miles, can be effected with comparatively little expense.

The surrounding country is open, and easy of access in every direction. The climate is mild, and the snowfall confined to a few inches. With these important advantages in its favour, this new camp offers inducements to the prospector and capitalist possessed by few of the sections of the Province.

The outlook for next summer is very promising for that portion of the district over which I have jurisdiction.

In the reports of the mining recorders for the Similkameen and Yale Divisions, you will notice the progress made in the application of hydraulic mining to the alluvial benches of the Tulameen and Fraser Rivers. Operations were begun on the Tulameen last summer, but not sufficient progress was made to prove the value of the ground for the gold and platinum deposits. This next season will afford a more satisfactory and conclusive test.

These metals were found in considerable quantities in the present bed of the river, which was mined in 1861 and succeeding years, and every indication points to their existence in the ancient channel at one time occupied by the stream.

The number of applications granted, and still in abeyance, for leases of mining ground on the Fraser River conveys but a limited idea of the extent of country capable of being worked. This river offers a wide field for the investment of capital, assisted with good management and economy.

Messrs. deWolf, Munro, Tatlow, and others intend to consolidate their interests, and operate their locations on a scale only equalled by the most extensive companies in California and Nevada.

Work on the other leases will be commenced in the spring, and many localities which have been abandoned since the early days of gold mining, when the bars were mined by means of rockers and sluices, will become once more remunerative under the changed condition of affairs.

I have, etc.,

G. C. TUNSTALL,

*Gold Commissioner.*

*The Honourable the Minister of Mines.*

## *Yale Division.*

### MR. DODD'S REPORT.

GOVERNMENT OFFICE,
YALE, 25th January, 1893.

SIR,—I have the honour to submit herewith my annual mining report for the Yale Division of Yale District for the year 1892.

The desultory mining by the Chinese in this division has declined very much, and more interest has been taken by white prospectors. Numerous placer and mineral claims have been located by capitalists of both this Province and the State of Washington this year, and in some instances considerable money has been expended in development. The extensive undertaking of placer mining at Lytton has been the feature of the year; however, following is the year's record in detail.

### SIWASH CREEK.

*Placer.*

There are three placer claims being worked, one is that of the Siwash Creek Syndicate, which have leased four and a half miles, from the mouth of the creek up stream. This company has expended about $9,000 in laying a substantial bed-rock flume of about 600 feet, sluicing to a depth of 22 feet, with the intention of further extending their flume. Some good work has been accomplished, although pay gravel has not yet rewarded the efforts made.

Rodney & Co. have done a great deal of sluicing this year, but without reaching bed-rock. They have laid about 400 feet of flume on their claim.

Roddick & Co. have sluiced considerably too, with encouraging prospects.

*Mineral.*

The assessment work done by Dunn & Co. on the Montrose and Montrose extension has rewarded them with fair prospects in free milling ore, carrying both gold and silver.

The Gold Queen Mining Company, composed of Whatcom capitalists, has expended about $4,000 in developing their several locations. Reports made by this company state that traces of platinum have been found. This is a quartz ledge of about 12 feet wide, and the principal work has been tunneling and running cross-cuts, and it is now the intention of this company to erect a small Huntington quartz mill to thoroughly test their locations early in the season.

Vautier, Stenger & Co. have done a great deal of development work, and purpose doing more.

The Yale Mining Company have found very encouraging prospects from their claims. Assays from the rock have been made, showing gold running from $20 to $98 per ton.

### NORTH BEND.

*Placer.*

Stewart & Co., of Tacoma, have applied for two placer mining leases, with the intention of pushing work vigorously in the spring.

### BOSTON BAR.

Four mining leases have been applied for by parties in Ottawa and Seattle; doubtless operations will be commenced when the spring opens.

### LYTTON.

The Van Winkle Bar Hydraulic Company, of Vancouver, has spent $17,000 in labour, machinery, steel pipes, and other material in the opening of their extensive placer area. It comprises about 800 acres. They have laid about 3,000 feet of steel pipes, varying from 16 to 18 inches, together with all other modern improvements, under the superintendence of Mr. J. L. Holland, an experienced Californian, highly recommended to successfully carry on the work, with every hope of making handsome returns for the shareholders in the approaching season.

Dougherty & Co. have applied for a lease at the mouth of the Thompson River, and have sunk several prospect shafts, finding good indications of pay dirt.

SPENCE'S BRIDGE.

Simply development work has been done on the claims held by Messrs. deWolf, Oats, Curnon and others, who have found excellent prospects of gypsum.

In concluding this report, I am pleased to say that my returns from free miners' certificates and mining receipts have increased from $872.50, in 1891, to $1,440.75, in 1892.

I wish also further to state that the expenditure by the Government of $500 on the trail leading to Siwash Creek has been highly appreciated by the miners.

I have the honour to be,
Sir,
Your obedient servant,
WILLIAM DODD,
*Mining Recorder.*

*To the Honourable the Minister of Mines,*
*Victoria.*

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*Okanagan Division.*

MR. LUMBY'S REPORT.

VERNON, December 10th, 1892.

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

A very little mining has been done throughout the northern part of the district. On the east side of Swan Lake seventeen quartz claims have been located, and six on Harris Creek, but at present only a little prospecting has been done on them.

*Cherry Creek.*

There are five whites and six Chinese working, the latter making about $2 per diem. The Cherry Creek Mining Company have run their main tunnel a distance of 1,500 feet, but have not yet bottomed the channel.

*Siwash Creek.*

Very little mining has been done this year, and not more than $1,200 taken out.

In the Rock Creek Mining Division the yield of gold derived from placer mining amounted to $5,800. The gold was taken from Rock Creek and Boundary Creek. The workings of the Laura Hydraulic Company yielded about $1,800. The company could work only three months, owing to scarcity of water.

*Fairview Camp.*

Work has been carried on in this camp during the past summer with more energy than formerly. English and American capital has been largely invested, and a number of claims have changed hands at prices ranging from $3,000 to $25,000. A five-stamp quartz mill was erected by the Rattler Company on their mill site last winter, and tests made from the ore from a number of claims, notably, the Brown Bear, Stem-winder, Wyn M., Silver Crown, Morning Star, Wide West, Joe Dandy, and Rattler, milled from $8 to $50 per ton in free gold.

Mr. E. D. Reynolds, who represents an English syndicate, has invested largely, and has already done considerable development work on his property, and intends erecting extensive mining works at or near the mines. He has twenty hands employed, which force will be largely increased on the arrival of Mr. Attwood, engineer of the company.

Work is being prosecuted on a number of other claims with greater energy, the possibility of disposing of them being an incentive.

*Osoyoos.*

A number of locations have been made during the summer on the mountain about three miles west of the lake, but sufficient work has not been done to determine the value of the claims.

*Keremeos.*

Several small, but rich, ledges have been located on Keremeos and Indian Creek, the owners doing merely enough work to represent their claims.

*Camp McKinney.*

Nothing more than assessment work has been done in this camp during the season. Crown grants have been obtained for a number of the principal claims, and the owners are awaiting the construction of a waggon road across the mountain to Kettle River, when machinery can be brought into the camp and work commenced at once.

*Boundary Creek.*

This section of country has been extensively prospected, and a number of promising locations have been recorded. At Central Camp, Messrs. White and Palmerston have been actively engaged on their claims, and have employed on an average six men since the spring. On the City of Paris, they have sunk two shafts, No. 1 to a depth of 55 feet, at the bottom running a drift 25 feet on the ledge; No. 2 down 25 feet, and a drift of 25 feet. On the Lincoln an open cut has been run on the ledge for a distance of 100 feet, and 15 feet deep, also a shaft sunk 50 feet at the bottom of the cut. No. 2 shaft is down 18 feet, with a drift at bottom of shaft of 10 feet. The ore from these claims is a high grade copper sulphates, carrying gold and silver, an average of the ore from the bottom of the shaft assaying as high as $700 to the ton.

On the No. 7, Big 4, and Lone Star, the property of Messrs. Attwood, Lefevre and Schofield, a considerable amount of development has been done. The No. 7 is bonded for $20,000 to American capitalists.

Mr. John Douglas, who represents a New York syndicate, has secured a number of claims in this camp, and has expended a large sum in developing. On the New York, a 40-foot shaft has been sunk, and a drift of 80 feet from the bottom has been run. On the Mabel three shafts have been sunk on the ledge, 40, 20 and 80 feet, respectively, and a number of surface cross-cuts have been run. On the Oro a shaft is down 40 feet, and Mr. Douglas has erected on this claim a substantial dwelling house and assaying office, which is fitted with all requirements for general assaying.

The Spokane and Great Northern Mining Company have a number of very promising locations in the vicinity of this camp, on which they have expended during the summer nearly $400, and have also erected a small stamp mill at the falls on Boundary Creek, for the purpose testing their ore.

The claims further up the creek have not been developed to any extent, beyond assessment work. Some very promising prospects at Deadwood, Greenwood and Summit camps are attracting considerable attention, and if the ventures at Central Camp and Boundary Falls prove successful, I understand that capital will be forthcoming for their development.

On Copper Creek, a tributary of Boundary Creek, some very fine copper ore has been obtained, especially from the copper mine owned by Messrs. Moran and Hammer, who have done considerable work on their claims, and have uncovered a splendid body of ore.

In the Rock Creek mining division 312 free miners' certificates have been issued from January 1st to date, and the following records entered, viz:—

| | |
|---|---|
| Mineral claims | 225 |
| Assessment certificates | 96 |
| Transfers | 140 |
| Placer claims | 5 |
| Transfers of placer claims | 1 |

I have the honour to be,
Sir,
Your obedient servant
M. LUMBY,
*Gold Commissioner.*

*The Honourable the Minister of Mines, Victoria.*

*Similkameen Division.*

MR. HUNTER'S REPORT.

GRANITE CREEK, November 30th, 1892.

SIR,—I have the honour to forward the annual mining statistics for the Similkameen Division, from which you will observe that the yield of gold remains about the same as last year, and the yield of platinum has decreased, principally owing to the low price offered for it.

On Granite Creek very little work has been done this season and consequently the yield of gold has been small.

On Newton Creek four men have been working and obtained good wages. A considerable number of Indians were engaged in mining on this creek.

On Slate Creek very little has been done, owing to the ground being deep and the want of sufficient capital.

On Boulder Creek one Chinese company has been working and obtained fair wages.

On the upper portion of the Tulameen River five companies of Chinese have been working, but as far as I can learn they made very small wages.

The Tulameen Improvement and Hydraulic Company's ground, situate on this portion of the river, has been prospected this season, but with what results I am unable to learn. They obtained a lay-over in October, pending a transfer of their property to an English Company.

Considerable work has been done on the lower end of the Tulameen River, and good results have been obtained. The Ah Jack Company, of four Chinese, washed up six hundred dollars in one week, and made good wages during the season.

On the Similkameen mining has been brisk, but the yield was small.

On Whipsaw Creek, a tributary of the South Fork of the Similkameen, one company obtained a lease of one mile and a half. They have done considerable work on it, and will be ready to start sluicing early next season.

On the Allison bench at Princeton very little work has been done on account of the scarcity of labour.

Considerable prospecting has been done this year in quartz, but owing to the country being so thickly covered with brush and timber, the work has been slow and tedious. Quantities of float have been found, but no new discoveries have been brought under my notice so far.

The Victoria Copper Co., on Friday Creek, a tributary of the South Fork of the Similkameen River, are still prospecting their claims. Their tunnel is one hundred and forty-two feet.

The Roany and the Spur mineral claims, situate on the Tulameen River, below Granite Creek, are being opened up by their owners, but I am not in a position at present to say more about them.

On the Nevada and Bonanza Queen mineral claims, situate on the Tulameen, about fifteen miles above Granite Creek, the owners have satisfied themselves with merely performing the necessary work to hold their locations.

I have the honour to be,
Sir,
Your obedient servant,
HUGH HUNTER,
*Recorder.*

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

## PUBLIC ANALYST.

### MR. CARMICHAEL'S REPORT.

VICTORIA, 3rd February, 1893.

SIR,—I beg to submit the following report, which consists of several analyses and examinations of general interest and importance made by me during the past year.

Mineral springs occur in nearly every part of the Province and hold in solution a large number of mineral salts. The following is the result of those which were examined :

#### MINERAL SPRING AT COMOX.

Total solids per gallon.....1,083 grains
Total chlorine, existing as chlorides, per gallon..... 507.5 "
Sodium chloride.
Calcium chloride.
Potassium chloride (small quantity).
Magnesium sulphate.
Iron (traces).

#### MINERAL SPRING AT ALBERNI.

Total solids per gallon, 878.4 grains. (Contained a little surface organic matter).
Total chlorine per gallon.....455 grains.
Sodium chloride, large quantity.
Calcium chloride, "
Magnesium sulphate, perhaps as much as 10% of total solids.
Potassium, absent.

The spring water was mixed with some surface water, and would contain a higher percentage of solids if taken pure.

#### MINERAL SPRING IN COWICHAN DISTRICT.

Caustic soda.
Bicarbonate soda.
Silicate soda.
Carbonate soda, small quantity.
Iron, small quantity.
Lime, trace.

An analysis was made of Victoria city water during the 4th, 5th, and 6th April, 1892, with the following result :—

Total solid matter, per gallon.....2 grains.
Chlorine " .....1.2 "
Free ammonia.....00346 parts per million
Albuminoid ammonia.....0238 " "
Hardness.....3 degrees

Several good beds of clay occur in different localities, one of which was analyzed.

Insoluble silica.....50.32%
Soluble " .....19.02%
Alumina.....18.24%
Moisture.....2.06%
Loss on ignition (organic matter and combined water).....4.40%
Ferric oxide.....3.64%
Calcium carbonate.....2.32%
Magnesia, traces.
Alkalies, traces.

An analysis of an excellent building stone from Haddington Island was made.

| | |
|---|---|
| Specific gravity | 3.15 |
| Moisture | .50% |
| Matter insoluble in boiling acids, consists principally of silica and traces of alumina | 97.80% |
| Sodium salts and traces of organic matter | 1.635% |
| Ferric oxide | .065% |
| This equals as iron | .05% |

I have examined several of the black sands of the Province, and I found that the majority of them contained the platinum group of metals, and often in paying quantities; one sample contained as much as 100 ounces to the ton.

I made a partial quantative analysis of the ashes of the deep sea kelp (*fucus palmatus*). I found that it contained the following salts:—

Sodium chloride.
Calcium chloride.
Potassium chloride.
Magnesium sulphate.
Potassium iodide.
Potassium bromide.

The ashes gave 50% of total crystallizable salts. The iodine in the crystallized salts was estimated and found to be .0084%.

I have, &c.,
HERBERT CARMICHAEL.
*Public Analyst.*

*To the Honourable the Minister of Mines,*
*Victoria.*

# COAL.

The following table shows the output of each year from 1874 to 1892, inclusive:—

| Year. | No. of Tons. |
|---|---|
| 1874 | 81,000 |
| 1875 | 110,000 |
| 1876 | 139,000 |
| 1877 | 154,000 |
| 1878 | 171,000 |
| 1879 | 241,000 |
| 1880 | 268,000 |
| 1881 | 228,000 |
| 1882 | 282,000 |
| 1883 | 213,000 |
| 1884 | 394,070 |
| 1885 | 365,000 |
| 1886 | 326,636 |
| 1887 | 413,360 |
| 1888 | 489,300 |
| 1889 | 579,830 |
| 1890 | 678,140 |
| 1891 | 1,029,097 |
| 1892 | 826,335 |

## REPORT OF THE INSPECTOR OF MINES.

NANAIMO, B. C., 13th February, 1893.

SIR,—I have the honour, as Inspector of Mines, respectfully to present my report for the year ending 31st December, 1892, for your information, in accordance with the provisions of the "Coal Mines Regulation Act" of British Columbia.

The collieries operated during the year 1892 are:—

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

The output of coal during the year 1892 amounted to 826,335 tons, produced by the several collieries, as follows:—

| | | | |
|---|---|---|---|
| Nanaimo Colliery, | output | 433,386 tons, | 7 cwt. |
| Wellington Colliery, | „ | 290,370 „ | 19 „ |
| East Wellington Colliery, | „ | 33,650 „ | |
| Union Colliery, | „ | 68,928 „ | |
| Total output in the year 1892 | | 826,335 „ | 6 cwt. |
| Add coal on hand 1st January, 1892 | | 33,243 „ | 14 „ |
| Total coal for disposal in 1892 | | 859,579 „ | |

The exports of coal by the same collieries in 1892 were 640,579 tons, as follows:—

| | | | |
|---|---|---|---|
| Nanaimo Colliery, | export | 307,623 | tons. |
| Wellington Colliery, | ,, | 238,400 | ,, |
| East Wellington Colliery, | ,, | 28,000 | ,, |
| Union Colliery, | ,, | 66,556 | ,, |
| Total coal exported in 1892 | | 640,579 | ,, |
| Add home consumption in 1892 | | 196,224 | ,, 5 cwt. |
| Add on hand 1st January, 1893 | | 22,755 | ,, 15 ,, |
| | | 859,579 | ,, |

The ports of shipment are Nanaimo, Departure Bay, and Union, near Comox; and the foreign shipments were exported chiefly to San Francisco, and lower ports in California, United States. Coal was also shipped to Alaska, Petropavloski, China (per C.P.R. steamers), and to the Hawaiian Islands. H. M. navy and United States war vessels have been supplied with coal for fuel, and, as usual, ocean mail steamers and vessels calling for fuel have received supplies at the several shipping wharves.

Owing to an over supply of cheaply produced coal, from countries recklessly competing with the collieries of the Pacific Coast (commonly called the Coast collieries—including Vancouver Island and the Puget Sound coal mines—the natural sources of supply), in the California market, the coal proprietors here wisely restricted their output of coal during the year 1892, and lessened the exports to that State by about one-fifth of last (1891) year's production and shipment, so that the main totals are correspondingly less in amount for 1892. This apparent falling off in trade should not be regarded as retrogressive, but, as it really was, viz., the result of prudent and far-seeing policy on the part of the managers of the coal industry of this Province, and at the same time an evidence of their stability and financial strength in commercial emergency. Foreign trade has revived, and the output of coal is regaining its former volume and activity.

In the year 1892, the coal which entered the port of San Francisco and lower ports in California was supplied from the following sources:—

| | | |
|---|---|---|
| British Columbia | 425,170 | tons |
| Puget Sound | 362,160 | ,, |
| Oregon | 24,170 | ,, |
| Alaska | 1,450 | ,, |
| Eastern | 34,260 | ,, |
| Australian | 240,542 | ,, |
| English | 146,909 | ,, |
| Scotch | 21,700 | ,, |
| Welsh | 50,575 | ,, |
| Japan | 3,530 | ,, |
| Mount Diablo | 42,000 | ,, |
| Total at San Francisco in 1892 | 1,352,466 | ,, |
| Amount of coal received at lower ports, viz., San Diego and Wilmington | 158,600 | ,, |
| Total of coal received in California in 1892 by water routes | 1,511,066 | ,, |

A large trade is done by our collieries with San Francisco manufacturers and merchants, in the purchase of machinery and colliery supplies, that are specially suitable for our use, and cannot so well be obtained in Eastern Canada; and it is with a sense of our just right to enjoy a fair trade position with our long-time fellow traders in California, that the employers and workmen engaged in the coal industry of British Columbia are hoping that an equitable measure of reciprocity, embracing the admission of our coal into the United States free of duty, will be arrived at by the statesmen of the two great countries of Canada and the United States in the near future, and the sooner the better for both nations.

In the meantime, the prospects of the coal trade of the Province are bright and healthy, both as to increased production and trade.

An auxiliary to the production of coal at several of the collieries in the article of fire-clay of superior quality, and abundant quantity, is of great interest, in view of the establishment of new manufactories of pottery and fire-brick, at or near Nanaimo and Wellington. The clay has been subjected to thorough tests, and is pronounced equal to the best obtainable in the Old Country. The quantities of clay extracted and disposed of will be found in the colliery returns.

## NANAIMO COLLIERY.

### No. 1 PIT, ESPLANADE, IN NANAIMO.

This mine, being part of the large works known as Nanaimo Colliery, belongs to the New Vancouver Coal Mining and Land Company, Limited, and has now proved to be a most valuable mining property, and at present no estimate can be made of the extent of this field of coal yet to be worked. This shaft is 650 feet deep, and, as in previous years, the workings are by what is called No. 1 North Level. About 50 yards in this level, from the shaft, there is a slope driven eastwardly for about 1,000 yards, and at 600 yards down this slope, there is the No. 3 North Level, which, as its name implies, is worked in a northerly direction. All the workings are under the water of Nanaimo Harbour, with rock and débris between, varying in thickness from 600 to 700 feet, so that the workings are quite safe from any influx of water, considering that the rock is mostly hard. The workings are on the pillar and stall system, and the pillars (coal) are large.

The workings of No. 1 North Level extend under the Nanaimo Harbour and Protection (or Douglas) Island, and this level, with its windings, over two miles in, is the longest underground hauling road of any colliery in this district. For the long stretch of about 2,000 yards, the coal has been regular and very good, with an average of about six feet thick, overlaid mostly with a good hard roof. For the distance above referred to, all the workings have been to the west side, and much of this is not started away from the level. On the east side, it is all solid for the distance mentioned, excepting the slope run down to connect with Protection Island shaft, described in a former report.

No. 3 Level is also in good coal, although they have had considerable trouble with faults, yet there has been a large amount of coal got from this district of the mine during the past year. This level is now in the same area of their field that they have been, for the last three years, working in the No. 1 North Level, but a great distance to the east of No. 1 Level. The coal is eight feet thick, the quality and appearance being the same as in No. 1 Level.

Ventilation is good. When I was down in December, 78,000 cubic feet of air were passing per minute, for the use of 170 men and 23 mules. The ventilation is conducted on the separate split method. The No. 1 Level being ventilated from Protection Island shaft, from which comes a current of 45,250 cubic feet per minute—23,250 going to one division, where there are 57 men, and 22,000 to 59 men.

No. 3 Level is ventilated from No. 1 Shaft, thence down the main slope to the level. By this way 32,750 cubic feet pass per minute for use of 54 men, and the mules that may be at work in the different districts.

The motive power is a large Guibal fan, erected during the past year. It is 36 feet by 12 feet, giving the above result with 34 revolutions per minute,—water guage, $1\frac{5}{10}$ inches. It can be safely worked up to 60 revolutions per minute, if required. This is a great relief to both the manager and the men. The former knowing that he can give when required, and the men being satisfied that they can have, all the fresh air needed, as there is a considerable quantity of powder used in the mine. The shots are fired at regular times, and at those times, with all the air, it is smoky for a w ile. Very little gas is now found in this mine, and the mine is also free from dust.

Up to last year the mode of hauling in the levels was by mules; now we have got a new motor, for this out-of-the-way country, namely, Electricity. The New Vancouver Coal Company, being the first in this Province to try this mode of hauling coal in their extensive mines, made arrangements with the Edison General Electric Company to supply them with steam engines, and all the electric plant, to haul the coal from the No. 1 and No. 3 Levels in this mine. The dynamo is fixed on the surface, driven by a steam engine built for that special purpose—this

is about 100 feet from the pit's mouth. The engine, or power, house is an imposing building. From the dynamo the current is conveyed to the switchboard, when it thence passes through the different instruments for measuring the current, and cut-off—to protect the plant against danger, if the current should become accidentally too great; thence the current leaves the power house to go under the ground. There are two copper wires strung up; one of these is insulated, and the other uncovered—this latter is the one for the trolleys to run on, and supply the power to the locomotive; the insulated wire supplies the power in case of a break in the other, and also works in connection with the other at all times. These wires are strung in No. 1 Level for 2,600 yards—this being the distance that the locomotive goes, travelling at the rate of six miles per hour; and it is no unusual thing for one locomotive to take along 60 tons at a time.

There are three locomotives: two of them are of 30-horse power, and are of eight tons each; the other is not so large, being of 15-horse power—this was the first to be used, in the No. 3 Level. The electric locomotives appear to work very well, although I think it would improve their working qualities if they had a straight road to travel.

The bottom of the shaft and about the sidings are lighted up by the electric spark, making it almost as light as day, and a great improvement on the oil lamps.

Strangers coming to Nanaimo by steamboats or ships may not know, when they are entering the harbour, that from 600 to 700 feet below them there is one of the busiest workshops in British Columbia. On all the shifts there are nearly 400 men and about 40 mules, besides steam engines, pumps (worked by compressed air), and three electric locomotives—all in motion; and much of these works lighted by electricity.

### No. 3 Pit (Chase River), Nanaimo Colliery.

This mine of the New Vancouver Coal Company has, with the exception of about two months in the summer, not been operated; only the pumping being done. Not for want of coal in the mine, but owing to the over-stocked state of the coal market.

### Southfield Mine, No. 1 and No. 2.

This once great producing mine of the Nanaimo Colliery has had much idle time during the past year, owing to the want of demand for coal at prices that would justify the company to put their coal from this mine on the market. The output of coal per day is much reduced here: all the coal taken out being from the pillars (coal).

Ventilation is very good; the last time I was down, in December, there was a volume of 81,220 cubic feet of air passing per minute, for the use of 40 men and four mules. This was travelling well around the pillars and old work. There is no gas found here; the mine is also free from dust.

### No. 5 Pit, Southfield.

This mine also belongs to the New Vancouver Coal Company. The shaft is to the dip of Southfield (Nos. 1, 2, and 4) mine. Coal here is of a very good quality, but not so regular as might have been expected; at some places it will be 12 feet thick, and in other places quite thin: although there is plenty of coal on an average to make a good seam. It is improving that way, and it is to be hoped it will continue so.

Ventilation is good; motive power, a fan, worked by a steam engine. When I was last down, there were 24,000 cubic feet of air passing per minute: this in two divisions at the bottom of the shaft—one to the east, and the other to the west side, and for the use of 42 men. This mine gives off some gas at times, but with ordinary care there is no danger of accidents.

At this mine they have got good, substantial pit head gear, and all appliances for the same, together with railway sidings; all in connection with their system of railways having access to the company's shipping wharves—everything complete to handle a large output of coal. There is quite a large tonnage coming out at present, and at no distant day the tonnage and prospects of this mine may far exceed the No. 2 Southfield mine when in its best days.

This (No. 5) mine is in connection with what is mentioned in a previous report as No. 4 Slope, and which is now an out-way for No. 5 Pit. There is no mining being done in No. 4.

### PROTECTION ISLAND SHAFT.

This is also the property of the New Vancouver Coal Company, and is put down in South Point of Protection Island. It was finished to the coal on the 12th January, 1892, at the depth of 670 feet, this being where they found the continuation of the coal worked in No. 1 Pit. As they anticipated, it was found to be five feet thick, clean and good. Without stopping to make the necessary fittings required at this stage of the work, such as permanent large engine (which they had on the ground), pit head gear, etc., they went to work at the coal to get connection with the slope that had been put down 300 yards below the No. 1 Level of No. 1 Pit, on the 22nd January. Only ten days after they had finished sinking they holed through on the slope mentioned. Now they were able to travel under the harbour of Nanaimo for nearly two miles, coming out to daylight in the City of Nanaimo.

All the works being in order, the company knowing that the lower seam, which is about 70 feet below the Douglas seam (worked in No. 1 Pit), had been good in some places where it had been worked, and the Protection Island shaft not being near any large known faults, it was settled that they would deepen the shaft to the lower seam. The rock was hard, but they were successful in reaching the coal on the 13th April: the rock between the two coals being 62 feet, with the coal underneath four feet thick, very hard; and having burned some in my house, and paying particular attention to it, I am not afraid to say that it will prove itself, by those that will use it, as a first-class household coal. The company is now driving a slope to the dip, and I am pleased to be able to say that it is somewhat improving in thickness.

This is a valuable discovery for the Province, to the people about Nanaimo in general, and to the New Vancouver Coal Mining and Land Company, Limited, in particular, as it is to their energy and perseverance that this has been achieved; and it is the general wish that the reward of the company will be great. There is not a great deal of this new seam opened out yet, but doubtless there will be a good account of it given at the end of the year.

In reference to the Douglas or upper seam, they are opening out this fast, although not sending out anything like the quantity of coal they could do, as they would have to dump it on the ground. The company is, however, building a very large wharf near the south point of Protection Island, and about 400 feet from the mouth of the shaft. At this wharf the largest ships will be able to tie up and get their load. To all appearances they will be able to take ships here before the middle of February; then they will increase the output, and I hope they will have plenty to send out for many years to come.

### NORTHFIELD MINE, NANAIMO COLLIERY.

This mine is mentioned in previous reports and belongs to the New Vancouver Coal Mining and Land Company. This mine is entered by a shaft, as are all the mines of the Nanaimo Colliery, except the No. 2, Southfield. The workings from Northfield Shaft are by levels, from the north and south sides, with a slope on the north side. It is from this slope that the greatest amount of coal is taken. The mine is worked on the longwall system; the coal having a varied thickness of from two to four feet. As in all the mines in this district there has been much idle time, owing to the market being overstocked; but where the article that takes best is mined, there they have generally the most work, in such times, and this has applied to Northfield Mine during the past year.

The coal, being hard and of a good quality, commands the highest price both in Victoria, B. C., and in the California market, and in any other place where it may have been introduced.

Ventilation is good. Motive power is a fan driven by a steam engine.

There was a current of 40,560 cubic feet of air passing per minute, for 112 men and 12 mules. The separate split system is used in this mine. The current is divided into two divisions at the bottom of the shaft—one to the north and the other to the south side—that to the north goes down the slope, and from the slope, where it is again divided, one current to the west, the other to the east side, getting at the lowest point, where it ascends, taking the face of the coal as it goes along. As there is quite a large quantity of powder used, shot firing comes at stated times. The firing causes it to be quite thick, but it soon goes past. The three divisions of air do not all join until they get to the fan or upcast shaft.

Little or no gas has been found in this mine. It is also free from dust.

In each of the mines of the Nanaimo Colliery there is a monthly examination by a deputation of the workmen, who are thus able to see the condition of the mine. The result of their finding is recorded in a book, and also posted up in some conspicuous place, where all may read it.

In addition to the coal got at this mine, there has been a large quantity of fire-clay extracted and forwarded by rail to the British Columbia Pottery and Terra Cotta Company, whose works are near Victoria, and who manufacture articles equal to any of their class that can be got from England.

### HAREWOOD ESTATE, NANAIMO COLLIERY.

As mentioned in my former report, this large estate, now the property of The New Vancouver Coal Mining and Land Company, is being explored for its coal beds. The shaft that was referred to as sinking did not turn out as well as the bore hole had indicated, although the coal that was got is very good and hard; for the present it is at a stand still, but the Company continued the prospecting in another place. At this new place the crop out of the coal is found, showing some very good coal. When I was out there lately they had got a slope in 100 yards, and at the face the coal was three feet thick; in driving this slope, in some places it was found to be much thicker. The coal lying at the slope head looks very well, and when burned leaves a small percentage of fine reddish brown ash. The Company is doing considerable work to prove this property—to find out an estimate of the value of its coal-bearing area, and its consequent prospect as a coal field. Although at some distance from their railway, yet when it is decided that the coal available will justify them, railway conncetion can soon be made, and it looks as if the coal now being worked would justify the opening of works at Harewood.

## WELLINGTON COLLIERY.

### No. 1 PIT.

This shaft is near Departure Bay, and was referred to in a previous report as having been put down fifteen years ago. Excepting a little coal got out of an upper seam (corresponding with a thin seam now being worked at East Wellington), no work was done.

This shaft of early days being small, it has lately been enlarged to the usual size of shafts owned by Messrs. Dunsmuir & Sons, viz., 8x18 feet, timbered throughout with 4-inch plank, excepting about 60 feet at the top, which has got walls of 20 inches of timber and 6 inches of cement to keep out the surface water. Before they could sink this shaft they had to erect a large engine, and put up the permanent head gear, then they were able to accomplish the work of putting this shaft down 300 feet, which is the required depth of the Wellington coal. They have started mining at the upper seam of coal, leaving the lower seam for another time.

This upper coal is about three feet thick and of good quality. Close on the top and between the coal and the hard rock there is a bed of fire-clay, five feet six inches thick; then below the coal they have four feet of soft black dirt, and next comes a solid bed of fire-clay, twenty-eight feet thick, making altogether thirty-three feet of most valuable fire-clay, an article that has been much sought after in this country. The Messrs. Dunsmuir & Sons, although not manufacturing it themselves, have sent a quantity of this fire-clay to the British Columbia Pottery and Terra Cotta Company, some of which has been made into brick for use in Her Majesty's war-ships on this coast, which brick has given great satisfaction, and compares favourably with any that is imported from England. The proprietors of this shaft are working with all haste to get the railroad from the shaft connected with the Wellington Railway. This will be done in about two weeks, and then the British Columbia Pottery Company will be able to obtain all of this fire-clay that they may require.

### No. 3 PIT, WELLINGTON COLLIERY.

There has not been any mining done here during the past year, yet there is a large quantity of coal to be got out from this pit.

### No. 4 PIT, WELLINGTON COLLIERY.

This pit is about 1,000 yards east of No. 3 Pit, and is connected by a good way with the same when the water is out. Here, as in all the mines of this colliery up to the 13th September, there has been much idle time, owing to so many shipments of cheap coal coming

from Australia and England to California, our principal market. This mine was working up to the above date whenever there were ships to take the coal, and everything was in the usual good order at that time, when the fireman in travelling in the airway near the up-cast shaft discovered a strong smell of something distilling or burning (heating). The fireman reported directly, and on tracing it out it was found that the smell came from the place where they had been taking out pillars (coal). All the time while the pillars had been worked no fire had been seen; but Mr. Bryden, the manager, with his usual caution, gave orders for all the men to take their tools out, and the mine cars and mules were sent up. Some men were kept to put in extra timbers where they thought it necessary. This was done in case they had to flood the mine. There was also a large force working in the vicinity where the heating was going on, until on the 18th September, when active fire was first discovered; then Mr. Bryden gave orders for all the men to get out of the mine, and the No. 4 Pit and its fan shaft were sealed taut, excepting a small four-inch pipe-test hole. Mr. Bryden not wishing to run any risk of an accident to the men by working in the mine to endeavour to subdue the fire, decided to flood the mine, so a connection was made by a drain from the Millstone River and the water run from there into the mine, and in the early days of December both No. 3 and No. 4 mines were filled with water, and it was left that way until January of this year, after which it will take a long time to take the water out of the mine.

Through the fire and the flooding of this extensive mine 200 men were thrown out of places, but the manager did his best to give as many as possible work in the other pits, where with considerable inconvenience they found most of the men work. Now the coal trade has somewhat revived, the output from No. 4 Pit is greatly missed, as it was the most extensive mine of the Wellington Colliery. In a short time, however, it will again be in full operation.

### No. 5 Pit, Wellington Colliery.

This mine is yet the only mine of the Wellington Colliery that has connection with the Esquimalt & Nanaimo Railway. The cars of the railway company run to the mine shutes, receive the coal and carry it to Victoria, saving handling and breakage. To this mine Messrs. Dunsmuir & Sons have extended their own railway system, connecting with their shipping wharves at Departure Bay. In this pit there has also been a lot of idle time during the past year. The same cause applies here as at the other works, viz., the California market being filled with cheap coal from other countries, but at the close of the year trade was somewhat improved.

This is the largest mine, excepting No. 4, in the Wellington Colliery, but it will yet be the most extensive. The coal is brought to the bottom of the shaft by a steam engine from a slope, from the south and west by a self-acting incline, and on the east by mules, by what is known as the east level, but at present they are erecting a large engine to haul the coal out of this level on the endless rope system.

In the slope the coal is very good, and is worked on the longwall plan, for which it is well adapted, for here they have a face of coal about 1,000 yards long, and from four to seven feet thick. This is along one side. The opposite side is nearly all solid. All this is without a fault of the smallest kind.

In the east level all the work has been, and is, on the pillar and stall principle, the coal varying in thickness from four to ten feet, and hard. In this level there is also a great deal of work being done at the pillars (coal), and these pillars being nearly two-thirds of the whole seam, it takes longer to mine out the pillars than the stalls, although one man can put more coal a day out of the pillars.

In the south and west sides all the mining is at the pillars, of which there is a great extent.

Ventilation is very good. Motive power is a fan on the up-cast shaft driven by a large steam engine. When I was down in December I found 108,000 cubic feet of air passing per minute for the use of 202 men and 26 mules; fan making 100 revolutions per minute; water gauge one inch. This mine is ventilated by separate splits, the three main divisions being at the bottom of the shaft—to the east level 28,000 cubic feet per minute for the use of 64 men and 11 mules. There were 34,000 cubic feet going down the slope. This is again split into two currents, to be used by 75 men and two mules To the west level, south incline and part of east side, 46,000 feet were in circulation for 44 men and five mules. The above-mentioned currents of air never come in contact until they come to the bottom of the up-cast shaft,

There is now very little gas seen in this mine, but occasionally it is found in the longwall workings, where the roof breaks or falls out, leaving a hole. There is always a strong air blowing along the face. This mine is also free from dust.

In addition to the overman and fireman, there is a staff of shot-lighters and examiners to each district of the mine. These men are always on the move from one place to another, and as shot firing is at stated times during the shift, the smallest change in any part of their particular district, or any fall from the roof in the airway, is sure to be found out and reported to the overman, if they cannot stay themselves to attend to it.

This pit is connected with No. 6 pit, to which there is a good travelling way, with boards put up pointing the way.

In addition to the steam engine and air compressors, Messrs. Dunsmuir & Sons are now erecting an electric plant, manufactured by Messrs. W. T. Godden & Co., London, England. It will be seen that electricity is getting to be quite generally used in and about the mines in this district; it being used for cutting coal, pumping, and, as the power in electric locomotives, to haul the coal in the mine.

### No. 6 PIT, WELLINGTON COLLIERY.

This pit is mentioned in a previous report as being about 900 yards east of No. 4 pit, only being separated by a narrow strip of solid coal of 40 yards thick. Just now this strip is serving the purpose for which it was left—in case of any fire in the mine and having to put water in to quench the fire. As the fire last September in No. 4 pit caused that mine to be filled with water, so that strip of coal barrier has been the means of saving both this No. 6 and No. 5 mine from having to be flooded, and also from putting nearly 1,000 men out of work for a long time. As I have already said, this pit is connected under ground with No. 5.

In this pit, as in the other mines, there has been a great deal of idle time during the past year, owing to the flooding of the California market with coal from other countries.

No. 6 pit is getting to be quite an extensive mine; the coal is being brought to the shaft from the south and east by a level and self-acting incline, and to the west side by a slope and incline. Most of the mining on the south and east side is on the longwall system, while that on the north and west side is pillar and stall, and at the pillars (coal) coal is very hard, from four to eight feet thick and of the usual good quality, and the roof is somewhat stronger than it is generally over the top of this coal. When the coal is down to five feet in thickness, longwall is the favourite method of working, as the coal is got out in better condition and in larger pieces, and there is not so much waste.

Ventilation is good; the motive power is a fan on the Murphy principle, worked by a steam engine. The last time I was down in December there was a current of 72,500 cubic feet of air passing per minute, for use by 144 men and 26 mules. There are five separate divisions in the air, all of the divisions being near to the bottom of the shaft; three of them are on the east side and two of them on the west side of the shaft. Two of these splits are one to each division of longwall work, and the other three are to the divisions of the pillar and stall workings; and when they are taking out pillar coal the air is well conducted into the longwall, and also to the other places, by brattice or otherwise. In the longwall the air goes in the level, and what escapes at the different roads is caught at the face, then passes along to the return. The motive power or fan is on the same shaft as the coal is hoisted from, there being a tight partition in the shaft, one side being the intake and the other upcast. Although this mine is connected with No. 5 pit, it is ventilated independently of No. 5, the connection only being in one place, where there are strong doors; at the same time there is a good travelling way by means of No. 5. No. 6 pit is free from dust.

### No. 2 SLOPE, WELLINGTON COLLIERY.

There has not been anything done here during the past year.

### ALEXANDRA MINE.

This mine belongs to Messrs. Dunsmuir & Sons, and is about one mile south of the Southfield mine, of the Nanaimo Colliery, and only a few yards from the Esquimalt & Nanaimo Railway. There has not been any work done here during the past year, but the company renewed operations at the beginning of the new year, and it is hoped there will be a good account of this mine at the close of 1893.

## EAST WELLINGTON COLLIERY.

This colliery belongs to the East Wellington Coal Company. There are two shafts.

### No. 1 PIT.

There has been no mining done here since February. This pit is the return or upcast shaft for No. 2 pit, which is about 800 yards further up the valley of the Millstone River.

### No. 2 PIT, EAST WELLINGTON.

In this they have been working steadily all the year, but not full handed, owing to the slackness of trade at San Francisco, where all the coal from this colliery goes.

Previous to this year all the coal was mined from what is known as the Wellington seam, varying in thickness from four to seven and a half feet. In this they have been much troubled with faults in the coal of one kind and another, which made it expensive to get out. This causes the Superintendent to use greater skill and economy in getting the article to the market. There is a large body of this coal in sight. In addition to this they have at one of the faults run a tunnel through the rock to an upper seam of coal, which is two feet thick and of very good quality—very hard. This is the principal place where they are taking coal at present. This coal is well sought after in the San Francisco market, and the Company command the highest price for all that they can produce. We may also expect to see some of the other coal companies going into this once despised but now acknowledged to be valuable upper seam, which is about fifty feet above what is in this district called the Wellington coal.

The workings are on the longwall system, and the seam is well adapted for it.

Ventilation is good. Motive power, a fan, driven by a steam engine at the top of No. 1 shaft. When I was last down in December, I found 22,000 cubic feet of air passing per minute for the use of forty-four men and four mules. The air is split at the bottom of No. 2 shaft—9,500 feet going to the west side, and 12,500 feet to the east side. In the longwall the air travels along the face, there not being much chance for it to escape, except a little at the roadway, and so the workings are kept clear. It is the intention of Mr. Chandler, the manager, to connect the workings of this upper seam with the shaft, which is not many yards away, and when done it will be a great relief to the ventilation of this place, and also facilitate the getting out of the coal.

There is now very little gas found in the mine, there not being much chance for it to collect in the old works, as they are filled in as close as possible, and the roof settling behind makes it almost solid again. And every other precaution is taken to prevent accidents of any kind. In addition to the manager and overman, there is the regular staff of firemen—one on each shift, who also acts as shot-lighter. As there are not any old waste works to go into in longwall, the fireman can see all the working places frequently during the day, as well as the overman.

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## UNION COLLIERY, COMOX.

This colliery is the property of the Union Colliery Company. A first-class article of coal is produced at the mines of this colliery, which makes excellent coke. This coke has taken the market in this Province, and is also highly spoken of by those that now use it in San Francisco.

Work in this Company's mines was at a standstill for about six months of the past year. In two of the mines work has recently been resumed.

### No. 1 SHAFT, UNION COLLIERY.

There has been nothing done here during the past year.

### No. 1 SLOPE, UNION COLLIERY.

In this slope the miners worked most of the time from January to June, when it was stopped, and has not yet started. In many places the coal is very good. At the time of its stoppage this was the chief producing mine of this colliery.

Ventilation, machinery, and everything is in its usual prime condition. There is a prospect of work being resumed here soon.

### No. 4 Slope, Union Colliery.

Excepting in the main slope, this mine was also at a stand for five months. In November, work was resumed; the coal market being somewhat improved, or as may be said, the cheap coal from other countries has slackened off. This mine is being pushed so that the company may have their fair share of what is being exported to California. This is now the producing mine of the colliery, and close upon 600 tons per day are put out. For steam purposes, those that have used it say that the coal is the best article produced upon the coast. H. M. S. warships have used a considerable quantity of the coal, and the Naval Officers report it as equal to any coal that they have got from Cardiff, in Wales. The seam varies in thickness from three to ten feet feet, with a gentle pitch, so that the mine cars can be taken around when required. The slope is now down 800 yards—the coal keeping good. Ventilation good. Motive power, a Guibal Fan; running slow, yet passes 50,000 cubic feet of air per minute. This mine is ventilated on the separate split method. The last time I was down, the above volume of air was passing per minute for the use of forty-four men and four mules.

I may remark that there are five levels off the east side of the slope, while the west side is nearly all solid, very little of it being yet worked. Coal looking well, for a valuable and extensive mine.

Everything about this mine is got up on the best plan for labour saving. There is a large coal washing machine by Shepherd, of Cardiff, Wales, of the most recent improvement in construction, capable of cleaning 350 tons per day; it is said to be able to save the finest coal, this fine coal being what they are now making into coke so successfully. The demand for the coke is large and active.

### No. 1 and No. 2 Tunnels, Union Colliery.

These tunnels or adit levels were also at a stand for about six months, and were almost closed up at the entrances by board fences, so that no persons could reach the levels and get into any danger.

This mine has again started to work—in December. The coal is from two to three feet thick, of good quality, and very hard.

When I was in this mine, in December, the ventilation was good. Gas has been found in this mine, but there is no gas at present noticeable.

The workings are longwall; the air going in the level, and coming out from under a height where the coal is worked out to daylight. An air furnace is used here.

### Prospecting.

A series of boreholes has been put down in this coal field during the past year, and these bores show indications of great productiveness of coal.

It is the intention of the Company to build a number of coke ovens, so that the fine coal not used in the furnaces of the colliery may be turned into coke.

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## TUMBO ISLAND COAL MINING COMPANY.

This Company having made considerable exploring and boring on this Island, are continuing to energetically prospect their seam.

In the borehole put down on the south side of the Island, at about 320 feet, coal was struck, of a thickness to justify them in sinking a shaft. This they started on 21st January, 1892: size ten by twelve feet, having sandstone and conglomerate rock for the first eighty-five feet, when dark shale was struck of six feet thick; then they got a good seam of coal six inches thick, and underneath was six feet more of dark shale, then sandstone was met with containing pieces of coal, and they have now got down 114 feet; timbered from top to bottom, and very little water to contend with. In addition to the ordinary hoisting machinery there is a ladder from the top to the bottom of the shaft.

I am indebted to the Manager for information as to this mine, and hope that the Company will continue to be successful in their development of their valuable property until they have opened a seam of good coal of commercial value. The mine is in the way of steamboats going between Victoria and the Mainland, and the China steamers go close by.

## THE KAMLOOPS COAL COMPANY, LIMITED.

The colliery of this Company is known as the North Thompson Coal Mines.

The mine is as yet little more than a prospect, but it is very promising. From the report of the Company received by me, I gather that the work consists of a level driven on the strike about N. 10 deg. E. 45 feet, and slope on the dip about E. 10 deg. S. 55 feet: this slope to be opened towards the surface. The seam opened is the top of a series of four, and at present face shows about thirty-seven inches of coal, which assays very favourably, and the seam is said to be thickening gradually. The lower seams have not yet been opened, but are reported to be considerably thicker than the one being worked, as indicated by the croppings.

## ACCIDENTS

IN AND ABOUT THE COAL MINES, FOR THE YEAR ENDING 31ST DECEMBER, 1892.

January 2—John Marrochi, got hurt by a fall of rock, while at work in his stall in No. 1 Slope, Union Colliery.

" 18—John Meolchi, miner, working in No. 5 Pit, Wellington, got bruised about the head by a fall of rock when at work in his stall.

" 23—Walter McLennon, mule driver, was slightly injured on the back by a piece of coal falling on him from the roof in No. 4 Pit, Wellington.

February 23—Matthew Merritt, mule driver, in No. 1 Shaft, Nanaimo, had one leg broken, by getting jammed by cars in the mine, while at work.

March 17—Charles Jorum, miner, was slightly bruised by a fall of rock, while at work in his stall in No. 4 Pit, Wellington.

" 25—Ah Hing, pusher, in No. 2 Tunnel, Union Colliery, had his leg broken by a loaded car, while at work.

April 14—John Williams, miner, working in Northfield Mine, Nanaimo Colliery, was killed by a fall of rock, while at work in his stall.

" 25—J. B. Jebar, miner, in No. 4 Pit, Wellington, was injured on the back and knee by a fall of rock, while at work.

May 5—D. A. Nicholson, miner, in No. 4 Pit, Wellington, was killed by a fall of coal, while at work in his stall.

" 12—G. Williams, miner, in No. 5 Pit, Wellington, got his shoulder bruised by a fall of coal, while at work in his stall.

" 12—Louis Curto, miner, in No. 6 Pit, Wellington, was injured on the shoulder by a fall of coal, while at work in his stall.

" 26—La Fook, working on a locomotive as brakeman, was injured by the engine hauling cars from Nanaimo Colliery. He died on the 5th June.

June 10—John Fowler, miner, in No. 4 Slope, Union Colliery, was slightly hurt by a fall of rock from the roof, while at work.

" 14—J. A. Grant, miner, working in East Wellington No. 2 Shaft, was slightly hurt by the premature explosion of a shot.

" 28—David Walker, fireman, in No. 4, Union Colliery, was slightly burned on neck and hands by an explosion of gas.

July 4—James Lister, miner, had his arm broken, and was otherwise injured, by a fall of coal, while at work in No. 3 Shaft, Nanaimo Colliery.

" 6—William Kilpatrick, miner, was injured in No. 6 Pit, Wellington, by a fall of rock from the roof.

" 6—Peter Arbuckle, mule driver, in No. 1 Shaft, Nanaimo, was killed by the full car running on him, while at work.

" 13—George Richards, mule driver, in No. 5 Pit, Wellington, got his arm broken by the hauling chain, while at work.

" 21—Anthony Badger, miner, in No. 1 Shaft, Nanaimo, was slightly hurt about the body by a fall of coal, while at work.

" 27—Alexander McLellan, track-layer, on No. 3 Shaft, Nanaimo Colliery, got both legs broken by a fall of rock from the roof, while at work.

" 27—John Fraser, a little boy, attempted to get on the railway cars of Nanaimo Colliery, while they were in motion: he slipped, and got his right foot run over and badly crushed by a wheel of one of the cars.

August 2—Harry Gilbert, miner, in No. 5 Pit, Wellington, got a flesh wound by a piece of coal thrown from a shot.

Septemb'r 2—John Duca, miner, in No. 1 Shaft, Nanaimo, got one of his arms broken by a fall of coal, while at work.

" 9—Joe Choeekine, miner, Northfield Mine, Nanaimo Colliery, lost one of his eyes by a fall of rock, while working in his stall.

" 29—G. Brigston, boy, trapper in No. 1 Shaft, Nanaimo, was injured about the head by a kick from a mule.

" 27—John McKenzie, mule driver, in No. 2 Pit, East Wellington, got his thigh bone broken by being jammed against the side by a mule.

October 5—John Harrison, pusher, in No. 6 Pit, Wellington, got his forearm broken by a stringer falling on it.

" 14—John Kalos, miner, in Wellington Colliery, got a scalp wound and hand injured by a piece of coal falling on him, while at work.

" 18—Steve Raidik, pusher, in No. 5 Pit, Wellington, got one of his ribs broken by being squeezed between two cars.

" 25—Roderick Macdonald, bratticeman, got his hand badly injured in No. 5 Pit, Wellington, by being caught between the drag and the mine cars.

" 28—Robert Caana, Alfred Speck, and Wm. McIvor were burned about the hands and face, and slightly singed, and Robert Hurst, James Handlin, A. Matthewson, and John Hampson were all more or less burned by the exploding of a tin of powder, while going to their work in No. 1 Shaft, Nanaimo.

" 31—Harrison Whitehead, miner, was slightly injured by the premature explosion of a shot in No. 2 Shaft, East Wellington.

Novemb'r 1—John Freer, miner, in East Wellington, was seriously injured by a fall of rock, while at work in his stall. He died on 1st December.

" 3—John Fish, miner, in No. 5 Pit, Wellington, was slightly injured by the premature explosion of a shot.

" 30—J. J. Thomas, miner, in No. 5 Pit, Wellington, was injured about the head and shoulder by the premature explosion of a shot.

December 5—Robert Gardiner, mule driver, in Northfield Mine, Nanaimo Colliery, was killed by getting on front of the loaded cars, so that they ran on him, while being hauled out by the mule in his charge.

" 5—Charles Ross, miner, in No. 5 Pit, Wellington, got his shoulder slightly injured by a fall of coal.

" 6—Fred Bucci, mule driver, in No. 5 Pit, Wellington, got injured over the eye by striking his head against the roof.

" 20—Elijah Cox, miner, was hurt on the back by a fall of rock, while at work in Northfield Mine, Nanaimo Colliery.

It is with sincere regret that I have again, at the close of the year, to make out the above list of accidents, both serious and fatal, although only about the half in number of those of the previous year. Many of those accidents were very slight, but, on the other hand, some men were severely injured, and it was a long time before they were able to work.

In the above list you will observe that there have been 46 accidents reported—forty of those slight and severe, and six fatal accidents.

Of the forty accidents reported as slight and serious, eight occurred by falls of rock, nine by coal, four by mine cars, five by shots, three by mules, seven by powder, one by gas, one by a stringer, one by striking the head on the roof, and one on the railway.

The fatal accidents, six in number, were: Two by falls of rock, one by fall of coal, two by cars in the mine, and one by the cars on the railway.

I have enquired into the circumstances and causes of all those accidents, in many instances before I got notice from the manager, which generally comes by mail. When any one gets hurt, the news spreads almost as rapidly as the ringing of a fire-bell on occasion of a fire.

With respect to the fatal accidents, in those cases where there was public inquiry held and evidence taken at inquests, I beg leave to refer you to the inquisitions and depositions on file for full information.

In examining the list, you will perceive that nearly all the accidents happened when the men were at work, with the exception of the casualty where the seven men got burned by the explosion of powder. Although, on the whole, the record of accidents is greatly diminished from any previous year, in comparison to the number of men employed, it is gratifying to be able to report that there has been only one person very slightly burned with gas. This speaks well for the ventilation of the collieries, and is evidence of the carefulness of the miners in this respect. The accidents from falling of rock and coal and other causes should yet be greatly reduced, by the display of more promptness in propping the roof and spragging the coal when it is known to be loose, and therefore dangerous. Being a miner myself, I know the great risks that are taken, just to do something before the rock or coal is made secure. This is sometimes a serious mistake, and results in accident and injury, if not fatality.

However, it is satisfactory to see that the casualities in and about the collieries are greatly reduced, and I hope to see in the year we have entered on a fortunate year, without even a bad accident.

In addition to the miners and workmen looking after their own safety when at work, there is the overman, the fireman, shot-lighters, and other persons having authority from the manager, so that with due care and superintendence taken by workmen and officers, there should be fewer accidents to record. Those officials are constantly on the move, going from one place to another, so that all the working places are frequently seen by them, and they have authority to cause anything that they may find to be dangerous for the workmen to be made safe, or the withdrawal of the men until safety is secured. The old waste works that can be got at are regularly examined by the firemen for any gas, this being the greatest enemy and dread of the miners, when in a mine that gives it off. It is pleasing to be able to report that the managers of the different collieries have the gas well under control—not but that it is there—but the great preventative, ventilation, has got the power, by the aid of modern machinery, to take the gas away, reducing it to harmlessness. Now, if all proper precautions are used by both the workmen and officials in the matters from which accidents are liable to proceed, we should experience the best results during the year, by there being fewer accidents and less suffering from casualities that, if workmen had not been careful, would have taken place.

The above remarks apply to all employed in and about the coal mines, from the manager to the boy that opens and shuts the door, so that air may be found where it is wanted.

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

I append the annual colliery returns.

I have the honour to be,
Sir,
Your obedient servant,
ARCHIBALD DICK,
*Government Inspector of Mines.*

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

## COLLIERY RETURNS.

### NANAIMO COLLIERY RETURNS.

| Output of coal for 12 months ending December 31st, 1892. | No. of tons sold for home consumption. | No. of tons sold for exportation. | No. of tons on hand 1st January, 1892. | No. of tons unsold, including coal in stock, Jan. 1st, 1893. |
|---|---|---|---|---|
| Tons. cwt. | Tons. cwt. | Tons. cwt. | Tons. cwt. | Tons. cwt. |
| 433,386 7 | 130,029 6 | 307,623 — | 8,883 14 | 4,617 15 |
| Fire-clay, 2,350 tons. | Fire-clay, 1,850 tons. | ..... | ..... | Fire-clay, 500 tons. |

| Number of hands employed. | | | | Wages per day. | | | |
|---|---|---|---|---|---|---|---|
| Whites. | Boys. | Indians. | Chinese. | Whites. | Boys. | Indians. | Chinese. |
| 1,159 | 43 | ..... | 165 | $2.50 to $3.50 | $1 to $2 | ..... | $1 to $1.25 |
| Total hands employed ..... .....1,367 | | | | Miners' earnings, per day ..... $3 to $5. | | | |

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

Value of Plant—$350,000.

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

Description and length of tramway, plant, &c.—Railway to Southfield, 6 miles, with sidings; railway to No. 1 Shaft, 1 mile, with sidings; railway from Northfield Mine to wharf at Departure Bay, 4½ miles; rails are of steel, 56 pounds per yard, of standard gauge, viz., 4 feet 8½ inches; 8 hauling and pumping engines; 15 steam pumps; 5 locomotives; 220 coal cars (6 tons), besides lumber and ballast cars; fitting shops for machinery repairs, with turning lathes, boring, drilling, planing, screw-cutting machines, hydraulic press, steam hammer, etc., etc.; diamond boring machine, for exploratory work (bores to 4,000 feet); 150-horse power electric plant, engines, boilers, dynamo; 2 30-horse power (8 ton) locomotives; 1 15-horse power (4 ton) locomotives; hauling and lighting equipment; wharves, 2,000 feet frontage, at which ships of the largest tonnage can load at all stages of the tide.

SAMUEL M. ROBINS,
*Superintendent, New Vancouver Coal Mining and Land Co., Ltd.*

## WELLINGTON COLLIERY RETURNS.

| Output of coal for 12 months ending December 31st, 1892. | No. of tons sold for home consumption. | No. of tons sold for exportation. | No. of tons on hand 1st January, 1892. | No. of tons unsold, including coal in stock, Jan. 1st, 1893. |
|---|---|---|---|---|
| Tons. cwt. | Tons. cwt. | Tons. cwt. | Tons. cwt. | Tons. cwt. |
| 290,370 19 | 56,062 4 | 238,400 — | 10,500 — | 6,408 — |

| Number of hands employed. | | | | Wages per day. | | | |
|---|---|---|---|---|---|---|---|
| Whites. | Boys. | Indians. | Chinese. | Whites. | Boys. | Indians. | Chinese. |
| 682 | 33 | ..... | 100 | $2.50 to $3.50 | $1 to $2 | ..... | $1 to $1.50 |
| Total hands employed .....815 | | | | Miners' earnings, per day .....$3 to $4.50. | | | |

Name of Seams—Wellington, 1, 4, 5, and 6 Pits.
Value of Plant—$150,000.
Description of seams, tunnels, levels, shafts, &c., and number of same—4 shafts, with slopes, airways, and levels; 3 air shafts; 1 shaft sinking.
Description and length of tramway, plant, &c.—5 miles of railway, with sidings and branches; 6 locomotives; 250 coal cars; 13 stationary engines; 9 steam pumps; 4 wharves for loading vessels, and bunkers.
Output of fire clay, 613 3/20 tons.

R. DUNSMUIR & SONS.

## EAST WELLINGTON COLLIERY RETURNS.

| Output of coal for 12 months ending December 31st, 1892. | No. of tons sold for home consumption. | No. of tons sold for exportation. | No. of tons on hand 1st January, 1892. | No. of tons unsold, including coal in stock, Jan 1st, 1893. |
|---|---|---|---|---|
| Tons. cwt. | Tons. cwt. | Tons. cwt. | | Tons. cwt. |
| 33,650 — | 5,350 — | 28,000 — | ..... | 300 — |

| Number of hands employed. | | | | Wages per day. | | | |
|---|---|---|---|---|---|---|---|
| Whites. | Boys. | Indians. | Chinese. | Whites. | Boys. | Indians. | Chinese. |
| 118 | 16 | ..... ..... | 18 | $2.50 to $3.50 | $1 to $2 | ..... | $1 to $1.50 |
| Total hands employed .....152 | | | | Miners' earnings, per day .....$3 to $5. | | | |

Name of Seams or Pits—East Wellington Coal Company's Nos. 1 and 2 Shafts.
Value of Plant—$80,000.
Description of seams, tunnels, levels, shafts, &c., and number of same—2 seams; lower or main seam, 2½ to 7½ feet thick; upper or small seam, 2 feet thick; 2 shafts.
Description and length of tramway, plant, &c.—4½ miles standard narrow gauge; 2 locomotives; 31 (4½ ton) coal cars; 2 hoisting engines; 2 donkey engines; 1 fan engine; 7 steam pumps; 1 steam pile-driver; 1 steam saw-mill, capacity 12,000 feet per day.

W. S. CHANDLER, *Superintendent*.

## UNION COLLIERY RETURNS.

| Output of coal for 12 months ending December 31st, 1892. | No. of tons sold for home consumption. | No. of tons sold for exportation. | No. of tons on hand 1st January, 1892. | No. of tons unsold, including coal in stock, Jan. 1st, 1893. |
|---|---|---|---|---|
| Tons. cwt. | Tons. cwt. | Tons. cwt. | Tons. cwt. | Tons. cwt. |
| 68,928 — | 4,782 — | 66,556 — | 13,860 — | 11,450 — |

| Number of hands employed. | | | | Wages per day. | | | |
|---|---|---|---|---|---|---|---|
| Whites. | Boys. | Japanese. | Chinese. | Whites. | Boys. | Japanese. | Chinese. |
| 250 | ..... | 70 | 200 | $2.50 to $3.50 | ..... | $1 to $1.25 | $1 to $1.25 |
| Total hands employed ..... 520 | | | | Miners' earnings, per day ..... $3 to $4.50. | | | |

Name of Seams or Pits—Comox.

Value of Plant—$100,000.

Description of seams, tunnels, levels, shafts, &c., and number of same—No. 1 slope, with airways and levels; Nos. 1 and 2 tunnels; No. 2 slope; No. 4 slope, with airway and levels.

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

JAMES DUNSMUIR,
*President, Union Colliery Company.*

## NORTH THOMPSON COLLIERY RETURNS.

Number of hands employed—Eight whites.

Wages per day—$2.50 to $3.25.

Name of Seams or Pits—

Value of Plant—

Description of seams, tunnels, levels, shafts, &c., and number of same—Only the upper seam is opened. A tunnel is driven on strike of seam from bottom of ravine, a distance of 45 feet. The opening is then driven on dip of seam about 55 feet, and on rise about 50 feet to surface, making a slope of about 105 feet. The seam "pitches" E. 10° S., and "dips" 25°.

Description and length of tramway, plant, &c.—None.

No coal has been put on the market for want of shipping facilities, and none shipped except sample lot for C. P. Ry., and smaller sample lots.

W. J. MCIVER,
*Secretary, The Kamloops Coal Mining Co., Limited.*

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