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IRON AND STEEL MILLS

1964

For statistical purposes the industry titled Iron and Steel Mills in the revised Standard Industrial Classification covers four main types of establishments:

- (1) Establishments primarily engaged in manufacturing pig iron and ferro-alloys.
- (2) Steel plants primarily engaged in manufacturing ingots and steel castings and continuous casting of steel.
- (3) Rolling mills primarily engaged in hot and cold rolling of steel into primary shapes.
- (4) Coke ovens operated in connection with blast furnaces. In some instances, the blast furnace, steel mill, rolling mill and coke oven or some combination of two or more of them are carried on as one integrated operation and the manufacturing processes may be carried on beyond the rolling mill stage.

Value of shipments and other revenue of the Iron and Steel Mills totalled \$1,129 million, an increase of \$147.5 million over 1963. This amount included Coke, Gas and By-products valued at \$12.7 million, Sinter Plant and Blast Furnace products valued at \$25.2 million, steel ingots and steel castings valued at \$79.2 million, rolled steel products valued at \$945.5 million, ferro-alloy products valued at \$25.4 million, shipments of other products (secondary products) valued at \$22.5 million, and other revenue of \$19 million.

This industry's shipments of rolled steel products represented 85 per cent of its manufacturing revenue. Secondary products shipped by this industry in 1964 included carbon and graphite electrodes, lytic electrodes, cathode blocks and oil well sucker rods, etc.

The cost of materials and supplies, etc. used in the production of goods of own manufacture increased by \$82 million. Cost of materials and supplies, etc. (inputs) in 1964 represented 49.7 per cent of the value of shipments of own manufacture (outputs), compared to 49.3 per cent in 1963.

SYMBOLS

The following standard symbols are used in Dominion Bureau of Statistics publications:

- .. figures not available.
- ... figures not appropriate or not applicable.
- nil or zero.
- amount too small to be expressed.
- preliminary figures.
- * revised figures.
- x confidential to meet secrecy requirements of the Statistics Act.

TABLE 1. Principal Statistics, 1961-64

Year and province	Establishments	Manufacturing activity							Total activity				
		Production and related workers			Cost of fuel and electricity	Cost of materials and supplies	Value of shipments of goods of own manufacture	Value added	Working owners and partners		Employees		Value added
		Number	Man-hours paid	Wages					Number	Withdrawals	Number	Salaries and wages	
	No.		'000			\$'000				\$'000		\$'000	
1961													
Totals	41	28,408	59,336	152,529	29,670	351,055	774,748	397,331	-	-	34,749	193,712	405,187
1962													
Totals	41	30,101	63,319	163,556	31,639	391,866	860,755	445,501	-	-	36,593	209,171	451,549
1963													
Newfoundland	-	-	-	-	-	-	-	-	-	-	-	-	-
Prince Edward Island	-	-	-	-	-	-	-	-	-	-	-	-	-
Nova Scotia	2	x	x	x	x	x	x	x	-	-	x	x	x
New Brunswick	-	-	-	-	-	-	-	-	-	-	-	-	-
Quebec	10	2,398	5,348	12,090	3,854	25,861	58,594	29,843	-	-	2,935	15,305	30,066
Ontario	17	24,609	51,466	142,695	26,801	365,498	801,310	424,807	-	-	30,146	181,628	430,704
Manitoba	2	x	x	x	x	x	x	x	-	-	x	x	x
Saskatchewan	-	-	-	-	-	-	-	-	-	-	-	-	-
Alberta	2	x	x	x	x	x	x	x	-	-	x	x	x
British Columbia	6	555	1,215	3,125	843	10,215	19,274	7,735	-	-	732	4,205	7,842
Yukon and Northwest Territories	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	39	31,112	66,924	180,359	33,082	436,597	963,206	499,303	-	-	38,196	228,217	505,747
1964													
Newfoundland	-	-	-	-	-	-	-	-	-	-	-	-	-
Prince Edward Island	-	-	-	-	-	-	-	-	-	-	-	-	-
Nova Scotia	2	x	x	x	x	x	x	x	-	-	x	x	x
New Brunswick	-	-	-	-	-	-	-	-	-	-	-	-	-
Quebec	11	2,939	6,734	15,563	4,856	39,563	79,250	38,088	-	-	3,604	19,466	38,451
Ontario	18	26,496	55,962	157,514	31,594	413,233	914,056	472,132	-	-	32,332	199,317	478,664
Manitoba	2	x	x	x	x	x	x	x	-	-	x	x	x
Saskatchewan	-	-	-	-	-	-	-	-	-	-	-	-	-
Alberta	3	x	x	x	x	x	x	x	-	-	x	x	x
British Columbia	6	636	1,325	3,634	952	11,651	20,794	8,391	-	-	817	4,868	8,385
Yukon and Northwest Territories	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	42	33,911	73,408	200,756	41,442	512,009	1,108,152	561,049	-	-	41,505	253,039	568,680

TABLE 2. Principal Statistics classified by Size Group based on Value of Shipments of Goods of Own Manufacture, 1963 and 1964

Size group	Estab- lish- ments	Manufacturing activity							Total activity				
		Production and related workers			Cost of fuel and elec- tricity	Cost of materials and supplies	Value of shipments of goods of own manu- facture	Value added	Working owners and partners		Employees		Value added
		Number	Man- hours paid	Wages					Number	With- drawals	Number	Salaries and wages	
	No.		'000			'000				'000		'000	
1963													
Under \$10,000	—	—	—	—	—	—	—	—	—	—	—	—	—
\$ 10,000 to \$ 24,999	—	—	—	—	—	—	—	—	—	—	—	—	—
25,000 " 49,999	—	—	—	—	—	—	—	—	—	—	—	—	—
50,000 " 99,999	—	—	—	—	—	—	—	—	—	—	—	—	—
100,000 " 199,999	—	—	—	—	—	—	—	—	—	—	—	—	—
200,000 " 499,999	5	165	343	783	136	715	2,666	1,466	—	—	206	1,090	1,585
500,000 " 999,999													
1,000,000 " 4,999,999													
5,000,000 and over	20	29,363	63,148	172,546	33,929	426,244	932,247	480,216	—	—	35,927	217,212	486,383
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	70	501	(21)
Totals	39	31,112	66,924	180,359	35,082	436,597	963,206	499,303	—	—	38,196	228,217	505,747
1964													
Under \$10,000	—	—	—	—	—	—	—	—	—	—	—	—	—
\$ 10,000 to \$ 24,999	—	—	—	—	—	—	—	—	—	—	—	—	—
25,000 " 49,999	—	—	—	—	—	—	—	—	—	—	—	—	—
50,000 " 99,999	—	—	—	—	—	—	—	—	—	—	—	—	—
100,000 " 199,999	3	52	127	247	44	268	820	398	—	—	75	424	679
200,000 " 499,999													
500,000 " 999,999													
1,000,000 " 4,999,999	15	2,047	4,583	9,867	1,728	15,671	38,145	21,554	—	—	2,502	12,592	21,602
5,000,000 and over	21	31,655	68,384	189,857	39,567	495,428	1,067,075	537,704	—	—	38,678	238,559	545,035
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	71	525	(29)
Totals	42	33,911	73,408	200,756	41,442	512,009	1,108,152	561,049	—	—	41,505	253,039	568,680

TABLE 3. Principal Statistics classified by Size Group based on Manufacturing Value Added, 1963 and 1964

Size group	Estab- lish- ments	Manufacturing activity							Total activity				
		Production and related workers			Cost of fuel and elec- tricity	Cost of materials and supplies	Value of shipments of goods of own manu- facture	Value added	Working owners and partners		Employees		Value added
		Number	Man- hours paid	Wages					Number	With- drawals	Number	Salaries and wages	
	No.		'000			'000				'000		'000	
1963													
Under \$10,000	—	—	—	—	—	—	—	—	—	—	—	—	—
\$ 10,000 to \$ 24,999	—	—	—	—	—	—	—	—	—	—	—	—	—
25,000 " 49,999	—	—	—	—	—	—	—	—	—	—	—	—	—
50,000 " 99,999	—	—	—	—	—	—	—	—	—	—	—	—	—
100,000 " 199,999	5	165	343	783	136	714	2,666	1,466	—	—	206	1,090	1,585
200,000 " 499,999													
500,000 " 999,999													
1,000,000 " 4,999,999	18	2,841	6,005	13,915	4,207	49,126	92,390	40,006	—	—	3,598	18,635	40,082
5,000,000 and over	10	27,641	59,463	163,500	30,330	383,984	859,787	452,999	—	—	33,733	205,149	459,203
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	70	501	(21)
Totals	39	31,112	66,924	180,359	35,082	436,597	963,206	499,303	—	—	38,196	228,217	505,747
1964													
Under \$10,000	—	—	—	—	—	—	—	—	—	—	—	—	—
\$ 10,000 to \$ 24,999	—	—	—	—	—	—	—	—	—	—	—	—	—
25,000 " 49,999	—	—	—	—	—	—	—	—	—	—	—	—	—
50,000 " 99,999	—	—	—	—	—	—	—	—	—	—	—	—	—
100,000 " 199,999	5	147	314	732	120	763	2,186	1,224	—	—	179	976	1,508
200,000 " 499,999													
500,000 " 999,999													
1,000,000 " 4,999,999	8	754	1,699	4,105	1,088	14,842	18,984	6,186	—	—	951	5,372	6,319
5,000,000 and over	11	30,006	64,718	180,840	35,905	442,227	986,455	508,251	—	—	36,565	226,577	515,457
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	71	525	(29)
Totals	42	33,911	73,408	200,756	41,442	512,009	1,108,152	561,049	—	—	41,505	253,039	568,680

TABLE 4. Principal Statistics classified by Size Group based on Total Value Added, 1963 and 1964

Size group	Estab- lish- ments	Manufacturing activity							Total activity				
		Production and related workers			Cost of fuel and elec- tricity	Cost of materials and supplies	Value of shipments of goods of own manu- facture	Value added	Working owners and partners		Employees		Value added
		Number	Man- hours paid	Wages					Number	With- drawals	Number	Salaries and wages	
	No.		'000			\$'000				\$'000		\$'000	
1963													
Under \$10,000	—	—	—	—	—	—	—	—	—	—	—	—	—
\$ 10,000 to \$ 24,999	—	—	—	—	—	—	—	—	—	—	—	—	—
25,000 " 49,999	—	—	—	—	—	—	—	—	—	—	—	—	—
50,000 " 99,999	—	—	—	—	—	—	—	—	—	—	—	—	—
100,000 " 199,999	5	165	343	783	136	714	2,666	1,466	—	—	206	1,090	1,585
200,000 " 499,999		465	1,113	2,161	409	2,772	8,363	4,832	—	—	589	2,842	4,898
500,000 " 999,999		2,841	6,005	13,915	4,207	49,126	92,390	40,006	—	—	3,598	18,635	40,082
1,000,000 " 4,999,999	18	27,641	59,483	163,500	30,330	383,984	859,787	452,999	—	—	33,733	205,149	459,203
5,000,000 and over	10												
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	70	501	(21)
Totals	39	31,112	66,924	180,359	35,082	436,597	963,206	499,303	—	—	38,196	228,217	505,747
1964													
Under \$10,000	—	—	—	—	—	—	—	—	—	—	—	—	—
\$ 10,000 to \$ 24,999	—	—	—	—	—	—	—	—	—	—	—	—	—
25,000 " 49,999	—	—	—	—	—	—	—	—	—	—	—	—	—
50,000 " 99,999	—	—	—	—	—	—	—	—	—	—	—	—	—
100,000 " 199,999	5	147	314	732	120	763	2,186	1,224	—	—	179	976	1,508
200,000 " 499,999		687	1,561	3,809	1,045	14,374	17,561	5,194	—	—	868	4,957	5,265
500,000 " 999,999		3,071	6,816	15,374	4,372	54,845	101,950	46,380	—	—	3,822	20,004	46,479
1,000,000 " 4,999,999	19	30,006	64,718	180,840	35,905	442,227	986,455	508,251	—	—	36,565	226,577	515,457
5,000,000 and over	11												
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	71	525	(29)
Totals	42	33,911	73,408	200,756	41,442	512,009	1,108,152	561,049	—	—	41,505	253,039	568,680

TABLE 5. Principal Statistics classified by Size Group based on Total Employed, 1963 and 1964

Size group	Estab- lish- ments	Manufacturing activity							Total activity					
		Production and related workers			Cost of fuel and elec- tricity	Cost of materials and supplies	Value of shipments of goods of own manu- facture	Value added	Working owners and partners		Employees		Value added	
		Number	Man- hours paid	Wages					Number	With- drawals	Number	Salaries and wages		
	No.		'000			\$'000				\$'000		\$'000		
1963														
Under 5 employed.....	—	—	—	—	—	—	—	—	—	—	—	—	—	
5- 14 employed.....	—	—	—	—	—	—	—	—	—	—	—	—	—	
15- 49 ".....	3	74	147	339	81	453	1,469	624	—	—	97	508	744	
50- 99 ".....	6	326	704	1,598	281	4,878	9,578	4,344	—	—	421	2,209	4,395	
100-199 ".....	12	1,252	2,801	6,229	1,602	25,980	46,377	18,378	—	—	1,582	8,171	18,455	
200-499 ".....	9	2,244	4,914	11,727	3,358	31,170	62,678	29,722	—	—	2,741	14,871	29,725	
500 employed and over.....	9	27,216	58,358	160,467	29,760	374,116	843,105	446,235	—	—	33,285	201,957	452,450	
Head offices, sales offices and auxiliary units.....	...	...	...	...	...	...	...	...	...	...	70	501	(21)
Totals.....	39	31,112	66,924	180,359	35,082	436,597	963,206	499,303	—	—	38,196	228,217	505,747	
1964														
Under 5 employed.....	—	—	—	—	—	—	—	—	—	—	—	—	—	
5- 14 employed.....	}	—	—	—	—	—	—	—	—	—	—	—	—	
15- 49 ".....		4	88	197	434	86	608	1,535	777	—	—	113	620	1,067
50- 99 ".....		5	313	648	1,644	263	5,701	10,273	4,378	—	—	391	2,211	4,424
100-199 ".....		12	1,398	3,148	7,287	1,956	35,087	53,621	19,192	—	—	1,757	9,417	19,120
200-499 ".....		11	2,541	5,871	13,632	3,949	39,852	75,800	35,207	—	—	3,073	16,941	35,395
500 employed and over.....	10	29,571	63,543	177,779	35,188	430,781	966,924	501,494	—	—	36,100	223,326	508,702	
Head offices, sales offices and auxiliary units.....	...	...	...	...	...	...	...	...	...	...	71	525	(29)
Totals.....	42	33,911	73,408	200,756	41,442	512,009	1,108,152	561,049	—	—	41,505	253,039	568,680	

TABLE 6. Principal Statistics classified by Type of Organization, 1963 and 1964

Type of organization	Establishments	Manufacturing activity							Total activity				
		Production and related workers			Cost of fuel and electricity	Cost of materials and supplies	Value of shipments of goods of own manufacture	Value added	Working owners and partners		Employees		Value added
		Number	Man-hours paid	Wages					Number	Withdrawals	Number	Salaries and wages	
	No.		'000			\$'000				\$'000		\$'000	
1963													
Individual ownerships	—	—	—	—	—	—	—	—	—	—	—	—	—
Partnerships	—	—	—	—	—	—	—	—	—	—	—	—	—
Incorporated companies	39	31,112	66,924	160,359	35,062	436,597	963,206	499,303	...	...	38,126	227,716	505,768
Co-operatives	—	—	—	—	—	—	—	—	—	—	—	—	—
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	70	501	(21)
Totals	39	31,112	66,924	160,359	35,062	436,597	963,206	499,303	—	—	38,196	228,217	505,747
1964													
Individual ownerships	—	—	—	—	—	—	—	—	—	—	—	—	—
Partnerships	—	—	—	—	—	—	—	—	—	—	—	—	—
Incorporated companies	42	33,911	73,408	200,756	41,442	512,009	1,108,152	561,049	...	...	41,434	252,514	568,709
Co-operatives	—	—	—	—	—	—	—	—	—	—	—	—	—
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	71	525	(29)
Totals	42	33,911	73,408	200,756	41,442	512,009	1,108,152	561,049	—	—	41,505	253,039	568,680

TABLE 7. Calculation of Output, Input and Value Added, 1963 and 1964

	Manufacturing activity		Non-manufacturing activities		Total activity	
	1963	1964	1963	1964	1963	1964
	\$'000					
Output						
1. Shipments and other revenue	963,206	1,108,152	18,575	21,174	981,781	1,129,326
Inventories—Goods of own manufacture:						
Add closing—Goods in process	43,457	51,301	...	...	43,457	51,301
Finished goods	43,570	44,029	...	...	43,570	44,029
Deduct opening—Goods in process	39,571	44,786	...	...	39,571	44,786
Finished goods	39,680	44,195	...	...	39,680	44,195
2. Net inventory change	7,776	6,349	...	...	7,776	6,349
3. Gross output (1 + 2)	970,982	1,114,501	18,575	21,174	989,557	1,135,675
Input						
4. Purchases of goods not of own manufacture .....	...	...	9,657	9,597	9,657	9,597
Inventories—Goods not of own manufacture:						
Add opening .....	...	...	711	1,232	711	1,232
Deduct closing .....	...	...	1,033	561	1,033	561
5. Cost of goods sold (not of own manufacture) .....	...	...	9,335	10,268	9,335	10,268
6. Materials, supplies, etc.	436,597	512,009	2,795	3,274	439,392	515,283
7. Fuel and electricity	35,082	41,442	...	...	35,082	41,442
8. Gross input (5 + 6 + 7)	471,679	553,451	12,130	13,542	483,809	566,993
Value added (3 - 8)	499,303	561,049	6,445	7,631	505,747	568,680

TABLE 8. Employment and Payroll, 1963 and 1964

Year and province	Employees										Salaries and wages				
	Production and related workers				Adminis- trative and office		Sales and distribution		Total		Production and related workers		Admin- istra- tive and office	Sales and distri- bution	Total
	Manufacturing		Other												
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Manufac- turing	Other			
number										\$'000					
1963															
Newfoundland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prince Edward Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nova Scotia	x	-	x	-	x	x	x	x	x	x	x	x	x	x	x
New Brunswick	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quebec	2,394	4	-	-	455	50	27	5	2,876	59	12,090	-	3,033	183	15,305
Ontario	24,413	196	587	9	3,726	779	313	123	29,039	1,107	142,695	4,202	32,205	2,526	181,628
Manitoba	x	-	x	-	x	x	-	-	x	x	x	x	x	-	x
Saskatchewan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alberta	x	-	-	-	x	x	x	x	x	x	x	-	x	x	x
British Columbia	555	-	-	-	134	19	20	4	709	23	3,125	-	931	150	4,205
Yukon and Northwest Terri- tories	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	30,912	200	605	9	5,003	952	376	139	36,896	1,300	180,359	4,293	40,564	3,001	228,217
1964															
Newfoundland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prince Edward Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nova Scotia	x	x	-	x	x	x	x	x	x	x	x	x	x	x	x
New Brunswick	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quebec	2,935	4	-	-	552	85	24	4	3,511	93	15,563	-	3,730	172	19,466
Ontario	26,290	206	606	9	3,904	862	333	122	31,133	1,199	157,514	3,923	34,793	3,087	199,317
Manitoba	x	x	x	-	x	x	x	x	x	x	x	x	x	x	x
Saskatchewan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alberta	x	-	-	-	x	x	x	x	x	x	x	-	x	x	x
British Columbia	636	-	-	-	134	22	23	2	793	24	3,634	-	1,059	174	4,868
Yukon and Northwest Terri- tories	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	33,695	216	657	9	5,306	1,077	404	141	40,062	1,443	200,756	4,200	44,424	3,659	253,039

TABLE 9. Production and Related Workers, - Manufacturing Activity, 1963 and 1964

Month	1963		1964	
	Male	Female	Male	Female
	number			
Establishments reporting monthly detail (large establishments only):				
January	29,484	191	31,511	212
February	29,793	190	31,828	205
March	29,635	192	32,288	218
April	30,638	199	32,911	219
May	31,146	199	33,676	218
June	31,257	205	34,389	221
July	31,602	210	34,558	224
August	31,625	216	35,022	225
September	31,733	222	35,015	218
October	31,432	217	34,600	209
November	31,158	213	34,182	208
December	31,398	215	34,320	200
Averages	30,912	200	33,695	216
Establishments reporting annual averages (small establishments only) .....	...	...	...	...
Average for all establishments	30,912	200	33,695	216

TABLE 10. Inventories, 1964

Province	Manufacturing				Non-manufacturing	Total inventories
	Materials, supplies, etc.	Goods in process	Finished goods of own manufacture	Total	Products or materials purchased for resale	
	book value \$'000					
Opening:						
Newfoundland	—	—	—	—	—	—
Prince Edward Island	—	—	—	—	—	—
Nova Scotia	x	x	x	x	x	x
New Brunswick	—	—	—	—	—	—
Quebec	7,993	5,205	3,273	16,472	52	16,524
Ontario	86,950	36,325	36,370	159,644	875	160,519
Manitoba	x	x	x	x	—	x
Saskatchewan	—	—	—	—	—	—
Alberta	x	x	x	x	x	x
British Columbia	1,157	171	970	2,298	77	2,375
Yukon and Northwest Territories	—	—	—	—	—	—
Totals	114,159	44,786	44,195	203,140	1,232	204,373
Closing:						
Newfoundland	—	—	—	—	—	—
Prince Edward Island	—	—	—	—	—	—
Nova Scotia	x	x	x	x	x	x
New Brunswick	—	—	—	—	—	—
Quebec	7,084	8,803	2,933	18,819	33	18,853
Ontario	96,024	38,467	37,130	171,621	248	171,869
Manitoba	x	x	x	x	—	x
Saskatchewan	—	—	—	—	—	—
Alberta	x	x	x	x	x	x
British Columbia	1,288	233	1,108	2,629	109	2,738
Yukon and Northwest Territories	—	—	—	—	—	—
Totals	122,591	51,301	44,029	217,921	561	218,482

TABLE 11. Purchased Fuel and Electricity Used in Manufacturing Activity, 1963 and 1964

Description	1963		1964	
	Quantity	Cost	Quantity	Cost
		\$'000		\$'000
1. Large establishments reporting commodity detail:				
Bituminous coal:				
(a) From Canadian mines	ton	62,851	545	50,996
(b) Imported	"	72,061	769	135,909
Sub-bituminous coal (from Alberta mines only)	"	—	—	—
Anthracite coal	"	—	—	—
Lignite coal	"	—	—	—
Coke	"	438	10	425
Gasoline (including gasoline used in cars and trucks)	Imp. gal.	968,176	241	1,072,360
Fuel oil including kerosene or coal oil	"	167,350,470	14,017	199,361,774
Wood	cord	187	2	272
Gas:				
(a) Liquefied petroleum gases	Imp. gal.	782,295	102	498,460
(b) Other manufactured gas	M cu. ft.	—	—	—
(c) Natural gas	"	8,747,570	4,045	10,457,642
Other fuel .....	...	287	—	—
Electricity purchased	kwh.	2,876,939,403	15,063	3,369,758,110
Steam purchased	—	—	—	—
2. Small establishments not reporting commodity detail:				
Estimate for fuel and electricity	—	—	—	—
3. All establishments:				
Total fuel and electricity used .....	...	35,082	...	41,442

TABLE 12. Materials and Supplies - Manufacturing Activity, 1963 and 1964

Description		1963		1964	
		Quantity	Cost	Quantity	Cost
			\$'000		\$'000
1. Materials used:					
Coke, gas and by-products section					
Bituminous coal carbonized in ovens or retorts:					
From Canadian mines	ton	478,469	5,033	459,820	4,837
Imported	"	4,716,113	53,227	4,865,783	54,458
Absorbing and wash oil	Imp. gal.	241,779	63	350,351	90
Caustic soda	lb.	1,908,737	59	2,422,670	65
Sodium nitrate	"	169,098	7	5,200	--
Sulphur	ton	1,193	37	2	--
Sulphuric acid, 100%:					
Purchased	"	16,061	312	19,881	375
Own make	"	2,342	--	563	--
Sinter plant and blast furnace section					
Sinter plant:					
Crude iron ore:					
From Canadian mines	"	578,185	5,838	488,964	4,335
Imported	"	823,571	8,662	936,760	9,589
Pyrite cinder	"	21,976	120	--	--
Mill cinder, scale, flue dust, etc. (not sintered, pelletized, etc.):					
Purchased	"	6,819	67	5,345	67
Own make	"	476,778	--	655,483	--
Scrap iron and steel (own make)	"	36,222	--	45,829	--
Limestone (including fines)	"	69,300	251	88,611	331
Dolomite (including fines)	"	99,343	150	92,241	147
Coke (including breeze):					
Purchased	"	13,498	151	13,267	120
Own make	"	72,950	--	53,102	--
Blast furnace:					
Crude iron ore:					
From Canadian mines	"	710,024	6,509	548,954	5,213
Imported	"	1,776,952	19,401	1,290,956	14,829
Iron ore (sintered, pelletized, etc.):					
From Canadian mines	"	2,073,137	26,602	2,571,241	34,011
Imported	"	3,050,640	43,530	3,637,373	52,831
From own processing (does not include mine sinter plant)	"	1,747,067	--	1,816,699	--
Mill cinder, roll scale, slag and flue dust (not sintered, pelletized, etc.):					
Purchased	"	44,775	368	45,529	373
Own make	"	140,142	--	198,513	--
Scrap iron and steel:					
Purchased	"	48,388	416	62,508	513
Own make	"	29,643	--	19,138	--
Limestone:					
From Canadian quarries	"	427,784	1,089	413,237	1,102
Imported	"	333,748	590	331,107	606
Dolomite	"	428,044	761	480,446	852
Coke:					
Purchased	"	137,433	2,934	213,766	4,614
Own make	"	3,441,933	--	3,524,355	--
Firebrick, fireclay and other refractories, n.e.s.			583	--	818
Steel ingots and steel castings					
Pig iron:					
Purchased	ton	13,479	657	12,697	612
Own make	"	5,169,191	--	5,665,363	--
Scrap iron and steel:					
Purchased	"	1,559,920	45,883	1,844,821	62,373
Own make	"	2,166,518	--	2,480,459	--
Coke (charged to furnace; not for fuel):					
Purchased	"	941	23	1,240	39
Own make	"	1,171	--	1,046	--
Ferromanganese:					
High carbon (over 3 per cent carbon)	"	52,387	8,572	57,525	8,967
Medium carbon	"	5,117	1,473	6,784	1,894
Low carbon (maximum 0.75 per cent carbon)	"	389	197	427	184
Silico manganese	"	10,392	2,124	12,111	2,333
Ferrosilicon:					
Low silicon grade (under 45 per cent silicon)	"	65	6	159	15
Medium silicon grade	"	12,587	1,877	15,294	2,293
High silicon grade (over 55 per cent silicon)	"	2,009	541	1,987	557
Si-x	"	62	17	71	20
Ferrochrome (including chrom-X):					
High carbon	"	2,630	870	2,994	839
Low carbon (maximum 2 per cent carbon)	"	5,752	2,146	7,554	2,735
Ferromolybdenum	"	351	710	133	434
Ferrophosphorus	"	320	43	452	63
Ferroselenium	"	4	30	5	41
Ferrotitanium	"	90	96	129	93
Ferrotungsten	"	54	145	58	83
Ferrovandium	"	229	813	306	862
Ferrozirconium	"	65	30	58	30
Calcium silicon	"	476	235	442	198
Calcium manganese silicon	"	102	61	184	104

TABLE 12. Materials and Supplies - Manufacturing Activity, 1963 and 1964 - Concluded

Description	1963		1964		
	Quantity	Cost	Quantity	Cost	
		\$'000		\$'000	
1. Materials used - Concluded:					
Steel ingots and steel castings section - Concluded					
Other ferro-alloys	ton	2,361	873	3,032	898
Iron ore, crude	"	197,547	3,137	162,672	2,603
Iron ore, calcined, roasted or treated	"	216,211	3,575	186,338	2,952
Chrome ore	"	367	25	286	21
Tungsten ore	"	180	159	76	88
Aluminium ingots, shot, etc.	"	2,716	1,370	3,332	1,756
Copper ingots, cakes, shot, etc.	"	188	109	413	260
Nickel ingots, cathodes, shot, etc.	"	2,842	4,690	3,133	5,213
Other metals	"	...	279	...	301
Charcoal	ton	69	6	488	28
Bentonite	"	4,706	194	7,144	288
Dolomite:					
Raw, crushed	"	135,739	354	151,768	401
Calcined	"	100,415	2,565	103,609	2,635
Fluorspar	"	41,822	1,319	41,533	1,374
Ganister	"	364	6	925	9
Graphite	"	1,330	81	1,253	72
Lime	"	208,253	3,262	222,679	3,399
Limestone	"	200,280	498	255,570	629
Linseed oil	Imp. gal.	14,594	20	21,038	27
Magnesite	ton	13,446	954	14,262	951
Electrodes	"	...	2,216	...	2,834
Silica sand:					
For moulds	ton	89,861	760	134,946	1,011
Other foundry sands	"	6,393	183	...	272
Sulphur	"	214	30	236	35
Firebrick, fireclay and other refractories, n.e.s.	"	...	14,749	...	16,754
Molybdenum trioxide (molybdc oxide) briquettes	ton	565	1,454	486	1,516
Ingot moulds (including hot tops) and stools	"	...	11,105	...	12,474
Rolled steel products section					
Steel ingots:					
Purchased	ton	108,506	6,932	105,510	7,015
Own make	"	7,652,045	...	8,578,176	...
Steel billets and slabs	"	89,837	8,224	117,947	11,674
Steel bars	"	51,699	8,004	60,075	9,252
Wire rods	"	3,258	477	3,666	571
Rails, old (include reject rails)	"	84,767	4,302	116,658	5,222
Steel sheet and strip	"	42,084	7,070	43,926	6,804
Scrap iron and steel incl. old axles	"	6,833	302	14,906	712
Tin	"	2,717	6,663	2,762	8,393
Zinc spelter	"	25,744	6,273	30,156	8,079
Acids:					
Chromic	lb.	302,900	86	266,900	76
Hydrochloric (muriatic)	"	1,051,932	72	1,005,406	77
Sulphuric, 100%	ton	40,993	901	47,452	1,030
Cleaners (Pennsalt, etc.)	"	...	321	...	371
Inhibitors (Rodine, etc.)	"	...	6	...	4
Phenone	lb.	36,374	93	97,000	106
Rolling oils	"	...	1,341	...	1,371
Zinc ammonium chloride	ton	203	54	218	59
Firebrick, fireclay and other refractories, n.e.s.	"	...	906	...	4,651
Rolls and dies	"	...	7,624	...	6,242
Silica sand	ton	589	5	5,513	20
Ferro-alloys section					
Coal:					
Anthracite	ton	16,768	275	14,688	261
Bituminous	"	36,131	594	48,767	799
Coke:					
Petroleum	"	25,806	447	36,695	599
Other	"	...	628	...	797
Dolomite	ton	5,434	16	5,059	15
Electrodes	"	...	973	...	1,260
Firebrick, fireclay and other refractories, n.e.s.	"	...	89	...	41
Lime	ton	4,320	61	3,727	53
Limestone	"	4,309	17	3,301	13
Linseed oil	Imp. gal.	9,000	19	13,598	30
Magnesite	ton	142	13	338	30
Millscale	"	17	...	11	...
Pitch	"	8,428	386	10,564	484
Quartzite	"	97,588	752	142,552	880
Silica sand	"	2,515	27	3,232	37
Steel scrap (borings, turnings, etc.)	"	36,434	644	44,143	960
Woodchips	"	34,573	279	44,728	352
All other materials and components used	"	...	12,150	...	15,367
2. Containers and other packaging materials and supplies used .....	...	4,390	...	...	5,180
3. Operating, maintenance and repair supplies used (excluding fuel) .....	...	50,868	...	...	67,612
4. Amount paid out to others for work done on materials owned by establishments .....	...	7,029	...	...	11,765
Totals .....	...	436,597	...	...	512,009

TABLE 13. Shipments of Selected Goods of Own Manufacture - All Industries, 1963 and 1964

(Includes shipments from other industries which manufacture, as a secondary activity, the commodities listed)

Product	Total tonnage made	Factory sales	
		Tonnage sold in Canada or for export	Income from tonnage sold
		net tons	\$'000
1963			
A. Hot-rolled products			
Semi-finished rolled forms:			
All semi-finished forms intended for further rolling, including blooms, billets, slabs and sheet bars:			
For sale in Canada		206,739	19,187
For export	111,364	105,110	7,413
Blooms, billets and axle blanks for forging purposes only, whether for own use or for sale to others	203,048	185,899	22,231
including export			
Rounds or billets for seamless tubes including export			
Total semi-finished rolled forms	314,412	497,748	48,831
Rails	342,299	334,422	35,707
Wire rods, No. 5 gauge to 47/64 inch in diameter (excluding straight lengths over 5/16 inch in diameter) ...	389,745	392,533	52,421
Structural steel shapes:			
Heavy, including sheet piling, beams, angles, channels, tees, zeos, etc., having one leg or web of 3" and over, and a thickness of 1/8" and over	399,334	385,685	48,209
Light, including light shapes, angles, channels, etc., having a section smaller than that provided under previous item	110,312	110,649	14,160
Total structural steel shapes	509,646	496,334	62,369
Bars:			
Bars, hot-rolled, of all grades and of all sections, including bolt, nut, rivet, spike, chain, horseshoe and other miscellaneous bars, but omitting all bars reported immediately below	596,369	527,392	84,412
Bars for concrete reinforcing, including twisted and other deformed bars	427,622	409,342	47,892
Long angle splice bars, tie plate bars and all other long rail joint bars	66,006	..	..
Total hot-rolled bars	1,089,997	936,734	132,304
Plates (excluding plate for pipes and tubes)	560,148	545,370	68,363
Skelp ¹ (hot and cold-rolled plate, sheets, strip and bars for pipes and tubes)	488,639	427,236	49,808
Other hot-rolled sheets and strip including material for further cold reduction and all other hot-rolled forms	2,533,194 ^f	720,081 ^f	86,005 ^f
B. Cold-rolled and coated products¹			
Bars, cold-rolled and cold-drawn	62,303	60,666	18,594
Cold-rolled strip	65,930 ^f	66,807 ^f	19,829 ^f
Other cold-rolled and coated products, including cold-reduced sheets, black plate for tinning and other black plate, galvanized sheets and strip, tin plate, silicon sheet and strip, but excluding cold-rolled skelp	2,405,789 ^f	1,541,069 ^f	259,597 ^f
C. Other products			
Rail fastenings:			
Rail joints, including splice bars and fish plates	13,553	13,476	2,009
Tie plates	50,050	51,781	6,883
1964			
A. Hot-rolled products			
Semi-finished rolled forms:			
All semi-finished forms intended for further rolling, including blooms, slabs and sheet bars:			
For sale in Canada		236,010	19,844
For export	107,270	108,152	7,730
Blooms, billets and axle blanks for forging purposes only, whether for own use or for sale to others	255,536	249,002	28,518
including export			
Rounds or billets for seamless tubes including export			
Total semi-finished rolled forms	537,628	593,164	56,092
Rails	253,674	270,807	30,856
Wire rods, No. 5 gauge to 47/64 inch in diameter (excluding straight lengths over 5/16 inch in diameter) ...	442,023	446,509	58,888
Structural steel shapes:			
Heavy, including sheet piling, beams, angles, channels, tees, zeos, etc., having one leg or web of 3" and over, and a thickness of 1/8" and over	441,235	458,816	57,383
Light, including light shapes, angles, channels, etc., having a section smaller than that provided under previous item	119,371	118,792	15,543
Total structural steel shapes	560,606	577,608	72,926
Bars:			
Bars, hot-rolled, of all grades and of all sections, including bolt, nut, rivet, spike, chain, horseshoe and other miscellaneous bars but omitting all bars reported immediately below	667,552	591,108	95,503
Bars for concrete reinforcing, including twisted and other deformed bars	534,451	555,770	65,366
Long angle splice bars, tie plate bars and all other long rail joint bars	78,546	..	..
Total hot-rolled bars	1,280,549	1,146,878	160,869
Plates (excluding plate for pipes and tubes)	622,419	621,124	79,352
Skelp ¹ hot and cold-rolled plate, sheets, strip and bars for pipes and tubes)	550,691	502,241	58,304
Other hot-rolled sheets and strip including material for further cold reduction and all other hot-rolled forms	2,739,084	765,657	94,816
B. Cold-rolled and coated products¹			
Bars, cold-rolled and cold-drawn	72,839	72,854	21,906
Cold-rolled strip	71,585	72,700	22,570
Other cold-rolled and coated products, including cold-reduced sheets, black plate for tinning and other black plate, galvanized sheets and strip, tin plate, silicon sheet and strip, but excluding cold-rolled skelp	2,768,260	1,798,799	303,285
C. Other products			
Rail fastenings:			
Rail joints, including splice bars and fish plates	13,937	13,310	2,006
Tie plates	59,035	58,359	8,034

¹ Note that skelp as listed provides for both hot-rolled and cold-rolled material.

TABLE 14. Production¹ of Pig Iron and Sales¹ by Producers - All Industries,² 1963 and 1964

Grade	Total tonnage made	Sales	
		Quantity	Income from sales
		net tons	\$'000
1963			
Basic	5,095,081	65,910	3,672
Foundry ³	312,651	332,303	14,082
Malleable	525,538	360,300	26,557
Totals	5,933,270	758,513	38,311
1964			
Basic	5,668,176	76,509	4,373
Foundry ³	436,374	453,191	20,284
Malleable	446,285	301,043	18,137
Totals	6,550,835	830,743	42,794

¹ Includes the output from smelting of titanium ores.

² Includes data from other industries which manufacture, as a secondary activity, the commodities listed here.

³ Includes silvery pig.

TABLE 15. Production¹ of Pig Iron, by Grades, 1955 - 64

Year	Basic	Foundry	Malleable	Total
	net tons			
1955	2,591,662	176,710	446,995	3,215,367
1956	2,990,222	150,354	427,627	3,568,203
1957	3,209,411	104,830	404,109	3,718,350
1958	2,665,705	43,755	350,119	3,059,579
1959 ²	3,552,926	228,843	401,006	4,182,775
1960	3,598,595	290,050	410,204	4,298,849
1961	4,203,578	386,644	355,799	4,946,021
1962	4,561,273	254,807	460,673	5,276,753
1963	5,095,081	312,651	525,538	5,933,270
1964	5,668,176	436,374	446,285	6,550,835

¹ Includes silvery pig.

² Commencing with 1959, includes the output from smelting of titanium ores.

TABLE 16. Production¹ of Pig Iron, by Months, 1963 and 1964

Month	1963			1964		
	For own use	For sale	Total	For own use	For sale	Total
	net tons					
January	384,873	24,182	409,055	489,753	31,293	521,046
February	356,780	21,339	378,119	481,238	29,002	510,240
March	423,642	27,375	451,017	526,103	38,786	564,889
April	450,414	31,796	482,210	487,745	72,853	560,598
May	484,637	53,503	538,140	485,636	83,746	569,382
June	458,957	75,048	534,005	441,463	104,734	546,197
July	469,610	69,661	539,271	484,257	72,065	556,322
August	468,436	77,036	545,472	484,021	91,123	575,150
September	412,677	92,124	504,801	487,101	67,328	554,429
October	413,562	115,134	528,696	436,709	78,347	515,056
November	412,979	105,219	518,198	401,755	109,380	511,135
December	419,473	66,540	486,013	498,328	57,907	556,235
Totals	5,156,040	758,957	5,914,997	5,703,915	836,764	6,540,679

¹ See footnotes to Table 14.

Note: Above breakdown developed from a special monthly report on primary iron and steel and does not reconcile precisely with total shown on Table 8 or 9 because of the preliminary status of monthly figures.

TABLE 17. Sales¹ of Pig Iron by Producers, 1955 - 64

Year	Tonnage sold	Income from sales	Year	Tonnage sold	Income from sales
	net tons	\$'000		net tons	\$'000
1955	609,978	30,539	1960	676,964	36,160
1956	649,213	34,501	1961	783,188	39,968
1957	734,353	40,953	1962	814,843	42,972
1958	429,708	24,878	1963	758,513	38,311
1959	662,341	36,280	1964	830,743	42,794

¹ See footnotes to Table 14.

TABLE 18. Stocks of Pig Iron at Year-end by Producers in Canada, 1955 - 64

Year	Net tons	Year	Net tons
1955	136,415	1960	318,063
1956	113,629	1961	369,547
1957	233,569	1962	212,353
1958	239,598	1963	197,630
1959	246,742	1964	184,616

Note: See also data in Table 14.

TABLE 19. Consumption of Pig Iron in Canada by Industries and by Regions, 1963 and 1964
(As Reported by Consumers)

	1963	1964
	net tons	
By industries		
Agricultural implements	6,977	6,792
Boiler and plate works	501	433
Electrical products	5,426	6,983
Fabricated structural metal	185	500
Hardware, tool and cutlery	122	127
Heating equipment	6,273	6,066
Iron and steel mills	5,182,670	5,678,060
Iron foundries	164,785	180,062
Miscellaneous machinery	11,098	18,744
Miscellaneous metal fabricating	8,598	27,729
Motor vehicles	5,133	2,911
Motor vehicle parts and accessories	40,202	36,622
Railroad rolling stock	5,680	15,911
Shipbuilding and repair	557	440
Miscellaneous	64,486	79,194
Totals	5,502,693	6,064,614
By regions		
Atlantic	557,861	579,583
Quebec	101,332	39,227
Ontario	4,839,153	5,431,034
Prairies	3,273	10,868
British Columbia	1,074	3,902
Canada	5,502,693	6,064,614

Note: Data in Table 19 by industry reflect classification in accordance with revised Standard Industrial Classification adopted in 1960 and the New Establishment Concept adopted in 1961.

TABLE 20. Blast Furnaces in Canada, 1962 - 64

Name of company	Location of plant	Number of stacks	Total annual capacity	Number of days in blast		
				1962	1963	1964
			net tons			
Dominion Foundries & Steel Ltd.	Hamilton, Ont.	1	500,000	224	365	361
		1	500,000	151	208	365
		1	550,000	365	365	335
Totals		3	1,550,000	—	—	—
Dominion Steel & Coal Corporation, Limited	Sydney, Nova Scotia	1	299,000	216	365	366
		1	365,000	363	364	365
Totals		2	664,000	—	—	—
Canadian Furnace Company, Limited	Port Colborne, Ont.	1	240,000	193	239	365
Totals		1	240,000	—	—	—
The Steel Company of Canada, Limited	Hamilton	1	2,100,000	365	364	365
		1		364	360	365
		1		365	318	361
		1		364	359	322
Totals		4	2,100,000	—	—	—
Algoma Steel Corporation, Limited	Sault Ste. Marie, Ont.	1	350,000	314	340	314
		1	225,000	362	363	363
		1	750,000	364	365	366
		1	750,000	311	330	359
Totals		4	2,075,000	—	—	—
Totals for Canada		14	6,629,000	—	—	—

Note: Data in above table do not include details on other producers of pig iron in Canada as follows:

1. Electric furnace operations used in smelting titanium ores rated at approximately 403,200 tons pig iron per annum operated by Quebec Iron and Titanium Corporation at Sorel, Quebec.
2. Two electric furnaces used in direct reduction of iron ore rated at 110,000 tons pig iron per annum operated by the Consolidated Mining and Smelting Co. of Canada Ltd., Kimberley, British Columbia.

TABLE 21. Production of Steel Ingots and Steel Castings, and Sales by the Producers - All Industries,¹ 1963 and 1964

	1963			1964		
	Total tonnage of steel made (all kinds), including alloys	Sales		Total tonnage of steel made (all kinds), including alloys	Sales	
		Quantity	Income from sales		Quantity	Income from sales
	net tons		\$'000	net tons		\$'000
Steel ingots:						
Basic open-hearth ²	7,321,572	153,992	9,801	8,119,811	80,980	5,230
Electric	749,390	122,634	14,779	847,707	131,899	18,901
Totals, steel ingots	8,070,962	276,626	24,580	8,967,518	212,879	24,131
Steel castings:						
Basic open-hearth	2,643	356	195	1,351	—	—
Electric	123,465	115,663	52,594	159,590	148,787	69,334
Totals, steel castings	126,108	116,018	52,789	160,941	148,787	69,334
Totals, steel ingots and castings	8,197,070	392,644	77,369	9,128,459	361,666	93,465
Alloy steel included in above:						
Ingots	384,957	10,087	7,551	521,543	25,592	11,178
Castings	34,534	32,658	27,293	42,489	40,807	34,072
Totals	419,491	42,745	35,844	564,032	66,399	45,250

¹ Includes details from other industries which manufacture, as a secondary activity, the commodities listed here.

² Includes production from oxygen vessels.

TABLE 22. Production of Steel Ingots and Steel Castings by Grades - All Industries,¹ 1955-64

Year	Steel ingots		Steel castings			Total steel ingots and castings
	Open-hearth ²	Electric	Open-hearth	Converter	Electric	
	net tons					
1955	3,917,151	529,190	25,953	165	62,213	4,534,672
1956	4,628,777	551,644	32,107	307	88,367	5,301,202
1957	4,500,737	430,673	27,076	20	109,643	5,068,149
1958	3,875,470	386,652	15,880	20	81,444	4,359,466
1959	5,267,282	532,074	14,834	7	87,290	5,901,487
1960	5,089,660	618,943	2,611	—	97,894	5,809,108
1961	5,712,846	663,261	2,830	—	109,370	6,488,307
1962	6,394,451	653,851	3,125	—	122,107	7,173,534
1963	7,321,572	749,390	2,643	—	123,465	8,197,070
1964	8,119,811	847,707	1,351	—	159,590	9,128,459

¹ Includes details from other industries which manufacture, as a secondary activity, the commodities listed here.

² Includes production from oxygen vessels.

TABLE 23. Production of Steel Ingots and Steel Castings, by Months - All Industries,¹ 1960-64

Month	1960	1961	1962	1963	1964
	net tons				
January	570,057	457,388	576,052	660,215	719,039
February	551,557	472,409	533,788	590,780	714,465
March	595,715	565,198	602,810	678,248	784,732
April	516,318	554,168	597,659	702,045	765,993
May	498,408	562,067	603,154	753,625	799,077
June	443,423	565,244	598,708	681,288	755,232
July	440,803	539,337	611,085	657,443	737,995
August	431,469	582,961	651,274	700,273	772,432
September	450,575	562,306	618,726	670,246	748,344
October	485,865	588,221	598,331	698,621	792,461
November	451,659	534,325	607,903	713,685	770,056
December	353,721	482,700	573,985	683,810	770,937
Totals	5,789,570	6,466,324	7,173,475	8,190,279	9,130,763

¹ Includes details from other industries which manufacture these commodities, as a secondary activity.

Note: Above breakdown developed from a special monthly report on primary iron and steel and does not reconcile precisely with total shown in Table 15, 16 or 18 because of the preliminary status of monthly figures.

TABLE 24. Annual Production of Steel Ingots and Steel Castings, by Provinces - All Industries,¹ 1955-64

Year	Nova Scotia	Quebec	Ontario	Manitoba and Saskatchewan	Alberta	British Columbia	Canada
	net tons						
1955	583,340	99,122	3,716,833	84,055	5,042	46,280	4,534,672
1956	706,264	131,266	4,267,179	113,056	31,945	51,492	5,301,202
1957	740,364	157,251	4,004,620	76,243	43,827	45,844	5,068,149
1958	597,752	117,907	3,504,215	68,921	36,046	34,625	4,359,466
1959	674,226	120,274	4,905,424	98,954	56,235	46,374	5,901,487
1960	796,878	169,672	4,609,221	93,921	68,378	71,038	5,809,108
1961	523,627	179,534	5,431,212	197,100	69,029	87,805	6,488,307
1962	661,883	212,825	5,965,215	176,628	70,218	86,765	7,173,534
1963	795,484	234,118	6,752,541	250,387	73,157	91,383	8,197,070
1964	841,982	292,180	7,581,251	243,581	77,167	92,298	9,128,459

¹ Includes details from other industries which manufacture these commodities, as a secondary activity.TABLE 25. Sales of Steel Ingots and Steel Castings by Producers - All Industries,¹ 1955-64

Year	Tonnage sold	Income from sales	Year	Tonnage sold	Income from sales
	net tons	\$'000		net tons	\$'000
1955	201,114	43,682	1960	312,989	59,192
1956	164,288	55,326	1961	370,060	61,587
1957	187,806	65,553	1962	376,548	75,096
1958	105,251	42,581	1963	392,645	77,369
1959	298,249	59,005	1964	361,666	93,464

¹ Includes details from other industries which manufacture these commodities, as a secondary activity.

TABLE 26. Production of Alloy Steel Ingots and Castings, 1955-64

Year	Ingots ¹	Castings ¹	Total
	net tons		
1955	217,207	21,928	239,135
1956	218,611	27,774	246,385
1957	213,101	29,110	242,211
1958	182,902	19,470	202,372
1959	270,991	22,936	293,927
1960	237,393	24,241	261,634
1961	252,867	26,268	279,135
1962	321,708	32,439	354,147
1963	384,957	34,534	419,491
1964	503,901	42,489	546,390

¹ Includes details from other industries which manufacture these commodities, as a secondary activity.

TABLE 27. Metal, Ore and Flux Charged to Steel Furnaces, 1955-64

Year	Pig iron	Ferro-manganese alloys ¹	Other ferro-alloys	Scrap iron and steel ²	Iron ore including sinter	Lime-stone	Dolomite	Fluorspar
	net tons							
1955	2,554,433	39,870	17,443	2,366,107	405,709	219,147	182,803	18,610
1956	2,902,367	46,556	20,567	2,865,563	472,476	232,065	202,352	18,979
1957	2,875,324	46,220	21,787	2,625,963	421,755	199,681	190,039	16,935
1958	2,610,517	37,699	15,539	2,112,355	373,143	124,189	152,290	14,539
1959	3,511,207	48,230	22,809	2,951,186	419,945	140,736	188,041	20,063
1960 ³	3,510,892	46,584	23,083	2,887,566	393,036	163,362	164,074	21,029
1961 ³	4,056,763	52,116	20,788	3,183,533	405,893	137,424	194,054	24,310
1962 ³	4,561,952	58,041	24,631	3,520,481	377,431	182,058	203,862	33,824
1963	5,182,670	68,285	26,579	4,065,168 ²	413,758	200,280	236,154	41,822
1964	5,678,060	76,847	44,969	4,559,216	349,008	255,570	255,377	41,533

¹ Including spiegeleisen, sillospiegeleisen, ferromanganese (all grades) and silicomanganese.² Developed from data reported monthly on Primary Iron and Steel.³ (a) 1960 does not include materials charged to furnaces by firms reclassified under the new Standard Industrial Classification.

(b) In addition to changes effected in 1960, (see 3 (a) above), totals (except for scrap iron and steel) for 1961 and subsequent years exclude materials charged to furnaces by firms reclassified in accordance with the New Establishment Concept.

TABLE 28. Steel Furnaces in Canada, December 31, 1964

	Type	Number of units	Size	Total annual capacity tons
Nova Scotia:				
Dominion Steel and Coal Corporation, Ltd., Sydney	O.H.	4	195	555,000
	O.H.	2	225	415,000
	Elec.	1	12	30,000
Totals		7	—	1,000,000
Enamel and Heating Products Ltd., Amherst	Elec.	1	8	20,000
Maritime Steel Foundries Ltd., New Glasgow	Elec.	1	4	3,000
Quebec:				
Atlas Steels Company, Divn. of Rio Algom Mines Ltd., Tracy	Elec.	1	60	75,000
Canadian Unitcast Steel Ltd., Sherbrooke	Elec.	1	4	3,600
Canadian Steel Foundries, Divn. of Hawker-Siddeley Canada Ltd., Montreal	O.H.	2	25	61,500
	Elec.	1	30	82,000
	Elec.	1	4	
	Elec.	1	2½	
Totals		5	—	143,500
Canadian Steel Wheel Ltd., Montreal	Elec.	2	60	145,800
Dominion Brake Shoe Co. Ltd., Joliette	Elec.	1	3	32,700
	Elec.	1	7	
Totals		2	—	32,700
Dominion Engineering Works Ltd., Lachine	Elec.	1	5	15,000
	Elec.	1	15	
Totals		2	—	15,000
Dominion Steel and Coal Corporation Ltd., Montreal	Elec.	2	38	90,000
Griffin Steel Foundries Ltd., St. Hyacinthe	Elec.	2	6	52,500
Lynn MacLeod Metallurgy Limited, Thetford Mines	Elec.	1	3	7,500
Manganese Steel Castings Ltd., Sherbrooke	Elec.	1	3	1,800
Shawinigan Chemicals Ltd., Shawinigan Falls	Elec.	4	¼-2	7,300
Crucible Steel of Canada Ltd., Sorel	Elec.	1	5	3,750
	Elec.	1	14	10,500
	Elec.	1	32	24,000
Totals		3	—	38,250
Sorel Steel Foundries Limited, Sorel	Elec.	2	4&8	24,000
Ontario:				
Algoma Steel Corporation Limited, Sault Ste. Marie	O.H.	4	180	575,000
	O.H.	2	360	575,000
	Oxygen vessels	3	106	1,300,000
Totals		9	—	2,450,000
Atlas Steels Company, Divn. of Rio Algom Mines Ltd., Welland	Elec.	1	6	5,400
	Elec.	1	10	9,000
	Elec.	2	30	69,600
	Elec.	2	50	115,200
	Elec. (Induction)	1	—	800
Totals		7	—	200,000
Burlington Steel Co. Ltd., Hamilton	Elec.	1	20	64,000
Canada Electric Castings Ltd., Orillia	Elec.	2	2	6,000
Dominion Foundries and Steel Ltd., Hamilton	Elec.	1	2½	50,850
	Elec.	2	10	
	Elec.	1	50	
	Oxygen vessels	3	100	1,800,000
Totals		7	—	1,850,850
Fahralloy Canada Limited, Orillia	Elec.	6	¼-2	15,000
Ford Motor Co. of Canada Ltd., Windsor	Elec.	1	3	63,000
	Elec.	3	6½	
Totals		4	—	63,000
The Indiana Steel Products Co. of Canada Ltd., Kitchener	Elec.	3	¼, ½, 1	3,900
Black - Clawson - Kennedy Ltd., Owen Sound	Elec.	3	1-3	4,800
Lake Ontario Steel Co. Ltd., Whitby	Elec.	2	50	200,000
Neelon Steel Limited, Lebel	Elec.	1	6	18,000
Steel Co. of Canada Ltd., Hamilton	O.H.	4	115	3,750,000
	O.H.	5	190	
	O.H.	4	315	
	O.H.	1	500	
Totals		14	—	3,750,000
Welmet Industries Limited, Welland	Elec.	3	¾, 2, 3½	9,240
	Elec. (Induction)	1	¾	
	Elec. (Induction)	1	¾	9,240
Totals		5	—	9,240

TABLE 28. Steel Furnaces in Canada, December 31, 1964 - Concluded

	Type	Number of units	Size	Total annual capacity tons
Manitoba:				
Manitoba Rolling Mills, Selkirk	O.H.	2	20	50,000
	Elec.	1	6	23,000
	Elec.	1	9	35,000
Totals		4	-	108,000
Dominion Brake Shoe Co. Ltd., Selkirk	Elec.	1	3	3,000
	Elec.	1	5	4,000
Totals		2	-	7,000
Griffin Steel Foundries Limited, Transcona	Elec.	2	8	70,000
Saskatchewan:				
Interprovincial Steel and Pipe Corp. Ltd., Regina	Elec.	2	36	128,000
Alberta:				
Irving Industries, Foothills Steel Foundry Divn., Calgary	Elec.	1	1½	7,100
	Elec.	1	2	
Totals		2	-	7,100
National Castings Ltd., Port MacLeod	Elec.	1	-	16,500
Premier Steel Mills Ltd., Edmonton	Elec.	3	17½	110,000
Quality Steel Foundries Ltd., Edmonton	Elec.	1	-	1,200
Western Rolling Mills Ltd.	Elec.	1	20	35,000
British Columbia:				
A-I Steel and Iron Foundry Ltd., Vancouver	Elec.	1	1	4,820
	Elec.	1	2	
Totals		2	-	4,820
Consolidated Mining & Smelting Company of Canada Ltd., Trail	Elec.	1	½	3,600
	Elec.	1	3	
Totals		2	-	3,600
Reliance Foundry Co. Ltd., Vancouver	Elec.	1	1	2,000
	Elec.	2	1½	6,000
Totals		3	-	8,000
Vancouver Rolling Mills Ltd., Vancouver	Elec.	1	30	100,000
Esco Ltd., Port Coquitlam	Elec.	1	3	4,600
Victoria Machinery Depot Co. Ltd., Vancouver	Elec.	2	1½, 2	3,276
Canadian Summer Iron Works Ltd., Vancouver	Elec.	2	1	2,000
Alton Steel Limited, Penticton	Elec.	1	¼, 1	5,000

TABLE 29. Summary of Steel Furnace Capacity, December 31, 1964

	Number of furnaces	Total annual capacity net tons
Basic open-hearth	30	5,981,500
Oxygen vessels	6	3,100,000
Electric	97	1,827,336
Totals	133	10,908,836
Steel ingots:		
Basic open-hearth	30	5,981,500
Oxygen vessels	6	3,100,000
Electric	32	1,324,900
Totals		10,406,400
Steel castings	65	502,436
Totals ingots and castings	133	10,908,836

TABLE 30. Summary of Steel Furnace Capacity, by Provinces, December 31, 1960-64

	Total annual capacity				
	1960	1961	1962	1963	1964
	net tons				
Nova Scotia	963,000	1,006,000	1,003,000	1,003,000	1,023,000
Quebec	491,500	483,100	508,700	584,350	636,950
Ontario	5,636,600	6,452,050	6,546,350	7,361,990	8,634,790
Manitoba	151,000	151,000	185,000	185,000	185,000
Saskatchewan	125,000	121,600	128,000	121,600	128,000
Alberta	89,500	90,100	110,000	112,600	169,800
British Columbia	114,800	126,900	123,700	110,700	131,296
Canada	7,571,400	8,430,750	8,604,750	9,479,240	10,908,836

TABLE 31. Net Production¹ in Canada of Hot-rolled Steel Products, 1960-64

Item	1960	1961	1962	1963	1964
	net tons				
Blooms, billets and slabs	412,348	318,258	309,723	314,412	312,806
Rails	224,306	197,416	233,067	342,299	253,674
Bars for rail fastenings	48,351	58,993	65,603	66,006	78,546
Wire rods	343,052	356,574	356,262	389,745	442,023
Structural shapes	241,392	329,572	462,442	509,646	560,606
Bars	759,424	840,802	941,421	1,023,991	1,202,003
Plates (excluding plates for pipes and tubes)	387,947	410,267	489,968 ^r	560,148	622,419
Sheets, hoops, bands and strips (excluding skelp)	1,773,562	1,891,100	2,212,511 ^r	2,533,194	2,739,084
Other hot-rolled forms (including hot-rolled skelp)	308,605	486,728	367,106	448,226	546,998
Totals	4,498,987	4,889,710	5,438,103	6,187,667	6,758,159

¹ Inter-mill shipments have been excluded.

TABLE 32. Alloy Steel Products Made and Sold by Rolling Mills, 1963 and 1964

	1963		1964	
	Tonnage made	Tonnage sold	Tonnage made	Tonnage sold
	net tons			
Bars	162,463	161,913	197,024	194,390
Other products, including plates, billets, forgings, sheet piling and wire rods, etc.	135,598	64,245	112,082	102,877
Total alloy steel	298,061	226,158	309,106	297,267

TABLE 33. Products Rolled from Axles, etc., 1963 and 1964

Year	1963		1964	
	Tonnage made	Tonnage sold	Tonnage made	Tonnage sold
	net tons			
Bars	51,186	45,355	77,964	77,964
Other products	27,462	26,332	35,139	36,604
Totals	78,648	71,687	113,103	114,568

TABLE 34. Production and Factory Sales of Steel Rails, 1955-64

Year	Tonnage made	Factory sales	
		Tonnage sold	Income from sales
	net tons		\$'000
1955	228,991	241,254	22,352
1956	336,662	333,979	33,027
1957	393,926	383,174	39,979
1958	365,429	377,604	41,587
1959	286,989	286,419	31,637
1960	224,306	223,033	25,385
1961	197,416	190,760	21,556
1962	233,067	225,683	25,404
1963	342,299	334,422	35,707
1964	253,674	270,807	30,856

TABLE 35. Production and Factory Sales of Finished Rail Fastenings, 1955-64

Year	Tie plates			Fish plates and splice bars		
	Quantity made	Factory sales		Quantity made	Factory sales	
		Quantity	Income from sales		Quantity	Income from sales
	net tons		\$'000	net tons		\$'000
1955	66,856	67,683	7,272	15,582	16,812	1,966
1956	88,590	86,592	10,103	18,487	18,675	2,465
1957	78,555	80,575	10,148	17,022	16,793	2,502
1958	56,118	56,189	7,338	14,078	14,088	2,066
1959	70,376	70,351	8,970	14,853	14,818	2,212
1960	36,028	36,108	4,787	11,256	11,133	1,684
1961	44,401	43,022	5,683	7,493	7,736	1,150
1962	53,765	54,554	7,238	10,613	10,624	1,586
1963	50,050	51,781	6,883	13,553	13,476	2,009
1964	59,035	58,539	8,034	13,937	13,310	2,006

TABLE 36. Production and Factory Sales¹ of Wire Rods of Iron or Steel, 1955-64

Year	Total tonnage made	Factory sales	
		Tonnage sold	Income from sales
	net tons		\$'000
1955	357,775	362,258	33,296
1956	403,834	403,602	42,565
1957	291,300	292,563	34,408
1958	268,848	270,210	30,592
1959	382,106	380,132	46,182
1960	343,052	347,629	42,949
1961	356,574	354,119	46,362
1962	356,262	354,412	46,010
1963	389,745	392,533	52,421
1964	442,023	446,509	58,888

¹ Beginning with 1954, includes shipments transferred to own mills of producing firms.

TABLE 37. Production and Factory Sales of Blooms, Billets and Slabs, 1955-64

Year	Except for forging ¹			For forging ²		
	Total tonnage made	Factory sales		Total tonnage made	Factory sales	
		Tonnage sold	Income from sales		Tonnage sold	Income from sales
	net tons		\$'000	net tons		\$'000
1955	2,864,919	227,833	16,552	77,806	70,813	6,561
1956	3,490,564	133,991	9,290	113,328	102,978	11,262
1957		141,062	11,153	156,065	146,407	17,108
1958		101,343	8,245	171,217	166,079	20,274
1959		131,574	11,303	197,415	194,419	21,518
1960	³	479,229	39,445	149,353	140,885	16,837
1961		326,895	25,690	180,709	156,637	18,461
1962		332,363	26,197	192,706	181,545	21,832
1963		311,849	26,599	203,048	185,899	22,231
1964		344,162	27,574	255,536	249,002	28,518

¹ Shipment to other Canadian Rolling mills are included.

² Includes blanks or pierced billets for seamless tubes.

³ Not collected since 1957.

TABLE 38. Production and Factory Sales of Hot-rolled Bars of All Kinds, 1955 - 64

Year	Total tonnage made	Factory sales	
		Tonnage sold	Income from sales
	net tons		\$'000
1955	742,494	621,819	79,841
1956	947,979	795,675	112,281
1957	865,533	718,864	107,391
1958	705,073	585,016	86,215
1959	949,865	795,274	116,993
1960	807,775	723,753	105,903
1961	899,795	783,314	107,439
1962	1,007,024	838,140	115,815
1963	1,089,997	936,734	132,304
1964	1,280,549	1,146,878	160,869

TABLE 39. Production and Factory Sales of Structural Steel Shapes,¹ of All Kinds, 1955 - 64

Year	Total tonnage made	Factory sales	
		Tonnage sold	Income from sales
	net tons		\$'000
1955	241,698	249,762	26,694
1956	316,000	315,564	36,361
1957	347,693	341,975	42,823
1958	217,137	225,295	29,140
1959	268,573	265,194	34,528
1960	241,392	234,530	30,075
1961	329,572	318,664	40,412
1962	462,442	450,309	56,659
1963	509,646	496,334	62,370
1964	560,606	577,608	72,927

¹ In 1956 this category was revised to include sheet piling. Data in above table for previous years have been revised to accomodate this change in classification.

TABLE 40. Production and Factory Sales of Steel Plate,¹ 1955 - 64

Year	Total tonnage made	Factory sales	
		Tonnage sold	Income from sales
	net tons		\$'000
1955	253,640	251,870	26,162
1956	326,208	319,666	36,936
1957	349,626	344,616	45,017
1958	230,309	226,750	30,618
1959	416,099	408,835	53,394
1960	387,947	387,993	52,275
1961	410,267	403,080	57,542
1962	489,968	491,533	61,815
1963	560,148	545,370	68,363
1964	622,419	621,124	79,354

¹ Excludes plate for pipes and tubes.

TABLE 41. Factory Shipments of Ferro-alloys — All Industries,¹ 1955 - 64

Year	Net tons	Year	Net tons
1955	190,000	1960	138,000
1956	240,000	1961	118,000
1957	204,000	1962	142,000
1958	113,000	1963	151,000
1959	136,000	1964	162,000

¹ Includes shipments from other industries which manufacture these commodities, as a secondary activity.

TABLE 42. Production and Factory Shipments of Coke Oven Products: Iron and Steel Mills, 1964

Product	Quantity made (including amounts for own use)	Factory shipments	
		Quantity shipped	Value
			\$'000
Coke (including breeze)..... ton	3,880,638	330,216	4,156
Coke oven gas M cu. ft.	58,454,295	3,204,943	1,237
Tar..... Imp. gal.	..	33,119,085	3,455
Ammonium sulphate..... ton	..	22,538	791
Benzol (all grades)..... Imp. gal.	..	6,351,629	1,757
Toluol "	..	1,918,575	495
Xylol "	..	721,492	264
All other products			563
Total			12,718

Note: Comprehensive details on operations of coke plants, regardless of industrial classification, are published in a monthly report "Coal and Coke Statistics", Catalogue No. 43-001, and in an annual report "The Coal-Making Industry", Catalogue No. 38-100.

TABLE 43. Coke Ovens: Iron and Steel Mills, December 31, 1964

Name of company and location of plant	Coke-making equipment, including reserve equipment (Rated annual capacity, in tons of coal carbonized, given in brackets)
The Algoma Steel Corporation Limited, Sault Ste. Marie, Ontario	In use — 110 Wilputte ovens (845,618 tons), and 143 Koppers ovens (1,302,311 tons).
Domintion Foundries and Steel Limited, Hamilton, Ontario	In use — 105 Koppers ovens (850,000 tons).
Dominion Steel and Coal Corporation Limited, Sydney, Nova Scotia	In use — 114 Koppers Becker Underjet ovens (887,240 tons).
The Steel Company of Canada Limited, Hamilton, Ontario	In use — 191 Wilputte ovens (1,770,000 tons).

TABLE 44. Producers of Ferro-alloys, 1964

Name of company	Plant location	Kind of ferro-alloy made
Canadian Carborundum Company, Limited	Niagara Falls, Ontario	Ferrosilicon (by-product)
Chromium Mining & Smelting Corp., Limited	Melocheville, Quebec	Ferrosilicon, silico manganese, ferromanganese, chrom-x, chrome sil-x, ferrochrome
Union Carbide Canada Ltd, (Metal & Carbon Div.)	(a) Beauharnois, Quebec	Ferrosilicon
	(b) Welland, Ontario	Ferrochrome, ferromanganese, silico manganese, ferrochrome-silicon
Electric Reduction Company of Canada, Limited	Buckingham, Quebec	Ferrophosphorus
Exolon Company, The	Thorold, Ontario	Ferrosilicon (by-product)
Lionite Abrasives Limited	Niagara Falls, Ontario	Ferrosilicon (by-product)
Norton Company	Chippawa, Ontario	Ferrosilicon (by product)
Shawinigan Chemicals Limited	Shawinigan Falls, Quebec	Ferrosilicon (by product)
Simonds Canada Abrasive Co., Limited	Arvida, Quebec	Ferrosilicon (by-product)
Strategic-Udy Metallurgy Limited	Niagara Falls, Ontario	Ferrochrome

List of Establishments classified to This Industry, 1964

(Does not include establishments classified to other industries, which as a secondary activity, manufacture products typical of this industry)

Name	Location
Nova Scotia:	
Dosco Steel Ltd.	Sydney
Enamel and Heating Products Ltd.	Amherst
Quebec:	
Canadian Steel Foundries Ltd.	Montreal
Canadian Unitcast Steel Ltd.	Sherbrooke
Chromium Mining and Smelting Corp. Ltd.	Melocheville
Crucible Steel of Canada Ltd.	Sorel
Dominion Brake Shoe Co., Ltd.	Joliette
Dosco Steel Ltd.	Montreal
Lynn MacLeod Metallurgy Ltd.	Thetford Mines
Manganese Steel Castings Ltd.	Sherbrooke
Sorel Steel Foundries Ltd.	Sorel
Union Carbide Canada Ltd.	Beauharnois
Ontario:	
Atlas Steels Company, Div. of Rio Algom Mines Limited	Wellsand
Algoma Steel Corp. Ltd., Steel Works Division	Sault Ste Marie
Algoma Steel Corp. Ltd., Canadian Furnace Division	Port Colborne
Canada Electric Castings Ltd.	Guelph
Canadian Drawn Steel Co., Ltd.	Hamilton
Dominion Foundries and Steel Ltd.	Hamilton
Fahrallloy Canada Ltd.	Orillia
Indiana Steel Products Co. of Canada Ltd.	Kitchener
Lake Ontario Steel Co. Ltd.	Whitby
Neelon Steel Ltd.	Sudbury
Slater Steel Industries Ltd., Burlington Steel Co. Div.	Hamilton
Stanley Steel Co., Ltd.	Hamilton
Steel Co. of Canada Ltd.	Hamilton
Strategic-Udy Metallurgy Limited	Niagara Falls
Union Carbide Canada Ltd.	Wellsand
Union Drawn Steel Co., Ltd.	Hamilton
Vanadium Alloys Steel Canada Ltd.	London
Welmet Industries Ltd.	Wellsand
Manitoba:	
Dominion Brake Shoe Co., Ltd., Manitoba Steel Foundry Div.	Selkirk
Manitoba Rolling (Mills) Co., Ltd., Div. of Dom. Bridge Co., Ltd.	Selkirk
Alberta:	
Foothills Steel Foundry and Iron Works Ltd.	Calgary
Premier Steel Mills Ltd.	Edmonton
Quality Steel Foundries Ltd.	Edmonton
British Columbia:	
A - 1 Steel and Iron Foundry Ltd.	Vancouver
Consolidated Mining and Smelting Co. of Canada Ltd.	Kimberley
Esco Limited, Foundry Div.	Port Coquitlam
Reliance Foundry Co., Ltd.	Vancouver
Western Canada Steel Ltd.	Vancouver
Western Canada Steel Ltd.	Twigg Island, Richmond

CONCEPTS AND DEFINITIONS

Census of Manufactures

General

The Census of Manufactures is an annual mail survey covering Canada's Manufacturing Industries. It is based on the Standard Classification of Industries and full details concerning the system may be found in the Standard Industrial Classification manual, Catalogue No. 12-501 which is available from the Queen's Printer or the Dominion Bureau of Statistics. In summary, the Classification as it relates to the manufacturing industries provides for a breakdown into 140 industries arranged in 20 major industry groups. Of the 140 (3 digit) industries, 18 are further broken down into 56 (4 digit) sub classes. At the Canada level, principal statistics are collected and compiled for 176 separate industries. They cannot all be published separately by province, however, because of the confidential nature of the data in certain provinces.

The reporting unit for the Census is designated as the **establishment** (see definition of "Establishment" in following section) and a return is requested from every establishment classified to a manufacturing industry. Although respondents are required to submit reports covering the calendar year, financial year reports other than the calendar year are accepted in instances where respondents find it impossible to supply calendar year data from accounting records. When an establishment is operated for only part of a year a report is required covering the period of operation.

There are four different questionnaires used in the Census of Manufactures; (a) short form (b) long form (c) head office questionnaire and (d) commodity questionnaire. The short and long forms are used to obtain principal statistics and commodities shipped from establishments classified to manufacturing industries and differ only in the amount of detail requested. The short form is a single-sheet questionnaire sent to small manufacturers generally reporting shipments of less than \$100,000; this cut-off, however, varies somewhat between industries. The head office questionnaire is generally used for company head offices and/or auxiliary units separately located from the manufacturing establishment(s), (see following notes on Head offices and auxiliary units). The Commodity questionnaire is used to survey certain establishments which are coded (on the basis of their principal activity) to industries other than manufacturing in the Standard Industrial Classification system, but which undertake some manufacturing as a subsidiary activity. This single-sheet questionnaire is designed to collect information on the quantity and value of goods of own manufacture shipped by such establishments in order to achieve full coverage of domestically manufactured commodities (see the following note under Shipments).

The results of the Census are presented in some 140 publications. In addition to these annual industry publications there are annual summary reports for Canada and the provinces and special reports giving principal statistics by detailed geographic areas, by type of ownership and size of establishment. A special annual report covering the shipments of all manufactured commodities arranged in alphabetical order is also published.

Since 1960 the following major changes have been implemented in the Census of Manufactures; (a) a revised Standard Industrial Classification (b) a new establishment definition and (c) an extension of the establishment definition to cover the non-manufacturing activities of manufacturing establishments. The statistics presented in the various 1963 reports reflect the complete implementation of these changes and enable comparisons to be made with the years 1961 and 1962. For a complete description of the procedures followed in establishing the revised series, reference should be made to the Explanatory Notes included in the 1960, 1961 and 1962 industry publications. The statistical framework within which the Census of Manufactures is now carried out is based on the following concepts and definitions which have been developed as part of a general programme to achieve a fully integrated system of economic statistics.

Establishment

A manufacturing establishment is typically a factory, mill or plant principally engaged in manufacturing activities. The majority of such establishments are firms but many firms have more than one establishment. Such firms are requested to submit a separate Census of Manufactures report for each manufacturing establishment which can meet the reporting requirements embodied in the following definition of the "establishment":

"The smallest unit which is a separate operating entity capable of reporting the following principal statistics:

- Materials and supplies used
- Goods purchased for resale as such
- Fuel and power consumed
- Number of employees and salaries and wages
- Man-hours worked and paid
- Inventories
- Shipments or sales."

Each establishment is required to report on all the activities carried out within its accounting boundaries (except income from investments such as rent, interest and dividends) and data on the different activities (manufacturing, trading in goods not of own manufacture, construction by own labour

force, revenue from services, etc.) are requested to be reported separately. It should be noted that the statistics for separate activities are not completely consistent since some respondents cannot distinguish, in their records, materials, shipments and inventories relating solely to their own manufacturing activities. For example, inventory of goods purchased for re-sale may not be distinguishable from inventory of own manufactured goods. Complete consistency, therefore, can be obtained only at the "all operations" (total activity) level and for studies or statistical measures requiring accurate coordinated data, the "total" statistics should be used.

The number of establishments represents the number of operating units that are principally engaged in the activities of the manufacturing industries to which they have been classified. These units do not necessarily represent the total number engaged in the production of a commodity mainly produced in a certain industry. Some commodities are produced as secondary products in other manufacturing and non-manufacturing industries. It should be noted that head offices and auxiliary units which are surveyed separately are not included in the establishment count, (see following notes on head offices and auxiliary units).

Head Offices and Auxiliary Units

All head offices and auxiliary units of companies classified to the manufacturing industries such as sales offices, administrative offices, warehouses, laboratories, etc. are now surveyed as part of the Census of Manufactures.

These head offices and auxiliary units are either included in an establishment report or are surveyed by means of the head office questionnaire. The former is the most common case where a single establishment firm has its executive personnel, sales office, etc. located at the site of the manufacturing plant (establishment). The special head office questionnaire is generally used where a firm, regardless of the number of establishments, has separately located offices or auxiliary units. Such offices or units do not constitute establishments within the Census of Manufactures as they do not normally generate operational revenues, but give rise only to costs of operations (mainly salaries and wages) which are automatically included in the value of shipments or sales. Although not considered as establishments, and hence, not included in the "establishment" count for an industry, the operational costs are reflected in either the "Industry" statistics (3 or 4 digit level) or the "Major group" statistics (2 digit level) according to the following rules:

(a) In the case of single establishment firms, statistics for separately located offices and units are classified to the same industry (3 or 4 digit) as the establishment;

(b) In the case of multi-establishment firms, the statistics for such offices and units are coded to the same industry as the establishments of the firm, when all establishments are in the same industry (3 or 4 digit). When establishments of

such firms are coded (1) to different industries within a major group, (2) to industries in different major groups or (3) to industries in different divisions of the Standard Industrial Classification, then the statistics are included in the major group totals (2 digit level) in which the major part of the company's operations are classified. Although this may result in some distortion of major group statistics in the case of (2) and (3) the statistics at the industry (3 or 4 digit) level in all cases will be left free of these company-wide data.

Employees

(a) Production and related workers — Manufacturing activities

In addition to those engaged in production and assembling activities, they include those employed in storing, inspecting, handling, packing, warehousing, etc. They also include employees engaged in maintenance, repair, janitorial and watchman services and line supervisors (working foremen) engaged in similar work to that of the employees they supervise. For those establishments reporting on the "long" form, production and related workers engaged in manufacturing activity are reported as those receiving pay during the last pay period of each month, an average for the year being obtained by summing the monthly figures and dividing by 12. This procedure is followed even though the establishment did not operate in all months in order to arrive at equivalent annual full-time employment. The numbers are somewhat affected by turnover, in that employment is overstated when an employee changes employment during a pay period. In the case of those establishments reporting on the "short" form, respondents are requested to report average annual figures. The man-hours of production and related workers in manufacturing activity represent total man-hours paid (total hours at work during the calendar year plus hours not worked but nevertheless paid for, such as paid vacations, sick leave, statutory holidays, etc.). Data on man-hours are not collected from establishments reporting on the short form. Man-hours for these establishments are estimated on the basis of ratios derived from the 1958 census. During this census all establishments reported on the long form. In reporting overtime hours, respondents are requested to report only hours actually at work. It should be noted that the division of hours paid into production and related workers payrolls results in average hourly earnings and does not represent hourly wage rates which are collected and published by the Department of Labour and which are based on selected occupations.

(b) Production and related workers — Non-manufacturing activities

Such employees include those on manufacturing establishments' payrolls engaged in activities such as construction undertaken for the use of these establishments, some outside piece-workers employed in certain industries, logging employees who are reported as part of a sawmilling establishment and any other production workers who are not engaged in manufacturing-type operations.

(c) Administrative and office employees

This category includes all executive and supervisory officials such as presidents, vice-presidents, comptrollers, secretaries, treasurers, etc., together with managers, professional, technical and research employees, superintendents and factory supervisors above the line supervisor or working foreman level, and clerical staffs. Also included are employees in activities such as advertising, credit collections, purchasing, personnel, legal, medical, etc. It should be noted that prior to 1961 this category also included working owners and partners. Also included in this category are employees located at head offices or auxiliary units separately located from the establishment; these are generally included in the figures for the province in which they are located according to the rules outlined under "Head offices and auxiliary units" above.

(d) Sales and distribution workers

This category includes office personnel whose salaries are charged to selling expense, travelling salesmen, driver salesmen, truckdrivers and their helpers, etc. It may also include some sales employees who are reported as part of a manufacturing establishment but are not working at the establishment's location. These are generally broken down by province in cases where more than 15 employees are involved in any one province. The figures exclude persons working on a commission basis who are not considered regular employees of the establishment.

(e) Total Employees

This total comprises the foregoing categories including employees located at separately located head offices and auxiliary units. The numbers of employees included under categories (b), (c) and (d) are reported in the form of annual averages and represent as closely as possible full time employment; adjustments are made when reported figures indicate the existence of part time or seasonal employment. In all the above categories, figures on employment refer to the calendar year whether or not other establishment statistics can only be reported on a fiscal year other than the calendar year.

Working Owners or Partners

These are not now included in the statistics of employees and salaries and wages. There is some duplication in numbers when a person owns more than one establishment and is reported as a working owner on each Census return. Withdrawals of working owners are defined as amounts withdrawn by owners or partners for normal living expenses excluding withdrawals for payment of income tax.

Salaries and Wages

Salaries and wages refer to gross earnings of employees **before** deductions for income tax and employees contributions to social services such as sickness, accident and unemployment insurance, pensions, etc. They include all salaries, wages,

bonuses, profits shared with employees, the value of room and board where provided, commissions (paid to regular employees only) as well as any other allowance forming part of the worker's earnings. Payments for over-time are included. Figures on salaries and wages refer to the calendar year.

Fuel and Electricity

Figures for fuel refer to amounts actually used (including fuel used in cars, trucks, locomotives, etc.), not to purchases unless the quantities are substantially the same. **Any fuel and electricity produced by establishments for internal consumption are not included in the total cost.** Values represent laid down cost at the establishment including freight, duty, etc. Although fuel and electricity used is considered part of manufacturing activity it should be noted that it also includes relatively small amounts used in non-manufacturing activities since these cannot be reported separately.

Materials and Supplies

(a) Manufacturing activities

Figures represent quantities and laid down cost values, at the establishment, of materials, supplies and purchased components owned and used during the year in manufacturing activities and related processes. These statistics represent only commodity items or physical goods (cost of services or overhead charges such as advertising, insurance, depreciation, etc. are not included) whether purchased from others or received as transfers (in the form of materials, components or semi-processed goods) from other establishments of the reporting company. Included are maintenance and repair supplies not chargeable to fixed assets accounts and any amounts charged by other establishments for work done on materials owned by the reporting establishment. Cost of repairs or maintenance done by outside contractors and cost of returnable containers are not included.

(b) Non-manufacturing activities

1. Purchases for re-sale as such

Figures represent cost of materials or products purchased from others by the reporting establishment (or received as transfers from other establishments of the reporting company) for re-sale as such in the same condition as purchased. Included are any finished products received on consignment from other countries.

2. Other materials and supplies used

Figures represent the cost of materials and supplies, if any, used in new construction and in the production of machinery and equipment (for the use of the reporting establishment) by the establishment's own employees. Included are materials used for any capital repairs and alterations carried out by the establishment's employees. Amounts paid to outside contractors for construction and repair work are not included nor is the cost of

purchased machinery and equipment. Also included is the cost of office supplies not chargeable to fixed assets accounts and the cost of such other items of materials and supplies used as food, beverages and supplies for establishment-operated cafeterias and lunch counters, first aid and medical supplies, laboratory supplies, etc.

Shipments

(a) General

The figures represent revenue from all production, sales, services and related activities of reporting establishments with shipments valued in Canadian dollars at the point at which the establishment relinquishes control. The unsold portion at year end of consignment shipments in Canada is treated as inventory and not as shipments but all shipments to foreign countries for which the form B13 "Customs Canada Export Entry" has been completed, are treated as shipments.

In those industries where work on principal products extends over a relatively long period, (Fabricated Structural Metal Industry, Aircraft and Parts Manufacturers, Railroad Rolling Stock Industry and Shipbuilding and Repair Industry) the value of production rather than the value of shipments is recorded. There are certain establishments in other industries which also operate on a basis of progress payments. For these establishments, shipments are also adjusted to work put in place on the basis of the net change in progress payments over the year.

(b) Shipments of goods of own manufacture

These figures represent shipments of goods made from own materials either in the reporting establishments or by other manufacturers on the basis of a charge to the reporting establishments for work done. Included are revenue from repair and custom work, amounts received in payment for work done on materials owned by other establishments and the cost (book value) of any goods shipped on a rental basis.

All products and by-products of own manufacture shipped from the establishment are covered, including transfer shipments to sales outlets, distributing warehouses or to other manufacturing plants of the reporting firm, when such units are treated as separate establishments. The value of shipments are net of returned goods, discounts, returns, allowances, sales tax and excise taxes and duties, returnable containers and charges for outward transportation by common or contract carriers. Transportation or delivery expense incurred by the reporting establishment's own carriers are included.

Shipments of goods of own manufacture of establishments which are coded to some other division of the Standard Industrial Classification (on the basis of principal activity) but which are engaged in manufacturing as a subsidiary activity

are collected by means of the Commodity questionnaire referred to earlier. Such shipments together with shipments of goods of own manufacture of establishments forming the universe of manufacturing industries are compiled and recorded in the various industry publications.

(c) Shipments of goods not of own manufacture

These figures represent the net selling value at establishment (net of discounts, returns, allowances, sales taxes and excise duties and taxes and transportation charges by common or contract carriers) of all products or materials (including products transferred from other establishments of the reporting firm) sold as such in the same condition as purchased or received as transfers. For those industries which ship such goods on a rental basis, the value of shipments represents the book value of these goods. All sales of consignment goods from other countries are included.

(d) Other revenue

Figures represent the book value of fixed assets, if any, (new construction and machinery and equipment including major repairs, alterations, additions, modifications, installation and assembly work) produced during the year for the use of reporting establishments by the establishment's own employees and for which depreciation accounts are maintained. Included also are any revenues from the sale of electricity and from any operations performed by the establishment's own employees, such as revenue from goods produced or purchased for rental (the book value of such goods are included as part of shipments of goods of own manufacture or shipments of goods not of own manufacture), servicing revenues, commissions on sales (when not included in value of sales), revenue for company-operated cafeterias and lunch counters and revenue from outside installation or construction work not related to the establishment's own products, sale of used materials (excluding sale of used fixed assets) research and development work, etc. As mentioned previously the figures do not include non-operating revenue such as rent, dividends, interest, etc.

Inventories

(a) Manufacturing activities

Values represent the book values of manufacturing inventory owned in Canada. Inventories held for which progress payments have been received are not included. Where progress payment accounts are maintained, the change in these accounts is treated as a net adjustment to shipments. Figures consist of inventory owned at the plant and at warehouses or selling outlets which are treated as extensions of establishments for the purpose of reporting shipments. Inventory owned in transit in Canada or on consignment in Canada is included. Goods shipped abroad and held in inventory are included in shipments. Opening inventories may differ from the closing inventories of the previous year because of changes in classification, the

receipt of revised data, the inclusion of new establishments and the removal of establishments which did not operate during the survey year.

(b) Non-manufacturing activities

Figures represent the book value of inventory of goods purchased for re-sale as such without further processing, owned by the reporting establishments and held at plants and at any warehouses or selling outlets which are treated as extensions of establishments. Other characteristics are the same as in (a) above.

Value Added

(a) By manufacturing activities

Figures are compiled by deducting the cost of manufacturing materials, supplies, etc. and fuel and electricity consumed from the (value of shipments of goods of own manufacture adjusted for changes in the value of inventories of finished goods and goods in process).

(b) By non-manufacturing activities

The figures are compiled by deducting the cost of goods purchased for re-sale (adjusted for changes in the value of inventories of goods pur-

chased for re-sale) and the cost of non-manufacturing materials and supplies used from the value of shipments of goods not of own manufacture, plus other revenue.

(c) By Total activities

The figures consist of value added by manufacturing activities plus value added by non-manufacturing activities. This total value added figure may, in some cases, be less than value added by manufacturing activities as a result of expenditures associated with non-manufacturing exceeding revenues from such activities or because of a decrease in inventory of goods not of own manufacture exceeding the mark-up on the sale of such goods. "Value added" is sometimes referred to as net output or net production. However, to arrive at the National Accounts concept of net production, or Gross Domestic Product at "Factor cost" it would be necessary to subtract also the cost of advertising, insurance and other business expenses which are not collected as part of the annual Census of Manufactures. "Value added" figures for the primary industries, manufacturing and construction are published in DBS publication Catalogue No. 61-202, "Survey of Production".

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