

CANADA  
DEPARTMENT OF MINES  
MINES BRANCH

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THE  
PRODUCTION OF IRON AND STEEL  
IN  
CANADA

During the Calendar Year  
1911

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MINES BRANCH



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**ADVANCE CHAPTER OF THE ANNUAL REPORT ON THE MINERAL  
PRODUCTION OF CANADA DURING THE CALENDAR YEAR, 1911.**

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

**IRON AND STEEL.**

**INTRODUCTORY.**

There has been a very rapidly growing demand for iron and steel products in Canada during the past few years, accompanied by a corresponding increase in the output of Canadian iron and steel furnaces, although this output probably supplies not more than 30 per cent of the tonnage of iron and steel consumed. The increase in production was continued during 1911, notwithstanding abnormally low prices received for pig iron and steel products. Manufacturers, generally, report a very strong demand, but claim that business has been carried on with a very low margin of profit in order to meet prices quoted on imported products. At the same time extensive preparations are being made to increase the output and supply a larger proportion of the home market.

The total shipments of iron ore in 1911 from mines in Canada were 210,344 tons, whereas blast furnaces consumed 1,695,802 tons, and steel furnaces, 42,892 tons. The shipments from iron ore mines in 1911 were the lowest recorded in twelve years. The production of pig iron was 917,535 short tons, and of steel ingots and castings, 882,396 tons.

The rate of production of iron ore has shown practically no increase during the past twelve years, while the present production of pig iron is nearly ten times that of 1900. About 6 per cent only of the iron ore used in Canadian blast furnaces during 1911 was of domestic origin. Of the coke used, 52 per cent was either imported or made from imported coal, and 22 per cent of the limestone flux used was from sources outside of Canada. In each instance the proportion of imported raw material used is higher than was the case in 1910.

The total production of iron ore in Canada to the end of 1910 has probably not exceeded 5,500,000 tons, while the total consumption of ore in iron and steel blast furnaces since 1886 has been over 13,500,000 tons. During 1911 the tonnage of imported ores used was 1,628,368 tons, which was derived chiefly from Newfoundland and the south shore of Lake Superior.

The assistance granted by the Federal Government to the iron and steel industries in the form of bounties ceased on December 31, 1910, with the exception of the bounty on steel rods, which was continued to June 30, 1911, and the bounty on pig iron and steel made in electric furnaces, which is available until December 31, 1912.

The accompanying table gives a summary of the chief statistics of production of iron ore, pig iron, and steel, while more detailed records will be found in subsequent pages.

## Summary of Iron and Steel Statistics, 1908-1911.

	1908.	1909.	1910.	1911.
	Tons.	Tons.	Tons.	Tons.
Iron ore shipped.....	238,082	268,043	259,418	210,344
Canadian iron ore charged to blast furnaces.....	209,266	257,502	171,191	97,732
Imported iron ore charged to blast furnaces.....	1,051,445	1,235,000	1,377,035	1,628,368
Iron ore charged to steel furnaces.....	(a)	(a)	39,332	42,892
Pig iron made.....	630,835	757,162	800,797	917,535
Pig iron exported.....	290	5,063	9,763	5,870
Pig iron imported.....	58,365	148,338	243,859	208,487
Pig iron consumption (calculated).....	688,910	900,437	1,034,893	1,120,152
Pig iron used in steel furnaces.....	(a)	(a)	690,912	700,679
Steel ingots and castings made.....	588,763	754,719	822,284	882,396
Steel rails made.....	267,192	377,642	399,762	399,760
Canadian coke used in iron blast furnaces.....	492,076	412,016	491,281	543,933
Imported coke used in iron blast furnaces.....	325,670	507,255	476,838	577,388
Iron and steel imported..... (b)	1,079,000	565,734	915,425	1,284,401
Number of completed blast furnaces..... No.	16	16	17	18
Number of men employed in blast furnaces..... "	1,380	1,486	1,403	1,778
Wages paid in blast furnaces..... \$	750,224	879,429	1,006,727	1,097,354
Value of pig iron produced..... \$	8,111,194	9,581,864	11,245,622	12,307,225
Value of iron and steel goods exported. (c) \$	5,907,792	7,172,413	7,895,489	9,907,281
Value of iron and steel goods imported. (d) \$	61,819,698	40,393,431	59,952,197	85,319,541

(a) Not collected.

(b) Figures cover the fiscal year ending March 31 and include all iron and steel goods for which weights are given. For details see Table 20.

(c) Figures cover the calendar year. For details see Table 19.

(d) Figures cover the fiscal year ending March 31. For details see Tables 21 and 22.

## IRON ORE.

The total shipments of iron ore from mines in Canada in 1911 were 210,344 tons, valued at \$522,319 at the shipping point, as compared with 259,418 tons valued at \$574,362 in 1910, and 268,043 tons valued at \$659,316 in 1909. Of the 1911 production, 137,399 tons are classed as hematite and 72,945 tons as magnetite.

Ontario was the largest producer, having nearly 85 per cent of the total production. The principal mines operated during the year were the Moose Mountain at Sellwood, 30 miles north of Sudbury; the Helen, north of Michipicoten, and the Atikokan, 130 miles north of Port Arthur. In addition to these a considerable tonnage of ore was reported as having been raised at the Wilbur mine in Lanark county, but no shipments were made. The total shipments of ore during the year were 175,586 tons, valued at \$446,326, as compared with shipments of 231,445 tons, valued at \$513,722, in 1910. In Nova Scotia, 38,227 tons of ore were mined at the Torbrook mines, Annapolis county, but only 22 tons were shipped; the shipments in 1910 were 18,134 tons. The only mines operated in New Brunswick are those at Austin Brook, near Bathurst, from which 31,120 tons were shipped in 1911, as against 5,336 tons in 1910. The total tonnage mined in 1911 was 96,034. The ore is a magnetite with an intermixture of hematite, and shipments are made from the Company's docks at Newcastle.

In Quebec province, shipments of titaniferous magnetite to the extent of about 3,616 tons were made from the north shore of the St. Lawrence.

The production by provinces during the past three years was as follows:—

IRON.—TABLE 1.

Production of Iron Ore by Provinces, 1909-10-11.

Provinces.	1909.		1910.		1911.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.
		\$		\$		\$
New Brunswick. . . . .			5,336	11,910	31,120	69,464
Nova Scotia. . . . .			18,134	40,478	22	50
Quebec. . . . .	4,150	5,503	4,503	8,252	3,616	6,479
Ontario. . . . .	263,893	653,808	231,445	513,722	175,586	446,326
	268,043	659,316	259,418	574,362	210,344	522,319

The production during 1910 and 1911 classed as magnetite (including titaniferous iron ores and some ores with an admixture of hematite), hematite (including brown ores), and bog ore, was as follows:—

IRON.—TABLE 2.

Classified Production of Iron Ore, 1910-11.

Character of ore.	1910.			1911.		
	Short ton.	Value.	Per ton.	Short ton.	Value.	Per ton.
		\$	\$ cts.		\$	\$ cts.
Magnetite. . . . .	127,768	289,870	2 27	72,945	154,295	2 12
Hematite. . . . .	130,380	281,090	2 16	137,399	368,024	2 68
Bog. . . . .	1,270	3,402	2 68	Nil	.....	.....
	259,418	574,362	2 21	210,344	522,319	2 48

A record of the production by provinces in past years is shown in Tables 3 and 4. There was a considerable production in Ontario previous to 1886 which is not recorded.

IRON.—TABLE 3.

## Production of Iron Ore by Provinces, 1886-1911.

Calendar Year.	New Brunswick.	Nova Scotia.	Quebec.	Ontario.	British Columbia.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1886.		44,388		16,082	3,941	64,361
1887.		45,532	13,404	16,598	2,796	76,330
1888.		42,611	10,710	16,894	8,372	78,587
1889.		54,161	14,533		15,487	84,181
1890.		49,206	22,305			76,511
1891.		53,649	14,880		950	68,979
1892.		78,258	22,690		2,300	103,248
1893.		102,201	22,076		1,325	126,602
1894.		89,379	19,492		1,120	109,991
1895.		83,792	17,783		1,222	102,797
1896.		58,810	17,630	15,270	196	91,906
1897.		23,400	22,436	2,770	2,099	50,705
1898.		19,079	17,873	21,111	280	58,343
1899.		28,000	19,420	25,126	2,071	74,617
1900.		18,940	19,000	82,950	1,110	122,000
1901.		18,619	15,489	272,538	7,000	313,646
1902.		16,172	18,524	359,288	10,019	404,003
1903.		40,335	12,035	209,634	2,290	264,294
1904.		61,293	16,152	141,601		219,046
1905.		84,952	12,681	193,464		291,097
1906.		97,520	9,933	141,078		248,531
1907.		89,839	12,748	207,769	2,500	312,856
1908.		11,802	10,103	216,177		238,082
1909.			4,150	263,893		268,043
1910.	5,336	18,134	4,503	231,445		259,418
1911.	31,120	22	3,616	175,586		210,344

IRON.—TABLE 4.

## Production of Iron Ore in Nova Scotia, 1876-1885.

Calendar Year.	Tons.	Calendar Year.	Tons.
1876	15,274	1881.	39,843
1877	16,879	1882.	42,135
1878.	36,600	1883.	52,410
1879	29,889	1884.	54,885
1880.	51,193	1885.	48,129

Following is a list of the principal producers of iron ore in Canada:—

Canada Iron Corporation, Limited, Mark Fisher Bldg., Montreal, Que.

E. H. Duval, Lévis, Que. (Guay P.O.).

H. C. Bosse, 92 St. Peter St., Quebec, Que.

Joseph Bouchard, Baie St. Paul, Que.

Loughborough Mining Co., Schenectady, N.Y.

The Canadian Iron Ore Co., 1231 St. Valier St., Quebec, Que.

Exploration Syndicate of Ontario, Limited, Wilbur, Ont.

The Lake Superior Power Company, Sault Ste. Marie, Ont.

Atikokan Iron Company, Port Arthur, Ont.

Moose Mountain, Limited, Sellwood, Ont.

Dominion Bessemer Ore Company, Limited, 472 Bullitt Bldg., Philadelphia, Pa.

#### EXPORTS AND IMPORTS.

The Customs Department does not keep a separate record of the imports of iron ore into Canada, but as the imports are practically all used in blast furnaces the statistics of consumption of imported ores in these furnaces will serve the same purpose.

There were used in Canadian iron furnaces during 1911, 1,628,368 tons of imported iron ores, as compared with 1,377,035 tons in 1910. Increasing amounts of iron ores have been imported since 1896, the total quantity imported during the sixteen years being 10,526,489 tons.

According to United States reports of Commerce and Navigation there were exported to Canada during the twelve months ending June 30, 1911, 826,071 tons (2,000 pounds) of iron ore, valued at \$2,496,246, and during the previous year 609,617 tons (2,000 pounds), valued at \$1,636,917.

The shipments from Newfoundland to Canada during the calendar year 1911 were 737,261 tons, as compared with 808,762 tons during the year 1910.

There were exported during 1911 about 37,686 tons of iron ore, valued at \$133,411, as compared with exports of 114,499 tons, valued at \$324,186, in 1910.

The ores exported in 1911 were chiefly those from Bathurst, N.B., Moose Mountain, Ont., and titaniferous iron ores from Quebec.

Annual statistics of exports are shown in the following tables:—

IRON.—TABLE 5.

#### Exports of Iron Ore, Calendar Years 1893-1911.

Calendar Year.	Tons.	Value.	Calendar Year.	Tons.	Value.
		\$			\$
1893.....	2,419	7,590	1903*.....	368,233	922,571
1894.....		21,294	1904*.....	168,828	401,738
1895.....	1,571	3,909	1905*.....	168,289	407,881
1896.....	1,033	1,911	1906.....	74,778	149,177
1897.....	403	811	1907.....	25,901	45,907
1898.....	182	278	1908.....	(a)	
1899.....	4,145	9,538	1909.....	21,956	61,954
1900.....	5,527	13,511	1910.....	114,499	324,186
1901*.....	306,199	762,283	1911.....	37,686	133,411
1902*.....	428,901	1,065,019			

\* The export figures for the five years indicated are incorrect owing to a duplication of entries.

(a) The figures of the Trade Report for this year include ferro-products, and are, therefore, omitted.

IRON.—TABLE 6.

## Exports of Iron Ore, Fiscal Years, 1879-1911.

Fiscal Year.	Tons.	Value.	Fiscal Year.	Tons.	Value.
		\$			\$
1879.....	3,562	7,530	1896.....	14	35
1880.....	30,524	76,474	1897.....	1,320	2,492
1881.....	44,677	114,850	1898.....	360	402
1882.....	43,835	135,463	1899.....	1,849	4,968
1883.....	44,914	138,775	1900.....	4,327	7,689
1884.....	25,308	66,549	1901*.....	58,401	150,657
1885.....	54,367	132,074	1902*.....	525,983	1,303,901
1886.....	7,542	23,039	1903*.....	293,510	733,230
1887.....	23,345	71,934	1904*.....	233,850	579,883
1888.....	13,544	39,945	1905*.....	224,908	540,909
1889.....	24,752	60,289	1906*.....	148,040	345,540
1890.....	13,811	31,376	1907†.....	34,191	65,367
1891.....	14,648	32,582	1908.....	26,310	46,686
1892.....	7,707	36,935	1909.....	3,933	71,663
1893.....	7,811	26,114	1910.....	31,535	80,540
1894.....	1,559	9,026	1911.....	104,807	304,718
1895.....	2,315	5,743			

\* See foot-note to Table 5. † Nine months ending March 31, 1907.

IRON.—TABLE 7.

## Imports of Iron Ore into the United States from Canada, 1893-1911.\*

Year ending June 30.	Short tons.	Value.	Year ending June 30.	Short tons.	Value.
		\$			\$
1893.....	7,706	17,186	1903.....	144,725	320,263
1894.....	301	756	1904.....	126,995	283,765
1895.....	2,681	10,114	1905.....	120,241	245,023
1896.....	39	142	1906.....	113,809	220,112
1897.....	2,535	5,243	1907.....	34,731	52,765
1898.....	1,313	2,904	1908.....	32,124	55,617
1899.....	2,585	5,120	1909.....	3,490	12,660
1900.....	4,477	5,550	1910.....	36,070	97,984
1901.....	34,453	76,159	1911.....	117,393	264,452
1902.....	309,527	685,540			

\* Compiled from the 'Foreign Commerce and Navigation of the United States.'

## PIG IRON AND STEEL.

An increase of 14.6 per cent is shown in the production of pig iron in Canada in 1911 over the production of 1910, as compared with an increase of 5.5 per cent in 1910 over that of 1909.

At the close of the year Canada had eighteen completed furnaces and two under construction, grouped in ten separate plants and operated by eight separate companies or corporations.

The total production in 1911 was 917,535 short tons (819,228 long tons), valued at approximately \$12,307,125, as compared with 800,797 short tons (714,998 long tons), valued at \$11,245,622, in 1910, and 757,162 short tons (676,038 long tons), valued at \$9,581,864, in 1909. The Londonderry furnace was not in operation during the past three years. These figures do not include the output from electric furnaces making ferro-products, which are situated at Welland and Sault Ste. Marie, Ont., and Buckingham, Que. Ferro-silicon, ferro-titanium, and electric pig were made at Welland, and ferro-phosphorus at Buckingham during 1911, but the Sault Ste. Marie plant was not in operation during the year.

Of the total output of pig iron in 1911, 20,759 tons, valued at \$365,832, or \$17.62 per short ton, were made with charcoal as fuel, and 896,776 tons, valued at \$12,041,393, or \$13.43 per ton, with coke. The amount of charcoal iron made in 1910 was 17,164 tons, and in 1909, 17,003 tons; while the quantity made with coke in 1910 was 783,633 tons, and in 1909, 740,159 tons.

The classification of the coke iron production in 1911, according to the purpose for which it was intended, was as follows:—

Bessemer, 208,626 tons; basic, 464,221 tons; foundry (including miscellaneous), 223,929 tons.

The classification of the production in 1910 was:—

Bessemer, 219,491 tons; basic, 425,400 tons; foundry, 138,742 tons.

The total production of pig iron in 1911 and 1910 is shown by provinces in the following table, the average value per ton being also indicated. In the case of Nova Scotia, a large proportion of the pig iron is directly converted to steel, and as a very small portion of the metal is sold as pig iron it is somewhat difficult to place a satisfactory valuation upon the output. For statistical purposes a value of \$12 per short ton has been placed upon this production. The Quebec production is entirely charcoal iron, which has for many years commanded a high price.

IRON.—TABLE 8.

Production of Pig Iron by Provinces, 1910-11.

Provinces.	1910.			1911.			Percentage increase or decrease in quantity.
	Tons.	Value.	Value per ton.	Tons.	Value.	Value per ton.	
		\$	\$ cts.		\$	\$ cts.	%
Nova Scotia ..	350,287	4,203,444	12 00	390,242	4,682,904	12 00	+ 11.4
Quebec.....	3,237	85,255	26 34	658	17,282	26 24	- 79.7
Ontario .....	447,273	6,956,923	15 55	526,635	7,606,939	14 44	+ 17.7
Total....	800,797	11,245,622	14 04	917,535	12,307,125	13 41	+ 14.6



A record of the production by provinces since 1887 is shown in Table 9. It will be observed that while the production in Nova Scotia has remained fairly constant during the past five years, the Ontario production has increased from 275,558 tons in 1906 to 526,635 tons in 1911. The proportions of the whole contributed by the several provinces were, in 1911: Nova Scotia, 42.5 per cent; Ontario, 57.4 per cent, and Quebec less than one-tenth of one per cent.

IRON.—TABLE 9.

## Annual Production of Pig Iron by Provinces, 1887-1911.

Year.	NOVA SCOTIA.		ONTARIO.		QUEBEC.		TOTAL.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.
		\$		\$		\$		\$
1887....	19,320	250,000	.....	.....	5,507	116,192	24,927	366,192
1888....	17,656	211,403	.....	.....	4,243	101,832	21,799	313,235
1889....	21,289	383,202	.....	.....	4,682	116,670	25,921	499,872
1890....	18,382	262,608	.....	.....	3,390	69,080	21,772	331,688
1891....	21,353	309,527	.....	.....	2,538	59,374	23,891	357,901
1892....	40,049	583,556	.....	.....	2,394	53,865	42,443	673,421
1893....	46,472	553,408	.....	.....	9,475	236,875	55,947	790,283
1894....	41,344	449,533	.....	.....	8,623	196,914	49,967	646,447
1895....	35,192	417,083	.....	.....	7,262	169,653	42,454	586,736
1896....	32,351	400,829	28,302	368,942	6,615	154,358	67,268	924,129
1897....	22,500	230,000	26,115	291,466	9,392	217,236	58,007	738,701
1898....	21,627	221,677	48,253	530,789	7,135	159,929	77,015	912,395
1899....	31,100	404,300	64,749	808,157	7,094	164,849	102,943	1,377,306
1900....	28,133	421,995	62,387	938,725	6,055	140,978	96,575	1,501,698
1901....	151,130	1,764,017	116,371	1,599,413	6,875	149,493	274,376	3,512,923
1902....	237,244	2,477,767	112,688	1,584,273	7,970	181,501	357,902	4,243,541
1903....	201,246	2,186,273	87,001	1,345,464	9,635	210,973	297,885	3,742,710
1904....	164,488	1,760,130	127,845	1,746,126	11,121	241,729	303,454	3,687,935
1905....	261,014	2,440,722	256,704	3,368,197	7,588	166,267	525,306	6,475,186
1906....	315,008	3,439,217	275,558	4,338,275	7,845	177,644	598,411	7,955,136
1907....	366,456	4,211,913	275,459	4,581,309	10,047	232,004	651,962	9,125,226
1908....	352,642	3,554,540	271,484	4,385,271	6,709	171,383	630,835	8,111,194
1909....	345,380	3,453,800	407,012	6,002,441	4,770	125,623	757,162	9,581,864
1910....	350,287	4,203,444	447,273	6,956,923	3,237	85,255	800,797	11,245,622
1911....	390,242	4,682,904	526,635	7,606,939	658	17,282	917,535	12,307,125

*Prices.*—The average price of domestic pig iron at Toronto ranged during the first five months of 1911 from \$19 to \$20 per gross ton, and during the balance of the year from \$19 to \$19.50.

A record of the average monthly prices per gross ton of Bessemer pig iron and of grey forge pig iron at Pittsburgh is shown in the accompanying tables:—

## Bessemer Pig Iron at Pittsburgh, per Gross Ton (2,240 pounds).

	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
January.....	16 70	22 15	13 91	16 85	18 35	23 15	19 00	17 34	19 90	15 90
February.....	16 93	21 45	13 66	16 41	18 35	22 85	17 90	16 78	19 34	15 90
March.....	17 37	21 85	14 25	16 35	18 28	22 85	17 86	16 25	18 60	15 90
April.....	18 75	21 28	14 18	16 35	18 19	23 35	17 49	15 78	18 27	15 90
May.....	20 75	20 01	13 60	16 16	18 10	24 01	16 93	15 84	17 52	15 90
June.....	21 56	19 72	12 81	16 65	18 23	24 27	16 90	16 05	16 60	15 90
July.....	21 60	18 89	12 40	14 85	18 41	23 55	16 83	16 46	16 40	15 90
August.....	21 62	18 35	12 81	15 20	19 00	22 90	16 23	17 03	16 09	15 90
September.....	21 75	17 22	12 63	15 91	19 54	22 90	15 90	18 05	15 90	15 90
October.....	21 75	16 05	13 10	16 54	20 35	22 00	15 71	19 53	15 90	15 44
November.....	21 68	15 18	14 85	17 85	22 85	20 65	16 59	17 90	15 82	15 00
December.....	21 75	14 40	16 65	18 35	23 75	19 34	17 40	19 90	15 90	15 03

## Grey Forge Pig Iron at Pittsburgh, per Gross Ton (2,240 pounds).

	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
January.....	16 00	20 50	12 81	16 11	17 30	22 58	17 00	15 40	17 40	14 09
February.....	16 37	20 50	12 75	15 99	17 29	22 20	15 99	15 09	17 02	14 27
March.....	17 44	20 87	13 17	16 00	16 91	21 76	15 90	14 65	16 15	14 40
April.....	18 56	20 45	13 09	15 77	16 66	21 72	15 45	14 40	16 09	14 40
May.....	19 75	19 87	12 62	15 57	16 49	22 88	14 90	14 40	15 90	14 27
June.....	20 06	18 87	12 27	15 18	16 35	23 15	14 90	14 77	15 20	14 00
July.....	21 00	17 90	11 92	14 55	16 41	22 96	14 90	14 85	14 52	13 90
August.....	20 69	16 04	11 89	14 36	17 75	21 90	14 71	15 21	14 30	13 90
September.....	20 51	15 25	11 75	14 72	18 35	21 15	14 46	16 15	14 15	13 84
October.....	21 60	14 20	12 30	15 66	19 47	20 40	14 40	17 02	14 15	13 65
November.....	21 06	13 00	14 25	16 58	22 45	19 17	14 90	17 27	14 09	13 47
December.....	20 55	12 80	15 85	16 97	22 85	18 40	15 25	17 40	13 90	13 40

The quantities of iron ore, coke, charcoal, limestone, etc., consumed in blast-furnaces in 1910 and 1911 are shown as follows:—

IRON.—TABLE 10.

## Ore, Fuel, and Flux Charged to Blast Furnaces, in Years 1910-11.

	1910.			1911.		
	Quantity.	Value.	Canadian and imported.	Quantity.	Value.	Canadian and imported.
		\$	%		\$	%
Canadian iron ore and mill cinder..... Tons.	171,191	564,838	11 }	97,732	583,105	6 }
Imported iron ore..... "	1,377,035	3,668,409	89 }	1,628,368	3,358,413	94 }
Canadian coke..... "	491,281	1,596,664	51 }	543,938	1,767,782	48 }
*Imported coke..... "	476,838	2,263,917	49 }	577,388	2,393,820	52 }
Charcoal..... Bus.	1,615,919	159,662	.....	1,960,459	178,274	.....
Canadian limestone..... Tons.	464,584	360,756	82 }	492,737	303,301	78 }
Imported limestone..... "	104,771	85,636	18 }	132,479	130,221	22 }

\*Including coke made from imported coal.

Previous to 1896 pig iron was made entirely from Canadian ores. Since that date, however, increasing quantities of imported ore have been used as well as imported fuels and fluxes, and in 1911 about 94 per cent of the ore charged, 52 per cent of the coke, and 22 per cent of the limestone were imported. This condition is due largely to questions of cost and transportation affecting each furnace. The Newfoundland iron ores can be cheaply and conveniently laid down in Sydney, N.S.; in fact the iron industry here has been built up on the basis of these ores and of the local coal supplies. In Ontario, also, large quantities of imported ores are used. In 1911 the imported ores used in Ontario amounted to 849,086 tons, and the Canadian ores, 85,678 tons, the imported ores being derived from Michigan and Minnesota deposits: thus during 1911 about 91 per cent of the ore used in this Province was imported, as compared with 83 per cent in 1910, and about 71 per cent in 1909. The fuel used in Ontario was also almost altogether imported, as well as a portion of the limestone flux.

IRON.—TABLE 11.

## Iron Ore, Fuel, and Flux Charged to Furnaces since 1887.

Calendar Year.	IRON ORE CHARGED.		FUEL CHARGED.			Limestone.
	Canadian.	Imported.	Charcoal.	*Coke from Canadian coal.	Imported coke.	
	Tons.	Tons.	Bushels.	Tons.	Tons.	
1887.....	60,434		940,400	33,581		17,171
1888.....	54,956		804,286	30,228		16,857
1889.....	65,670		755,800	36,333		22,122
1890.....	57,304		589,860	34,073		18,478
1891.....	60,933		441,812	32,796		11,377
1892.....	96,948		1,121,365	52,622		22,967
1893.....	124,053		1,302,720	65,332		27,797
1894.....	108,871		1,173,970	60,026		35,101
1895.....	93,208		789,561	51,620		31,585
1896.....	96,560	46,300	756,600	50,067	33,990	37,462
1897.....	53,658	55,722	1,031,800	35,800	27,810	31,273
1898.....	57,881	77,107	836,400	31,952	50,407	33,913
1899.....	66,384	120,650	1,928,025	44,844	64,648	51,826
1900.....	71,341	112,042	1,799,737	45,021	59,345	52,966
1901.....	156,613	361,010	1,835,736	207,835	115,367	169,399
1902.....	125,664	559,381	2,146,623	362,208	112,314	293,594
1903.....	82,035	485,911	2,322,030	350,190	96,540	277,452
1904.....	180,932	454,671	3,477,470	257,182	130,210	211,278
1905.....	116,974	861,847	4,404,394	363,897	243,882	369,715
1906.....	221,733	982,740	2,168,476	462,672	304,676	456,036
1907.....	244,104	1,117,260	1,682,085	521,068	327,082	488,462
1908.....	209,266	1,051,445	1,121,990	492,076	325,670	433,065
1909.....	257,502	1,235,000	1,779,258	412,016	507,255	526,076
1910.....	171,191	1,377,035	1,615,919	491,281	476,838	569,355
1911.....	97,732	1,628,368	1,960,469	543,933	577,388	625,216

\* Includes for the first ten years small quantity of coal.

Of eighteen completed furnaces fifteen were in blast in 1911 for varying periods of time. The operating companies, with numbers and capacities of furnaces, were as follows:—

Dominion Iron and Steel Company, Sydney, C.B.: four completed furnaces of 280 tons capacity each per day; one operated throughout 1911, one for 305 days, one for 272 days, and the fourth for 244 days.

Nova Scotia Steel and Coal Company, Limited, New Glasgow, N.S.: one furnace at Sydney Mines, C.B., of 200 tons capacity; operated 360 days.

Londonderry Iron and Mining Company, Limited, Londonderry, N.S.: one furnace of 100 tons capacity; idle throughout the year.

Canada Iron Corporation, Limited, Montreal, Que.: two small furnaces of seven and eight tons capacity, at Drummondville, Que., one being operated 106 days; one furnace of 25 tons daily capacity, at Radnor Forges, Que., idle throughout the year; two furnaces of 125 tons and 250 tons, at Midland, Ont., operated for 365 days.

Standard Chemical Iron and Lumber Company of Canada, Limited, Deseronto, Ont.: one furnace with a daily capacity of 65 tons; operated for 11 months during 1911.

The Steel Company of Canada, Limited, Hamilton, Ont.: two furnaces, one of 200 tons capacity operated for 308 days in 1911, a second furnace of 300 tons capacity operated 327 days in 1911.

Algoma Steel Company, Limited, Sault Ste. Marie, Ont.: three furnaces at Steelton, near Sault Ste. Marie, two of 250 tons capacity each, operated for 310 and 357 days, respectively; and one of 450 tons capacity, operated for 261 days.

The Atikokan Iron Company, Limited, Port Arthur, Ont.: one furnace of 100 tons capacity; operated for 228 days during 1911.

The total daily capacity of the eighteen furnaces is about 3,580 tons.

The average number of men employed in blast furnace operations in 1911 is reported as 1778, and the total wages paid, \$1,097,354. Of the eighteen completed furnaces, twelve were in blast and six idle on December 31, 1911.

With respect to new furnaces under way or contemplated, the Dominion Iron and Steel Company have met with considerable delay in the completion of their fifth furnace, which has now been under construction for some time. It is expected, however, that this furnace will shortly be completed. A beginning has also been made on the erection of a sixth furnace. This Company has also erected wire mills and has commenced the manufacture of nails.

The Steel Company of Canada, Limited, has undertaken the erection at Hamilton of a blooming mill, billet mill, rod and bar mill, together with two more 50 ton open-hearth furnaces.

The Lake Superior Corporation completed their new No. 3 blast furnace during the year. Their new coke ovens and merchant mills were also placed in full operation. A sixth open-hearth furnace is in progress and mixers are being installed.

#### EXPORTS AND IMPORTS OF PIG IRON.

There has been comparatively little pig iron exported from Canada. During 1911 the exports were 5,870 tons, valued at \$271,968, or an average value per

ton of \$40.33; as compared with exports of 9,763 tons, valued at \$296,310, or an average of \$30.35 per ton, in 1910. The exports during 1909 were 5,063 tons, valued at \$186,778, or an average of \$36.89; and during 1908, 290 tons, valued at \$10,614, or an average of \$42.45 per ton. These exports probably consist chiefly of ferro-silicon and high grade charcoal pig iron.

Considerable quantities of pig iron are annually imported into Canada. During the calendar year 1911 the imports were 208,487 tons, valued at \$2,610,989, or an average of \$12.52 per ton; as against 243,859 tons, valued at \$3,364,847, imported in 1910. No charcoal pig iron was imported in 1911. The 1910 imports included 227,753 tons of pig iron, valued at \$3,122,695, or an average of \$13.71 per ton, and 16,106 tons of charcoal pig iron, valued at \$242,152, or an average of \$15.03 per ton.

The annual imports of these two classes of pig iron since 1880 are shown in the accompanying table, No. 12, the statistics being given therein for the fiscal year.

IRON.—TABLE 12.

## Annual Imports of Pig Iron Since 1880.

Fiscal Year.	PIG IRON.		CHARCOAL PIG IRON.		TOTAL.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.
		\$		\$		\$
1880, year ending June 30.....	(a) 23,159	371,956			23,159	371,956
1881 " " " ".....	(a) 43,630	715,997			43,630	715,997
1882 " " " ".....	56,594	811,221	6,837	211,791	63,431	1,023,012
1883 " " " ".....	75,295	1,085,755	2,198	58,994	77,493	1,144,749
1884 " " " ".....	49,291	653,708	2,893	66,602	52,184	720,310
1885 " " " ".....	42,279	545,426	1,119	27,333	43,398	572,759
1886 " " " ".....	42,463	528,483	3,185	60,086	45,648	588,569
1887 " " " ".....	46,295	554,388	3,919	77,420	50,214	631,808
1888 " " " ".....	(b) 48,973	648,012			48,973	648,012
1889 " " " ".....	(b) 72,115	864,752			72,115	864,752
1890 " " " ".....	(b) 87,613	1,148,078			87,613	1,148,078
1891 " " " ".....	(b) 81,317	1,085,929			81,317	1,085,929
1892 " " " ".....	(b) 68,918	886,485			68,918	886,485
1893 " " " ".....	56,849	682,209	5,944	84,358	62,793	766,567
1894 " " " ".....	42,376	493,787	2,906	34,968	45,282	518,755
1895 " " " ".....	31,637	341,259	2,780	31,171	34,417	372,430
1896 " " " ".....	36,131	394,591	917	11,726	37,048	406,317
1897 " " " ".....	25,766	291,788	2,936	35,373	28,702	327,161
1898 " " " ".....	37,186	382,103	2,250	23,533	39,436	405,636
1899 " " " ".....	44,261	452,911	1,955	19,123	46,216	472,034
1900 " " " ".....	49,767	511,490	1,816	33,736	51,583	550,226
1901 " " " ".....	35,293	548,033	490	7,121	35,783	555,154
1902 " " " ".....	39,978	585,077	38	726	40,016	585,803
1903 " " " ".....	91,730	1,338,574	882	16,352	92,612	1,354,926
1904 " " " ".....	62,515	894,728			62,515	894,728
1905 " " " ".....	71,005	887,879			71,005	887,879
1906 " " " ".....	96,797	1,401,047			96,797	1,401,047
1907, nine months ending March 31.....	150,127	2,280,860	30	675	150,157	2,281,535
1908, year ending March 31.....	210,053	3,448,125	2,237	45,475	212,290	3,493,600
1909 " " " ".....	57,669	857,357	922	16,575	58,591	873,932
1910 " " " ".....	188,910	2,118,445	596	8,690	189,506	2,127,135
1911 " " " ".....	254,284	3,376,843	15,818	237,088	270,102	3,613,931

(a) Comprises pig iron of all kinds.

(b) These figures appear in Custom reports under heading "iron in pigs, iron kintledge, and cast iron."

IRON.—TABLE 13.  
Annual Exports of Pig Iron, 1896-1911.

Calendar Year.	Tons.	Value.	Calendar Year.	Tons.	Value.
		\$			\$
1896.....	2,187	55,448	1904.....	21,016	200,363
1897.....	3,099	81,381	1905.....	866	22,284
1898.....	1,278	32,645	1906.....	305	7,429
1899.....	6,981	149,190	1907.....	439	13,504
1900.....	3,513	83,052	1908.....	290	10,614
1901.....	57,650	593,739	1909.....	5,063	186,778
1902.....	75,195	773,619	1910.....	9,763	296,310
1903.....	4,400	78,382	1911.....	5,870	271,968

*World's Production.*—The production of pig iron in other countries is given hereunder for the past six years, in order to show the relative position occupied by Canada in the production of this metal.

IRON.—TABLE 14.  
Production of Pig Iron in Principal Countries of the World, from 1906 to 1911: metric tons.

—	1906.	1907.	1908.	1909.	1910.	1911.
United States ....	25,713,556	26,195,340	16,191,907	26,209,677	27,741,990	24,029,296
Germany.....	12,292,819	12,375,159	11,805,321	12,644,946	14,227,455	15,230,527
United Kingdom..	10,347,385	10,276,689	3,202,280	9,635,045	10,380,799	9,874,693
France.....	3,314,162	3,590,235	3,400,771	3,573,843	4,032,459	4,410,866
Russia.....	2,691,606	2,323,309	2,805,384	2,874,822	3,042,302	3,588,449
Austria-Hungary..	1,687,581	1,872,684	2,041,523	2,044,573	2,006,342 (a)	2,089,367
Belgium.....	1,375,775	1,406,980	1,270,050	1,616,370	1,803,500 (a)	2,072,843
Canada.....	542,375	591,456	572,290	686,393	726,478	832,332
Sweden.....	604,789	615,778	567,821	444,764	604,300	633,800
Spain.....	379,241	355,240	403,554	389,000 (a)	425,000 (a)	435,000
Italy.....	135,296	112,232	112,924	207,800 (a)	343,600 (a)	253,322
China.....	*34,305	*36,306	66,409	74,000 (a)	120,000	94,826
Japan.....	42,679	51,943	45,396 (a)	161,020	187,793 (a)	162,000
Australasia.....		29,902	30,393	29,762	42,268 (a)	36,354

\* Exports. † Not available. (a) From statistics by James Watson & Co., Glasgow, Scotland.

### FERRO-PRODUCTS.

Ferro-silicon, ferro-phosphorus, and ferro-titanium were produced in Canada in electric smelting plants during 1911. The ferro-titanium was produced in an experimental way only. Ferro-phosphorus was made by the Electric Reduction Company at Buckingham, Que. In former years this Company has also manufactured other ferro-products, including ferro-silicon and ferro-chrome.

The Electric Metals, Limited, at Welland, Ont., engaged chiefly in the production of ferro-silicon. There was also, however, considerable experimental work done in the production of pig iron in electric furnaces and in the production of ferro-titanium.

The electric furnace plant of the Lake Superior Corporation at Sault Ste. Marie was not operated during the year.

The total production of electric furnace plants in 1911 was 7,507 short tons, valued at \$376,404.

The imports of ferro-silicon, manganese, etc., during the calendar year 1911, were 17,226 tons, valued at \$429,465, or an average of \$24.93 per ton. The imports during the calendar year 1910 were 18,900 tons, valued at \$464,741, or an average of \$24.59 per ton. The imports since 1887 are shown in Table 15, the figures of the table being for the fiscal year.

IRON.—TABLE 15.

## Imports of Ferro-Manganese, Etc., 1887-1911.

Fiscal Year.	Tons.	Value.	Fiscal Year.	Tons.	Value.
		\$			\$
*1887.....	123	1,435	†1900.....	1,149	39,064
*1888.....	1,883	29,812	†1901.....	1,512	38,954
*1889.....	5,868	72,108	†1902.....	6,513	150,977
*1890.....	696	18,895	†1903.....	6,350	162,710
*1891.....	2,707	40,711	†1904.....	2,975	75,554
*1892.....	1,311	23,930	†1905.....	12,935	246,815
*1893.....	529	15,858	†1906.....	15,023	462,739
*1894.....	284	9,885	†1907 (9 months).....	16,414	610,875
†1895.....	164	5,408	†1908.....	17,417	612,062
†1896.....	652	12,811	†1909.....	13,053	338,024
†1897.....	426	9,233	†1910.....	14,952	332,486
†1898.....	1,418	22,516	†1911.....	18,796	461,331
†1899.....	1,160	22,539			

\* These amounts include: ferro-manganese, ferro-silicon, spiegel, steel bloom ends and crop-ends of steel rails, for the manufacture of iron or steel.

† Ferro-silicon, spiegeleisen, and ferro-manganese.

## STEEL.

The production of steel ingots and castings in 1911 was 882,396 tons, as compared with 822,284 tons in 1910 and 754,719 tons in 1909. In 1911 the production of open-hearth ingots was reported as 651,676 tons; Bessemer ingots, 209,817 tons; direct open-hearth castings, 20,163 tons, and other steels, 740 tons. The total increase in production over 1910 was 60,112, or a little over 7 per cent.

The production during the past five years is shown in Table 16 following:—

IRON.—TABLE 16.

## Production of Steel, 1907-1911.

	1907.	1908.	1909.	1910.	1911.
	Tons.	Tons.	Tons.	Tons.	Tons.
<i>Ingots</i> — Open-hearth (basic).....	459,240	443,442	535,988	580,932	651,676
Bessemer (acid).....	225,989	135,557	203,715	222,668	209,817
<i>Castings</i> — Open-hearth.....	20,602	9,051	14,013	18,085	20,163
Other steels.....	1,151	713	1,003	599	740
Total.....	706,982	588,763	754,719	822,284	882,396

Statistics showing the quantities of the principal materials used in steel furnaces were obtained for the first time for the year 1910, and it may be of interest to refer to these here. The total quantity of pig iron used in steel furnaces during 1911 was 700,679 tons, of which 640,636 tons were produced by firms reporting, and 60,043 tons purchased. The quantity of ferro-alloys used was 21,359 tons purchased. Scrap, etc., was used to the extent of 278,797 tons, being 198,482 tons produced by the firms reporting, and 80,315 tons purchased. Ores used included 829 tons of manganese ore and 42,892 tons of iron ore, while 130,270 tons of limestone or dolomite flux were used and 8,067 tons of fluorspar. In Ontario a little over 662 million cubic feet of natural gas were used, while in Nova Scotia coke oven gas was used at Sydney, of which a record of quantity is not obtained.

In 1910 the total quantity of pig iron used in steel furnaces was 690,913 tons, of which 601,219 tons were produced by firms reporting, and 89,694 tons purchased. The quantity of ferro-alloys used was 8,143 tons purchased. Scrap, etc., was used to the extent of 211,453 tons, being 140,913 tons produced by the firms reporting and 70,540 tons purchased. Ores used included 1,317 tons of manganese ore and 39,332 tons of iron ore, while 144,110 tons of limestone or dolomite flux were used and 7,461 tons of fluorspar. In Ontario a little over 600 million cubic feet of natural gas were used.

Statistics of the production of steel ingots and castings since 1894 are given in the following table, the figures for 1894 to 1906, inclusive, having been collected and published by the American Iron and Steel Association; those for the years 1907 to 1911 have been collected by this Department and are as shown in detail in Table 16.

IRON.—TABLE 17.

## Annual Production of Steel Ingots and Castings, 1894-1911.

Calendar Year.	Short tons.	Calendar Year.	Short tons.	Calendar Year.	Short tons.
1894.....	28,767	1900.....	26,406	1906.....	630,396
1895.....	19,040	1901.....	29,214	1907.....	706,982
1896.....	17,920	1902.....	203,881	1908.....	588,763
1897.....	20,608	1903.....	203,296	1909.....	754,719
1898.....	24,125	1904.....	166,381	1910.....	822,284
1899.....	24,640	1905.....	461,863	1911.....	882,396

Following is a list of firms making steel in Canada:—

- Dominion Iron and Steel Company, Sydney, N.S.
- Nova Scotia Steel and Coal Company, New Glasgow, N.S.
- Canadian Steel Foundries, Limited, Montreal, Que.
- The Algoma Steel Company, Sault Ste. Marie, Ont.
- The Steel Company of Canada, Limited, Hamilton, Ont.
- The Wm. Kennedy Sons, Limited, Owen Sound, Ont.



*Rolled Products, etc.*—Complete statistics of the production of rolled products and of manufactured steel have not been received; returns from seven of the largest producers, however, show a production of blooms, billets, slabs, etc., of 737,261 tons, of which 719,514 tons were used by the producer for further manufacture, and 17,747 tons sold to other rolling mills.

The production of rails was 399,760 tons; of rods, 85,811 tons; of bars, 199,623 tons, and of other rolled products, 65,076 tons. The production of steel rails in 1910 was returned as 399,762 tons, and in 1909, 377,642 tons.

The production of finished rolled iron and steel in Canada from 1906 to 1911, as ascertained and published by the American Iron and Steel Association, was as follows, in long tons:—

IRON.—TABLE 18.

## Annual Production of Rolled Iron and Steel, 1907-11.

Products — Gross tons.	1907.	1908.	1909.	1910.	1911.
Rails.....	311,461	268,692	344,830	366,465	360,547
Structural shapes and wire rods.....	65,541	41,520	74,136	80,993	76,617
Plates and sheets.....	18,493	11,656	36,241	26,642	14,833
Nail plate, merchant bars, and all other finished rolled forms.....	204,684	174,649	207,534	265,711	323,427
Total .....	600,179	496,517	622,741	739,811	775,424

## BOUNTIES.

Bounties on iron and steel made in Canada were provided for by the Dominion Government in 1897 (Chapter 6, Statutes of Canada, 1897). This Act was amended in 1899 (Chapter 8, Statutes of Canada, 1899), and again in 1903 (Chapter 68, Statutes of Canada, 1903). The latter Act provided for the payment of bounty until June 30, 1907. On April 27, 1907, a new Act was passed (Chapter 24, Statutes of Canada, 1907), providing for the further payment of bounties from January 1, 1907, to December 31, 1910, and in the case of pig iron made by electric smelting, until December 31, 1912. An Act assented to May 4, 1910 (Chapter 33, 1910, Edward VII), provided that the bounty on rolled round wire rods should cease after the 30th day of June, 1911.

The total bounty payments on account of iron and steel made during the calendar year 1911 were \$300,750, paid on 50,125 tons of wire rods manufactured by the Dominion Iron and Steel Company, Limited.

Since 1896 a total of \$16,785,827 has been paid by the Government of Canada in bounties for the production of iron and steel, the annual payments on pig iron, puddled iron bars, steel and manufactures of steel being shown in the following table:—

**Total Bounties on Iron and Steel paid by the Government of Canada since 1896.**

Year ended.	Pig iron.	Puddled iron bars.	Steel.	Manufactures of steel.
	\$	\$	\$	\$
June 30, 1896.....	104,105	5,611	59,499	.....
" 1897.....	66,509	3,019	17,366	.....
" 1898.....	165,654	7,706	67,454	.....
" 1899.....	187,954	17,511	74,644	.....
" 1900.....	238,296	10,121	64,360	.....
" 1901.....	351,259	16,703	100,058	.....
" 1902.....	693,108	20,550	77,431	.....
" 1903.....	666,001	6,702	729,102	.....
" 1904.....	533,982	11,669	347,990	15,321
" 1905.....	624,667	7,895	676,318	231,324
" 1906.....	687,632	5,875	941,000	369,832
March 31, 1907 (9 months).....	385,231	312	575,259	338,999
" 1908.....	863,817	.....	1,092,201	347,135
" 1909.....	693,423	.....	833,100	333,091
" 1910.....	573,969	.....	695,752	538,812
" 1911.....	261,434	.....	350,456	526,858
" 1912.....	.....	.....	.....	166,750
Total.....	7,097,041	113,674	6,706,990	2,868,122

**EXPORTS AND IMPORTS OF IRON AND STEEL GOODS.**

The total value of iron and steel goods, including agricultural implements, automobiles and bicycles, exported from Canada during 1911 was \$9,907,281, as compared with a value of exports in 1910 of \$7,895,489, and in 1909 a value of \$7,172,413. Of the total exports in 1911, stoves, gas buoys, castings, machinery, and hardware contributed a total valuation of \$1,242,006; pig iron, \$271,968; scrap iron and steel, \$54,618; steel and manufactures of steel, \$769,692; agricultural implements, \$6,281,929, and automobiles and bicycles, \$1,287,068. Particularly large increases are noted in the exports of agricultural implements and of automobiles and bicycles. Details of these exportations during the past two years are shown in the accompanying table:—

IRON.—TABLE 19.

Exports of Iron and Steel Goods, the product of Canada, during the Calendar Years 1910 and 1911.

	1910.		1911.	
	Quantity.	Value.	Quantity.	Value.
		\$		\$
Stoves..... No.	1,058	15,832	1,176	20,626
Gas buoys and parts of.....				68,485
Castings, N.E.S..... \$		51,958		33,441
Pig iron..... Tons.	9,763	296,310	5,870	271,968
Machinery (linotype machines).....		39,438		12,289
Machinery, N.E.S.....		301,961		431,493
Sewing machines..... No.	17,834	188,196	18,519	218,075
Typewriters..... "	5,970	409,326	4,771	318,935
Scrap iron and steel..... Cwt.	233,264	171,603	84,153	54,618
Hardware, tools, etc..... \$		88,844		94,513
Hardware, N.E.S..... "		43,472		44,199
Steel and manufactures of..... "		1,110,925		769,692
Agricultural implements —				
Mowing machines..... No.	18,745	634,326	22,859	778,274
Reapers..... "	3,411	220,517	9,385	574,315
Harvesters..... "	11,382	1,234,794	14,355	1,432,911
Ploughs..... "	16,888	540,677	20,437	503,095
Harrowes..... "	8,924	118,068	5,412	95,904
Hay rakes..... "	6,344	205,342	11,085	317,842
Seeders..... "	256	13,727	174	13,795
Threshing machines..... "	29	8,576	339	92,442
Cultivators..... "			5,923	138,377
All other..... "		1,163,722		1,533,728
Parts of..... "		573,848		796,246
Automobiles..... "	387	433,663	1,509	1,184,506
" parts of..... "				45,798
Bicycles..... "	72	2,710	90	5,936
" parts of..... "		28,654		50,828
Total.....		7,895,489		9,907,281

A detailed statement of the imports of iron and steel, as compiled from the annual reports of Trade and Navigation, is shown in Tables 21 and 22, Table 21 showing the imports subject to duty and Table 22 showing the imports free of duty.

The total value of the imports during the fiscal year ending March, 1911, was \$85,319,541, as compared with the valuation of imports in 1910 of \$59,952,197, and \$40,393,431 during the fiscal year 1909. These imports include all classes of iron and steel goods manufactured, as well as those of a crude form. In many cases the imports of manufactured goods are given only in dollars, so that the total tonnage of imports cannot be estimated. In the case of most of the cruder materials, however, the quantities are given, and a compilation of these shows a minimum importation of iron and steel during the fiscal year ending March, 1911, of 1,284,401 tons, as compared with 915,425 tons in 1910 and 565,734 tons in 1909. A summary of these importations is shown in Table 20.

In addition to the imports of pig iron and of ferro-products which have already been referred to, this record shows an importation in 1911 of ingots,

blooms, billets, puddled bars, etc., of 48,395 tons; scrap iron and scrap steel, 53,824 tons; plates and sheets, 205,690 tons; bars, rods, hoops, bands, etc., 183,865 tons; structural iron and steel, 345,350 tons; rails and connexions, 36,690 tons; pipe and fittings, 28,831 tons; nails and spikes, 3,099 tons; wire, 64,850 tons; forgings, castings, and manufactures, 24,523 tons.

The total value of the 1,284,401 tons imported was \$33,766,865, or an average value per ton of \$26.29. Other iron and steel goods of which the weights are not recorded were imported to the value of \$51,552,676, making up the total value of \$85,319,541, shown in detail in Tables 21 and 22.

A very large proportion of these imports is derived from the United States, and it may be of interest here to quote from the records published in the 'Commerce and Navigation of the United States,' showing the exports of iron and steel goods from that country to Canada.

According to this authority there was exported to Canada from the United States during the twelve months ending June 30, 1911, 821,526 tons of iron and steel goods, valued at \$25,544,421, together with other iron and steel goods of which the weight is not given, valued at \$38,738,575, or a total value of \$64,282,996.

During the twelve months ending June 30, 1910, the corresponding exports to Canada were 574,807 tons, valued at \$19,873,740, together with other iron and steel goods to the value of \$28,153,628, or a total value of \$47,827,368. Iron ores are not included in either case.

The detailed items will be found in Table 23.

IRON.—TABLE 20.

Imports of some Iron and Steel Products of which the Weights are Available.

Material.	TWELVE MONTHS ENDING MARCH.			
	1908.	1909.	1910.	1911.
	Tons.	Tons.	Tons.	Tons.
Pig iron.....	212,290	58,591	159,506	270,102
Ferro-products and chrome steel.....	17,661	13,206	15,153	19,182
Ingots, blooms, billets, puddled bars, etc.....	21,222	3,887	36,819	48,395
Scrap iron and scrap steel.....	69,213	26,212	28,797	53,824
Plates and sheets.....	126,172	116,610	200,575	205,690
Bars, rods, hoops, bands, etc.....	98,631	73,261	117,159	183,865
Structural iron and steel.....	373,871	162,735	195,748	345,350
Rails and connexions.....	52,706	32,543	55,183	36,690
Pipe and fittings.....	25,090	18,309	16,705	28,831
Nails and spikes.....	2,741	1,611	3,476	3,099
Wire.....	57,046	39,375	68,211	64,850
Forgings, castings and manufactures.....	22,357	14,394	18,098	24,523
Total.....	1,079,000	565,734	915,425	1,284,401

IRON.—TABLE 21.

Imports of Iron and Steel Goods Subject to Duty.

Material.	TWELVE MONTHS ENDING MARCH, 1910.		TWELVE MONTHS ENDING MARCH, 1911.		
	Quantity.	Values.	Quantity.	Values.	
		\$		\$	
Agricultural implements, N.O.P., viz.:-					
Binding attachments.....	No.	156	.....	10,022	
Cultivators and weeders.....	10,069	54,392	6,296	59,064	
Drills, seed.....	5,428	218,599	6,886	355,821	
Farm, road, or field rollers.....	71	29,542	118	64,305	
Forks, pronged.....	3,539	3,553	20,982	10,018	
Harrows.....	9,004	114,586	15,001	229,911	
Harvesters, self-binding.....	1,483	166,013	1,110	115,794	
Hay loaders.....	460	25,119	453	25,272	
Hay tedders.....	14	736	9	261	
Hoes.....	9,290	1,978	4,737	1,210	
Horse rakes.....	1,252	30,758	951	26,967	
Knives, hay or straw.....	3,210	870	8,213	4,517	
Knives, edging.....	143	173	56	72	
Lawn mowers.....	6,722	22,454	8,783	32,412	
Manure spreaders.....	248	21,750	705	65,562	
Mowing machines.....	1,431	62,978	1,367	52,999	
Ploughs.....	26,695	953,716	52,972	1,993,214	
Post hole diggers.....	2,012	2,279	4,213	4,368	
Potato diggers.....	770	32,225	626	16,767	
Rakes, N.O.P.....	28,456	5,565	58,769	10,689	
Reapers.....	161	8,350	827	60,677	
Scythes.....	Doz.	2,098	10,720	2,286	10,559
Sickles or reaping hooks.....	"	329	959	529	1,163
Snaths.....	"	78	306	15	30
Spades and shovels of iron or steel, N.O.P.....	"	9,095	43,145	9,539	45,751
Spade and shovel blanks, and iron or steel cut to shape for the same.....	"	4,474	7,410	3,247	5,448
Parts of agricultural implements paying 12½ per cent and 17½ per cent.....	\$	281,245	.....	464,202	
" " " 12½, 17½, and 20 per cent.....	"	493,714	.....	765,844	
All other agricultural implements, N.O.P.....	"	57,072	.....	83,226	

Anvils and vises.....	"	66,592	104,670
Cart or wagon skeins or boxes.....	Lbs.	132,868	9,488
Springs, N.O.P. and parts thereof, of iron or steel, for railway, tramway, or other vehicles.....	Cwt.	6,100	33,544
Axle and axle parts, N.O.P., and axle blanks and parts thereof, of iron or steel for railway, tramway, or other vehicles.....	"	40,261	214,261
Bar iron or steel, rolled, whether in coils, bundles, rod or bars, comprising rounds, ovals, squares, and flats, N.O.P.....	"	1,402,674	3,179,921
Butts and hinges N.O.P.....	\$	65,788	94,450
Canada plates, Russia iron, terne plate, and rolled sheets of iron and steel coated with zinc, spelter or other metal, of all widths or thicknesses, N.O.P.....	Cwt.	59,685	93,118
Castings, iron or steel, N.O.P.....	\$	195,126	826,365
Cast iron pipe of every description.....	Cwt.	250,891	562,008
Cast scrap iron.....	Tons	12,621	266,626
Chains, coil chain, chain links, and chain shackles of iron or steel of $\frac{1}{16}$ " diameter, and over.....	Cwt.	55,216	191,588
Chains, N.O.P.....	\$	45,386	94,645
Tacks, shoe.....	Lbs.	23,427	1,684
Nails, brads, spikes and tacks of all kinds, N.O.P.....	"	483,265	31,311
Engines, etc.:—			
Locomotives for railways.....	No.	99	297,512
Locomotive parts.....	\$	346,090	64,898
Motor cars for railways and tramways.....	No.	7	14,119
Engines, fire.....	"	12	17,435
Engines, gasoline.....	"	5,617	1,465,035
Engines, steam.....	"	324	244,394
Boilers, steam.....	"	654	180,616
Boilers, N.O.P.....	"	1,988	138,632
Fire extinguishing machines, including sprinklers for fire protection.....	\$	78,248	77,007
Fittings, iron or steel, for iron or steel pipe of every description.....	Lbs.	3,321,262	465,954
Flat eye-bar blanks, not punched or drilled, for use exclusively in the manufacture of bridges or of steel structural work, or in car construction.....	Tons	199	3,800
Ferro-silicon, spiegeleisen, and ferro-manganese.....	"	14,952	461,331
Forging of iron and steel of whatever size, shape, or in whatever stage of manufacture, N.O.P., and steel shafting, turned, compressed or polished and hammered, drawn or cold rolled iron or steel bars or shapes, N.O.P.....	Lbs.	2,491,222	125,080
Hardware, viz.: builders, cabinet-makers, upholsterers, harness-makers, saddlers and carriage hardware, including curry-combs, N.O.P.....	\$	503,939	681,050
Horse, mule, and ox shoes.....	"	13,797	18,973
Iron or steel billets, weighing not less than 60 pounds per lineal yard.....	Cwt.	567,159	861,036
Iron or steel ingots, coggled ingots, blooms, slabs, puddled bars and loops, or other forms, N.O.P., less finished than iron or steel bars, but more advanced than pig iron, except castings.....	"	115,490	68,616
Iron or steel bridges or parts thereof, iron or steel structural work, columns, shapes, or sections, drilled, punched, or in any further stage of manufacture than as rolled or cast, N.O.P.....	Tons	48,940	328,011
Iron in pig.....	"	158,910	3,376,843
Iron in pig charcoal.....	"	596	237,088
Locks of all kinds.....	\$	353,243	459,081
Machines, machinery, etc.:—			
Automobiles and motor vehicles of all kinds.....	No.	1,424	4,235,196

IRON.—TABLE 21—Continued.

Imports of Iron and Steel Goods Subject to Duty.

Material.	TWELVE MONTHS ENDING MARCH, 1910.		TWELVE MONTHS ENDING MARCH, 1911.	
	Quantity.	Value.	Quantity.	Value.
		\$		\$
Machines, machinery, etc.—Continued.				
Automobiles and motor vehicles, parts of.....		\$ 269,586		\$ 522,223
Fanning mills.....	No. 831	10,854	2,246	29,319
Grain crushers.....	" 49	661	92	2,405
Windmills and complete parts thereof.....	No. 1,036	48,310	1,482	51,805
Ore crushers and rock crushers, stamp mills, cornish and belted rolls, rock drills, air compressors, cranes, derricks, and percussion coal cutters.....	\$	259,311		265,085
Portable machines:—				
Fodder or feed cutters.....	No. 180	1,713	395	4,177
Horse powers for farm purposes.....	" 48	3,912	4	281
Portable engines with boilers in combination and traction engines for farm purposes.....	" 1,216	1,817,209	2,170	3,636,392
Portable sawmills and planing mills.....	" 13	12,303	36	17,204
Steam shovels.....	" 20	95,948	47	296,043
Threshing machine separators.....	" 1,199	629,799	1,286	741,360
Threshing machine separators, parts of, including wind-stackers, baggers, weighers and self-feeders for same, and finished parts thereof for repairs, when imported separately.....	\$	344,329		422,044
All other portable machines, N.O.P., and parts.....	"	23,873		43,742
Sewing machines.....	No. 16,430	323,249	14,968	351,525
Sewing machines, parts of.....	\$	101,584		108,957
Machines, typewriting.....	No. 9,319	670,165	11,230	686,936
Machines, type-casting and type-setting, and parts thereof, adapted for use in printing offices.....	" 66	297,071	134	226,325
Machines specially designed for ruling, folding, binding, embossing, creasing, or cutting paper or card- board, when for use exclusively by printers, bookbinders, and by manufacturers of articles made from paper or cardboard, including parts thereof, composed wholly or in part of iron, steel, brass, or wood.....	" 310	197,004	1,015	265,810
Lithographic presses and type-making accessories for same.....	\$	62,000		68,631
Printing presses.....	"	326,185		392,873
Machinery of a class or kind not made in Canada and parts thereof adapted for carding, spinning, weaving, braiding, or knitting fibrous material, when imported by manufacturers for such purposes.....	"	847,247		893,413

All machinery composed wholly or in part of iron or steel, N.O.P., and iron or steel castings, and iron or steel integral parts of all machinery specified in tariff item 453.....	No.	7,136,558			12,556,876
Machines, washing.....	No.	6,538	36,178	5,751	36,373
Nails and spikes, composition and sheathing nails.....	Lbs.	255,728	9,140	192,918	8,717
Nails and spikes, cut (ordinary builders).....	Cwt.	2,461	4,977	4,696	9,657
Railway spikes.....	"	29,842	50,320	44,583	71,135
Nails, wire of all kinds, N.O.P.....	"	8,375	33,457	10,774	41,599
Pumps, hand, N.O.P.....	No.	17,861	72,660	20,942	97,224
Iron and steel railway bars or rails of any form, punched or not, N.O.P., for railways, which term for the purposes of this item shall include all kinds of railways, street railways and tramways, even although they are used for private purposes only, and even although they are not used or intended to be used in connexion with the business of common carrying of goods or passengers.....	Tons.	50,198	1,398,373	32,784	895,934
Railway fish-plates.....	"	2,526	109,114	1,489	60,788
Railway tie-plates.....	"	1,899	47,275	957	35,399
Rolled iron or steel angles, tees, beams, channels, girders, and other rolled shapes or sections, not punched or drilled or further manufactured than rolled, N.O.P.....	Cwt.	831,933	1,084,950	1,130,321	1,580,387
Rolled iron or steel beams, channels, angles, and other rolled shapes of iron and steel, not punched, drilled, or further manufactured than rolled, weighing not less than 35 pounds per lineal yard, not being square, flat, oval, or round shapes, and not being railway bars or rails.....	"	1,674,455	2,011,445	2,499,706	3,209,773
Rolled iron or steel hoop, band, scroll, or strip, 12 inches or less in width, No. 13 gauge and thicker, N.O.P.....	"	23,319	41,158	71,090	123,238
Rolled iron or steel hoop, band, scroll, or strip, No. 14 gauge and thinner, galvanized or coated with other metal or not, N.O.P.....	"	116,887	252,217	162,857	336,162
Rolled iron or steel sheets or plates, sheared or unsheared, and skelp iron or steel, sheared or rolled grooves, N.O.P.....	"	273,690	338,563	509,350	753,212
Rolled iron or steel plates not less than 30" in width and not less than 1/4" in thickness, N.O.P.....	"	634,688	826,894	887,968	1,223,212
Rolled iron or steel sheets, polished or not, No. 14 gauge and thinner, N.O.P.....	"	400,898	956,028	441,671	1,046,123
Rolls of chilled iron or steel.....	"	751	3,191	3,292	10,526
Sad or smoothing hatters' and tailors' irons.....	\$		5,556		5,596
Safes, doors for safes and vaults.....	"		140,274		193,530
Screws, iron and steel, commonly called 'wood screws,' N.O.P., including lag or coach screws, plated or not, and machine or other screws, N.O.P.....	Gross.	151,339	29,189	249,613	47,268
Scales, balances, weighing beams, and strength-testing machines of all kinds.....	\$		119,447		113,176
Shafting, round, steel, in bars not exceeding 2 3/4" diameter.....	Cwt.	43,971	76,756	58,585	119,498
Sheets or plates of steel, cold rolled with sheared edges over 14 gauge, and not less than 13" wide for the manufacture of mower bars, hinges, typewriters, and sewing machines.....	"	6,161	12,324	15,893	35,789
Sheets, flat, of galvanized iron or steel.....	"	266,687	825,443	169,241	509,027
Sheets, iron or steel, corrugated, galvanized.....	"	1,564	3,546	2,653	9,468
Sheets, iron or steel, corrugated, not galvanized.....	"	26	48	6	76
Skates of all kinds, roller or other, and parts thereof.....	Pairs.	96,061	45,908	138,766	80,255
Skelp iron or steel, sheared or rolled in grooves, imported by manufacturers of wrought iron or steel pipe, for use exclusively in the manufacture of wrought iron or steel pipe in their own factories.....	Cwt.	1,222,161	1,546,580	1,191,529	1,598,385
Steel billets, N.O.P.....	"	53,636	63,089	14,226	19,940
Stoves of all kinds, for coal, wood, oil, spirits, or gas.....	\$		492,538		694,389
Stove urns of metal, and dovetails, chaplets, and hinge tubes of tin for use in the manufacture of stoves.....	"		17,136		22,370
Switches, frogs, crossings, and intersections for railways.....	Cwt.	22,996	134,734	29,201	144,195



IRON.—TABLE 21—Continued.

Imports of Iron and Steel Goods Subject to Duty.

Material.	TWELVE MONTHS ENDING MARCH, 1910.		TWELVE MONTHS ENDING MARCH, 1911.	
	Quantity.	Value.	Quantity.	Value.
		\$		\$
Tubing:—				
Wrought or seamless tubing, iron or steel, plain or galvanized, threaded and coupled, or not, over 4" diameter, N.O.P. ....	\$	683,763		503,206
Wrought or seamless tubing, iron or steel, plain or galvanized, threaded and coupled, or not, 4" and less in diameter, N.O.P. ....	\$	332,215		394,613
Seamless steel tubing, valued at not less than 3½ cents per lb. ....	Cwt.	5,039	12,016	45,605
Rolled or drawn square tubing of iron or steel, adapted for use in the manufacture of agricultural implements. ....	\$	5,942		1,894
Iron or steel pipe or tubing, plain or galvanized, riveted, corrugated or otherwise specially manufactured, including lockjoint pipe, N.O.P. ....	"	194,545		235,190
Iron or steel pipe, not butt or lap welded, and wire bound wooden pipe, not less than 30" internal diameter, when for use exclusively in alluvial gold mining. ....	"	47,488		22,599
Ware—Agate, granite, or enamelled iron or steel ware. ....	"	143,374		167,693
Ware—Iron or steel hollow ware, plain black or coated, N.O.P., and nickel and aluminium kitchen or household hollow ware. ....	"	42,507		79,507
Wire bale ties. ....	Bundles of 250 ties		3,514	3,575
Wire bound wooden pipe, N.O.P. ....	\$	185		1,143
Wire cloth or woven wire and netting of iron and steel. ....	Lbs.	1,347,439	2,553,155	140,037
Wire, crucible cast steel, valued at not less than 6 cents per lb. ....	"	114,770	176,173	32,166
Wire screens, doors, and windows. ....	\$	9,623		20,065
Wire buckthorn strip fencing, woven wire fencing, and wire fencing of iron and steel, N.O.P., not to include woven wire or netting made from wire smaller than No. 14 gauge, not to include fencing or wire larger than No. 9 gauge. ....	Lbs.	1,598,471	1,840,681	65,448
Wire, single or several, covered with cotton, linen, silk, rubber, or other material, including cable so covered. ....	"	3,157,730	3,576,896	495,560
Wire of iron and steel all kinds, N.O.P. ....	"	7,713,386	8,969,965	271,402
Wire rope, stranded or twisted wire clothes lines, picture or other twisted wire, and wire cables, N.O.P. ....	"	5,339,334	7,525,843	530,054
Iron or steel nuts, rivets, or bolts with or without threads, nut bolt, and hinge blank, and T and strap hinges of all kinds, N.O.P. ....	Cwt.	33,875	46,938	192,798

Iron or steel scrap, wrought, being waste or refuse, including punchings, cuttings, and clippings of iron or steel plates or sheets having been in actual use: crop ends of tin plate bars, blooms, and rails, the same not having been in actual use.....	"	302,714	191,782	617,875	408,075
Penknives, jack-knives, and pocket knives of all kinds.....	\$		74,868		100,318
Knives and forks of steel, plated or not, N.O.P.....	"		201,445		263,804
All other cutlery, N.O.P.....	"		507,612		677,030
Guns, rifles, including air guns and air rifles (not being toys), muskets, cannons, pistols, revolvers, or other firearms.....	"		377,950		622,037
Bayonets, swords, fencing foils, and masks.....	"		6,043		9,810
Needles of any material or kind, N.O.P.....	"		101,496		118,783
Steel, chrome steel.....	Cwt.	4,028	17,581	7,711	30,691
Steel plate, universal mill or rolled edge plates of steel over 12" wide, imported by manufacturers of bridges or of structural work, or for use in car construction.....	"	316,760	390,953	487,764	655,047
Steel in bars or sheets to be used exclusively in the manufacture of shovels when imported by the manufacturers of shovels.....	"	27,723	36,437	31,121	44,546
Rolled iron or steel, or cast steel in bars, bands, hoops, scroll, or strip, sheet or plate of any size, thickness or width, galvanized or coated with any material or not, and steel blanks for the manufacture of milling cutters, when of greater value than 3½ cents per pound.....	"	71,716	415,331	106,676	621,431
Steel balls adapted for use in bearings of machinery and vehicles.....	\$		14,725		15,613
Flat steel, cold rolled, not over ½" thick, for the manufacture of cups and cones for ball bearings.....	Cwt.	396	1,429		
Steel wool.....	"	126	2,418	452	2,989
Tools and implements—					
Adzes, cleavers, hatchets, wedges, sledges, hammers, crowbars, cant-dogs and track tools, picks, mattocks and eyes and poles for the same.....	\$		63,078		67,132
Axes.....	Doz.	6,593	35,667	7,993	45,361
Saws.....	\$		30,677		113,401
Files and rasps, N.O.P.....	"		83,927		121,165
Tools, hand or machine, of all kinds, N.O.P.....	"		628,471		767,628
Knife blades or blanks, and table forks of iron and steel, in the rough, not handled, filed, ground, or otherwise manufactured.....	"		95		388
Manufactures, articles or wares of iron and steel, or of which iron and steel (or either) are the component materials of chief value, N.O.P.....	"		4,994,498		7,122,976
Total.....			49,850,258		73,371,113

IRON.—TABLE 22.

Imports of Iron and Steel Goods Free of Duty.

Material.	TWELVE MONTHS ENDING MARCH, 1910.		TWELVE MONTHS ENDING MARCH, 1911.	
	Quantity.	Value.	Quantity.	Value.
		\$		\$
Anchors for vessels.....	Cwt. 5,698	22,299	6,168	25,362
Chain, malleable sprocket or link belting.....	\$	180,839		240,704
Cream separators, and steel bowls for.....	"	585,148		387,840
Cream separators—materials which enter into the construction and form part of when imported by manufacturers of cream separators to be used in the manufacture thereof.....	"	227,680		396,501
Gas buoys—The following articles and materials, when imported by manufacturers of automatic gas buoys and automatic gas beacons, for use in the manufacture of such buoys and beacons for the Government of Canada or for export, viz., iron or steel tubes over 16" in diameter; flanged and dished steel heads made from boiler plate, over 5 feet in diameter; hardened steel balls, not less than 3" in diameter; acetylene gas lanterns and parts thereof, and tobac bronze in bars or rods.....	"	14,916		29,829
Gun barrels, in single tubes, forged, rough bored.....	"			1,372
Iron or steel rods over 1/2" in diameter for manufacturing of chain.....	Cwt. 21,134	27,363	27,708	35,461
Rolled iron or steel rods not over 1/2" in diameter or width, to be manufactured into horseshoe nails.....	" 2,917	5,602		
Iron or steel, rolled round wire rods, in the coil, not over 3/8" in diameter, when imported by wire manufacturers for use in making wire in the coil in their own factories.....	" 561,423	749,117	720,641	965,912
Boiler plate of iron or steel not less than 30' in width, and not less than 1/4" in thickness, for use exclusively in the manufacture of boilers.....	" 307,737	438,744	319,897	492,247
Flat galvanized iron or steel sheets.....	" 391,076	1,167,496	381,797	1,127,087
Rolled iron and steel, and cast steel in bars, band, hoop, scroll or strip, sheet or plate of any size, thickness or width, galvanized or coated with any material or not, and steel blanks for the manufacture of milling cutters, when of greater value than 3 1/2 cts. per lb.....	" 59,261	412,110	82,746	531,804
Rolled iron or steel sheets in strips, polished or not, 14 gauge and thinner, N.O.P.....	" 324,985	648,641	363,381	800,084
Rolled iron or steel, hoop, band, scroll, or strip, No. 14 gauge or thinner, galvanized or coated with other metal or not, N.O.P.....	" 17,936	28,413	23,881	41,143
Iron tubing for manufacture of extension rods for windows.....	\$	5,866		8,642
Iron or steel, beams, sheets or plates, ankles, knees, masts or parts thereof, and cable chains for wooden, iron, steel or composite ships or vessels.....	Cwt. 113,010	173,143	283,319	417,981
Locomotive and car wheel tires of steel in the rough.....	" 136,586	337,093	192,110	451,253

Scrap iron and scrap steel, old, and fit only to be remanufactured, being part of or recovered from any vessel wrecked in waters subject to the jurisdiction of Canada. ....	"	800	100	1,230	730
Machinery:—					
Articles of metals as follows when for use exclusively in mining or metallurgical operations, viz: coal cutting machines, except percussion coal cutters; coal heading machines; coal augers; rotary coal drills; core drills; miners safety lamps and parts thereof, also accessories for cleaning, filling, and testing such lamps; electric or magnetic machines for separating or concentrating iron ores; furnaces for the smelting of copper, zinc, and nickel ores; converting apparatus for metallurgical processes in metals; copper plates, plated or not, machinery for extraction of precious metals by the chlorination or cyanide process; amalgam safes; automatic ore samplers; automatic feeders; retorts, mercury pumps; pyrometers; bullion furnaces; amalgam cleaners; blast furnace blowing engines; wrought iron tubing, butt or lap welded: threaded, or coupled or not, over 4" in diameter; and integral parts of all machinery mentioned in this item; blowers of iron or steel for use in the smelting of ores, or in the reduction, separation, or refining of metals, rotary kilns, revolving roasters, and furnaces of metal designed for roasting ore, mineral rock or clay; furnace slag trucks, and slag pots of a class or kind not made in Canada; buddles, vanners, and slime tables adapted for use in gold mining.....	\$		765,564		704,878
Appliances of iron and steel, of a class or kind not made in Canada, and elevators and machinery of floating dredges, when for use exclusively in alluvial gold mining.....	"		60,154		251,041
Well-drilling, and apparatus of a class or kind not made in Canada for drilling for water, natural gas or oil, and for prospecting for minerals, not to include motive power.....	"		120,409		209,717
Briquette making machines.....	"		3,742		27,582
Newspaper printing presses, of not less value by retail than \$1,500 each, of a class or kind not made in Canada.....	No.	97	391,657	114	504,556
Machinery or tools not manufactured in Canada up to the required standard necessary for any factory to be established in Canada for the manufacture of rifles for the Government of Canada.....	\$		9,331		6,166
All materials, or parts in the rough, unfinished, and screws, nuts, bands, and springs to be used in rifles to be manufactured at any such factory for the Government of Canada.....	"		54,068		50,067
Machinery of every kind, and structural iron and steel for use in the construction and equipment of factories for the manufacture of sugar from beet root.....	"		51,222		29,903
Machinery of a class or kind not made in Canada and parts thereof, for the manufacture of twine cordage, or linen, or for the preparation of flax fibre.....	"		16,351		43,129
Mould boards or shares, or plough plates, land sides, or other plates for agricultural implements, when cut to shape from rolled plates of steel, but not moulded, punched, polished, or otherwise manufactured..	Cwt.	103,627	289,044	164,052	512,857
Steel balls adapted for use on bearings on machinery, and vehicles.....	\$		3,688		3,206
Steel, rolled, for saws and straw cutters not tempered, or ground, nor further manufactured than cut to shape without indented edges.....	Cwt.	19,145	158,438	22,896	181,866
Steel strips, and flat steel wire when imported into Canada by manufacturers of buckthorn and plain strip fencing, for use exclusively in their own factories in the manufacture thereof.....	"	19	157	8	32
Steel wire, Bessemer soft drawn spring of Nos. 10, 12, and 13 gauge, respectively, and homo steel spring wire of Nos. 11 and 12 gauge, respectively, when imported by manufacturers of wire mattresses, to be used exclusively in their own factories in the manufacture of such articles.....	"	8,610	21,885	9,173	22,831
Steel, crucible sheet, 11 to 16 gauge, 2½" to 18" wide, for the manufacture of mower and reaper knives when imported by manufacturers thereof for use exclusively in the manufacture of such articles in their own factories.....	"	13,830	55,095	14,118	57,518

IRON.—TABLE 22—Continued.

Imports of Iron and Steel Goods Free of Duty.

Material.	TWELVE MONTHS ENDING MARCH, 1910.		TWELVE MONTHS ENDING MARCH, 1911.	
	Quantity.	Value.	Quantity.	Value.
		\$		\$
Steel No. 20 gauge and thinner, but not thinner than 30 gauge, for the manufacture of corset steels, clock springs, and shoe shanks, imported by manufacturers of such articles for exclusive use in the manufacture of such articles in their own factories.....	Cwt. 87	360	1,118	2,771
Steel wire, flat, of 16 gauge or thinner, imported by the manufacturers of crinoline, and corset wires and dress stays, for use exclusively in the manufacture of such articles in their own factories.....	" 12,950	46,665	6,286	40,240
Steel, No. 12 gauge and thinner, but not thinner than No. 30 gauge, for the manufacture of buckle clasps, bed fasts, furniture casters, and ice-creepers, imported by the manufacturers of such articles, for use exclusively in the manufacture of such articles in their own factories.....	" 3,123	7,859	4,704	14,268
Steel, No. 24 and 17 gauge, in sheets 63" long and from 18" to 32" wide, when imported by the manufacturers of tubular bow sockets for use exclusively in the manufacture of such articles in their own factories.....	" 1,565	3,090	1,440	3,132
Steel springs for the manufacture of surgical trusses, when imported by manufacturers of surgical trusses for use exclusively in the manufacture thereof in their own factories.....	Lbs. 2,265	479	1,200	438
Swedish rolled iron, and Swedish rolled steel nail rods, under half an inch in diameter, for the manufacture of horse-shoe nails.....	Cwt. 19,208	39,313	20,420	47,039
Steel seamless tubing valued at not less than 3½ cents per pound.....	" 1,448	11,758	2,751	20,015
Steel rolled or drawn square tubing adapted for use in the manufacture of agricultural implements.....	\$	163		
Steel or iron tubes, rolled, not joined or welded, not more than 1½" diameter, N. O. P.....	"	11,459		17,777
Seamless steel, or wrought iron boiler tubes, including flues and corrugated tubes for marine boilers.....	"	52,290		573,579
Steel imported by manufacturers of rifles for use in manufacturing rough parts of rifles, when such parts are to be used in rifles for the Government of Canada.....	\$	4,180		
Barbed fencing wire of iron or steel.....	Cwt. 351,576	765,427	345,108	743,527
Wire, crucible cast steel, valued at not less than 6 cents per pound.....	Lbs. 6,264	1,450	16,939	2,479
Wire, curved or not, galvanized iron or steel, Nos. 9, 12, and 13 gauge.....	Cwt. 763,538	1,524,742	637,393	1,243,580
Wire, steel, valued at not less than 2½ cents per pound when imported by manufacturers of rope for use exclusively in the manufacture of rope.....	" 34,765	136,715	46,311	180,832
Total.....		10,101,939		11,448,428

## IRON.—TABLE 23.

## Imports of Iron and Steel into Canada from the United States.\*

Material.	TWELVE MONTHS ENDING MARCH, 1910.		TWELVE MONTHS ENDING MARCH, 1911.	
	Quantity.	Value.	Quantity.	Value.
		\$		\$:
Pig iron.....Short tons	75,270·7	1,135,509	145,867·7	2,090,722
Scrap and old, fit only for remanufacture "	14,071·6	195,316	48,349·3	609,191
Bar iron....."	5,802·7	216,228	11,157·7	363,233
<i>Bars or Rods of Steel—</i>				
Wire rods....."	27,736	781,335	19,825·9	527,306
All other....."	75,050·9	2,390,235	92,268·0	2,322,424
Billets, ingots, and blooms of steel.."	14,395	306,268	56,433·4	1,113,957
Hoop, band, and scroll....."	4,617·5	200,655	†	†
Steel rails for railways....."	30,525·6	801,084	43,752·8	1,168,101
Sheets and plates (iron)....."	24,290	1,264,985	23,894·2	1,139,918
Sheets and plates (steel)....."	123,277	4,875,466	174,055·9	6,437,314
Sheets and plates (tin plates, terne plates, and taggers tin)....."	11,892·6	826,929	23,008·8	1,607,458
Structural iron and steel....."	74,574	2,328,338	89,201·3	3,496,033
Wire (barbed)....."	13,202·5	839,818	16,182	707,893
Wire (all other)....."	29,950	1,296,835	35,097·6	1,483,075
<i>Nails and Spikes—</i>				
Cut....."	1,097·5	39,085	1,854·9	56,034
Wire....."	693·5	37,452	376	22,968
All other, including tacks....."	328	20,021	846·9	56,163
Pipes and fittings....."	37,031·9	1,618,181	36,264·4	1,640,592
Radiators and cast iron house heating boilers....."	†	†	3,090·6	201,989
	574,807·0	19,673,740	821,526·4	25,544,421

\* Compiled from "Commerce and Navigation of the United States, 1911," Washington, D.C.

† Included in "all other manufactures of" in 1910.

‡ " " " 1911.

Table continued on next page.

## IRON.—TABLE 23—Continued.

## Imports of Iron and Steel into Canada from the United States.

Material.	1910.		1911.	
	Quantity.	Value.	Quantity.	Value.
		\$		\$
<i>Builders Hardware and Tools —</i>				
Locks, hinges, and other builders hardware		1,272,969		1,560,793
Saws		203,262		283,785
Tools not elsewhere specified		1,025,979		1,417,144
Car wheels	No. 6,592	66,505	5,976	71,588
Castings, not elsewhere specified		904,412		1,439,080
<i>Cutlery —</i>				
Table		12,226		*
All other		109,039		123,231
Firearms		305,016		416,129
<i>Machinery, Machines, and parts of —</i>				
Adding machines		‡		320,326
Brewers' machinery		‡		112,405
Cash registers	No. 724	45,260	2,268	197,597
Electrical machinery		1,151,449		1,664,665
Laundry machinery		124,325		139,008
Metal working machinery (including metal working machine tools)		336,172		766,127
Mining machinery		734,631		912,270
Printing presses and parts of		756,493		1,057,876
Pumps, and pumping machinery		456,358		634,343
Refrigerating machinery, ice-making machinery, etc.		‡		73,193
Sewing machines and parts of		462,128		436,059
Shoe machinery		223,431		266,998
Steam engines and parts of (fire)	No. 16	7,190	‡	‡
Steam engines and parts of (locomotive)	" 65	247,979	69	345,618
Steam engines and parts of (stationary)	" 3,173	840,418	4,016	852,685
Steam engines and parts of (traction)	" 1,296	2,094,247	1,590	2,743,147
Steam engines and parts of (all other engines and parts of engines)	"	1,366,650		1,585,231
Sugar-mill machinery		‡		4,883
Typewriting machines and parts of		430,737		647,152
Windmills and parts of		40,041		78,692
Wood working machinery		349,094		454,596
All other		7,343,794		10,383,946
Safes	No. 2,960	136,684	3,967	200,092
Scales and balances		109,181		138,674
Stoves, ranges, and parts of		635,900		832,447
All other manufactures of		6,357,049		8,569,792
		28,153,628		38,738,575
Total value		47,327,368		64,232,996

\* In 1911, included in "all other cutlery."

‡ In 1911, included in "locomotive."

‡ In 1910, included in "all other machinery."