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SMELTING AND REFINING

1964

This report includes statistics for S.I.C. Industry 295—Smelting and Refining. As defined in the Standard Industrial Classification Manual (Catalogue No. 12-510), Industry 295 includes establishments primarily engaged in the smelting of ores bearing non-ferrous metals and/or the refining of non-ferrous metals.

In Canadian practice, a high degree of vertical integration exists between the major metal mines and the smelting and refining industry, that is to say, the mining, smelting and refining or some combination of two or more of them are carried on as one integrated operation. This situation obtains even though the mine(s) may or may not be located at the same site as the smelter and/or refinery.

In the past, the procedure followed in compiling statistics for the smelting and refining industry duplicated, on the output side, some of the values already credited to the mines. Also, since no market values exist in many cases for the ores, concentrates, matte, etc., that are used as inputs of the smelting and/or refining operations, the estimated values attached to these transfers were not considered realistic. In addition, there was incomplete coverage of materials, supplies, etc., used by the various units of the integrated companies. In order to produce more meaningful and co-ordinated statistics for both the metal mining and the smelting and refining industries, it was necessary to make a fundamental change in the statistical treatment of these companies.

Consideration was given to the suggestion of treating smelting and refining operations of integrated companies as part of the mining industry, but this would be difficult to justify from the statistical viewpoint. Smelting and refining, by the nature of its operations, constitutes a manufacturing activity and is defined as such not only in the Canadian classification system but also in the international system and in that of most foreign countries. To include it as part of the mining universe would not only impair international comparisons but would deprive the manufacturing universe of an important component.

After a thorough study of the problems involved and consultations with several of the integrated companies, it was found that the most satisfactory solution was to continue to consider smelting and refining as a manufacturing industry but to treat such activities of the vertically integrated companies as "custom" operations regardless of whether or not the smelting and refining plants of these companies were concerned solely with the smelting and refining of ore, concentrates, etc., of their own company. This procedure eliminated the need to apply artificial values to the ores, concentrates, etc., transferred to the smelters and to value the output of the

smelters and refineries in terms of commodities produced. Although, for the purpose of commodity statistics, these are still valued on the basis of recoverable metal content, the revenue from integrated operations now accrues to the mines concerned and will not be duplicated, as in the past, in both the mining and the smelting and refining industries. Thus, the revenue from smelting and refining in such integrated operations now consists primarily of treatment costs of own ores, etc., plus any revenue from toll charges of non-company ores, by-products, etc. In turn, the treatment costs of own ores, etc., are now charged to the mining establishments concerned as additional inputs.

The effects of the changes in procedure described above in the case of the Smelting and Refining Industry are reflected in the 1963 and 1964 figures presented in Tables 1-13 of this report. In addition, these tables reflect the inclusion of the non-manufacturing activities of this industry in arriving at a measure of the total activity concept. Table 1 carries as well statistics for this industry on a revised basis back to 1961, comparable to the new 1964 figures.

The changes described above and the incorporation of new definitions and concepts in accordance with the revised Standard Industrial Classification and the new establishment concept are part of a continuing programme undertaken by the Manufacturing and Primary Industries Division of DBS during the past several years in order to improve the quality and consistency of statistics in the manufacturing and primary industries. In the case of smelting and refining, differences between statistics previously published and the revised data included in this report resulted primarily from the application of the new measurement approach described above to the vertically integrated firms. However, the revision program also had some effect on the statistics of the non-integrated firms. This latter group includes companies primarily engaged in smelting and refining only whose operations mostly consist of market transactions. In general, the materials used are purchased Canadian or imported ores and concentrates (including transferred ores and concentrates treated as "purchased" in the books of some companies). An interesting feature of this group of firms is the nature of their output. Although this still consists primarily of refined metals, products and by-products such as titanium slag, pig iron, chemicals (especially fertilizer materials) are being produced in increasing volumes. Because of the independent character of their operations, no significant changes were made to the statistics of these firms and their contribution to the difference between the originally published and revised figures for this industry was minor.

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.
- p 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	23	23,508 ^r	48,244 ^r	118,532 ^r	49,927 ^r	268,015 ^r	617,125 ^r	299,183 ^r	-	-	29,938 ^r	159,688 ^r	304,891 ^r
1962													
Totals	22 ^r	22,621	46,320	116,049	46,697 ^r	291,166 ^r	649,792 ^r	311,929 ^r	-	-	29,093 ^r	158,163 ^r	320,373 ^r
1963													
Newfoundland	-	-	-	-	-	-	-	-	-	-	-	-	-
Prince Edward Island	-	-	-	-	-	-	-	-	-	-	-	-	-
Nova Scotia	-	-	-	-	-	-	-	-	-	-	-	-	-
New Brunswick	-	-	-	-	-	-	-	-	-	-	-	-	-
Quebec	10 ^r	8,563 ^r	18,089 ^r	46,171 ^r	19,537 ^r	159,560 ^r	336,793 ^r	157,696 ^r	-	-	11,664 ^r	66,515	165,026
Ontario	7 ^r	7,132 ^r	14,694 ^r	35,130 ^r	16,730	67,798 ^r	146,127 ^r	61,599 ^r	-	-	9,135	48,935 ^r	63,353 ^r
Manitoba	2	5,858	12,394	30,890	10,789 ^r	68,467 ^r	156,739 ^r	77,484 ^r	-	-	7,717 ^r	43,700 ^r	78,888 ^r
Saskatchewan	1												
Alberta	1												
British Columbia	2												
Yukon and Northwest Territories	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	23	21,553 ^r	45,176 ^r	112,191 ^r	47,055 ^r	295,825 ^r	639,659 ^r	296,779 ^r	-	-	28,516 ^r	159,151 ^r	307,247 ^r
1964													
Newfoundland	-	-	-	-	-	-	-	-	-	-	-	-	-
Prince Edward Island	-	-	-	-	-	-	-	-	-	-	-	-	-
Nova Scotia	-	-	-	-	-	-	-	-	-	-	-	-	-
New Brunswick	-	-	-	-	-	-	-	-	-	-	-	-	-
Quebec	10	9,155	19,945	52,773	24,391	180,909	412,042	206,742	-	-	12,323	73,925	218,379
Ontario	7	8,112	16,586	40,103	18,541	49,549	133,341	62,251	-	-	9,960	53,579	67,039
Manitoba	2	5,972	12,369	33,233	10,056	84,109	172,871	78,706	-	-	7,870	46,945	79,331
Saskatchewan	1												
Alberta	1												
British Columbia	2												
Yukon and Northwest Territories	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	23	23,239	48,900	126,109	52,988	314,567	718,254	350,699	-	-	30,153	174,450	364,749

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	—	—	—	—	—	—	—	—	—	—	—	—	—
500,000 " 999,999	—	—	—	—	—	—	—	—	—	—	—	—	—
1,000,000 " 4,999,999	5 ^f	865 ^f	1,817 ^f	4,219 ^f	3,855 ^f	4,754 ^f	15,568 ^f	6,960 ^f	—	—	990 ^f	4,987 ^f	7,149 ^f
5,000,000 and over	18 ^f	20,688 ^f	43,360 ^f	107,972 ^f	43,201 ^f	291,071 ^f	624,091 ^f	289,820 ^f	—	—	27,526 ^f	154,163 ^f	300,098 ^f
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	23	21,553 ^f	45,176 ^f	112,191 ^f	47,055 ^f	295,825 ^f	639,659 ^f	296,779 ^f	—	—	28,516 ^f	159,151 ^f	307,247 ^f
1964													
Under \$10,000	—	—	—	—	—	—	—	—	—	—	—	—	—
\$ 10,000 to \$ 24,999	—	—	—	—	—	—	—	—	—	—	—	—	—
25,000 " 49,999	—	—	—	—	—	—	—	—	—	—	—	—	—
50,000 " 99,999	—	—	—	—	—	—	—	—	—	—	—	—	—
100,000 " 199,999	—	—	—	—	—	—	—	—	—	—	—	—	—
200,000 " 499,999	—	—	—	—	—	—	—	—	—	—	—	—	—
500,000 " 999,999	—	—	—	—	—	—	—	—	—	—	—	—	—
1,000,000 " 4,999,999	5	1,056	2,204	5,113	4,880	7,830	19,677	6,967	—	—	1,205	6,016	6,987
5,000,000 and over	18	22,183	46,696	120,997	48,109	306,737	698,577	343,732	—	—	28,917	168,112	357,769
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	31	322	(7)
Totals	23	23,239	48,900	126,109	52,988	314,567	718,254	350,699	—	—	30,153	174,450	364,749

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 shlpments 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	9 ^f	2,157 ^f	4,473 ^f	10,157 ^f	6,404 ^f	71,283 ^f	93,462 ^f	15,775 ^f	—	—	2,634 ^f	13,396 ^f	16,022 ^f
200,000 " 499,999													
500,000 " 999,999													
1,000,000 " 4,999,999													
5,000,000 and over													
Head offices, sales offices and auxiliary units	14 ^f	19,396 ^f	40,704 ^f	102,034 ^f	40,651 ^f	224,542 ^f	546,198 ^f	281,004 ^f	—	—	25,882 ^f	145,754 ^f	291,225 ^f
Totals	23	21,553 ^f	45,176 ^f	112,191 ^f	47,055 ^f	295,825 ^f	639,659 ^f	296,779 ^f	—	—	28,516 ^f	159,151 ^f	307,247 ^f
1964													
Under \$10,000	—	—	—	—	—	—	—	—	—	—	—	—	—
\$ 10,000 to \$ 24,999	—	—	—	—	—	—	—	—	—	—	—	—	—
25,000 " 49,999	—	—	—	—	—	—	—	—	—	—	—	—	—
50,000 " 99,999	—	—	—	—	—	—	—	—	—	—	—	—	—
100,000 " 199,999	3	293	602	1,524	856	32,750	32,323	(1,283)	—	—	424	2,466	(1,253)
200,000 " 499,999													
500,000 " 999,999													
1,000,000 " 4,999,999													
5,000,000 and over													
Head offices, sales offices and auxiliary units	7	2,462	5,062	11,419	8,046	8,031	34,108	18,031	—	—	2,896	14,286	18,179
Totals	13	20,484	43,235	113,166	44,087	273,786	651,823	333,951	—	—	26,802	157,376	347,838
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	31	322	(7)
Totals	23	23,239	48,900	126,109	52,988	314,567	718,254	350,699	—	—	30,153	174,450	364,749

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
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	9	2,157	4,473	10,157	6,404	71,283	93,462	15,775	-	-	2,634	13,396	16,022
500,000 " 999,999													
1,000,000 " 4,999,999													
5,000,000 and over	14	19,396	40,704	102,034	40,651	224,542	546,198	281,004	-	-	25,882	145,754	291,225
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	23	21,553	45,176	112,191	47,055	295,825	639,659	296,779	-	-	28,516	159,151	307,247
1964													
Under \$10,000	-	-	-	-	-	-	-	-	-	-	-	-	-
\$ 10,000 to \$ 24,999	-	-	-	-	-	-	-	-	-	-	-	-	-
25,000 " 49,999	-	-	-	-	-	-	-	-	-	-	-	-	-
50,000 " 99,999	-	-	-	-	-	-	-	-	-	-	-	-	-
100,000 " 199,999	-	-	-	-	-	-	-	-	-	-	-	-	-
200,000 " 499,999	3	293	602	1,524	856	32,750	32,323	(1,283)	-	-	424	2,466	(1,252)
500,000 " 999,999													
1,000,000 " 4,999,999													
5,000,000 and over	14	21,133	44,533	116,316	44,966	274,693	658,609	338,950	-	-	27,607	161,729	352,990
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	31	322	(7)
Totals	23	23,239	48,900	126,109	52,988	314,567	718,254	350,699	-	-	30,153	174,450	364,749

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
1963													
Under 5 employed	-	-	-	-	-	-	-	-	-	-	-	-	-
5 - 14 employed	-	-	-	-	-	-	-	-	-	-	-	-	-
15 - 49 "	8	1,578	3,306	7,394	5,622	70,515	87,165	11,028	-	-	1,903	9,471	11,405
50 - 99 "													
100 - 199 "													
200 - 499 "													
500 employed and over	15	19,975	41,870	104,797	41,434	225,310	552,495	285,751	-	-	26,613	149,680	295,842
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	23	21,553	45,176	112,191	47,055	295,825	639,659	296,779	-	-	28,516	159,151	307,247
1964													
Under 5 employed	-	-	-	-	-	-	-	-	-	-	-	-	-
5 - 14 employed	-	-	-	-	-	-	-	-	-	-	-	-	-
15 - 49 "	-	-	-	-	-	-	-	-	-	-	-	-	-
50 - 99 "	3	221	443	995	767	24,735	26,497	995	-	-	323	1,674	1,035
100 - 199 "													
200 - 499 "													
500 employed and over													
Head offices, sales offices and auxiliary units	14	21,133	44,533	116,316	44,966	274,693	658,609	338,950	-	-	27,607	161,729	352,990
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	31	322	(7)
Totals	23	23,239	48,900	126,109	52,988	314,567	718,254	350,699	-	-	30,153	174,450	364,749

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	23	21,553 ^f	45,176 ^f	112,191 ^f	47,055 ^f	295,825 ^f	639,659 ^f	296,779 ^f	—	—	28,516 ^f	159,151 ^f	307,247 ^f
Co-operatives	—	—	—	—	—	—	—	—	—	—	—	—	—
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	23	21,553^f	45,176^f	112,191^f	47,055^f	295,825^f	639,659^f	296,779^f	—	—	28,516^f	159,151^f	307,247^f
1964													
Individual ownerships	—	—	—	—	—	—	—	—	—	—	—	—	—
Partnerships	—	—	—	—	—	—	—	—	—	—	—	—	—
Incorporated companies	23	23,239	48,900	126,109	52,988	314,567	718,254	350,699	—	—	30,122	174,128	364,756
Co-operatives	—	—	—	—	—	—	—	—	—	—	—	—	—
Head offices, sales offices and auxiliary units .....	...	...	...	...	...	...	...	...	...	...	31	322	(7)
Totals	23	23,239	48,900	126,109	52,988	314,567	718,254	350,699	—	—	30,153	174,450	364,749

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	639,659 ^f	718,254	154,656 ^f	178,544	794,315 ^f	896,798
Inventories—Goods of own manufacture:						
Add closing—Goods in process .....	...	...	...	...	...	...
Finished goods .....	...	...	...	...	...	...
Deduct opening—Goods in process .....	...	...	...	...	...	...
Finished goods .....	...	...	...	...	...	...
2. Net inventory change .....	...	...	...	...	...	...
3. Gross output (1+2)	639,659 ^f	718,254	154,656 ^f	178,544	794,315 ^f	896,798
Input						
4. Purchases of goods not of own manufacture .....	...	...	140,975 ^f	160,308	140,975 ^f	160,308
Inventories—Goods not of own manufacture:						
Add opening	—	—	—	—	—	—
Deduct closing	—	—	—	—	—	—
5. Cost of goods sold (not of own manufacture) .....	...	...	140,975 ^f	160,308	140,975 ^f	160,308
6. Materials, supplies, etc.	295,825 ^f	314,567	3,213 ^f	4,186	299,038 ^f	318,753
7. Fuel and electricity	47,055 ^f	52,988	...	...	47,055 ^f	52,988
8. Gross input (5+6+7)	342,880 ^f	367,555	144,188 ^f	164,494	487,068 ^f	532,049
Value added (3-8)	296,779 ^f	350,699	10,468 ^f	14,050	307,247 ^f	364,749

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		Adminis- trative and office	Sales and distribution	Total
	Manufacturing		Other												
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Manufacturing	Other			
1963	number										\$'000				
Newfoundland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prince Edward Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nova Scotia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Brunswick	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quebec	8,552 ^f	11	381 ^f	39 ^f	2,401 ^f	277 ^f	2	1	11,336 ^f	328 ^f	46,171 ^f	2,358 ^f	17,952 ^f	34	66,515 ^f
Ontario	7,125 ^f	7	295 ^f	-	1,518 ^f	196	3	1	8,931	204	35,130 ^f	1,354 ^f	12,413 ^f	38	48,935 ^f
Manitoba	5,824	34	168 ^f	21 ^f	1,477 ^f	193 ^f	-	-	7,469 ^f	248 ^f	30,890	1,317 ^f	11,493 ^f	-	43,700 ^f
Saskatchewan															
Alberta															
British Columbia															
Yukon and Northwest Territories	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	21,501 ^f	52	834 ^f	60 ^f	5,396 ^f	666 ^f	5	2	27,736 ^f	780 ^f	112,191 ^f	5,029 ^f	41,859 ^f	71	159,151 ^f
1964															
Newfoundland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prince Edward Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nova Scotia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Brunswick	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quebec	9,144	11	367	35	2,502	260	3	1	12,016	307	52,773	2,287	18,822	43	73,925
Ontario	8,108	4	-	-	1,626	199	14	9	9,748	212	40,103	-	13,264	212	53,579
Manitoba	5,936	36	159	10	1,518	211	-	-	7,613	257	33,233	1,201	12,511	-	46,945
Saskatchewan															
Alberta															
British Columbia															
Yukon and Northwest Territories	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	23,188	51	526	45	5,646	670	17	10	29,377	776	126,109	3,488	44,597	255	174,450

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	20,583 ^f	51	21,474	48
February	20,397 ^f	51	22,015	47
March	20,403 ^f	51	22,341	50
April	21,130 ^f	51	22,387	52
May	21,441 ^f	51	23,092	53
June	22,137 ^f	51	23,734	54
July	22,632 ^f	55	24,020	55
August	22,376 ^f	55	23,842	54
September	21,955 ^f	51	23,274	51
October	21,864 ^f	52	23,393	52
November	21,695 ^f	51	23,309	51
December	21,494 ^f	51	23,452	51
Averages	21,501 ^f	52	23,188	51
Establishments reporting annual averages (small establishments only) .....	...	...	...	...
Average for all establishments	21,501 ^f	52	23,188	51

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	—	—	—	—	—	—
New Brunswick	—	—	—	—	—	—
Quebec	48,315	8,015	26,538	82,869	—	82,869
Ontario	19,872	1,503	2,150	23,525	—	23,525
Manitoba	24,529	949	11,191	36,669	—	36,669
Saskatchewan						
Alberta						
British Columbia	—	—	—	—	—	—
Yukon and Northwest Territories						
Totals	92,716	10,467	39,879	143,062	—	143,062
Closing:						
Newfoundland	—	—	—	—	—	—
Prince Edward Island	—	—	—	—	—	—
Nova Scotia	—	—	—	—	—	—
New Brunswick	—	—	—	—	—	—
Quebec	47,323	6,240	36,459	90,021	—	90,021
Ontario	18,328	3,216	1,679	23,223	—	23,223
Manitoba	28,232	1,482	16,156	45,870	—	45,870
Saskatchewan						
Alberta						
British Columbia	—	—	—	—	—	—
Yukon and Northwest Territories						
Totals	93,883	10,938	54,294	159,114	—	159,114

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	441,577	5,714	476,037
(b) Imported	"	158,153	1,984	209,213
Sub-bituminous coal (from Alberta mines only)	"	—	—	—
Anthracite coal	"	110,617	1,752	176,820
Lignite coal	"	497 ^r	4 ^r	—
Coke	"	185,122	4,045	187,976
Gasoline (including gasoline used in cars and trucks)	imp. gal.	1,000,146 ^r	293 ^r	1,062,882
Fuel oil including kerosene or coal oil	"	60,861,286 ^r	5,200 ^r	82,859,196
Wood	cord	1,876	67	1,795
Gas:				
(a) Liquefied petroleum gases	imp. gal.	700,427 ^r	149 ^r	777,637
(b) Other manufactured gas	M cu. ft.	—	—	—
(c) Natural gas	"	14,736,545	5,079	15,823,324
Other fuel .....	...	...	17 ^r	...
Electricity purchased	kwh.	6,329,805,902 ^r	22,752 ^r	7,188,857,725
Steam purchased	—	—	—	—
2. Small establishments not reporting commodity detail:				
Estimate for fuel and electricity	—	—	—	—
3. All establishments:				
Total fuel and electricity used .....	...	47,055 ^r	...	52,988

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

Description	Cost	
	1963	1964
	\$'000	
1. Materials used:		
All materials and components used.....	276,689	293,090
2. Containers and other packaging materials and supplies used.....	1,292	1,527
3. Operating, maintenance and repair supplies used (excluding fuel)	17,530	19,213
4. Amount paid out to others for work done on materials owned by establishments.....	313	737
Totals	295,825	314,567

TABLE 13. Shipments of Goods of Own Manufacture, 1963 and 1964

Description	Value	
	1963	1964
	\$'000	
1. Products:		
All products	505,251	531,584
2. Amount received in payment for work done on materials and products owned by others	158,340	175,571
Less adjustment for value of sales taxes, excise duties and outward transportation charges which could not be deducted from individual commodity items described above	(1,355)	(1,889)
Less adjustment for inventory change	(22,577)	12,988
Total adjusted value of shipments and work done	639,659	718,254

TABLE 14. Average Annual Metal Prices, in Canadian Dollars, 1955 - 64

Year	Gold	Silver	Copper	Lead	Zinc
	Troy oz.	Troy oz.	Pound	Pound	Pound
	dollars				
1955	34.52	0.8818	0.3687	0.1438	0.1385
1956	34.45	0.8968	0.4141	0.1551	0.1484
1957	33.55	0.8737	0.2895	0.1396	0.1209
1958	33.98	0.8681	0.2542	0.1136	0.1088
1959	33.57	0.8778	0.2961	0.1061	0.1224
1960	33.95	0.8891	0.3029	0.1068	0.1335
1961	35.46	0.9426	0.2919	0.1021	0.1259
1962	37.41	0.1650	0.3100	0.0992	0.1210
1963	37.75	1.3840	0.3150	0.1100	0.1278
1964	37.75	1.4000	0.3340	0.1344	0.1417

TABLE 15. Production of New Gold and Silver, 1960-64 (From all types of ores)

Year	Gold		Silver	
	Fine ounces	Value	Fine ounces	Value
		\$		\$
1960.....	4,628,911	157,151,527	34,016,829	30,244,363
1961.....	4,473,699	158,637,366	31,381,977	29,580,651
1962.....	4,178,396	156,313,794	30,422,972	35,442,761
1963.....	4,003,127	151,118,045	29,932,003	41,425,891
1964.....	3,835,454	144,788,388	29,902,611	41,863,655

TABLE 16. Source of Canadian Gold Production, 1960-64

Source	1960	1961	1962	1963	1964
	per cent				
In alluvial gold	1.75	1.55	1.38	1.45	1.53
In crude gold bullion produced at mines	83.18	83.08	82.73	82.89	81.16
In base bullion produced at lead smelters	0.26	0.22	0.21	0.26	0.13
In blister copper	12.82	13.25	13.72	13.24	14.93
In ores, matte, slags, etc., exported	1.99	1.90	1.96	2.16	2.25

TABLE 17. Source of Canadian Silver Production, 1960-64

Source	1960	1961	1962	1963	1964
	per cent				
In silver-cobalt ores	21.04	14.92	15.47	16.88	17.77
In base bullion ¹	23.58	25.50	19.91	21.32	16.86
In gold bullion and placer	2.05	2.17	2.15	2.05	1.83
In blister and anode copper	23.52	24.38	26.46	26.27	31.45
In matte, copper ores and silver-lead ores, etc., exported (other than silver-cobalt ores)	29.81	33.03	36.01	33.48	32.09

¹ Includes silver bullion from silver-lead ores.

TABLE 18. Production of Copper, 1960-64 (From all types of ores)

Year	Copper in all forms ¹		Refined copper ²
	Tons	Value	Tons
		\$	
1960	439,262	264,846,637	417,029
1961	434,088	255,157,626	406,359
1962	457,385	282,732,696	382,868
1963	452,559	284,403,710	378,911
1964	486,900	324,467,834	486,900

¹ Blister copper plus recoverable copper in concentrates and matte exported.

² Does not include a small tonnage recovered from scrap in secondary smelters.

TABLE 19. Production of Copper, by Sources, 1963 and 1964

Source	1963		1964	
	Tons	Value	Tons	Value
		\$		\$
In blister and anode copper produced ¹	361,484	227,735,086	397,952	265,831,609
In ores, concentrates and any copper matte exported	77,151	48,592,702	76,456	51,040,914
In nickel-copper matte exported	13,924	8,075,922	12,492	7,595,311
Totals	452,559	284,403,710	486,900	324,467,834

¹ Includes a quantity of copper contained in gold-silver, and nickel-copper ores shipped to Canadian smelters.

TABLE 20. Production¹ of Nickel, 1960-64

Year	Tons	Value
		\$
1960	214,506	295,640,279
1961	232,991	351,261,720
1962	232,242	383,784,622
1963	217,030	360,392,658
1964	228,496	379,320,510

¹ Includes nickel in matte exported, refined nickel produced in Canada and nickel in oxides and salts sold or produced.

TABLE 21. Production of Lead (From all types of ores), 1960-64

Year	Lead in all forms ¹		Refined lead ²
	Tons	Value	Tons
		\$	
1960	205,650	43,926,888	158,510
1961	230,435	47,054,765	171,833
1962	215,329	42,721,341	152,217
1963	201,165	44,256,199	155,000
1964	203,717	54,759,110	151,372

¹ Lead content of base bullion produced from Canadian ores plus recoverable lead in ores exported.

² Includes some lead refined from foreign ores; does not include a small tonnage recovered from scrap in secondary smelters.

TABLE 22. Production of Zinc (From all types of ores), 1960-64

Year	Zinc in all forms ¹		Refined zinc ²
	Tons	Value	Tons
		\$	
1960	406,873	108,635,003	260,968
1961	416,004	104,749,879	268,007
1962	463,145	112,080,981	280,159
1963	473,722	121,083,466	284,021
1964	684,512	193,990,897	337,734

¹ Refined zinc produced in Canada plus recoverable zinc in ores exported.

² Includes some refined zinc from foreign ores; does not include a small tonnage recovered from scrap in secondary smelters.

TABLE 23. Production¹ of Bismuth and Cadmium, 1960-64

Year	Bismuth		Cadmium	
	Pounds	Value	Pounds	Value
		\$		\$
1960	423,827	762,048	2,357,497	3,347,646
1961	478,118	957,625	2,221,950	3,555,128
1962	425,102	839,912	2,604,973	4,730,957
1963	359,125	704,103	2,475,485	5,941,164
1964	399,958	816,628	2,772,984	8,984,467

¹ Includes refined metal and recoverable metal in concentrates shipped.

TABLE 24. Production of Selenium and Tellurium, 1960 - 64

Year	Selenium		Tellurium	
	Pounds	Value	Pounds	Value
		\$		\$
1960	521,638	3,651,466	44,682	156,388
1961	430,612	2,798,978	77,609	376,404
1962	487,066	2,800,630	58,725	352,350
1963	468,772	2,273,545	76,842	499,473
1964	465,746	2,258,868	77,782	505,583

TABLE 25. Production (Shipments) of New Aluminum and Magnesium, 1960 - 64

Year	Aluminum ¹	Magnesium	
	Tons	Pounds	Value
			\$
1960	762,012	14,577,138	4,313,987
1961	663,173	15,270,618	4,307,570
1962	690,297	17,631,310	4,821,823
1963	719,390	17,810,348	5,357,816
1964	842,640	18,706,020	5,587,909

¹ All from imported ores.

TABLE 26. Production of New Antimony and Tin, 1960 - 64

Year	Antimony ¹		Tin ²	
	Pounds	Value	Pounds	Value
		\$		\$
1960	1,651,786	538,482	621,718	522,243
1961	1,331,297	469,948	1,119,350	727,578
1962	1,931,397	748,223	650,941	442,640
1963	1,601,253	624,489	927,062	648,943
1964	1,591,523	700,270	352,350	533,572

¹ Content of antimonial lead, Doré slag and flue dust.

² Tin content of concentrates and lead-tin alloy.

TABLE 27. Production (Shipments) of Molybdenum Concentrates and Tungsten Concentrates, 1960 - 64

Year	Molybdenite concentrates and molybdic oxide		Tungsten concentrates	
	Mo. content	Value	WO ³ content	Value
	tons	\$	tons	\$
1960	384	1,015,380	—	—
1961	386	1,092,201	—	—
1962	409	1,261,451	2	1,611
1963	417	1,344,004	..	..
1964	612	2,057,383	..	..

TABLE 28. Production of Cobalt and Arsenic, 1960-64

Year	Cobalt ¹		Arsenious oxide ^{1,2}	
	Pounds	Value	Tons	Value
		\$		\$
1960	3,568,811	6,763,016	862	70,400
1961	3,182,897	4,751,543	210	16,772
1962	3,481,922	6,345,205	80	6,832
1963	3,024,965	6,122,169	94	7,498
1964	3,184,983	5,990,973	161	16,195

¹ Content in metal and oxide produced in Canada and in ores exported.

² Refined white arsenic produced in Canada plus arsenic content of crude arsenic exported. Excludes arsenic in ores exported from British Columbia as it is not paid for.

³ Includes some arsenic recovered from foreign ores.

TABLE 29. Platinum Metal¹ Producers' Shipments, 1960-64

Year	Platinum palladium and other platinum metals	
	Troy ounces	Value
		\$
1960	483,604	28,873,508
1961	418,278	24,534,349
1962	470,787	28,848,637
1963	357,651	22,585,205
1964	376,238	25,404,117

¹ Figures represent the metal content of concentrates produced from nickel-copper ores. Included are metals recovered from alluvial deposits.

TABLE 30. Production of Titanium Dioxide and Iron (Remelt), 1960-64

Year	Titanium dioxide, etc.		Iron (remelt)	
	Tons	Value	Tons	Value
		\$		\$
1960	12,947,000	..	10,972,979
1961	16,723,743	..	14,720,064
1962	11,573,862	..	9,845,669
1963	13,806,608 ¹	..	9,246,713
1964	21,270,144 ¹	..	18,700,185

¹ Producers' shipments.

TABLE 31. Capacities of Canadian Copper Smelting and Refining Works, 1964

Company	Blast furnaces		Reverberatories		Converters
	Number	Annual capacity - Tons of ore and concentrates	Number	Annual capacity - Tons of ore and concentrates	Number
Falconbridge Nickel Mines, Ltd.	3	650,000	—	—	—
Hudson Bay Mining and Smelting Co., Ltd.	—	—	1	575,000	3
Noranda Mines Ltd.	—	—	3	1,700,000	5
International Nickel Co. of Canada, Ltd.:					
Copper Cliff	—	—	9	4,000,000	20
Coniston	4	800,000	—	—	—
Thompson	—	—	..	600,000	..
Gaspe Copper Mines Ltd.	—	—	1	300,000	2
Annual capacity					
short tons					
Electrolytic copper refineries:					
Canadian Copper Refiners, Ltd.				276,000	
International Nickel Co. of Canada, Ltd.				168,000	

TABLE 32. Lead Smelting Capacity of Canada, 1964

Company	Number of blast furnaces	Annual capacity tons of charge
Consolidated Mining & Smelting Company of Canada, Limited, Trail, British Columbia	4	600,000

TABLE 33. Capacity of Electrolytic Zinc Plants in Canada, 1964

Company	Estimated annual capacity for cathode zinc short tons
Canadian Electrolytic Zinc Ltd.	91,250
Consolidated Mining & Smelting Company of Canada, Ltd.	208,000
Hudson Bay Mining & Smelting Co., Ltd.	79,000

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
Quebec:	
Aluminum Company of Canada, Ltd.	Arvida, Shawinigan Falls, Lac Maligne, Moncton
Canadian British Aluminum Co., Ltd.	Baie Comed
Canadian Copper Refiners Ltd.	Montreal East
Canadian Electrolytic Zinc Limited	Valleyfield
Gaspe Copper Mines Ltd.	Murdochville
Noranda Mines Limited	Noranda
Quebec Iron and Titanium Corp.	Sorel
Ontario:	
Cobalt Refinery Ltd.	Cobalt
Dominion Magnesium Ltd.	Haley
Falconbridge Nickel Mines Ltd.	Falconbridge
International Nickel Co. of Canada, Limited	Copper Cliff, Coniston, Port Colborne
Eldorado Mining and Refining Ltd.	Port Hope
Manitoba:	
Hudson Bay Mining and Smelting Co. Limited ¹	Flin Flon
International Nickel Co. of Canada, Limited	Thompson
Saskatchewan:	
Hudson Bay Mining & Smelting Co. Limited ¹	Flin Flon
Alberta:	
Sherritt Gordon Mines Ltd.	Fort Saskatchewan
British Columbia:	
Consolidated Mining & Smelting Co. of Canada Limited	Trail
Aluminum Company of Canada Ltd.	Kitimat

¹ Located on Manitoba-Saskatchewan boundary. For statistical purposes this plant is considered as two establishments.

Note: Information relating to operations of the Eldorado Mining and Refining Co. at Port Hope, Ontario, is excluded for the years 1941-54.

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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