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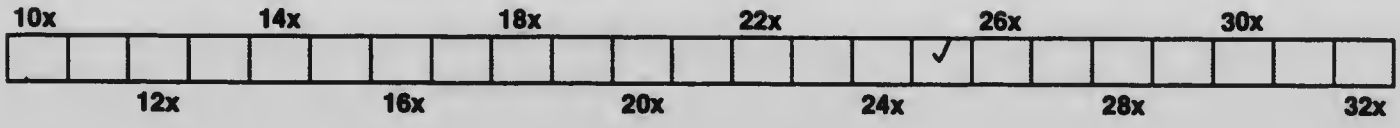

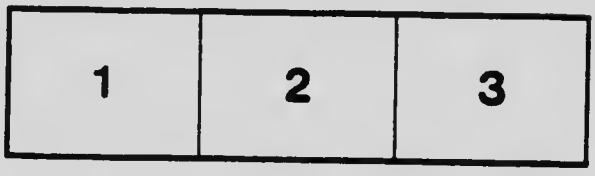

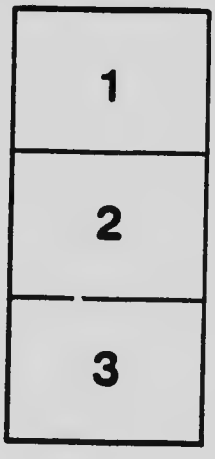

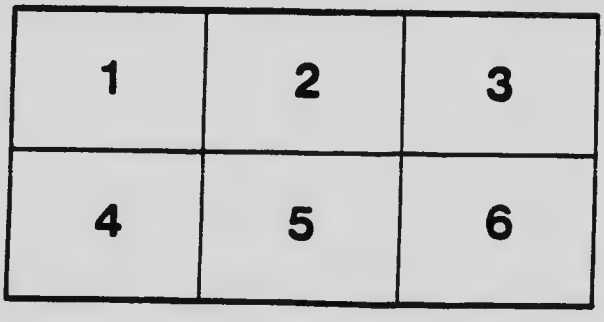

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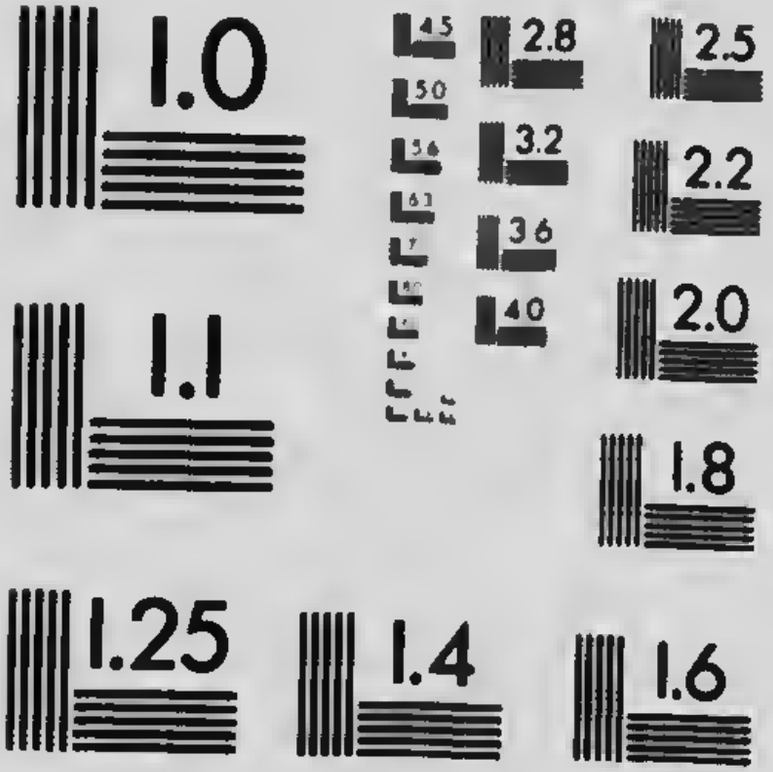

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HON. LOUIS CODERRE, MINISTER; A. P. LOW, LL.D., DEPUTY MINISTER.

MINES BRANCH
EUGENE HAANEL, PH.D., DIRECTOR

THE

PRODUCTION OF IRON AND STEEL

IN

CANADA

During the Calendar Year

1912

JOHN McLEISH, B.A.
Chief of the Division of Mineral Resources and Statistics.

OTTAWA
GOVERNMENT PRINTING BUREAU
1913

No. 247

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CONTENTS.

45981—1½

ADVANCE CHAPTER OF THE ANNUAL REPO ON THE MINERAL PRODUCTION OF CANADA D AING THE CALENDAR YEAR, 1912.

(Tons used throughout this report are short tons of 2,000 pounds except where oth se state.)

IRON AND STEEL.

INTRODUCTORY.

A review of the statistics of iron and steel production in 1912 embraces a recital of conditions similar to those which have affected this industry for a number of years past. Notwithstanding the rapid increase in production by Canadian manufacturers of iron and steel goods, the Canadian consumption continues to increase at an even more rapid rate than the domestic production. At the present time less than 30 per cent of the quantity of iron and steel consumed in Canada is supplied from Canadian plants; the Canadian producers are, therefore, compelled to meet conditions in so far as market and prices are concerned which result from the condition of the industry in those countries from which our chief supplies are obtained, viz., the United States and Great Britain. Throughout the greater part of 1911 and a portion of 1912, low prices were quoted on iron and steel imported from the United States, and Canadian producers claimed that it was impossible to carry on business except at a very low margin of profit. Price conditions, however, have improved considerably during 1912. Despite the adverse conditions of trade the production of pig iron and steel has continued to increase, and manufacturers are almost without exception continuing to extend their facilities to supply a larger market in the future.

The production of iron ore from Canadian mines must be considered apart from the blast furnaces and steel industries. Canadian iron ore resources have not been developed sufficiently to supply home demands—in fact since 1896 Canadian blast furnaces and steel plants have become more and more dependent upon supplies of imported ores. The total shipments of iron ores in 1912 from mines in Canada were 215,883 tons, whereas blast furnaces consumed 2,090,753 tons, and steel furnaces 43,006 tons. Although the shipments from iron ore mines were slightly higher than in 1911, they are, with the exception of the previous year, the lowest that have been recorded in thirteen years, and amount to less than 10 per cent of the years' requirements of blast and steel furnaces. Considerable progress, however, is being made in the development of large low grade iron ore bodies, and if the successful concentration of these is achieved, a growing production may be anticipated in the immediate future. The production of pig iron in 1912 was 1,014 587 short tons, and steel ingots

and castings, 957,681 short tons. While the rate of production of iron ore has shown practically no increase during the past thirteen years, the production of pig iron is now over ten times that of 1900.

A considerable portion of the production of iron ore is exported,and of the total amount of iron ore used in Canadian blast furnaces in 1912, only about 3 per cent is of domestic origin. Of the total amount of coke used 52 per cent was either imported or made from imported coal, and 27 per cent of the limestone flux used was from sources outside of Canada. In each instance the proportion of imported raw material used was either equal to or higher than the proportion used in 1911. During 1912 the total tonnage of imported ores used in Canadian furnaces was 2,019,165 tons, being derived chiefly from Newfoundland and from 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 in the year 1910, with the exception of the bounty on steel rods which was continued until June 30, 1911, and the bounty on pig iron and steel made in electric furnaces which was available to December 31, 1912. No bounties on iron and steel were claimed during the calendar year 1912.

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

Summary of Iron and Steel Statistics, 1909–12.

—	1909.	1910.	1911.	1912.
	Tons.	Tons.	Tons.	Tons.
Iron ore shipped	268,043	259,418	210,344	215,883
Canadian iron ore charged to blast furnaces	231,994	149,505	67,434	71,588
Imported iron ore charged to blast furnaces	1,235,000	1,377,035	1,628,368	2,019,165
Iron ore charged to steel furnaces	(a)	39,332	42,892	43,006
Pig iron made	757,162	800,797	917,535	1,014,587
Pig iron exported	5,063	9,763	5,870	6,976
Pig iron imported	148,338	243,859	208,487	272,565
Pig iron consumption (calculated)	900,437	1,034,893	1,120,152	1,280,176
Pig iron used in steel furnaces	(a)	690,913	700,679	706,895
Steel ingots and castings made	754,719	822,284	882,396	957,681
Steel rails made	377,642	399,762	399,760	471,422
Canadian coke used in iron blast furnaces	412,016	491,281	543,933	609,183
Imported coke used in iron blast furnaces	507,255	476,838	577,388	656,815
Iron and steel imported (b)	565,734	915,425	1,172,388	1,323,348
Number of completed blast furnaces No.	16	17	18	19
Number of men employed in blast furnaces "	1,486	1,403	1,778	1,358
Wages paid in blast furnaces $	879,429	1,006,727	1,097,354	993,941
Value of pig iron produced	9,581,864	11,245,622	12,307,225	14,550,999
Value of iron and steel goods exported. (c) $	7,172,413	7,895,489	9,907,281	10,682,484
Value of iron and steel goods imported. (d) $	40,393,431	59,952,197	85,319,541	102,568,832

(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 in Canada in 1912 were 215,883 tons, valued at $523,315 at the shipping point, as compared with 210,344 tons, valued at $522,319, in 1911, and 259,418 tons valued at $574,362, in 1910. Of the 1912 production, 86,971 tons were classed as hematite and 128,912 tons as magnetite. The production in 1911 included 137,399 tons of hematite and 72,945 tons of magnetite. Although there were but little active mining operations in the Maritime Provinces during 1912, considerable shipments of iron ore were made from stock in hand.

The Torbrook mines in Annapolis county, N.S., owned by the Canada Iron Corporation, were not operated during the year, but shipments of 30,857 net tons were made from stock piles. Preparations were being made to re-open the mine. Some prospecting is reported to have been carried on near Glencoe, Inverness county, on a promising body of iron ore.

In New Brunswick, the Canada Iron Corporation operated its mines near Austin Brook, Bathurst, the work being chiefly of the nature of development. Shipments, however, were made from stock of 71,520 tons as against 31,120 tons shipped in 1911.

The total shipments from both these provinces in 1912 were made either to Europe or to the United States

In the Province of Quebec some titaniferous ore was mined at St. Urbain, but was held for shipment in 1913. The Manitou Mining Co. opened up a mine on lots 37 and 38, range V, of the township of Beresford, Terrebonne county, and 1,185 tons of titaniferous ore were shipped from Ivry station to the United States.

The total shipments from Ontario mines in 1912 were 112,321 tons, as compared with 175,586 tons in 1911. The largest producers were the Helen mine at Michipicoten, and the Moose Mountain mine at Sellwood, north of Sudbury. Several other iron ore properties were being developed. The Canada Iron Mines, Ltd., has opened up the Bessemer mine and Childs mine in Hastings county, and has built a concentrating plant in Trenton, Ontario. A considerable tonnage of ore was shipped to the concentrator during the year, but a trial shipment only of concentrates was made. The Tivani Electric Steel Co., Ltd., Belleville, was engaged in developing the Orton mine, the ore from which it proposes to use in its new electric steel furnace. The Belmont iron mine was being developed by the Buffalo Union Furnace Co. The ore will be used in the new furnace being constructed by this Company at Port Colborne, Ontario. The mines at Atikokan were not worked for output as the furnaces at Port Arthur were closed down throughout the year, but operations were carried on chiefly for development. The Helen mine at Michipicoten was operated throughout the year and a considerable tonnage of ore stocked in addition to the shipments made to the furnaces at Sault Ste. Marie. Shipments were made from

Moose Mountain mine to various furnaces in Ontario and the United States, and a beginning has been made in the concentration of these ores.

No production is reported from the Province of British Columbia.

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

IRON.—TABLE 1.

Production of Iron Ore by Provinces, 1910–11–12.

Provinces.	1910.		1911.		1912.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.
		$		$		$
New Brunswick	5,336	11,910	31,120	69,464	71,520	127,716
Nova Scotia	18,134	40,478	22	50	30,857	168,877
Quebec	4,503	8,252	3,616	6,479	1,185	4,232
Ontario	231,445	513,722	175,586	446,326	112,321	222,490
	259,418	574,362	210,344	522,319	215,883	523,315

The production during 1911 and 1912 classed as magnetite (including titaniferous iron ores and some ores with an admixture of hematite), and hematite, was as follows:—

IRON.—TABLE 2.

Classified Production of Iron Ore, 1911–12.

Character of ore.	1911.			1912.		
	Short tons.	Value.	Per ton.	Short tons.	Value.	Per ton.
		$	$ cts.		$	$ cts.
Magnetite	72,945	154,295	2 12	128,912	216,368	1 68
Hematite	137,399	368,024	2 68	86,971	306,947	3 53
	210,344	522,319	2 48	215,883	523,315	2 42

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 included.

IRON.—TABLE 3.

Production of Iron Ore, by Provinces, 1866-1912.

Calendar Year.	New Brunswick.	Nova Scotia	Quebec.	Ontario.	British Columbia.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1886		44,388	.....	16,032	3,941	64,361
1887		43,532	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	14,380	.....	950	68,979
1892		78,258	22,690	.....	2,300	103,248
1893		102,201	22,076	.....	1,325	125,602
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		97,820	9,933	141,078	...	248,831
1907		89,839	12,748	207,769	2,500	312,856
1908		11,802	10,103	215,177	...	238,082
1909		.....	4,150	263,393	...	268,043
1910	5,336	18,134	4,503	231,445	...	259,418
1911	31,120	22	3,616	175,586	.....	210,344
1912	71,520	30,857	1,185	112,321	....	215,883

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 produeers 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.
Manitou Iron Mining Co., Montreal, Que.
*Loughborough Mining Co., Schenectady, N.Y.
*The Canadian Iron Ore Co., 1231 St. Valier St., Quebec, Que.
The Algoma Steel Corporation, Sault Ste. Marie, Ont.
Canada Iron Mines, Ltd., Toronto, Ont.
*Atikokan Iron Foundry Company, Port Arthur, Ont.
Moose Mountain, Limited, Sellwood, Ont.
*Dominion Bessemer Ore Co., Ltd., 472 Bullitt Bldg., Philadelphia, Pa.
*Tivani Electric Steel Co., Belleville, Ont.
*Buffalo Union Furnace Co., Buffalo, N.Y.

*No shipment reported during 1912.

EXPORTS AND IMPORTS OF IRON ORE.

Previous to April 1, 1912, a separate record of the imports of iron ore into Canada was not published by the Department of Customs. During the nine months ending December 31, 1912, the imports of iron ore were recorded by that department as 2,047,509 tons, valued at $3,932,074. Since practically all of the imported ores are used in Canadian blast furnaces, the statistics of consumption of imported ores in these furnaces would furnish a fairly close estimate of the quantities imported.

There were used in Canadian iron furnaces during 1912, 2,019,165 tons of imported iron ores, as compared with 1,628,368 tons in 1911. Increasing amounts of iron ores have been imported since 1896, the total quantity imported during the 17 years being 12,545,654 tons.

According to the United States reports of Commerce and Navigation, there were exported to Canada during the twelve months ending June 30, 1912, 931,647 tons (2000 lb.) of iron ore valued at $2,806,238, and during the previous year 826,071 tons (2000 lb.) valued at $2,496,246.

The shipments of iron ore from Newfoundland to Sydney, during the calendar year 1912, were 956,459 tons, as compared with 737,261 tons in 1911, and 808,762 tons in 1910.

The exports of iron ore from Canada during 1912 were 118,129 tons valued at $382,005, as compared with exports of 37,686 tons valued at $133,411 in 1911.

The ores exported in 1912 were chiefly those from Torbrook, N.S., Bathurst, N.B., Moose Mountain, Ont., and a small tonnage of titaniferous iron ores from Quebec.

IRON.—TABLE 5.

Exports of Iron Ore, Calendar Years 1893-1912.

Calendar Year.	Tons.	Value.	Average value.	Calendar Year.	Tons.	Value.	Average value.
		$	$			$	$
1893	2,419	7,590	3 14	1903*	368,233	922,571	2 51
1894	.....	21,294	.....	1904*	168,828	401,738	2 38
1895	1,571	3,909	2 49	1905*	168,289	407,881	2 42
1896	1,033	1,911	1 85	1906	74,778	149,177	2 01
1897	403	811	2 01	1907	25,901	45,907	1 77
1898	182	278	1 54	1908	(a)		
1899	4,145	9,538	2 30	1909	21,956	61,954	2 82
1900	5,527	13,511	2 44	1910	114,499	324,186	2 83
1901*	306,199	762,283	2 49	1911	37,686	133,411	3 54
1902*	428,901	1,065,019	2 48	1912	118,129	382,005	3 23

*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, 1879-1912.

Fiscal Year.	Tons.	Value.	Average value.	Fiscal Year.	Tons.	Value.	Average value.
		$	$			$	$
1879	3,562	7,530	2 11	1896	14	35	2 50
1880	30,524	76,474	2 51	1897	1,320	2,492	1 89
1881	44,677	114,850	2 57	1898	360	402	1 16
1882	43,835	135,463	3 09	1899	1,849	4,968	2 69
1883	44,914	138,775	3 09	1900	4,327	7,689	1 78
1884	25,308	66,549	2 63	1901*	58,401	150,657	2 58
1885	54,367	132,074	2 43	1902*	525,983	1,303,901	2 48
1886	7,542	23,039	3 05	1903*	293,510	733,230	2 50
1887	23,345	71,934	3 08	1904*	233,850	579,883	2 48
1888	13,544	39,945	2 95	1905*	224,908	540,909	2 41
1889	24,752	60,289	2 44	1906*	148,040	345,540	2 33
1890	13,811	31,376	2 27	1907†	34,191	65,367	1 91
1891	14,648	32,582	2 22	1908	26,310	46,686	1 77
1892	7,707	36,935	4 79	1909	3,933	71,663	1 82
1893	7,811	26,114	3 34	1910	31,535	80,540	2 55
1894	1,859	9,026	4 86	1911	104,807	304,718	2 91
1895	2,315	5,743	2 48	1912	37,657	133,561	3 51

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

IRON.—TABLE 7.

Imports of Iron Ore into the United States from Canada, 1893–1912.

Year ending June 30.	Short tons.	Value.	Average value.	Year ending June 30.	Short tons.	Value.	Average value.
		$	$			$	$
1893	7,706	17,186	2 23	1903	144,725	320,263	2 21
1894	301	756	2 51	1904	126,995	283,765	2 23
1895	2,681	10,114	3 77	1905	120,241	245,623	2 04
1896	39	142	3 64	1906	113,809	220,112	1 93
1897	2,535	5,243	2 07	1907	34,731	52,765	1 52
1898	1,313	2,904	2 21	1908	32,124	55,617	1 73
1899	2,585	5,120	1 98	1909	3,490	12,660	3 63
1900	4,477	5,550	1 24	1910	36,070	97,984	2 72
1901	34,453	76,159	2 21	1911	117,393	264,452	2 25
1902	309,527	685,540	2 21	1912	45,089	89,336	1 98

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

PIG IRON AND STEEL.

An increase of 10·5 per cent is shown in the production of pig iron in Canada in 1912 over the production of 1911, as compared with an increase of 14·6 per cent for 1911 over that of 1910.

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

The total production of pig iron in 1912 was 1,014,587 short tons (905,881 long tons), valued at approximately $14,550,999, as compared with 917,535 short tons (819,228 long tons), valued at $12,307,125, in 1911, and 800,797 short tons (714,998 long tons) valued at $11,245,622, in 1910. The Londonderry furnace has not been in operation during four years past, and the furnaces of the Canada Iron Corporation, in Quebec, and that of the Atikokan Iron Company at Port Arthur, were idle throughout 1912. The figures of production given above do not include the output of ferro-products from electric furnaces which are situated at Welland and Sault Ste. Marie, Ontario, and Buckingham, Quebec. Ferro-silicon was made both at Welland and Sault Ste. Marie, ferro-titanium at Welland, and ferro-phosphorus at Buckingham.

Of the total output of pig iron in 1912, 21,701 tons, valued at $435,960, or $20.10 per short ton, were made with charcoal as fuel, and 992,886 tons, valued at $14,110,030, or $14.21 per ton, with coke. The amount of charcoal iron made in 1911 was 20,759 tons, and in 1910, 17,164 tons; while the quantity made with coke in 1911 was 896,776 tons, and in 1910, 783,633 tons.

The classification of the coke iron production in 1912, according to the purpose for which it was intended, was as follows: Bessemer, 256,191 tons; basic, 511,534 tons; foundry (including miscellaneous) 192,161 tons.

The classification of the production in 1911: Bessemer, 208,626 tons; basic, 464,221 tons; foundry, 192,161 tons.

The total production of pig iron in 1911 and 1912 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 into 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. In 1910 and 1911 a nominal value of $12 per short ton was used for statistical purposes. This, in 1912, was increased to $15 per ton, which was thought possibly to be a fairer valuation on the output. It must not be inferred, therefore, that the difference represents an increase in the value of pig iron at Sydney.

There was no production of pig iron in the Province of Quebec during 1912. In past years this Province has had a continuous though small production of charcoal iron, which for many years commanded a high price.

IRON.—TABLE 8.

Production of Pig Iron by Provinces, 1911-12.

Provinces.	1911.			1912.			Percentage increase or decrease in quantity.
	Tons.	Value.	Value per ton.	Tons.	Value.	Value per ton.	
		$	$ cts		$	$ cts	%
Nova Scotia...	390,242	4,682,904	12 00	424,994	6,374,910	15 00	+8·9
Quebec.....	658	17,282	26 24	nil.	.....	.....	−100·0
Ontario.....	526,635	7,606,939	14 44	589,593	8,176,089	13 87	+11·9
Total.....	917,535	12,307,125	13 41	1,014,587	14,550,999	14 34	+10·6

A record of the production by provinces since 1887 is shown in Table 9.

It will be observed that while the production of Nova Scotia has increased by about 30 per cent since 1906, the Ontario production has increased by over 60 per cent during that period. The proportions of the whole contributed by the several provinces were, in 1912: Nova Scotia, 41·9 per cent; and Ontario, 5·81 per cent. In 1911 the proportions were: 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, 1887–1912.

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	17,556	241,403			4,243	101,832	21,799	343,235
1889	21,289	385,202			4,632	116,670	25,921	499,872
1890	18,382	262,608			3,390	69,080	21,772	331,688
1891	21,353	309,527			2,548	59,374	23,891	337,901
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	368,912	6,615	151,358	67,268	924,129
1897	22,500	230,000	26,115	291,466	9,392	217,235	58,007	738,701
1898	21,627	221,677	48,253	530,789	7,135	159,929	77,015	912,395
1899	31,100	401,300	61,749	808,157	7,091	161,849	102,913	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	149,193	274,376	3,512,923
1902	237,244	2,177,767	112,688	1,584,273	7,970	181,501	357,902	3,943,541
1903	201,246	2,186,273	87,004	1,345,461	9,635	210,973	297,885	5,742,710
1904	164,188	1,700,130	127,845	1,746,126	11,121	241,729	303,454	3,687,985
1905	261,014	2,110,722	256,704	3,868,197	7,588	166,267	525,306	6,475,186
1906	315,068	3,439,217	275,558	4,338,275	7,815	177,641	598,441	7,955,136
1907	366,456	4,211,913	275,459	4,581,309	10,017	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	417,273	6,956,923	3,237	85,255	800,797	11,245,622
1911	390,242	4,682,904	526,635	7,663,939	658	17,282	917,535	12,307,125
1912	424,994	6,374,910	589,593	8,176,089	.....	.....	1,014,587	14,550,999

Prices—The average price of domestic pig iron at Toronto, according to trade quotations, ranged from $19 to $19.50 per gross ton during eleven months of the year. In December quotations were advanced to $22. Another authority furnishes quotations at from $18 to $18.50 in January, increasing in May to from $19.75 to $20; increasing again in September to from $20.50 to $21, in October, $21.50 to $22, and December, $22 to $23. In Montreal, the price of Nova Scotia iron was quoted in January at $19.75, falling to $18.50 in April, and increasing again in August and September to $19 and $20, and in December, $21.50.

The price of Summerlee No. 2 pig iron was quoted in Montreal at $20 during the first nine months of the year, and at $24 during the last three months.

Bessemer pig iron at Pittsburgh was quoted at from $15 to $15.20 during the first eight months of the year, advancing steadily during the next four months to an average of $18.15 per gross ton, in December. The price of the same grade of iron in Pittsburgh in 1911 varied between $15 and $16 per ton.

A record of the average monthly prices per gross ton of pig iron at Montreal and Toronto during 1911 and 1912, and of Bessemer pig iron and of grey forge iron at Pittsburgh, for a period of ten years, is shown in the accompanying tables.

Average Monthly Prices of Pig Iron in Canada During 1911-12.

	(1) Foundry No. 1, N.S. at Montreal.		(2) Summerlee No. 2 at Montreal.		(3) Midland at Toronto.		
	1911.	1912.	1911.	1912.	1911.		1912.
					No. 1.	No. 2.	
January	21 00	19·75	20 00	20 00	19 00	18 50	18 00-18 50
February	21 00	19 00	20·00	20 00	19 00	18 50	18 50 19 00
March	21·00	19·00	20·00	20 00	19 00	18 50	18 50 19 00
April	21·00	18 50	20·00	20·00	19 00	18·50	18·50 19 00
May	19 00 19·50	18·50	20·00	20 00	19·00	18·50	19·75-20 00
June	19·00 19·50	18·50	20 00	20 00	19 00	18 50	19 75 20 00
July	19 00 19·50	18 50	20 00	20·00	19 00	18·50	19·75 20 00
August	19 00 19·50	19·00	20·00	20·00	19 00	18 50	19·75 20 00
September	19 00 19·50	20·00	20 00	20 00	19 00	18 50	20 50 21·50
October	19·00-19·50	20·50	20 00	21 00	19 00	18·50	21·50 22·00
November	19 00 19 50	20·50	20 00	24 00	19 00	18 50	21 50 22 50
December	19·00 19·50	21·50	20·00	21 00	19 00	18 50	22·00 23 00
Average	19 917	19 137	20 000	21·000	19 000	18·500	20 101

(1) Price per ton of 2,240 pounds, f.o.b. at Montreal, on the opening market day of each month; 1911, quotations from Drummond, McCall & Company; 1912, quotations supplied by the Dominion Iron and Steel Co., Ltd.

(2) Price per ton at Montreal, in the first week of each month, 1911 and 1912; quotations from Hardwell & Metal.

(3) Prices for 1911 from the *Canadian Engineer*. Price per ton, at Toronto, at the first of each month; quotations for 1912 from the *Canadian Mining Journal*.

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

	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
January	22 15	13 91	16 85	18 35	23 15	19 00	17 34	19 90	15 90	15 05
February	21 45	13 66	16 41	18 35	22 85	17 90	16 78	19 31	15 90	14 90
March	21 85	11 25	16 35	18 28	22 85	17 86	16 25	18 60	15 90	15 09
April	21 28	11 18	16 35	18 19	23 35	17 49	15 78	18 27	15 90	15 15
May	20 01	13 60	16 16	18 10	24 01	16 93	15 84	17 52	15 90	15 13
June	19 72	12 81	16 65	18 23	21 27	16 90	16 05	16 60	15 90	15 15
July	18 89	12 79	14 85	18 41	23 55	16 83	16 46	16 40	15 90	15 20
August	18 35	12 81	15 20	19 00	22 90	16 23	17 93	16 69	15 90	15 46
September	17 22	12 63	15 91	19 54	22 90	15 90	18 05	15 90	15 90	16 15
October	16 05	13 10	16 51	20 35	22 00	15 71	19 53	15 90	15 14	17 89
November	15 18	11 85	17 85	22 85	20 65	16 59	19 90	15 82	15 00	18 02
December	11 40	16 65	18 35	23 75	19 34	17 40	19 90	15 90	15 03	18 15

*From the *Iron Age*.

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

	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
January	20 50	12 81	16 11	17 30	22 58	17 00	15 40	17 40	14 09	13 10
February	20 50	12 75	15 99	17 29	22 20	15 99	15 09	17 02	14 27	13 40
March	20 87	13 17	16 00	16 91	21 76	15 90	14 65	16 15	11 10	13 40
April	20 45	13 09	15 77	16 66	21 72	15 45	14 40	16 09	14 40	13 65
May	19 87	12 62	15 57	16 40	22 88	14 90	14 40	15 90	14 27	13 78
June	18 87	12 27	15 18	16 35	23 15	14 90	14 77	15 20	14 00	13 90
July	17 90	11 92	14 55	16 41	22 96	9	14 85	14 52	13 90	13 90
August	16 04	11 89	14 36	17 75	21 90	14 71	15 21	14 30	13 90	14 15
September	15 25	11 75	14 72	18 35	21 15	14 46	16 15	14 15	13 84	14 65
October	14 20	12 30	15 66	19 47	20 40	14 40	17 02	14 15	13 65	16 18
November	13 00	11 25	16 58	22 45	19 17	14 90	17 27	14 09	13 47	16 50
December	12 80	15 85	16 97	22 85	18 40	15 25	17 40	13 90	13 40	17 15

The quantities of iron ore, coke, charcoal, limestone, etc., consumed in blast furnaces in 1911 and 1912, are shown as follows:—

IRON.—TABLE 10.

Ore, Fuel, and Flux Charged to Blast Furnaces, in Years 1911-12.

		1911.			1912.		
		Quantity.	Value.	Canadian and imported	Quantity.	Value.	Canadian and imported
			$	%		$	%
Canadian iron ore	Tons.	67,434	536,050	4	71,588	233,372	3·4
Imported iron ore	"	1,628,368	3,358,413	96	2,019,165	5,173,788	96·6
Canadian coke	"	543,933	1,767,782	48	609,183	2,284,438	48
*Imported coke	"	577,388	2,399,820	52	656,815	2,344,822	52
Charcoal	Bus.	1,960,459	178,274		1,886,748	157,402	
Canadian limestone	Tons.	492,737	303,301	78	544,890	399,708	73
Imported limestone	"	132,479	130,221	22	160,723	132,656	23

*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 1912 about 97 per cent of the ore charged, 52 per cent of the coke, and 27 per cent of the limestone, were imported. This condition is attributed largely to questions of cost and transportation affecting the ore supplies available for each furnace. The Newfoundland ores can be cheaply and conveniently laid down at Sydney, N.S.—in fact the iron and steel industry here has been built up on the basis

of these ores, and by the local coal supply. In Ontario also, large quantities of imported ores are used. In 1912 the imported ore used in Ontario amounted to 1,142,593 tons, and the Canadian ores, 7[illegible]88 tons, the imported ores being derived from Michigan and Minnesota deposits. With the exception of a small quantity of charcoal used at one furnace, the fuel (coke) used in Ontario was also altogether imported, as well as a portion of the limestone flux.

IRON.—TABLE II.

Iron Ore, Fuel, and Flux Charged to Blast Furnaces.

Calendar Year.	Iron ore charged.		Fuel charged.			
	Canadian.	Imported	Charcoal		Imported coke	Limestone.
	Tons.	Tons.	Bushels			Tons.
1887	60,431	[illegible]	940,160	[illegible]	[illegible]	7,171
1888	54,256	[illegible]	804,280	[illegible]	[illegible]	6,857
1889	65,670	[illegible]	755,800	[illegible]	[illegible]	[illegible]
1890	57,304	[illegible]	589,890	[illegible]	[illegible]	[illegible]478
1891	60,933	[illegible]	441,842	[illegible]	[illegible]	11[illegible]77
1892	96,948	[illegible]	1,121,365	622	[illegible]	[illegible]
1893	124,053	[illegible]	1,302,720	5,332	[illegible]	[illegible]
1894	108,871	[illegible]	1,173,970	40,026	[illegible]	[illegible]
1895	93,208	[illegible]	780,561	51,629	[illegible]	41,585
1896	96,560	46,308	756,600	50,067	[illegible]	37,102
1897	53,658	55,722	1,031,800	35,800	[illegible]	31,[illegible]75
1898	57,881	77,107	836,400	31,6[illegible]	[illegible]	33,917
1899	66,384	120,650	1,928,0[illegible]	14,8[illegible]	[illegible]	51,826
1900	71,341	112,042	1,799,[illegible]	45,021	[illegible]	52,966
1901	156,613	361,010	1,835,[illegible]	207,[illegible]	[illegible]	360,399
1902	125,664	559,381	2,146,[illegible]	36,[illegible]	[illegible]	293,594
1903	82,035	485,911	2,322,[illegible]	150,[illegible]	[illegible]	277,452
1904	180,932	454,671	3,477,[illegible]	257,[illegible]	[illegible]	211,278
1905	116,974	861,847	4,404,[illegible]	285,8[illegible]	[illegible]	369,715
1906	221,733	982,740	2,1[illegible]	[illegible]	[illegible]	456,630
1907	244,104	1,117,260	1,6[illegible]	[illegible]	[illegible]82	488,[illegible]6
1908	209,266	1,051,445	1,1[illegible]80	[illegible]	[illegible]70	483,065
1909	231,991	1,235,6[illegible]8	1,7[illegible]58	[illegible]	[illegible]55	526,076
1910	149,505	1,377,035	1,61[illegible]19	[illegible]	[illegible]38	569,355
1911	67,434	1,628,368	1,960,459	54	[illegible]88	625,213
1912	71,588	2,019,165	1,886,748	[illegible]	[illegible]815	705,613

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

IRON BLAST FURNACES IN CANADA IN 1912.

Of nineteen completed furnaces, fourteen were in blast in 1912 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.—Five completed furnaces of 280 tons capacity, each, per day; four operated throughout 1912, one for 108 days; one furnace under construction.

Nova Scotia Steel & Coal Co., Ltd., New Glasgow, N.S.—One furnace at Sydney Mines, C.B., of 200 tons capacity; operated 322 days.

Londonderry Iron & Mining Co., Ltd., Londonderry, N.S.—One furnace of 100 tons capacity; idle throughout the year.

Canada Iron Corporation, Ltd., Montreal, Que.—Two small furnaces of seven and eight tons capacity, at Drummondville, Que., idle throughout the year; 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 92 and 181 days respectively.

Standard Iron Company of Canada, Ltd., Deseronto, Ont.—One furnace with a daily capacity of 65 tons, operated for 11 months during the year 1912.

The Steel Company of Canada, Ltd., Hamilton, Ont.—Two furnaces: one of 200 tons capacity operated for 314 days in 1912; a second furnace of 300 tons capacity, operated 325 days in 1912.

Algoma Steel Company, Ltd., Sault Ste. Marie, Ont.—Three furnaces at Steelton, near Sault Ste. Marie: two of 250 tons capacity each, operated for 322 and 300 days respectively; and one of 450 tons capacity, operated throughout the year.

The Atikokan Iron Company, Ltd., Port Arthur, Ont.—One furnace of 100 tons capacity; idle throughout 1912.

The total daily capacity of the nineteen furnaces is about 3730 tons. On December 31, 1912, fourteen were in blast and nine idle.

The average number of men employed in blast furnace operations in 1912 were reported as 1,358, and the total wages paid, $993,041.

In addition to the new furnace being constructed by the Dominion Iron and Steel Company at Sydney, the Buffalo Union Furnace Company has begun the construction of a modern blast furnace at Port Colborne, Ont., for the manufacture of foundry, malleable, and Bessemer pig iron. This furnace will have a capacity of 300 to 315 tons per day, and will use Lake Superior ores at the outset although it is proposed, at a later date, to also use Canadian concentrates.

The United States Steel Corporation also proposes to establish a plant in Canada, and a site has been selected at Ojibway, Ont., opposite the city of Detroit, Michigan. This Company's plans are outlined in the last published annual report of the corporation as follows:—

'In order to meet in a more satisfactory manner the growing demands of the Canadian trade for the products of the subsidiary companies, it has been decided to establish a manufacturing plant in Canada at the site which the corporation secured some years ago at Ojibway, Ontario, opposite the city of Detroit, Michigan. The site consists of about 1,500 acres, with a frontage of about a mile and a half on the Detroit river. The plans for, and the scope of, the construction of the plant have not yet been fully developed, but will probably include blast furnaces, open

hearth steel works, rail mill, wire mill, structural and bar mills, and perhaps some other mills. It is expected the cost of the plant will in part be financed by an issue of bonds.'

EXPORTS AND IMPORTS OF PIG IRON.

The exports of pig iron from Canada consist chiefly of high grade charcoal pig iron and of ferro products, including ferro-silicon and ferro-phosphorus.

The total experts during 1912 were 6,976 tons, valued at $310,702, or an average value per ton of $44.54, as compared with exports of 5,870 tons, valued at $271,968, or an average of $40.33 per ton, in 1911.

The exports during the past four years have not exceeded 10,000 tons in any one year, and during the previous four years, did not exceed 1,000 tons in one year.

Considerable quantities of pig iron are annually imported into Canada. During the calendar year 1912, the imports totalled 272,565 tons, valued at $3,511,599, and included 210,756 tons, valued at $2,599,117, or an average of $12.33 per ton from The United States; and 61,809 tons, valued at $912,482, or an average of $14.76 per ton, from Great Britain. The total imports in 1911 were 208,487 tons, valued at $2,610,989, or an average of $12.52 per ton; and in 1910, 243,859 tons, valued at $3,364,847. The 1912 imports included 115 tons of charcoal pig iron, valued at $1,370, or $11.91 per ton. There was no charcoal pig iron imported in 1911.

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

Annual Imports of Pig Iron Since 1880.

Fiscal Year	Pig iron.			Charcoal pig iron.			Total.	
	Tons.	Value.	Average value.	Tons.	Value.	Average value.	Tons.	Value.
		$	$ cts.		$	$ cts.		$
1880	(a) 23,159	371,956	16 06				23,159	371,956
1881	(a) 43,630	715,997	16 41				43,630	715,997
1882	56,594	811,221	14 33	6,837	211,791	30 98	63,431	1,023,012
1883	75,295	1,085,755	14 42	2,198	58,994	26 84	77,493	1,144,749
1884	49,291	653,768	13 26	2,893	66,602	23 02	52,184	724,010
1885	42,279	545,426	12 90	1,119	27,333	24 43	43,398	572,759
1886	42,463	528,483	12 45	3,185	60,086	18 87	45,648	588,569
1887	46,295	554,388	11 98	3,919	77,420	19 76	50,214	631,808
1888	(b)48,973	648,012	13 23				48,973	648,012
1889	(b)72,115	864,752	11 99				72,115	864,752
1890	(b) 87,613	1,148,078	13 10				87,613	1,148,078
1891	(b) 81,317	1,085,929	13 35				81,317	1,085,929
1892	(b) 68,918	886,485	12 86				68,918	886,485
1893	56,849	682,209	12 00	5,944	84,358	14 19	62,793	766,567
1894	42,376	483,787	11 42	2,406	34,968	12 03	45,282	518,755
1895	31,637	341,259	10 80	2,780	31,171	11 21	34,417	372,430
1896	36,131	394,591	10 92	917	11,726	12 79	37,048	406,317
1897	25,766	291,788	11 32	2,436	35,373	12 05	28,702	327,161
1898	37,186	382,103	10 28	2,250	23,533	10 46	39,436	405,636
1899	44,261	452,911	10 23	1,955	19,123	9 78	46,216	472,034
1900	49,767	811,490	16 31	1,816	38,736	21 33	51,583	850,226
1901	35,293	548,033	15 53	490	7,121	14 53	35,783	555,154
1902	39,978	585,077	14 64	38	726	19 11	40,016	585,803
1903	91,730	1,338,574	14 59	882	16,352	18 54	92,612	1,354,926
1904	62,515	894,728	14 31				62,515	894,728
1905	71,005	857,879	12 08				71,005	857,879
1906	96,797	1,401,047	14 47				96,797	1,401,047
1907	150,127	2,280,860	15 19	30	675	22 33	150,157	2,281,535
1908	210,053	3,448,125	16 42	2,237	45,475	20 33	212,290	3,493,600
1909	57,669	857,357	14 87	922	16,575	17 98	58,591	873,932
1910	158,910	2,118,445	13 33	596	8,690	14 58	159,506	2,127,135
1911	254,284	3,376,843	13 28	15,818	237,088	14 99	270,102	3,613,931
1912	201,058	2,495,859	12 41	54	618	11 44	201,112	2,496,477

(a) Comprises pig iron of all kinds.
(b) These figures appear in Customs reports under heading "iron in pigs, iron kentledge and cast iron."
(c) Year ending June 30.
(d) Nine months ending March 31.
(e) Year ending December 31.

IRON.—TABLE 13.

Annual Exports of Pig Iron, 1896 1912.

Calendar Year	Tons.	Value.	Average value.	Calendar Year.	Tons.	Value.	Average value.
		$	$ cts.			$	$ cts.
1896	2,187	55,448	25 35	1905	866	22,284	25 73
1897	3,099	81,381	26 26	1906	305	7,429	24 36
1898	1,278	32,645	25 54	1907	439	13,504	30 76
1899	6,981	149,190	21 37	1908	290	10,614	36 60
1900	3,513	88,052	25 06	1909	5,063	186,778	36 89
1901	57,650	593,739	10 30	1910	9,763	296,319	30 35
1902	75,195	778,619	10 35	1911	5,870	271,968	46 33
1903	4,400	78,382	17 81	1912	6,976	310,702	44 54
1904	21,016	200,363	9 53				

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 1907 to 1912: metric tons.

	1907.	1908.	1909.	1910.	1911.	1912.
United States	26,195,340	16,191,907	26,209,677	27,741,990	24,029,296	30,665,595
Germany	12,875,159	11,805,321	12,644,946	14,227,155	15,280,527	17 852,571
United Kingdom	10,276,689	9,202,280	9,685,045	10,380,793	9,871,693	
France	3,590,235	3,400,771	3,573,848	4,032,459	4,110,866	4,871,992
Russia	2,823,309	2,805,384	2,874,822	3,042,302	3,588,419	4,184,124
Austria-Hungary	1,872,684	2,041,523	2,044,573	2,006,842 (a)	2,089,867	
Belgium	1,406,980	1,270,050	1,616,370	1,803,500 (a)	2,072,843	
Canada	591,456	572,290	686,893	726,478	832,38-	920,422
Sweden	615,778	567,821	444,764	604,300	633,800	699,816
Spain	355,210	403,554	389,000 (a)	425,000 (a)	435,000	
Italy	112,232	112,924	207,800 (a)	343,600 (a)	253,322	373,153
China	*36,306	66,409	74,000 (a)	120,000	94,826	
Japan	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. (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, in 1912, the latter two in small quantities only. Ferro-silicon is made at Sault Ste. Marie and at Welland, Ont., ferro-phosphorus at Buckingham, Que., and ferro-titanium at Welland, Ont. The Electric Reduction Company at Buckingham, Que., in former years

also manufactured other ferro products, including ferro-silicon and ferro-chrome.

The Electro Metals, Limited, at Welland, Ont., was chiefly engaged in the production of ferro-silicon. This firm has also made ferro-titanium in small quantities, as well as carried out experimental work in the production of pig iron in electric furnaces.

The Algoma Steel Corporation operated their electric furnace at Sault Ste. Marie for a very short period only during the year.

The total production in electric furnace plants during 1912 was 7,834 short tons of ferro products, valued at $465,225. In 1911 the production was 7,597 short tons, valued at $376,404.

The imports of ferro-silicon, ferro-manganese, etc., during the calendar year 1912, were 19,810 tons valued at $469,884, or an average of $23.72 per ton. The imports for the calendar year 1911 were 17,226 tons, valued at $429,465, or an average of $24.93 per ton; and in 1910, 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 fiscal years.

IRON.—TABLE 15.

Imports of Ferro-Manganese, Ferro-Silicon, Etc.

Fiscal Year.	Tons.	Value.	Average value.	Fiscal Year.	Tons.	Value.	Average value.
		$	$ cts.			$	$ cts.
*1887	123	1,435	11 67	†1900	1,149	39,064	34 00
*1888	1,883	29,812	15 83	†1901	1,512	38,954	25 76
*1889	5,868	72,108	12 29	†1902	6,513	150,977	23,18
*1890	696	18,895	27 15	†1903	6,350	162,710	25 62
*1891	2,707	40,711	15 04	†1904	2,975	75,554	25 40
*1892	1,311	23,930	18 25	†1905	12,935	246,815	19 08
*1893	529	15,858	29 98	†1906	15,023	462,739	30 80
*1894	284	9,885	34 81	†1907 (9 mos.)	16,414	610,875	37 22
†1895	164	5,408	32 98	†1908	17,417	612,062	35 14
†1896	652	12,811	19 65	†1909	13,053	388,024	29 73
†1897	426	9,233	21 67	†1910	14,952	332,486	22 24
†1898	1,418	22,516	15 88	†1911	18,796	461,331	24 54
†1899	1,160	22,539	19 43	†1912	18,274	443,770	24 28

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

STEEL.

The production of steel ingots and castings in 1912 was 957,681 tons, as compared with 882,396 tons in 1911, and 822,284 tons in 1910. In 1912 the production of open-hearth ingots was reported as 692,236 tons; Bessemer ingots, 231,044 tons; direct open-hearth castings, 31,845 tons; and other steels, 2,556 tons. The total increase in production over 1911 was 75,285 tons, or a little over 8·5 per cent.

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

IRON.—TABLE 16.

Production of Steel, 1908-12.

	1908.	1909.	1910.	1911.	1912.
	Tons.	Tons.	Tons.	Tons.	Tons.
Ingots—Open-hearth (basic)	443,442	535,988	580,932	651,676	692,236
Bessemer (acid)	135,557	203,715	222,668	209,817	231,044
Castings—Open-hearth	9,051	14,013	18,085	20,163	31,845
Other steels	713	1,003	599	740	2,556
Total	588,763	754,719	822,284	882,396	957,681

Statistics showing the principal materials used in steel furnaces were obtained for the first time in the year 1910. The total quantity of pig iron used in steel furnaces during 1912 was 735,559 tons, of which 706,895 tons were produced by firms reporting, and 28,664 tons purchased. The quantity of ferro-alloys used was 24,237 tons purchased. Scrap, etc., was used to the extent of 336,265 tons, being 223,404 tons produced by the firms reporting, and 112,861 tons purchased. Ores used included 985 tons of manganese ore and 43,006 tons of iron ore, while 148,045 tons of limestone or dolomite flux were used, and 9,709 tons of fluorspar. In Ontario a little over 423 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 was not obtained.

In 1911 the total quantity of pig iron used in steel furnaces 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.

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 1912 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, 1894-1912.

Calendar Year.	Short tons.	Calendar Year.	Short tons.	Calendar Year.	Short tons.
1894	28,767	1901	29,214	1908	588,763
1895	19,040	1902	203,881	1909	754,719
1896	17,920	1903	203,296	1910	822,284
1897	20,608	1904	166,381	1911	882,396
1898	24,125	1905	451,863	1912	957,681
1899	24,640	1906	639,396		
1900	26,406	1907	706,982		

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

Londonderry Iron and Mining Co., Ltd., Montreal, Que.
Dominion Iron and Steel Company, Sydney, N. S.
Nova Scotia Steel and Coal Company, New Glasgow, N.S.
Canadian Steel Foundries, Ltd., Montreal, Que.
Beauchemin et Fils, Sorel, Que.
The Algoma Steel Company, Sault Ste. Marie, Ont.
The Steel Company of Canada, Ltd., Hamilton, Ont.
The Dominion Steel Castings Co., Ltd., Hamilton, Ont.
The Wm. Kennedy & Sons, Ltd., 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 739,928 tons, of which 717,658 tons were used by the producer for further manufacture, and 22,270 tons sold to other rolling mills.

The production of rails was 471,422 tons; of rods, 68,174 tons; of bars, 264,226 tons; and of other rolled products, 39,012 tons. The production of steel rails in 1911 was returned as 399,760 tons, and in 1910, 399,762 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, 1908-12.

Products—Gross tons.	1908.	1909.	1910.	1911.	1912.
Rails	268,692	344,830	366,465	360,547	423,885
Structural shapes and wire rods	41,520	74,136	80,993	76,617	64,082
Plates and sheets	11,656	36,241	26,642	14,833	
Nail plate, merchant bars, and all other finished rolled forms	174,649	207,534	265,711	323,427	373,257
Total	496,517	662,741	739,811	775,424	861,224

BOUNTIES.

Bounties on iron and steel made in Canada were provided for by the Dominion Government in 1897 under the authority of Chapter 6, Statutes of Canada 1897. These bounties were continued under subsequent statutes until 1911. Bounty on pig iron and steel made in electric furnaces was available until December 31, 1912, but no claims therefor were made during the year.

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	10,124	64,360	
" 1901	351,259	16,703	100,058	
[illegible]	693,108	20,550	77,431	
" [illegible]	666,001	6,702	729,102	
" [illegible]	533,982	11,669	347,990	15,321
" 1906	624,667	7,895	676,318	231,324
March 31, 1907 (9 months)	687,632	5,875	941,000	369,832
" 1908	385,231	312	575,259	338,999
" 1909	863,817	.....	1,092,201	347,135
" 1910	693,423	.....	838,100	333,091
" 1911	573,969	.....	695,752	538,812
" 1912	261,434	.....	350,456	526,858
[illegible]	.....	.....	.....	166,750
Total	7,097,041	113,674	6,706,990	2,868,122

EXPORTS AND IMPORTS OF IRON AND STEEL GOODS.

The exports of iron and steel from Canada consist chiefly of manufactured goods such as agricultural implements, automobiles, bicycles, machinery, etc. Compared with the value of imports, the total value of the exports is small amounting to not more than 10 per cent of the former. The total value of iron and steel exported during the calendar year 1912 was $10,682,484, as compared with a value of exports in 1911 of $9,907,281, and in 1910, $7,895,489. The exports during 1912 included pig iron and ferro products, etc., to the value of $310,702; scrap iron and steel, valued at $145,250; stoves, gas buoys, castings, machinery, hardware, etc., valued at $1,290,762; steel and manufactures of steel,

$785,731; agricultural implements, $5,967,545; automobiles and bicycles, $2,182,494.

The exports during 1911 in similar grouping were: pig iron and ferro products, $271,968; scrap iron and steel, $54,618; stoves, gas buoys, castings, machinery, hardware, etc., $1,242,006; steel and manufactures of steel, $769,692; agricultural implements, $6,281,929; automobiles and bicycles, $1,287,068. The principal increase in exports is apparently in automobiles and bicycles. Particulars of these exports during the past two years are shown in further detail in the accompanying table.

IRON.—TABLE 19.

Exports of Iron and Steel Goods, the Product of Canada, during the Calendar Years 1911 and 1912.

		1911.			1912.		
		Quantity.	Value.	Average value.	Quantity.	Value.	Average value.
			$cts.	$		$	$cts.
Stoves	No.	1,176	20,626	17 54	1,390	24,110	15 19
Gas buoys and parts of	$	....	68,485	....	....	83,583	....
Castings, N.E.S.	$	....	33,441	....	....	27,113	....
Pig iron	Tons	5,870	271,968	46 33	6,976	310,702	44 54
Machinery (linotype machines)	$	....	42,239	....	....	6,555	....
Machinery, N.E.S.	$	....	431,493	....	....	474,996	....
Sewing machines	No.	18,519	218,075	11 78	24,158	259,617	10 75
Typewriters	"	4,774	318,935	66 85	4,025	277,583	68 96
Scrap iron and steel	Tons.	4,208	54,618	12 99	16,632	145,250	8 73
Hardware, tools, etc.	$	....	94,513	....	....	91,731	....
Hardware, N.E.S.	"	....	44,199	....	....	48,474	....
Steel and manufactures of	"	....	769,692	....	....	785,731	....
Agricultural implements—							
Mowing machines	No.	22,859	778,274	34 05	16,213	562,502	34 69
Reapers	"	9,385	574,315	61 19	3,243	195,156	60 19
Harvesters	"	14,355	1,432,911	99 82	15,344	1,634,208	106 53
Ploughs	"	20,437	508,095	24 86	13,589	412,460	30 37
Harrows	"	5,412	95,904	17 72	4,734	100,579	21 25
Hay rakes	"	11,085	317,842	28 67	6,646	199,092	29 96
Seeders	"	174	13,795	79 28	70	7,040	100 57
Threshing machines	"	339	92,442	272 69	761	214,499	281 86
Cultivators	"	5,923	138,277	23 36	5,059	100,043	19 78
All other	"		1,533,728		....	1,964,071	....
Parts of	"		796,246		....	577,895	....
Automobiles	"	1,509	1,181,506	785 00	3,028	2,013,784	665 00
" parts of	"	....	45,798	....	....	105,330	....
Bicycles	"	90	5,936	65 96	101	9,058	89 68
" parts of	"	....	50,828	....	....	54,322	....
Total		....	9,907,281	....	....	10,682,484	....

The total value of the imports of iron and steel goods during the calendar year 1912 was $121,376,986, as against a value of $93,171,817 imported in 1911, and $75,758,594 in 1910. While the total value of the imports during the calendar year is thus shown, it is not convenient to show the

imports of detailed items for this period, since the statistics published in the annual reports of the Customs Department cover the fiscal year ending in March.

The total value of the imports for the fiscal year ending March, 1912, was $102,568,832, as compared with a value of imports during the fiscal year 1911 of $85,319,541, and $59,952,197 imported during the fiscal year 1910. The rapid growth in imports of iron and steel is thus illustrated by the difference in figures covering the fiscal and calendar years, a nine months period. A detailed statement of the imports of iron and steel during the fiscal year is shown in Tables 21 and 22, Table 24 showing the imports subject to the duty, and Table 22 showing the imports free of duty. These imports include all classes of iron and steel goods manufactured as well as those of the cruder form. In many cases the values only of the imported goods are given, so that a 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 showing the importation of the cruder forms of iron and steel during the fiscal year ending March, 1912, is shown in Table 20. The quantity of these imports in 1912 was 1,323,348 tons, valued at $37,709,118, or an average of $28.50 per ton, as compared with imports of 1,172,380 tons, valued at $33,838,905, or an average of $28.81 per ton in 1911. Other iron and steel goods imported during 1912, and of which the weight is not given, were valued at $61,859,711, and the value of similar imports in 1911 was $51,480,636.

The imports of the cruder forms of iron and steel included: 200,317 tons of pig iron in 1912, as against 270,102 tons in 1911; ferro products and chrome steel, 18,865 tons in 1912, as against 19,173 tons in the previous year: ingots, blooms, billets, puddled bars, etc., 88,075 tons in 1912, as compared with 48,395 tons in 1911; scrap iron and steel, 82,665 tons in 1912, and 53,824 tons in 1911; plates and sheets, 243,182 tons in 1912, as compared with 205,690 tons in the previous year; bars, rods, hoops, bands, etc., 195,145 tons in 1912, as against 183,865 tons in 1911; structural iron and steel, 268,573 tons in 1912, and 232,585 tons in 1911, steel rails and connexions, 98,083 tons, as compared with 36,690 tons in 1911; pipe and fittings, 26,627 in 1912, and 28,831 tons in 1911; nails and spikes, 7,201 tons in 1912, and 3,374 tons in 1911; wire, 69,650 tons in 1912, as against 64,850 tons in 1911; forgings, castings, and manufactures, 24,665 tons in 1912, and 21,992 tons in 1911.

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, 1912, 1,175,464 tons of iron and steel goods, valued at $36,637,305, together with other iron

and steel goods of which the weight is not given, valued at $46,020,989—or a total value of imports from the United States of $82,658,924.

During the twelve months ending June 30, 1911, the corresponding exports to Canada were 821,526 tons, 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 during the year of $64,289,996.

The detailed items making up these totals are shown in Table 23.

TABLE 20.

Imports of Certain Iron and Steel Products.*

Material.	Twelve months ending March 1912.		
	Tons.	Value.	Average.
		$	$ cts
Pig iron	200,317	2,706,848	13 51
Ferro-products and chrome steel	18,865	461,140	24 44
Ingots, blooms, billets, puddled bars, etc	88,075	1,641,919	18 64
Scrap iron and scrap steel	82,665	1,217,556	14 73
Plates and sheets	243,482	8,288,144	34 04
Bars, rods, hoops, bands, etc	195,145	6,630,802	33 98
Structural iron and steel	268,573	7,033,146	26 18
Rails and connexions	98,083	2,878,835	29 35
Pipe and fittings	26,627	1,180,149	44 32
Nails and spikes	7,201	291,236	40 44
Wire	69,650	3,841,654	55 16
Forgings, castings, and manufactures	24,665	1,537,689	62 34
Total	1,323,345	37,709,118	28 50

Material.	Twelve months ending March.			
	1908.	1906.	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	8,887	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	232,585
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	3,374
Wire	57,046	39,375	68,211	64,850
Forgings, castings, and manufactures	22,357	14,394	18,093	24,523
Total	1,079,000	565,734	915,425	1,172,380

*In addition to these imports there is a large importation of manufactured iron and steel, of which the weight is not given, but the values of which are shown in Tables 21 and 22.

IRON.—TABLE 21.

Imports of Iron and Steel Goods Subject to Duty.

Material.		Twelve months ending March, 1911.		Twelve months ending March, 1912.	
		Quantity.	Values.	Quantity.	Values.
			$		$
Agricultural implements, N.O.P., viz.—					
Binding attachments	No		10,022		26,327
Cultivators and weeders	"	6,296	59,064	6,895	67,253
Drills, seed	"	6,886	355,821	7,042	349,618
Farm, road, or field rollers	"	118	64,305	212	56,374
Forks, pronged	"	20,982	10,018	10,762	5,802
Harrows	"	15,001	229,911	11,763	143,546
Harvesters, self-binding	"	1,110	115,794	2,531	264,890
Hay loaders	"	453	25,272	796	39,643
Hay tedde	"	9	261	104	4,360
Hoe	"	4,737	1,210	8,481	2,732
Horse rakes	"	851	26,967	999	30,448
Knives, hay or straw	"	8,213	4,517	13,226	2,311
Knives edging	"	56	72	24	93
Lawn mowers	"	8,783	52,412	12,843	49,843
Manure spreaders	"	705	65,562	349	27,594
Mowing machines	"	1,367	52,999	2,116	79,539
Ploughs	"	52,972	1,993,214	42,338	1,352,214
Post hole diggers	"	4,213	4,368	3,929	4,378
Potato diggers	"	626	16,767	866	17,683
Rakes, N.O.P.	"	58,769	10,689	15,425	3,761
Reapers	"	827	60,677	1,380	75,455
Scythes	"	2,286	10,559	2,977	12,308
Sickles or reaping hooks	Doz.	529	1,163	297	843
Snaths	"	15	30	19	81
Spades and shovels of iron or steel, N.O.P.	"	9,539	45,751	10,069	31,615
Spade and shovel blanks, and iron or steel cut to shape for the same	"	3,247	5,448	3,782	5,774
Parts of agricultural implements paying 12½ per cent and 17½ per cent	$		464,202		425,140
Parts of agricultural implements paying 12½, 17½, and 20 per cent	"		765,844		1,057,680
All other agricultural implements, N.O.P.	"		83,226		107,500

Imports of Iron and Steel Goods Subject to Duty—*Continued.*

Material.		Twelve months ending March, 1911.		Twelve months ending March, 1912.	
		Quantity.	Value.	Quantity.	Value.
Anvils and vises	$		104,670		78,204
Cart or wagon skeins or boxes	Tons.	114·8	9,488	265·2	20,987
Springs, N.O.P. and parts thereof, of iron or steel, for railway, tramway, or other vehicles	"	333·1	33,544	635·1	63,042
Axle and axle parts, N.O.P., and axle blanks and parts thereof, of iron or steel for railway, tramway, or other vehicles	"	2,911·7	214,261	3,616	289,800
Bar iron or steel, rolled, whether in coils, bundles, rod or bars, comprising rounds, ovals, squares, and flats, N.O.P.	"	106,895·7	3,179,921	105,225·3	2,948,456
Butts and hinges N.O.P.	$		94,450		109,322
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.	Tons.	1,488·3	93,118	4,569·8	213,229
Castings, iron or steel, N.O.P.	$		826,365		1,102,096
Cast iron pipe of every description	Tons.	25,046	562,008	20,822·5	490,944
Cast scrap iron	"	20,322	266,626	35,718	422,925
Chains, coil chain, chain links, and chain shackles of iron or steel of $\frac{1}{16}$" diameter, and over	"	3,053·5	191,588	3,281·7	159,288
Chains, N.O.P.	$		94,645		113,425
Tacks, shoe	Tons.	6	1,634	16·3	2,986
Nails, brads, spikes, and tacks of all kinds, N.O.P.	"	269·5	31,311	702·5	47,277
Engines, etc.:—					
Locomotives for railways	No.	98	297,512	152	495,195
Locomotive parts	$		64,898		69,276
Motor cars for railway and tramways	No.	8	14,119	49	101,182
Engines, fire	"	16	17,435	22	21,139
Engines, gasoline	"	9,045	1,465,035	15,439	2,207,406
Engines, steam	"	284	244,394	322	276,156
Boilers, steam	"	567	70,616	631	236,308
Boilers, N.O.P.	"	1,364	38,632	3,217	247,645
Fire extinguishing machines, including sprinklers for fire protection	$		77,007		97,422
Fittings, iron or steel, for iron or steel pipe of every description	Tons.	3,785·4	465,954	5,804·8	689,205
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	"	137	3,800	15	649

Ferro-silicon, spiegeleisen, and ferro-manganese	Tons.	.796	461,331	18,591	436,849	
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.	"	1,212·5	125,030	1,329·2	158,317	
Hardware, viz., builders, cabinet-makers, upholsterers, harness-makers, saddlers, and carriage hardware, including curry-combs, N.O.P.	$		681,050		720,101	
Horse, mule, and ox shoes	"		18,973		21,449	
Iron or steel billets, weighing not less than 60 pounds per lineal yard	Tons.	44,456·5	861,056	84,738·4	1,572,614	
Iron or steel ingots, cogged 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	"	3,227·8	68,616	2,608·2	52,063	
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.	6,264·8	328,011	13,419·8	651,244	
Iron in pig	"	254,284	3,376,843	199,412	2,469,760	
Iron in pig charcoal	"	15,818	237,688	905	10,768	
Locks of all kinds	$		459,081		478,480	
Machines, machinery, etc.						
Automobiles and motor vehicles of all kinds	No.	3,488	4,235,196	6,062	6,551,345	
Automobiles and motor vehicles, parts of	$		522,223		879,471	
Fanning mills	No.	2,246	29,319	3,648	52,230	
Grain crushers	"	92	2,405	78	1,419	
Windmills and complete parts thereof	"	1,482	51,805	1,643	47,436	
Ore crushers and rock crushers, stamp mills, cornish and belted rolls, rock drills, air compressors, cranes, derricks, and percussion coal cutters	$		265,085		256,589	
Portable machines:—						
Fodder or feed cutters	No.	395	4,177	453	4,521	
Horse powers for farm purposes	"	4	281	13	2,019	
Portable engines with boilers in combination and traction engines for farm purposes	"	2,710	3,636,392	3,831	6,043,723	
Portable sawmills and planing mills	"	36	17,204	3	626	
Steam shovels	"	47	296,043	32	183,034	
Threshing machine separators	"	1,286	741,360	2,857	1,403,713	
Threshing machine separators, parts of, including wind-stackers, baggers, weighers and self-feeders for same, and finished parts thereof for repairs, when imported separately	$		422,044		660,206	
All other portable machines, N.O.P., and parts	"		43,742		40,687	
Sewing machines	No.	14,968	351,525	15,489	333,411	
Sewing machines, parts of	$		108,957		128,572	
Machines, typewriting	No.	11,230	686,976	16,780	974,942	
Machines, type-casting and type-setting, and parts thereof, adapted for use in printing offices	"	134	226,325		337,856	
Machines specially designed for ruling, folding, binding, embossing, creasing, or cutting paper or cardboard, 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						
Lithographic presses and type-making accessories for same	"	1,615	265,810		309,722	
Printing presses	$		68,631		105,925	
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	"		392,873		502,330	
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 machinery specified in tariff item 433	"		893,413		813,935	
			12,556,876		15,389,799	

Imports of Iron and Steel Goods Subject to Duty—*Continued.*

Material.		Twelve months ending March, 1911.		Twelve months ending March, 1912.	
		Quantity.	Value.	Quantity.	Value.
			$		$
Portable machines—*Continued.*					
Machines, washing	No.	5,751	36,373	7,141	56,036
Nails and spikes, composition and sheathing nails	Tons	96·5	8,717	132·5	8,981
Nails and spikes, cut (ordinary builders)	"	234·8	9,657	484·6	16,682
Railway spikes	"	2,229·2	71,135	4,991·0	160,394
Nails, wire of all kinds, N.O.P.	"	538·7	41,569	874·7	54,916
Pumps, hand N.O.P.	No.	20,942	97,224	27,869	116,462
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, streets 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	32,784	895,984	92,[illegible]	2,452,133
Railway fish-plates	"	1,489	60,788	3,089	131,639
Railway tie-plates	"	957	35,389	441	16,164
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.	"	56,516·1	1,580,387	61,539·8	1,625,857
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	"	124,985·3	3,209,773	147,877·5	3,625,107
Rolled iron or steel hoop, band, scroll, or strip, 12 inches or less in width, No. 13 gauge and thicker, N.O.P.	"	3,354·5	123,238	6,522·3	197,354
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.	"	8,142·9	386,162	14,059·9	570,032
Rolled iron or steel sheets or plates, sheared or unsheared, and skelp iron or steel, sheared or rolled grooves, N.O.P.	"	25,467·5	756,212	24,080	680,794
Rolled iron or steel plates not less than 30" in width and not less than ¼" in thickness, N.O.P.	"	44,[illegible]·2	1,223,212	37,565·4	969,881
Rolled iron or steel sheets, polished or not, No. 14 gauge and thinner, N.O.P.	"	22,083·6	1,046,128	26,903·5	1,231,336
Rolls of chilled iron or steel	"	164·6	10,526	65·9	4,394
Sad or smoothing hatters' and tailors' irons	Tons		5,596		10,650
Safes, doors for safes and vaults	"		193,530		208,471
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	249,613	47,368	380,929	57,279

Scales, balances, weighing beams, and strength-testing machines of all kinds	$		113,176		154,253
Shafting, round, steel, in bars not exceeding 2½" diameter	Tons.	2,929·3	119,498	2,726·6	102,704
Sheets or plates of steel, cold rolled with sheared edges over 14 gauge, and not less than 1½" wide for the manufacture of mower bars, hinges, typewriters, and sewing machines	"	794·7	35,789	557·5	24,041
Sheets, flat, of galvanized iron or steel	"	8,462·1	509,027	12,084·6	669,498
Sheets, iron or steel, corrugated, galvanized	"	132·7	9,468	158·6	6,683
Sheets, iron or steel, corrugated, not galvanized	"	0·5	76	89·1	4,055
Skates of all kinds, roller or other, and parts thereof	Pairs	138,766	80,255	142,791	72,575
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	Tons	59,576·5	1,598,385	87,401·7	2,036,977
Steel billets, N.O.P.	"	711·3	19,940	729·1	17,242
Stoves of all kinds, for coal, wood, oil, spirits or gas	$	..	694,389	..	782,803
Stove urns of metal, and dovetails, elaplets, and hinge tubes of tin for use in the manufacture of stoves	"	..	22,370	..	21,359
Switches, frogs, crossings, and intersections for railways	Tons.	1,460·1	144,195	2,450	278,906
Iron or steel railway bars or rails, which have been in use in the tracks of railways in Canada and which have been exported from Canada, and returned thereto after having been re-rolled, and weighing not less than 56 pounds per lineal yard when re-rolled and which are to be used by the railway company importing them on their own tracks	"				
Tubing:—				6	2
Wrought or seamless tubing, iron or steel, plain or galvanized, threaded and coupled, or not, over 4" diameter, N.O.P.	$		503,206	..	447,390
Wrought or seamless tubing, iron or steel, plain or galvanized, threaded and coupled, or not, 4" and less in diameter, N.O.P.	"		394,613	..	664,857
Seamless steel tubing, valued at not less than 3½ cents per lb.	Tons	600·8	45,605	625·9	37,026
Rolled or drawn square tubing of iron or steel, adapted for use in the manufacture of agricultural implements	$		1,894		5,682
Iron or steel pipe or tubing, plain or galvanized, riveted, corrugated or otherwise specially manufactured, including lockjoint pipe, N.O.P.	"		285,190		441,483
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	"		22,599		310
Ware—Agate, granite, or enamelled iron or steel ware	"		167,696		198,708
Ware—Iron or steel hollow ware, plain black or coated, N.O.P., and nickel and aluminium kitchen or household hollow ware	"		79,507		129,469
Wire bale ties	Bundles of 250 ties	3,511	3,575	19,903	10,203
Wire bound wooden pipe, N.O.P.	$		1,143		661
Wire cloth or woven wire and netting of iron and steel	Tons	1,276·6	140,037	1,246·3	153,973
Wire, crucible cast steel, valued at not less than 6 cents per lb	"	88·1	32,166	97·7	27,981
Wire screens, doors, and windows	$		26,065		30,188
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	Tons.	920·3	65,448	1,016·8	72,796
Wire, single or several, covered with cotton, linen, silk, rubber, or other material, including cable so covered	"	1,788·4	495,569	2,992·2	662,931
Wire of iron and steel all kinds, N.O.P.	"	4,485	271,402	5,739·9	288,197
Wire rope, stranded or twisted wire clothes lines, picture or other twisted wire, and wire cables, N.O.P.	"	3,762·9	530,054	3,808·2	518,180
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.	"	2,346·9	192,768	3,490·8	246,531

Imports of Iron and Steel Goods Subject to Duty—*Continued.*

Material.		Twelve months ending March, 1911.		Twelve months ending March, 1912.	
		Quantity.	Value.	Quantity.	Value.
			£		£
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	Tons.	30,893·8	408,075	43,543·5	547,942
Penknives, jack-knives, and pocket knives of all kinds	£		196,318		88,577
Knives and forks of steel, plated or not, N.O.P.	"		[illegible]		222,751
All other cutlery, N.O.P.	"		677,063		749,751
Guns, rifles, including air guns and air rifles (not being toys), muskets, cannons, pistols, revolvers, or other firearms	"		622,037		776,565
Bayonets, swords, fencing foils, and masks	"		16,810		18,911
Needles of any material or kind, N.O.P.	"		118,783		110,095
Steel, chrome steel	Tons.	385·6	20,691	274·2	24,291
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	"	24,388·7	655,047	36,886·2	918,388
Steel in bars or sheets to be used exclusively in the manufacture of shovels when imported by the manufacturers of shovels	"	1,556·1	[illegible]	1,539·4	38,292
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	"	5,333·8	621,431	4,855·6	575,386
Steel balls adapted for use in bearings of machinery and vehicles	£		15,613		17,087
Flat steel, cold rolled, not over ¼" thick, for the manufacture of cups and cones for ball bearings	Tons.			33·3	1,861
Steel wool	"	22·6	2,989	29·8	3,796
Tools and implements—					
Adzes, cleavers, hatchets, wedges, sledges, hammers, crowbars, cant-dogs and track tools, picks, mattocks and eyes and poles for the same	£		67,132		76,275
Axes	Doz.	7,993	45,361	11,197	60,158
Saws	£		115,401		102,376
Files and rasps, N.O.P.	"		121,165		112,441
Tools, hand or machine, of all kinds, N.O.P.	"		767,628		768,685
Knife blades or blanks, and table forks of iron and steel, in the rough, not handled, filed, ground, or otherwise manufactured	"		388		154
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.	"		7,122,976		9,189,525
Total			73,871,113		91,079,769

Imports of Iron and Steel Goods Free of Duty.

Material.		Twelve Months ending March, 1911.		Twelve Months ending March, 1912.	
		Quantity.	Value.	Quantity.	Value.
			$		$
Anchors for vessels	Tons	305·9	25,362	268·5	21,597
Chain, malleable sprocket or link belting	$		240,704		232,391
Cream separators, and steel bowls for	"		387,340		361,896
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	"		326,501		304,255
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 tobin bronze in bars or rods	"		29,829		27,933
Gun barrels, in single tubes, forged, rough bored	"		1,372		1,350
Iron or steel rods over $\frac{1}{16}$" in diameter for manufacturing of chain	Tons.	1,385·4	35,461	1,091·1	29,100
Iron or steel, rolled round wire rods, in the coil, not over $\frac{3}{8}$" in diameter, when imported by wire manufacturers for use in making wire in the coil in their own factories	"	36,032·1	965,912	43,397·3	1,033,397
Boiler plate of iron or steel not less than 30" in width, and not less than $\frac{1}{4}$" in thickness, for use exclusively in the manufacture of boilers	"	15,994·8	492,247	17,683·4	516,947
Flat galvanized iron or steel sheets	"	19,089·9	1,127,087	24,309·1	1,389,343
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 3½ cts. per lb.	"	4,137·3	531,804	4,117	579,320
Rolled iron or steel sheets in strips, polished or not, 14 gauge and thinner, N.O.P.	"	18,169·1	800,034	12,996	587,259
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.	"	1,194·1	41,143	1,151·4	41,51·7
Iron tubing for manufacture of extension rods for windows	$		8,642		7,071
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	Tons.	14,166	417,981	6,849·2	202,550
Locomotive and car wheel tires of steel in the rough	"	9,605·5	451,253	8,354·2	405,993
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	"	61·5	730	3	158

Imports of Iron and Steel Goods Free of Duty—*Concluded.*

Material.		Twelve months ending March, 1911.		Twelve months ending March, 1912.	
		Quantity.	Value.	Quantity.	Value.
			$		$
Machinery:—					
Articles of metals as follows when for use exclusively in metallurgical operations, viz: coal cutting machines, except percussion coal cutters; coal mining 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	$		704,878		822,061
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	"		251,041		292,178
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	"		209,717		195,767
Briquette making machines	"		27,382		7,971
Newspaper printing presses, of not less value by retail than $1,500 each, of a class or kind not made in Canada	No.	114	504,556	141	599,626
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	$		6,166		33,204
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	"		50,067		37,047
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			29,903		89,717
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	"		43,129		35,760
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	Tons.	8,202·6	512,857	8,041·3	520,395

Steel balls adapted for use on bearings on machinery and vehicles	$		3,206		4,820
Steel, rolled, for saws and straw cutters, not tempered, or ground, nor further manufactured than cut to shape without indented edges	Tons.	1,144·8	181,866	1,079·2	161,955
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	"	0·4	32	18·2	660
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	"	458·7	22,831	532·7	25,771
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	"	705·9	57,518	724·5	55,957
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	"	55·9	2,771	36·6	2,444
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	"	314·3	40,240	389·6	48,449
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	"	235·2	14,268	179·9	8,427
Steel No. 24 and 17 gauge, in the 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	"	72	3,132	89·5	3,635
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	"	0·6	438	0·5	431
Swedish rolled iron, and Swedish rolled steel nail rods, under half an inch in diameter, for the manufacture of horseshoe nails	"	1,021	47,039	1,719·7	68,951
Steel seamless tubing valued at not less than 3¼ cents per pound	"	137·6	20,015	134·2	17,688
Steel rolled or drawn square tubing adapted for use in the manufacture of agricultural implements	$				
Steel or iron tubes, rolled, not joined or welded, not more than 1½" diameter, N.O.P.	"		17,777		24,529
Seamless steel, or wrought iron boiler tubes, including flues and corrugated tubes for marine boilers	"		573,579		658,229
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	$				
Barbed fencing wire of iron or steel	Tons.	17,255·4	743,527	18,831·3	766,255
Wire crucible cast steel, valued at not less than 6 cents per pound	"	8·5	2,479	6·5	1,826
Wire, curved or not, galvanized iron or steel, Nos. 9, 12, and 13 gauge	"	31,869·7	1,243,580	34,691	1,255,932
Wire, steel, valued at not less than 2¾ cents per pound when imported by manufacturers of rope for use exclusively in the manufacture of rope	"	2,315·6	180,832	28·6	7,301
Total			11,448,428		11,489,063

IRON.—TABLE 23.

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

Material		Twelve months ending June, 1911.		Twelve months ending June, 1912.	
		Quantity.	Value.	Quantity.	Value.
			$		$
Pig iron	Short tons	145,867·7	2,090,722	157,480·9	1,979,355
Scrap and old, fit only for remanufacture	"	48,349·3	609,191	64,365·3	737,167
Bar iron	"	11,157·7	363,283	9,591·9	308,745
Bars or rods of steel—					
Wire rods	"	19,825·9	527,306	53,582·9	1,412,910
All other	"	92,268·0	2,822,424	95,215·9	2,859,441
Billets, ingots, and blooms of steel	"	56,433·4	1,113,957	60,008·5	1,200,710
Hoop, band, and scroll	"	‡	‡	7,206·2	281,946
Steel rails for railways	"	43,752·8	1,168,101	132,973·1	3,369,894
Sheets and plates (iron)	"	23,894·2	1,139,918	43,790·6	2,030,648
Sheets and plates (steel)	"	174,055·9	6,437,314	209,207·2	7,457,232
Sheets and plates (tin plates, terne plates, and taggers tin)	"	23,008·8	1,607,458	42,336·8	2,985,065
Structural iron and steel	"	89,201·3	3,496,033	144,721·9	5,150,353
Wire (barbed)	"	16,182	707,893	21,497 9	895,725
Wire (all other)	"	35,097·6	1,483,075	43,623·2	1,750,586
Nails and spikes—					
Cut	"	1,854·9	56,034	5,419·6	159,215
Wire	"	376	22,968	1,245·9	52,498
All other, including tacks	"	845·9	56,163	3,113·1	176,371
Pipes and fittings	"	36,264·4	1,640,592	76,248·5	3,578,892
Radiators and cast iron house heating boilers	"	3,090·6	201,989	3,819 9	250,552
		821,526·4	25,544,421	1,175,464·3	36,637,305

*Compiled from 'Commerce and Navigation of the United States, 1911,' Washington, D.C.
‡Included in "All other manufactures of" in 1911.

IRON.—TABLE 23—*Continued.*

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

Material.		1911.		1912.	
		Quantity.	Value.	Quantity.	Value.
			$		$
Builders' hardware and tools:—					
Locks, hinges, and other builders' hardware			1,560,793		1,762,066
Saws			283,785		267,810
Tools not elsewhere specified			1,417,144		1,686,924
Car wheels	No.	5,976	71,588	3,749	36,021
Castings, not elsewhere specified			1,437,080		1,312,729
Cutlery:—			†		
Table	$				27,841
All other	"		123,231		175,666
Firearms	"		416,129		503,710
Machinery, machines and parts of					
Adding machines	"		320,326		288,617
Brewers' machinery	"		112,405		112,627
Cash registers	No.	2,268	197,597	1,026	81,234
Electrical machinery	$		1,664,668		1,869,761
Laundry machinery	"		139,008		167,735
Metal working machinery (including metal working machine tools)	$		766,127		1,362,326
Mining machinery	"		912,270		1,224,011
Printing presses and parts of	"		1,057,876		1,265,657
Pumps, and pumping machinery	"		634,343		701,144
Refrigerating machinery, ice-making machinery, etc	$		73,193		170,564
Sawmill machinery	"		‡		382,752
Sewing machines and parts of	"		436,059		484,687
Shoe machinery	"		266,998		274,388
Steam and other power engines and parts of:					
Electric-locomotives	No.			8	46,745
Gas—stationary	"			766	130,713
Gasoline—automobile	"			6,844	769,195
" —marine	"			1,842	305,842
" —stationary	"			5,096	754,570
" —traction	"	(a)	3,941,450	1,710	3,166,507
Steam—locomotives	"			107	472,046
" —marine	"			3	18,000
" —stationary	"			245	247,729
" —traction	"			259	478,526
All other engines and parts of	$		1,585,231		1,910,440
Sugar-mill machinery	"		4,883		24,431
Typewriting machines and parts of	"		647,152		944,600
Windmills and parts of	"		78,692		71,044
Woodworking machinery all other	"		454,596		375,446
All other	"		10,383,946		10,627,184
Sales	No.	3,967	209,092	4,320	217,860
Scales and balances	$		138,674		159,851
Stoves, ranges, and parts of	"		832,447		1,041,935
All other manufactures of	"		8,569,792		10,100,055
			38,735,575		46,020,980
Total value			64,280,996		82,658,294

†In 1911, included in 'All other cutlery.'
‡In 1911, included in 'All other wood-working' machinery.
(a) Includes 'Steam and other power engines and parts of', as follows:—
Locomotives, 69 valued at $345,618; stationary engines, 4016 valued at $852,685; traction engines, 1590 valued at $2,743,147.