

CANADA
DEPARTMENT OF MINES
MINES BRANCH

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THE
PRODUCTION OF COAL AND COKE

IN

CANADA

During the Calendar Year

1909

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ADVANCE CHAPTER OF THE ANNUAL REPORT ON THE MINERAL PRODUCTION OF CANADA, DURING THE CALENDAR YEAR 1909.

(Tons used throughout this report are short tons of 2,000 pounds, except where otherwise stated.)

COAL.

The coal mining industry was marked during 1909 by a decreased production in Nova Scotia and an increased production in the western provinces, resulting in an aggregate decrease for the whole of Canada of 384,836 tons, or about 3½ per cent.

This is the first year in fourteen in which a decrease has to be recorded in comparing with the previous year's output, and had it not been for the strike of coal miners, which began at Sydney on July 6, and at Springhill, N.S., on August 10, and continued throughout the year, it is fairly certain that the production would have shown an increase instead of a decrease.

The total production in 1909 was returned as 10,501,475 tons, valued at \$24,781,236; as compared with a production of 10,886,311 tons, valued at \$25,194,573 in 1908.

Coal mining has been for a number of years the most important of Canada's mining industries, and in 1909 is credited with 27 per cent of the total mineral production of the country. As would be expected in a young country rapidly growing in population and industrial activity and endowed with large coal resources, the increase in production has been very rapid. The output in 1909 is more than twice that of ten years ago, about four times the output of twenty years ago, and nearly ten times the production of 1879. The total production during the ten year period, 1880-1889, was 20,399,426 tons, and during the next ten years, 1890-1899, the total production was 37,689,071 tons, or an increase of 84.8 per cent. During the last ten year period, 1900-1909, the total production was 86,275,045 tons, or an increase of 128.9 per cent over the previous ten year aggregate.

Notwithstanding our large coal resources, Canada's total coal production in 1909 was only about 56.4 per cent of the estimated consumption, and our additional requirements are supplied by imports chiefly from the United States. The principal coal fields are located on the extreme east and west, while the central Provinces of Ontario and Quebec, comprising the great bulk of the population, are without coal deposits. Some inferior lignites are known in northern Ontario, but are not commercially available. Nova Scotia coal finds a considerable market in Quebec province, while the demands of Ontario, for both domestic and industrial purposes, are supplied from the south. There are no anthracite coals in eastern Canada, and our requirements of this fuel have to be met entirely by imports from Pennsylvania. The product of British Columbia and Alberta mines not only supplies local demands, including a growing ore smelting industry, but is also largely exported to the adjacent United States.

The coal mined in Canada comprises the three varieties: anthracite, bituminous, and lignite. The bituminous forms by far the largest proportion of the output, being mined exclusively in the Maritime Provinces, in British Columbia, and in the Crownsnest Pass region of southwestern Alberta. It is, of course, difficult to draw any sharp lines of demarcation between the different varieties, but roughly speaking, about 90 per cent of the production may be classed as bituminous.

There is but one anthracite mine in Canada, at Bankhead, near Banff, Alberta, operated by the Bankhead Mines, Limited. This mine possesses the only briquetting plant in operation in the country.

Statistics of the production by provinces during the past three years are shown in Table 1, and Table 2 shows the increases or decreases in each year as compared with the previous year.

It may be explained that the term production in these tables applies to the amount of coal actually sold or used by the producers, in contradistinction to output, which applies to the coal extracted from the mine and which in some cases includes coal lost or unsaleable or coal carried into stock on hand at the end of the year.

COAL.—TABLE 1.

Production by Provinces, 1907-8-9, in tons of 2,000 lbs.

Province.	1907.		1908.		1909.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.
Nova Scotia.....	6,354,133	\$12,764,999	6,652,539	\$13,364,476	5,652,089	\$11,354,643
British Columbia...	2,364,898	7,390,306	2,333,708	7,292,833	2,600,127	8,144,147
Alberta.....	1,591,579	3,836,286	1,685,661	4,127,311	1,994,741	4,833,109
Saskatchewan.....	151,232	252,437	150,556	253,790	192,125	296,339
New Brunswick...	34,584	77,814	60,000	135,000	49,029	98,496
Yukon Territory...	15,000	60,000	3,847	21,158	7,364	49,502
Totals.....	10,511,426	24,381,842	10,886,311	25,194,573	10,501,475	24,781,236

COAL.—TABLE 2.

Comparison of Production, 1907 with 1908, and 1908 with 1909.

Province.	(i) INCREASE OR (d) DECREASE.			
	Years 1907 and 1908.		Years 1908 and 1909.	
	Tons.	Per cent.	Tons.	Per cent.
Nova Scotia.....	(i) 298,406	4.70	(d) 1,000,450	15.04
British Columbia.....	(d) 31,190	1.32	(i) 272,419	11.67
Alberta.....	(i) 94,082	5.91	(i) 300,080	18.34
Saskatchewan.....	(d) 676	0.01	(i) 41,569	27.61
New Brunswick.....	(i) 25,416	73.49	(d) 10,971	18.29
Yukon Territory.....	(d) 11,153	74.35	(i) 3,517	91.42
Totals for Canada.....	(i) 374,835	3.56	(d) 384,836	3.55

The distribution of coal mined, as shown by the returns furnished by the operators, is given for the past three years in the next table.

In 1909, about 82.6 per cent of the total output was placed directly on the market, 7.1 per cent made into coke by the mine operators, and 8.8 per cent used in colliery consumption and by workmen. The quantities entered as loss due to washing, breakage, etc., do not necessarily include all the losses due to these causes, since many companies do not make any return under this heading. Also the quantity entered as sold in Canada probably includes a small quantity which is ultimately exported.

Distribution of Coal mined in Canada during the Years 1907-8-9.

	1907.	1908.	1909.
Sales in Canada.....	7,358,135	7,715,203	7,478,880
Sales for export to United States.....	1,514,182	1,218,676	1,173,772
" " other countries.....	129,957	297,291	171,388
Total sales.....	9,002,274	9,231,150	8,814,040
Used by producers for the manufacture of coke.....	751,967	708,674	752,976
" " colliery consumption and workmen..	757,185	946,487	934,459
Stock on hand January 1.....	212,559	183,443	202,432
" December 31.....	190,224	230,335	219,569
Difference.....	- 22,335	+ 46,892	+ 17,137
Loss due to washing, breakage, or other causes.....	351,783	157,610	154,162
Total output.....	10,840,874	11,090,813	10,672,774

The output by provinces, showing the distribution of coal mined in 1909, is shown in the next table.

Coal Output in Canada, 1909.

	Nova Scotia.	New Brunswick.	Saskatchewan.	Alberta.	Yukon.	British Columbia.	Total Output.*
Sales in Canada.....	4,406,688	45,000	183,878	1,639,515	6,864	1,006,935	7,468,880
Sales for export to U. S.	300,134			114,101		759,537	1,173,772
" " other countries.....	100,258					71,130	171,388
Total sales.....	4,897,080	45,000	183,878	1,753,616	6,864	1,927,602	8,814,040
Used by producers in making coke.....	169,832			143,854		439,290	752,976
Used by producers for colliery consumption and workmen.....	585,177	4,029	8,247	97,271	500	239,235	934,459
Stock on hand Jan. 1.....	150,455			4,646		47,331	202,432
" Dec. 31.....	154,832			12,150		52,587	219,569
Difference.....	+ 4,377			+ 7,504		+ 5,256	+ 17,137
Losses due to breakage or other causes.....	62,405		10,788	17,573		63,396	154,162
Total output.....	5,718,871	49,029	202,913	2,019,818	7,364	2,674,779	10,672,774

* Production is obtained by adding coal sold and coal used.

Statistics of the annual production of coal in Canada since 1874 are shown in Table 3. The total production from 1785 to 1909 has been 159,249,336 tons, of which 109,327,053 tons, or 69 per cent, are to be credited to Nova Scotia, and 36,718,469 tons, or 23 per cent, to British Columbia.

COAL—TABLE 3.

Annual Production showing the Increase or Decrease each year.

Year.	Tons.	Value.	Average Value per Ton.	Increase (i) or Decrease (d) in Tonnage.	Increase (i) or Decrease (d) per cent.
		\$	\$		
1785 to 1873.....	*8,534,455				
1874.....	1,063,742	1,763,423	1 66		
1875.....	1,039,974	1,747,016	1 68	(d) 23,768	(d) 2·2
1876.....	994,762	1,729,546	1 74	(d) 45,212	(d) 4·3
1877.....	1,036,670	1,794,415	1 73	(i) 41,908	(i) 4·2
1878.....	1,069,744	1,941,285	1 78	(i) 53,074	(i) 5·1
1879.....	1,126,497	2,050,639	1 82	(i) 36,753	(i) 3·4
1880.....	1,482,714	2,657,194	1 79	(i) 356,217	(i) 31·6
1881.....	1,537,106	2,688,621	1 75	(i) 54,392	(i) 3·7
1882.....	1,848,148	3,248,446	1 76	(i) 311,042	(i) 20·2
1883.....	1,818,684	3,109,635	1 71	(d) 29,464	(d) 1·6
1884.....	1,984,959	3,593,831	1 81	(i) 166,275	(i) 9·1
1885.....	1,920,977	3,417,807	1 78	(d) 63,982	(d) 3·2
1886.....	2,116,653	3,739,840	1 77	(i) 195,676	(i) 10·2
1887.....	2,429,330	4,388,206	1 81	(i) 312,677	(i) 14·8
1888.....	2,602,552	4,674,140	1 80	(i) 173,222	(i) 7·1
1889.....	2,658,303	4,894,287	1 84	(i) 55,751	(i) 2·1
1890.....	3,084,682	5,676,247	1 84	(i) 426,379	(i) 16·0
1891.....	3,577,749	7,019,425	1 96	(i) 493,067	(i) 16·0
1892.....	3,287,745	6,363,757	1 94	(d) 290,004	(d) 8·1
1893.....	3,783,499	7,359,080	1 95	(i) 495,754	(i) 15·1
1894.....	3,847,070	7,429,468	1 93	(i) 63,571	(i) 1·7
1895.....	3,478,344	6,739,153	1 94	(d) 368,726	(d) 9·6
1896.....	3,745,716	7,226,462	1 93	(i) 267,372	(i) 7·7
1897.....	3,786,107	7,393,597	1 93	(i) 40,391	(i) 1·1
1898.....	4,173,108	8,224,288	1 97	(i) 387,001	(i) 10·2
1899.....	4,925,051	10,283,497	2 09	(i) 751,943	(i) 18·0
1900.....	5,777,319	13,742,178	2 38	(i) 852,268	(i) 17·3
1901.....	6,486,325	12,699,243	1 96	(i) 709,006	(i) 12·3
1902.....	7,466,681	15,210,877	2 04	(i) 780,356	(i) 15·1
1903.....	7,960,364	15,942,833	2 00	(i) 493,683	(i) 6·6
1904.....	8,254,595	16,592,231	2 01	(i) 294,231	(i) 3·7
1905.....	8,667,948	17,520,263	2 02	(i) 413,353	(i) 5·0
1906.....	9,762,601	19,732,019	2 02	(i) 1,094,653	(i) 12·6
1907.....	10,511,426	24,381,842	2 32	(i) 748,825	(i) 7·7
1908.....	10,886,311	25,194,573	2 32	(i) 374,885	(i) 3·5
1909.....	10,501,475	25,781,236	2 36	(d) 384,836	(d) 3·5

* The total production for the years 1785 to 1873 is made up as follows:—

Nova Scotia (1785 to 1873) 8,053,670 tons of 2,000 pounds.
 British Columbia (1836 to 1873) 480,785 " 2,000 "

The following table shows the proportional contributions of each province to the grand total production of Canada in 1874, 1890, and yearly since 1900:—

Province.	1874.	1890.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.
	%	%	%	%	%	%	%	%	%	%	%	%
Nova Scotia.....	91	71	62.9	64.4	69.4	71.3	68.0	65.5	64.07	60.79	61.40	54.29
New Brunswick ..												
Saskatchewan*.....			0.7	0.7	0.9	1.5	1.5	1.2	1.11	1.44	1.37	1.83
Alberta*.....		4	5.4	5.2	5.4	6.2	8.0	10.8	12.77	15.14	15.42	18.99
British Columbia.....	8	25	31.0	29.6	24.2	21.0	22.5	22.4	21.98	22.50	21.77	24.82
Yukon Territory.....				0.1	0.1			0.1	0.07	0.13	0.04	0.07

* Alberta and Saskatchewan were established as provinces on September 1, 1905. For the purpose of comparison, the coal production during the years previous to that date has been separated according to the present boundaries of these Provinces.

The figures of the above table bring out the steady growth of the coal industry in the Provinces of Alberta and Saskatchewan. In 1900, these two Provinces were only contributing a little over 6 per cent, whereas in 1909 their aggregate production represents nearly 21 per cent of the total production in Canada.

The proportion contributed by Nova Scotia, although still more than half the total, has fallen considerably during the past ten years, and it will probably be but a short time before the production in the west exceeds that in the east.

EXPORTS AND IMPORTS.

The following tables give the statistics of exports of coal from Canada, as compiled from the reports of the Department of Customs. The United States constitutes the main market for coal exported, 78 per cent of the exports being sent to that country in 1909. The total exports of Canadian coal during 1909 were the smallest since 1904.

Exports of Coal produced in Canada during 1907-8-9.

Exported to	1907.		1908.		1909.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.
		\$		\$		\$
Great Britain.....	8,514	25,106	5,557	18,065	10,671	36,403
United States.....	1,691,016	4,278,870	1,385,223	3,564,390	1,240,519	3,357,111
Newfoundland.....	131,784	357,005	194,034	532,121	175,801	493,040
Other countries.....	62,760	218,583	145,019	546,801	161,108	569,783
Totals.....	1,894,074	4,879,564	1,729,833	4,661,377	1,588,099	4,456,342

COAL.—TABLE 4.

Exports.

Calendar Year.	Produce of Canada.	Not the Produce of Canada.	Calendar Year.	Produce of Canada.	Not the Produce of Canada.
	Tons.	Tons.		Tons.	Tons.
1873.....	420,683	5,403	1892.....	823,733	93,983
1874.....	310,988	12,859	1893.....	960,312	102,827
1875.....	250,348	14,026	1894.....	1,103,694	89,786
1876.....	248,638	4,995	1895.....	1,011,235	96,836
1877.....	301,317	4,829	1896.....	1,106,661	116,774
1878.....	327,959	5,468	1897.....	986,130	101,848
1879.....	306,648	8,468	1898.....	1,150,029	99,189
1880.....	432,188	14,217	1899.....	1,293,169	101,004
1881.....	395,382	14,245	1900.....	1,787,777	62,776
1882.....	412,682	37,576	1901.....	1,573,661	53,894
1883.....	486,811	44,388	1902.....	2,090,268	23,453
1884.....	474,405	62,665	1903.....	1,954,629	27,138
1885.....	427,937	71,003	1904.....	1,557,412	27,308
1886.....	520,703	78,443	1905.....	1,635,287	86,792
1887.....	580,965	89,098	1906.....	1,835,041	44,758
1888.....	588,627	84,316	1907.....	1,894,074	101,778
1889.....	665,315	89,294	1908.....	1,729,833	102,071
1890.....	724,486	82,534	1909.....	1,588,099	161,098
1891.....	971,259	77,827			

The exports from Nova Scotia and British Columbia are shown separately in Table 5 up to 1899, but the Customs reports do not now give these details.

According to direct returns from the operators, Nova Scotia coal sold for export in 1909 amounted to 400,392 tons, and British Columbia coal, 830,667 tons.

COAL.—TABLE 5.

Exports: Nova Scotia and British Columbia.

Calendar Year.	NOVA SCOTIA.		*BRITISH COLUMBIA.	
	Tons.	Value.	Tons.	Value.
		\$		\$
1874.....	252,124	647,539	51,001	278,180
1875.....	179,626	404,351	65,842	356,018
1876.....	126,520	263,543	116,910	627,754
1877.....	173,389	352,453	118,252	590,263
1878.....	154,114	293,795	165,734	698,870
1879.....	113,742	203,407	186,094	608,845
1880.....	199,552	344,148	219,878	775,008
1881.....	193,081	311,721	187,791	622,965
1882.....	216,954	390,121	179,552	628,437
1883.....	192,795	336,088	271,214	946,271
1884.....	222,709	430,330	245,478	901,440
1885.....	176,287	349,650	250,191	1,000,764
1886.....	240,459	441,693	274,446	960,649
1887.....	207,941	390,738	356,657	1,262,552
1888.....	165,863	330,115	405,071	1,605,650
1889.....	186,608	396,830	470,683	1,918,263
1890.....	202,387	426,070	508,882	1,977,191
1891.....	194,867	417,816	767,734	2,958,695
1892.....	181,547	407,980	599,716	2,317,734
1893.....	203,198	470,695	708,228	2,693,747
1894.....	310,277	633,398	770,439	2,855,216
1895.....	241,091	534,479	728,283	2,692,562
1896.....	380,149	787,270	679,799	2,507,752
1897.....	307,128	642,754	630,341	2,221,737
1898.....	309,158	629,363	813,843	2,948,428
1899†.....	459,260	827,941	781,809	2,947,369

* See foot-note, Table 15. † Since 1899, exports by provinces have not been published in Trade and Navigation report.

The imports of coal into Canada are shown in Table 6. Anthracite dust is included with the anthracite coal, but bituminous dust is classified as 'bituminous slack such as will pass through a $\frac{3}{4}$ " screen.' The imports of anthracite and bituminous were both less in 1909 than in 1908, but there was a slight increase in the imports of bituminous dust.

The total imports aggregated 9,872,924 tons, valued at \$26,831,859, an amount almost equal to the home production.

COAL.—TABLE 6.

Imports of Coal into Canada.

BITUMINOUS COAL.			ANTHRACITE COAL AND ANTHRACITE DUST.		BITUMINOUS COAL DUST.	
Fiscal Year.	Tons.	Value.	Tons.	Value.	Tons.	Value.
		\$		\$		\$
1880.....	457,049	1,220,761	516,729	1,509,960	3,565	8,877
1881.....	587,024	1,741,568	572,092	2,325,937	337	666
1882.....	636,374	1,992,081	633,273	2,666,356	471	900
1883.....	911,629	2,996,198	754,891	3,344,936	8,154	10,082
1884.....	1,118,615	3,613,470	868,000	3,831,233	12,782	14,600
1885.....	1,011,875	3,197,539	910,324	3,909,844	20,185	20,412
1886.....	930,949	2,591,554	995,425	4,028,050	36,230	36,996
1887.....	1,149,792	3,126,225	1,100,165	4,423,062	31,401	33,178
1888.....	1,231,234	3,451,661	† 2,138,627	5,291,875	28,808	34,730
1889.....	1,243,540	3,255,171	1,291,705	5,199,481	39,980	47,139
1890.....	1,409,282	3,523,959	1,201,335	4,595,727	53,104	29,818
1891.....	1,598,855	4,060,896	1,399,067	5,224,452	60,127	36,130
1892.....	1,615,220	4,009,221	1,479,106	5,640,346	82,091	39,840
1893.....	1,603,154	3,967,764	1,500,550	6,355,235	109,585	44,474
1894.....	1,359,509	3,315,094	1,530,522	6,354,040	117,573	49,510
1895.....	1,444,928	3,321,387	1,404,342	5,350,627	181,318	52,221
1896.....	1,538,489	3,299,025	1,574,355	5,667,096	210,386	53,742
1897.....	1,543,476	3,254,217	1,457,295	5,695,168	225,562	59,609
1898.....	1,684,024	3,179,595	1,460,701	5,874,635	229,445	45,556
1899.....	2,171,358	3,691,946	1,745,460	6,490,509	276,547	44,717
1900.....	2,439,764	4,310,964	1,654,401	6,602,912	330,174	98,349
1901.....	2,516,392	4,956,025	1,933,283	7,923,950	414,432	275,559
1902.....	3,047,392	5,712,058	1,652,451	7,021,939	489,543	264,550
1903.....	3,511,412	7,776,717	1,456,713	7,023,664	550,883	420,317
1904.....	4,053,900	9,103,208	2,275,018	10,461,223	608,041	544,128
1905.....	4,176,274	8,002,896	2,604,137	12,093,371	650,261	343,456
1906.....	4,495,550	8,360,348	2,200,863	10,304,308	747,251	489,180
Calendar Year.	Bituminous round and run of mine.				Bituminous slack such as will pass through a 3" screen.	
1907.....	6,370,152	13,232,445	3,141,873	14,506,129	1,139,256	1,219,949
1908.....	(a)6,025,574	12,516,748	(b)3,160,110	14,478,536	(c)1,111,811	1,355,677
1909.....	5,625,063	11,453,818	3,017,844	13,906,152	1,230,017	1,469,889

(a). Duty, 53c. per ton. (b). Coal, anthracite, and anthracite coal dust; duty free. (c). Duty 20 per cent, not over 13c. per ton.

† In the anthracite column the imports show a very considerable increase in 1888 over 1887, an increase of over 94 per cent, the falling off again in 1889 being quite as remarkable. The average values per ton for the three years 1887, 1888, and 1889, were \$4.02, \$2.47, and \$4.03 respectively. Although a duty of 50c. per ton on anthracite coal was removed May 13, 1887, it is hardly thought this would account for the changes indicated, and unless some error may possibly have crept into the Trade and Navigation report, no explanation is available.

With statistics of production, exports, and imports of coal available, a basis is furnished for an estimate of the country's coal consumption. The consumption in 1909 amounted to 18,625,202 tons, as compared with 19,351,902 tons in 1908, a decrease of 726,700 tons, or 3.76 per cent. Of the total consumption in 1909, 9,711,826 tons, or 52.1 per cent, were imported coal, and 8,913,376 tons, or 47.9 per cent domestic coal.

The per capita consumption in 1909, based on an estimate of the population made by the Census Office, was approximately 2.599 tons; this is somewhat less than the per capita consumption of the two previous years. During the past twenty-three years, however, the consumption has increased from a little over three-quarters of a ton per head of population in 1886, having doubled in 1900, and reached its highest point of 2.946 tons in 1907. The consumption in Canada, however, is still small when compared with that of the United States, where the production has reached a total of about 5 tons per capita.

Consumption of Coal in Canada, 1908-9.

	1908.		1909.	
	Tons.	Tons.	Tons.	Tons.
Production, Table 3.....	10,886,311	.....	10,501,475	.....
Exports of Canada, Table 4.....	1,729,833	.....	1,588,099	.....
Home consumption of Canadian coal.....	.....	9,156,478	.....	8,913,376
Imports, Table 6.....	10,297,495	.....	9,872,924	.....
Exports not produce of Canada, Table 4.....	102,071	.....	161,098	.....
Canadian consumption of imported coal.....	.....	10,195,424	.....	9,711,826
Total consumption of coal in Canada.....	.....	19,351,902	.....	18,625,202

COAL.—TABLE 7.

Consumption of Coal in Canada, 1886-1909.

Calendar Year.	Canadian.	Imported.	Total.	Percentage Canadian.	Percentage Imported.	Consumption per capita
	Tons.	Tons.	Tons.			Tons.
1886.....	1,595,950	1,884,161	3,480,111	45.9	54.1	0.758
1887.....	1,848,365	2,192,260	4,040,625	45.7	54.3	0.871
1888.....	2,013,925	3,314,353	5,328,278	37.8	62.2	1.137
1889.....	1,992,988	2,490,931	4,483,919	44.4	55.6	0.946
1890.....	2,360,196	2,581,187	4,941,383	47.8	52.2	1.031
1891.....	2,606,490	2,980,222	5,586,712	46.7	53.3	1.153
1892.....	2,464,012	3,082,429	5,546,441	44.4	55.6	1.133
1893.....	2,823,187	3,110,462	5,933,649	47.6	52.4	1.198
1894.....	2,743,376	2,917,818	5,661,194	48.5	51.5	1.130
1895.....	2,467,109	2,933,752	5,400,861	45.7	54.3	1.066
1896.....	2,639,055	3,206,456	5,845,511	45.1	54.9	1.140
1897.....	2,799,977	3,124,485	5,924,462	47.3	52.7	1.143
1898.....	3,023,079	3,274,981	6,298,060	48.0	52.0	1.200
1899.....	3,631,882	4,092,361	7,724,243	47.0	53.0	1.454
1900.....	3,989,542	4,361,563	8,351,105	47.8	52.2	1.561
1901.....	4,912,664	4,810,213	9,722,877	50.5	49.5	1.810
1902.....	5,376,413	5,165,938	10,542,351	51.0	49.0	1.927
1903.....	6,005,735	5,491,870	11,507,605	52.2	47.8	2.055
1904.....	6,697,183	6,909,651	13,606,834	49.2	50.8	2.346
1905.....	7,032,661	7,343,880	14,376,541	48.9	51.1	2.396
1906.....	7,927,560	7,398,906	15,326,466	51.7	48.3	2.425
1907.....	8,617,352	10,549,503	19,166,855	45.0	55.0	2.946
1908.....	9,156,478	10,195,424	19,351,902	47.3	52.7	2.826
1909.....	8,913,376	9,711,826	18,625,202	47.9	52.1	2.599

Nova Scotia.

The production of coal in Nova Scotia in 1909 was less than the 1908 production by 1,000,450 tons, or a decrease of 15 per cent. Yearly statistics of output, sales, colliery consumption and production since 1872 are shown in Table 8, the figures being given in both long and short tons. The production by counties during the past four years is shown in Table 9. The Provincial Department of Mines in this Province collects and publishes coal statistics covering the fiscal year ending September. The colliery output during the last three years is shown in Table 10, and the distribution of coal sold during the same period, in Table 11.

The total production during the calendar year 1909 was 5,652,089 tons (5,046,508 long tons), of which 4,045,657 tons, or 72 per cent, were obtained from Cape Breton county, 734,042 tons, or 13 per cent, from Pictou, and 494,398 tons, or 9 per cent, from Cumberland county, the balance being from Inverness and Colchester counties.

The falling off in production in 1909 is probably to be attributed to a number of reasons, among which the labour strikes figure prominently. During the first five months of the year the demand for coal was apparently very much less than during the corresponding period in 1908. A large number of employes of the Dominion Coal Company went on strike in July, and although the collieries were not completely shut down the output was seriously reduced. A similar strike at the Inverness mine of the Inverness Railway and Coal Company affected that Company's output. The mines of the Cumberland Railway and Coal Company were almost completely closed by a strike on August 10.

The Marsh mine, in Pictou county, operated by the Nova Scotia Steel and Coal Company, was closed down at the end of March.

COAL.—TABLE 8.

Nova Scotia: Output, Sales, Colliery Consumption, and Production.

Calendar Year.	Output, Tons, 2,240 lbs.	Sold or used, Tons, 2,240 lbs.	Colliery Consumption, Tons, 2,240 lbs.	Production,* Tons, 2,240 lbs.	Output, Tons, 2,000 lbs.	Sold or used, Tons, 2,000 lbs.	Colliery Consumption, Tons, 2,000 lbs.	Production,* Tons, 2,000 lbs.	Price per Ton, 2,240 lbs.	Value of Production.
1872.....	880,950	785,914	110,341	896,255	986,664	880,224	123,582	1,003,806	\$ 1 75	\$ 1,568,446
1873.....	1,051,467	881,106	108,398	989,504	1,177,643	986,839	121,406	1,108,245	1 75	1,731,632
1874.....	872,720	749,127	119,582	868,709	977,446	839,022	133,932	972,954	1 75	1,520,240
1875.....	781,165	706,795	124,110	830,905	874,905	791,610	139,003	930,613	1 75	1,454,084
1876.....	709,646	634,207	113,788	747,995	794,804	710,312	127,443	837,755	1 75	1,308,991
1877.....	757,496	687,065	98,941	785,906	848,396	769,613	110,702	880,215	1 75	1,375,339
1878.....	770,603	693,511	88,627	782,138	863,075	776,732	99,262	875,994	1 75	1,368,741
1879.....	788,271	688,624	84,787	773,411	882,863	771,259	94,961	866,220	1 75	1,353,469
1880.....	1,032,710	954,659	96,831	1,051,490	1,156,635	1,064,218	108,451	1,777,669	1 75	1,840,108
1881.....	1,124,270	1,035,014	107,888	1,142,902	1,259,183	1,159,216	120,834	1,280,050	1 75	2,000,079
1882.....	1,365,811	1,250,179	111,381	1,361,560	1,529,708	1,400,200	124,747	1,524,947	1 75	2,382,730
1883.....	1,422,553	1,297,523	111,949	1,409,472	1,513,259	1,453,226	125,383	1,578,609	1 75	2,466,576
1884.....	1,389,295	1,261,656	116,769	1,378,419	1,556,011	1,413,048	130,781	1,543,829	1 75	2,412,233
1885.....	1,352,205	1,254,510	127,624	1,382,134	1,514,470	1,405,051	142,939	1,547,990	1 75	2,418,735
1886.....	1,602,611	1,373,666	142,421	1,516,087	1,682,924	1,538,506	159,512	1,698,018	1 75	2,653,152
1887.....	1,670,430	1,519,684	139,777	1,659,461	1,871,330	1,702,046	156,550	1,868,696	1 75	2,904,057
1888.....	1,776,128	1,576,692	157,443	1,734,135	1,989,263	1,765,895	176,336	1,942,231	1 75	3,034,735
1889.....	1,756,279	1,555,107	158,131	1,713,238	1,967,032	1,741,720	177,107	1,918,827	1 75	2,098,167
1890.....	1,984,001	1,786,111	161,240	1,947,351	2,222,081	2,000,444	180,589	2,181,033	1 75	3,407,864
1891.....	2,044,784	1,849,945	174,983	2,024,928	2,290,158	2,071,938	195,981	2,267,919	1 75	3,543,624
1892.....	1,942,780	1,762,934	175,092	1,928,026	2,175,913	1,963,286	196,103	2,169,389	1 75	3,374,046
1893.....	2,223,042	1,977,543	205,425	2,182,968	2,489,807	2,214,848	230,076	2,444,924	1 75	3,820,194
1894.....	2,250,631	2,060,920	196,206	2,257,126	2,520,707	2,308,231	219,751	2,527,982	1 75	3,949,970
1895.....	1,999,756	1,793,098	193,639	1,986,737	2,239,727	2,008,270	216,875	2,226,145	1 75	3,476,790
1896.....	2,292,675	2,046,828	192,975	2,239,803	2,567,796	2,292,447	216,132	2,508,579	1 75	3,919,655
1897.....	2,340,031	2,044,672	181,716	2,226,368	2,620,835	2,290,032	203,522	2,493,554	1 75	3,896,179
1898.....	2,262,656	2,121,126	167,428	2,288,554	2,534,175	2,375,661	187,519	2,563,180	1 75	4,004,970
1899.....	2,865,443	2,633,989	177,460	2,811,449	3,209,296	2,950,067	198,755	3,148,822	2 00	5,622,898
1900.....	3,298,791	2,998,737	236,663	3,235,300	3,694,646	3,358,585	264,951	3,625,536	2 50	8,088,260
1901.....	3,821,033	3,411,127	301,434	3,712,561	4,279,557	3,820,462	337,606	4,158,068	1 75	6,496,982

(Table continued on page 14).

* This production is obtained by adding sales and colliery consumption. For sales previous to 1872, see report of the Department of Mines, Nova Scotia, 1883, page 51.

COAL.—TABLE 8—Continued.

Nova Scotia: Output, Sales, Colliery Consumption, and Production.

Calendar Year.	Output, Tons, 2,240 lbs.	Sold or used, Tons, 2,240 lbs.	Colliery Consump- tion, Tons, 2,240 lbs.	Production,* Tons, 2,240 lbs.	Output, Tons, 2,000 lbs.	Sold or used, Tons, 2,000 lbs.	Colliery Consump- tion, Tons, 2,000 lbs.	Production,* Tons, 2,000 lbs.	Price per Ton, 2,240 lbs.	Value of Production.
1902.....	4,725,480	4,229,120	379,198	4,608,318	5,292,538	4,736,614	424,702	5,161,316	2 00	9,216,636
1903.....	5,215,562	4,565,720	481,903	5,047,623	5,841,429	5,113,607	539,731	5,653,338	2 00	10,095,246
1904.....	5,131,985	4,551,740	444,904	4,996,644	5,747,323	5,097,949	498,293	5,596,241	2 00	9,993,288
1905.....	5,197,877	4,613,818	427,774	5,041,592	5,821,622	5,167,476	479,107	5,646,583	2 00	10,083,184
1906.....	5,844,813	5,093,131	460,891	5,554,022	6,546,191	5,704,307	516,198	6,220,505	2 00	11,108,044
1907.....	5,775,503	5,236,077	437,256	5,673,333	6,468,563	5,864,406	489,727	6,354,133	2 25	12,764,999
1908.....	6,076,330	5,224,787	576,509	5,939,767	6,805,489	5,851,761	645,690	6,652,639	2 25	13,364,476
1909.....	5,106,135	4,524,029	522,479	5,046,508	5,713,871	5,066,912	585,177	5,652,089	2 25	11,354,643

* This production is obtained by adding sales and colliery consumption. For sales previous to 1872, see report of the Department of Mines, Nova Scotia, 1883, page 51.

COAL—TABLE 9.

Nova Scotia: Coal trade by Counties, Calendar Years 1906-7-8-9.

Calendar Year.	Cumberland.		Pictou.		Cape Breton.		Other Counties.		Total.	
	Raised.	Sales.*	Raised.	Sales.*	Raised.	Sales.*	Raised.	Sales.*	Raised.	Sales.*
1906.	659,734	566,308	769,496	657,310	4,804,407	4,221,293	312,554	259,396	6,546,191	5,704,307
1907.	534,047	445,288	840,533	729,043	4,698,147	4,346,180	395,836	343,895	6,468,563	5,864,406
1908.	662,157	530,648	849,802	678,025	4,840,653	4,267,346	452,877	375,742	6,805,489	5,851,761
1909.	494,919	403,371	743,860	599,743	4,081,333	3,723,135	398,759	340,663	5,718,871	5,066,912

* Includes coal used for making coke.

COAL—TABLE 10.

Nova Scotia: Output by Collieries during Fiscal Years ending September 30, 1908-9.

Colliery.	Tons of 2,000 lbs.	Tons of 2,000 lbs.
<i>Cape Breton County.</i>		
	1908.	1909.
Dominion Coal Company.....	4,274,993	3,119,556
Nova Scotia Steel and Coal Co.....	741,832	848,444
North Atlantic Collieries.....	65,830	81,292
McKay Mining Company.....	15,187	15,217
Sydney Coal Company.....	5,377	5,301
Colonial Mining Co.....		709
<i>Cumberland County.</i>		
Cumberland Railway and Coal Co.....	466,068	421,437
Maritime Coal, Railway, and Power Co., Chignecto.....	17,740	56,392
" " " " Joggins.....	57,266	55,620
Minndie Coal Co.....	54,205	55,766
Strathcona Coal Co.....	26,799	7,936
Great Northern Coal Co...	3,053	4,272
Atlantic Grindstone and Coal Co.....	964	721
Eastern Coal Co.....		4,940
<i>Colchester County.</i>		
Colchester Coal Co.....	4,425	1,490
<i>Pictou County.</i>		
Acadia Coal Co.....	463,436	408,792
International Coal Co.....	353,461	327,576
Marsh Colliery.....	53,586	22,585
<i>Inverness County.</i>		
Inverness Coal and Railway Company.....	317,748	296,546
Mabou Coal Co.....	21,560	1,804
Port Hood Coal Co.....	111,664	107,669

COAL.—TABLE 11.

Nova Scotia: Distribution of Coal Sold.

Markets.	FISCAL YEARS ENDING SEPTEMBER 30.					
	1907.		1908.		1909.	
	Tons of 2,000 lbs.	%	Tons of 2,000 lbs.	%	Tons of 2,000 lbs.	%
Nova Scotia—						
Transported by land.....	1,740,736	30·80	1,804,377	29·37	1,642,716	31·77
" " sea.....	322,773	5·71	380,332	6·19	339,462	6·57
Total, Nova Scotia.....	2,063,509	36·51	2,184,709	35·56	1,982,178	38·34
New Brunswick.....	478,383	8·46	571,570	9·30	607,968	11·76
Prince Edward Island.....	86,792	1·54	70,931	1·15	88,365	1·71
Quebec Province.....	1,914,743	33·88	2,293,352	37·33	1,689,876	32·69
Newfoundland.....	164,082	2·90	231,909	3·77	174,998	3·39
United States.....	690,269	12·21	559,592	9·11	359,224	6·95
West Indies.....	2,910	0·05				
Mexico.....	8,502	0·15				
St. Pierre.....			9,976	0·16	11,463	0·22
Bunker coal.....	229,121	4·05	216,554	3·53	254,681	4·92
Other countries.....	13,981	0·25	5,261	0·09	846	0·02
Totals.....	5,652,292	100·00	6,143,854	100·00	5,169,599	100·00

New Brunswick.

The coal production of New Brunswick is derived from the Grand Lake coal field, in Queens county, where a comparatively large number of small mines—probably thirty or forty—are intermittently operated. It is very difficult to obtain accurate figures of production from this Province, but according to a reliable estimate made by the provincial authorities, the production in 1909 would be about 49,029 short tons, valued at \$98,496; this is a decrease as compared with 1908.

COAL.—TABLE 12.

New Brunswick: Production.

Calendar Year.	Tons.	Value.	Value per ton.	Calendar Year.	Tons.	Value.	Value per ton.
		\$	\$ cts.			\$	\$ cts.
1887.....	10,040	23,607	2 35	1899.....	10,528	15,792	1 50
1888.....	5,730	11,050	1 93	1900.....	10,000	15,000	1 50
1889.....	5,673	11,733	2 07	1901.....	17,630	51,857	2 94
1890.....	7,110	13,850	1 95	1902.....	18,795	39,680	2 11
1891.....	5,422	11,030	2 03	1903.....	16,000	40,000	2 50
1892.....	6,768	9,375	1 39	1904.....	9,112	18,224	2 00
1893.....	6,200	9,837	1 59	1905.....	29,400	58,800	2 00
1894.....	6,469	10,264	1 59	1906.....	34,076	68,152	2 00
1895.....	9,500	14,250	1 50	1907.....	34,584	77,814	2 25
1896.....	7,500	11,250	1 50	1908.....	60,000	135,000	2 25
1897.....	6,000	9,000	1 50	1909.....	49,029	98,496	2 25
1898.....	6,160	9,240	1 50				

Saskatchewan.

The coal production in Saskatchewan shows a considerable increase in 1909 over that of the previous year, the total being 192,125 tons, valued at \$296,339. Production was reported by about twenty-one mines, of which four reported a production of 5,000 tons or over. There is probably a considerable tonnage of coal mined by farmers of which no record is obtained.

The output is obtained entirely from the Estevan or Souris fields, in the southern portion of the Province, and is used mainly for domestic purposes in Saskatchewan and Manitoba.

Statistics of production since 1890 are given in Table 13.

COAL.—TABLE 13.

Saskatchewan: Annual Production.

Calendar Year.	Tons.	Value.	Average value per ton.
		\$	\$ cts.
1890	200	200	1 00
1891			
1892	5,400	9,325	1 73
1893	8,325	12,485	1 50
1894	†15,051	15,153	1 01
1895	15,769	31,533	2 00
1896	16,706	25,059	1 50
1897	25,000	37,500	1 50
1898	25,000	37,500	1 50
1899	25,000	37,500	1 50
1900	40,500	60,750	1 50
1901	45,000	72,000	1 60
1902	70,400	112,640	1 52
1903	116,703	169,618	1 45
1904	124,885	187,021	1 50
1905	107,596	152,334	1 42
1906	108,398	164,146	1 51
1907	151,232	252,437	1 67
1908	150,556	253,790	1 69
1909	192,125	296,339	1 54

† Including a small quantity from the Turtle Mountain district, Manitoba.

A new lignite field was found in this Province in 1909, in the Lac LaRonge district, about 120 miles north of Prince Albert, by Wm. McInnes, of the Geological Survey. The deposit is described in the Summary Report of the Geological Survey, as follows:—

‘In the white quartz sands and sandstones, exposed in cliffs on the south shore of Wapawekka lake, a bed of lignite occurs, varying in thickness from 4’-6” (with a sandy 6 inch parting in the middle) to 2’-5” of fairly clean lignite. The seam lies about horizontal, and was traced in a longitudinal direction for a distance of 3½ miles, following the windings of the shore, thinning out westerly, or being represented by very dirty lignite or highly carbonaceous beds of sand; and not traceable farther easterly, owing to the higher encroachment of talus on the scarped face of the cliffs.

'A proximate analysis, by fast coking, of a sample of this lignite, made by F. G. Wait, of the Mines Branch, Department of Mines, gave the following results:—

Moisture.	11.23
Volatile combustible matter.	30.97
Fixed carbon.	34.80
Ash.	23.00
	100.00

Coke, non-coherent—57.80.

Fuel ratio—1:1.13.

Colour of ash, light orange.

Split volatile ratio—1.88.

'From this analysis, it will be noted that, were it not for the rather high ash percentage—which is probably owing to included sand—this might be classed as a fairly lignitic coal.

'The seam is at its best at the extreme southwesterly point of the bay, where it attains both its greatest thickness and greatest purity. Northeastward and northwestward along the shore, it deteriorates both in size and purity; hence there is a reasonable probability that in the country farther south, back from the lake, where it is not exposed, the seam may be better.'

Alberta.

The production of marketable coal in this Province in 1909, according to direct returns received from the operators, was 1,991,741 tons, valued at \$4,838,109, an increase of 309,080 tons, or 18 per cent over the 1908-production. The output has increased very rapidly, having doubled in the past five years, and being now over six times the production of ten years ago. Of the total production in 1909, only about 5.7 per cent, or 114,101 tons, were sold for export. The quantity used for making coke was 143,854 tons, or 7.2 per cent of the total. The railways use a very large portion of the coal production in this Province, having taken in 1909 upwards of 750,000 tons, or about 45.7 per cent of the total sold in Canada.

In view of the extensive railway construction in progress and the continued rapid influx of settlers, it is evident that the demand for coal will continue to increase at a rapid rate for a number of years, necessitating the extension of present colliery facilities as well as the opening up of new mines.

Statistics of production since 1887 are given in Table 14:—

COAL.—TABLE 14.
Alberta: Annual Production.

Calendar Year.	Tons.	Value.	Average value per ton.
		\$	\$ cts.
1887	74,152	157,577	2 13
1888	115,124	183,354	1 59
1889	97,364	179,640	1 85
1890	128,753	198,298	1 54
1891	174,131	437,243	2 51
1892	178,970	460,605	2 57
1893	230,070	586,260	2 55
1894	184,940	473,827	2 56
1895	169,885	332,526	2 25
1896	209,162	581,832	2 78
1897	242,163	630,408	2 60
1898	315,088	788,720	2 50
1899	309,000	774,000	2 50
1900	311,450	778,625	2 50
1901	340,275	850,687	2 50
1902	402,819	960,601	2 38
1903	495,893	1,117,541	2 25
1904	661,732	1,494,524	2 12
1905	931,917	1,993,915	2 14
1906	1,246,360	2,614,762	2 10
1907	1,591,579	3,836,286	2 41
1908	1,683,661	4,127,311	2 45
1909	1,994,741	4,838,109	2 43

These statistics cover the production of a small quantity of anthracite, as well as bituminous and lignite coal. The only operating anthracite mine at present is the Bankhead mine at Banff. The anthracite is very carefully prepared and sized for the market, and in its preparation much dust is produced; a part of this dust is manufactured into briquettes, which find a ready market for domestic use.

The following statistics showing the classification of the output of coal in Alberta during 1909, are quoted from the Report of the Provincial Inspector of Mines for 1909. The figures represent the total coal output, including non-merchable coal, and are somewhat higher than those given in Table 14, which represent shipments only.

'Classification of output of coal in Alberta during the year 1909:—

	Tons.
Lignite coal.....	763,673
Bituminous coal.....	1,197,399
Anthracite coal.....	213,257
Coal used in coke production.....	148,104
Coke produced.....	87,812
Briquettes produced.....	89,785

Summary of Statistics.

Number of mines at present in operation.	121
Number of new mines opened in 1909.	32
Number of mines abandoned in 1909.	8
Number of tons of coal mined.	2,174,329
Number of tons of coke produced.	87,812
Number of tons of briquettes produced.	89,785
Average number of persons employed inside the mine	3,893
Average number of persons employed outside the mines	1,314
Number of fatal accidents inside the mines.	7
Number of fatal accidents outside the mines.	2
Number of non-fatal accidents inside the mines..	47
Number of non-fatal accidents outside the mines..	13
Number of mine managers certificates issued.	27
Number of pit boss certificates issued.	23
Number of fire boss certificates issued.	44

Throughout the various coal mining districts of the Province, there has been during the year a considerable amount of development work and opening up of new mines, etc., of which the following summary is published by the Provincial Inspector of Mines:—

‘At Taber a number of the small companies have consolidated, and three larger and more substantial companies formed, viz., The Great Western Coal Company, The Alberta Consolidated Coal Company, Limited, and The Rock Springs Sootless Coal Company, Limited. All three of these Companies have installed good sized plants, including complete compressed air plants and coal mining machines, and two of them have already procured railway facilities.

‘In the Lethbridge district, the Diamond Coal Company, Limited, have completed the installation of their plant, put in a spur line of railway, and are now in a position to push the development of their mine ahead, which will put them in a position to produce a much larger output during the coming year. The Royal Collieries, Limited, are pushing the development of their mine ahead rapidly, and are getting it into shape for a much larger output. The new plant of the Alberta Railway and Irrigation Company, at their No. 6 mine, has been completed, and the development of the mine is being carried out on a large scale.

‘In the Crowsnest pass, the Leitch Collieries, Limited, have opened a new mine, erected a tippie, and obtained railway connexions. At Burmis, there is another mine opened by the Davenport Coal Company, who have procured railway connexions. At Blairmore, a new mine has been opened by The West Canadian Collieries, Limited, which should develop into a large mine. West of Coleman, the McGillivray Creek Coal and Coke Company, Limited, a new company which has been formed, has opened a mine on a 12 ft. seam of coal, and a new tippie and plant are in course of erection.

‘In the Pincher Creek district, the Western Coal and Coke Company, Limi-

ted, have had a gang of about thirty men prospecting the coal seams on their property during the last few months, and are now opening permanent tunnels.

'West of Edmonton, along the Grand Trunk Pacific railway, a number of companies which have recently been organized, have secured extensive properties, and have done considerable work in proving the coal seams. At least two of these companies have ordered machinery and are making preparations to develop their mines, and I understand will have railway connexions during 1910, which will place them in a position to produce a fair amount of coal by the end of the year.'

More complete details may be obtained from the report of the Provincial Inspector of Mines¹.

Amongst the developments of particular interest are those that have taken place on the new coal finds in the foothills of the Rocky mountains, on the Bighorn basin, Brazeau river, Pembina river, etc., to the south of the Grand Trunk Pacific railway. These fields have been under investigation by Mr. D. B. Dowling, of the Geological Survey, a preliminary report on which will be found in the Summary Report of the Geological Survey for 1909. Mr. Dowling summarized his conclusions as follows:—

'South of the Grand Trunk Pacific Railway line, in the foothills, there are coal fields of large extent. Of these, the nearest to the railway is situated in the outer portion of the disturbed foothills area. From it domestic, and a fair grade of steam coal may be obtained. The area is situated on the headwaters of Embarras and Pembina rivers, and may be of larger extent than outlined on the accompanying sketch map. Over a portion of this area a seam of from 12 to 17 feet can be mined.

'Higher grade steam and coking coals may be obtained from more distant fields, to which approach is more difficult, since they are situated behind high, rocky ridges. The areas containing the best grade of coal extend in narrow strips from the Saskatchewan river to near the Athabaska, behind the Brazeau, Bighorn, and Nikanassin ranges, respectively. The parts which seem minable, and easy of approach through gaps in these ridges may be outlined as: the Brazeau Range area, on the Saskatchewan; the Bighorn basin, from the Saskatchewan to the Brazeau rivers; and the southern part of the Nikanassin basin, drained by the McLeod and North branch of the Brazeau rivers. These areas may not be minable outside a strip which is not much over a mile in width, but they have a total length of nearly eighty miles. A section of the measures near the Saskatchewan shows nearly 100 feet of workable coal, in about nine seams. Northward, the seams possibly decrease in thickness and number, but on the McLeod the upper part of the coal-bearing horizon was observed to have about 20 feet of coal seams. This may be added to by further prospecting.

'The character of the coal is remarkably uniform; and in almost all parts of the field, coking coals that yield 75 per cent of coke may be found. The Fiddle Creek portion, at the northern end of the Nikanassin basin, has not been examined, but it is reported that coal has been found at points within half a

¹ Annual Report of the Department of Public Works of the Province of Alberta, 1909.

mile of the Athabaska. Possibly there are anthracitic coals in this part of the basin, but the location of minable areas is considered to be of more importance than the finding of harder coals.'

The general character of the coal is thus summarized:—

'The coal of the Kootanie measures in the Bighorn basin has been carefully examined by several prospectors, and analyses have been published in the Summary Reports for 1907 and 1908, which show that it is a bituminous, or steam coal, with a high carbon content, not generally high in ash, and always low in sulphur. Practical tests with a small coke oven on Bighorn river show that a very high grade of coke can be made. Northward, in places, the fixed carbon content is higher, but it seldom approaches that of an anthracite coal.

'The coal of the Edmonton measures in the foothills on Pembina and Embarras rivers is of lower carbon content, and approaches what might be termed a low carbon bituminous coal. Its coke is not as firm as that from the coal fields nearer the mountain. This might be expected, as the measures are younger and have not been subjected to great pressure.'

'DISTRIBUTION.

'In the Kootanie measures the coal seams found near the Saskatchewan are well distributed throughout the formation. There appears to be in nine seams a total thickness of 90 feet of workable coal. On George creek, one of the forks of the south branch of Brazeau river, Mr. McEvoy found ten seams, with 65 feet of workable coal. Near the north end of the range on Wapiabi creek, Mr. Malloch last year discovered four seams near the top of the formation, with about 26 feet of coal. On the north branch of the Brazeau, four seams are exposed in the same part of the measures, and on McLeod river the coal is apparently all in the upper measures.

'In the upper part of the Cretaceous, as exposed in the foothills on the Embarras and Little Pembina rivers, the coal seams occur in the Edmonton formation—the horizon in which the Big coal seam on the Saskatchewan, and that at the railway crossing on the Pembina occur.'

British Columbia.

A larger output of coal was derived from British Columbia mines in 1909 than in any previous year. The total production was 2,606,127 short tons (2,326,899 long tons), of which about 31.9 per cent was sold for export, the balance being used for home consumption and in the making of coke, of which a portion is also exported. The increase in production over that of 1908 was 272,419 short tons, or about 11.7 per cent. The total increase of production in ten years has been about 89.1 per cent. The quantity sold for export in 1909 is about the same as ten years ago, while the coal consumption of the Province has increased in the same time about 200 per cent. Of the total production in 1909, about 1,927,602 tons, or 74 per cent, were sold as coal, including coal sold for home consumption and for export; 439,290 tons, or 17 per cent, were used in making coke, and 239,235 tons, or 9 per cent, used for colliery consumption and by workmen.

The collieries of the Crows Nest Pass Coal Company in East Kootenay, and the Western Fuel Company and the Wellington Colliery Company on Vancouver island, contributed about 80 per cent of the total production.

The balance was mined from some seven smaller collieries, that are referred to by the Provincial Mineralogist in his Annual Report, as follows:—

‘In the Coast district, among the newer collieries that are beginning to make an appreciable output may be mentioned the Nicola Valley Coal and Coke Company, which shipped in 1909 some 62,210 tons of coal, and this production was limited by the market which the Canadian Pacific Railway freight rates would allow it to reach, rather than by the capacity of the mines. Adjoining this colliery is the Diamond Vale Colliery Company’s property, which, though still in a state of development, mined in 1909 some 1,700 tons of coal.

‘Vermilion Forks Mining and Development Company, of Princeton, mined 150 tons of coal in 1909.

‘On Vancouver island, the Pacific Coast Coal Mines, Limited, mined at South Wellington, a few miles south of Nanaimo, some 69,055 tons of coal. Railway and bunkers have been built at Boat harbour.

‘Gilfillan colliery shut down; Henry Biggs, as an individual, produced 1,236 tons of coal from the property.

‘In the East Kootenay field, the Hosmer and Corbin collieries each produced about 60,000 tons of coal during the year; neither of these collieries is as yet in full operation.

In the following table the production during the past two years is given, the sales in Canada and sales for export being given, as well as the quantity used for making coke and that used for colliery consumption. A distinction is also made between the production from the Coast mines and that in the East Kootenay and Nicola Valley districts.

Coal.	1908.			1909.		
	Coast.	Crowsnest and Nicola Valley.	Total.	Coast.	Crowsnest and Nicola Valley.	Total.
		Long tons.			Long tons.	
Sold for consumption in Canada	703,931	227,998	931,929	781,177	198,229	979,406
" export to United States	300,445	266,829	567,274	324,728	353,430	678,158
" " other countries	29,833	.....	29,833	63,509	.....	63,509
	1,034,259	494,827	1,529,086	1,169,414	551,659	1,721,073
Used for making coke.....	25,172	354,460	379,632	26,760	365,463	392,223
" colliery consumption...	49,975	124,975	174,950	70,625	142,978	213,603
Production.....	1,109,406	974,262	2,083,668	1,266,799	1,060,100	2,326,899

In Table 15 the statistics of coal production in British Columbia since 1836 are given. The total production to the end of 1909 has been 36,776,164 tons, of which 20,455,415 tons, or 55.6 per cent, have been produced during the past ten years. The average annual production during this period was 2,045,541 tons, as

compared with an average annual production of 1,081,764 tons during the ten year period 1890-1899.

COAL.—TABLE 15.
British Columbia: Production.

Calendar Year.	Output, Tons, 2,240 lbs.	Home Consumption, Tons, 2,240 lbs.	Sold for Export, Tons, 2,240 lbs. †	PRODUCTION.*		Price per ton, 2,240 lbs.	Value.
				Tons, 2,240 lbs.	Tons, 2,240 lbs.		
						\$ cts.	\$
1836-52...	10,000				11,200	4 00	40,000
1852-59...	25,398				28,446	4 00	101,592
1859 §.....	1,989				2,228	4 00	7,956
1860.....	14,247				15,957	4 00	56,988
1861.....	13,774				15,427	4 00	55,096
1862.....	18,118				20,292	4 00	72,472
1863.....	21,345				23,906	4 00	85,380
1864.....	28,632				32,068	4 00	114,528
1865.....	32,819				36,757	4 00	131,276
1866.....	25,115				28,129	4 00	100,460
1867.....	31,239				34,988	4 00	124,956
1868.....	44,005				49,286	4 00	176,020
1869.....	35,802				40,098	4 00	143,208
1870.....	29,843				33,424	4 00	119,372
1871-2-3.....	148,459				166,274	4 00	593,836
1874.....	81,547			81,061	90,788	3 00	243,183
1875.....	110,145	25,023	56,038	97,644	109,361	3 00	292,932
1876.....	139,192	17,856	122,329	140,185	157,007	3 00	420,555
1877.....	154,052	24,311	115,381	139,692	156,455	3 00	419,076
1878.....	170,846	26,166	164,682	190,848	213,750	3 00	572,544
1879.....	241,301	40,294	192,096	232,300	260,277	3 00	697,170
1880.....	267,595	46,513	225,849	272,362	305,045	3 00	817,086
1881.....	228,357	40,191	189,323	229,514	257,056	3 00	688,542
1882.....	282,139	56,161	232,411	288,572	323,201	3 00	865,716
1883.....	213,299	64,786	149,567	214,353	240,075	3 00	643,059
1884.....	394,070	87,388	306,478	393,866	441,130	3 00	1,181,598
1885.....	365,596	95,227	237,797	333,024	372,987	3 00	999,072
1886.....	326,636	85,987	249,205	335,192	375,415	3 00	1,005,576
1887.....	413,360	99,216	334,839	434,055	486,142	3 00	1,302,165
1888.....	489,301	115,953	365,714	481,667	539,467	3 00	1,445,001
1889.....	579,839	124,574	443,675	568,249	636,439	3 00	1,704,747
1890.....	678,140	177,075	508,270	685,345	767,586	3 00	2,056,035
1891.....	1,029,097	202,697	806,479	1,009,176	1,130,277	3 00	3,027,528
1892.....	826,335	196,223	640,579	836,802	937,218	3 00	2,510,466
1893.....	978,294	207,851	768,917	976,768	1,093,980	3 00	2,930,304
1894.....	1,012,953	165,776	827,642	993,418	1,112,628	3 00	2,980,254
1895.....	939,654	188,349	756,334	944,683	1,058,045	3 00	2,834,049
1896.....	894,882	261,984	634,238	896,222	1,003,769	3 00	2,688,666
1897.....	802,296	290,310	619,860	910,170	1,019,390	3 00	2,730,510
1898.....	1,136,485	375,423	752,863	1,128,286	1,263,680	3 00	3,384,858
1899.....	1,306,324	526,058	751,711	1,277,769	1,431,101	3 00	3,833,307
1900.....	1,590,178	685,667	914,184	1,599,851	1,791,833	3 00	4,799,553
1901.....	1,691,557	799,666	914,163	1,713,829	1,919,488	3 00	5,141,487
1902.....	1,641,626	837,871	776,809	1,614,680	1,808,441	3 00	4,844,040
1903.....	1,450,662	947,499	549,449	1,496,948	1,676,581	3 00	4,490,844
1904.....	1,635,698	1,129,465	533,593	1,663,058	1,862,625	3 00	4,989,174
1905.....	1,736,696	1,089,667	647,343	1,737,010	1,945,452	3 00	5,211,030
1906.....	1,899,076	1,236,476	679,829	1,916,305	2,146,262	3 00	5,748,915
1907.....	2,219,602	1,438,402	673,114	2,111,516	2,364,898	3 50	7,390,306
1908.....	2,111,931	1,486,511	597,157	2,083,668	2,333,708	3 50	7,292,838
1909.....	2,388,196	1,585,232	741,667	2,326,899	2,606,127	3 50	8,144,147

* This production is obtained by adding 'Home Consumption' and 'Sold for Export'.

† 52,935 tons of this amount were exported as sales without the division into 'Home Consumption' and 'Sold for Export'.

‡ The figures in the 'Sold for Export' column do not agree as they should with those given in Table 5, the only explanation being that the data in the two cases are from different sources, and it has not been possible to find out the cause of the difference.

§ Two months only.

The coal fields of British Columbia, more particularly those of the Rocky Mountain district, have been very completely described by Mr. W. F. Robertson in his last annual report.¹

The developed collieries include those of the Crows Nest Pass Coal Company in operation since 1898, the Hosmer Mines, Limited, and the Corbin Coal and Coke Company, each active producers since 1908. Statistics of the production of these several collieries are published as in the following tables:—

Production of Crows Nest Pass Coal Company—Gross Annual Output of Coal in tons of 2,240 pounds.

Year.	Coal Creek.	Carbonado.	Michel.	Total.
1898	9,954 .....	.....	.....	9,954
1899	102,610 .....	.....	.....	102,610
1900	196,837 .....	.....	9,966	206,803
1901	322,245 .....	.....	.....	322,245
1902	238,776	41,332	113,853	393,961
1903	215,791	138,750	235,347	589,888
1904	345,901	81,528	235,256	662,685
1905	425,493	96,934	309,505	831,932
1906	426,793	20,159	273,497	720,449
1907	522,783	220	353,728	876,731
1908	441,003	23,279	412,185	876,467
1909	379,968	32,287	390,462	802,717
	3,628,154	434,489	2,333,799	6,396,442

Gross Annual Output of Coke, in tons of 2,240 pounds.

Year.	Coal Creek.	Carbonado.	Michel.	Total.
1898	361 .....	.....	.....	361
1899	29,658 .....	.....	.....	29,658
1900	65,915 .....	.....	.....	65,915
1901	111,683 .....	.....	.....	111,683
1902	78,490 .....	.....	29,347	107,837
1903	84,321	625	64,818	149,764
1904	118,551	4,621	95,685	218,857
1905	123,593	7,826	124,705	256,124
1906	93,171 .....	.....	96,214	189,385
1907	88,775 .....	.....	117,766	206,541
1908	102,322 .....	.....	131,776	234,098
1909	117,268 .....	.....	106,174	223,442
	1,014,108	13,072	766,485	1,793,665

¹ Annual Report of the Minister of Mines, British Columbia, 1909.

Production of Hosmer Colliery and Corbin Colliery—Gross Output of Coal and Coke, in tons of 2,240 pounds.

Year.	Hosmer Colliery.		Corbin Colliery.	
	Coal.	Coke.	Coal.	Coke.
1908	2,627	771	4,111	.....
1909.....	60,324	21,575	60,824	.....

Complete statistics of the production of each colliery, with one exception, have been published by the British Columbia Bureau of Mines, from which the following statement has been compiled:—

Coal Production by Collieries in British Columbia in 1909, in tons of 2,240 pounds.

Operator.	Name of Mine.	Sales.	Used in making Coke.	Used under Colliery boilers, etc.	Total Sales and Used.	Output.
The Western Fuel Co.....	{ Protection	316,010	.....	29,819	345,829	340,367
	{ Northfield.....	125,162	.....	28,353	153,515	152,320
Wellington Collieries Co., Ltd.	{ Extension, Union.....	.....	.....	.....	*	*
Pacific Coast Coal Mines, Ltd..	{ Fiddick.....	52,447	.....	3,860	56,307	67,045
	{ Suquash	540	.....	420	960	2,010
The Vancouver-Nanaimo Coal Mg. Co., Ltd.....	New East Wellington	8,636	.....	500	9,136	9,336
Nicola Valley Coal and Coke Co., Ltd.....	Middlesboro.....	61,546	.....	545	62,091	62,210
Vermilion Forks Mg. and Dev. Co., Ltd.	Princeton.....	120	.....	20	**140	150
	{ Coal Creek.....	178,678	172,944	28,511	380,133	379,968
Crows Nest Pass Coal Co., Ltd.	{ Michel.....	207,815	157,245	25,546	390,606	390,462
	{ Carbonado.....	31,467	.....	1,301	32,768	32,287
Hosmer Mines Ltd.....	Hosmer.....	11,643	35,275	12,180	59,098	60,324
Corbin Coal and Coke Co., Ltd	Corbin.....	60,192	.....	632	60,824	60,824
Diamond Vale Colliery Co.....	Diamond Vale.....	.....	.....	.....	.....	1,700

* Permission for publication refused.

** This Company began operations in December.

Yukon.

The coal production of the Yukon in 1909 is reported as 7,364 tons, valued at the mine at \$49,502. Active mining operations were carried on only by the Tantalus Coal Company, at Tantalus, in the southern Yukon, and by the Northern Light, Power, and Coal Company, Limited, operating on Coal creek, forty miles northwest of Dawson. Run of mine coal sold in Dawson at about \$10 a ton, and screened coal, \$18.

Statistics of production since 1901 are shown in Table 16 following:—

COAL.—TABLE 16.
Yukon Territory: Annual Production.

Calendar Year.	Tons.	Value.	Average value per ton.
		\$	\$ cts.
1901	†5,864	86,230	14 70
1902	4,910	37,280	7 59
1903	1,849	29,584	16 00
1904			
1905	7,000	21,000	3 00
1906	7,000	28,000	4 00
1907	15,000	60,000	4 00
1908	3,847	21,158	5 50
1909	7,364	49,502	6 72

† Part of this production was mined in 1900.

The Whitehorse and Five Fingers coal mines in southern Yukon were not operated in 1909. The coal fields of this district at Whitehorse, Five Fingers, and Tantalus have been described by Mr. D. D. Cairnes, of the Geological Survey.¹

During the season of 1909, Mr. Cairnes found coal outcroppings in the Wheaton River district, south of the Whitehorse deposits, his description of the area being as follows:—

‘BUSH MOUNTAIN COAL AREA.

‘The Tantalus conglomerates which, in the southern Yukon, are known to be coal-bearing, were found outcropping about one mile west of the Union mines, on the ridge joining Bush mountain and Idaho hill, and search was made for coal, which, if found in this locality, would be of considerable value. Three seams were discovered: one over 6 feet, one 18 inches, and one of unknown thickness, but at least 3 feet. There were indications of other seams; but as the ground was frozen and the coal deeply covered, to have made a section of the measures, or even to have determined the thickness of the different beds of coal, would have entailed a very considerable amount of work. The measures were traced from the summit of the ridge to near the valley bottoms of Schnabel and Follé creeks, on the south and north sides respectively. These creeks are here two miles apart, and, opposite the coal, are about 2,000 feet lower than the summit of the ridge between them. The belt of coal-bearing formation is about half a mile wide, and the rocks comprising it are much folded and disturbed. The coal, which is bituminous and of the same age as that at Whitehorse and Tantalus, should make a good fuel.’

¹ Report on a portion of the Conrad and Whitehorse Mining District, Yukon, D. D. Cairnes, Geological Survey, 1908.

LABOUR AND ACCIDENTS.

This Department does not receive direct reports of mine accidents, and the labour statistics received are incomplete. The following tables, therefore, relating to labour and accidents in Canadian collieries are compiled from the published reports of Provincial mining bureaus.

The total number of persons engaged in coal mining, including the employes both above and below ground, may be taken as approximating very closely to 24,000, of whom about one-half are employed in Nova Scotia and New Brunswick, and the others in the western provinces.

The total number of accidents reported from Nova Scotia, Alberta, and British Columbia in 1909 was 344, of which 100 proved fatal and 244 more or less serious.

In Nova Scotia there were 112 accidents during the fiscal year ending September, of which 34 proved fatal. One-half of the fatal accidents were caused by falls of coal or rock, as were also 48 of the non-fatal accidents. No accidents were credited to gas explosions, and only three non-fatal to the use of explosives. In British Columbia, the total number of accidents was 163, of which 57 were fatal and 106 more or less serious. Thirteen fatal and 33 non-fatal accidents were due to falls of rock or coal. Thirty-two fatal and seven slight accidents were due to gas explosion. These thirty-two men lost their lives in the disastrous explosion that took place on October 5 at Extension colliery of the Wellington Colliery Company. Reports of special investigations into this disaster will be found in the British Columbia Bureau of Mines Report for 1909. Only one fatal and four non-fatal accidents were credited to the use of explosives in this Province.

Number and Classes of Workmen employed at each mine in Nova Scotia, year ended September 30, 1909.

COMPANY.	UNDERGROUND.				SURFACE.				CONSTRUCTION.				TOTALS.		HORSES.		PIT DAYS. Worked.	
	Skilled labour.	Labourers.	Boys.	Days.	Skilled labour.	Labourers.	Boys.	Days.	Skilled labour.	Labourers.	Boys.	Days.	Persons.	Days.	Above.	Below.		
Dominion Coal Co.....	2,157	1,190	300	910,545	440	289	47	194,435	.....	.....	.....	.....	4,433	1,104,980	90	432	294
N. S. Steel & Coal Co.....	952	650	185	463,941	136	162	23	96,897	.....	.....	.....	.....	2,108	560,838	13	473	275
" " Pictou	37	38	5	9,555	9	8	.....	3,333	.....	.....	.....	.....	97	12,888	2	.....	144
Cumberland Ry. & Coal Co.	578	469	138	258,578	150	293	35	88,839	.....	.....	.....	.....	1,663	347,417	18	76	237
Acadia Coal Co.....	278	327	80	206,362	58	190	13	96,345	.....	.....	.....	.....	946	302,707	37	49	256
Intercolonial Coal Co.....	302	221	72	160,903	65	125	27	64,804	3	3	.....	230	818	225,937	11	35	294
Mar. Coal, Ry. & P. Co., Joggins	104	61	2	49,850	21	50	12	25,794	.....	.....	.....	.....	250	75,644	3	5	298
" " Chignecto.	82	45	13	35,712	11	35	7	12,215	.....	.....	.....	.....	193	47,927	2	6	259
Inverness Ry. & Coal Co.....	350	148	25	139,836	44	60	12	31,562	.....	.....	.....	.....	629	171,398	6	25	261
Mabou & Gulf Coal Co.....	15	13	.....	1,371	13	4	.....	1,341	.....	.....	.....	.....	45	2,712	.....	.....	78
Sydney Coal Co.....	9	6	.....	3,046	2	2	.....	1,322	.....	.....	.....	.....	19	4,368	1	1	243
McKay Mining Co.....	25	5	1	8,511	4	5	.....	2,632	1	.....	.....	.....	41	11,071	1	2	271
North Atlantic Collieries.....	86	54	16	37,463	13	44	6	15,351	3	11	.....	3,121	233	55,940	8	20	237
Port Hood Coal Co.....	100	89	9	49,755	28	33	3	16,753	.....	.....	.....	.....	262	66,513	6	8	250
Great Northern Coal Co.....	13	3	1	2,804	6	1	.....	1,592	1	.....	.....	.....	25	4,576	2	.....	300
Minudie Coal Co.....	108	10	18	28,878	12	16	4	8,123	2	.....	.....	.....	170	37,446	3	1	210
Strathcona Coal Co.....	32	39	4	7,618	7	13	2	1,595	.....	.....	.....	.....	97	9,213	1	4	74
Atlantic Grindstone & Coal Co..	2	2	.....	654	2	.....	.....	472	.....	.....	.....	.....	6	1,126	.....	.....	152
Colchester Coal Co.....
Eastern Coal Co.....	25	8	1	8,691	6	6	2	4,038	.....	.....	.....	.....	48	12,729	.....	1	217
Colonial Coal Co.....
	5,255	3,378	870	2,384,078	1,027	1,336	193	667,348	10	14	.....	4,004	12,083	3,055,430	204	1,138	4,380

Number of hands employed in coal mining in British Columbia in 1909.

	COAST COLLIERIES AND NICOLA VALLEY.		EAST KOOTENAY COLLIERIES.		Total.
	Under- ground.	Above- ground.	Under- ground.	Above- ground.	
Supervision and clerical assistance.	62	56	60	37	215
White, miners	1,479	9	806	.....	2,294
Miners helpers	551	.....	170	.....	721
Labourers	551	96	202	370	1,219
Mechanics and skilled labourers.	114	224	476	268	1,082
Boys	126	51	23	15	215
Japanese	70	55	.....	.....	125
Chinese	20	524	.....	.....	544
Indians	3	.....	.....	.....	3
	2,976	1,015	1,737	690	6,418

Accidents in Canadian Collieries, 1909.

Nature of Accident.	NOVA SCOTIA.*		ALBERTA.			BRITISH COLUMBIA.		
	Fatal	Non- fatal.	Fatal.	Serious.	Slight.	Fatal.	Serious.	Slight.
Fall of coal, rock	17	48	3	14	4	13	20	13
Gas or dust explosions . . . . .	.....	.....	.....	1	6	32	.....	7
Explosives . . . . .	.....	3	.....	1	3	1	1	3
Miscellaneous	17	27	6	26	5	11	26	36
Total	34	78	9	42	18	57	47	59
Total men employed	12,083		5,207			6,418		

* Twelve months ending Sept., 1909.

Table showing Accidents in British Columbia¹ Collieries in Ten Years, 1900-1909.

Year.	Men Employed.	Coal Output.	Nature of Injury.	Explosion (cause unknown.)	Gas explosions.	Falls of coal.	Fall, rock.	Mine cars.	Mine timber.	Hoisting, ropes, etc.	Powder, etc., explosion.	Underground—Miscellaneous.	On surface—Miscellaneous.	Fire in Mine.	Total.	Grand Total.	
1900	4,178	1,590,179	Fatal.	0	0	2	6	4	0	1	1	0	3	0	17	98	
			Serious.	0	2	14	15	7	1	0	0	0	0	1	0		43
			Slight.	0	2	3	3	3	1	0	0	0	0	0	0		38
1901	3,974	1,691,557	Fatal.	64	2	6	6	3	0	0	0	0	2	19	102	167	
			Serious.	0	2	9	8	5	2	2	4	0	0	2	0		34
			Slight.	0	12	2	4	5	0	0	0	6	0	2	0		31
1902	4,011	1,641,626	Fatal.	125	1	1	7	3	2	0	0	0	0	0	139	178	
			Serious.	0	0	4	6	6	0	2	0	0	0	3	0		21
			Slight.	0	8	1	2	5	0	0	0	1	0	1	0		18
1903	4,264	1,481,913	Fatal.	0	21	4	8	5	1	0	1	0	2	0	42	101	
			Serious.	0	0	5	8	7	2	4	7	0	0	0	0		33
			Slight.	0	16	2	4	2	0	1	0	0	0	1	0		26
1904	4,453	1,685,698	Fatal.	14	7	5	4	3	0	0	1	0	3	0	37	94	
			Serious.	0	0	12	7	15	2	2	0	0	0	2	0		41
			Slight.	0	8	1	1	5	0	0	0	1	0	0	0		16
1905	4,407	1,825,832	Fatal.	0	0	2	4	3	1	0	1	0	1	0	12	68	
			Serious.	0	0	8	6	9	0	1	1	2	2	0	0		30
			Slight.	0	9	3	1	3	0	1	3	1	0	0	0		26
1906	4,805	1,899,076	Fatal.	0	0	5	7	2	0	0	0	0	1	0	15	83	
			Serious.	0	0	6	8	13	1	2	1	2	3	0	0		36
			Slight.	0	1	3	7	13	1	1	1	3	2	0	0		32
1907	6,059	2,219,608	Fatal.	0	1	8	2	8	0	0	1	1	10	0	31	154	
			Serious.	0	1	15	7	22	4	0	2	1	9	0	0		61
			Slight.	0	18	7	8	15	1	3	4	4	2	0	0		62
1908	6,095	2,109,387	Fatal.	0	1	3	5	1	1	1	0	4	2	0	18	120	
			Serious.	0	0	6	10	19	3	4	2	2	4	0	0		50
			Slight.	0	8	10	7	15	0	0	4	5	3	0	0		52
1909	6,418	2,400,600	Fatal.	0	32	7	6	6	0	0	1	2	3	0	57	163	
			Serious.	0	0	7	13	17	2	0	1	2	5	0	0		47
			Slight.	0	7	4	9	24	3	3	3	2	4	0	0		59
1900-9	48,674	18,545,476	Fatal.	203	65	43	55	38	5	2	6	7	27	19	470	1,226	
			Serious.	0	5	86	88	120	19	16	21	9	32	0	0		396
			Slight.	0	109	36	46	95	6	9	39	15	15	0	0		360

¹ British Columbia Minister of Mines Report 1909.

COKE.

The total output of oven coke in 1909 was 871,727 tons, produced from 1,327,150 tons of coal; as compared with an output of 852,296 tons in 1908, produced from 1,315,904 tons of coal. The quantity of coke sold or used by the producer in 1909 was 862,011 tons, as compared with 858,257 tons in the previous year.

The production is derived almost entirely from domestic coal in the three Provinces of Nova Scotia, Alberta, and British Columbia, although during 1909 a quantity of imported coal was used by the Dominion Iron and Steel Company at Sydney, C.B.

The consumption of coke in Canada is much in excess of the domestic production, there being a considerable importation of coke, chiefly into Ontario and Quebec, for use in the metallurgical industries.

The imports during the calendar year 1909 were 661,425 tons, and the exports 74,067 tons. These figures, taken in conjunction with the production of 862,011, would indicate a consumption of about 1,449,369 tons. Similarly estimated, the consumption in 1908 was 1,285,228 tons.

With one or two exceptions, of which the Dominion Iron and Steel Company is the chief, the coke is produced by coal mining companies, and in ovens situated in proximity to the mines.

Statistics of coke production during the past three years are given in the following tables, in which is shown for each province, the quantity of coal used, the coke made, the quantity sold or used, and the stocks on hand, etc.

Coke Production, 1907.

Province.	Coal charged to Ovens.	Output of Coke.	STOCK ON HAND.		Coke sold or used.	Value of Sales, etc.
			Jan. 1.	Dec. 31.		
	Tons.	Tons.	Tons.	Tons.	Tons.	\$
Nova Scotia.....	832,916	529,851	845	6,586	524,110	1,991,047
Alberta.....	112,887	73,732	3,686	1,147	76,321	297,595
British Columbia...	398,864	249,663	1,745	9,836	241,572	1,294,826
Totals.....	1,344,667	853,296	6,276	17,569	842,003	3,583,468

Coke Production, 1908.

Nova Scotia.....	754,478	499,551	6,586	208	505,929	1,658,151
Alberta.....	128,398	75,657	588	600	75,645	309,019
British Columbia...	433,028	277,088	9,836	10,241	276,683	1,482,191
Totals.....	1,315,904	852,296	17,010	11,049	858,257	3,449,361

Coke Production, 1909.

Nova Scotia.....	756,719	493,184	209	401	492,992	1,608,092
Alberta.....	131,142	87,812	750	1,329	87,233	366,734
British Columbia...	439,289	290,731	10,170	19,115	231,786	1,509,567
Totals.....	1,327,150	871,727	11,129	20,845	862,011	3,484,393

Table 1 shows the annual production since 1886, and Table 2 the production by provinces since 1897.

COKE.—TABLE 1.
Annual Production, 1886-1909.

Calendar Year.	Tons.	Value.	Value per ton.
		\$	\$ cts.
1886.....	35,396	101,940	2 88
1887.....	40,428	135,951	3 36
1888.....	45,373	134,181	2 96
1889.....	54,539	155,043	2 84
1890.....	56,450	166,298	2 95
1891.....	57,084	175,592	3 08
1892.....	56,135	160,249	2 85
1893.....	61,078	161,790	2 65
1894.....	58,044	148,551	2 56
1895.....	53,356	143,047	2 68
1896.....	49,619	110,257	2 22
1897.....	60,686	176,457	2 91
1898.....	87,600	286,000	3 26
1899.....	100,820	350,022	3 47
1900.....	157,134	649,140	4 13
1901.....	365,531	1,228,225	3 36
1902.....	502,043	1,519,185	3 03
1903.....	561,318	1,731,404	3 09
1904.....	554,083	2,032,048	3 66
1905.....	700,488	2,436,211	3 48
1906.....	782,055	2,863,503	3 66
1907.....	842,003	3,583,468	4 26
1908.....	858,257	3,449,361	4 02
1909.....	862,011	3,484,393	4 04

COKE.—TABLE 2.
Production of Coke by Provinces, 1897-1909.

Calendar Year.	NOVA SCOTIA.		BRITISH COLUMBIA.		ALBERTA.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.
		\$		\$		\$
1897.....	41,532	90,950	19,154	85,507		
1898.....	48,400	111,000	39,200	175,000		
1899.....	62,459	178,767	38,361	171,255		
1900.....	61,767	223,395	95,367	425,745		
1901.....	222,694	590,560	142,837	637,665		
1902.....	363,330	899,930	138,713	619,255		
1903.....	371,745	884,094	189,573	846,310		
1904.....	275,927	808,022	257,172	1,148,090	20,984	78,936
1905.....	386,366	1,054,712	269,256	1,202,035	44,866	179,464
1906.....	476,364	1,540,976	236,205	1,054,485	69,486	268,042
1907.....	524,110	1,638,070	241,572	1,049,432	76,321	297,595
1908.....	505,929	1,658,151	276,683	1,482,191	75,645	309,019
1909.....	492,992	1,608,092	281,786	1,509,567	87,233	366,734

Coke production in Nova Scotia has shown successive decreases during the past two years, the production in 1909 being only slightly higher than that in 1906; in the western provinces, on the other hand, an increased production is shown. The coke output of Nova Scotia is used almost entirely in connexion with the manufacture of iron, while that of Alberta and British Columbia is used chiefly by the copper and lead smelters, finding a market in the United States as well as in British Columbia.

The total number of ovens in active operation on December 31 was 1,645, while 972 were reported idle on the same date and 120 in course of construction. In Nova Scotia, the Dominion Iron and Steel Company at Sydney has 500 finished ovens and 120 in course of construction, all of the Otto Hoffman by-product type.

It is claimed that the new ovens will be much more efficient than the old, that whereas the 500 old ovens with 200 men produced 1,250 tons of coke per 24 hours, the 120 new ovens with 56 men will produce 720 tons in the same time. The by-products from these ovens include tar and ammonia. The ammonia gas is extracted from the oven gas and used in the manufacture of ammonium sulphate. The tar is sold to the Dominion Tar and Chemical Company, whose works are contiguous to the coke oven plant, and this product is further treated for the manufacture of refined tar, pitch of various grades, benzole, creosote, carbolic acid, etc. The production of tar in 1909 was 4,016,824 gallons, and ammonia liquor containing 3,351 tons of sulphate of ammonia. In 1908, the production of tar was 4,450,166 gallons, and of sulphate of ammonia, 2,984 tons.

The Nova Scotia Steel and Coal Company has 30 ovens of the Bauer type and 120 Bernard ovens; the latter are situated near the blast furnace, and the surplus gas used for the production of steam for the electric power plant. The surplus gas from the Bauer ovens is used in generating steam for general colliery use.

The other ovens in this Province number 181, and are all of the beehive type.

In Alberta, the West Canadian Collieries, Limited, at Lille, has 50 ovens of the Bernard type, or Belgian ovens. The ovens of the International Coal and Coke Company at Coleman, 216 in number, are the ordinary beehive, as are also all of the ovens in British Columbia, comprising 1,420 in the Crowsnest district and 100 on the Coast.

The distribution of the coke production during the past two years is shown in the following table:—

	1908.			1909.		
	Nova Scotia.	Alberta and British Columbia.	Total.	Nova Scotia.	Alberta and British Columbia.	Total.
Sold in Canada.	6,412	287,930	294,342	6,027	291,453	297,480
Sold for export.		64,398	64,398		77,407	77,407
Total sales.	6,412	352,328	358,740	6,027	368,860	374,887
Used by maker in blast furnace or otherwise.	499,517		499,517	486,965	159	487,124
Total sold or used.	505,929	352,328	858,257	492,992	369,019	862,011

Statistics of exports and imports of coke, as published by the Customs Department, are shown in Tables 3 and 4 following. The exports are almost altogether from British Columbia, and recently from Alberta, and the imports are from the United States, chiefly for consumption in the iron and steel and smelting industries of Ontario and Quebec.

COKE.—TABLE 3.

Exports of Coke to the United States, 1897-1909.

Calendar Year.	Tons.	Value.
		\$
1897.	2,987	6,078
1898.	3,774	8,394
1899.	5,557	18,726
1900.	41,529	131,278
1901.	57,505	176,990
1902.	62,568	180,920
1903.	32,608	135,957
1904.	102,463	345,031
1905.	116,071	509,908
1906.	37,003	168,571
1907.	70,617	320,357
1908.	58,708	248,759
1909.	74,067	329,051

COKE.—TABLE 4.
Imports of Oven Coke, 1880-1909.

Fiscal Year.	Tons.	Value.	Fiscal Year.	Tons.	Value.
		\$			\$
1880.....	3,837	19,353	1895.....	43,235	149,434
1881.....	5,492	26,123	1896.....	61,612	203,826
1882.....	8,157	36,670	1897.....	83,330	267,540
1883.....	8,943	38,588	1898.....	135,060	347,040
1884.....	11,207	44,518	1899.....	141,284	362,826
1885.....	11,564	41,391	1900.....	187,878	506,839
1886.....	11,858	39,756	1901.....	308,786	630,138
1887.....	15,110	56,222	1902.....	267,142	842,815
1888.....	25,487	102,334	1903.....	256,723	1,222,756
1889.....	29,557	91,902	1904.....	221,050	765,123
1890.....	36,564	133,344	1905.....	371,593	807,842
1891.....	38,533	177,605	1906.....	480,222	1,311,375
1892.....	43,499	194,429	1907*.....	400,536	1,132,680
1893.....	41,821	156,277	1908.....	619,269	2,166,036
1894.....	42,864	176,996	1909†.....	466,292	1,136,624

* For nine months only. † Duty free.

Coke is manufactured from coal mined in five of the coal basins in Canada, viz., the Sydney field, the Pictou field, both in Nova Scotia; the Frank-Blairmore field in southwestern Alberta; the Crowsnest field in East Kootenay, and the Comox field on Vancouver island, both of the latter in British Columbia.

The following table shows the proportionate yield in coke from the coals in the various fields charged into the ovens. These percentages of coke produced relatively to the coal charged have been compiled from the returns of the last five years:—

Year.	Sydney Field.	Pictou Field.	Frank-Blairmore Field.	Crowsnest Field.	Comox Field, Vancouver Island.
1905.....	62·90	50·22	65·14	64·38	49·61
1906.....	63·65	53·41	66·74	62·29	38·90
1907.....	64·22	54·81	65·36	63·97	49·10
1908.....	66·42	55·81	58·92	65·08	49·73
1909.....	65·24	59·17	66·96	67·67	58·26
Average.....	64·60	53·02	64·47	64·70	51·32

The average has been computed from the total coal charged during the five years, and the total coke output resulting.

In the Sydney field the ovens used are all by-product ovens, whereas the coal of the Pictou field is made into coke in beehive ovens. We may here mention that a certain amount of Springhill coal, Cumberland field, is mixed with this coal, which it has not been possible to separate to calculate the yield in coke.

In the Blairmore field both Belgian ovens and beehive ovens are used. On Vancouver island the coke is made in beehive ovens.

It may be interesting to point out that in this last field, only the fine screenings are used in the manufacture of coke. This coal is thoroughly washed before being charged into the ovens, and the refuse resulting from this treatment often amounts to 50 per cent. This refuse is rejected, and only the washed coal is charged into the ovens. The yield is computed from the quantity of washed coal.