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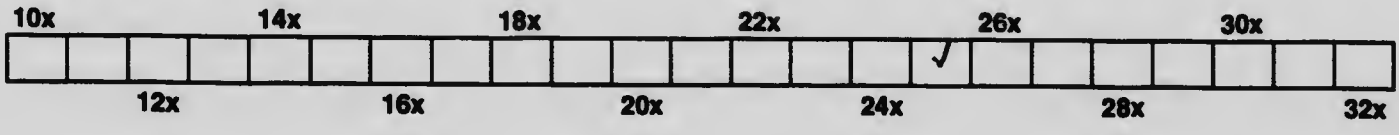

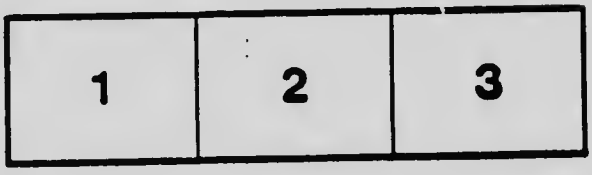

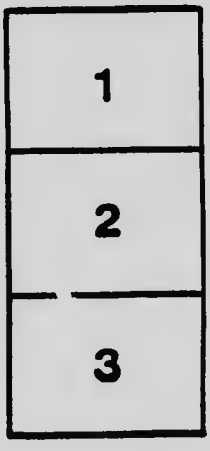

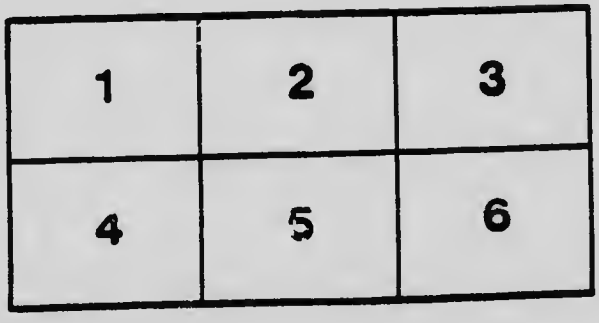

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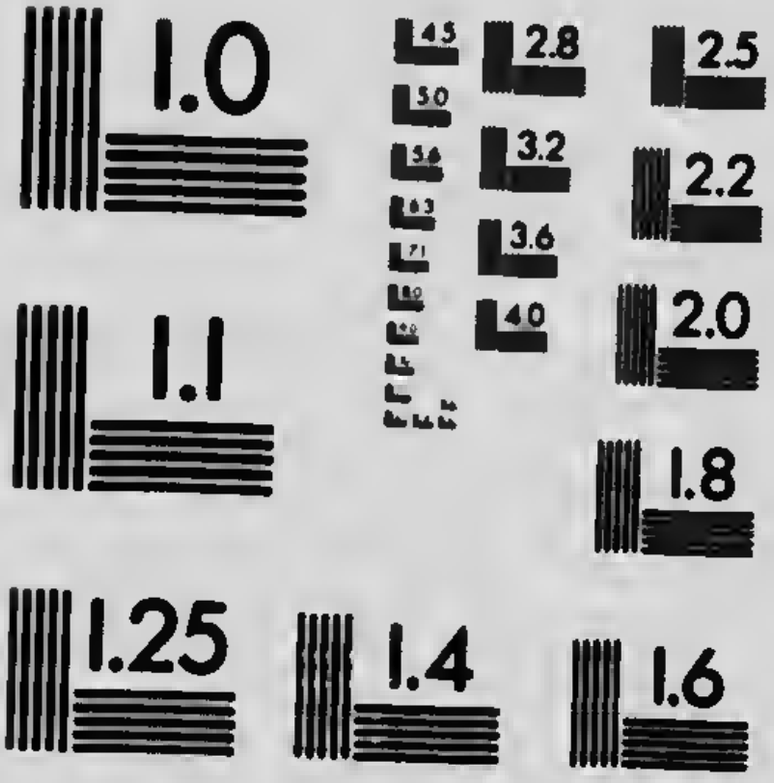

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DEPARTMENT OF MINES
HON. SIR JAMES A. LOUGHEED, MINISTER; CHARLES CAMSELL, DEPUTY MINISTER

MINES BRANCH
EUGENE HAANEL, PH.D., DIRECTOR

THE PRODUCTION OF IRON AND STEEL IN CANADA

During the Calendar Year

1919

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

OTTAWA
THOMAS MULVEY
PRINTER TO HIS MOST EXCELLENT MAJESTY
1920

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SEPARATE PART OF THE ANNUAL REPORT ON THE MINERAL PRODUCTION OF CANADA, DURING THE CALENDAR YEAR 1919.

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

CONTENTS.

IRON AND STEEL.

Introductory.

The actual quantity of iron ore derived from Canadian mines during 1919 was the lowest since 1900.

During the past 19 years the production has varied between a minimum of 122,000 tons and a maximum of 404,000 tons and for many years has not contributed more than 5 per cent of domestic requirements in iron.

The metallurgical industry in the production of pig-iron and of steel, while it has made a large growth based on imported ores and to a large extent upon imported fuels and fluxes, supplies less than half the tonnage of Canada's requirements in iron and steel products. Canadian production of pig-iron and steel reached a maximum in 1918, the 1919 output having shown the effects of falling demand.

The average annual production of pig-iron during the last ten years has been a little in excess of 1,000,000 tons, a large percentage of which has been converted into steel. The annual production of steel was practically doubled between 1912 and 1918 though the production of 1919 fell to less than that made in 1913.

Summary of Iron and Steel Statistics, 1916-1919.

		1916.	1917.	1918.	1919.
Iron ore shipped from mines	Short tons.	275,176	215,302	211,608	197,170
Canadian iron ore charged to blast furnaces	"	221,773	92,065	98,745	78,391
Imported iron ore charged to blast furnaces	"	1,964,598	2,084,231	2,146,995	1,674,194
Iron ore charged to steel furnaces	"	55,059	39,793	48,599	32,409
Pig-iron made in blast furnaces	"	1,169,257	1,156,789	1,161,520	910,080
Pig-iron made in electric furnaces	"	.....	13,691	32,031	7,701
Pig-iron and ferro-alloys exported,	"	46,106	45,293	25,911	86,054
Pig-iron imported	"	58,130	83,400	67,397	35,800
Ferro-alloys made	"	28,628	43,465	44,704	48,601
Ferro-alloys imported	"	14,777	12,829	35,284	16,222
Pig-iron and ferro-alloy consumption	"	1,255,218	1,264,870	1,316,025	932,349
Pig-iron used in steel furnaces	"	949,444	1,112,082	897,537	609,670
Steel ingots and castings made	"	1,428,249	1,745,734	1,873,708	1,030,342
Steel rails made	"	90,123	46,645	162,747	316,304
Canadian coke used in iron blast furnaces	"	712,715	634,962	561,135	372,203
Imported coke used in iron blast furnaces	"	645,488	723,657	861,522	689,548
Iron and steel imported	"	864,916	929,776	786,151	750,029
Number of completed blast furnaces	No.	20	.....	.....	.....
Number of men employed in blast furnaces	"	.....	.....	.....	.....
Wages paid in blast furnaces	$	.....	.....	.....	.....
Value of pig-iron produced	$	16,750,898	24,290,101	33,495,171	24,577,589
Value of iron and steel goods exported	$	63,837,681	46,791,681	61,772,613	84,058,924
Value of iron and steel goods imported	$	129,090,168	187,191,534	178,340,779	181,332,310

7766—2½

Average Monthly Prices of Iron and Steel Products at Pittsburgh, 1919.[1]

——	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Pig-Iron—												
Bessemer	33 60	33 60	32 55	29 35	29 35	29 35	29 35	29 35	29 35	29 35	32 00	36 15
Basic	31 40	31 40	30 35	27 15	27 15	27 15	27 15	27 15	27 15	27 15	30 40	34 50
Foundry No. 2	32 40	32 40	29 85	28 15	28 15	28 15	28 15	28 15	28 15	28 85	33 15	37 25
Malleable	32 90	32 90	31 85	28 65	28 65	28 65	28 65	28 65	28 65	29 15	31 75	37 75
Gray forge	30 40	30 40	29 60	27 15	27 15	27 15	27 15	27 15	27 15	27 65	31 75	35 40
Ferro-Alloys—												
Ferro-silicon (50%) del	135 50	125 00	125 00	125 00	116 00	80 00	80 00	80 00	83 75	82 00	80 00	82 50
Ferro-silicon (10%) fur	54 00	54 00	52 95	47 40	45 00	47 40	49 75	49 75	49 75	49 75	54 75	54 75
Semifinished—												
Billets, open-hearth	43 50	43 50	42 25	38 50	38 50	38 00	37 30	38 50	39 50	38 50	40 90	44 75
Billets, bessemer	43 50	43 50	42 25	38 50	38 50	38 00	37 30	38 50	39 50	38 50	40 90	44 75
Sheet bars, open-hearth	47 00	47 00	45 75	42 00	42 00	41 50	40 80	42 00	42 00	42 00	45 00	48 00
Sheet bars, bessemer	47 00	47 00	45 75	42 00	42 00	41 50	40 80	42 00	42 00	42 00	45 00	48 00
Wire rods	57 00	57 00	55 75	52 00	52 00	52 00	52 00	52 00	52 00	52 00	56 00	62 00
Strip, hot-rolled	3 80	3 55	3 30	3 24	3 05	3 05	3 10	3 30	3 30	3 30	3 30	3 30
Strip, cold-rolled	6 25	6 25	6 10	5 65	5 65	5 65	5 65	5 65	5 65	5 65	5 65	5 65
Rolled Products—												
Structural shapes, base	2 80	2 80	2 71	2 45	2 45	2 45	2 45	2 45	2 45	2 45	2 45	2 45
Plates, base	3 00	3 00	2 90	2 65	2 65	2 65	2 65	2 65	2 57	2 65	2 65	2 70
Steel bars, base	2 70	2 70	2 60	2 35	2 35	2 35	2 35	2 35	2 35	2 35	2 45	2 50
Bar iron, base	3 50	3 50	3 10	2 75	2 75	2 75	2 50	2 50	2 75	2 75	3 15	3 25
Shafting, discount	21 00	21 00	22 75	28 00	28 00	28 00	28 00	*3 60	*3 60	*3 60	3 60	3 60
Steelpipe ¾" to 3" discount	54 00	54 00	54 87	57 50	57 50	57 50	57 50	57 50	57 50	57 50	57 50	57 50
Standard spikes	3 65	3 65	3 57	3 35	3 35	3 35	3 35	3 35	3 35	3 35	3 35	3 35
Hoops	3 30	3 30	3 25	3 05	3 05	3 05	3 05	3 05	3 05	3 05	3 05	3 05
Bands	3 30	3 30	3 25	3 05	3 05	3 05	3 05	3 05	3 05	3 05	3 05	3 05
Structural rivets	4 40	4 20	4 20	3 70	3 70	3 70	3 70	3 90	3 90	3 90	4 00	4 05
No. 28 black sheets	4 70	4 70	4 60	4 35	4 35	4 30	4 30	4 35	4 35	4 35	4 35	4 35
No. 28 galvanized sheets	6 05	6 05	5 95	5 70	5 70	5 65	5 65	5 70	5 70	5 70	5 70	5 70
No. 10 blue anld. sheets	3 90	3 90	3 80	3 55	3 55	3 50	3 50	3 55	3 55	3 55	3 55	3 55
Wire nails, base	3 50	3 50	3 45	3 25	3 25	3 25	3 25	3 25	3 25	3 25	3 45	3 50
Plain wire, base	3 25	3 25	3 20	3 00	3 00	3 00	3 00	3 00	3 00	3 00	3 15	3 25
Tin plate	7 35	7 35	7 25	7 00	7 00	7 00	7 00	7 00	7 00	7 00	7 00	7 00
Old Material—												
Heavy melting steel	20 80	16 00	14 65	15 75	15 45	17 25	19 90	21 25	20 50	20 00	21 90	24 50
Low phosphorus	29 40	24 25	22 50	22 40	22 00	21 25	23 00	24 00	24 00	24 00	25 75	27 50
No. 1, cast	25 60	21 00	21 00	21 75	21 00	21 00	21 00	24 00	24 50	25 00	28 75	30 50

*Base prices.

[1] "Iron Age", January 1, 1920—p. 96.

Canada's imports of iron and steel have included not only large quantities of the primary metal products such as pig-iron, ferro-alloys, ingots, billets, scrap-metal, plates and sheets, tin plates, bars, structural iron and steel, rails, wire, etc., but also a much larger value in more highly manufactured products, the quantity of which is not reported and can only be estimated within quite wide limits.

Notwithstanding the large imports, Canada has also become, particularly during the past eight years, a large exporter of iron and steel products both of the primary metal products of the furnace and rolling mill as well as of the more highly manufactured goods, the total value in 1919 being eight times that of 1912.

The ratio of the total value of imports to exports of iron and steel in 1919 was about 2¼ to 1, whereas the corresponding ratio in 1912 was 10 to 1.

Because of the large value of manufactured iron and steel products both imported and exported it is difficult to estimate the consumption of iron in Canada on the basis of production, imports and exports except between rather wide limits. The utilization of large quantities of scrap metal also complicates the situation and renders necessary a limiting definition as to what is meant by "consumption." However the following facts are deduced from the available record:

In 1919 the total Canadian production of pig-iron and ferro-alloys was 966,382 short tons. The quantity of scrap iron and steel used in steel furnaces was 575,213 tons and the quantity of scrap exported 245,214 tons. The total imports of iron and steel (in all forms except iron ore) are estimated as not less than 800,000 tons, nor more than 1,000,000 tons. The total exports of iron and steel are estimated as not less than 500,000 tons, nor more than 600,000 tons including the scrap metal above mentioned.

The consumption including both old and new metal might be estimated on the basis of the above as lying between the limits of 1,985,000 tons and 2,285,000 tons.

In 1913 the consumption similarly estimated was much higher and would probably lie between the limits of 3,400,000 tons and 4,000,000 tons.

IRON ORE.

The shipments of iron ore from Canadian mines were in 1919 the lowest that have been recorded in 19 years and amounted to a total of 197,170 tons valued at $693,386, as compared with 211,608 tons valued at $885,893 shipped in 1918. The shipments in 1919 included 321 tons of titaniferous ore mined some years previously at Baie St. Paul on the north shore of the St. Lawrence river, several carloads from properties in Palmerston township, Frontenac county, and Bastard township, Leeds county, Ontario; 1,200 tons of magnetite shipped from Dean channel, B.C., to Seattle, Wash.; and the balance from the Moose Mountain magnetite mines and the Magpie siderite mine in Ontario.

The Magpie siderite mine in the Michipicoten district of Ontario was operated throughout the year by the Algoma Steel Corporation, the siderite ore being roasted as usual in the rotary kiln plant at the mine. About 189,962 tons of roasted ore were produced and shipped to the blast furnace plant at Sault Ste. Marie. The raw ore averages about 34·3 per cent and the roasted ore about 50 per cent metallic iron.

Messrs. Moose Mountain, Limited, operating at Sellwood, Ont., were actively engaged throughout the year in the development of the milling and briquetting processes which are being employed in the treatment of these low grade magnetites. The raw ore averaged about 33·8 per cent iron, while the briquettes produced averaged about 63·8 per cent iron. Over 100,000 tons of raw ore was milled during the year but only a comparatively small quantity, 5,483 short tons, of briquettes were marketed.

Shipments of Iron Ore by Provinces, 1917-18-19.

Provinces.	1917.		1918.		1919.	
	Short Tons.	Value.	Short Tons.	Value.	Short Tons.	Value.
		$		$		$
Nova Scotia	.....	.....	130	1,040	.....	.....
Quebec	17,189	54,815	8,159	44,531	321	1,005
Ontario	198,113	703,806	201,119	833,722	195,649	686,381
British Columbia	.....	.....	2,200	6,600	1,200	6,000
	215,302	758,621	211,608	885,893	197,170	693,386

Shipments of Iron Ore by Classes of Ore, 1907-1919.

(In Short Tons).

Year.	Hematite.	Magnetite.	Carbonate including siderite.	Bog Ore.	Total.
1907	205,795	50,073	42,740	14,248	312,856
1908	173,164	49,946	4,869	10,103	238,082
1909	190,473	74,240	.....	3,330	268,043
1910	130,380	127,768	.....	1,270	259,418
1911	137,399	72,945	.....	.....	210,344
1912	86,971	128,912	.....	.....	215,883
1913	(a) 92,386	215,248	.....	.....	307,634
1914	89,454	45,562	109,838	.....	244,854
1915	205,989	59,217	132,906	.....	398,112
1916	45,541	19,113	(b) 210,522	.....	275,176
1917	.....	17,741	197,561	.....	215,302
1918	485	39,396	170,827	900	211,608
1919	125	7,033	189,962	.....	197,170

(a) Small tonnage of siderite included.
(b) Includes roasted siderite and a blend of siderite and high sulphur hematite, roasted.

Shipments of Iron Ore by Provinces, 1886-1919.

Calendar Year.	New Brunswick.	Nova Scotia.	Quebec.	Ontario.	British Columbia.	Total Short Tons.
1886	.....	44,388	.....	16,032	3,941	64,361
1887	.....	43,532	13,404	15,698	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	5,000	.....	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	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
1912	71,520	30,857	1,185	112,321	.....	215,883
1913	86,416	20,436	5,102	195,680	.....	307,634
1914	4,775	.....	.....	240,079	.....	244,854
1915	3,683	.....	.....	394,429	.....	398,112
1916	.....	.....	3,209	271,967	.....	275,176
1917	.....	.....	17,150	198,152	.....	215,302
1918	.....	130	8,15[illegible]	201,119	2,200	211,608
1919	.....	.....	321	195,649	1,200	197,170

About 25 tons of magnetite was shipped by the British Columbia Department of Mines, to Vancouver for an experiment in electric smelting by the Fleet process.

In Bella Coola district, British Columbia, several iron claims have been staked on Dean channel by Filip Jacobson. About 1,200 tons were mined and shipped by the Smelters Steel Company of Seattle to an electric furnace plant which the Company has erected near that point.

Exports and Imports of Iron Ore.

Mine operators reported the quantity of iron ore sold for export to the United States during 1919 as 7,083 tons and the quantity shipped to Canadian furnaces 190,087 tons. In 1918 the quantity reported directly by operators as sold for export was 118,472 tons and that shipped to Canadian destinations 93,136 tons. In 1917 the quantity sold for export was 169,252 tons and that shipped to Canadian destinations was 46,050 tons. These records differ slightly from those reported in the Trade Reports based on Customs Department statistics and shown in the accompanying table. The United States Department of Commerce record of imports from Canada is also given for comparison.

According to returns received from blast furnace operators the quantity of imported ores charged to blast furnaces during 1919 was 1,674,194 tons as against 2,146,995 tons in 1918. The imported ores charged in 1919 included 519,722 tons from Newfoundland and 1,154,472 tons from the United States "Lake District". In 1918 the imported ores charged included 754,622 tons from Newfoundland and 1,392,373 tons from the United States 'Lake District'. The total quantity of imported ores charged to Canadian blast furnaces since 1886 has been 25,314,314 tons while the total quantity of iron ore shipped from Canadian mines during the same period was 6,264,778 tons.

Exports of Iron Ore.

Calendar Year.	Canadian Customs Record.			Calendar Year.	Imports into the United States from Canada.*		
	Short tons.	Value.	Average value.		Short tons.	Value.	Average value.
1909	21,956	$ 61,954	$ 2·82				
1910	114,499	324,186	2·83				
1911	37,686	133,411	3·54	1911	56,538	$106,038	$ 1·87
1912	118,129	382,005	3·23	1912	119,476	201,882	1·69
1913	126,124	426,681	3·38	1913	201,443	409,098	2·03
1914	135,451	360,974	2·67	1914	58,816	153,415	2·61
1915	79,770	206,823	2·59	1915	94,219	245,092	2·60
1916	161,260	541,779	3·36	1916	153,255	509,602	3·32
1917	164,004	660,673	4·03	1917	219,059	850,153	3·88
1918	130,250	650,502	4·99	1918	129,196	611,072	4·73
1919	14,480	78,490	5·42	1919	13,869	64,785	4·67

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

Imports of Iron Ore.

Calendar Year.	United States.		Newfoundland.		Other Countries.		Total.	
	Short tons.	Value.	Short tons.	Value.	Short tons.	Value.	Short tons.	Value.
		$		$		$		$
1912 (*9 mos.)	1,206,567	3,090,207	840,892	840,892	50	975	2,047,509	3,932,074
1913	1,072,156	3,007,653	869,669	869,669	500	502	1,942,325	3,877,824
1914	749,979	1,972,550	389,850	389,850	7,279	24,958	1,147,108	2,387,358
1915	715,060	1,568,866	789,029	782,328	24	561	1,504,113	2,351,755
1916	1,364,992	3,463,419	974,685	955,534	[illegible]	[illegible]	2,339,677	4,419,017
1917	1,309,075	4,143,084	942,322	981,805	[illegible]	[illegible]	2,251,397	5,124,889
1918	1,394,687	5,047,607	806,151	848,367	[illegible]	[illegible]	2,200,838	5,895,974
1919	1,153,866	4,156,973	629,232	549,567	[illegible]	[illegible]	1,783,098	4,706,540

*Imports of iron ore separately stated in Customs Reports from April 1912 only.

Production of Iron Ore in Newfoundland.

The iron ore deposits at Wabana, Newfoundland, are owned and operated by the two Canadian companies operating coal mines and steel plants at Sydney and Sydney Mines, Cape Breton. The shipments from Wabana mines during 1919 were 499,972 short tons, all of which went to Cape Breton. The maximum shipments in any one year were made in 1913 when the total was 1,605,921 short tons. The total shipments from Wabana since the mines were first operated in 1895 have amounted to 18,769,588 short tons, of which 12,970,833 tons were sent to Nova Scotia, 2,078,197 tons to the United States, and 3,720,558 tons to Great Britain and Europe.

Iron Ore Prices.

The prices of Canadian iron ores are naturally based on prices current in the United States. "Lake Ores", that is, those originating in what is generally known as the Lake Superior iron region, and which contribute about 80 per cent of the iron and steel requirements of the United States are quoted per gross ton delivered at Lake Erie ports. Ore prices and freights are usually fixed at the beginning of each season, and the price of any individual ore then depends on its variation from the standard in iron and phosphorus content, etc.

Annual Shipments of Iron Ore from Wabana Mines, Newfoundland.

Calendar Year.	To Nova Scotia.	To United States	To Great Britain and Europe.	Total Shipments.
	Short tons.	Short tons.	Short tons.	Short tons.
1895	2,686	.....	.....	2,686
1896	17,410	22 798	.....	40,208
1897	12,143	33,039	5,651	50,833
1898	34,622	.....	78,640	113,262
1899	26,311	98,485	214,322	339,118
1900	195,507	153,867	14,776	364,150
1901	457,064	84,292	279,102	820,458
1902	376,322	96,702	341,421	814,445
1903	273,283	90,711	287,793	651,787
1904	342,710	6,025	298,694	647,429
1905	506,819	6,490	255,846	769,155
1906	628,152	141,854	213,867	983,873
1907	672,561	123,972	167,074	963,607
1908	713,772	59,532	200,033	973,337
1909	697,068	241,207	171,722	1,109,997
1910	808,762	247,336	203,528	1,259,626
1911	737,261	207,193	237,009	1,181,463
1912	956,458	191,779	183,673	1,331,910
1913	1,048,433	229,402	328,086	1,605,921
1914	417,409	43,513	172,998	633,920
1915	802,128	.....	66,323	868,451
1916	1,012,060	.....	.....	1,012,060
1917	883,346	.....	.....	883,346
1918	848,574	.....	.....	848,574
1919	499,972	.....	.....	499,972
Total	12,970,833	2,078,197	3,720,558	18,769,588

Bessemer ores are quoted on the basis of 55 per cent iron natural and 0·045 per cent phosphorus dried at 212° F. The base for Non-Bessemer ores is 51·5 per cent iron natural.

Iron ores prices per gross ton since 1910, as published by the Iron Trade Review, Cleveland, Ohio, have been as follows:

Prices of Iron Ore and Pig-Iron at date of Iron Ore buying movement, 1889-1920.[1]

Season.	Date buying movement.	Season Iron Ore Prices.				Iron Prices Valley.	
		Old Range Bess.	Mesabi Bess.	Old Range Non-Bess.	Mesabi Non-Bess.	Bessemer.	Foundry Iron No. 2.
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
1910	Dec. 24, 1909	5 00	4 75	4 20	4 00	19 00	17 25
1911	April 21, 1911	4 50	4 25	3 70	3 50	15 00	13 75
1912	Mar. 20, 1912	3 75	3 50	3 00	2 85	14 25	13 25
1913	Nov. 19, 1912	4 40	4 15	3 60	3 40	17 25	17 50
1914	May 1, 1914	3 75	3 50	3 00	2 85	14 00	13 25
1915	April 19, 1915	3 75	3 45	3 00	2 80	13 60	12 75
1916	Dec. 7, 1915	4 45	4 20	3 70	3 55	18 50	18 00
1917	Nov. 22, 1916	5 95	5 70	5 20	5 05	20 00	26 00
*1918	April 1, 1918	5 95	5 70	5 20	5 05	35 20	33 00
	July 1, 1918	6 40	6 15	5 65	5 50	35 20	33 00
	Oct. 1, 1918	6 65	6 40	5 90	5 75	35 20	34 00
1919	April 28, 1919	6 45	6 20	5 70	5 55	27 95	26 75
1920	Feb. 2, 1920	7 45	7 20	6 70	6 55	41 00	40 00

*Figures for 1918 established by the U.S. government.
[1]The Iron Trade Review, Feb. 5, 1920—p. 432.

Lake Freight Rates.

The net lake freight rates excluding an unloading charge of 10 cents per ton, on iron ore from upper lake ports to Lake Erie since 1914 have been as follows, in cents per ton:—

	1914.	1915.	1916.	1917.	1918.	1919.	1920.
	cts.	cts.	cts.	cts.	cts.	cts.	cts.
From Escanaba, Mich	35	25	35	75	75	70	85
" Marquette, Mich	45	35	45	90	90	80	100
" the head of the Lakes Mich	50	40	50	100	100	90	110

Iron Ore Production in the United States.

The shipments of iron ore from the Lake Superior district during 1919 including both rail and water shipments were 48,812,522 gross tons as compared with 62,836,172 tons shipped in 1918. The shipments in 1917 were 63,481,321 gross tons; in 1916, 66,658,466 gross tons; in 1915, 47,272,751 gross tons; in 1914, 52,729,726 gross tons; and in 1913, 49,947,116 gross tons.

The total shipments of iron ore from all sources in the United States were in 1919. 56,319,000 gross tons. compared with 72,021,202 gross tons in 1918; 75,573,207 gross tons in 1917; 77,370,553 gross tons in 1916; 55,493,100 gross tons in 1915; 41,439,761 gross tons in 1914; and 61,980,437 gross tons in 1913.

During the past twenty years the Lake Superior district has supplied from 80 to 85 per cent of the total United States production.

PIG-IRON.

The total production of pig-iron in Canada in 1919 excluding the production of ferro-alloys was 917,781 short tons, (819.447 gross tons) having a value of $24,577,589, as compared with a total production in 1918 of 1,195,551 short tons

(1,067,456 gross tons) valued at $33,495,171, showing a falling off of 277,770 tons, or 23 per cent. Of the 1919 total, 910,080 tons were made in blast furnaces and 7,701 tons were made in electric furnaces from scrap metal, chiefly shell turnings. In 1918 the blast furnace production was 1,163,510 tons and the electric furnace production from scrap steel was 32,031 tons.

Annual Production of Pig-Iron by Provinces, 1887-1919.

Year.	Nova Scotia.		Ontario.		Quebec.		Total.	
	Short tons.	Value.	Short tons.	Value.	Short tons.	Value.	Short tons.	Value.
		$		$		$		$
1887	19 320	250,000	.....	.....	5,507	116,192	24,827	366,192
1888	17,556	211,403	.....	.....	4,243	101,832	21,799	313,235
1889	21,289	383,202	.....	.....	4,632	116,670	25,921	499,872
1890	18,382	262,608	.....	.....	3,390	69,080	21,772	331,688
1891	20,840	297,728	.....	.....	3,051	71,173	23,891	368,901
1892	34,393	458,556	.....	.....	8,050	178,865	42,443	637,421
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	417,033	.....	.....	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	217,235	58,007	738,701
1898	21,627	221,677	48,253	530,789	7,135	159,929	77,015	912,395
1899	31,100	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	87,004	1,345,464	9,635	210,973	297,885	3,742,710
1904	164,488	1,700,130	127,845	1,746,123	11,121	241,722	303,454	3,687,985
1905	261,014	2,440,722	256,704	3,868,197	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
1912	424,994	6,374,910	589,593	8,176,089	.....	.....	1,014,587	14,550,999
1913	480,068	7,201,020	648,899	9,338,992	.....	.....	1,128,967	16,540,012
1914	227,052	2,951,676	556,112	7,051,180	.....	.....	783,164	10,002,856
1915	420,275	5,463,575	493,500	5,910,624	.....	.....	913,775	11,374,199
1916	470,055	7,050,825	699,202	9,700,073	.....	.....	1,169,257	16,750,898
1917	472,147	10,387,234	684,642	13,902,867	(a)13,691	735,859	1,170,480	25,025,960
1918	415,870	10,451,400	747,660	21,324,857	(a)32,031	1,718,914	1,195,551	33,495,171
1919	285,087	7,141,641	624,993	17,104,151	(a) 7,701	331,797	917,781	24,577,589

(a) Total production in Canada of pig-iron made in electric furnaces from scrap metal, chiefly shell turnings. No production of blast furnace pig-iron in Quebec since 1911.

Annual Production of Pig-Iron by Grades, and by Fuels.

(In short tons.)

Year.	By Grades.			By Fuels.		Electric.
	Basic.	Bessemer.	Foundry and all other.	Charcoal.	Coke.	
1909	400,921	222,931	133,310	17,003	740,159	.....
1910	425,400	219,492	155,905	17,164	783,633	.....
1911	464,221	208,626	244,688	20,759	896,776	.....
1912	544,534	256,191	213,862	21,701	992,886	.....
1913	614,845	265,685	248,437	23,696	1,105,271	.....
1914	346,553	230,817	205,794	9,380	773,784	.....
1915	739,613	29,052	145,110	13,692	900,083	.....
1916	953,627	31,388	184,242	17,304	1,151,953	.....
1917	961,656	*27,783	181,011	14,092	1,142,697	13,691
1918	966,409	*47,446	178,099	.....	1,163,520	32,031
1919	580,426	*15,338	322,017	(a)	910,080	7,701

*Including electric furnace pig.
(a) Not separately reported.

Monthly Production of Pig-Iron in Canada, 1916-1920.

(In short tons.)

	1916.	1917.	1918.	1919.	1920*.
January	.....	89,187	74,239	103,963	81,494
February		83,801	78,507	86,840	70,864
March		103,789	96,848	91,286	77,155
April	562,097	100,564	104,331	93,359	86,303
May		108,891	104,867	83,059	97,593
June		99,998	103,037	66,470	89,258
July	92,012	93,499	109,723	60,927	.....
August	87,864	100,727	96,164	67,404	.....
September	102,744	100,690	95,102	56,806	.....
October	113,608	103,277	106,902	56,049	.....
November	104,436	97,905	106,585	73,092	.....
December	106,496	87,152	119,186	78,526	.....
	1,169,257	1,170,480	1,195,551	917,781	.....
Average, monthly	97,438	97,540	99,629	76,482	83,778

*Subject to revision.

Monthly Prices of Foundry Pig-Iron at Montreal.*

	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
January	18 50	21 00	19 75	22 00	19 75	19 35	23 50	28 00	**	.....
February	18 50	21 00	19 00	22 00	19 75	19 35	23 50	28 30		.....
March	18 50	21 00	19 00	22 00	19 75	20 10	24 00	28 30		.....
April	19 00	21 00	18 50	22 00	19 75	19 90	25 00	30 35		.....
May	19 00	19 25	18 50	22 00	19 75	19 90	25 00	40 45		.....
June	18 50	19 25	18 50	21 50	19 75	19 90	25 00	40 50		.....
July	18 50	19 25	18 50	20 50	19 50	19 90	25 00	40 50		.....
August	18 00	19 25	19 00	20 50	19 50	19 90	25 00	**		.....
September	18 00	19 25	20 00	20 50	19 50	20 00	25 00	**		.....
October	21 00	19 25	20 50	20 50	19 50	20 00	25 00	**		.....
November	21 00	19 25	20 50	19 75	19 40	21 00	25 00	**		.....
December	21 00	19 25	21 50	19 75	19 40	22 00	28 00	**	**	.....
Average	19 13	19 83	19 44	21 17	19 61	20 10	24 92			

*No. 1 Foundry Pig-iron, f.o.b. cars Montreal, price per ton of 2,240 pounds on the opening market day of each month. Quotation furnished by the Dominion Iron & Steel Co., Ltd.
**No quotation.

Average Monthly Prices of Bessemer Pig-Iron at Pittsburgh.*

Per Gross Ton (2,240 Pounds).

	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.
	$ cts	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
January	19 90	15 90	15 05	18 15	14 96	14 59	21 58	35 95	37 25	33 60
February	19 34	15 90	15 90	18 15	15 09	14 55	21 51	35 95	37 25	33 60
March	18 60	15 90	15 09	18 15	15 09	14 55	21 75	37 70	37 25	32 54
April	18 27	15 90	15 15	17 90	14 90	14 55	21 95	42 20	36 15	29 35
May	17 52	15 90	15 13	17 70	14 90	14 59	21 95	45 15	36 15	29 35
June	16 60	15 90	15 15	17 14	14 90	14 70	21 95	54 70	36 37	29 35
July	16 40	15 90	15 20	16 70	14 90	14 95	21 95	57 45	36 60	29 35
August	16 09	15 90	15 46	16 52	14 90	15 95	21 95	54 75	36 60	29 35
September	15 90	15 90	16 15	16 65	14 90	16 85	22 26	48 03	36 60	29 35
October	15 90	15 44	17 80	16 60	14 84	16 95	24 08	37 25	36 60	29 35
November	15 82	15 00	18 02	16 02	14 59	17 51	30 15	37 25	36 60	31 26
December	15 90	15 03	18 15	15 77	14 70	19 65	35 58	37 25	36 60	36 65

*From the *Iron Age*

Average Monthly Prices of Local No. 2 Foundry Pig-Iron at Chicago.*

(At Furnace) per Gross Ton (2,240 Lbs.).

—	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
January	19 00	15 50	14 00	17 90	13 75	13 00	18 50	30 00	33 00	31 00
February	19 00	15 50	14 00	17 31	14 00	13 00	18 50	32 00	33 00	31 00
March	18 30	15 50	14 00	17 25	14 25	12 95	18 70	36 00	33 00	29 94
April	17 50	15 00	14 00	17 00	14 25	13 00	19 00	39 25	33 00	26 75
May	17 06	15 00	14 50	16 00	14 06	13 00	19 00	43 80	33 00	26 75
June	16 75	15 00	14 50	15 62	13 69	13 00	19 00	51 00	33 00	26 75
July	16 56	14 87	14 70	14 70	13 75	13 00	19 00	55 00	33 00	26 75
August	16 50	14 50	15 37	15 00	13 69	13 44	18 40	55 00	33 00	26 75
September	16 40	14 20	16 00	15 00	13 25	13 90	18 13	54 67	33 00	26 75
October	16 06	14 46	17 00	15 00	12 94	14 63	19 63	33 00	34 00	27 75
November	16 00	14 09	17 75	14 87	12 56	17 13	25 80	33 00	34 00	31 00
December	16 00	14 00	18 00	14 60	13 00	18 10	29 50	33 00	34 00	38 75

*Fom the *Iron Age*, New York.

The production of blast furnace pig-iron in Nova Scotia in 1919 was 285,087 tons as against 415,870 tons in 1919, and with the exception of 1914 was the smallest production in that Province since 1905. In Ontario the production of blast furnace pig-iron was 624,993 tons, as against 747,650 tons in 1918. Although less by 16 per cent than in the previous year, the 1919 production in Ontario was exceeded in only four previous years.

Less than one quarter as much pig-iron was made from electric furnaces from scrap steel as in the previous year, the output being derived from six furnace plants in 1919 as compared with 10 plants operated in 1918. The production in 1919 derived from two plants in Quebec province, two in Ontario, and one in British Columbia, was 7,701 tons, whereas, the total production in 1918 was 32,031 tons including 7,449 tons in Quebec, 22,172 tons in Ontario, and 2,410 tons in British Columbia. In 1917 the total electric furnace pig-iron production was 13,691 tons including 7,438 tons from two plants in Quebec and 6,253 tons from four plants in Ontario.

By grades the 1919 production included: Basic 580,426 tons; Bessemer 7,637 tons; foundry and malleable, etc., 322,017 tons; low phosphorus iron (electric furnace) 7,701 tons. The 1918 production included: Basic 966,409 tons; Bessemer 15,415 tons; foundry and malleable, etc., 181,696; low phosphorus iron (electric furnace) 32,031 tons.

The average monthly production of pig-iron in 1919 was 76,482 tons as compared with an average monthly production in 1918 of 99,629 tons.

Statistics of current production during 1920 show a substantial increase over the 1919 output, the average monthly production during the first six months being 83,778 tons.

The quantities of ores, fuels and flux charged to blast furnaces during the past ten years is shown in the following table. In 1919 about 95·5 per cent of the ore charged, 64·9 per cent of the coke including the coke made from imported coal, and a large proportion of the limestone, were imported. Previous to 1896 the entire Canadian pig-iron production was from Canadian ores but since that date increasing quantities of imported iron ore have been used.

The iron industry at Sydney and North Sydney has been built up on the basis of the Newfoundland Wabana ores and the local coal supply, while in recent years a portion of the limestone required has also been obtained from Port au Port, Newfoundland. In Nova Scotia, therefore, while the fuel is all domestic, the ore is practically all imported, though from a British colony.

In Ontario large quantities of United States "Lake ores", are used. All the fuel used, with the exception of a small quantity of charcoal is imported either as coke, or as coal for charging the by-product coke ovens at Sault Ste. Marie.

A portion of the limestone flux is also obtained from quarries situated in the United States. In 1919, Ontario furnaces used 1,154,472 tons of imported ores and 78,391 tons Canadian ores, the proportion being 93·6 per cent imported and 6·4 per cent Canadian. In 1918 Ontario furnaces used 1,392,373 tons of imported ores and 96,745 tons Canadian ores, the same relative proportion as in 1919. In 1917, Ontario furnaces used 1,210,097 tons of imported ores and 92,065 tons of Canadian ores, the proportion being 93 per cent imported and 7 per cent Canadian. In 1915, 62[illegible]994 tons of imported ore, or 68 per cent of the total, and 293,305 tons or 32 per cent of Canadian ores were charged.

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

Calendar Year.	Iron Ore charged.		Fuel charged.			Limestone.
	Canadian.	Imported.	Charcoal.	Coke from Canadian coal.	Coke imported or made from imported coal.	
	Short tons.	Short tons.	Bushels.	Short tons.	Short tons.	Short tons.
1908	209,266	1,051,445	1,121,990	492,076	325,670	483,065
1909	231,994	1,235,000	1,779 258	412,016	507,255	526,076
1910	149,505	1,377,035	1,615,919	491,281	476,838	569,355
1911	67,434	1,628,368	1,960,459	543,933	577,388	625,216
1912	71,588	2,019,165	1,886,748	609,183	656,815	705,613
1913	139,436	2,110,828	2,206,191	710,260	706,888	630,119
1914	182,964	1,324,326	920,045	330,260	590,902	447,641
1915	293,305	1,463,488	1,314,957	578,743	486,022	573,743
1916	221,773	1,964,598	1,843,202	712,715	645,488	701,690
1917	92,065	2,084,231	1,288,390	634,962	723,657	760,826
1918	96,745	2,146,995	.....	561,135	861,522	755,660
1919	78,391	1,674,194	117,795	372,203	689,548	547,695

Iron Blast Furnaces in Canada, in 1919.

Of 20 furnaces, 14 were in blast in 1919 for varying periods of time. At the end of December 9 furnaces were in blast and 11 out of blast. The total daily capacity of the 20 furnaces was about 4,890 gross tons. The operating companies with numbers and capacities of furnaces, were as follows:—

Dominion Iron and Steel Co., Sydney, C.B.: Six completed furnaces; one of 350 tons capacity and five of 250 tons capacity each per day; No. 1, operated 309 days; No. 2, 214 days; No. 4, 237 days, No. 7, 126 days; two furnaces idle throughout the year.

Nova Scotia Steel and Coal Co., Ltd., New Glasgow, N.S.: Two stacks and one set of stoves at Sydney Mines, C.B., of 250 tons capacity; stack No. 1, operated 156 days.

Londonderry Iron and Mining Co., Ltd., Londonderry, N. S., (in liquidation): One furnace of 100 tons capacity idle throughout the year; not operated since 1908.

Midland Iron and Steel Co., Ltd., Midland, Ont.: Acquired in 1918 the Midland blast furnace plant of Canada Iron Foundries, Ltd., of Montreal, Que. One furnace of 130 tons capacity at Midland, Ont., operated 215 days.

Parry Sound Iron Co., Ltd., Midland, Ont.: Acquired in 1918 the blast furnace plant at Parry Sound, Ont., formerly operated by Standard Iron Co., Ltd. One furnace 90 tons capacity re-built and operated 240 days.

Standard Iron Co., Ltd., Deseronto, Ont.: One furnace at Deseronto with a daily capacity of 60 tons, operated 160 days.

The Steel Company of Canada, Ltd., Hamilton, Ont.: Two furnaces one of 260 tons capacity, operated for 341½ days, a second furnace of 430 tons capacity operated 285 days.

Algoma Steel Corporation, Ltd., Sault Ste. Marie, Ont.: Four furnaces at Steelton, near Sault Ste. Marie, two of 300 tons capacity each; one of 500 tons, and one of 400 tons. No. 1, in blast 285 days; No. 2, 364 days; No. 3, 171 days, and No. 4, 141 days.

The Atikokan Iron Co., Ltd., Port Arthur, Ont.: One furnace of 175 tons capacity idle throughout the year, not operated since 1911.

The Canadian Furnace Co., Ltd., Port Colborne, Ont.: One furnace of 325 tons capacity operated 363 days in 1919.

Canadian Steel Corporation, Ojibway, Ont.: Two stacks under construction, at the end of 1919 foundation had been completed for two blast furnaces of 550 tons each.

Electric Furnace Plants making Pig-Iron from Scrap Metal, chiefly Steel Turnings.

Fraser, Brace and Co., Ltd., (Furnace plant at Shawinigan Falls, Que.): One 5-ton Heroult, three phase, stationary furnace.

Hull Iron and Steel Foundries, Hull, Que.: One 5-ton Heroult, three phase tilting type electric furnace—first production in April, 1918.

Electric Smelting Co. of Brantford, Ltd., Hull, Que.: One 4-ton electric furnace—first production in June 1918. Not operated in 1919.

Electro Foundries, Ltd., Orillia: One 6-ton three phase type non-tilting electric furnace.

Wm. Kennedy and Sons, Collingwood: One 4½-ton three phase non-tilting electric furnace.

Turnbull Electro Metals, Ltd., St. Catharines, Ont.: One 6-ton three phase non-tilting electric furnace. Not operated in 1919.

British Forgings, Ltd., Toronto, Ont.: An electric steel furnace plant comprising ten 6-ton Heroult furnaces some of which were used for the production of pig-iron during a portion of 1917 and 1918.

Tivani Electric Steel Co., Ltd., Belleville, Ont.: This electric steel plant which includes three small furnaces was operated for the production of ferro-molybdenum during 1917, but in March 1918, began the production of pig-iron which was continued to March 1919.

Bowmanville Foundry Co., Ltd., Bowmanville, Ont.: One ½-ton Gronwall Dixon electric furnace. Not operated in 1919.

Columbia Iron and Steel Co., Ltd., Port Moody, B.C.: One 6-ton Heroult electric furnace—first production in May 1918. Not operated in 1919.

Tudhope Electro-Metals, Ltd., Vancouver, B.C.: One 5-ton stationary three phase electric furnace, first operated Dec. 29, 1918.

Ferro-Alloy Production.

The production of ferro-alloys in Canada in 1919 including ferro-silicon, silico-spiegel, spiegeleisen and ferro-phosphorus, all with the exception of the spiegeleisen being made in electric furnaces was 48,601 tons valued at $2,000,809. In 1918 the production was 44,704 tons valued at $4,731,521. Over one-half the tonnage made in 1919 was spiegeleisen made by the Algoma Steel Corporation for the Company's own use. In 1917 the production was 43,465 tons, valued at $3,549,814. The ferro-silicon production during the past three years includes a small tonnage of low grade ferro-silicon recovered as a by-product in the manufacture of abrasives from bauxite in electric furnaces.

The total production in 1916 which included only ferro-silicon, ferro- molybdenum and ferro-phosphorus made in electric furnaces, was 28,628 tons, valued at $1,777,615, as against 10,794 tons, valued at $753,404 in 1915; 7,524 tons, valued at $478,355 in 1914; and 8,075 tons, valued at $493,018 in 1913. In 1912, the production was 7,834 tons, valued at $465,225, and in 1911, 7,507 tons, valued at $376,404.

Ferro-Alloy Plants in 1919.

Canadian Ferro-Alloys, Ltd., Shawinigan Falls, Que. One 2-ton three phase, stationary type electric furnace producing 50% ferro-silicon.

Lenside Munitions Company, Ltd., Beaupre, Que. Three stationary type electric furnaces with capacity of 10 gross tons per 24 hours each producing 50% and 85% ferro-silicon. Not operated in 1919.

Electro-Metals, Ltd., Welland, Ont. Plant includes 8 electric furnaces producing ferro-silicon of 25%, 50%, 75%, and 85% grades.

Tivani Electric Steel Co., Ltd., Belleville, Ont. Small electric furnaces comprising three units of two furnaces each making ferro-molybdenum in 1917 and for a few months only in 1918. Small experimental production vanadium pig-iron in 1919.

Cordova Mines, Ltd., Cordova Mines, Ont. One small electric furnace installed 1918-1919 originally intended for the manufacture of ferro-chrome not placed in operation.

International Molybdenum Co., Ltd., Orillia, Ont. Two small electric furnaces producing ferro-molybdenum in 1917 and for a few months only in 1918. Not operated in 1919.

Algoma Steel Corporation, Sault Ste. Marie, Ont. Producing spiegeleisen in blast furnace.

The following firms were also recovering low grade ferro-silicon as a by-product in the manufacture of artificial abrasives in electric furnaces from bauxite:—

*Abrasive Company of Canada: taking over plant formerly operated by D. A. Brebner, Ltd., (Coralox Ltd.), Hamilton, Ont.
National Abrasive Co., Niagara Falls, Ont.
*The Exolon Company, Thorold, Ont.
The Norton Company, Chippewa, Ont.
The Canadian Aloxite Co., Niagara Falls, Ont.

Exports and Imports of Pig-Iron.

The exports of pig-iron during 1919 were 63,605 tons valued at $1,820,260 or an average of $28.62 per ton and of ferro-alloys 22,449 tons valued at $1,229,341, or an average of $54.76 per ton. The exports of pig-iron included 57,845 tons to the United States; 783 tons to Chili; 7 tons to Japan; and 4,970 tons to other countries. The ferro-alloy exports included 2,564 tons to United Kingdom; 15,371 tons to United States; 4,514 tons to other countries.

The exports of pig-iron during 1918 were reported as 2,130 tons valued at $169,495, or an average of $79.58 per ton, and of ferro-alloys, 23,781 tons valued at $2,671,434, or an average of $112.33 per ton. The pig-iron exported during 1918 mainly comprised electric furnace production of low phosphorus iron.

Prior to April 1, 1914, the exports of pig-iron and of ferro-alloys were not separately classified. The exports between 1905 and 1913 did not exceed 10,000 tons in any one year, and consisted largely, if not entirely, of ferro-alloys. During 1914, however, there was a small export of pig-iron chiefly from Sydney to Philadelphia. The exports during the first three months of the year were 4,431 tons, which probably included about 4,000 tons of pig-iron. From the first of April the exports were separately classified and during the last nine months of the year included 9,767 tons of pig-iron valued at $118,111, or an average of $12.09 per ton, and 4,865 tons of ferro-alloys valued at $285,221, or an average of $58.63 per ton.

* No production of by-product ferro-silicon reported for 1919.

Annual Exports of Pig-Iron and Ferro-Alloys, 1915-19.

Calendar Year.	Pig-iron.			Ferro-alloys.		
	Short tons.	Value.	Average value.	Short tons.	Value.	Average value.
		$	$ cts.		$	$ cts.
1915	17,307	231,551	13 38	9,238	537,081	58 14
1916	23,304	374,383	16 07	22,802	1,352,013	59 29
1917	12,081	423,814	35 08	33,212	2,616,924	78 79
1918	2,130	169,495	79 58	23,781	2,671,434	112 33
1919	63,605	1,820,240	28 62	22,449	1,229,341	54 76

The Imports during 1919 included 35,800 tons of pig-iron valued at $1,022,-871, or an average of $28.80 per ton, and 16,222 tons of ferro-alloys, valued at $901,678, or an average of $55.58 per ton, making a total import of pig-iron and ferro-alloys of 52,022 tons valued at $1,924,549.

Of the total imports of pig-iron 35,649 tons valued at $1,015,799 originated in the United States, and 151 tons valued at $7,072 in Great Britain. Of the total imports of ferro-alloys 2,339 tons valued at $255,491 originated in the United States, and 13,883 tons valued at $646,187 in Great Britain. The total imports of pig-iron and ferro-alloys from the United States were thus 37,988 tons valued at $901,678.

The United States trade records show exports to Canada during 1919 of pig-iron and ferro-alloys amounting to 33,751 gross tons (37,801 short tons), valued at $1,052,103 which is in close agreement with the Canadian record. The Canadian Customs records for 1918, 1917, and 1916, when compared with the corresponding United States records of exports to Canada do not appear to be complete as "Trade records".

The imports of pig-iron during 1918 as shown by the Canadian Customs records, were 67,396 tons valued at $2,102,406, or an average of $31.19 per ton, and the imports of ferro-alloys were 35,284 tons valued at $4,283,133, or an average of $121.39 per ton, making a total of 102,680 tons valued at $6,385,539.

Of the total imports of pig-iron in 1918, 67,385 tons valued at $2,101,798 were derived from the United States, and of the total imports of ferro-alloys 25,168 tons valued at $2,315,046 originated in the United States. The total imports of pig-iron and ferro-alloys from the United States were thus 92,553 tons valued at $4,416,844.

As against this record the United States Department of Commerce shows exports to Canada during the same period of pig-iron and ferro-alloys amounting to 122,325 gross tons (137,004 short tons) valued at $5,661,228, a quantity considerably higher than the Canadian record.

The total imports of pig-iron and ferro-alloys during 1917 were 96,218 tons valued at $4,793,492, of which amount 91,809 tons valued at $4,206,265 were credited to the United States. The United States Department of Commerce trade records on the other hand show exports to Canada of the same products amounting to 171,147 short tons, valued at $6,279,651.

In 1916 the total imports from all sources according to the Canadian record was 72,907 tons valued at $3,024,688. The United States trade record of exports to Canada during the same period was 101,277 gross tons (113,430 short tons) valued at $2,658,037.

Previous to 1907 the annual imports of pig-iron varied from less than 20,000 tons to nearly 100,000 tons per annum. In 1907, however, the imports exceeded 250,000 tons and during each of the years from 1910 to 1913 inclusive, the imports exceeded 200,000 tons.

The annual imports of ferro-alloys during the past few years have varied between 11,000 tons and 35,000 tons, having reached a maximum in 1918.

Annual Imports of Pig-Iron showing Country of Origin.

Calendar Year.	United States.			Great Britain.			Other Countries.		
	Short tons.	Value.	Value per ton.	Short tons.	Value.	Value per ton.	Short tons.	Value.	Value per ton.
		$	$ cts.		$	$ cts.		$	$ cts.
1908	26,434	448,794	16 98	30,574	414,116	13 54	335	8,705	25 99
1909	50,167	735,138	14 65	87,394	1,055,799	12 08	344	7,255	19 93
1910	107,984	1,516,685	14 05	119,678	1,603,953	13 40	91	2,059	22 63
1911	122,360	1,552,896	12 69	86,125	1,058,078	12 29	2	15	7 50
1912	210,756	2,599,117	12 33	61,809	912,482	14 76			
1913	213,969	2,888,974	13 50	22,800	358,431	15 72			
1914	69,284	862,598	12 46	9,426	119,591	12 68			
1915	46,891	615,268	13 12	588	8,932	15 19			
1916	57,256	1,129,799	19 73	594	10,614	17 87	280	4,737	16 91
1917	83,250	2,759,752	31 15				140	3,750	26 78
1918	67,385	2,101,798	31 19	11	608	55 27			
1919	35,649	1,015,790	28 49	151	7,072	46 83			

Annual Imports of Pig-Iron since 1907.

Year.	Pig-iron.			Charcoal Pig-iron.			Total.	
	Short tons.	Value.	Average value.	Short tons.	Value.	Average value.	Short tons.	Value.
		$	$ cts.		$	$ cts.		$
1907	249,582	4,117,887	16 50	2,062	41,806	20 27	251,644	4,159,693
1908	57,343	871,615	15 20	1,022	18,818	18 41	58,365	890,433
1909	137,925	1,798,192	13 04	413	5,727	13 87	138,388	1,803,919
1910	227,753	3,122,695	13 71	16,106	242,152	15 03	243,859	3,364,847
1911	208,487	2,610,989	12 52				208,487	2,610,989
1912	272,565	3,511,599	12 88	115	1,370	11 91	272,680	3,512,969
1913	235,843	3,234,877	13 72	926	12,528	13 53	236,769	3,247,405
1914	78,594	981,107	12 48	86	1,082	12 58	78,680	982,189
1915	47,482	624,200	13 15				47,482	624,200
1916	57,337	1,128,557	19 68	793	16,593	20 92	58,130	1,145,150
1917	82,758	2,744,055	33 16	632	19,447	30 77	83,390	2,763,502
1918	67,396	2,102,406	31 19				67,396	2,102,406
1919	35,800	1,022,871	28 57				35,800	1,022,871

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

Calendar year.	Short tons.	Value.	Average value.	Calendar year.	Short tons.	Value.	Average value.
		$	$ cts.			$	$ cts.
1907	15,437	536,285	34 74	1913	30,355	990,443	30 98
1908	11,718	401,761	34 29	1914	22,147	549,485	27 81
1909	17,699	411,536	23 25	1915	13,758	807,312	58 68
1910	18,900	464,741	24 59	1916	14,777	1,879,538	127 19
1911	17,226	429,458	24 93	1917	12,828	2,029,990	158 25
1912	19,810	469,884	23 72	1918	35,284	4,283,133	121 39
				1919	16,222	901,678	55 58

Imports of Ferro-Alloys, 1919.

—	Great Britain.		United States.		Other Countries.		Total.	
	Tons.	Value. $	Tons.	Value. $	Tons.	Value. $	Tons.	Value. $
Ferro-silicon containing not more than 15 per cent silicon	.....	.....	278·4	13,534	.....	.....	278·4	13,534
Ferro-silicon containing more than 15 per cent silicon	.....	.....	14·9	3,068	.....	.....	14·9	3,068
Spiegeleisen and ferro-manganese containing over 15 per cent manganese	13,831	578,223	1,807	108,911	.....	.....	15,638	687,134
Spiegeleisen and ferro-manganese containing not more than 15 per cent manganese, and other ferro-products, n.o.p.	51·7	67,964	238·5	129,978	.....	.....	290·2	197,942
	13,882·7	646,187	2,338·8	255,491	.....	.....	16,221·5	901,678

Imports of Ferro-Alloys, 1918.

—	Great Britain.		United States.		Other Countries.		Total.	
	Tons.	Value. $	Tons.	Value. $	Tons.	Value. $	Tons.	Value. $
Ferro-silicon containing not more than 15 per cent silicon	.....	.....	345·2	22,209	.....	.....	345·2	22,209
Ferro-silicon containing more than 15 per cent silicon	.....	.....	0·6	225	.....	.....	0·6	225
Spiegeleisen and ferro-manganese containing over 15 per cent manganese	9,845	1,801,568	23,953	1,913,284	225	29,130	34,023	3,743,982
Spiegeleisen and ferro-manganese containing not more than 15 per cent manganese, and other ferro-products, n.o.p.	45·6	137,389	859·5	379,328	.....	.....	915·1	516,717
	9,890·6	1,938,957	25,168·3	2,315,046	225	29,130	35,283·9	4,283,133

The total quantity of pig-iron and ferro-alloys used in Canada arrived at by adding to the production the excess of imports over exports amounted in 1919 to 932,349 tons as against 1,316,025 tons in 1918, and 1,264,870 tons in 1917. Of the total amount consumed in 1919, 631,065 tons are reported as having been used in steel furnaces, leaving 301,284 tons credited to foundry and other uses. The consumption in steel furnaces included 609,670 tons of pig-iron and 21,395 tons of ferro-alloys.

The annual consumption since 1910 compiled upon the same basis is shown in the following table:—

Consumption of Pig-Iron and Ferro-alloys.

Year.	Used in steel furnaces.		Credited to foundry and other uses.	Total consumption* Short tons.
	Pig-iron.	Ferro-alloys.		
1910	690,913	8,143	361,914	1,060,970
1911	700,679	21,359	422,847	1,144,885
1912	735,559	24,237	548,024	1,307,820
1913	913,722	29,408	454,710	1,397,840
1914	619,030	20,252	233,170	872,452
1915	748,114	13,941	197,199	959,254
1916	949,444	25,940	249,302	1,224,686
1917	1,112,082	34,779	118,009	1,264,870
1918	897,537	44,697	373,791	1,316,025
1919	609,670	21,395	301,284	932,349

*Production of pig-iron and ferro-alloys plus excess of imports over exports.

Bounties:—A further attempt was made in 1918 to stimulate the production of pig-iron by means of bounty payments, though the assistance offered applies only to British Columbia.

The following Act received the sanction of the Provincial Government:—

"An Act respecting Bounties on Iron produced in the Province" (Assented to 23rd April, 1918, and amended April, 1920).

"His Majesty, by and with the advice and consent of the Legislative Assembly of the Province of British Columbia enacts as follows:—

1. This Act may be cited as the "Iron Bounties Act".
2. The Lieutenant-Governor in Council may enter into an agreement with any person, persons, or corporation whereby the Province will pay to such person, persons, or corporation out of the Consolidated Revenue Fund, bounties on pig-iron when manufactured within the Province, as follows:—
   (*a*) In respect of pig-iron manufactured from ore, on the proportion produced from ore mined in the Province, a bounty not to exceed three dollars per ton of two thousand pounds.
   (*b*) In respect of pig-iron manufactured from ore, on the proportion produced from ore mined outside of the Province, a bounty not to exceed one dollar and fifty cents per ton of two thousand pounds.
3. Bounty, as on pig-iron under this Act, may be paid upon the molten iron from ore which in the electric furnace, Bessemer or other furnace enters into the manufacture of steel by the process employed in such furnace; the weight of such iron to be ascertained from the weight of the steel so manufactured.
4. The Minister of Mines shall be charged with the administration of this Act.
5. The Lieutenant-Governor in Council may make regulations to carry out the intent of this Act.

6. No bounty shall be paid under the provisions of this Act in respect of iron or steel manufactured after the thirty-first day of December 1923. (Amended, April, 1920, to provide for the payment of bounty to the thirty-first day of December, 1925.)

No bounty on production was offered by the Dominion Government since 1912 but because of the restriction on exports from the United States and the war necessity for an increased supply of pig-iron, the War Trade Board was authorized by the Government under authority of Order in Council P.C. 1187 approved on the 18th of May, 1918, "To enter into communication with responsible parties for the rehabilitation of dormant blast furnaces and the construction of new undertakings for the production of pig-iron in Canada on the basis of a government guarantee for the purchase of their product for a series of years and at such reasonable prices as may be agreed upon and that a report thereon be made to the Government with the least possible delay."

Agreements were subsequently entered into with two firms for the rebuilding and operation of the dormant blast furnace plants at Midland and Parry Sound respectively. This form of assistance was, however, entirely a war measure and has been terminated in August of 1919.

Bounties were formerly paid by the Dominion Government during the years 1896 to 1912 inclusive, the total payments on account of iron and steel produced having been $16,785,827 of which $ 7,041 was paid out on pig-iron; $113,674 on puddled iron bars; $6,706,990 on steel; and $2,868,122 on manufactures of steel. The last bounty Acts were Chapter 24, Statutes of Canada 1907, and Chapter 33, Statutes of Canada, 1910. (For copies see Annual Report on Mineral Production of Canada, 1910.)

STEEL.

The production of steel during 1919 was reported from 22 separate plants (including 6 electric furnace plants) operated by 20 companies. In 1918 and in 1917 production was obtained from 27 plants operated by 24 companies.

The total production of steel ingots and direct steel castings in 1919 was 1,030,342 short tons (919,948 long tons) of which 993,039 tons were ingots and 37,303 tons direct steel castings.

The total production in 1918 was 1,873,708 short tons (1,672,946 long tons) of which 1,800,171 tons were ingots and 73,537 tons were castings.

The 1919 production included: open-hearth steel 1,007,495 tons; electric steel 15,502 tons; crucible and converter steels 7,345 tons. The 1918 production included: open-hearth steel 1,746,334 tons; electric steel 119,130 tons; crucible and converter steels 8,244 tons.

The total production of electric furnace steel in 1917 was 50,467 tons; in 1916, 19,639 tons; in 1915, 5,625 tons; and in 1914, the first year for which a production was reported, 61 tons.

The total production of pig-iron, ferro-alloy, and steel in electric furnaces was about 41,683 tons in 1919, as compared with 191,869 tons in 1918, and 101,031 tons in 1917.

Statistics of the production of steel ingots and direct steel castings since 1894 are given in the following table. The figures for 1894 to 1906 inclusive have been collected and published by the American Iron and Steel Association, those for the years 1907 to 1919 have been collected by this Department.

Annual Production of Steel Ingots and Castings.

(In short tons.)

Year.	Steel Ingots.				Steel Castings.				Total ingots and castings.
	Open-hearth.	Bessemer and other.	Elec-tric.	Total ingots.	Open-hearth.	Con-verter	Electric.	Total. castings.	
1894									28,767
1895									19,040
1896									17,920
1897									20,608
1898									24,125
1899									24,640
1900									26,406
1901									29,214
1902				197,959				5,922	203,881
1903				198,249				5,047	203,296
1904				159,352				7,286	166,638
1905				441,342				10,521	451,863
1906				622,623				16,773	639,396
1907	459,240	225,989		685,229	20,602	1,151		21,753	706,982
1908	443,442	135,557		578,999	9,051	713		9,764	588,763
1909	535,988	203,715		739,703	14,013	1,003		15,016	754,719
1910	580,932	222,668		803,600	18,085	599		18,684	822,284
1911	651,676	209,817		861,493	20,163	740		20,903	882,396
1912	692,236	231,044		923,280	31,845	2,556		34,401	957,681
1913	824,818	301,932		1,126,750	39,217	3,026		42,243	1,168,993
1914	608,383	203,184		811,567	15,315	1,698	61	17,074	828,641
1915	962,411	21,993	5,425	989,829	28,384	2,483	200	31,067	1,020,896
1916	1,377,387	2,377	17,939	1,397,703	23,496	5,350	1,700	30,546	1,428,249
1917	1,642,085	378	48,828	1,691,291	43,630	9,174	1,639	54,443	1,745,734
1918	1,684,317	239	115,615	1,800,171	62,017	8,005	3,515	73,537	1,873,708
1919	983,236	1,062	8,741	993,039	24,259	6,283	6,761	37,303	1,030,342

Materials charged to Steel Furnaces:—The total quantity of pig-iron used in steel furnaces during 1919 was 609,670 tons of which 590,903 tons were produced by the firms reporting and 18,767 tons purchased. The quantity of ferro-alloys used was 21,395 tons, which included 3,161 tons of ferro-silicon and 18,234 tons of ferro-manganese and spiegeleisen. The total quantity of scrap iron and steel used was 575,213 tons of which 323,107 tons originated with the firms reporting and 252,106 tons were reported as purchased.

Ores used included 52 tons of manganese ore and 32,409 tons of iron ore, while 196,320 tons of limestone and dolomite were used and 12,796 tons of fluorspar.

In 1918 the quantity of pig-iron used, 897,537 tons, included 818,394 tons produced by the firms reporting and 79,143 tons purchased. The quantity of ferro-alloys used, 44,697 tons, included 8,720 tons of ferro-silicon and 35,977 tons of ferro-manganese and spiegeleisen. The quantity of scrap iron and steel used, 1,068,434 tons, included 515,302 tons originating with the firms reporting and 553,132 tons were included as purchased.

A record of materials used in steel furnaces covering the past ten years is shown in the following table:—

Pig-Iron, Scrap Iron, and other Materials Charged to Steel Furnaces.

(In short tons.)

Year.	Pig-iron.	Ferro-alloys.	Scrap iron and steel.	Iron ore.	Manganese ore.	Fluorspar.	Limestone and dolomite.
1910	690,913	8,143	211,453	39,332	1,317	7,461	144,110
1911	700,769	21,359	278,797	42,892	829	8,067	130,270
1912	735,559	24,237	336,265	43,006	985	9,709	148,045
1913	913,722	29,408	406,403	55,018	1,342	10,687	197,028
1914	619,030	20,252	286,863	37,686	723	7,845	114,859
1915	748,114	13,941	413,266	74,872	908	13,520	252,045
1916	949,444	25,940	469,162	55,059	1,578	13,213	224,772
1917	1,112,082	34,779	1,022,456	39,793	2,726	17,084	231,563
1918	897,537	44,697	1,068,434	48,599	59	17,307	243,383
1919	609,670	21,395	575,213	32,409	52	12,796	196,320

The tabulated statement shows the increasing quantities of scrap metal used in the production of steel. In 1918 much more than half the iron charged to the furnaces was in the form of scrap metal. For each 100 tons of pig-iron used in 1918 the quantity of scrap charged was 119 tons. The proportion of scrap was lower in 1919 having dropped again to 94 tons per 100 tons of pig-iron. In 1917 the quantity of scrap used was 91 tons to each 100 tons of pig-iron and in the two preceding years the ratios were 55·2 tons and 46·3 tons respectively.

The exports of scrap iron and steel in 1919 are reported as 245,214 tons valued at $3,779,179 or an average of $15.41 per ton, as against exports in 1918 of 51,545 tons valued at $853,097, or an average of $16.55 per ton. Exports in 1917 were 176,571 tons valued at $2,300,022, or an average of $13.02 per ton, and in 1916, 114,300 tons valued at $1,357,018, or an average of $11.87 per ton.

From 1900 to 1912 the annual exports of scrap varied considerably, the lowest being 4,208 tons in 1911, and the highest 24,109 tons in 1905. During the past six years the exports have generally increased.

The total imports of scrap iron and scrap steel in 1919 are reported as 39,790 tons valued at $482,963 or an average of $12.14 per ton, as against imports in 1918 of 57,189 tons valued at $775,526, or an average of $13.56 per ton. Imports in 1917 were 20,654 tons valued at $454,079, or an average of $21.99 per ton, and in 1916, 11,574 tons valued at $179,751, or an average of $15.53 per ton.

In 1913 the imports exceeded 100,000 tons and during the preceding 20 years the imports varied from 8,000 tons to 70,000 tons per annum.

Tabulated records of the exports and imports of scrap iron and steel were published in the report on production of iron and steel 1916.

Rolling Mill Production :—Statistics of the production of rolled iron and steel products have been received from all firms operating iron and steel rolling mills in Canada. The principal rolled products are steel rails, wire rods and merchant bars with an increasing production of structural shapes, plates and sheets. A large tonnage of rolled blooms and billets is used for forging purposes, while during the past two or three years there has been a small export of rolled slabs, blooms and billets.

The total production in 1919 of finished rolled products (including blooms, billets and axle blanks, rolled for forging purposes, and blooms, billets and slabs rolled for export sale) was 804,407 short tons, of which 62,136 tons were rolled iron and 742,271 tons rolled steel. The total production of rolled products included steel rails 316,304 net tons, wire rods 153,723 tons; merchant bars and rods and structural shapes 283,882 tons; plates and sheets 25,408 tons; rolled blooms and billets for forging purposes and rolled blooms, billets, or slabs sold for export, 25,090 tons.

The total production in 1918 of finished rolled products (including blooms, billets and axle blanks, rolled for forging purposes, and blooms, billets and slabs rolled for export sale) was 1,164,610 short tons, of which 104,328 tons were rolled iron and 1,060,282 tons rolled steel. The total production of rolled products included steel rails 162,747 net tons, wire rods 154,789 tons; merchant bars and rods and structural shapes 425,017 tons; plates and sheets 26,413 tons; rolled blooms and billets for forging purposes and rolled blooms, billets, or slabs sold for export 395,644 tons.

The annual production of rolling mills in so far as the record has been obtained by this Department is as follows:—

Annual Production of Rolling Mills.

(In short tons.)

Year.	Steel Rails.	Wire Rods.	Bars and Plates.	Other Products.*
1908	300,935	41,420	.....	.....
1909	377,642	81,762	.....	.....
1910	399,762	88,456	128,940	28,354
1911	399,760	85,811	202,023	62,676
1912	471,422	68,174	267,797	36,441
1913	554,481	57,389	209,096	51,654
1914	428,226	63,856	143,754	42,070
1915	232,411	124,381	294,595	31,358
1916	90,123	179,226	619,500	152,668
1917	46,645	195,392	631,389	87,155
1918	162,747	154,789	451,430	(a) 395,614
1919	316,304	153,723	309,290	(a) 25,090

*Includes forged products, angle splice bars, and rail fastenings.
(a) Products rolled for forging purposes only and blooms, billets or slabs sold for export. All other rolled iron and steel, except rails and wire rods, included with bars and plates.

The record of production of finished rolled iron and steel in Canada, collected and published by the American Iron and Steel Institute and the American Iron and Steel Association, which covers a longer period of time and is possibly more complete than that given above, is shown in the following tables quoted from the Annual Statistical Report of the American Iron and Steel Institute for 1919.

Finished Rolled Iron and Steel.

Production of Finished Rolled Products, 1895-1913.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1895	66,402	1901	112,007	1907	600,179
1896	75,043	1902	161,485	1908	496,517
1897	77,021	1903	129,516	1909	662,741
1898	90,303	1904	180,038	1910	739,811
1899	110,642	1905	385,826	1911	781,924
1900	100,690	1906	571,742	1912	861,224
				1913	967,097

Production of Finished Rolled Forms by Leading Products.

Products.	1914.	1915.	1916.	1917.	1918.	1919.
Rails	382,344	209,752	81,497	41,349	145,309	282,415
Structural shapes, and wire rods	59,050	114,829	174,490	189,687	141,978	163,489
Plates and sheets, nail plate, merchant bars, tie-plate bars, etc	218,125	328,737	707,823	745,162	714,021	297,095
Total, gross tons	659,519	653,318	963,810	976,198	1,001,308	742,999

Production of Finished Rolled Forms, showing Iron and Steel separately, gross tons, 1904-1918

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1904	53,188	126,850	180,038	1912	109,012	752,212	861,224
1905	67,421	318,405	385,826	1913	95,881	871,216	967,097
1906	78,898	492,844	571,742	1914	47,309	612,210	659,519
1907	81,093	519,086	600,179	1915	40,797	612,521	653,318
1908	65,505	431,012	496,517	1916	76,478	887,332	963,810
1909	79,636	583,105	662,741	1917	101,795	874,403	976,198
1910	83,918	655,893	739,811	1918	96,296	905,012	1,001,308
1911	86,383	695,541	781,924	1919	56,410	683,589	742,999

Production of Steel Rails, 1895-1919.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1895.....	600	1901.....	891	1907.....	311,461	1913.....	506,709
1896.....	600	1902.....	33,950	1908.....	268,692	1914.....	382,344
1897.....	500	1903.....	1,243	1909.....	344,830	1915.....	209,752
1898.....	600	1904.....	36,216	1910.....	366,465	1916.....	81,497
1899.....	*835	1905.....	178,885	1911.....	360,547	1917.....	41,349
1900.....	700	1906.....	312,877	1912.....	423,885	1918.....	145,309
						1919.....	282,415

*Includes a few tons of iron rails.

STEEL BILLETS:—The exports of steel in the form of "billets, blooms, and ingots," were in 1919, 28,087 tons valued at $1,731,529, or an average of $61.65 per ton as compared with exports in 1918 of 61,782 tons valued at $2,645,943, or an average of $42.83 per ton, and exports during the nine months ending December 19.7, of 41,558 tons valued at $1,831,917, or an average of $44.08 per ton.

There has been a considerable annual importation, as shown in the accompanying tables, of iron and steel billets, and of iron and steel ingots, blooms, slabs, puddled bars, etc. During the years 1914 to 1918 inclusive the export records of the United States appear to show considerably larger exports of these products to Canada than are included in the Canadian record, a difference which may be due to the inclusion in the Canadian record, under a general item, of considerable quantities of material, free of duty, for the use of the Imperial Government. The two records are for 1919 in comparatively close agreement, the Canadian imports being 11,870 tons and the exports from the United States to Canada 11,452 tons.

According to the United States record,[1] there was exported from that country to Canada during the calendar year 1918, billets, blooms, and ingots of steel, 247,332 gross tons (277,012 short tons) valued at $19,787,779, or an average of $80 per gross ton. In 1917 the corresponding exports to Canada were 150,533 gross tons, (168,597 short tons) valued at $11,962,280, or an average of $70.95 per short ton, and in 1916, 105,260 gross tons (117,891 short tons) valued at $6,657,538, or an average of $56.43 per short ton.

The second table following shows for a number of years the exports of billets, ingots and blooms of steel from the United States to Canada. There is also shown in this table a record of the exports from the United States to Canada of steel rails, sheets and plates, structural iron and steel, tin plate, etc., wire and manufactures of wire, pipe and fittings, and metal working machinery.

[1] Monthly Summary of Foreign Commerce of the United States, Department of Commerce, Washington, D.C.

Imports of Iron and Steel Ingots, Blooms, Billets, etc.

Fiscal Year.	Iron and steel billets weighing not less than 60 pounds per lineal yard.			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.			Steel billets, n.o.p.			Total.	
	Short tons.	Value.	Per ton.	Short tons.	Value.	Per ton.	Short tons.	Value.	Per ton.	Short tons.	Value.
		$	$ cts.		$	$ cts.		$	$ cts.		$
1908	14,866	416,163	27 99	4,722	135,177	28 63	1,634	48,672	29 79	21,222	600,012
1909	3,940	95,350	24 20	3,715	53,135	14 30	1,232	31,869	25 86	8,887	180,354
1910	28,358	518,102	18 27	5,775	97,333	16 85	2,682	63,089	23 52	36,815	678,524
1911	44,457	861,036	19 37	3,228	68,616	21 26	711	19,940	28 05	48,396	949,592
1912	85,852	1,593,665	18 56	2,608	52,063	19 97	729	17,242	23 65	89,189	1,662,970
Calendar Year.											
1913	51,765	1,178,151	22 76	665	19,379	29 61	453	14,784	32 67	52,873	1,212,314
1914	12,247	241,234	19 70	155	3,348	21 65	647	15,121	23 37	13,049	259,703
1915	32,210	715,493	22 21	10,980	316,814	28 85	10,928	238,380	21 81	54,118	1,270,687
1916*	12,627	495,625	39 25	7,946	385,816	47 29	303	14,005	46 24	20,876	895,446
1917*	10,186	663,668	65 15	10,243	714,908	69 79	348	22,573	64 83	20,777	1,401,149
1918*	2,992	232,065	77 55	374	27,537	73 71	43	2,608	60 79	3,409	262,210
1919	11,870	479,170	40 37	215	12,215	56 81	50	2,716	54 21	12,135	494,101

*Import record not complete. See explanation in text.

Exports of Various Iron and Steel Products from the United States to Canada.

Calendar Year.	Billets, Ingots and Blooms of Steel.			Steel Rails for Railways.			Sheets and Plates.			Structural Iron and Steel.		
	Short tons.	Value.	Value per ton.	Short tons.	Value.	Value per ton.	Short tons.	Value.	Value per ton.	Short tons.	Value.	Value per to
		$	$ cts.		$	$ cts.		$	$ cts.		$	$ cts.
1910	23,160	461,204	19 91	28,382	750,424	26 44	.....	.....	.....	83,838	3,346,393	39 91
1911	64,020	1,262,732	19 72	98,613	2,499,110	25 34	.....	.....	.....	115,420	4,113,858	35 64
1912	92,976	1,941,015	20 88	149,353	3,799,685	25 44	.....	.....	.....	190,346	6,823,072	35 85
1913	45,568	964,373	21 16	181,408	4,791,559	26 41	356,344	12,364,721	34 70	322,766	10,463,154	32 42
1914	16,044	311,267	19 40	25,949	685,468	26 42	207,203	6,855,494	33 09	125,457	3,454,372	27 53
1915	65,504	1,528,155	23 33	8,521	230,637	27 07	223,715	7,781,270	34 78	110,725	3,063,362	27 67
1916	117,891	6,657,538	56 43	46,011	1,586,639	34 48	255,935	14,712,640	57 49	125,169	5,788,908	46 25
1917	168,597	11,962,280	70 95	54,088	1,815,768	33 57	256,948	25,451,608	99 05	131,383	9,235,063	70 29
1918	277,012	19,787,779	71 43	74,545	3,163,301	42 43	275,444	24,281,654	88 15	124,452	8,211,009	65 98
1919	11,452	536,665	46 86	28,650	1,064,417	37 25	287,066	19,956,335	69 52	110,916	6,209,025	55 98

Calendar Year.	Tin Plate, Terne Plates and Taggers Tin.			Wire.			Pipe and Fittings.			Metal Working Machinery.
	Short tons.	Value.	Value per ton.	Short tons.	Value.	Value per ton.	Short tons.	Value.	Value per ton.	Value.
		$	$ cts.		$	$ cts.		$	$ cts.	$
1910	12,473	881,719	70 69	47,074	2,077,092	44 12	30,008	1,371,399	45 70	466,216
1911	32,095	2,243,492	69 90	62,895	2,670,765	42 46	40,485	1,853,764	45 79	1,083,718
1912	52,746	3,662,770	69 44	64,354	2,496,781	38 80	86,103	4,288,887	49 81	1,885,241
1913	51,524	3,842,159	74 57	53,749	2,143,449	39 88	79,929	4,093,699	51 22	1,888,463
1914	39,770	2,614,859	65 75	53,254	2,083,150	39 12	.....	.....	.....	767,064
1915	43,854	2,762,405	62 99	51,963	2,159,436	41 56	15,374	954,817	62 10	4,336,065
1916	57,633	4,604,005	81 45	66,690	4,289,572	64 32	22,108	1,717,771	77 70	7,929,989
1917	66,329	9,160,785	138 11	54,547	4,456,359	81 70	21,758	2,469,192	113 49	5,542,853
1918	72,480	11,638,385	160 57	37,580	3,838,233	102 13	15,015	2,073,920	138 12	4,813,823
1919	46,146	6,692,041	145 02	48,562	4,470,861	92 07	11,330	1,827,720	161 32	4,034,646

Monthly Prices of Mild Steel Billets at Montreal.*

——	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
January	26 50	27 00	24 75	26 50	24 50	24 75	39 50	53 50	**	.....
February	26 50	27 00	23 75	30 00	24 50	24 75	39 50	53 50	.....	.....
March	26 50	27 00	23 75	30 00	24 50	26 50	45 50	53 50	.....	.....
April	26 50	27 00	23 75	30 00	25 25	26 50	34 50	60 00	.....	.....
May	26 50	26 75	23 75	31 00	25 25	26 50	44 50	**	.....	.....
June	26 00	25 75	23 75	31 00	25 25	26 50	44 50		.....	.....
July	26 00	25 75	23 75	29 00	25 25	26 50	44 50		.....	.....
August	25 75	25 00	24 25	29 00	25 25	29 50	44 50		.....	
September	25 50	25 00	24 75	28 00	25 25	31 00	44 50		.....	.....
October	25 50	23 75	25 25	26 50	25 25	31 00	46 00		.....	.....
November	24 75	23 75	25 25	25 50	24 75	32 00	52 00		.....	.....
December	25 00	24 75	26 00	25 50	24 75	34 00	53 50	**	**	.....
Average	25 91	25 71	24 40	28 50	25 23	28 29	45 08			

Average price per ton of 2,240 pounds, f.o.b., Montreal in the first week of each month, quotations supplied by the Dominion Iron & Steel Co., Ltd.
**No quotations.

Average Monthly Prices of Bessemer Steel Billets at Pittsburgh,* per gross ton.

——	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
January	25 00	27 50	23 00	20 00	28 30	20 13	19 25	32 00	63 00	47 50	43 50
February	25 00	27 50	23 00	20 00	28 50	21 00	19 50	33 50	65 00	47 50	43 50
March	23 00	27 50	23 00	19 75	28 50	21 00	19 70	42 40	66 25	47 50	42 25
April	23 00	26 75	23 00	20 00	28 50	20 80	20 00	45 00	73 75	47 50	38 50
May	23 00	26 12	22 60	20 80	27 37	20 00	20 00	45 00	86 00	47 50	38 50
June	23 00	25 30	21 00	20 87	26 50	19 50	20 50	43 50	98 75	47 50	38 50
July	23 50	25 00	21 00	21 50	26 60	19 00	21 38	41 00	100 00	47 50	38 50
August	24 13	24 62	21 00	22 12	26 00	20 25	23 13	44 20	86 00	47 50	38 50
September	25 00	24 40	20 75	23 62	24 87	21 00	24 10	45 00	66 25	47 50	38 50
October	26 25	23 75	20 00	26 00	23 30	20 00	24 63	46 25	49 38	47 50	38 50
November	27 13	23 30	19 50	27 00	21 00	19 25	26 50	52 00	47 50	47 50	41 38
December	27 50	23 00	19 25	27 00	20 00	19 00	30 60	57 50	47 50	45 50	46 00

*As compiled and published by *The Iron Age*, New York.

STEEL RAILS:—The production of steel rails in Canada during 1919 was 316,304 short tons, as against 162,747 short tons in 1918, and 46,645 short tons in 1917. The annual production from 1905 to 1915 varied between 200,000 tons and 550,000 tons per annum.

The exports of steel rails during 1919 were 30,737 tons valued at $1,297,836 or an average of $42.22 per ton as against exports in 1918 of 12,952 tons valued at $575,062, or an average of $44.40 per ton, and exports during the nine months ending December, 1917, of 26,402 tons valued at $1,605,742, or an average value per ton of $60.82

The imports of steel rails as per Canadian Customs records were 10,752 tons valued at $570,213, or an average of $53.03 per ton as against imports in 1918 of 7,787 tons valued at $404,417, or an average of $51.93 per ton, and imports in 1917 of 18,160 tons valued at $689.197, or an average of $37.95 per ton. United States trade records show exports of steel rails to Canada dur[illegible] 1919 of [illegible]550 tons valued at $1,064,417, or an average of $37.25 per ton and during 1918 of 74,545 tons valued at $3,163,301, or an average value of $42.43 per ton. (See preceding table).

The annual imports of steel rails from 1895 to 1905 ranged between 50,000 tons and 212,000 tons averaging about 125,000 tons. From 1906 to date, however, or since the establishment of the rail mills at Sydney and Sault Ste. Marie, the imports have fallen to an annual average of about 60,000 tons, the variation being between a minimum of 10,420 tons in 1915 and a maximum of 177,041 tons in 1913.

WIRE RODS:—The production of wire rods in Canadian rolling mills in 1919 was 153,723 tons as compared with 154,789 in 1918; 195,392 tons in 1917, and 179,226 tons in 1916. From 1908 to 1914 inclusive the average annual production was about 70,000 tons. The imports of wire rods in the coil in 1919 were 34,903 tons valued at $1,753,183, or an average of $50.23 per ton, as compared with imports in 1918 of 42,838 tons valued at $2,416,702, or an average of $56.42 per ton. The annual imports have varied between rather wide limits, having been as high as 55,000 tons in 1902, and less than 10,000 tons in 1908, the highest import having been reached during the fiscal year of 1913 with a total of 91,919 tons.

Annual Imports of Wire Rods.*

Calendar Year.	Short tons.	Value.	Value per ton.	Calendar Year.	Short tons.	Value.	Value per ton.
		$	$ cts.			$	$ cts.
1913..	79,608	1,962,235	24 65	1916.....	66,166	3,069,162	46 39
1914.....	65,250	1,472,597	22 57	1917.....	55,314	3,536,504	63 93
1915.....	71,839	1,695,842	23 60	1918.....	42,838	2,416,702	56 42
				1919.....	34,903	1,753,183	50 23

*Rolled iron wire rods in the coil of iron or steel not over ⅜ inch in diameter when imported by wire manufacturers for use in making wire in the coil in their own factories.
Rolled round rods in the coil of iron or steel for the manufacture of chains.

Average Monthly Prices of Bessemer Wire Rods at Pittsburgh,* per gross ton.

——	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
January.....	33 00	28 00	24 37½	30 00	25 50	25 00	43 00	75 00	57 00	57 00
February.....	33 00	28 75	25 00	30 00	26 38	25 00	48 00	.....	57 00	57 00
March.....	33 00	29 00	25 00	30 00	26 50	25 00	54 80	81 00	57 00	55 75
April.....	32 50	29 00	25 00	30 00	26 00	25 00	60 00	85 00	57 00	52 00
May.....	32 00	29 00	25 00	30 00	25 50	25 00	60 00	86 00	57 00	52 00
June.....	30 80	28 25	25 00	29 50	24 50	25 00	53 75	92 50	57 00	52 00
July.....	29 20	27 00	25 00	28 30	24 50	25 63	55 75	96 25	57 00	52 00
August.....	28 25	27 00	25 80	28 00	25 00	27 00	55 00	94 00	57 00	52 00
September.....	28 00	27 00	27 00	27 37½	26 20	29 40	55 00	88 75	57 00	52 00
October.....	28 50	26 00	28 50	26 60	25 88	31 75	55 00	77 25	57 00	52 00
November.....	28 12½	25 30	29 75	25 87½	25 25	36 25	63 00	57 00	57 00	54 50
December.....	28 00	24 50	30 00	25 17	25 00	39 00	68 75	57 00	57 00	59 50

*As compiled and published by *The Iron Age*, New York.

TIN PLATE:—There has been as yet no production of tin plate in Canada. The imports during 1919 were 43,407 tons valued at $6,436,047, or an average of $148.27 per ton, as compared with imports in 1918 of 72,844 tons valued at $11,403,887, or an average of $156.55 per ton. The imports during the past ten years have averaged about 42,500 tons per annum.

A development is now in progress which has as its object the establishment of a tin plate manufacturing industry in Canada. The electric steel furnace plant and buildings of the British Forgings, Ltd., at Toronto, have been purchased by Baldwins Canadian Corporation, Ltd., which firm has under construction a mill for the manufacture of steel sheets to include black sheets, galvanized sheets and tin plate. It is anticipated that this plant may be ready for operation toward the middle of 1920.

Annual Imports of Tin Plate.

Calendar Year.	Tons.	Value.	Calendar Year.	Tons.	Value.
		$			$
1909	36,904	2,216,089	1914	50,791	3,151,385
1910	39,101	2,475,010	1915	45,165	2,883,951
1911	47,006	3,172,943	1916	57,543	5,221,163
1912	60,502	3,826,735	1917	66,676	9,965,631
1913	58,031	3,954,615	1918	72,844	11,403,887
			1919	43,407	6,436,047

Exports and Imports of Iron and Steel Goods.

Canada imports large quantities of iron and steel goods, much larger quantities than are manufactured in domestic steel mills. Reference has already been made to exports and imports of a few specific products; the following, however, is a general summary of the available records relating to exports and imports of iron and steel as compiled from the reports of the Customs Department. Mention has already been made of the fact that some of these records, such as imports of billets, steel rails, and pig-iron, are apparently incomplete, particularly for the years 1916, 1917, and 1918. It is assumed that considerable quantities of these products have been imported by and for the use of the Imperial Government as munitions of war and entered under a special item of the Custom classification to cover such imports instead of under the usual classification. This fact should be kept in mind in analysing the situation, since it may explain a number of apparent discrepancies between these records and those available from other sources, such, for instance, as the United States Department of Commerce records of Foreign Trade.

The exports of iron and steel from Canada have consisted chiefly of manufactured goods, such as agricultural implements, automobiles, bicycles, machinery, etc. During the past three years, however, there has been developed a large export of steel rails, billets, rods and wire products as well as a considerable increase in the exports of vehicles and machinery.

The total recorded value of iron and steel exported during the calendar year 1919 was $84,058,924, as compared with a value of exports in 1918 of $61,772,613.

The table of exports as compiled comprises the items classed as iron and steel products in the revised trade classification and includes a number of products such as aeroplanes and parts, guns, rifles and fire arms not included in similar tables published in earlier reports of this series.

The exports in 1919 included: scrap iron and steel 245,214 tons valued at $3,779,179, or an average of $15.41 per ton, blast furnace, steel and rolling mill products aggregating 220,873 tons in quantity valued at $12,255,937, or an average of $55.48 per ton and other manufactured products of iron and steel of which the quantity cannot be stated in terms of weight, having a total value of $68,023,808.

The exports in 1918 included: scrap iron and steel 51,545 tons valued at $853,097, or an average of $16.55 per ton; blast furnace, steel and rolling mill products 205,930 tons valued at $16,374,591, or an average of $79.51 per ton and other manufactured products of iron and steel valued at $44,544,925.

Exports of Iron and Steel Goods the Products of Canada during the Calendar Years, 1918 and 1919.

		1918.			1919.		
		Quantity.	Value.	Average value.	Quantity.	Value.	Average value.
Agricultural Implements:—			$	$ cts.		$	$ cts.
Cream separators and parts	$	.....	115,120	.....	.....	266,764	.....
Harvesters and binders	No.	5,549	989,031	178 24	14,136	2,773,736	196 22
Hayrakes	"	1,126	43,315	38 47	1,862	73,516	39 48
Mowing Machines	"	8,694	566,878	65 20	14,250	918,635	64 46
Reapers	"	457	39,573	86 59	1,009	95,113	94 26
Cultivators		3,383	147,724	43 67	11-250	638,741	56 78
Drills		8,997	791,500	87 98	8,227	856,642	104 13
Harrows		5,104	141,871	27 80	11,376	294,111	25 85
Ploughs and parts of		.....	1,536,510	.....	.....	2,833,743	.....
Seeders	No.	37	3,432	92 76	352	38,307	108 83
Garden and farm tools	$	.....	.....	.....	•	247,607	.....
Spades and shovels	$	.....	.....	.....	•	219,368	.....
Threshing machines, separators and parts	No.	478	219,174	458 52	.....	2,184,605	.....
Other agricultural implements and machines	$	.....	371,667	.....	.....	333,232	.....
Parts of agricultural implements and machines, n.o .p	$	.....	833,965	.....	.....	988,041	.....
Boilers, Engines, Pumps and Windmills:—							
Gasoline engines and parts of	No.	1,395	271,173	194 39	2,706	1,184,667	437 79
Locomotives and parts of	"	.....	.....	.....	• 130	5,874,091	45,183 31
Cutlery and Hardware:—							
Bolts and nuts	Cwt.	.....	.....	.....	• 9,211	84,545	9 18
Cutlery	$	.....	.....	.....	•	2,025,493	.....
Hardware, n. o. p	$	.....	1,995,603	.....	.....	1,580,628	.....
Nails, brads, spikes and tacks of all kinds	Cwt.	.....	.....	.....	• 126,823	761,988	6
Nails, wire	"	(a)	6,294,195	.....	204,772	1,302,413	6 36
Needles and pins of all kinds	$	.....	.....	.....	•	72,798	.....
Screws of all kinds	$	.....	.....	.....	•	46,820	.....
Machinery (except agricultural):—							
Dynamos, generators and motors	$	.....	.....	.....	•	105,531	.....
Lawn mowers	No.	.....	.....	.....	• 4,879	29,872	6 12
Linotype machines and parts of	$	.....	5,937	.....	.....	30,957	.....
Sewing machines and parts of	$	.....	50,054	.....	.....	568,224	.....
Typewriters	No.	3,461	192,401	65 59	3,830	297,948	77 79
Washing machines, domestic, and wringers	$	.....	14,447	.....	.....	32,096	.....
Other machinery and parts of, n.o.p	$	.....	5,349,457	.....	.....	5,852,327	.....
Rolling Mill Products:—							
Bars and rods	Tons.	105,285	10,312,657	97 95	52,191	3,394,894	65 05
Metallic shingles and laths and corrugated roofing	$	.....	13,823	.....	.....	18,514	.....
Rails	Tons.	12,952	575,062	44 40	30,737	1,297,836	42 22
Structural steel	"	.....	.....	.....	• 5,515	465,989	84 49
Tubes and piping	$	.....	.....	.....	•	1,715,707	.....

Smelted Products:—							
Billets, ingots and blooms	Tons.	61,782	2,645,943	42 83	28,087	1,731,529	61 65
Ferro-manganese and other ferro-products, n.o.p.	"	23,781	2,671,434	112 33	22,449	1,229,341	54 76
Ferro-silicon	"						
Pig-iron	"	2,130	169,495	79 58	63,605	1,820,260	28 62
Vehicles:—							
Aeroplanes and parts	$		5,679,674			2,480,463	
Automobiles, freight	No.	10,361	5,076,076	489 92	3,352	1,673,256	499 18
" passenger	"				19,597	11,580,260	590 92
" parts of	$		919,738			3,190,577	
Bicycles	No.	93	4,951	53 24	121	4,968	41 06
" parts of	$		91,807			114,683	
Cars and coaches, railway and parts of	$				*	1,495,402	
Motor vehicles, n.o.p.	No.				* 9	4,130	458 89
Other vehicles, n.o.p.	$					103,387	
Wire:—							
Wire, barbed	Cwt.				24,960	167,142	6 70
Wire, woven fencing	$					88,140	
Other wire, n.o.p.	$					2,059,304	
Other Iron and Steel Products:—							
Castings, n.o.p.	$		516,742			296,236	
Forgings	$				*	1,612,236	
Furniture	$				*	41,587	
Gas buoys	$						
Guns, rifles and firearms of all kinds	$		1,118,562			2,735,086	
Lamps and lanterns	$					80,129	
Scales and weighing beams	$				*	70,619	
Scrap iron and steel	Tons.	51,545	853,097	16 55	245,214	3,779,179	15 41
Stoves of all kinds	$		84,640			124,331	
Tinware	$		195,817			66,076	
Tools, hand or machine, n.o.p.	$		1,962,883			1,059,992	
Other manufactures of iron and steel, n.o.p.	$		8,907,060			6,645,007	
Total			61,772,613			84,059,924	

*Nine months, 1919.
(a) Includes wire, barbed fencing, fencing woven and other wire, n.o.p., 1918.

Annual Exports of Iron and Steel Products since 1909.

Calendar Year.	Value.	Calendar Year.	Value.	Calendar Year.	Value.
1909*	$ 7,172,413	1913	$13,999,149	1917	$ 46,791,681
1910	7,895,489	1914	14,391,746	1918	61,771,613
1911	9,907,281	1915	48,268,148	1919	84,058,92-
1912	10,682,484	1916	63,958,558		

*Agricultural implements, automobiles and bicycles included in 1909 and subsequent years.

Separate records covering a period of years, of the annual exports of pig-iron and ferro-alloys and of scrap iron and steel have already been given on previous pages.

The total value of the imports of iron and steel goods during the calendar year 1919 subject to the explanation already made in respect to certain products not recorded under the usual and regular classification and therefore omitted from this record was $181,332,310, as compared with a value of $178,340,779 imported during the calendar year 1918. Owing to a revision of the trade report classification this compilation includes for 1918 and 1919 a number of items not formerly included in the corresponding compilation of earlier years.

Between 1895 and 1904 the imports of iron and steel increased from about $8,600,000 to over $40,000,000. During the next five years there was comparatively little change, but from 1909 to 1913 the increase was again very rapid. During the latter part of 1913 there was, however, a distinct check to imports with the heavy falling off shown in 1914 and 1915. These imports include all classes of manufactured iron and steel goods as well as those of cruder form. In many cases the values only of the imported goods are given so that a total tonnage of imports cannot be stated. 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 since 1909 is shown in the accompanying tables.

Thus, during the twelve months ending December 31, 1919, there were imported 750,029 tons of iron and steel valued at $55,130,143, or an average of $73.50 per ton, together with other iron and steel goods the quantities of which are not stated, valued at $126,202,167.

During the twelve months ending December 31, 1918, there were imported 786,151 tons of iron and steel valued at $70,532,351, or an average of $89.72 per ton, together with other iron and steel goods the quantities of which are not stated, valued at $107,808,428.

Summary of Imports of Iron and Steel, 1918 and 1919.

Material.	1918.			1919.		
	Tons.	Value.	Average.	Tons.	Value.	Average.
		$	$ cts.		$	$ cts.
Pig-iron and kentledge	67,397	2,102,435	31 19	35,800	1,022,871	28 57
Ferro-alloys and chrome steel	35,576	4,335,109	121 87	16,423	943,584	57 45
Ingots, blooms, billets, puddled bars, etc	(c) 3,409	262,210	76 91	12,135	494,101	40 72
Scrap iron and scrap steel	57,189	775,526	13 56	39,790	482,963	12 14
Plates and sheets	158,613	14,114,139	88 98	183,061	12,820,340	70 03
Tin plates and sheets	72,844	11,403,887	156 55	43,407	6,436,047	148 27
Bars, rods, hoops, bands, etc	171,116	17,849,982	104 31	147,726	12,771,836	86 45
Structural iron and steel	145,215	11,004,159	75 78	184,813	11,142,997	60 29
Rails and connexions	10,152	561,970	55 36	14,059	774,985	55 12
Pipe and fittings (a)	1,906	128,257	67 29	1,277	90,879	71 18
Nails and spikes	4,500	404,913	89 98	2,359	228,580	96 90
Wire (a)	36,414	3,760,004	103 25	49,244	4,595,101	93 31
Forgings, castings and manufactures	21,820	3,829,760	175 52	19,935	3,325,859	166 83
Total	(c) 786,151	70,532,351	89 72	750,029	55,130,143	73 50
Other iron and steel products valued at	.....	107,808,428	.....	.....	126,202,167	.....
Total value of imports of iron and steel	.....	178,340,779	.....	.....	181,332,310	.....

(a) There are additional imports of pipe and wire included under "other iron and steel products."
(c) This item should perhaps be increased by about 277,000 tons and a value over $19,000,000 because of the imports of ingots, &c., entered under a general classification.

Summary of Tonnage of Iron and Steel Imported during Calendar Years, 1913-1917.

(In short tons.)

Material.	1913	1914	1915	1916	1917
Pig-iron and iron kentledge	236,769	78,680	47,482	58,330	83,416
Ferro-products and chrome steel	30,678	22,271	13,905	14,840	12,886
Ingots, blooms, billets, puddled bars, etc.	52,872	13,049	54,118	(c) 20,876	(b) 20,778
Scrap iron and scrap steel	104,747	27,688	11,477	11,574	20,654
Plates and sheets	365,675	227,633	224,484	225,439	185,074
Tin plates and sheets	58,031	50,791	45,165	57,543	66,676
Bars, rods, hoops, bands, etc	277,879	148,368	156,990	198,652	228,512
Structural iron and steel	439,871	160,538	126,780	158,905	185,965
Rails and connexions	182,421	42,064	12,481	14,003	22,213
Pipe and fittings (a)	30,663	15,614	4,489	5,399	2,348
Nails and spikes	7,584	4,864	1,522	4,103	10,928
Wire (a)	70,712	66,280	49,529	66,115	51,764
Forgings, castings and manufactures	32,604	20,339	22,585	29,137	38,562
Total	1,890,506	878,179	771,007	(c) 864,916	(b) 929,776

(a) There are additional imports of pipe and wire included under "other iron and steel products."
(b) This figure should be increased by nearly 150,000 tons and the value in proportion, because of the imports of steel billets entered under a general classification.
(c) This figure should be increased by nearly 100,000 tons and the value in proportion, because of the imports of steel billets entered under a general classification. See explanation under steel billets, page No. 22.

Summary of Tonnage of Iron and Steel Imported, 1909-13.

(In short tons).

Material.	Twelve Months Ending March.				
	1909	1910	1911	1912	1913
Pig-iron and iron kentledge	58,591	159,506	270,102	201,112	291,904
Ferro-products and chrome steel	13,206	15,153	19,182	18,548	23,378
Ingots, blooms, billets, puddled bars, etc	8,887	36,819	48,395	89,190	86,745
Scrap iron and scrap steel	26,212	28,797	53,824	78,378	103,317
Plates and sheets	116,610	200,575	205,690	243,461	376,633
Tin plates and sheets	26,859	39,866	44,025	45,802	64,571
Bars, rods, hoops, bands, etc	73,261	117,159	183,865	195,139	278,878
Structural iron and steel	162,735	195,748	232,585	268,572	377,551
Rails and connexions	32,543	55,183	36,690	97,062	156,318
Pipe and fittings	18,309	16,705	28,831	26,627	40,987
Nails and spikes	1,611	3,476	3,374	7,201	11,420
Wire	39,375	68,211	64,850	69,597	80,846
Forgings, castings, and manufactures	14,394	18,093	24,523	27,668	47,195
Total	592,593	955,291	1,215,936	1,368,357	1,939,743

Annual Imports of Iron and Steel Products since 1895.

Year.	Value.	Year.	Value.	Year.	Value.	Year.	Value.
	$		$		$		$
1895 (a)	8,684,024	1902	31,591,488	1909	42,075,797	1915	74,308,983
1896	10,206,759	1903	39,536,867	1910	62,356,974	1916	129,090,248
1897	11,063,156	1904	40,449,175	1911	88,179,152	1917	187,191,534
1898	16,340,992	1905	40,820,233	1912	105,614,450	1918	184,236,753
1899	19,463,329	1906 (a)	42,210,305	1913 (b)	148,579,272	1919 (c)	186,038,850
1900	27,926,766	1907*	44,739,403	1913 (c)	145,226,972		
1901	25,023,453	1908 (b)	64,257,238	1914	80,063,679		

*Nine months ending March, 1907.
(a) Twelve months ending June from 1895 to 1906 inclusive.
(b) Twelve months ending March from 1908 to 1913 inclusive.
(c) Twelve months ending December from 1913 to date.

Imports of Iron and Steel Goods, 1918 and 1919.

Material.		Calendar Year 1918.			Calendar Year 1919.		
		Quantity.	Value.	Value per unit.	Quantity.	Value.	Value per unit.
			$	$ cts.		$	$ cts.
Agricultural Implements, Dairy Machinery—							
Cream separators	$	.....	617,511	.....	.....	.....	.....
" " steel bowls for	"	.....	.....	.....	.....	680,455	.....
Cream separator materials which enter into the construction of and form part of, when imported by manufacturers thereof, and articles of metal for use in the manufacture of cream separator parts	"	.....	587,932	.....	.....	558,202	.....
Harvesting Implements—	"	.....	27,930	.....	.....	5,759	.....
Binding attachments	No.	12,979	10,306	0 79	14,771	11,060	0 75
Forks, pronged	"	2,609	457,757	175 45	1,598	307,907	192 68
Harvesters, self-binding	"	195	18,438	94 55	24	2,620	109 17
Hay-loaders	"	516	25,413	49 25	97	5,501	56 71
Hay tedders	"	1,868	114,318	61 20	859	55,737	64 89
Mowing machines	"	1,067	66,869	62 67	610	48,196	79 01
Potato diggers	"	2,781	73,125	26 29	751	28,854	38 42
Rakes, horse	"	5,947	2,123	0 36	10,465	4,749	0 45
" n. o. p.	"	122	9,698	79 49	91	7,473	82 12
Reapers	"	1,237	12,301	9 94	436	5,395	12 47
Scythes	Doz.	207	526	2 54	510	1,276	2 50
Sickles, or reaping hooks	"						
Planting and Tillage Implements—							
Cultivators, and weeders, and parts of	$	.....	142,948	.....	.....	103,984	.....
Drills, seed	No.	6,061	431,822	71 25	5,458	194,420	35 62
Harrows and parts of	"	.....	466,628	.....	.....	277,155	.....
Hoes	"	22,330	9,186	0 41	6,314	2,613	0 41
Ploughs and parts of	$	.....	2,794,154	.....	.....	1,794,736	.....
Rollers, farm, road, or field	No.	27	613	22 70	144	38,814	269 54
Seed Separation Machinery—							
Fanning mills	No.	3,564	66,958	18 79	2,678	45,476	16 98
Threshing machine separators	"	1,269	1,038,406	818 29	926	822,819	888 57
Threshing machine separators, parts of, including wind stackers, baggers, weighers and self-feeders therefore and finished parts thereof, for repairs, when imported separately	$	.....	352,758	.....	.....	437,530	.....
All other Agricultural Implements—	No.	1,687	76,069	45 09	1,100	69,085	62 80
Fodder and feed cutters	"	340	15,094	44 39	198	6,143	31 03
Grain crushers	"	73	34,013	465 93	214	77,884	363 94
Hay presses	"	2	20	10 00	.....	.....	.....
Horse powers for farm purposes	"	1,002	360	0 36	2,081	761	0 37
Knives, edging	"	3,264	1,298	0 40	1,935	1,102	0 57
Knives, hay or straw							

Imports of Iron and Steel Goods, 1918 and 1919.—*Continued.*

Material.		Calendar Year 1918.			Calendar Year 1919.		
		Quantity.	Value.	Value per unit.	Quantity.	Value.	Value per unit.
			$	$ cts.		$	$ cts.
All other Agricultural Implements—*Con.*							
Manure spreaders	No.	391	39,332	100 59	80	9,397	117 46
Post-hole diggers	"	6,243	7,011	1 12	4,794	6,153	1 28
Spades and shovels of iron and steel, n.o.p.	Doz.	4,253	12,232	2 88	1,995	12,711	6 37
All other agricultural implements, n.o.p.	$	.....	128,404	.....	.....	132,417	.....
Parts of Agricultural Implements—							
Plough plates, mould boards, or shares, land sides and other plates for agricultural implements, when cut to shape from rolled plates of steel, but not moulded, punched, polished or otherwise manufactured	Tons.	8,008·9	1,405,323	175 47	2,651·3	417,711	157 55
Parts of agricultural implements, n.o.p.	$	.....	624,444	.....	.....	496,965	.....
Boilers, Engines, Pumps, and Windmills—							
Boilers, steam and parts of	"	.....	266,516	.....	.....	211,725	.....
Boilers, n.o.p., and parts of	"	.....	153,039	.....	.....	177,680	.....
Engines, automobile	No.	(1)	.....	.....	(*b*) 29,766	5,586,127	187 67
" fire	"	6	11,421	1,903 50	16	34,742	2,171 37
" gas and gasoline	"	50,683	6,242,436	123 17	(*a*) 10,627	1,751,824	164 84
" gas and gasoline, n.o.p.	"	(1)	.....	.....	(*b*) 22,830	2,324,604	101 82
" steam	"	167	366,995	2,197 57	245	252,021	1,028 66
Locomotives for railways, electric	"	.....	.....	.....	(*b*) 7	37,370	5,338 57
Locomotives for railways	"	73	593,956	7,614 83	(*a*) 20	100,175	5,008 75
Locomotives for railways, n.o.p.	"	.....	.....	.....	(*b*) 40	424,995	10,624 87
Locomotive parts	$	.....	147,654	.....	.....	127,044	.....
Portable engines with boilers in combination and traction engines for farm purposes	No.	1,193	2,113,877	1,771 90	(*a*) 53	176,183	3,324 21
Portable engines with boilers in combination for farm purposes	"	.....	.....	.....	(*b*)	951	.....
Repairs for traction engines, gas or gasoline, for farm purposes, valued at not more than $1,400 including automobile traction attachments	$	.....	.....	.....	.....	1,095,748	.....
Traction engines for farm purposes, n.o.p.	No.	.....	.....	.....	(*b*) 317	987,152	3,114 04
Traction engines, gas or gasoline, for farm purposes costing not more than $1,400 in the country of production	"	9,231	8,533,706	924 46	9,775	9,660,405	988 28
Traction engines, parts of, such as automobile traction attachments for farm purposes	$	.....	871,721	.....	.....	383,407	.....
Pumps, hand, n.o.p.	No.	23,644	221,226	9 36	25,212	249,951	9 91
" power and parts of	"	6,817	851,173	124 86	5,486	924,449	168 51
Windmills and complete parts thereof	$	.....	68,945	.....	.....	63,905	.....

(*a*) 1st 3 months; (*b*) Last 9 months; (1) Included in "Engines, gas or gasoline".

Castings, n.o.p.—								
Cast iron pipe of every description	Tons	1,906·1	128,257	67 29	1,276·7	90,879	71 18
Castings, iron, malleable, when imported by manufacturers of mowers, hinders, harvesters and reapers	$		289,125			267,179	
Castings, malleable iron, n.o.p	"	(b)	189,500			354,325	
" iron, n.o.p., not malleable	"	(b)	838,325			1,037,744	
" steel	"	(b)	148,091			193,934	
" n.o.p	"	(a)	434,728				
Chains—							
Chains, oil chains, coil chain links including repair links and chain shackles, of iron or steel, 1¼" in diameter and over	Tons	105·2	24,945	237 12	354·8	75,072	211 59
Chains, coil chains, coil chain links, including repair links and chain shackles of iron or steel, n.o.p	"	329·7	76,227	231 20	297·6	87,694	294 67
Chain, malleable sprocket or link belting for the manufacture of agricultural implements	$		215,122			227,483	
Iron or steel cable chains for wooden, iron, steel, or composite ships or vessels	Tons				(b) 930·3	195,156	209 77
Chains, n.o.p	$		250,803			295,113	
Cutlery and hardware, n.o.p.—							
Knife blades, or blanks, and table forks of iron or steel, in the rough, not handled, filed, ground, or otherwise manufactured	"		1,259			5,677	
Knives and forks of steel, [illegible]ted or not, n.o.p	"		209,336			307,420	
Pen-knives, jack-knives, [illegible]ocket-knives of all kinds	"		245,268			388,440	
Razors of all kinds	"				(b)	121,360	
Scissors and shears, n.o.p	"				(b)	103,715	
All other cutlery, n.o.p	"		580,315			384,090	
Fish-hooks for deep-sea, or lake fishing, not smaller in size than No. 20, not including hooks commonly used for sportsmen's purposes	"		57,780			61,602	
Hardware, viz.: Builders', cabinet-makers', upholsterers', harness-makers'; saddlers' and carriage hardware	"		550,944			598,721	
Locks of all kinds	"		386,901			514,666	
Skates of all kinds, roller, or other, and parts thereof	"		23,923			32,690	
Steel balls adapted for use on bearings of machinery and vehicles			115,437			80,505	
Trawls, trawling spoons, fly-hooks, sinkers, swivels, and sportsmen's fishing bait and fish-hooks, n.o.p	"		81,035			80,119	
Butts and hinges, n.o.p	"		96,431			98,805	
T and strap hinges of all kinds, n.o.p	Tons	174·1	26,521	152 33	128·7	20,460	158 97
Nails and spikes, composition and sheathing nails	"	11·9	3,760	315 96	9·5	2,047	215 47
Nails and spikes, cut, ordinary builders	"	13·8	2,033	122 80	32·7	3,275	100 15
Nails, brads, spikes and tacks of all kinds, n.o.p	"	116·0	44,801	386 21	85·8	38,800	452 21
Nails, wire of all kinds, n.o.p	"	3,510·9	295,341	84 12	1,097·3	114,645	104 48
Railway spikes	"	843·6	58,601	69 46	1,131·3	69,091	61 07
Tacks, shoe	"	1·1	347	315 45	2·2	722	328 18
Needles, of any material, or kind, n.o.p	$		271,962			353,338	
Pins, n.o.p	"		113,482			138,865	
Nuts, rivets and bolts with or without threads; nut and [illegible]olt blanks	Tons	1,826·6	402,053	220 11	1,568·7	335,774	214 05
Screws, lag or coach, plated or not: machine or other screws, n.o.p.	$		57,764			54,607	
Screws, commonly called "wood screws" of iron, steel, brass, or other metal	"		154,764			68,199	

Imports of Iron and Steel Goods, 1918 and 1919.—*Continued.*

Material.		Calendar Year 1918.			Calendar Year 1919.		
		Quantity.	Value.	Value per unit.	Quantity.	Value.	Value per unit.
			$	$ cts.		$	$ cts.
Firearms—							
All materials, or parts in the rough, unfinished, and screws, nuts, bands, and springs, and steel for rough unfinished parts, to be used in rifles to be manufactured for the Government of Canada	$						
Gun barrels in single tubes, forged, rough bored	"						
Guns, rifles, including air guns and air rifles (not being toys), muskets, cannons, pistols, revolvers, or other firearms	"		150,592			531,446	
Machinery (except Agricultural)—							
Machines, traction ditching (not being ploughs) adapted for tile drainage on farms valued by retail at not more than $3,000 each, and parts thereof for repairs	No.	32	50,753	1,586 03	21	72,664	3,460 19
Scrapers, railway and road	$		104,593			115,536	
Steam shovels and electric shovels	No.	16	151,582	9,473 88	49	419,744	8,566 20
Carpet sweepers and hand vacuum cleaners	"	14,916	88,034	5 90	19,449	237,998	12 24
Clothes wringers and parts thereof for domestic use	$		21,827			63,542	
Sewing machines	No.	10,535	290,898	27 61	14,298	487,793	34 12
Sewing machine attachments	$		56,044			99,148	
Sewing machine parts	"		247,262			450,414	
Washing machines, domestic	No.	13,761	297,793	21 64	10,482	415,200	39 61
Appliances of iron or 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	$		96,559			19,143	
Articles of metal 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; ore 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 processes; amalgam safes; automatic ore samplers; automatic feeders; retorts; mercury pumps; pyrometers; hullion furnaces; amalgam cleaners; blast furnace blowing engines; and integral parts of all machinery mentioned in this item	"				(b)	565,026	
Blowers of iron or steel of a class or kind not made in Canada, for use in the smelting of ores or in the reduction, separation or refining of metals; rotary kilns; revolving roasters and fur-							

naces 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	$				(b)	120,475	
Buddles, vanners, and slime tables adapted for use in gold mining	"				(b)	24,860	
Diamond drills and parts of, not to include machine power	"		47,179			52,615	
Mining, smelting and reducing machinery and machinery for use exclusively in mining or metallurgical operations, n.o.p.	"		705,568		(a)	139,253	
Ore crushers and rock crushers, stamp mills, Cornish and belted rolls, rock drills and percussion coal cutters	"				(b)	292,991	
Ore crushers and rock crushers, stamp mills, Cornish and belted rolls, rock drills, air compressors and percussion coal cutters	"		874,097		(a)	164,397	
Well drilling machinery 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	"		7,478			13,295	
Office or business machinery—							
Adding and calculating machines	No.	1,574	499,625	317 42	1,676	783,361	467 39
Cash registers and parts of	$		109,792			190,683	
Typewriting machines	No.	12,443	795,536	63 93	13,786	916,524	66 48
Printing and bookbinding machinery—							
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	$		362,771			470,212	
Newspaper printing presses of not less value by retail than $1,500 each of a class or kind not made in Canada	No.	49	211,514	4,316 61	71	362,066	5,099 52
Printing presses and lithographic presses, n.o.p.	$		457,086			523,521	
Typecasting and typesetting machines and parts thereof, adapted for use in printing offices	"		711,758			771,853	
Typemaking accessories for printing presses	"		19,480			16,937	
Other Machinery—							
Air-compressing machines	"				(b)	225,622	
Briquette-making machines	"		25,396			17,660	
Cement-making machines	"		22,017			29,431	
Coal-handling machines	"		322,173			167,181	
Concrete-mixing machines	No.	39	26,680	684·10	167	47,362	283·60
Cranes and derricks	"	112	429,729	3,836·87	119	1,005,161	8,446·73
Cyclometers, pedometers and speedometers	$		147,683			221,841	
Dental engines, electric	No.	82	9,697	118·26	163	22,312	136·88
Electric dynamos and generators	$				(b)	735,579	
Electric motors	"				(b)	1,387,834	
Electric motors, dynamos and generators	"		2,404,825		(a)	464,062	
Fire extinguishing machines, inlcuding sprinklers for fire protection	"		121,395			115,730	
Lathes, power	"				(b)	402,473	
Lawn mowers	No.	7,357	49,109	6·68	2,236	30,928	13·83
Machine drills	$				(b)	551,259	
Machinery and tools not manufactured in Canada up to the required standard necessary for any factory for the manufacturing of rifles for the Government of Canada	"						

Imports of Iron and Steel Goods, 1918 and 1919.—*Continued.*

Material.		Calendar Year 1918.			Calendar Year 1919.		
		Quantity.	Value.	Value per unit.	Quantity.	Value.	Value per unit.
Other Machinery—*Continued.*			$	$ cts.		$	$ cts.
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	$		42,070			77,953	
Paper mill machines	"				(b)	1,004,990	
Pulp mill machines	"				(b)	80,595	
Paper and pulp mill machinery	"		872,321		(a)	132,273	
Portable machinery, n.o.p., and parts of	"		59,934			126,630	
Rolling mill machines	"		333,184			582,422	
Saw-mill machines	"		110,166			178,927	
Saw and planing mills, portable	No.	77	13,099	170 12	69	9,064	131 36
Textile 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	$		62,568			82,781	
Textile 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	"		1,844,067			3,060,322	
Other machinery composed wholly, or in part of iron or steel, n.o.p. and iron or steel integral parts of	"		15,390,480			16,353,42[illegible]	
Rolling Mill Products—							
Band and Hoop Iron or Steel:—							
Iron or steel bands, strips, or sheets, No. 14 gauge or thinner, coated, polished or not, and rolled iron or steel sections, not being ordinary square, flat or round bars, when imported by manufacturers of saddlery, hardware and hames	$		24,581			15,940	
Rolled hoop iron, or hoop steel, (galvanized), Nos. 12 and 13 gauge.	Tons.	43·4	3,092	71 24	243·4	16 43[illegible]	67 51
Rolled iron or steel and 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	"	64,908·3	10,927,545	168 35	30,689·9	4,298,705	140 07
Rolled iron or steel and 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	"				(c) 22,124·4	2,912,167	131 63
Rolled iron or steel hoop, band, scroll or strip, No. 14 gauge and thinner, and rolled iron or steel sheets imported for the manufacture of galvanized iron or steel hoop, band scroll, strip, or sheet	"	7,773·5	757,148	97 40	7,360·3	654,531	85 44

Rolled iron or steel, hoop, band, scroll, strip, No. 14 gauge and thinner, galvanized or coated with other metal or not, n.o.p., including drawn iron or steel of this description for the manufacture of mats	Tons.	6,783·9	691,211	10' 89	2,602·2	231,517	88 97
Drawn iron or steel, hoop band, scroll, or strip, No. 14 gauge and thinner, galvanized or coated with other metal or not, imported by manufacturers of mats for use in such manufacture in their own factories	"	.....	.....	.....	(d) 49·5	6,427	129 84
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.	"	.....	.....	.....	(d) 4,176·5	402,087	96 27
Rolled iron or steel, hoop, band, scroll, or strip, 12 inches or less in width, No. 13 gauge and thicker, n.o.p.	"	1,315·5	84,711	64 39	2,227·0	133,602	59 99
Steel No. 12 gauge and thinner, but not thinner than No. 30 gauge, for the manufacture of bed fasts, buckle clasps, furniture castors and ice creepers	"	120·9	16,587	137 19	134·1	16,413	122·40
Steel No. 20 gauge and thinner, but not thinner than No. 30 gauge, for the manufacture of corset steels, clock springs and shoe shanks	"	198·5	92,354	465 26	136·3	59,749	438 36
Steel, rolled for saws and straw cutters, not tempered or ground, nor further manufactured than cut to shape, without indented edges	"	1,064·6	354,247	332 75	1,485·3	258,888	174 30
Bars including Steel Rails—							
Bar iron or steel, rolled, whether in coils, bundles, rods or bars, compressing rounds, ovals, squares or flats, n.o.p.	"	45,805·6	2,895,851	63 22	40,617·4	2,274,770	56 00
Flat steel, cold rolled, not over ½ inch thick, for the manufacture of cups and cones for ball bearings	"	.....	.....	.....	23·7	3,622	152 83
Forgings of iron or steel of whatever shape or size, or in whatever stage of manufacture, n.o.p., and hammered, drawn, or cold rolled iron or steel bars or shapes, n.o.p.	"	2,218·5	464,727	209 48	(a) 471·9	115,232	244 19
Hammered, drawn or cold rolled iron or steel bars or shapes, n.o.p.	"	.....	.....	.....	(b) 892·8	132,113	149 09
Iron and steel railway bars or rails of any form, punched or not, n.o.p., for railways, street railways and tramways	"	7,787	404,417	51 93	10,752	570,213	53 03
Shafting, round, steel, in bars not exceeding 2½ inches in diameter.	"	2,353·8	238,406	101 29	1,568·6	152,461	97 20
Shafting, steel, turned, compressed or polished	"	.....	37,737	.....	.....	13,799	.....
Spade and shovel blanks and iron and steel cut to shape for the same	Doz.	16	93	5 81	548	433	0 79
Steel in bars or sheets, to be used exclusively in the manufacture of shovels	Tons.	2,842·3	216,131	76 04	2,163·8	143,544	66 34
Boiler plate of iron or steel not less than 30 inches in width and not less than ¼ inch in thickness, for use exclusively in the manufacture of boilers	"	11,020·8	961,888	87 28	9,074·0	777,911	85 73
Canada plates, Russia iron, terne plate and rolled sheets of iron or steel, coated with zinc, spelter or other metal, of all widths or thicknesses, n. o. p.	"	10,786·7	683,711	63 38	8,326·5	853,569	102 51
Iron sheets and plates, coated with tin, commonly known as tin plate	"	72,843·	11,403,887	156 55	43,407·4	6,436,047	148 27
Rolled iron or steel plates, not less than 30 inches in width and not less than ¼ inch in thickness, n.o.p.	"	17,209·2	1,181,940	68 68	27,372·8	1,618,099	59 11

(c) From July 7th. (d) From June 6th.

Imports of Iron and Steel Goods, 1918 and 1919.—*Continued.*

Material.		Calendar Year 1918.			Calendar Year 1919.		
		Quantity.	Value.	Value per unit.	Quantity.	Value.	Value per unit.
Bars including Steel Rails—*Continued.*				$ cts.		$	$ cts.
Rolled iron or steel plates or sheets, sheared or unsheared and skelp iron or steel, sheared or rolled in grooves, n.o.p.	Tons.	5,118·7	360,609	70 45	13,498·6	996,478	73 82
Rolled iron or steel sheets, polished or pot, No. 14 gauge and thinner, n. o. p.	"	39,384·7	4,465,322	113 38	27,519·8	2,831,411	102 89
Sheets, flat of galvanized iron or steel	"	6,113·6	719,983	117 76	8,449·6	976,220	115 53
Sheets, iron or steel, corrugated, galvanized	"	0·1	9	90 00	59·1	5,923	100 22
Sheets, iron or steel, corrugated, not galvanized	"						
Sheets or plates of steel, cold rolled, sheared edges, over 14 gauge, not less than 1½ inches wide, for manufacture of mower bars, hinges, typewriters, and sewing machines	"	326·5	31,993	97 99	203·7	18,782	92 20
Skelp iron or steel, sheared or rolled in grooves, not over 4¼ inches wide, for the manufacture of rolled iron tubes, not over 1½ inches in diameter	"	2,529·5	196,056	77 56	1,697·1	94,890	55 91
Skelp iron or steel, sheared or rolled in grooves, for the manufacture of wrought iron or steel pipe	"	57,343·8	3,967,610	69 19	83,711·2	4,139,860	49 45
Steel, crucible sheet 11 to 16 gauge, 2½ to 18 inches 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	"	688·3	131,108	190 48	474·0	85,864	181 15
Steel No. 24 and 17 gauge, in sheets 63 inches long and from [illegible] 32 inches wide, when imported by the manufacturers of t[illegible] lar bow sockets for use exclusively in the manufacture of [illegible] articles in their own factories	"	82·5	8,587	104 08			
Rods—							
Rolled iron and rolled steel nail rods, under ½ inch in diameter for the manufacture of horseshoe nails	"	1,647·9	73,722	44 74	2,432·4	88,414	36 35
Rolled round rods in the coil, of iron or steel, for the manufacture of chains	"	2,264·5	151,391	66 85	773·4	48,156	62 27
Rolled round wire rods, in the coil, of iron or steel not over ¾ inch in diameter, for making wire in the coil	"	40,573·6	2,265,311	55 83	34,129·3	1,705,027	49 96
Structural Iron and Steel—							
Flat eye-bar blanks, not punched nor drilled, for use exclusively in the manufacture of bridges or of steel structural work, or in car construction	"	2	371	185 50	271	14,646	54 04
Iron or steel bridges or parts thereof, iron or steel structural work, columns, shapes or sections, drilled, punched, or in any further state of manufacture than as rolled or cast, n.o.p.	$		277,832			47,211	

Rolled iron or steel angles, tees, beams, channels, girders and other rolled shapes or sections not punched, drilled, or further manufactured than rolled, n.o.p.	Tons.	29,739·3	1,901,363	64 04	25,918·9	1,480,205	57 11
Rolled iron or steel angles, beams, channels, and other rolled shapes of iron or 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	"	49,128	3,110,006	63 30	61,709·5	3,405,724	55 20
Steel plate universal mill or rolled edge plates of steel, over 12 inches wide, imported for use in the manufacture of bridges or of structural work or in car construction	"	5,326·3	362,352	68 04	15 139	867,302	57 29
Tubing and piping—							
Iron or steel pipe, not butt or lap welded, and wirebound wooden pipe not less than 30 inches internal diameter, when for use exclusively in alluvial gold mining	$						
Iron or steel pipe or tubing, plain or galvanized, riveted, corrugated or otherwise specially manufactured, including lock-joint pipe, n.o.p.	"		323,420			198,924	..
Iron tubing, brass covered, not over 3 inches in diameter, and brass trimmings, not polished, lacquered or otherwise manufactured, for the manufacture of iron or brass bedsteads	"		183,097			377,462	..
Iron tubing, lacquered or brass covered, for the manufacture of extension rods for windows	"		4,253			5,311	..
Iron tubing, lacquered or brass covered, not over 2 inches in diameter, brass cased rods and brass trimmings, for the manufacture of carriage rails	"		35			2	
Iron tubing, lacquered or brass covered, not over 2 inches in diameter in the rough, for the manufacture of towel bars, bathtub rails and clothes carriers	"					28	
Rolled or drawn square tubing of iron or steel adapted for use in the manufacture of agricultural implements	"		16,870			5,931	
Seamless steel or wrought iron boiler tubes, including flues and corrugated tubes for marine boilers	"		1,855,992			1,481,874	
Seamless steel tubing valued at not less than 3½ cents per pound	Tons	888·2	209,146	235 47	998·8	247,191	247 49
Steel or iron tubes, rolled, not joined or welded, not more than 1½ inches in diameter, n.o.p	$		74,223			60,068	
Wrought or seamless tubing, iron or steel, plain or galvanized, threaded and coupled or not, 4 inches or less in diameter, n.o.p.	"		486,917			334,422	
Wrought or seamless tubing, iron or steel, plain or galvanized, threaded and coupled or not, over 4 inches but not over 10 inches in diameter, n.o.p.	"		172,342			198,901	
Wrought or seamless iron or steel tubing, plain or galvanized, threaded and coupled or not, over 10 inches in diameter, n.o.p	"		133,933			82,865	
Other rolling mill products—							
Iron or steel beams, sheets, plates, angles, knees and masts or parts thereof, for wooden, iron, steel or composite ships or vessels	Tons	61,021·3	5,627,438	92 22	82,054·4	5,389,766	65 6
Ships or vessels—angles, beams, knees, masts, plates, sheets and parts thereof and cable chains for	"						

Imports of Iron and Steel Goods, 1918 and 1919.—*Continued.*

Material.		Calendar Year 1918.			Calendar Year 1919.		
		Quantity.	Value.	Value per unit.	Quantity.	Value.	Value per unit.
Other rolling mill products—*Continued.*							
Ribs of brass, iron or steel, runners, rings, caps, notches, ferrules, mounts, and sticks or canes in the rough, or not further manufactured than cut into lengths suitable for umbrella, parasol or sunshade, or walking sticks	$		173,026			182,593	
Rolls of chilled iron or steel	Tons	132·3	19,460	147 09	100·9	13,397	132 78
Safes and doors for safes and vaults	$		36,687			92,173	
Steel, chrome steel	Tons.	292·5	51,976	177 70	201·3	41,906	208 18
Scrap iron or steel—							
Cast scrap iron	"	1,022	23,645	23 14	2,615	54,721	20 93
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	"	56,166·6	751,881	13 39	37,150 9	427,392	11 50
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	"				23·7	859	35 87
Smelted Products—							
Ferro-manganese and spiegeleisen containing more than 15 per cent manganese	"	34,023	3,743,982	110 04	15,678	687,134	43 94
Ferro-silicon containing not more than 15 per cent silicon	"	345·2	22,209	64 34	278·4	13,534	48 61
Ferro-silicon containing more than 15 per cent silicon	"	0·6	225	375 00	14·9	3,068	205 90
Iron in pig and iron kentledge	"	67,397	2,102,435	31 19	35,800	1,022,871	28 57
Iron and pig (charcoal)	"						
Iron or steel billets, weighing not less than 60 pounds per lineal yard	"	2,992 4	232,065	77 55	11,869·7	479,170	40 37
Iron or steel 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	"	373·6	27,537	73 71	215	12,215	56 81
Spiegeleisen and ferro-managnese containing not more than 15 per cent manganese and other ferro-alloys, n.o.p.	"	915·1	516,717	568 07	290 2	197,942	682 09
Steel billets, n.o.p.	"	42 9	2,608	60 79	50·1	2,716	54 21
Springs—							
Furniture springs	$		77,444			149,212	
Lamp springs and clock springs			5,373			7,788	
Springs, steel, for the manufacture of surgical trusses	Tons	0 4	414	1,035 00	0·4	1,020	2,550 00
Springs, n.o.p. and parts thereof, of iron or steel, for railway or tramway vehicles	$				(b)	105,639	
Springs, n.o.p. and parts thereof, of iron or steel, for other vehicles, n.o.p.	"				(b)	313,418	

Springs, n.o.p. and parts thereof of iron or steel, for railway, tramway, or other vehicles	$		235,926		(a)	102,000		
Stamped and Enamelled Products—								
Baths, bath-tubs, basins, closets, lavatories, urinals, sinks and laundry tubs, n.o.p.	"				(c)	73,603		
Frames not more than 10 inches in width, clasps and fasteners, adapted for use in the manufacture of purses and chatelaine bags or reticules	"		32,407			63,843		
Glove fasteners, metal, shoe eyelets, corset eyelets, shoe eyelet hooks and shoe lace wire fasteners	"		671,279			629,029		
Metal tips, studs and eyes, for the manufacture of corset clasps and corset wires	"		14,590			21,131		
Ware—Agate, granite or enamelled iron or steel ware	"		117,488			102,603		
Ware—Iron or steel, hollow-ware, plain black or coated, n.o.p., and nickel kitchen or household hollow-ware, n.o.p.	"				(b)	48,109		
Ware—Iron or steel hollow-ware, plain black or coated, n.o.p., and nickel and aluminium kitchen or household hollow-ware, n.o.p.	"		258,894		(a)	81,609		
Ware—Tin, japanned or not, and all manufactures of tin, n.o.p	"		1,568,807			825,177		
Tools and hand implements—								
Adzes, cleavers, hatchets, wedges, sledges, hammers, crowbars, cantdogs and track tools; picks, mattocks and eyes or poles for the same	"		58,897			63,815		
Anvils and vises	"		104,518			120,957		
Axes	Doz.	698	9,621	13 78	431	7,731	17 94	
Files and rasps, n.o.p.	$		211,332			211,193		
Saws	"		107,424			143,552		
Tools, hand of all kinds, n.o.p.	"		1,004,675			1,317,927		
Vehicles—								
Automobiles, freight	No	1,622	2,019,618	1,245 14	2,113	3,437,464	1,624 82	
" passenger	"	9,190	7,148,647	777 87	9,637	9,304,235	965 47	
" parts of, n.o.p.	$		6,631,260		(c)	8,600,307		
Bicycles, n.o.p.	No.				(c) 1,050	20,164	14 20	
" and tricycles, n.o.p.	"	16,036	120,812	7 53	(a) 4,316	24,473	5 68	
" and tricycles, parts of, including nickel or electro-plated parts for the manufacture of bicycles	$		137,833			215,231		
Cars, railway, box and flat	"	143	148,127	1,035 85	30	39,487	1,316 23	
" " passenger	"	52	838,510	6,125 19	50	1,200,000	24,000 00	
" " tank	"				(c) 128	334,636	2,614 34	
" " tram or horse	"	36	1,800	50 00	4	2,200	550 00	
" " all other, n.o.p.	"	591	821,910	1,390 71	1,672	754,864	451 47	
" " parts of	"		618,322			940,453		
Motor cars for railways and tramways	No	67	90,142	1,345 40	171	140,572	822 05	
Motor cycles and motor vehicles of all kinds, n.o.p.	"	1,047	198,016	189 13	1,541	415,300	269 50	
Motor cycle and motor vehicle parts, n.o.p.	$				(c)	78,207		
Motor vehicles and automobiles, parts of, n.o.p.	"					1,378,734		
Tricycles, n.o.p.					(c) 8,338	32,230	3 87	

(c) Not taken out separately previous to April, 1919.

Imports of Iron and Steel Goods, 1918 and 1919.—*Continued.*

Material.		Calendar Year 1918.			Calendar Year 1919.		
		Quantity.	Value.	Value per unit.	Quantity.	Value.	Value per unit.
			$	$ cts.		$	$ cts.
Wire—							
Barbed fence wire of iron or steel	Tons	11,676·5	1,018,099	87 19	24,843·9	2,118,944	89 29
Cages, bird, parrot, squirrel, and rat, of wire, and metal parts thereof	$	.....	3,837	.....	.....	5,262	.....
Steel strips and flat steel wire, for the manufacture of buckthorn and plain strip fencing	Tons	.....	.....	.....	60	4,528	75 47
Steel wire, Bessemer soft drawn spring of No. 10, 12 and 13 gauge respectively and homo steel spring wire of No. 11 and 12 gauge, respectively, for the manufacture of wire matresses	"	1,195·4	120,058	100 43	834·4	75,468	90 45
Steel wire, flat, of No. 16 gauge or thinner, for the manufacture of crinoline or corset wires, and dress stays	"	113·2	42,188	372 69	214·4	71,662	334 24
Wire bale ties	$	.....	11,102	.....	.....	30,678	.....
Wire, buckthorn strip fencing, woven wire fencing of iron or steel, n.o.p., not to include woven wire or netting made from wire smaller than No. 14 gauge, nor to include fencing of wire larger than No. 9 gauge	"	.....	29,123	.....	.....	34,136	.....
Wire cloth and woven wire and netting, of iron or steel	"	.....	291,293	.....	.....	213,160	.....
Wire, crucible cast steel, valued at not less than 6 cents per pound	Tons	229·9	204,331	888 78	215·6	161,479	748 97
Wire, curved or not, galvanized, iron or steel, Nos. 9, 12 and 13 gauge, with variations not exceeding 4-1000 of an inch and not for use in telegraph or telephone lines	"	16,804·8	1,328,230	79 04	16,911·5	1,208,817	71 48
Wire of brass, zinc, iron or steel, screwed or twisted, or flattened or corrugated for use in connexion with nailing machines for the manufacture of boots and shoes	"	54	38,490	712 78	49·8	36,265	728 21
Wire rope for rigging of ships and vessels	"	36·6	14,732	402 51	109	26,814	241 41
Wire rope, stranded or twisted wire, clothes lines, picture or other twisted wire, and wire cables, n.o.p.	$	.....	782,779	.....	.....	948,778	.....
Wire screens for doors and windows	"	.....	15,643	.....	.....	16,523	.....
Wire, single or several, covered with cotton, linen, silk, rubber, or other material, including cable, so covered	"	.....	172,328	.....	.....	191,012	.....
Wire, steel, valued at not less than 2¼ cents per pound, for the manufacture of rope	Tons.	2,883·5	601,743	208 68	2,184·3	431,676	197 63
Wire of iron and steel of all kinds, n.o.p	"	3,419·9	392,043	114 64	3,820·9	459,948	120 38
Other iron and steel products—							
Anchors for vessels	"	766·2	143,949	187 87	982·6	181,247	184 45
Axles and axle parts, n.o.p., and axle blanks and parts thereof of iron or steel, for railway or tramway vehicles	$	.....	2,039,056	.....	(c).....	84,732	.....
Axles and axle parts, n.o.p., and axle blanks and parts thereof of iron or steel, for other vehicles, n.o.p.	"	.....	.....	.....	(c).....	2,382,811	.....

Axles and axle parts, n.o.p., and axle blanks and parts thereof of iron or steel, for railway, tramway or other vehicles	$					(a)	552,640	
Bayonets, swords, fencing foils and masks	"		1,375				2,986	
Cart and wagon skeins or boxes	Tons	89·7	19,421	216 51		9·3	1,932	207 74
Fittings, iron or steel, for iron or steel pipe of every description	$		776,493				953,964	
Forgings of iron or steel, of whatever shape or size or in whatever stage of manufacture, n.o.p	Tons					(c) 1,037·5	273,037	263 17
Furniture, house, office, cabinet, or store of metal, in parts or finished	$					(c)	385,198	
Gas buoys—Articles for the manufacture of gas buoys and gas beacons for the Government of Canada, or for export	"		10,491				13,440	
Horse, mule or ox shoes	"		53,928				29,562	
Ingot moulds, glass moulds of metal			1,042,619				528,860	
Iron and steel drums, cylinders, barrels, and tanks, n.o.p	"					(c)	450,464	
Iron sand or globules or iron shot and dry putty, adapted for polishing glass or granite or for sawing stone	$		67,528				10,247	
Locomotive and car wheel tires of steel, in the rough	Tons	8,707·3	1,524,801	175 12		6,401·8	999,833	156 18
Metal parts adapted for the manufacture of covered buttons	$		43,480				61,932	
Patterns, of brass, iron, steel or other metal, not being models	"		21,547				93,100	
Railway fish plates	Tons	1,220·3	90,059	73 80		1,384·6	85,694	61 89
Railway tie-plates	"	1,144·5	67,494	58 97		1,922·6	119,078	61 94
Switches, frogs, crossings and intersections for railways	$		356,947				121,111	
Sad or smoothing, hatters' and tailors' irons, not plated	"		4,927				6,430	
Scales, balances, weighing beams, and strength testing machines of all kinds	"		209,211				236,372	
Steel wool	"		11,359				13,139	
Stoves of all kinds, for coal, wood, oil, spirits, or gas	$		454,847				442,212	
Stove urns of metal, and dovetails, chaplets, and hinge tubes of tin, for use in the manufacture of stoves			33,407				19,384	
Valves, n.o.p	"					(c)	434,597	
Window shade or blind rollers	"		19,103				13,637	
Manufactured articles of iron or steel or brass, which at the time of their importation are of a class or kind not made in Canada, imported for use in construction or equipment of ships or vessels	"		1,097,958				1,280,789	
Manufactures, articles or wares of iron or steel or of which iron and steel (or either) are the component materials of chief value, n.o.p	"		10,518,062				10,120,171	
			178,340,779				181,332,310