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CANADA
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CENSUS OF MANUFACTURES

**The Manufacturing Industries
of Canada, 1929**

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THE MANUFACTURING INDUSTRIES OF CANADA, 1929.¹

Manufacture is defined as the operation of making wares from raw materials by the hands, by tools or by machinery, thus adding, in the phraseology of the economist, new utilities, and therefore additional value, to the already existing utilities and values of the raw material. Manufacture, in primitive societies and in the pioneer stages of new communities, is normally carried on within the household for the needs of the household, as was the case among the early settlers of Canada in the seventeenth and eighteenth centuries, when domestic manufactures were carried on in combination with the cultivation of the soil, mainly at the times of the year when agricultural operations were suspended. At a later period in the evolution of society small manufactures were carried on in specialized workshops for the needs of the immediate locality or neighbourhood, as was generally the case in Eastern Canada in the first half of the nineteenth century. Later still, as a consequence of the introduction of machinery operated by steam or electric power—the so-called “industrial revolution”—and of the cheapening of transportation, manufacture has to an ever-increasing extent been concentrated in factories, often employing hundreds and even thousands of persons and producing for a national or even an international market. So far as Canada is concerned, this “industrial revolution” may be said to have commenced shortly before Confederation and to be still in progress. The growth of manufacturing production since 1870 is outlined in this article and the accompanying Table 1, while the increasing importance of Canadian manufacturing for the international market may be illustrated by the fact that Canadian exports of manufactured produce increased from less than \$3,000,000 per annum on the average of 1871-1875 to \$614,000,000 in the post-war fiscal year ended Mar. 31, 1920. Exports of “fully or chiefly manufactured” products in the fiscal year ended Mar. 31, 1931, amounted in value to \$352,108,830 and exports of “partly manufactured” products to \$142,452,920.

Section 1.—The Evolution of Canadian Manufacturing Industries.

Early Manufactures.—The type of manufactures established in a community will in the beginning be largely determined, more especially where transportation charges are high, by the raw materials available in that community. For example, probably the first agricultural process to be carried on by Europeans in what is now the Dominion of Canada was the raising of a crop of grain at Port Royal, Nova Scotia, in 1605; the first corresponding manufacturing process was the grinding of the grain in the autumn of that year. Other early manufactures were also necessarily connected with the satisfaction of the primary needs of human beings for food, clothing and shelter, and with the other primary need for protection. At a census of occupations taken in 1681, we find enumerated a comparatively large number of tailors and shoemakers, masons and carpenters, gunsmiths and edge tool makers.

¹Revised by A. Cohen, B. Com., Acting Chief, Industrial Statistics Branch, Dominion Bureau of Statistics. This Branch publishes individual reports on the manufacturing industries, comprising vegetable products, textiles and miscellaneous industries, also reports on the manufacturing industries generally for Canada and the provinces. For a complete list of publications of this Branch apply to the Dominion Statistician, Dominion Bureau of Statistics, Ottawa.

The earlier manufactures were necessarily of a rather crude and primitive type, concerned with the production of commodities which were too bulky to bear the heavy transportation charges of those days, when only one round trip per year could be made between France and Quebec, and vessels were constantly subject to the storms of the North Atlantic and very frequently to the attacks of the English. Indeed, although the colonial policy of France under the old *régime* aimed at preventing the manufacture in Canada of any article which could be imported from the Mother Country, the uncertainties of transportation due to the colonial wars of the period—France and England were at war for 34 years out of the 74 years between 1689 and 1763—led to a necessary relaxation of restrictions. On the occasion of the English capture of a convoy in 1705, the colonists were driven to manufacture rough cloth out of whatever fibres they could obtain, such as the Canadian nettle and the inner bark of the basswood. Such events led to the introduction of sheep raising and the manufacturing of homespun woollens. The number of sheep in the colony increased from 1,820 in 1706 to 12,175 in 1720, 28,022 in 1765, 84,696 in 1784 and 829,122 in Lower Canada alone in 1827. This increase in sheep approximately measures the growth of the manufacture of homespun woollens. In the same year, according to census records, there were in Lower Canada 13,243 spinning-wheels, while 1,153,673 French ells of home-made cloth, 808,240 French ells of home-made flannel and 1,058,696 French ells of home-made linen were produced. In 1842 Upper Canada produced 433,527 yards of home-made cloth, 166,881 yards of home-made linen and 727,286 yards of home-made flannel and, in 1848, 624,971 yards of fulled cloth, 71,715 yards linen and 1,298,172 yards flannel. Nova Scotia in 1851 produced 119,698 yards fulled cloth, 790,104 yards non-fulled cloth and 219,352 yards flannel. Such production of homespun goods did not materially interfere with the market for the more elaborate factory-made goods imported from the United Kingdom, but supplied the daughters of pioneer families with useful work in their own homes.

In the days when ships were built of wood Canada was advantageously situated with respect to their production. Pont-Gravé built two small vessels at Port Royal in 1606 and one at Tadoussac in 1608. Talon, in 1666, built on his private account a ship of 120 tons, and in 1672 a vessel of over 400 tons was on the stocks at Quebec. Ships were built for the French navy and for the West India trade. Under the British *régime* shipbuilding was conducted on a large scale in Quebec and New Brunswick, the industry reaching its climax of prosperity about 1865, when 105 Quebec-built ships with a tonnage of 59,333 were placed on the register. Thereafter iron and steel ships gradually supplanted the wooden vessels, but the forests of Canada have since provided the raw material for the pulp and paper and other important industries.

The manufacture of mineral products has been of comparatively recent date. Iron deposits in the St. Maurice region were worked as early as 1733 and furnaces set up there for smelting in 1737 were in fairly constant operation until 1883. The iron and steel used in manufacturing in Canada, as well as the coal which has supplied the manufacturing industries with power, has in the main been imported from the United States, chiefly because the principal manufacturing centres of this country in the St. Lawrence and Great Lakes region are fairly conveniently situated with regard to the coal and iron supplies of the United States and far away from the coal and iron supplies of the Maritime Provinces. In recent years the shortage of coal has been made up for by the increasing use of electric power, while the great bulk of the pig iron used in Canadian manufactures is now made in domestic blast furnaces.

The Introduction of the Factory System.—In Canada, as in the United States and in Great Britain, it was inevitable that manufactures, carried on in the household or in small adjoining workshops, should be supplanted in the leading industries of the country by manufactures carried on in factories. A factory has been defined as "an establishment where several workmen are collected for the purpose of obtaining greater and cheaper conveniences for labour than they could procure individually at their homes, for producing results by their combined efforts which they could not accomplish separately and for preventing the loss occasioned by carrying articles from place to place during several processes necessary to complete their manufacture". Such factories began to exist in Canada in the 60's and the 70's of the last century and have now become the dominant type of Canadian manufacturing industry.

Encouragement of Manufactures by Protective Tariffs.—In all new and developing countries producing food products and raw materials in abundance, there comes, at a certain stage, a movement for working up these commodities within the country. Thus a movement to promote a rise of manufacturing industries in Canada took place in the 50's of the last century, and in 1858 the Canadian Legislature enacted a protective tariff against which English exporters of manufactured goods vehemently protested. Canada, however, claimed the right to raise her revenue in the manner which suited herself and Great Britain did not contest the point. From that day to this there has been an element of protection in Canadian tariff legislation. For a considerable time the protection afforded to Canadian manufacturers was described as "incidental protection", and after Confederation the tariff was reduced in deference to the low tariff sentiment prevailing in the Maritime Provinces, which were commercial rather than manufacturing communities. However, after a commercial depression which took place in the 1870's the people of Canada, at the general election of 1878, voted in favour of a higher tariff.

The policy of protection was definitely adopted in 1879, when the manufacturer was given an increase in the duty on his finished product, offset in some cases, it is true, by higher duties on his raw materials. Sugar and molasses products comprised some twelve tariff items, seven bearing a compound duty, the average *ad valorem* duty imposed being 26.25 p.c. On the lines of cotton goods likely to be manufactured in Canada duties were raised from 17½ p.c. to rates, specific and *ad valorem*, equivalent, on the importations of 1891, to 30 p.c. The duties on woollens, which were all in the 17½ p.c. schedule in 1878, were practically doubled. On some of the 36 iron and steel articles enumerated in the schedule the duties were specific, on some compound, but on the whole there was an average duty of 16.17 p.c. Pig iron, previously free, was made to pay \$2 a ton. The duty on iron billets, bars and rods was increased from 5 p.c. to 10 p.c. and 17½ p.c., while manufactured iron and steel products and machinery were given 25 p.c. to 35 p.c. protection. On coal, both bituminous and anthracite, a duty of 50 cents a ton was imposed. The average *ad valorem* rate of duty on dutiable imports in 1880 was 26.1 p.c. as compared with 21.4 p.c. in 1878. The maximum percentage was reached in 1889, when the rate was 31.9 p.c. By 1896 there was a slight drop in the rate to 30.0 p.c. and the declining trend continued until 1918 and 1919, when a rate of 21.5 p.c. was recorded. In 1923 the rate was 24.9 p.c., in 1927, 24.1 p.c., and in 1930, 24.3 p.c. The average *ad valorem* rate of duty on all imports was 16.7 p.c. in 1923 and 15.9 p.c. in 1930. These rates are based on the gross sums collected; if the refunds and drawbacks were allowed for the net rate of customs duty would be substantially lower.

Growth of Canadian Manufactures Prior to the War.—Until the later '90's, the growth of Canadian manufacturing industries was not particularly rapid, though the great fall in the prices of commodities during the period from 1873 to 1897 was largely responsible for the comparatively slow growth of the values of manufactured commodities from \$221,600,000 in 1870 to \$469,800,000 in 1890. Afterwards there was a change and the prices of commodities commenced to rise, while the industries generally shared in the advantages of the great growing period from 1900 to 1912. The gross product of establishments with five hands or over increased from \$368,700,000 in 1890 to \$1,166,000,000 in 1910 and to \$1,381,500,000 in 1915. The fundamental advantages of the position of Canada, her abundant raw material, her inexhaustible water power, her growing home market in the expanding West, had contributed to this result.

In the present, as in the past, Canadian manufacturing production has been chiefly dependent upon the use of Canadian raw material, though this is less true than formerly. Raw cotton, for example, is imported from the Southern States, hides from Argentina, rubber from the Straits Settlements and Malay peninsula, sugar from Fiji and the British West Indies, and wool from England, Australia and New Zealand to supply the raw material for Canadian manufacturing industries.

The Influence of the War.—The influence of the war upon the manufactures of Canada was profound and far-reaching, tending to promote the diversification of products and the production at home of many commodities which had previously been imported. On account of the practical suspension of the importation of manufactured goods of many kinds from Europe enterprising Canadian manufacturers were given opportunities of entering upon new lines of manufacture with practical control of the market. There was added to this the reflex effect of the great prosperity of agriculture, produced by the unprecedented prices of war time, with the general result that industry worked at high pressure, not only to produce munitions and military supplies for the armies of the Allies, but also to make the manifold varieties of goods required for the stimulated civilian consumption. The world shortage of staple commodities, coupled with a strong domestic demand, gave Canadian industries in general a pronounced stimulus toward greater production and, in a great number of cases, the capacity of manufacturing plants was increased; this increase created a demand for greater supplies of raw material. Incidentally, factory methods became more specialized and a high degree of administrative and mechanical efficiency was attained, and Canada, partly owing to the absorption of the energies of Europe in the war, assumed a new position as one of the leading manufacturing countries of the world. The inflation of the war period also led to unprecedented figures of values produced.

The great boom in Canadian manufactures described above reached its height in the summer of 1920, statistics for that year showing a gross value of products which was not exceeded until 1929. Even the net value of manufactured products in 1920 was not exceeded until 1928. Statistics for 1921, as published in Table 1, show a great decline in values from those of 1920, which does not mean a corresponding decline in quantity of production, though a certain decline undoubtedly took place. There was also some decline in 1922 followed, however, by a general improvement during 1923. Final statistics for 1924 were a little below those of 1923. The statistics for 1925, 1926, 1927, 1928 and 1929 show a steady and notable growth in both gross and net values of products. These values in 1929 reached a higher point than in the post-war boom of 1920, although the prices of manufactured

goods had dropped about 41 p.c. in the intervening period. This steady expansion was halted during 1930, owing to the world-wide recession in business which set in toward the end of 1929, with the result that Canadian manufacturing production in 1930 dropped back to near the 1927 level in gross value of production. The monthly reports of employers as to numbers employed indicate that the final figures for 1931 will probably show a further recession.

Subsection 1.—Growth of Manufacturing Production in the Dominion and the Provinces Since 1870.

The growth of large-scale production in manufactures during the past half-century is evident from the statistics of Table 1, though this tendency has been less marked in Canada than in more highly developed industrial communities, with larger populations able to absorb a larger amount of standardized commodities. Even so, in the electoral district of South Toronto, the most important manufacturing centre of Ontario, the census of 1911 showed that one-half of the industrial establishments employed 90 p.c. of the workers. In the period immediately preceding the Great War many consolidations of independent manufacturing plants were effected, with large economies in the purchase of materials and in selling expenses, and this process has been even more evident in the post-war period.

The historical Table 1 shows fairly well the advance of the "Industrial Revolution" (which might better be called "evolution") in Canada. The average capital per manufacturing establishment, the average number of employees per establishment and the average value of product per establishment, if allowance be made for the inflation of values and generally disturbed conditions of the war period, have continued to increase. If the consolidation of industry lessens the chances of an employee becoming an employer, it must be remembered that the amounts paid to employees in salaries and wages have also increased, so that the position of the average employee has been greatly ameliorated, though the lack of statistics of Canadian retail prices before 1890 prevents any detailed comparison of the purchasing power of the average wages of the worker of 1870 and of the employee of the present time.

The Censuses of Manufactures.—The comparability of the statistics of various censuses is seriously affected by the different methods employed in census-taking. In the censuses of 1870, 1880 and 1890, all manufacturing establishments were included, the instructions to enumerators running as follows: "An industrial establishment is a place where one or several persons are employed in manufacturing, altering, making up or changing from one shape into another materials for sale, use or consumption, quite irrespectively of the amount of capital employed or of the products turned out. All repairs, mending or custom work are understood to be industrial products and are to be entered accordingly, by value, in the returns of industrial establishments".

In the statistics of 1900, 1905 and 1910, however, only establishments employing five hands and upwards were included. The 1901 instructions were that no manufacturing establishment or factory was to be recognized for census purposes if it did not employ at least five persons, either in the establishment itself or as piece-workers employed outside of it. This, however, did not apply to cheese and butter factories nor to certain mineral industries. The 1911 instructions stated that every factory in operation during the whole or part of 1910, and employing five or more persons, was to make a full report. All flour mills, saw and shingle-mills, lime

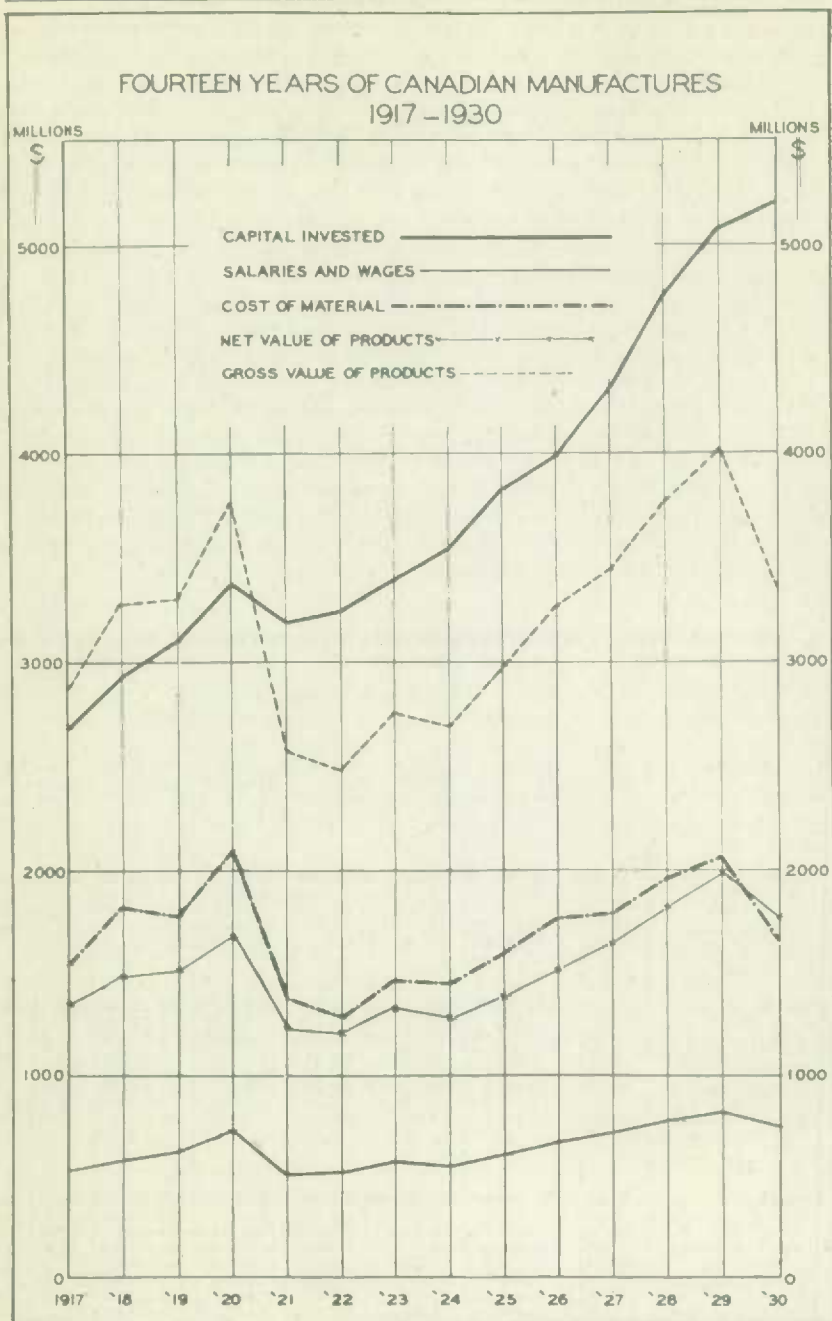
kilns, brick and tile works, butter and cheese factories, fish-curing plants, electric light and power plants whatsoever were nevertheless to be included. The statistics for 1915 included only establishments having an output of \$2,500 or over, irrespective of the number of persons employed, except in the case of flour and grist mills, butter and cheese factories, fish-preserving factories, sawmills, brick and tile yards, lime kilns and electric light plants, where all plants were included.

Censuses of Manufactures in Recent Years.—Under the Statistics Act of 1918, the policy of including mines, fisheries, manufactures and other industries in the decennial census was given up and an annual "Census of Industry" substituted therefor. (See Annual Report of the Dominion Statistician, 1919, pp. 30-36.)

In the Census of Industry for 1917 the limit of output was withdrawn and all establishments reporting to the Bureau were included, the effect being an increase in the number of establishments included from 21,306 in 1915 to 34,392¹ in 1917—an increase due mainly to change of method, rather than to a change in the actual number of industrial establishments existing in the Dominion. The statistics in regard to a large number of the custom and repair industries were not collected for 1922, resulting in the dropping from the compilation of the entire group of "construction, hand trades and repairs". For 1923, again, statistics of ship- and bridge-building and of various clay products industries were collected and included for the first time. The result was that, in order to restore the desired comparability between statistics of various years, a complete revision of all figures from 1917 to 1924 had to be made. Considerable changes have resulted, but statistics of these years are now free of all inaccuracies due to changes in methods of collection or compilation. In 1925 statistics of the non-ferrous metal smelting industry were for the first time included in the figures for manufacturing. In 1926 certain duplications in the gross revenue of central electric stations were eliminated in a net figure and the difference shown as "cost of material", while the method of compiling the number of employees was changed for 1925 and subsequent years in the following respect: the yearly average of employees for each establishment was computed by dividing the sum of employees reported in each month by the number of months in operation instead of, as formerly, by 12 whether the industry was seasonal and only operated part of the year or not. These changes have created a slight incomparability with the statistics for the preceding years.

In any comparison between the results of the 1915 quinquennial census and the subsequent annual censuses, the rapid rise and fall in prices must be borne in mind, and in comparisons between these annual censuses themselves the same factor must be taken into account. Thus, the new Canadian weighted index number of wholesale prices, compiled by the Dominion Bureau of Statistics with 1926 as a base, was 155.9 in 1920 as compared with 134.0 in 1919, 127.4 in 1918, 114.3 in 1917 and 70.4 in 1915. In 1921, however, there was a great decline to 110.0—a decline of approximately 29.4 p.c. from the preceding year. In such circumstances, it was inevitable that up to 1920 phenomenal advances in the money value of manufactured products should have been recorded, and that wages and salaries paid should also have greatly advanced since 1915. It was equally inevitable that in all these respects 1921 should show a great decline, due in much larger measure to the fall in values than to the decrease in the volume of production. In 1922 the index number showed a further drop to 97.3, but afterwards there was a rise to

¹The subsequent decision to omit the group of "construction, hand trades and repairs" from the census of manufactures, together with other less important changes, accounts for the reduction of the number of manufacturing establishments in 1917, as appearing in Table I, to 22,838, a comparable figure with the 23,597 establishments recorded in 1929 and the 24,020, in 1930.



98.0 in 1923, to 99.4 in 1924 and 102.6 in 1925. In 1926, 1927, 1928, 1929 and 1930, however, there was a declining trend again to 100.0, 97.7, 96.4, 95.6 and 86.6, respectively, this last being the lowest figure since 1916. This would indicate that the comparatively small decline in the gross production of manufactured goods in 1922 was entirely due to declining values. Gross production in 1926, 1927, 1928 and 1929 showed large increases in spite of a definite decline in price levels, while the sharp decline in prices during 1930 was probably accompanied by some diminution in the volume of manufacturing as well. (See Table 4.)

In Table 1 are presented statistics showing by provinces the development of Canadian manufacturing industries during the 60 years from 1870 to 1930. To economize space, the statistics for certain years of the annual censuses since 1917, which were given at pp. 407-409 of the 1931 Year Book, are here omitted. Statistics are retained, however, for the years 1917 (the first of the annual censuses), 1918 (the peak year of war production), 1920 (the height of the post-war inflation), 1922 (the lowest year of the post-war re-adjustment), and for the latest five years, 1926-1930. Particularly notable is the increase in the manufactures of British Columbia from \$2,900,000 in 1880 to \$277,000,000 in 1929 and of Manitoba from \$3,400,000 in 1880 to \$165,000,000 in 1929. Saskatchewan also shows an increase from \$2,400,000 in 1905 to \$81,000,000 in 1929 and Alberta from \$5,000,000 in 1905 to \$108,000,000 in 1929. Thus the West is rapidly becoming an important contributor to Canadian manufacturing production.

1.—Historical Summary of Statistics of Manufactures, by Provinces, for typical years, 1870-1930.¹

(All establishments irrespective of the number of employees.)

Province.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Net Value of Products.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$	\$
1870.							
Canada.....	41,259	77,964,020	187,942	40,851,009	124,907,846	96,709,927	221,617,773
Nova Scotia.....	4,912	6,041,906	15,595	3,176,266	5,806,257	6,531,848	12,338,105
New Brunswick.....	3,479	5,976,176	18,352	3,869,360	9,431,760	7,935,927	17,367,087
Quebec.....	13,818	28,071,868	66,714	12,389,673	44,555,025	32,650,157	77,205,182
Ontario.....	19,050	37,874,010	87,281	21,415,710	65,114,804	49,591,995	114,706,799
1880.							
Canada.....	49,722	165,302,623	254,935	59,429,002	179,918,593	129,757,475	309,676,068
P. E. Island.....	1,617	2,085,776	5,767	807,208	1,829,210	1,570,998	3,400,208
Nova Scotia.....	5,493	10,183,060	20,390	4,098,445	10,022,030	8,553,296	18,575,326
New Brunswick.....	3,005	8,425,282	19,922	3,866,011	11,060,842	7,451,816	18,512,658
Quebec.....	15,754	59,216,992	85,673	18,333,162	62,563,967	42,098,291	104,662,258
Ontario.....	23,070	80,950,847	118,308	30,604,031	91,164,156	66,825,714	157,989,870
Manitoba.....	344	1,383,331	1,921	755,507	1,924,821	1,488,205	3,413,026
British Columbia.....	415	2,952,835	2,871	929,213	1,273,816	1,052,968	2,926,784
The Territories.....	24	104,500	83	35,425	79,751	116,187	195,938
1890.							
Canada.....	75,964	353,213,000	369,595	100,415,350	250,759,292	219,088,594	469,817,886
P. E. Island.....	2,679	2,911,963	7,910	1,101,620	2,092,067	2,253,843	4,345,910
Nova Scotia.....	10,495	19,730,736	34,944	7,233,111	16,062,479	14,005,913	30,968,392
New Brunswick.....	5,429	15,821,855	26,675	5,970,914	12,501,453	11,348,202	23,849,655
Quebec.....	23,034	116,974,615	116,753	30,461,315	80,712,496	66,747,087	147,459,583
Ontario.....	32,151	175,972,021	160,322	49,730,359	127,737,371	111,504,555	230,241,926
Manitoba.....	1,031	5,084,237	4,463	1,905,981	5,688,151	4,467,031	10,155,182
British Columbia.....	770	14,404,394	11,507	3,586,897	5,119,258	6,880,670	11,999,928
The Territories.....	375	1,713,179	1,081	425,153	846,017	981,293	1,827,310

¹See note at end of Table 1 on p. 15.

1.—Historical Summary of Statistics of Manufactures, by Provinces, for typical years,
1870-1930—continued.

(Establishments with five hands and over.)

Province.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Net Value of Products.	Gross Value of Products.
1890.	No.	\$	No.	\$	\$	\$	\$
Canada:	14,065	-	272,033	79,231,311	-	-	368,696,723
1900.							
Canada	14,650	446,916,487	339,173	113,219,350	266,527,838	214,525,517	481,033,373
P. E. Island.	334	2,081,766	3,804	445,998	1,319,058	1,067,650	2,320,708
Nova Scotia.	1,188	34,586,416	23,284	5,613,571	13,161,077	10,431,436	23,592,513
New Brunswick.	919	20,741,176	22,158	5,748,990	10,814,014	10,158,450	20,972,470
Quebec.	4,845	142,403,407	110,329	36,550,655	86,679,779	71,608,215	158,287,994
Ontario.	6,543	214,972,275	161,757	56,548,286	128,230,400	103,303,086	241,533,486
Manitoba.	324	7,539,691	5,219	2,419,549	7,955,504	4,971,935	12,927,439
Alberta and Saskatchewan.	105	1,689,870	1,168	465,763	1,121,342	843,645	1,964,987
British Columbia.	392	22,901,892	11,454	5,456,538	7,246,684	12,201,094	10,447,778
1910.							
Canada	19,218	1,247,583,669	515,203	241,009,416	601,509,018	564,466,021	1,165,975,639
P. E. Island.	442	2,013,365	3,762	531,017	1,816,804	1,319,660	3,130,470
Nova Scotia.	1,480	79,596,341	28,795	10,628,955	26,058,315	26,647,809	52,700,184
New Brunswick.	1,158	36,125,012	24,755	8,314,212	18,516,096	16,906,200	35,422,302
Quebec.	6,584	326,946,925	158,207	69,402,907	184,374,053	166,527,603	350,901,656
Ontario.	8,001	595,394,608	238,817	117,645,784	267,580,125	282,230,100	579,810,225
Manitoba.	439	47,441,540	17,325	10,912,866	30,499,829	23,173,780	53,673,609
Saskatchewan.	173	7,019,951	3,250	1,936,284	2,747,260	3,584,866	6,332,132
Alberta.	290	29,518,346	0,980	4,365,661	0,998,777	8,790,048	18,788,825
British Columbia.	651	123,027,521	33,312	17,240,670	29,917,753	35,286,483	65,204,236
1915.							
Canada	15,593	1,958,705,230	-	283,311,501	791,943,433	589,603,792	1,381,547,225
P. E. Island.	261	1,841,690	-	543,654	1,499,060	1,087,757	2,580,823
Nova Scotia.	781	125,754,562	-	17,175,818	36,194,004	33,151,815	69,345,819
New Brunswick.	630	45,970,488	-	8,707,230	21,314,643	15,989,257	37,303,900
Quebec.	5,743	530,312,464	-	80,324,171	213,754,115	167,449,884	381,203,999
Ontario.	6,538	946,010,114	-	140,600,691	410,070,537	304,861,302	715,531,830
Manitoba.	499	94,690,750	-	13,389,569	38,529,386	21,952,060	60,481,446
Saskatchewan.	238	14,736,869	-	2,410,062	7,417,166	5,938,640	13,355,206
Alberta.	282	41,198,897	-	4,791,281	20,669,967	8,716,254	29,416,221
British Columbia.	621	157,580,405	-	15,269,729	41,864,549	30,457,423	72,321,972
(All establishments irrespective of the number of employees.)							
1917.							
Canada	22,838	2,696,154,030	621,694	509,382,027	1,541,087,116	1,332,180,767	2,873,268,183
P. E. Island.	418	2,225,482	1,588	683,149	3,088,718	1,816,986	4,905,704
Nova Scotia.	1,387	128,852,239	25,814	19,177,657	102,465,085	58,751,437	161,207,522
New Brunswick.	987	64,010,777	20,201	13,192,740	32,496,048	27,966,000	60,402,048
Quebec.	7,193	793,589,489	191,969	143,291,802	385,486,685	396,539,787	782,026,472
Ontario.	9,471	1,302,675,630	306,270	264,442,393	795,005,511	685,063,845	1,480,159,356
Manitoba.	816	95,530,452	20,035	17,381,806	60,881,850	45,062,533	114,047,383
Saskatchewan.	633	30,096,023	6,840	5,906,150	22,093,445	15,529,428	37,622,873
Alberta.	720	60,552,814	10,191	9,323,221	42,725,021	26,105,121	68,830,142
British Columbia.	1,202	215,681,355	38,689	35,964,308	87,764,650	74,978,844	162,743,494
Yukon.	11	3,739,169	71	118,801	26,403	339,786	363,189
1918.							
Canada	22,910	2,926,845,424	618,395	582,457,488	1,929,010,369	1,460,723,777	3,289,764,146
P. E. Island.	390	2,696,886	1,266	670,093	3,354,826	1,737,195	5,092,024
Nova Scotia.	1,357	126,563,220	23,909	20,475,961	89,667,282	57,838,590	147,505,881
New Brunswick.	906	72,783,311	18,443	13,338,342	33,222,984	32,231,038	65,454,022
Quebec.	7,350	833,095,963	190,646	163,483,036	454,373,411	420,651,473	875,024,884
Ontario.	9,701	1,460,384,037	307,283	300,963,759	974,277,838	769,245,667	1,734,523,505
Manitoba.	786	98,382,644	20,289	19,740,123	88,545,136	45,096,245	133,641,381
Saskatchewan.	577	35,435,976	6,348	8,705,910	28,394,394	15,990,874	44,295,238
Alberta.	638	58,284,599	8,457	8,857,536	53,159,734	24,747,694	77,907,338
British Columbia.	1,188	237,645,059	41,605	48,119,819	104,023,957	102,038,534	206,062,491
Yukon.	14	3,633,729	59	102,909	20,834	236,548	257,382

¹See note at end of Table 1 on page 15.

²These statistics are not available by provinces.

³For 1915 the number of employees in establishments employing 5 hands and over has not been compiled.

1.—Historical Summary of Statistics of Manufactures, by Provinces, for typical years, 1870-1930¹—continued.

(All establishments irrespective of the number of employees.)

Province.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Net Value of Products.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$	\$
1920.							
Canada	23,351	3,371,940,653	609,586	732,120,583	2,055,271,649	1,686,978,408	3,772,210,057
P. E. Island.....	384	2,734,719	1,327	888,121	4,164,223	2,221,746	6,385,969
Nova Scotia.....	1,388	141,549,856	23,834	26,127,781	85,724,785	63,274,708	148,999,493
New Brunswick.....	928	105,671,688	19,241	19,505,048	60,812,641	46,910,631	107,723,272
Quebec.....	7,677	1,028,226,105	186,308	205,829,155	553,558,520	517,693,125	1,071,251,645
Ontario.....	9,473	1,668,079,488	300,794	369,846,193	1,071,843,374	822,570,783	1,804,414,157
Manitoba.....	773	112,896,616	24,481	33,557,872	92,729,271	65,492,637	158,221,908
Saskatchewan.....	639	31,727,162	7,182	10,249,392	34,894,105	24,655,529	59,549,634
Alberta.....	722	61,063,132	11,387	15,903,609	56,139,640	32,466,428	88,606,074
British Columbia and Yukon.....	1,367	219,991,887	35,132	50,413,414	125,405,084	111,692,821	237,097,905
1922.							
Canada	22,541	3,244,392,410	474,436	510,431,312	1,283,774,723	1,198,434,467	2,487,209,130
P. E. Island.....	352	2,946,320	1,127	828,540	2,621,443	1,787,569	4,409,012
Nova Scotia.....	1,163	106,647,616	14,286	12,192,052	38,003,108	29,985,794	67,088,962
New Brunswick.....	807	82,230,895	14,351	12,201,014	38,050,370	29,821,291	64,880,657
Quebec.....	7,410	970,019,442	147,952	144,368,667	337,752,977	370,276,067	708,029,044
Ontario.....	9,288	1,696,738,996	243,297	275,559,006	678,746,675	617,752,828	1,296,499,503
Manitoba.....	781	88,779,517	14,188	18,274,012	54,630,668	41,320,416	95,957,084
Saskatchewan.....	614	31,101,612	4,196	5,618,174	22,450,051	16,357,481	38,807,532
Alberta.....	672	55,514,624	7,461	9,493,543	30,306,395	22,813,091	53,119,486
British Columbia and Yukon.....	1,264	210,323,379	27,572	32,095,704	81,203,970	71,313,880	152,517,850
1926.							
Canada	22,708	3,981,569,590	581,539	653,850,933	1,755,158,399	1,492,645,039	3,247,803,428
P. E. Island.....	299	2,850,010	2,261	690,403	2,638,244	1,431,091	4,069,335
Nova Scotia.....	1,163	118,050,902	16,782	13,014,707	30,686,139	33,819,503	73,505,842
New Brunswick.....	910	95,661,154	17,674	14,609,734	44,535,406	29,586,833	74,122,239
Quebec.....	7,164	1,216,975,058	180,669	189,320,145	448,584,313	456,716,511	905,300,824
Ontario.....	9,457	1,985,165,921	280,353	335,164,239	924,598,851	753,334,653	1,877,913,504
Manitoba.....	797	127,445,924	21,201	26,673,850	75,588,903	57,129,459	132,718,482
Saskatchewan.....	674	33,943,060	4,904	6,397,545	29,142,700	17,965,397	47,108,097
Alberta.....	749	72,468,286	10,233	12,808,554	50,192,669	33,232,982	83,425,631
British Columbia and Yukon.....	1,495	329,008,375	47,462	54,865,756	140,191,084	109,428,630	249,619,714
1927.							
Canada	22,826	4,337,631,558	618,933	693,932,228	1,789,574,604	1,635,923,936	3,425,499,540
P. E. Island.....	291	3,081,504	2,232	687,849	2,855,438	1,638,190	4,493,628
Nova Scotia.....	1,190	128,155,040	17,864	13,610,944	42,059,320	32,398,977	74,458,297
New Brunswick.....	872	99,087,327	18,970	14,999,101	42,780,582	29,896,083	72,666,665
Quebec.....	7,206	1,376,654,019	196,094	203,724,997	474,361,396	516,221,599	990,582,995
Ontario.....	9,512	2,134,181,377	296,034	355,174,773	939,872,565	818,132,010	1,758,004,575
Manitoba.....	859	151,373,047	23,031	28,934,926	79,510,766	62,578,912	142,089,678
Saskatchewan.....	721	38,387,248	5,683	7,280,945	32,165,027	20,015,654	52,180,681
Alberta.....	776	81,664,730	11,285	13,511,359	50,611,021	34,376,296	84,987,317
British Columbia and Yukon.....	1,509	325,047,260	47,740	56,007,334	125,358,489	120,676,215	246,034,704
1928.							
Canada	23,379	4,780,296,049	658,023	755,199,372	1,950,894,339	1,819,046,025	3,769,850,364
P. E. Island.....	277	3,121,568	2,035	712,945	2,747,292	1,697,868	4,445,160
Nova Scotia.....	1,167	138,809,331	19,222	15,838,394	44,168,441	40,780,167	84,948,608
New Brunswick.....	794	114,660,886	17,963	14,682,510	39,750,561	27,663,181	67,413,742
Quebec.....	7,231	1,583,350,884	204,959	217,887,481	510,580,872	502,581,419	1,073,162,291
Ontario.....	9,900	2,275,921,050	320,729	391,375,947	1,034,501,240	915,222,879	1,949,724,119
Manitoba.....	871	159,721,124	25,166	32,569,223	88,294,693	71,150,401	159,435,094
Saskatchewan.....	737	44,622,135	6,173	8,003,577	34,186,731	24,938,549	59,125,280
Alberta.....	778	92,190,476	12,827	15,403,292	59,398,697	41,345,704	100,744,401
British Columbia and Yukon.....	1,624	367,898,589	48,949	58,726,003	137,185,812	133,665,857	270,851,069

¹See note at end of Table 1 on p. 15.

1.—Historical Summary of Statistics of Manufactures, by Provinces, for typical years, 1870-1930¹—concluded.

(All establishments irrespective of the number of employees.)

Province.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Net Value of Products.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$	\$
1929.	23,597	5,083,014,754	694,434	813,049,842	2,066,636,914	1,997,350,365	4,063,987,279
P.E. Island.....	276	3,489,934	2,133	781,448	2,864,831	1,773,894	4,638,725
Nova Scotia.....	1,195	135,062,325	20,966	17,925,100	51,590,523	42,786,203	94,292,816
New Brunswick.....	860	117,905,970	18,517	15,712,322	40,453,535	30,980,431	71,433,966
Quebec.....	7,156	1,673,011,042	213,467	238,803,672	543,240,589	617,372,403	1,160,811,992
Ontario.....	9,910	2,418,340,450	339,859	421,789,723	1,080,106,598	1,022,984,190	2,103,090,788
Manitoba.....	923	173,152,948	20,316	34,158,583	89,158,381	75,750,740	164,909,127
Saskatchewan.....	761	58,877,124	8,047	10,438,759	51,208,827	29,292,332	80,501,159
Alberta.....	817	107,048,028	13,748	16,400,038	63,432,924	44,123,868	107,556,792
British Columbia and Yukon.....	1,609	394,866,933	51,379	61,980,107	144,664,706	132,280,208	276,950,914
1930.	24,020	5,293,316,760	644,439	736,092,766	1,666,983,902	1,761,986,726	3,428,970,623
P.E. Island.....	267	3,441,958	2,055	788,100	2,546,827	1,708,139	4,254,966
Nova Scotia.....	1,302	133,671,163	21,069	17,537,690	44,506,178	41,296,743	85,802,921
New Brunswick.....	924	140,611,530	18,422	14,988,441	33,807,264	29,570,998	63,468,262
Quebec.....	7,410	1,727,064,388	204,802	216,835,675	462,244,278	560,036,409	1,022,280,687
Ontario.....	9,888	2,431,369,848	307,477	370,781,452	836,666,780	876,358,542	1,713,025,322
Manitoba.....	937	188,413,164	26,488	33,941,235	74,761,265	67,093,725	142,424,890
Saskatchewan.....	750	65,486,140	7,248	9,229,593	35,608,157	20,608,696	62,276,766
Alberta.....	845	109,930,271	14,099	17,092,033	53,621,884	40,692,898	94,314,782
British Columbia and Yukon.....	1,697	403,328,208	42,779	54,898,541	123,131,269	117,090,663	241,121,932

¹Statistics of the construction, and custom and repair industries have not been collected since 1921; the figures for these industries for 1917 to 1921 have consequently been deducted from the totals as previously published. The industries excluded comprise custom clothing, dyeing and laundry work, boot, jewellery, automobile and bicycle repairing, blacksmithing, and custom and repair work by foundries.

Statistics of the non-ferrous metal smelting industry were included in manufactures for the first time in 1925. The introduction in 1926 of the use of the gross and net revenue of the central electric station industry as gross and net production and the inclusion of the difference with "cost of materials", impairs the comparability of 1926 and later figures for the "cost of materials" and "net value of products" with those of earlier years.

Subsection 2.—Fourteen Years of Manufacturing in the Industrial Groups.

The commodities required of the manufacturers of a country in time of war differ considerably from those needed in time of peace. Thus, while under the stimulus of inflated values, manufacturing as a whole reached a peak value of gross production in 1920, not exceeded until 1929, the "iron and its products" group reached a high point of gross production in 1918, the last year of the war. The "chemicals and allied products" group reached its greatest development under war conditions, when the value of gross production was more than twice as great as in 1929. On the other hand, the central electric station industry has shown rapid and consistent growth, uninterrupted by changes from war to peace conditions or the consequent drastic changes in price levels, throughout all the years from 1917 to 1930 covered by this record. In the 14 years the gross value of production by this industry has risen from \$44,500,000 to \$126,038,000, while the capital investment has grown from \$356,000,000 to \$1,138,200,000. The "non-ferrous metals" group has also shown striking progress since the war. The statistics for this group are not comparable throughout the 14 years, owing to the fact that the non-ferrous metal smelting and refining industry was included for the first time in 1925. But the gross production of the group in 1924, the last year before the smelters were included, almost equalled that of the peak year 1920, while since 1925 the expansion has been very rapid. As explained concerning Table 1 on p. 312, statistics for the years 1919, 1921, and 1923-1925, given on pp. 411-412 of the 1931 Year Book, are here omitted to economize space.

2.—Summary of Statistics of Manufactures, by Industrial Groups, for typical years, 1917-30.¹

(All establishments irrespective of the number of employees.)

Industrial Group.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Net Value of Products.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$	\$
1917.							
Totals	22,538	2,696,154,630	621,694	509,382,027	1,541,087,416	1,332,180,767	2,873,268,183
Vegetable products.....	3,810	274,722,765	61,288	44,780,329	365,483,823	181,072,143	546,556,066
Animal products.....	5,486	207,165,245	46,994	35,753,133	320,302,039	124,103,990	444,406,020
Textile products.....	1,360	196,823,197	82,639	51,189,060	132,479,763	115,739,096	248,218,859
Wood and paper.....	7,255	537,731,225	153,751	115,137,384	149,927,482	248,986,504	398,014,046
Iron and its products.....	1,404	634,642,989	142,416	140,334,255	357,688,333	334,616,810	692,305,143
Non-ferrous metals.....	296	69,421,911	18,220	15,898,890	46,445,469	41,039,351	87,484,820
Non-metallic minerals.....	1,410	150,328,144	22,284	19,360,952	38,724,530	60,802,754	99,527,284
Chemicals and allied products.....	539	175,836,690	56,153	51,505,484	99,068,092	131,381,995	230,450,087
Miscellaneous industries.....	606	93,477,696	29,102	27,644,825	30,967,785	49,901,216	80,869,001
Central electric stations.....	666	356,004,108	8,847	7,777,715	-	44,536,848	44,536,848
1918.							
Totals	22,910	2,926,815,424	618,385	582,457,488	1,829,040,369	1,460,723,777	3,289,764,146
Vegetable products.....	3,824	310,556,340	63,107	49,788,771	400,813,120	188,009,055	597,822,775
Animal products.....	5,493	225,949,731	51,085	40,970,545	348,773,348	131,220,539	479,093,887
Textile products.....	1,394	232,678,413	82,144	54,754,968	182,529,695	137,903,308	320,433,003
Wood and paper.....	7,281	599,594,273	150,732	130,348,989	168,154,574	282,110,061	450,264,635
Iron and its products.....	1,397	631,390,223	127,246	148,361,634	393,204,676	330,388,308	723,592,978
Non-ferrous metals.....	286	78,075,726	17,741	17,635,814	40,988,590	38,406,413	79,395,403
Non-metallic minerals.....	1,264	168,367,861	20,940	20,497,078	56,541,490	56,791,607	113,333,087
Chemicals and allied products.....	534	162,912,627	56,391	66,741,341	178,227,423	157,923,196	336,150,619
Miscellaneous industries.....	642	115,347,828	35,956	43,004,106	50,807,069	84,521,557	135,328,626
Central electric stations.....	795	401,942,402	12,873	10,354,242	-	53,449,133	53,449,133
1920.							
Totals	23,351	3,321,940,653	609,586	732,129,585	2,085,271,649	1,686,928,408	3,772,250,057
Vegetable products.....	4,219	394,123,233	72,380	76,693,530	532,484,195	234,317,527	766,801,732
Animal products.....	4,823	221,792,457	48,687	54,291,086	400,496,354	152,995,130	553,491,484
Textile products.....	1,304	302,758,185	87,730	84,433,009	256,233,300	173,741,035	420,974,335
Wood and paper.....	7,867	772,086,812	143,731	171,610,460	308,282,232	415,784,276	724,066,508
Iron and its products.....	1,690	642,904,322	146,204	205,414,699	349,642,666	365,473,097	715,115,763
Non-ferrous metals.....	324	109,382,033	23,162	27,895,343	48,434,120	52,847,178	101,281,298
Non-metallic minerals.....	1,176	223,541,735	27,301	34,406,423	74,200,407	85,216,310	159,416,723
Chemicals and allied products.....	464	122,123,730	17,653	22,193,421	62,644,608	65,183,212	127,827,820
Miscellaneous industries.....	665	134,954,504	31,985	41,552,885	52,853,767	75,715,577	128,569,344
Central electric stations.....	819	448,273,642	10,693	14,626,709	-	65,705,060	65,705,060
1922.							
Totals	22,541	3,244,302,410	474,430	510,431,312	1,283,774,723	1,198,431,407	2,482,209,130
Vegetable products.....	4,355	371,361,682	63,217	64,424,922	330,589,052	206,946,749	537,535,801
Animal products.....	5,118	201,829,414	49,505	49,933,679	284,078,631	107,473,382	371,552,013
Textile products.....	1,709	208,065,238	88,048	76,224,361	153,066,593	155,493,510	308,560,103
Wood and paper.....	6,983	701,188,396	118,462	132,084,914	206,682,820	283,131,962	489,814,782
Iron and its products.....	1,040	526,109,953	74,588	90,605,157	168,282,265	163,302,638	331,584,903
Non-ferrous metals.....	325	102,208,275	18,222	21,451,629	30,801,895	39,993,798	70,855,693
Non-metallic minerals.....	1,095	238,691,461	22,468	27,204,642	63,377,262	77,911,159	141,288,421
Chemicals and allied products.....	469	118,025,483	14,082	16,770,503	47,039,926	48,904,259	95,944,185
Miscellaneous industries.....	542	88,753,756	15,064	17,236,255	19,796,279	32,948,084	52,744,363
Central electric stations.....	905	568,068,752	10,684	14,495,250	-	82,328,866	82,328,866

¹See note at end of Table 1 on p. 15.

2.—Summary of Statistics of Manufactures, by Industrial Groups, for typical years, 1917-30¹—continued.

(All establishments irrespective of the number of employees.)

Industrial Group.	Estab- lish- ments.	Capital.	Em- ployees	Salaries and Wages.	Cost of Materials.	Net Value of Products.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$	\$
1926.							
Totals	22,708	3,951,569,590	581,539	652,850,932	1,755,158,399	1,492,645,019	3,247,803,438
Vegetable products	4,529	449,259,094	73,908	76,349,586	414,310,414	244,004,302	658,320,716
Animal products	4,896	223,938,559	67,843	60,203,986	329,114,267	122,920,658	452,034,925
Textile products	1,698	317,275,429	100,572	88,596,752	202,832,383	163,502,261	366,334,644
Wood and paper	6,751	929,589,278	134,187	160,916,729	261,001,976	339,062,685	600,064,661
Iron and its products	1,142	597,982,098	103,516	137,640,065	258,020,373	247,168,470	505,188,849
Non-ferrous metals	403	202,503,426	30,095	39,201,147	90,613,004	92,888,739	183,501,723
Non-metallic minerals	1,240	261,724,184	26,045	31,986,949	82,293,319	91,863,604	174,166,923
Chemicals and allied products	550	133,407,891	14,345	18,309,377	60,124,582	62,464,944	122,589,526
Miscellaneous industries	436	109,669,565	17,628	21,703,342	30,307,874	39,835,057	70,143,531
Central electric stations	1,057	756,220,066	13,406	19,943,000	26,534,207	88,933,733	115,467,940
1927.							
Totals	22,936	4,337,631,558	618,933	681,932,728	1,780,571,604	1,635,923,936	3,425,498,540
Vegetable products	4,793	494,176,054	78,300	81,830,734	439,325,105	283,374,975	712,700,080
Animal products	4,692	233,113,872	68,381	61,407,018	325,455,482	132,290,556	457,716,038
Textile products	1,802	346,512,165	107,519	95,891,243	198,870,157	183,137,300	382,007,457
Wood and paper	6,811	1,023,301,749	150,550	167,995,734	271,780,232	357,786,924	629,567,156
Iron and its products	1,148	638,914,893	106,293	143,351,174	261,102,679	264,819,160	525,921,839
Non-ferrous metals	401	208,057,166	33,443	44,154,695	87,612,666	112,757,295	200,369,961
Non-metallic minerals	1,184	280,033,057	26,662	33,968,541	86,312,529	89,433,536	175,746,065
Chemicals and allied products	561	134,618,839	14,559	18,656,851	63,630,588	63,854,084	127,484,672
Miscellaneous industries	447	111,178,478	18,518	23,739,922	34,699,896	44,466,809	79,166,705
Central electric stations	1,097	866,825,285	14,708	22,946,315	30,785,270	104,033,297	134,818,567
1928.							
Totals	23,379	4,780,296,049	658,023	765,199,372	1,850,804,339	1,819,046,025	3,768,850,364
Vegetable products	4,845	531,918,725	83,764	88,119,342	439,922,128	317,073,457	756,995,585
Animal products	4,542	243,550,121	67,777	61,950,631	351,324,498	133,697,406	485,021,994
Textile products	1,885	365,721,591	113,724	103,451,235	220,304,250	191,671,848	415,402,464
Wood and paper	7,290	1,158,651,534	158,006	179,244,698	293,159,913	389,389,952	682,549,865
Iron and its products	1,159	702,931,186	119,199	168,320,038	309,618,074	300,014,925	609,632,999
Non-ferrous metals	406	283,367,379	35,568	47,497,842	98,746,019	130,220,908	237,966,927
Non-metallic minerals	1,178	298,693,122	28,650	37,136,451	93,683,873	112,398,268	206,082,141
Chemicals and allied products	572	148,939,920	16,130	20,290,417	74,163,334	72,812,503	146,975,837
Miscellaneous industries	453	119,602,877	19,351	25,101,208	35,090,248	50,439,849	85,530,097
Central electric stations	1,049	956,910,603	15,855	24,087,420	31,365,636	112,326,819	143,692,455
1929.							
Totals	23,597	5,083,014,754	694,434	813,049,842	2,066,636,914	1,997,350,365	4,063,987,279
Vegetable products	5,005	569,004,835	88,858	93,299,665	427,019,724	344,437,941	771,457,665
Animal products	4,490	243,825,065	67,670	62,081,423	345,351,882	132,400,973	477,701,855
Textile products	1,891	383,153,767	115,620	105,896,237	220,304,250	205,943,337	420,247,587
Wood and paper	7,405	1,152,075,234	164,800	192,235,448	314,203,289	411,616,451	726,819,740
Iron and its products	1,169	754,989,105	132,281	186,928,700	384,925,660	353,087,320	738,012,080
Non-ferrous metals	408	298,721,106	39,867	54,501,806	124,906,632	158,645,034	283,545,666
Non-metallic minerals	1,188	329,448,644	31,431	41,511,846	117,149,130	124,874,388	242,023,518
Chemicals and allied products	554	165,880,912	16,694	22,639,449	55,184,337	83,360,884	138,545,221
Miscellaneous industries	463	130,118,324	21,049	29,123,447	42,982,071	60,091,501	103,073,662
Central electric stations	1,024	1,055,731,532	16,164	24,831,821	34,615,539	122,883,446	157,499,385

¹See note at end of Table 1 on p. 15.

2.—Summary of Statistics of Manufactures, by Industrial Groups, for typical years, 1917-1930¹—concluded.*(All establishments irrespective of the number of employees.)*

Industrial Group.	Estab- lish- ments.	Capital.	Em- ployees	Salaries and Wages.	Cost of Materials.	Net Value of Products.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$	\$
1930.							
Totals.....	21,020	5,203,316,760	644,439	736,092,766	1,666,953,992	1,761,956,726	3,423,970,628
Vegetable products.	5,041	569,403,769	84,182	85,259,243	357,510,340	314,513,326	672,023,666
Animal products...	4,341	233,334,972	57,657	55,564,398	285,328,411	132,212,467	417,540,878
Textile products...	1,886	368,567,643	109,576	97,903,096	184,563,865	177,250,868	361,814,733
Wood and paper....	7,816	1,221,357,252	156,724	174,406,889	268,249,293	368,350,618	636,599,911
Iron and its products.....	1,196	757,797,256	119,987	165,429,608	231,713,862	288,032,111	569,745,973
Non-ferrous metals	429	325,605,549	38,756	52,319,027	111,738,411	138,720,310	250,458,721
Non-metallic minerals.....	1,234	336,018,922	29,868	39,241,165	107,206,674	109,606,163	216,812,827
Chemicals and allied products..	591	168,119,152	15,503	21,041,789	48,165,038	71,804,599	119,969,637
Miscellaneous industries.....	452	84,912,229	14,328	17,640,108	22,508,008	35,458,129	57,966,137
Central electric stations.....	1,034	1,138,200,016	17,858	27,287,443	—	126,038,145	126,038,145

¹See note at end of Table 1 on p. 15.**Subsection 3.—Summary Statistics of Manufacturing Production.**

Summary Statistics of Manufactures.—In Table 3 will be found an analysis of the most important statistics of manufactures for the eight years from 1922 to 1929 here brought together in order that the tendencies in Canadian manufacturing industries may be traced as clearly as possible through this latest period of their development. Corresponding figures for the years from 1917 to 1922 were given at p. 384 of the 1926 Year Book, but the inflation of values in the war and immediate post-war periods makes the figures for these years largely incomparable. One very important figure, however, where the trend of development proceeds clearly and uninterruptedly throughout the 13 years, is concerned with the use of power. In the analysis here given the aim is to show the position of power as a factor in general manufacturing production. Therefore the power installation of central electric stations has been excluded. Unfortunately this was not done for the earlier years shown in the 1926 Year Book. When this change is made it will be found that the total horse-power employed increased from 1,664,578 in 1917 to 3,867,979 in 1929 or by 132 p.c. in 12 years. In the same period the horse-power used per establishment increased from 75 to 171 and the horse-power per wage-earner from 3.04 to 6.58, indicating the rapidly increasing contribution of power to manufacturing production.

The increases from \$143,929 to \$215,409 in average capital per establishment between 1922 and 1929, and from 21.1 to 29.4 in average number of employees are very significant figures. It is also noteworthy that the percentage of salaried employees to total employees has declined between 1922 and 1929 from 16.0 to 13.9—or approximately from one-sixth to one-seventh. In other words, there were in 1929 six wage-earners employed to each salary earner, as compared with five wage-

3.—Summary Statistics of Manufactures, 1922-29.

(All establishments other than summary and custom and repair industries, irrespective of the number of employees.)

Item.	1922.	1923.	1924.	1925. ¹	1926.	1927.	1928.	1929.
Establishments.....	22,541	22,642	22,178	22,331	22,708	22,936	23,379	23,597
Capital.....	3,244,302,410	3,380,322,950	3,538,813,460	3,808,309,981	3,981,560,980	4,337,631,338	4,780,290,049	5,080,011,754
Average capital per establishment.....	143,929	149,235	159,583	170,538	175,338	193,119	204,199	217,318
Average capital per employee.....	6,838	6,435	6,959	6,969	6,496	7,008	7,364	7,504
Average capital per wage-earner.....	8,143	7,562	8,186	8,162	7,907	8,331	8,431	8,505
Total employees.....	474,430	525,257	508,503	544,225	581,639	618,933	658,023	694,434
Average number of employees per establishment.....	21.1	23.2	22.9	24.4	25.6	27.0	28.2	29.4
Total salaries and wages.....	510,431,312	571,470,028	559,884,045	596,015,171	653,850,523	693,932,228	735,199,372	813,049,842
Average salaries and wages per establishment.....	22,645	25,238	25,245	26,690	28,194	30,255	32,302	34,456
Average salaries and wages per employee.....	1,076	1,089	1,093	1,101	1,098	1,121	1,148	1,171
Employees on salaries.....	76,040	78,273	76,230	77,653	81,704	85,463	91,243	96,607
Average salaried employees per establishment.....	3.4	3.5	3.4	3.5	3.6	3.7	3.9	4.1
Salaries.....	136,210,171	142,738,681	139,614,639	143,050,813	152,705,944	162,348,978	174,770,879	188,747,672
Average salary.....	1,791	1,824	1,831	1,843	1,867	1,889	1,915	1,954
Employees on wages.....	398,390	446,994	432,273	466,602	490,745	533,460	566,780	597,827
Average number of wage-earners per establishment.....	17.7	19.7	19.5	20.9	22.0	23.3	24.3	25.3
Wages.....	374,212,141	428,731,347	420,260,406	452,958,655	501,144,989	531,583,250	580,428,493	624,302,170
Average wage.....	839	856	856	871	861	897	904	914
Cost of materials.....	1,283,774,723	1,470,140,139	1,438,409,681	1,587,665,408	1,755,158,399	1,789,574,804	1,950,804,339	2,066,636,914
Average cost of materials per establishment.....	57,403	64,937	64,858	71,097	77,293	78,025	83,442	87,580
Average cost of materials per employee.....	2,801	2,801	2,827	2,917	3,018	2,892	2,965	2,976
Value added in manufacture.....	1,198,432,709	1,311,025,376	1,256,643,901	1,360,879,907	1,492,645,039	1,635,923,336	1,819,046,025	1,997,350,365
Average value added per establishment.....	53,107	57,902	56,862	60,941	65,732	71,325	77,807	84,645
Average value added per employee.....	2,521	2,494	2,473	2,501	2,567	2,643	2,764	2,877
Gross value of product.....	2,482,209,130	2,781,165,514	2,695,953,582	2,948,545,315	3,247,803,438	3,425,498,540	3,769,850,364	4,063,987,279
Average gross value of product per establishment.....	110,120	122,832	121,519	132,038	143,025	149,250	161,249	172,225
Average gross value of product per employee.....	5,232	5,265	5,300	5,418	5,585	5,635	5,729	5,853
Power employed.....	2,016,563	2,146,903	2,538,535	2,888,164	3,134,248	3,287,582	3,592,184	3,867,979
Average number of horse-power per establishment.....	95	96	120	135	145	151	161	171
Average number of horse-power per wage-earner.....	5.14	4.87	5.97	6.20	6.37	6.27	6.45	6.58
Piece workers.....	6,095	8,642	7,674	7,735	6,431	2,939	3,021	2,288
Earnings of piece workers ²	1,284,437	1,627,055	1,485,422	692,302	466,708	450,057	456,796	407,638

¹A change in the method of computing the number of employees in 1925 and later years increased the number somewhat over that which the method previously used would have given. There was therefore a proportionate reduction in the averages for 1925 and later years per employee and wage-earner, as compared to what these averages would have been under the former method.

²The figures of power in this table represent the installation in manufactures exclusive of central electric stations, which are also excluded from the number of establishments and of employees in working out the averages. These figures are thus not comparable with those given on pp. 384-385 in the 1926 Year Book.

³These are piece workers employed outside the establishments and are not included in general statistics of number of employees or of earnings.

earners to each salary earner in 1922. This is probably due to the fact that in the depression of 1920-22, wage-earners, with a less secure tenure of their positions, were laid off to a proportionately much greater extent than salary earners, so that the proportion of salary earners on the 1922 staffs was abnormally large.

Value of Products.—The gross value of manufactured products in 1929 was reported as \$4,063,987,279; the cost of materials was \$2,066,636,914, leaving \$1,997,350,365 as the value added by manufacture. As the finished products of one branch of manufacture are constantly used as materials in other branches in the ascending scale of modern industry, it follows that they are counted over and over again, swelling in this manner the total gross value of products. The total value of manufactured products, strictly defined, would include: (1) the value of all raw materials obtained from the extractive and primary production industries which have entered into the manufacturing output; and (2) the entire value added to these raw materials by manufacturing processes from the time they first entered any factory up to the close of the census year. This total value would be very much greater than the \$1,997,350,365 shown as having been added by manufacture, but not so great as the \$4,063,987,279 shown as the gross value of production. (The decline of \$635,000,000 in gross value of products in 1930 was mainly accounted for by a drop of almost \$400,000,000 in the cost of materials).

Volume of Manufacturing Production in Recent Years.¹—An investigation of the greatest importance, especially in a period when values are rapidly changing (see p. 310, also Chapter XX dealing with price movements), is that of the volume of manufacturing production as distinguished from its value. Since real income is ultimately measured in goods and services, the growth of the volume of manufactures therefore becomes a matter of great importance. The important thing to know is whether consumers are getting more goods and services, not whether they are expending more dollars and cents.

The ever-increasing use of factory products is one of the most significant features of modern life. Its beginnings are sketched in the introduction to this Chapter on pp. 305-309. The process has continued until at the present time fresh fruits and vegetables are about the only articles which reach the consumer without, in some way, being first processed at a factory. Fresh milk is pasteurized and bottled in a dairy plant, fresh fish and meats are dressed principally in packing plants, and the home preserving of fruits and vegetables is being superseded by more efficient processes in the canning factory. Thus even the foods we eat, as well as the clothing we wear, our household conveniences and our instruments of production and transportation are increasingly products of factories. The growing volume of factory production, therefore, measures approximately the total flow of the economic goods upon which the rising standards of modern life so vitally depend.

The statistics of manufactures afford a variety of measures of the growth of factory production. The number of wage-earners, capital invested, value of production and value added by manufacture all show to some extent the direction and volume of growth. The value of production and that added by manufacture, being reported in dollars, are influenced by price changes as well as the quantity of goods produced and, as already explained, become misleading under the violent price changes of the past fifteen years. The capital invested is also affected by changing money values, while the relation between capital invested and value of goods produced varies greatly as between one industry and another. Neither is

¹For a much more detailed and comprehensive treatment of this subject see the study "The Physical Volume of Manufactures" by A. Cohen, B. Com., Acting Chief of the Census of Industry, Dominion Bureau of Statistics.

the number of wage-earners employed likely to be a representative measure of changes in the volume of production. The progressively increasing use of machinery and the rise in the power installed per wage-earner (see Table 3) tend to increase the employee's output. Thus while the reported wage-earners in 1929 had increased 33.5 p.c. over the number in 1923, the volume of production is estimated to have increased by 50.2 p.c. in the same period.

In the construction of an independent measure or index of the volume of manufacturing production many difficulties were encountered. There are constant changes in the commodities manufactured and in their relative proportions. New articles are introduced and rapidly come into common use, such as the radio during the past decade, giving rise to quite large new industries and frequently resulting in a decline of previously existing industries. It was very difficult to construct an index which would accurately show changes in manufacturing effort resulting from these changes in production. A second difficulty arose from the fact that many establishments find it difficult to accurately report quantitatively their minor products or by-products, and a few industries find the same difficulty in reporting their major products. In such cases changes in the raw materials used or in the wage-earners employed were used in the construction of the index. A third important difficulty arose from the fact that, even where there was continuity in the kind of commodities produced and where such commodities were reported quantitatively, there have been changes which are not capable of statistical measurement in the quality of the commodities produced. For instance, the motor vehicle of to-day is a very different thing from that of ten or even five years ago. The improvement has entailed increases in plant equipment and workmanship and a generally greater manufacturing effort per unit produced. It is quite obvious that a true index of the volume of production should represent changes in quality as well as quantity. Since this is not possible, and since the trend of modern manufacturing is toward a more elaborate fabrication of materials with consequent improvement in quality and workmanship, it is essential to recognize that an index of volume is likely to understate rather than overstate the growth of manufacturing processes. In spite of these difficulties it is believed that the index in the table which follows is reasonably reliable for the broad groups of industries and may justifiably be used in making generalizations.

The central electric stations were excluded from general manufactures in making the index, since this industry is in a class by itself in the peculiar function of its product, and is also unique in the magnitude of its capital investment and the smallness of its labour force in proportion to its net production. The index is based on the quantities of manufactured products reported and includes 71.1 p.c. of the total value of the production in 1926, exclusive of central electric stations. It is weighted according to the values added in the manufactures of 1926. A complete description of the manner in which the index is constructed will be found in the publication referred to in the footnote on p. 320.

The Growth of Manufactures 1923-29.—The physical volume of manufacturing production, exclusive of central electric stations, increased 50.2 p.c. from 1923 to 1929. When it is recalled that the population of Canada is estimated to have increased only 11.3 p.c. during the same period, the growth of manufacturing production is indeed remarkable. Of this advance, the part resulting from an increase in the domestic demand due to growth of population would be about 11.3 p.c. Exports of partly and fully manufactured goods increased from \$591,830,000 in the fiscal year ended Mar. 31, 1924, to \$690,904,000 in the fiscal year 1930, the increase

in exports representing about 3.6 p.c. of the 1923 production. The remainder of the the increase in production by 1929, or a margin equal to roughly 35 p.c. of the volume of manufactures of 1923, was therefore apparently absorbed by the rise in the standard of living of the population of Canada.

By reference to Table 4 below, it may be seen that, with the exception of a slight recession in 1924, the expansion was continuous. As might be expected, all groups did not expand to the same extent during the period covered. In the component material classification, the non-ferrous metal group led with an increase of 90.3 p.c., while the animal products group recorded the lowest increase, viz., 17.2 p.c. Among the purpose groups, the greatest increases were shown by drink and tobacco (84.9 p.c.), vehicles and vessels (84.3 p.c.), house furnishings (74.5 p.c.) and industrial equipment (69.7 p.c.), while the smallest increases were shown by the small group "personal utilities" (19.3 p.c.) and food (21.4 p.c.). This appears to bear out the conclusion of the previous paragraph, for the rise in the standard of living would express itself in the increased consumption of luxuries, such as drink and tobacco, motor cars and house furnishings, and in increased investment in plant equipment.

4.—Indexes of the Volume of Manufacturing Production, according to Component Material and Purpose Classifications, 1923-29.

Group.	1923.	1924.	1925.	1926.	1927.	1928.	1929.
COMPONENT MATERIAL CLASSIFICATION—							
Vegetable products.....	100.0	109.2	120.8	127.7	137.5	151.1	155.3
Animal products.....	100.0	107.1	113.0	122.0	120.0	123.8	117.2
Textiles and textile products.....	100.0	96.6	103.4	117.8	120.5	135.3	133.8
Wood and paper products.....	100.0	98.1	106.0	119.9	129.1	142.0	152.9
Iron and its products.....	100.0	80.5	95.1	121.7	135.2	138.1	157.8
Non-ferrous metals.....	100.0	108.5	122.8	137.2	158.3	176.1	190.3
Non-metallic minerals.....	100.0	95.8	98.3	112.5	122.5	138.9	163.1
Chemicals and allied products.....	100.0	102.3	100.5	110.0	127.0	139.6	143.3
Miscellaneous industries.....	100.0	108.0	106.0	124.8	138.0	136.5	137.3
Totals, All Industries¹.....	100.0	98.2	107.5	122.2	130.2	141.9	150.2
PURPOSE CLASSIFICATION—							
Food.....	100.0	107.3	114.0	118.1	115.5	122.4	121.4
Clothing.....	100.0	100.1	107.5	120.6	128.6	138.7	138.5
Drink and tobacco.....	100.0	114.6	121.8	131.6	151.3	171.0	184.9
Personal utilities.....	100.0	95.4	102.2	117.1	124.5	125.2	119.3
House furnishings.....	100.0	111.8	109.1	126.7	153.1	158.4	174.5
Books and stationery.....	100.0	83.4	97.6	107.4	119.3	132.0	141.2
Vehicles and vessels.....	100.0	87.1	107.7	140.1	148.9	158.5	184.3
Producers' materials.....	100.0	94.9	103.8	117.8	125.0	138.0	146.9
Industrial equipment.....	100.0	99.7	108.3	131.1	142.6	157.9	169.7
Miscellaneous.....	100.0	104.8	108.4	117.6	124.1	133.4	147.1

¹Exclusive of central electric stations.

The construction of this new index of the volume of manufacturing production has superseded for the years 1923-29 the index shown in Table 4 of this Chapter in former Year Books. The former index, which made no pretense to the reliability of the new one, was made by dividing the gross value of manufactures by the index number of the prices of manufactured goods. The central electric stations were included in the former index, while they are excluded from the new one. However, the former index covered the period 1917 to 1923 not covered in the new one and, since this earlier period was one of wide fluctuations in money values, the following index numbers are given for the whole period since 1917, using the earlier method, but excluding central electric stations, for the years 1917 to 1923 and the new

index, transposed to the 1917 base, from 1923 to 1929: 1917, 100.0; 1918, 102.0; 1919, 98.1; 1920, 95.0; 1921, 86.1; 1922, 96.0; 1923, 104.8; 1924, 102.9; 1925, 112.7; 1926, 128.1; 1927, 136.5; 1928, 148.8; 1929, 157.5.

Consumption of Manufactured Products.—One of the beneficial results of placing the classification of external trade and of production upon a common basis is exhibited in Table 5, where the value of commodities made available for consumption in Canada is derived from the statistics of the two important fields. For example, the value of all manufactured commodities made available in a period approximately corresponding to 1929 was \$4,308,378,487, a figure obtained by adding to the value of manufactured products in 1929 the value of the imports of manufactured and partly manufactured goods during the fiscal year ended Mar. 31, 1930, and deducting the value of the corresponding exports for the same period. In this table more accurate statistics could be presented were it possible to exclude from the gross value of manufactured products the duplications involved when the products of one manufacturing establishment become the materials worked upon in another. Iron, vegetable, textile, wood and paper and animal products were, in that order, the leading groups in the value of finished goods made available for consumption. The large amount of manufactured vegetable products made available for consumption was due to the large domestic production, as the exports and imports were about equal, while manufactures of textiles and iron and steel products, in addition to a large production, showed an excess of imports over exports of \$137,000,000 for textiles and \$228,000,000 for iron and steel products. Wood and paper, animal and non-ferrous metal products were manufactured in Canada in greater quantities than required for home consumption, providing export balances in these groups of commodities.

5.—Consumption of Manufactured Products, by Groups, 1929, with Totals for 1922-28.

NOTE.—Statistics of manufacturing production are for the calendar year. Imports and exports of manufactured and partly manufactured goods are for the fiscal years ended Mar. 31 of the following years.

Group of Industries.	Value of Manufactured Products.	Manufactured and Partly Manufactured Goods.		Value of Manufactured Products Available for Consumption. ¹
		Value of Imports.	Value of Exports.	
	\$	\$	\$	\$
Vegetable products.....	771,457,605	125,010,477	122,902,659	773,565,483
Animal products.....	477,761,855	44,425,795	64,802,581	457,385,069
Textile products.....	426,247,587	144,573,313	7,489,884	563,331,016
Wood and paper products.....	725,819,740	58,882,293	267,006,760	517,695,273
Iron and its products.....	738,012,980	307,066,936	78,571,009	966,508,907
Non-ferrous metal products.....	283,545,666	82,132,716	99,113,024	286,565,358
Non-metallic mineral products.....	242,023,518	69,391,244	8,401,908	302,922,854
Chemicals and allied products.....	138,545,221	39,343,858	22,468,462	155,420,617
Miscellaneous industries.....	103,073,662	68,406,262	20,057,938	151,415,986
Central electric stations.....	157,499,385	96,693	4,028,154	153,567,924
Totals, 1929.....	4,063,987,279	939,323,587	694,932,370	4,308,378,487
Totals, 1928.....	3,769,850,361	975,114,175	719,163,239	4,025,861,306
Totals, 1927.....	3,425,498,540	825,147,919	648,178,000	3,602,468,459
Totals, 1926.....	3,247,803,438	767,022,008	673,709,266	3,311,116,180
Totals, 1925.....	2,948,545,315	671,462,910	695,325,245	2,924,683,010
Totals, 1924.....	2,695,653,582	576,031,243	591,598,478	2,679,486,346
Totals, 1923.....	2,781,165,514	639,313,615	591,529,306	2,828,679,853
Totals, 1922.....	2,482,209,130	574,551,322	515,173,415	2,541,587,038

¹For 1928 and 1929 foreign products imported and later re-exported are eliminated from the value of products available for consumption, but for 1927 and previous years this was impossible since foreign exports for these years had never been analysed as raw materials or partly or fully manufactured goods. Therefore in this table the value of manufactured products made available for consumption, for the years 1922 to 1927 inclusive, is an overstatement by the amount of the foreign exports of manufactured goods in each year, probably varying from about \$11,000,000 in 1922 to \$18,000,000 in 1927.

Section 2.—Production of Industrial Groups and Individual Industries.

One of the factors in the progress of Canada is the possession of many natural resources favourable to industrial growth. It is upon the country's agricultural resources, forests, minerals and wild life that Canada's industries are mainly based. The sea and lake fisheries also make an important contribution of raw materials to the manufacturing industries of the Dominion. Nevertheless, the industrial development of Canada was a matter of small beginnings and gradual growth over a period of many years, and the comparatively small home market, restricted at the present time to a population of about ten millions, a large part of it in scattered agricultural areas, is still one of the difficulties of the situation. Yet Canada is now not merely the second largest manufacturing country in the British Empire; her exports to the other Dominions consist largely of manufactured goods and her exports of manufactured and partly manufactured goods to the United States exceed the exports of raw materials. The rate at which this movement is to continue will depend almost entirely upon growth within the Dominion—upon the further development of the many-sided physical assets of the country.

Subsection 1.—Manufactures Grouped by Chief Component Materials.

A classification based on the chief component materials in the various products of each manufacturing establishment was applied for the first time in the compilation of the returns for 1920. The number of groups was reduced from fifteen to nine to correspond with the external trade classification and the classes of industry were somewhat altered to conform with recent industrial developments. Subsequently the central electric stations industry was taken out of the miscellaneous class and now forms a class by itself.

Vegetable Products.—With the exception of rubber, coffee and spices, sugar factories and rice mills, the industries of this group are dependent mainly upon domestic farm products as raw materials. The milling industry, which has existed to meet domestic needs for more than 300 years, is one of the Dominion's oldest industries, but its greatest expansion has occurred within recent times. The great increase in grain production, which followed the settlement of the western prairies, laid the foundation for this expansion, while the war and the demand it created gave a great impetus to the industry, production of wheat flour in 1918 amounting to 17,881,000 barrels. Productive capacity of the 409 flour mills operating during 1929 reached about 123,000 barrels per day. Since then, the industry has been adversely affected by the difficulties which have beset the Canadian grain trade and the great decline in prices of grains. Production dropped from 19,756,000 barrels in 1929 to 15,624,000 in 1930. Exports of wheat flour declined from 9,573,880 barrels in the calendar year 1929, to 7,514,778 barrels in the following year. The flour manufactured from Canadian hard spring wheat is of very high baking quality and a recovery of purchasing power in Europe and the Orient would contribute toward the return of flour exports to their former volume. Other industries contributing largely to food manufacture are sugar refineries, bread, biscuits, etc., and, to a lesser degree, plants engaged in the canning of fruits and vegetables.

Raw material imported from tropical countries is the basis for an industry of a different character. Canada is now among the leading countries of the world as a manufacturer of rubber goods. Existing plants represented in 1929 a capital of

over \$73,000,000 and gave employment to approximately 17,800 workers receiving \$20,000,000 in wages and salaries and producing goods to the value of \$97,000,000.

The beverage industries—breweries, distilleries and wineries—which are important elements of the vegetable products group, have expanded from a production of \$30,000,000 in 1922 to \$111,000,000 in 1929, owing partly to the modification of prohibition laws in Canada and also to the fact that a large part of their production was exported to the United States. The tobacco industries, another important factor in the vegetable products group, had a total production in 1929 of nearly \$85,000,000.

Animal Products.—Another form of food manufacture—that of slaughtering and meat-packing—has also made great strides. It comes as a surprise to many that slaughtering and meat-packing was until lately at the head of all the industries in regard to the value of the products and in both 1929 and 1930 was surpassed only by that of pulp and paper. Another industry which manufactures a product of farm animals and has been for many years of leading importance in Canada is the butter and cheese industry. Originating in the mixed farming districts of the Maritime Provinces, the Eastern Townships of Quebec and the southern counties of Ontario, it is now developing rapidly in parts of the Prairie Provinces and in the more recent northern settlements of Quebec and Ontario. For an industry so large in the aggregate, it is unique in having shown very little tendency toward consolidation in large units, the gross production of \$127,000,000 in 1929 coming from no fewer than 2,767 plants, mostly small and scattered at convenient points throughout the farming communities. Many of the plants are operated on the co-operative basis. The leather industries also have long been established on a considerable scale, mainly, of course, because the large number of cattle raised and slaughtered provide a ready supply of hides. There are large tanneries in the eastern provinces, and no fewer than 191 boot and shoe factories were in operation in 1929, chiefly in Quebec and Ontario, representing a total capital of over \$31,000,000 with an annual output of \$49,000,000, and employing 15,563 men and women. The canning and preserving of fish also calls for reference. Concentrated naturally upon the Pacific and Atlantic coasts, 730 establishments were engaged in 1929 in the canning, curing and packing of various kinds of fish and the gross value of production was \$35,000,000.

Textiles.¹—Although the production of cotton and woollen fabrics, hosiery, knitted goods, men's and women's clothing and so forth amounted in 1929 to a gross total valued at over \$426,000,000, considerable quantities of yarns and cloth are still imported into Canada. Canadian textile factories are capable of supplying ordinary domestic needs without undertaking the production of the highest grade materials such as are manufactured in Great Britain, where for several centuries hereditary skill has been developed. The net imports of manufactured or partly manufactured textiles during the fiscal year ended Mar. 31, 1930, were \$144,573,313 or 34 p.c. of the gross value of the manufactured product during the calendar year 1929.

While the most important industry in the textile group is the manufacture of cotton yarn and cloth, the products of which in 1929 were valued at over \$78,000,000, the chief development of textile industries in Canada has been in the manufacture of clothing and wearing apparel from both domestic and imported piece goods and yarns. Thus in 1929, if the men's and women's factory clothing, corsets, dyeing,

¹A sketch of the cotton industry, which is the most important of the textile group, is given under the heading of "Typical Individual Manufactures" at p. 429 in the Manufactures section of the Canada Year Book, 1924.

cleaning and laundry work, men's furnishing goods, hats and caps, hosiery, knit goods and fabric gloves, and oiled and waterproof clothing industries be grouped together, the total products amounted to about \$256,000,000 or 60 p.c. of the gross production in the whole textile group, while the net production or value added by the plants in these clothing industries was \$132,000,000 or 64 p.c. of the net value of production by all textile industries.

The woollen industry may be divided into four sections, according as the chief product of value is cloth, yarn, carpets and mats, or miscellaneous goods. Of the 119 plants in operation during 1929, 44 were engaged chiefly in manufacturing cloth, 27 in making yarns, 22 in making carpets and rugs and 26 in making miscellaneous woollen goods. The total value of woollen goods manufactured by the four classes of mills during 1929 amounted to \$35,180,000, as compared with \$34,700,000 in 1928.

Wood and Paper.—An outstanding feature of the general expansion of Canadian commerce since the opening of the century has been the change in the industries associated with forestry which are dealt with in greater detail in Chapter IX on Forestry, pp. 202-14 of this volume. Lumber output has fluctuated greatly, being so largely dependent upon building and construction operations which are themselves subject to wide cyclical fluctuations. Furthermore, the increasing adoption of fireproof types of construction has resulted in a lower lumber consumption in proportion to the total building done. Thus the quantity of lumber sawn in 1911 has never since been equalled, the total being 4,918,000 M board feet compared with 4,742,000 M feet in 1929, the exports amounting to 35 to 40 p.c. of the total in each year. In contrast with this is the progress in pulp and paper production. The census of 1881 recorded only 36 paper and 5 pulp-mills in existence in Canada. In 1929 there were 108 pulp and paper-mills, consuming more than 5,278,422 cords of pulpwood in the year and using hydro power to the extent of about 1,400,000 h.p. Production of wood pulp in 1917 was 1,464,308 tons and in 1929, 4,021,229 tons. Production of newsprint in 1917 was 689,847 tons, in 1921, 805,114 tons, in 1923, 1,252,000 tons and in 1924, 1,388,081 tons. In 1929, the production was 2,725,331 tons, an increase of 13 p.c. over 1928. Included in the totals are hanging and poster papers. Canadian production in 1929 exceeded that of the United States by 1,300,000 tons or 95 p.c., so that Canada now occupies first place among the countries of the world in the production of newsprint paper.

Iron and Steel.—The primary production of iron and steel in Canada has always been handicapped by the fact that nowhere in Canada have workable deposits of coal and iron ore been found in juxtaposition. The nearest approach is in Nova Scotia, where there is an abundant supply of coal, while iron ore is obtained from Newfoundland. In Central Canada, where the secondary iron and steel industries are chiefly located, there are at present neither supplies of coal nor high-grade deposits of iron ore. There is a possibility, however, that high-grade bodies of ore may be found, and eventually the huge reserves of low grade ores now known to exist may be utilized.

Iron ore, which was imported chiefly from Newfoundland and the State of Minnesota, was converted into pig iron in 1929 by the following companies: Steel Company of Canada, Ltd., at Hamilton, Ont.; the Algoma Steel Corporation at Sault Ste. Marie, Ont.; the Canadian Furnace Co. at Port Colborne, Ont.; and the Dominion Iron and Steel Co. Ltd., at Sydney, N.S. These 4 blast furnace plants, together with 25 steel furnaces, 15 rolling mills and one smelter for making

ferro-manganese, accounted for a capital of \$109,446,529 and a gross production valued at \$72,231,995. There were, in 1929, no fewer than 1,169 establishments handling iron and steel products, aside from the numerous custom and repair shops engaged in re-conditioning iron and steel goods. The plants represented a capital of \$754,989,105 and had a gross output valued at \$738,012,980. A great deal of this output is represented by agricultural implements, for which there is a large domestic demand, by factory and railway equipment and commercial and passenger motor vehicles. The output of automobiles has increased rapidly in recent years, the total production in 1922 being valued at \$81,956,429, in 1925 at \$110,835,380, in 1926 at \$133,598,456 and in 1929 \$177,315,593, so that this industry has had in recent years a greater production than any other in the iron and steel group and in 1929 stood fourth in gross production among all the industries of Canada. Illustrating the importance of transportation in Canada's economic life, next in the iron and steel group to the manufacture of automobiles was that of railway rolling stock. This industry, although subject to rather wide fluctuations, has for many years held an important place in Canadian manufacture and in 1929 was eighth among all the industries of Canada with products valued at \$126,487,000.

Non-Ferrous Metals.—During 1929 there were 408 plants in Canada manufacturing products from metals other than iron and steel. Employees showed an increase from 18,222 in 1922 to 21,409 in 1923, 27,735 in 1925 and 39,867 in 1929.

One of the leading industries in this group in recent years has been the manufacture of electrical apparatus and supplies; this industry had in 1929 a gross production of \$113,796,002. The industry is showing rapid growth in keeping with the widely increasing development and utilization of hydro-electric energy in Canada. The development of cheap electric power has done much to popularize the use of electrical equipment for both domestic and industrial purposes, and the future demand for such apparatus will probably be limited only by the development of adequate power.

The non-ferrous smelting and refining industry has shown a marked expansion in recent years in keeping with discoveries and developments in the field of mining enterprise. Metallurgical operations have been enlarged at the great smelter at Trail, B.C., and in the Sudbury district of Ontario, while, in addition to the copper smelter at Anyox, B.C., the silver-cobalt plant at Deloro, Ont. and the aluminium plant at Shawinigan Falls already in operation, there have been established within the last decade new copper smelters at Flin Flon and Noranda, new copper refineries at Sudbury and Montreal, and the new aluminium plant at Arvida, on the Saguenay. As a result, there are now 12 non-ferrous metal smelting and refining plants in Canada, and the net production of the industry has increased from \$16,465,000 in 1922 to \$68,438,000 in 1929, while the gross value of the products of this industry has risen in the same period from \$23,637,000 to \$109,854,000.

Another industry of some importance consisted of 102 firms engaged principally in the rolling, casting, and manufacturing of brass and copper, the principal products being castings and machinery fittings, brass steam fittings, plates and sheets, rods, wire and wire cloth. The selling value of the products was \$36,115,581, the materials used in the process of manufacture were worth \$21,118,038 and the net value of products was therefore about \$15,000,000.

Non-Metallic Minerals.—The recovery in business conditions from 1921 to 1929 is demonstrated by developments in the non-metallic mineral group. The recent expansion is accentuated by the growth of the petroleum products industry,

which in 1929 produced over 40 p.c. of the gross value of the entire production of the group. In 1929 this industry included 10 blending plants and 15 plants for the refining of crude oils. The refining plants were located with a view to economy of distribution, based on the greatest accessibility to the source of supply and the proximity of the markets. The refineries on the eastern and western coasts obtain their crude petroleum from South America, Mexico and the United States by tank steamers, bringing transportation costs to a minimum. Those situated in the central part of the Dominion absorb the domestic production of crude oil and draw additional supplies from the United States by rail or pipeline. The more general use of the automobile has resulted in a continually expanding demand for gasoline and lubricating oils. The installation of oil-using equipment in industrial plants for generating power and in buildings of various kinds for heating purposes has also increased the consumption of fuel oil.

The coke and gas industry of Canada has developed chiefly along two lines: the one, in the principal centres of population, to provide a gas supply for the residents; and the other, in association with blast-furnaces, smelters and metallurgical works, to provide coke and gas for fuel, while some by-product coke plants provide a high-grade coke sized for domestic fuel and competing with anthracite coal. Gas is the most important product of the industry and coke the other chief product, while there are numerous products such as tar, ammonia and ammonium sulphate, light oils, etc.

Other industries of a varied nature included in this group are the manufacture of asbestos products, the glass industry, the manufacture of abrasives, the preparation of ornamental and monumental stone, the bottling of aerated waters and the manufacture of various clay products and cement.

Chemicals.—Recent important developments in Canada's chemical industry centre around the operations of two large companies, namely, Canadian Industries Limited and the Consolidated Mining and Smelting Company.

In June, 1930, the new sulphuric acid plant of Canadian Industries Limited at Copper Cliff, Ontario, commenced operations. This plant utilizes the sulphur in the waste converter gases from the new nickel-copper smelter at that point and has a capacity of about 150 tons of acid per day. In July, 1930, the company opened its new nitre cake works at Copper Cliff; this commodity is used in large quantities in the smelter operations for the separation of nickel and copper and heretofore was mostly imported from the United States. Now the natural sodium sulphate is brought from the extensive lake deposits in Saskatchewan and treated with acid from the new acid works to produce a nitre cake suitable for smelter use. It is interesting to note that the imports of nitre cake declined from 80,872 tons at \$1,081,984 in 1929 to 15,276 tons at \$219,173 in 1930 and 14,258 tons at \$175,648 in 1931 (calendar years).

Another important contribution to Canada's chemical industries was made by the same company at its plant at Sandwich, Ontario, where an addition to the caustic soda works provides for the manufacture of synthetic ammonia, the first to be made in Canada. In the electrolysis of salt brine, liquid chlorine and caustic soda are produced and in the process large quantities of hydrogen are liberated. This formerly went to waste but is now collected and pumped to the ammonia department where it is burned in air and the excess is united under pressure with the remaining nitrogen to make pure liquid ammonia. This plant commenced to produce in June, 1930.

At Trail, B.C., extensive chemical works are being built by the Consolidated Mining and Smelting Company. The sulphur dioxide in smelter fumes is now utilized to make sulphuric acid which will be used chiefly for making fertilizers. To date operations have been of an experimental nature, but in January, 1931, the first phosphate unit commenced on a commercial basis. The main products will be triple superphosphate, mono-ammonium phosphate and ammonium sulphate, the nitrogen for the last two compounds being obtained from air in a new synthetic ammonia unit.

Canada's chemical industry has shown steady growth during the past decade and its stability is indicated by the fact that during the prevailing economic depression the 1930 output showed a recession of only 13.4 p.c. from the record established in 1929. Production in 1930 was valued at \$119,969,637 as compared with \$138,545,221 in 1929. Allowing for price declines and changes in statistical methods, the 1930 output exceeded that of any of the years from 1919 to 1927 inclusive.

In 1930 a change was made in the method of compiling statistics for the chemical industry. The re-arrangement of the industries allows for 15 main groups instead of 10 and the values of intermediate products, formerly included, have been omitted. For that year the industries are as follows in order of importance, based on the gross value of output: paints and varnishes; soaps and washing compounds; medicinal and pharmaceutical preparations; acids, alkalis and salts; miscellaneous; explosives, ammunition and fireworks; coal tar distillation; fertilizers; toilet preparations; inks; flavouring extracts; adhesives; polishes and dressings; compressed gases; wood distillation.

Central Electric Stations.—Beginning with 1926, central electric stations have been taken out of group 9—Miscellaneous Industries—and shown as a separate group. The purpose of the separation is to facilitate the presentation of the statistics of the power installed in manufacturing establishments. Practically all other industries produce either wholly finished goods or products which are used as materials for further processes of manufacture. The product of the central electric station industry is not a material in the same sense, but is electrical energy which supplies the power for many of the manufacturing processes, as well as for mining enterprises, electric railways and the various lighting and domestic services. Included in the establishments reported as central electric stations, in addition to the plants where power is generated from water, steam or some other primary source, are numerous distributing plants which buy power at high voltage from the generating establishments and transform and distribute it to local consumers. In such cases, where the distributing stations are separate organizations from the generating system, there is therefore a duplication in the gross revenue reported from the sale of power. The economic function performed by the distributing station is similar to that of a manufacturing industry which transforms materials to meet the requirements of the consumer. Therefore the cost of power purchased by distributing stations is regarded as a cost of material, and a figure of net revenue is taken from which all duplications are eliminated. This treatment has been applied to the figures for 1926 and later years and introduces a slight element of incomparability with figures for previous years.

The principal statistics of each of the manufacturing industries of Canada during 1929 are presented in Table 6 on pp. 30-35.

6.—Statistics of the Numbers, Capital, Employees, Salaries and Wages, Cost of

No.	Group and Industry.	Establishments.	Capital Employed.	Salaried Employees.		
				Male.	Female.	Salaries.
		No.	\$	No.	No.	\$
	Canada.....	23,597	5,083,014,754	73,792	22,815	188,747,672
	TOTALS BY PROVINCES.					
1	Prince Edward Island.....	276	3,489,934	170	36	199,201
2	Nova Scotia.....	1,195	135,662,325	1,381	401	3,073,700
3	New Brunswick.....	860	117,965,970	1,355	384	3,157,674
4	Quebec.....	7,156	1,673,011,042	21,282	5,675	53,383,006
5	Ontario.....	9,910	2,418,340,450	37,777	13,595	101,492,870
6	Manitoba.....	923	173,152,948	3,415	953	8,287,800
7	Saskatchewan.....	761	158,877,124	1,808	337	3,644,495
8	Alberta.....	817	107,648,028	1,878	476	4,185,508
9	British Columbia and Yukon.....	1,699	394,866,933	4,726	1,058	11,323,409
	TOTALS BY GROUPS.					
1	Vegetable products.....	5,005	569,064,835	9,471	2,876	24,659,299
2	Animal products.....	4,490	243,825,065	8,707	1,954	16,921,301
3	Textiles and textile products.....	1,891	383,153,797	6,635	3,391	19,555,354
4	Wood and paper products.....	7,405	1,152,075,234	16,284	4,958	43,373,770
5	Iron and its products.....	1,169	754,989,105	12,363	3,542	33,405,489
6	Non-ferrous metal products.....	408	298,721,106	5,606	2,017	14,285,983
7	Non-metallic mineral products.....	1,188	329,448,844	3,212	763	7,838,959
8	Chemicals and allied products.....	554	165,886,912	3,282	1,280	9,527,502
9	Miscellaneous industries.....	463	130,118,324	2,721	725	7,067,253
10	Central electric stations.....	1,024	1,055,731,532	5,505	1,309	11,512,782
	GROUP 1.—VEGETABLE PRODUCTS.					
	Totals.....	5,005	569,064,835	9,471	2,876	24,659,299
1	Biscuits, confectionery, cocoa, chocolate, etc.....	281	55,320,902	1,723	624	4,603,754
2	Bread and other bakery products.....	2,508	48,969,603	846	428	1,784,168
3	Breweries.....	78	70,390,147	708	116	2,384,418
4	Cigars and cigarettes.....	72	34,025,963	1,009	294	2,374,525
5	Coffee and spices.....	59	15,402,253	445	136	1,210,124
6	Distilleries.....	20	60,211,220	289	72	1,071,776
7	Feed and grist mills.....	916	6,558,329	29	11	53,979
8	Flour mills.....	409	61,215,205	964	206	2,246,181
9	Fruit and vegetable canning, evaporating, etc.....	267	29,331,121	411	145	909,934
10	Ice cream cones.....	10	617,590	8	4	19,212
11	Linseed oil and oil cake.....	8	2,708,387	29	7	94,806
12	Macaroni and vermicelli.....	12	1,843,282	34	11	71,945
13	Malt mills.....	7	8,292,857	62	7	141,190
14	Maple syrup and sugar.....	6	871,925	14	4	45,649
15	Miscellaneous food industries.....	65	11,199,684	238	92	607,693
16	Miscellaneous vegetable products.....	6	4,204,577	22	3	57,111
17	Pickles, vinegar and cider.....	65	9,641,864	159	44	462,626
18	Rice mills.....	4	906,272	15	2	43,204
19	Rubber footwear.....	10	17,179,935	632	205	1,310,308
20	Rubber tires and other rubber goods.....	34	56,607,543	1,119	303	2,846,660
21	Starch and glucose.....	5	5,745,922	51	20	155,545
22	Sugar refineries.....	8	43,534,113	246	61	937,041
23	Syrups.....	11	213,712	7	6	19,108
24	Tobacco, chewing, smoking and snuff.....	37	16,067,061	280	65	1,030,614
25	Wines and grape juices.....	47	7,915,368	71	11	175,068
	GROUP 2.—ANIMAL PRODUCTS.					
	Totals.....	4,490	243,825,065	8,707	1,954	16,921,301
1	Animal hair goods.....	6	747,592	16	7	63,478
2	Animal oils and fats.....	5	862,240	7	6	27,333
3	Belting, leather.....	9	1,553,404	67	16	195,626
4	Boot and shoe findings.....	14	1,465,119	28	4	84,075
5	Boots and shoes, leather.....	191	31,028,220	966	357	2,617,404
6	Butter and cheese.....	2,767	47,907,462	3,526	656	4,646,465
7	Condensed milk.....	30	9,190,753	172	62	385,207
8	Fish curing and packing.....	730	28,644,442	583	77	951,869
9	Fur dressing and dyeing.....	10	1,475,497	60	8	187,414
10	Fur goods.....	224	12,863,189	416	192	1,122,241
11	Gloves and mittens, leather.....	49	3,543,130	155	54	336,176
12	Harness and saddlery.....	195	4,111,709	139	33	234,529
13	Human hair goods.....	3	41,173	1	1	2,179
14	Leather goods, n.e.s.....	40	1,507,757	80	47	224,946
15	Leather, tanned, etc.....	86	27,059,201	237	57	824,047
16	Sausages and sausage casings.....	38	1,156,104	34	8	85,728
17	Slaughtering and meat packing.....	74	67,777,803	2,154	345	4,724,682
18	Trunks, bags, etc.....	19	2,890,171	75	25	208,103

Materials and Value of Products of Canadian Manufacturing Industries, 1929.

Wage-Earners.			Power Installed.	Cost of Fuel.	Cost of Materials.	Values of Products.		No.
Male.	Female.	Wages.				Net.	Gross.	
No.	No.	\$	H.P.	\$	\$	\$	\$	
489,043	129,784	624,302,170	6,571,738	64,425,489	2,066,636,914	1,997,350,365	4,063,987,279	
1.175	752	582,247	7,425	105,290	2,864,831	1,773,894	4,638,725	1
15,580	3,604	14,851,490	179,218	3,197,287	51,506,523	42,780,293	94,292,816	2
13,123	3,655	12,554,048	174,286	1,681,023	40,453,535	30,980,431	71,433,966	3
137,369	49,241	180,420,666	2,699,794	17,613,796	543,240,589	617,372,403	1,160,612,992	4
228,378	60,109	320,296,853	2,211,092	31,336,902	1,080,106,598	1,022,984,190	2,103,090,788	5
18,076	3,874	25,870,774	360,190	2,572,661	89,158,381	75,750,746	164,900,127	6
5,412	490	6,794,204	91,118	2,172,706	51,208,827	29,292,332	80,501,159	7
9,713	1,681	12,274,530	154,749	1,678,531	63,432,924	44,123,868	107,556,792	8
39,217	6,378	50,956,698	693,869	4,066,693	144,884,706	132,286,208	276,950,914	9
51,529	24,982	68,640,366	326,346	7,094,888	427,019,724	344,437,941	771,457,665	1
41,209	15,800	45,160,122	101,268	3,232,754	345,351,882	132,409,973	477,761,855	2
42,178	63,416	80,340,883	168,614	3,537,962	220,304,250	205,943,337	426,247,587	3
131,804	11,754	148,861,678	2,022,839	14,431,777	314,203,289	411,616,451	725,810,740	4
113,031	3,345	153,523,211	529,162	11,779,052	384,925,060	353,087,320	738,012,980	5
27,456	4,786	40,215,823	351,752	3,932,473	124,900,632	159,645,034	283,545,666	6
26,526	930	33,672,887	210,804	14,882,045	117,149,130	124,874,388	242,023,518	7
9,990	2,738	13,111,947	83,935	1,841,308	55,184,337	83,360,884	138,545,221	8
15,570	2,033	21,456,214	73,259	658,775	42,982,071	60,091,691	103,073,662	9
9,350	-	13,319,039	5,097,443	3,014,395	34,015,939	122,883,446	157,499,385	10
51,529	24,982	68,640,366	326,346	7,094,888	427,019,724	344,437,941	771,457,665	
4,653	6,073	8,162,122	23,247	580,111	27,717,889	34,774,912	62,492,801	1
13,632	2,117	16,697,444	13,989	1,677,453	38,507,559	38,700,907	77,214,466	2
3,909	46	4,749,838	38,026	595,834	19,135,208	43,125,713	62,260,921	3
1,659	3,420	3,360,727	1,320	41,408	17,012,776	47,318,724	64,331,500	4
680	440	1,095,788	2,990	49,177	21,025,868	6,945,922	27,971,790	5
1,442	416	2,000,721	8,051	640,083	12,928,920	30,823,500	43,752,420	6
1,269	1	809,337	37,015	80,506	20,369,239	3,505,121	23,874,360	7
3,998	140	4,468,779	84,814	495,335	180,437,426	26,836,903	157,274,329	8
2,094	5,469	3,131,372	11,350	321,025	16,641,016	11,318,809	27,959,825	9
57	30	63,032	70	26,646	134,230	372,628	506,858	10
202	1	232,414	1,803	21,566	5,578,539	924,094	6,502,633	11
129	106	143,415	628	0,141	755,576	728,686	1,484,262	12
166	-	268,670	5,144	200,045	4,207,063	2,020,249	6,227,312	13
50	2	44,085	89	7,621	1,661,755	348,472	2,010,227	14
598	280	911,571	5,664	108,688	6,250,354	6,813,121	13,063,475	15
98	11	125,237	1,685	63,234	3,065,079	1,709,956	4,775,035	16
773	679	1,151,559	3,029	140,697	6,183,319	5,889,372	12,072,601	17
40	-	52,144	335	360	1,231,944	190,679	1,422,623	18
4,416	2,772	5,918,013	16,015	165,027	9,532,099	19,825,825	29,357,924	19
6,999	1,350	10,059,620	45,100	553,602	33,408,648	34,168,088	67,570,736	20
418	15	452,994	3,965	198,767	3,641,501	1,863,184	5,504,685	21
1,916	102	2,748,399	19,639	1,032,909	35,040,124	11,511,836	47,151,960	22
20	18	23,355	33	3,140	166,470	127,423	293,892	23
1,157	1,449	1,589,147	1,553	60,465	8,643,755	12,189,951	20,833,706	24
284	45	320,080	820	18,108	3,143,367	2,397,866	5,541,233	25
41,209	15,800	45,160,122	101,268	3,232,754	345,351,882	132,409,973	477,761,855	
76	27	81,984	382	5,837	322,592	465,421	788,013	1
109	4	118,513	333	21,843	310,065	220,281	530,880	2
140	-	163,452	357	8,714	956,174	596,813	1,552,987	3
230	76	224,554	1,498	9,068	643,209	683,679	1,370,488	4
8,652	5,588	12,413,697	7,048	125,416	25,510,731	23,116,859	48,627,590	5
7,449	241	8,062,991	24,045	1,082,633	93,861,458	32,841,737	120,704,165	6
593	47	732,258	3,815	348,149	10,556,545	4,130,257	14,684,802	7
9,493	0,214	4,460,186	12,337	431,425	21,496,859	13,469,401	34,960,266	8
549	103	633,776	658	10,512	227,640	1,688,673	1,910,313	9
1,230	1,209	2,839,892	433	23,441	12,620,177	6,324,540	18,944,726	10
632	864	1,069,625	379	15,937	2,847,839	2,084,695	4,932,534	11
589	48	509,589	568	24,860	1,940,161	1,434,034	3,383,195	12
6	7	12,161	-	-	12,685	16,784	29,469	13
292	326	512,475	157	6,123	1,246,771	1,300,305	2,637,076	14
2,929	90	3,110,836	14,877	350,978	18,065,583	7,741,582	26,807,165	15
201	10	253,523	360	16,020	1,710,842	657,919	2,377,661	16
7,434	829	9,274,034	32,309	735,586	151,814,517	34,028,385	186,842,902	17
605	108	596,606	800	16,312	1,189,494	1,518,099	2,708,193	18

* Primary Power; see pp. 65 and 66.

6.—Statistics of the Numbers, Capital, Employees, Salaries and Wages, Cost of
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No.	Group and Industry.	Establish- ments.	Capital Employed.	Salaried Employees.		
				Male.	Female.	Salaries.
		No.	\$	No.	No.	\$
GROUP 3.—TEXTILE PRODUCTS.						
Totals		1,891	383,153,797	6,625	3,391	19,555,354
1	Awnings, tents and sails	59	2,299,240	83	38	190,631
2	Bags, cotton and jute	20	6,638,759	91	31	319,301
3	Batting	8	2,765,650	50	25	195,520
4	Carpets, mats and rugs	22	6,446,734	172	43	461,360
5	Clothing, men's factory	205	28,493,549	1,009	411	2,596,523
6	Clothing, women's factory	461	25,087,862	1,163	792	3,802,392
7	Cordage, rope and twine	13	13,066,423	91	22	300,344
8	Corsets	17	5,327,991	155	105	386,787
9	Cotton and wool waste	7	1,122,818	20	9	65,737
10	Cotton textiles, n.e.s.	23	1,364,130	52	34	150,005
11	Cotton thread	6	4,190,130	73	29	195,720
12	Cotton yarn and cloth	36	95,542,319	575	120	1,612,847
13	Dyeing, cleaning and laundry work	374	26,839,632	641	436	1,921,760
14	Flax, dressed	11	207,964	5	-	6,035
15	Furnishing goods, men's	162	19,654,505	600	292	1,579,442
16	Hats and caps	152	7,709,270	375	204	1,025,155
17	Hosiery, knitted goods and fabric gloves	168	66,489,608	771	491	2,604,053
18	Linen goods	3	943,875	14	10	43,028
19	Miscellaneous textiles, n.e.s.	5	3,101,714	43	7	96,349
20	Oiled and waterproof clothing	19	1,186,464	32	17	110,790
21	Silk goods	23	28,278,657	255	102	667,601
22	Woollen cloth	44	20,016,292	235	73	706,897
23	Woollen textiles, n.e.s.	26	8,880,289	82	22	277,973
24	Woollen yarns	27	7,699,902	48	19	149,098
GROUP 4.—WOOD AND PAPER PRODUCTS.						
Totals		7,405	1,152,675,234	16,284	4,958	43,323,770
1	Beckkeepers' and poultrymen's supplies	5	71,415	2	1	4,178
2	Blueprinting	15	213,085	15	4	35,987
3	Bouts and canoes	118	2,830,363	69	15	140,562
4	Boxes and bags, paper	129	21,176,098	521	209	1,589,742
5	Boxes and packing cases	126	11,185,807	238	48	594,228
6	Carriages, wagons and sleighs	334	9,794,179	163	32	380,047
7	Carriage and wagon materials	6	692,751	14	4	33,984
8	Clothes pins	3	235,674	5	-	11,026
9	Coffins and caskets	36	3,608,383	64	12	187,825
10	Cooperage	82	2,472,749	35	9	167,312
11	Excelsior	8	269,866	5	3	5,678
12	Furniture and upholstery	367	41,851,682	871	322	2,514,638
13	Laists, trees and pegs	13	1,363,388	48	17	134,618
14	Lithographing and engraving	122	21,918,581	703	378	2,649,705
15	Miscellaneous wood products	160	5,138,149	112	38	306,949
16	Paper goods, n.e.s.	40	6,173,098	144	99	470,779
17	Planing mills, sash and door factories, etc.	744	58,429,538	1,299	247	2,853,220
18	Printing and bookbinding	910	43,506,712	1,557	573	4,409,514
19	Printing and publishing	767	65,736,238	4,965	1,805	11,478,893
20	Pulp and paper	108	644,773,806	3,104	634	9,391,901
21	Roofing paper, wallboard, etc.	11	7,439,641	156	51	511,220
22	Saw-mill products	3,181	181,586,699	1,643	243	3,892,151
23	Sporting goods	23	2,022,334	49	27	99,246
24	Stationery and envelopes	34	5,170,903	218	97	622,666
25	Stereotyping and electrotyping	29	1,494,658	67	29	179,905
26	Woodenware	10	1,101,742	32	6	107,598
27	Wood-turning	33	1,718,051	38	13	82,076
28	All other industries	12	10,090,044	147	42	569,182
GROUP 5.—IRON AND ITS PRODUCTS.						
Totals		1,169	754,989,105	12,363	3,542	33,405,489
1	Agricultural implements	62	103,356,773	1,334	431	3,323,356
2	Automobiles	17	98,378,301	1,687	603	5,227,098
3	Automobile supplies	65	19,401,890	401	129	1,178,742
4	Bicycles and motorcycles	3	2,534,749	126	39	201,561
5	Boilers, tanks and engines	37	10,665,197	305	60	792,414
6	Castings and forgings	336	102,900,796	2,000	647	5,768,144
7	Hardware and tools	127	37,334,436	645	238	1,921,321
8	Iron and steel products, n.e.s.	61	14,719,791	576	100	1,332,415
9	Machinery	169	75,226,204	1,822	614	4,790,846
10	Railway rolling stock	35	94,415,563	1,521	109	3,633,974
11	Sheet metal products	152	49,080,661	997	340	2,530,928
12	Steel and rolled products, pig iron, ferro-alloys, etc.	45	109,446,529	597	115	1,746,020
13	Wire and wire goods	60	37,528,215	352	117	1,048,160

Materials and Value of Products of Canadian Manufacturing Industries, 1929—
tinued.

Wage-Earners.			Power Installed.	Cost of Fuel.	Cost of Materials.	Values of Products.		No.
Male.	Fe- male.	Wages.				Net.	Gross.	
No.	No.	\$	H.P.	\$	\$	\$	\$	
42,178	63,416	86,340,883	168,614	3,557,962	229,304,259	205,943,337	426,217,587	1
241	208	2,427,475	241	8,201	1,348,619	1,147,814	2,490,433	2
297	638	701,604	1,178	23,280	10,410,580	2,197,325	12,613,905	3
136	94	222,745	665	15,570	1,623,288	1,088,567	2,711,855	4
696	383	1,002,325	2,115	68,969	2,550,680	2,874,875	5,434,555	5
4,811	5,275	10,774,894	1,401	72,110	25,653,973	24,626,195	50,580,168	6
4,011	11,058	13,326,029	2,903	39,724	34,558,890	31,787,557	66,340,417	7
857	389	1,211,840	7,741	23,250	7,798,803	3,999,272	11,708,165	8
87	998	697,444	346	8,539	2,098,351	2,120,608	4,219,010	9
158	77	232,182	1,051	8,514	1,936,230	708,954	2,645,184	10
107	324	322,971	524	11,550	1,261,764	897,804	2,159,568	11
190	488	493,510	1,965	28,967	2,025,955	2,295,629	4,321,584	12
11,369	8,157	15,058,940	78,221	628,757	43,133,575	35,108,190	78,241,765	13
4,634	6,995	10,026,796	15,109	1,045,153	3,403,667	23,155,618	26,559,285	14
105	-	32,659	369	4,840	27,217	99,045	126,262	15
1,346	7,652	5,740,703	2,199	62,585	17,848,021	12,733,841	30,581,862	16
1,584	2,499	3,422,549	1,849	62,149	7,710,546	7,812,830	15,523,376	17
5,773	12,474	13,600,483	17,773	535,111	31,193,505	29,904,247	61,097,752	18
80	101	118,464	588	8,382	250,735	252,125	502,860	19
153	133	234,363	633	19,508	2,114,317	587,817	2,712,134	20
133	146	284,495	173	7,723	706,706	647,608	1,354,314	21
1,653	2,362	3,158,195	9,563	167,168	6,091,124	8,384,956	14,470,080	22
2,132	1,705	3,217,407	12,202	272,384	9,231,712	7,009,482	16,241,194	23
794	243	900,765	6,812	71,207	3,348,836	3,127,772	6,476,608	24
741	1,017	1,131,976	3,103	66,258	3,962,096	3,065,146	7,027,242	25
131,804	11,754	148,861,678	2,022,839	14,431,777	314,243,288	411,616,431	725,819,746	1
19	-	10,516	45	376	86,143	44,725	130,860	2
65	9	64,489	98	1,957	134,444	237,041	371,485	3
820	8	824,405	1,302	11,029	675,489	1,618,646	2,294,135	4
2,089	2,673	3,888,313	5,741	87,479	12,065,490	10,642,209	22,707,699	5
3,014	279	2,630,039	19,715	27,459	5,214,702	5,142,353	10,357,055	6
2,122	8	2,358,045	721	6,493	5,268,973	4,617,726	9,886,699	7
128	-	140,882	4,680	90,643	330,928	308,179	639,107	8
102	43	119,675	729	264	98,710	329,127	427,837	9
580	99	676,143	2,200	42,893	1,312,374	1,872,964	3,185,338	10
569	3	590,360	1,881	10,326	2,573,766	1,255,787	3,829,558	11
81	24	68,052	545	458	98,224	146,794	245,018	12
11,406	483	11,907,435	20,919	379,881	17,735,090	26,401,096	44,136,176	13
347	154	405,346	892	10,596	246,405	1,083,158	1,329,651	14
3,265	1,321	6,350,426	5,472	74,817	6,544,369	15,137,896	21,682,265	15
1,115	62	1,064,093	3,631	10,977	1,819,664	2,706,793	4,586,457	16
686	206	999,312	3,030	65,216	4,237,803	3,853,129	8,090,932	17
11,473	113	12,412,852	54,131	187,598	31,679,455	24,912,633	56,592,088	18
7,560	2,679	12,285,615	10,262	157,314	13,761,259	20,987,456	43,748,715	19
8,626	1,564	11,928,311	23,083	338,179	10,424,412	57,248,026	73,673,338	20
29,585	869	40,822,544	1,542,197	12,250,518	96,874,749	147,098,012	243,970,761	21
337	6	434,632	1,311	88,543	3,018,273	3,093,390	6,111,663	22
44,501	79	32,265,404	312,643	389,155	83,743,952	63,245,612	146,989,564	23
343	106	406,726	1,047	11,725	943,709	1,240,313	2,184,023	24
436	745	1,022,379	1,027	15,889	4,111,459	2,903,114	7,014,573	25
310	6	505,264	586	14,657	170,616	1,196,036	1,366,652	26
402	22	292,157	760	2,578	425,660	591,876	1,017,530	27
516	84	404,520	2,211	7,898	480,796	970,918	1,457,714	28
1,228	109	1,238,815	1,984	138,459	4,120,285	3,672,559	7,792,844	29
113,031	3,345	153,523,211	529,162	11,779,052	384,925,640	353,687,320	738,012,980	1
9,534	109	11,452,533	26,244	550,238	19,016,981	21,642,408	40,650,479	2
13,922	223	21,637,200	38,074	800,166	120,332,694	56,982,899	177,315,593	3
3,878	300	5,532,692	9,628	207,840	19,045,836	12,019,242	31,065,078	4
386	39	535,819	1,023	20,828	1,132,219	1,338,164	2,470,383	5
1,789	3	2,251,354	7,631	101,185	5,001,406	4,914,872	10,006,278	6
20,467	329	25,086,510	60,112	1,724,305	35,904,441	55,580,705	91,575,146	7
5,507	869	6,496,516	16,342	373,617	9,071,258	18,887,054	27,658,312	8
2,980	8	3,929,881	8,079	74,600	8,451,363	8,706,800	17,152,169	9
9,746	253	12,391,072	34,308	399,079	22,264,416	43,428,123	65,692,539	10
23,823	35	34,677,205	94,054	1,857,090	74,156,037	52,331,000	126,487,037	11
7,085	864	8,697,242	13,338	374,491	28,076,595	25,075,103	53,151,698	12
10,479	27	16,788,661	207,247	5,064,542	32,514,596	39,717,399	72,231,995	13
3,435	286	4,046,496	12,992	233,175	9,777,818	11,809,455	21,047,273	14

6.—Statistics of the Numbers, Capital, Employees, Salaries and Wages, Cost of
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No.	Group and Industry.	Establish- ments.	Capital Employed.	Salaried Employees.		
				Male.	Female.	Salaries.
		No.	\$	No.	No.	\$
GROUP 6.—NON-FERROUS METAL PRODUCTS.						
	Totals	408	298,721,166	5,688	2,017	14,285,983
1	Aluminium products	14	5,264,388	70	13	168,432
2	Brass and copper products	102	27,431,520	801	214	1,917,786
3	Electrical apparatus and supplies	139	101,767,168	3,503	1,452	8,886,186
4	Lead, tin and zinc products	28	5,983,683	100	61	270,844
5	Miscellaneous non-ferrous metal products	17	788,359	446	6	130,813
6	Non-ferrous metal smelting and refining	10	146,699,085	621	63	1,753,840
7	Precious metal products	98	10,781,903	377	208	1,157,782
GROUP 7.—NON-METALLIC MINERAL PRODUCTS.						
	Totals	1,188	329,448,844	3,212	763	7,838,959
1	Abrasive products	12	6,683,533	74	27	239,725
2	Aerated and mineral waters	345	12,756,026	442	95	805,001
3	Asbestos and allied products	12	2,949,712	48	17	132,287
4	Cement	11	50,881,818	114	10	260,579
5	Cement products	153	5,024,497	176	18	335,900
6	Clay products from domestic clays	196	34,190,056	365	50	911,445
7	Clay products from imported clays	15	3,472,052	67	24	250,835
8	Coke and gas products	43	94,749,062	652	237	1,469,347
9	Glass products	60	16,289,364	290	91	782,026
10	Lime	53	7,404,677	91	18	158,604
11	Miscellaneous non-metallic products	23	9,747,157	115	43	389,362
12	Petroleum products	25	71,260,450	445	65	1,253,171
13	Salt	8	4,576,543	41	12	102,502
14	Sand-lime brick	12	2,356,726	23	2	61,691
15	Stone, ornamental and monumental	220	7,107,102	269	54	596,475
GROUP 8.—CHEMICALS AND ALLIED PRODUCTS.						
	Totals	554	165,886,912	3,286	1,280	9,527,502
1	Acids, alkalis, salts	15	49,417,431	355	26	820,290
2	Adhesives	13	1,850,273	54	15	140,716
3	Coal tar and its products	10	4,982,333	26	5	85,116
4	Explosives, ammunition and fireworks	8	14,493,270	122	8	307,175
5	Fertilizers	12	2,991,783	36	11	81,767
6	Flavouring extracts	23	1,644,497	112	45	303,717
7	Gases, compressed	27	4,095,560	202	90	444,440
8	Inks	22	2,597,263	107	31	450,780
9	Medicinal and pharmaceutical preparations	140	19,552,949	633	381	2,011,415
10	Miscellaneous chemical industries	69	12,307,112	296	166	906,558
11	Paints, pigments and varnishes	69	26,471,976	689	220	2,191,585
12	Polishes and dressings	20	1,253,657	48	21	133,607
13	Soaps and washing compounds	61	18,152,849	491	157	1,263,324
14	Toilet preparations	49	3,121,617	100	104	355,327
15	Wood distillates and extracts	7	2,054,342	16	-	31,685
GROUP 9.—MISCELLANEOUS INDUSTRIES.						
	Totals	463	130,118,324	2,721	725	7,667,233
1	Advertising and other novelties	11	391,116	19	18	43,834
2	Aeroplanes	4	1,868,290	36	18	180,972
3	Artificial feathers and flowers	7	235,161	13	15	34,783
4	Bridge building	10	28,895,206	921	107	2,599,382
5	Brooms, brushes and mops	78	4,385,774	187	76	492,843
6	Buttons	13	1,517,123	41	15	131,422
7	Candles and tapers	10	536,222	10	3	30,073
8	Fountain pens	6	1,924,478	72	30	209,132
9	Ice, artificial	31	4,728,388	39	11	101,428
10	Jewel cases and silverware cabinets	6	257,076	11	13	30,611
11	Mattresses and springs	66	8,888,088	214	74	709,035
12	Motion picture films	6	786,028	54	16	103,376
13	Musical instruments and materials	42	14,401,537	263	92	707,750
14	Refrigerators	10	1,411,062	30	12	77,509
15	Regalia and society emblems	12	225,260	10	12	33,369
16	Scientific and professional equipment	23	16,143,983	128	76	443,647
17	Shipbuilding and repairs	41	40,311,341	509	62	1,283,606
18	Stamps and stencils	30	636,770	57	23	145,529
19	Statuary, art goods and church supplies	28	738,527	35	19	87,740
20	Store and display fixtures	3	249,844	12	5	25,347
21	Toys and games	10	261,881	10	3	22,068
22	Typewriter supplies	4	640,973	20	14	115,749
23	Umbrellas	9	536,293	20	11	58,207
24	All other industries	3	147,903	4	-	8,921
GROUP 10.—CENTRAL ELECTRIC STATIONS.						
	Totals	1,024	1,055,731,532	5,505	1,309	11,512,782

Materials and Value of Products of Canadian Manufacturing Industries, 1929—
cluded.

Wage-Earners.			Power Installed.	Cost of Fuel.	Cost of Materials.	Values of Products.		No.
Male.	Female.	Wages.				Net.	Gross.	
No.	No.	\$	H.P.	\$	\$	\$	\$	
27,466	4,786	40,215,823	351,752	3,932,473	124,900,632	158,645,034	293,545,666	
582	78	761,784	2,605	43,544	2,754,726	1,509,075	4,263,801	1
4,668	459	5,882,805	15,887	348,364	21,118,038	14,907,543	36,115,581	2
12,352	3,564	17,838,729	68,013	656,506	40,623,322	64,172,680	113,796,002	3
501	93	658,451	3,150	60,499	4,757,366	1,708,802	6,406,168	4
142	42	214,432	197	7,625	317,130	798,923	1,110,053	5
7,408	27	12,018,553	258,848	2,757,478	41,410,446	68,438,022	109,854,468	6
1,823	523	2,811,069	3,052	58,367	4,913,604	7,019,989	11,933,593	7
26,526	930	33,672,887	210,904	14,882,045	117,149,130	124,874,388	242,021,518	
721	6	1,031,173	4,197	32,563	2,905,928	6,056,023	8,961,951	1
1,533	104	1,688,455	2,300	80,313	4,570,027	7,673,191	12,249,218	2
264	22	227,146	1,060	54,621	1,348,460	938,178	2,286,638	3
2,422	-	3,263,016	78,732	3,401,750	-	10,337,235	10,337,235	4
1,150	3	1,272,332	2,815	49,907	1,502,952	2,016,465	4,410,417	5
5,115	-	4,785,569	28,357	2,471,317	-	13,904,643	13,904,643	6
698	83	862,046	890	202,793	992,160	2,380,888	3,373,038	7
3,009	4	4,469,467	24,656	2,379,559	18,517,214	21,393,229	39,910,443	8
3,182	385	3,958,650	7,325	1,156,133	5,355,150	10,152,286	15,507,442	9
1,273	-	1,214,488	12,197	1,114,264	-	5,908,610	5,908,610	10
874	250	835,220	9,355	128,552	2,035,905	3,964,792	6,000,697	11
4,444	24	6,900,451	26,591	3,504,202	76,861,939	22,546,375	99,408,314	12
329	42	413,951	937	237,128	-	1,578,086	1,578,086	13
278	1	279,314	1,540	46,100	264,465	689,261	953,726	14
1,534	6	2,451,609	8,883	22,843	2,788,934	5,435,126	8,224,060	15
9,390	2,738	13,111,947	83,935	1,841,368	55,184,337	83,360,884	138,545,221	
2,509	8	3,518,396	51,668	704,732	6,301,121	21,720,851	28,021,072	1
188	10	180,580	982	55,845	902,940	867,704	1,830,644	2
210	1	268,854	283	118,631	2,658,555	1,150,405	3,818,050	3
1,029	286	1,274,180	4,408	154,554	3,940,702	6,968,076	10,828,778	4
204	-	183,883	673	8,373	1,450,253	808,527	2,258,780	5
56	114	132,011	114	7,568	1,013,402	797,494	1,810,806	6
244	6	325,984	6,622	20,091	785,377	3,182,039	3,907,416	7
228	26	334,908	985	13,890	1,097,315	1,940,734	3,038,049	8
789	1,046	1,660,598	1,806	72,315	6,300,890	12,738,000	19,038,804	9
860	417	1,167,047	4,716	80,321	4,289,921	5,818,477	10,108,398	10
1,712	230	2,068,434	6,429	199,223	12,414,820	14,688,636	27,103,465	11
92	55	145,904	433	6,461	630,861	725,362	1,356,233	12
956	271	1,315,183	4,374	230,430	11,002,034	6,216,692	19,218,726	13
105	268	312,012	222	7,942	1,577,042	2,873,946	4,451,588	14
229	-	223,457	520	160,090	738,491	654,851	1,693,312	15
15,570	2,033	21,456,214	73,259	658,775	42,982,071	60,091,591	103,073,662	
60	82	98,198	60	279	230,226	311,195	541,421	1
154	0	220,694	108	5,565	727,832	313,013	1,040,845	2
11	76	50,064	8	191	103,702	154,764	258,556	3
3,949	-	6,338,045	19,771	192,281	14,557,679	19,621,800	34,179,489	4
968	254	949,398	1,711	23,098	2,004,803	2,493,033	4,497,936	5
211	191	255,034	543	10,278	278,825	676,431	955,256	6
41	23	40,037	50	5,226	201,902	192,250	391,152	7
144	118	233,042	272	2,154	954,917	1,894,967	2,849,884	8
248	5	307,153	8,277	7,632	76,019	1,405,859	1,482,778	9
62	54	104,276	119	1,411	125,085	227,092	353,077	10
1,365	273	1,763,871	4,415	53,926	5,545,242	5,301,461	10,906,703	11
65	22	124,894	10	1,733	335,902	364,540	790,442	12
2,197	182	2,632,056	5,246	117,847	6,802,758	6,702,480	13,505,238	13
251	4	281,903	666	2,220	537,621	798,069	1,346,590	14
23	42	52,243	22	705	96,608	154,733	251,341	15
455	204	815,113	3,203	49,770	3,199,528	4,064,123	8,163,651	16
4,715	11	6,189,259	27,940	164,900	5,007,297	11,885,728	17,493,025	17
195	9	256,125	161	5,389	112,146	627,587	739,734	18
81	6	55,703	86	3,428	444,073	807,610	1,251,683	19
83	39	86,522	92	2,441	157,411	268,907	426,318	20
43	23	81,381	153	4,847	330,300	377,099	707,390	21
45	131	108,017	36	391	355,688	249,175	604,863	22
20	9	25,188	70	1,077	36,080	75,919	111,899	23
9,350	-	13,319,639	5,097,443	3,614,395	34,615,939	122,883,446	157,499,385	

Subsection 2.—Manufactures Classified by the Purpose of the Products.

Production of Manufactured Goods according to the Purpose Classification.—In addition to the classification according to the chief component material of the products, used for the industrial census in detailed presentation, a separate and distinct classification, based on the chief purpose of the products, was applied for the first time to the census returns of 1922 and is presented for the years 1922 and 1926 to 1928 in summary form, and for 1929 in more detail, in Table 7.

During the period covered by the table, the gross production of the food industries dropped from 27.5 p.c. of the total of all industries in 1922 to 20.6 p.c. in 1929. On the other hand the gross production of the group "vehicles and vessels", which includes automobiles, rose from 6.3 p.c. of the total for 1922 to 10.0 p.c. in 1929. Producers' materials also rose from 26 p.c. to 28.3 p.c., and industrial equipment from 17.1 p.c. to 19.0 p.c. The percentage of the clothing industries remained about stationary, being 8.9 p.c. in 1929 as compared with 9.7 p.c. in 1922.

In analysing the relative standing of the two purpose groups which are perhaps of greatest interest, it is noted that the gross production of the food industries in 1929 was 21 p.c. of the output of Canadian manufacturing concerns, as compared with an output of 9 p.c. for the clothing industries. Aside from the fact that a much larger proportion of its products is exported, the greater production of the food group was in part due to the higher cost of raw materials, the value added by manufacturing being 12.0 p.c. of the total for all industries in the case of the food group and 9.4 p.c. for the clothing group. The clothing industries gave employment to approximately 12,000 more employees than the food industries.

7.—Principal Statistics of the Manufacturing Industries of Canada, Classified according to the Purpose of the Principal Product, by Main Groups for 1922 and 1926-28¹ and in Detail for 1929.

(All establishments irrespective of the number of employees.)

Purpose Heading.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Net Value of Products.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$	\$
Totals 1922.^{1,2}	22,184	3,125,772,761	462,573	497,113,554	1,280,527,079	1,159,316,687	2,439,843,766
Food	8,245	341,662,489	66,444	67,306,446	490,731,438	181,434,270	672,165,708
Drink and tobacco	496	104,047,461	13,402	13,777,980	33,027,203	66,502,616	99,529,819
Clothing	1,279	175,076,687	70,031	65,595,519	118,749,053	117,804,140	236,553,183
Personal utilities	936	56,069,262	16,904	17,080,049	21,879,031	35,379,445	57,258,476
House furnishings	600	75,168,053	18,032	19,861,883	24,956,960	38,004,000	62,961,050
Books and stationery	1,557	82,240,691	28,103	36,920,804	27,190,071	71,928,898	99,118,969
Vehicles and vessels	1,116	158,708,055	26,865	33,488,804	86,057,295	67,020,660	153,077,925
Producers' materials	5,285	1,011,208,819	135,845	139,533,410	316,400,400	319,818,227	636,218,627
Industrial equipment	2,640	1,116,579,810	85,178	102,487,465	158,571,274	259,472,307	418,043,581
Miscellaneous ²	30	4,960,434	869	1,061,388	2,965,354	1,952,064	4,916,418

¹For details for the years 1922-1928 see the Canada Year Book as follows: 1924, p. 393; 1925, p. 410; 1926, p. 396; 1927-28, p. 426; 1929, p. 432; 1930, p. 410; 1931, p. 431.

²In the original compilation of manufacturing statistics for 1922 certain industries, notably ship-building, bridge-building, and some non-metallic mineral industries were excluded. Later these industries were included and the statistics by provinces and groups for 1922 appearing in Tables 1 and 2 were revised accordingly, but a similar revision has not been worked out for the purpose classification.

7.—Principal Statistics of the Manufacturing Industries of Canada, Classified according to the Purpose of the Principal Product, by Main Groups for 1922 and 1926-28 and in Detail for 1929—continued.

(All establishments irrespective of the number of employees.)

Purpose Heading.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Net Value of Products.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$	\$
1926.¹	22,708	3,981,569,590	581,539	653,850,833	1,755,158,399	1,492,645,839	3,217,903,438
Food.....	8,259	394,159,943	87,343	78,143,619	581,403,701	201,819,393	783,223,084
Drink and tobacco.....	574	137,139,189	15,341	16,817,622	45,115,122	85,780,145	130,895,267
Clothing.....	1,878	211,149,085	91,215	85,361,018	158,935,630	147,616,042	306,551,672
Personal utilities.....	384	50,497,988	10,633	12,470,247	24,236,592	25,487,509	49,724,011
House furnishings.....	543	60,277,954	15,684	16,858,540	22,673,689	32,679,963	55,353,652
Books and stationery.....	1,716	108,582,186	31,500	43,781,918	34,575,475	81,543,751	116,119,226
Vehicles and vessels.....	917	271,239,055	50,731	70,315,573	178,558,815	119,505,351	298,064,166
Producers' materials.....	5,807	1,404,599,475	182,599	206,672,939	453,319,993	482,446,753	935,766,746
Industrial equipment.....	2,457	1,313,175,892	91,956	118,162,492	240,231,533	302,683,501	542,915,034
Miscellaneous.....	173	30,838,823	4,537	5,266,956	16,107,849	13,082,631	29,190,480
1927.¹	22,936	1,337,631,558	618,933	693,932,228	1,789,574,604	1,635,923,936	3,425,498,540
Food.....	8,306	418,151,619	88,967	81,722,970	586,128,295	216,875,935	803,004,230
Drink and tobacco.....	570	160,100,581	10,276	18,312,164	52,850,437	106,706,731	159,557,168
Clothing.....	1,988	227,438,240	97,918	91,236,118	161,946,983	166,769,340	328,716,323
Personal utilities.....	391	54,029,497	10,754	12,758,956	26,061,404	27,133,729	53,195,133
House furnishings.....	553	63,578,269	17,438	19,151,982	26,474,235	36,313,804	68,788,039
Books and stationery.....	1,795	120,028,624	33,732	46,913,071	38,755,189	90,339,506	129,093,695
Vehicles and vessels.....	872	279,080,490	49,885	70,622,546	174,846,848	124,565,024	299,411,872
Producers' materials.....	5,762	1,521,762,956	200,335	219,116,312	450,761,472	519,850,940	970,012,412
Industrial equipment.....	2,533	1,460,936,792	99,200	129,147,304	255,618,507	333,530,379	589,148,976
Miscellaneous.....	166	32,524,580	4,428	4,950,805	16,131,144	13,839,548	29,970,692
1928.¹	23,379	1,740,296,019	658,023	755,199,372	1,950,801,339	1,819,016,025	3,769,850,364
Food.....	8,212	440,873,879	90,473	81,006,204	605,692,720	226,907,992	832,600,712
Drink and tobacco.....	596	183,028,239	17,806	20,492,585	62,541,589	127,972,285	190,513,874
Clothing.....	2,062	242,010,963	104,008	98,069,749	179,344,512	180,265,193	359,609,705
Personal utilities.....	390	54,569,674	11,294	12,990,442	26,245,820	30,281,015	56,527,435
House furnishings.....	598	72,394,155	19,807	21,811,858	27,753,455	41,667,051	73,350,500
Books and stationery.....	1,893	131,944,080	36,156	51,902,487	43,096,386	100,848,835	143,939,221
Vehicles and vessels.....	859	296,174,301	58,022	85,268,214	200,180,697	136,215,594	336,309,291
Producers' materials.....	6,001	1,729,056,251	210,235	235,816,963	504,241,541	576,706,854	1,080,948,395
Industrial equipment.....	2,604	1,595,482,231	105,647	139,693,545	280,923,071	383,193,287	664,116,358
Miscellaneous.....	167	34,762,276	4,075	5,057,298	16,790,548	15,057,319	31,847,867
1929.	23,597	5,083,014,754	694,434	813,019,842	2,066,636,914	1,997,340,365	4,063,987,279
Food	8,351	463,981,558	94,707	87,960,036	597,396,238	240,590,146	837,985,384
Breadstuffs.....	4,207	183,724,040	37,385	39,631,176	223,360,926	107,136,085	330,497,011
Fish.....	730	28,644,442	16,367	5,411,855	21,460,859	13,469,401	34,960,260
Fruits and vegetables.....	338	43,177,562	10,778	5,837,839	25,889,414	18,918,137	44,907,551
Meats.....	1,12	68,933,907	11,024	14,337,967	153,534,359	34,680,204	188,220,563
Milk products.....	2,797	57,098,215	12,740	13,826,891	104,418,003	36,971,994	141,389,997
Oils and fats.....	5	862,240	125	145,846	310,605	220,281	530,886
Sugar industries.....	25	44,619,750	2,445	3,818,294	37,468,349	11,987,731	49,456,080
Infusions.....	59	15,402,253	1,701	2,305,912	21,025,868	6,945,922	27,971,790
Miscellaneous.....	78	21,522,149	2,136	2,644,256	9,891,855	10,254,391	20,146,246
Drink and							
Tobacco	599	201,365,785	18,976	21,670,376	65,410,953	143,528,945	208,968,998
Beverages, alcoholic.....	98	130,601,367	7,058	10,266,753	32,063,128	74,949,213	106,013,341
Beverages, non-alcoholic.....	392	20,671,394	2,585	3,048,616	7,719,394	10,071,057	17,790,451
Tobacco.....	109	50,093,024	9,333	8,355,013	25,650,531	59,508,675	85,165,206
Clothing	2,054	256,215,736	106,641	100,863,405	176,130,221	186,881,746	363,011,970
Boots and shoes.....	201	48,208,164	23,588	22,259,422	35,042,830	42,942,684	77,985,514
Fur goods.....	234	14,338,686	3,767	4,783,323	12,847,817	8,013,222	50,861,039
Garments and personal furnishings.....	845	78,564,807	39,825	38,904,211	80,150,205	71,568,261	151,727,466
Gloves and mitts.....	49	3,543,130	1,705	1,405,800	2,847,839	2,084,605	4,932,534
Hats and caps.....	159	7,944,431	4,777	4,541,531	7,814,338	7,967,594	15,781,932
Knitted goods.....	168	66,489,608	19,609	16,294,536	31,193,505	29,904,247	61,067,052
Waterproofs.....	19	1,186,464	328	395,291	700,700	647,608	1,354,314
Miscellaneous textiles.....							
n.e.c.	379	29,941,346	13,042	12,279,268	5,517,984	23,753,435	29,271,419

For footnote, see opposite page.

7.—Principal Statistics of the Manufacturing Industries of Canada, Classified according to the Purpose of the Principal Product, by Main Groups for 1922 and 1926-28 and in Detail for 1929—concluded.

(All establishments irrespective of the number of employees.)

Purpose Heading.	Establishments.	Capital.	Employees.	Salaries and Wages.	Cost of Materials.	Net Value of Products.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$	\$
Personal Utilities	380	56,155,234	11,148	13,595,331	29,389,246	31,802,504	61,101,750
Jewellery and time-pieces.....	104	11,039,039	3,071	4,133,738	5,039,589	7,247,081	12,286,670
Recreational supplies.....	75	16,685,752	3,394	3,954,368	7,905,878	8,211,700	16,115,578
Personal utilities, n.o.s.....	201	28,430,443	4,683	5,507,225	16,445,779	16,343,723	32,789,502
House Furnishings	600	76,185,921	20,857	23,248,775	34,293,465	43,517,966	77,911,331
Books and Stationery.....	1,917	141,272,275	38,141	56,003,183	45,384,362	110,563,598	155,917,960
Vehicles and Vessels.....	781	310,942,038	61,835	91,239,185	243,258,350	164,689,298	407,947,648
Producers' Materials	6,210	1,772,309,696	222,104	257,233,327	523,139,599	628,251,154	1,151,390,753
Farm materials.....	12	2,991,783	251	265,650	1,450,253	808,527	2,258,780
Manufacturers' materials.....	1,047	1,303,335,995	125,319	162,158,197	336,733,514	430,042,875	760,776,389
Building materials.....	4,831	373,759,219	76,199	73,897,101	149,231,914	153,958,355	303,100,260
General materials.....	620	92,222,699	20,335	20,912,379	35,723,918	43,441,397	79,165,315
Industrial Equipment	2,600	1,774,844,446	116,086	156,651,963	339,197,388	433,129,753	772,327,141
Farming equipment.....	67	103,428,188	11,430	14,796,583	19,103,124	21,687,224	40,790,348
Manufacturing equipment.....	182	76,589,592	13,001	17,631,882	22,510,911	44,511,279	67,022,190
Trailing equipment.....	79	6,647,061	970	1,273,447	908,038	2,884,687	3,792,725
Service equipment.....	233	40,829,870	5,128	6,446,949	11,592,771	20,747,237	32,340,008
Light, heat and power equipment.....	1,277	1,335,728,852	48,295	69,052,321	185,665,994	236,507,415	422,173,409
General equipment.....	762	211,622,853	37,256	47,450,781	99,416,550	106,791,911	206,208,461
Miscellaneous	105	32,789,065	3,939	4,584,261	13,007,959	11,395,353	27,403,241

For footnote see p. 36

Subsection 3.—Manufactures Classified by Origin of the Materials.

Classification of Manufacturing Production according to the Origin of the Materials Worked Upon.—The principal statistics of the manufactures of Canada, classified upon the basis of "origin", are presented in Table 8 for the years 1924 and 1927 to 1929. By this means Canadian manufacturing production may be analysed from a new angle, one by means of which interesting comparisons may be made with the external trade classification according to origin.

The distinction made between farm materials of Canadian and foreign origin is based on whether the materials are indigenous to Canada rather than their actual source. Thus the industries included in the foreign origin classes are those depending upon materials which cannot be grown in Canada such as tea, coffee, spices, cane sugar, rice, rubber, cotton, silk, etc., but it should be understood that industries included in the Canadian origin classes may be using large quantities of imported corn, fruit, tobacco, hides, wool, etc.

The manufacturing statistics for 1924 were the first to be analysed upon the origin basis. While the period available for review only covers, therefore, the short space of the five years from 1924 to 1929, interesting changes have taken place in the relative importance of the industries based on materials from the different origins. Since the purpose of such a comparison is to discover the relative import-

ance of the manufacturing work done upon materials from the different origins, the figures of net value of products or the value added to the raw materials by the manufacturing processes will give a more accurate measure of the importance of the industrial groups than the figures of gross value of products. The values added in the manufacture of materials of farm origin, while increasing in amount, have dropped from 30.7 p.c. of the total for all industries in 1924 to 27.7 p.c. in 1929. Similarly, industries of the forest origin group have decreased from 23.8 p.c. in 1924 to 20.5 p.c. in 1929. On the other hand the values added by industries of the mineral origin group have increased from 27.9 p.c. of the total for all industries in 1924 to 35.7 p.c. in 1929. This rapid increase during the period under review in the relative importance of the industries of the mineral group was probably due to a number of influences. The expansion of the motor vehicle industry, the rapid growth in the use of electrical equipment, increasing activity in construction which absorbed large quantities of steel, cement and various other manufactured mineral products, and the development of metallurgical plants in Canada were some factors in the growing importance of the mineral group of industries. Another factor in this trend has been the growing appreciation and development of the wealth of the mineral resources of Canada. Not only have the various mining activities made the raw materials for mineral industries more readily available, but those activities have also required large quantities of machinery, electrical apparatus and other finished products of mineral origin.

In the year 1929, the industries of the mineral group exceeded those of any other group in the net value of products with 35.7 p.c. of the total, as compared with 27.7 p.c. for the farm and 20.5 p.c. for the forest origin groups. These three principal groups stood in the same order of importance with regard to employees engaged and salaries and wages paid. In the matter of capital invested the mineral group also led with 30.5 p.c. of the total, followed by the forest group with 22.6 p.c., central electric stations with 20.8 p.c., and the farm group with 19.6 p.c.

8.—Principal Statistics of the Manufacturing Industries of Canada, Classified according to the Origin of the Material Used, 1924 and 1927-29.¹

(All establishments irrespective of the number of employees.)

Origin.	Estab- lish- ments	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Net Value of Products.	Gross Value of Products.
1924.	No.	\$	No.	\$	\$	\$	\$
Totals.....	22,178	3,538,813,460	508,503	559,884,045	1,438,109,681	1,256,643,901	2,691,053,582
Farm origin—							
(a) From field crops.....	4,595	525,717,571	80,436	87,789,237	433,443,376	258,069,883	691,513,259
Canadian origin.....	4,311	299,158,049	51,462	53,793,131	270,753,367	169,716,464	440,469,831
Foreign origin.....	284	226,559,522	37,974	33,996,106	162,690,009	88,353,419	251,043,428
(b) From animal hus- bandry.....	4,080	253,858,982	64,671	66,696,501	285,502,644	127,504,777	413,007,421
Canadian origin.....	4,068	247,073,900	63,052	65,424,520	282,604,516	125,161,890	407,766,406
Foreign origin.....	18	6,785,082	1,619	1,271,975	2,898,128	2,342,887	5,241,015
(c) Totals, Farm Origin	8,681	779,576,553	154,107	154,485,738	718,946,020	385,574,660	1,101,520,680
Canadian origin.....	8,379	546,231,949	114,514	119,217,657	553,357,883	294,878,354	848,230,237
Foreign origin.....	302	233,344,604	39,593	35,268,081	165,588,137	90,696,306	256,284,443
Wild life origin.....	226	10,837,249	2,944	3,194,213	7,506,169	5,880,097	13,386,266
Marine origin.....	836	20,304,785	11,157	3,344,348	16,089,332	10,548,630	26,637,962
Forest origin.....	6,873	876,149,932	120,907	147,719,245	245,183,429	299,099,168	544,282,597
Mineral origin.....	2,806	1,010,517,944	136,837	171,068,497	349,800,585	350,201,512	700,002,097
Mixed origin.....	1,805	212,861,904	63,723	62,125,420	100,884,146	110,170,066	211,054,212
Central electric stations.....	951	628,565,093	12,828	17,146,584	—	95,169,768	95,169,768

¹Corresponding figures for 1925 and 1926 will be found in the 1930 Year Book, p. 412.

8.—Principal Statistics of the Manufacturing Industries of Canada, Classified according to the Origin of the Material Used, 1924 and 1927-29.—concluded.

(All establishments irrespective of the number of employees.)

Origin.	Estab- lish- ments	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Net Value of Products.	Gross Value of Products.
1927.	No.	\$	No.	\$	\$	\$	\$
Totals	22,936	4,337,631,558	618,933	693,932,228	1,789,574,604	1,635,923,936	3,425,498,540
Farm origin—							
(a) From field crops.....	4,977	613,855,706	104,850	103,980,849	495,122,606	332,027,953	827,150,559
Canadian origin.....	4,683	358,813,700	58,484	58,483,142	312,675,963	215,539,287	528,215,250
Foreign origin.....	294	255,042,006	46,366	45,507,707	182,446,643	116,488,666	298,935,309
(b) From animal hus- bandry.....	4,007	283,449,879	70,131	73,587,671	336,059,831	151,765,691	487,825,522
Canadian origin.....	3,993	261,122,061	67,241	71,247,700	332,043,200	146,211,405	478,254,605
Foreign origin.....	14	22,327,818	2,890	2,339,971	4,016,631	5,554,286	9,570,917
(c) Totals, Farm Origin	8,984	897,305,585	174,981	177,578,520	831,182,437	483,793,644	1,314,976,081
Canadian origin.....	8,676	619,935,761	125,725	129,730,842	644,719,165	361,750,692	1,006,469,855
Foreign origin.....	308	277,369,824	49,256	47,847,678	186,463,274	122,042,737	308,506,011
Wild life origin.....	244	14,489,527	3,880	4,588,689	13,462,752	9,413,528	22,876,280
Marine origin.....	773	24,454,482	16,697	5,373,951	18,364,840	12,719,763	31,084,600
Forest origin.....	6,770	1,020,144,230	149,738	166,921,448	270,764,265	355,741,746	626,506,011
Mineral origin.....	3,232	1,268,521,142	180,365	239,692,970	497,368,048	528,034,553	1,025,402,701
Mixed origin.....	1,836	245,891,001	78,584	76,830,335	127,646,986	142,187,305	299,834,291
Central electric stations..	1,097	866,825,285	14,708	22,946,315	30,785,270	104,033,297	134,818,567
Totals	23,379	4,780,296,049	658,023	755,199,372	1,950,804,339	1,819,046,025	3,769,850,364
Farm origin—							
(a) From field crops.....	5,035	654,648,894	110,502	110,960,496	513,481,501	363,530,939	877,012,440
Canadian origin.....	4,740	398,072,152	62,843	63,285,079	331,757,735	247,558,176	579,315,911
Foreign origin.....	295	256,576,742	47,659	47,675,417	181,723,766	115,972,763	297,696,529
(b) From animal hus- bandry.....	3,946	296,631,572	72,592	76,208,206	365,750,609	153,788,029	519,538,638
Canadian origin.....	3,930	270,471,869	68,659	72,766,657	361,111,892	147,529,473	508,641,365
Foreign origin.....	16	26,159,703	3,933	3,441,549	4,638,717	6,258,556	10,897,273
(c) Totals, Farm Origin	8,981	951,280,466	183,094	187,168,702	879,232,110	517,318,968	1,396,551,078
Canadian origin.....	8,670	668,544,021	131,502	136,051,736	692,869,627	395,087,649	1,087,957,276
Foreign origin.....	311	282,736,445	51,592	51,116,966	186,362,483	122,231,319	308,593,802
Wild life origin.....	237	14,934,287	3,810	4,692,505	14,127,017	9,150,348	23,277,365
Marine origin.....	713	26,941,283	15,434	5,291,096	20,578,767	15,688,965	36,267,732
Forest origin.....	7,241	1,155,561,945	157,153	178,151,066	292,149,341	387,224,205	670,373,546
Mineral origin.....	3,256	1,411,098,815	198,676	272,345,046	574,473,014	620,502,715	1,194,975,729
Mixed origin.....	1,902	263,559,650	84,001	83,493,537	138,878,454	156,834,005	295,712,459
Central electric stations..	1,049	950,919,603	15,855	24,087,420	31,365,636	112,326,819	143,092,455
Totals	23,597	5,083,014,754	694,434	813,049,842	2,066,636,914	1,997,350,265	4,063,987,279
Farm origin—							
(a) From field crops.....	5,191	697,206,163	114,236	115,201,292	496,842,580	392,232,666	880,075,246
Canadian origin.....	4,893	436,282,846	67,234	67,235,530	326,292,523	272,019,338	598,311,861
Foreign origin.....	298	260,923,317	47,002	47,965,762	170,550,057	120,213,328	290,763,385
(b) From animal hus- bandry.....	3,873	300,457,360	71,818	76,931,259	361,854,627	160,315,776	522,170,403
Canadian origin.....	3,850	272,178,703	67,446	73,105,463	355,763,503	151,930,820	507,694,323
Foreign origin.....	23	28,278,657	4,372	3,825,796	6,091,124	8,384,956	14,476,080
(c) Totals, Farm Origin	9,064	997,663,523	186,054	192,132,551	858,697,207	552,548,412	1,411,215,649
Canadian origin.....	8,743	708,461,549	134,680	140,340,993	682,056,026	423,950,158	1,106,006,184
Foreign origin.....	321	289,201,974	51,374	51,791,558	176,641,181	128,598,264	305,239,465
Wild life origin.....	234	14,338,686	3,767	4,783,323	12,847,817	8,013,222	20,861,039
Marine origin.....	730	28,644,442	16,367	5,411,855	21,496,859	13,469,401	34,966,260
Forest origin.....	7,353	1,148,558,242	163,863	191,044,307	313,088,964	409,180,102	722,269,066
Mineral origin.....	3,219	1,550,662,908	218,879	304,027,803	678,683,293	713,816,665	1,392,409,868
Mixed origin.....	1,973	287,415,421	89,340	90,818,182	147,206,925	177,439,087	324,646,012
Central electric stations..	1,024	1,055,736,532	16,164	24,831,821	34,615,939	122,889,446	157,499,385

Subsection 4.—The Forty Leading Manufacturing Industries.

The Forty Leading Industries in 1929.—The forty leading industries of Canada in 1929 are given in Table 9, arranged in descending order of gross production. Comparison with 1928, would indicate that there has been a change in the order of the ten leading industries. In 1929, pulp and paper was again in the lead

with an appreciable increase in production but slaughtering and meatpacking was in second place with a gross production of nearly \$186,000,000. The flour and grist mills, and butter and cheese industries both suffered reductions as regards gross values of production. Automobiles held its previous position, *viz.*, fourth, but with a substantially increased production. Without doubt the most important change was in connection with the railway rolling-stock industry, which rose from thirteenth place in 1928 to eighth place in 1929, and showed an increase in the value of gross production of from \$73,000,000 to \$126,000,000 or nearly 73 p.c. Rubber goods and footwear showed only a slight decline in production, but in 1929 ranked twelfth in importance instead of eighth, as in 1928. Machinery was an industry which showed a more than proportionate advance. In 1928 this industry ranked twenty-fifth with a gross production of \$51,000,000; by 1929 the value of the gross production had risen to \$66,000,000 and the industry occupied the nineteenth place.

The net value of products provides a better measure of an industry's contribution to the national income than gross values do. On the basis of net value, or value added by manufacture, the order of importance of the industries in 1929 was very different from that based on gross values. The pulp and paper industry was foremost in this respect also but it was followed by central electric stations, non-ferrous metal smelting, electrical apparatus, sawmills, printing and publishing, automobiles, castings and forgings, rubber goods, railway rolling stock, cigars and cigarettes, and machinery in the order given.

The central electric station industry represented the greatest investment of capital, while next in order were pulp and paper, sawmills, non-ferrous metal smelting, and iron blast furnaces and steel mills.

As a measure of the employment provided by an industry the salaries and wages paid are probably a better guide than the number of employees reported, especially in industries where operations are seasonal. In the amount of salaries and wages paid the pulp and paper industry came first, being followed by railway rolling stock, sawmills, castings and forgings, automobiles, electrical apparatus and supplies, printing and publishing, central electric stations and rubber goods. Each of these industries paid out, in salaries and wages, amounts in excess of \$20,000,000 during the year.

9.—Principal Statistics of Forty Leading Industries, 1929.

Industry.	Estab-lish-ments.	Capital.	Em-ployees.	Salaries and Wages.	Cost of Materials.	Values of Products.	
						Net.	Gross.
	No.	\$	No.	\$	\$	\$	\$
Pulp and paper.....	108	644,773,806	34,202	50,214,445	96,874,749	147,006,012	243,970,761
Slaughtering and meat-packing.....	74	67,777,803	10,762	13,998,710	151,814,517	34,029,385	185,842,902
Flour and grist mill products.....	1,325	67,773,534	6,618	7,578,276	150,806,065	30,342,024	181,148,689
Automobiles.....	17	98,378,301	16,435	26,804,808	120,332,694	56,982,899	177,315,593
Central electric stations.....	1,024	1,055,731,532	16,164	24,831,821	34,615,939	122,893,446	157,499,385
Sawmills.....	3,161	181,586,699	46,466	36,157,555	83,743,952	63,245,612	146,989,564
Butter and cheese.....	2,767	47,907,462	11,872	12,709,426	93,861,458	32,841,737	126,703,195
Railway rolling stock.....	35	94,416,563	25,488	38,311,179	74,156,037	52,331,000	126,487,037
Electrical apparatus and supplies.....	139	101,767,108	20,871	26,725,215	49,623,322	64,172,080	113,796,002
Non-ferrous metal smelting.....	10	146,699,085	8,119	13,772,393	41,416,446	68,438,022	109,854,468
Petroleum products.....	25	71,260,459	4,978	8,153,625	76,861,939	22,546,375	99,408,314
Rubber goods, including footwear.....	44	73,877,478	17,796	20,134,501	42,940,747	53,993,913	90,934,660
Castings and forgings.....	336	102,900,796	23,443	30,854,654	35,994,441	55,580,705	91,575,146
Cotton yarn and cloth.....	36	95,542,319	20,221	16,671,787	43,133,575	35,108,190	78,241,765
Bread and other bakery products.....	2,568	48,969,603	17,023	18,481,612	38,507,559	38,706,907	77,214,466
Printing and publishing.....	767	65,736,238	16,960	26,407,204	16,424,412	57,248,926	73,673,338

9.—Principal Statistics of Forty Leading Industries, 1929—concluded.

Industry.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Values of Products.	
						Net.	Gross.
	No.	\$	No.	\$	\$	\$	\$
Steel and rolled pro- ducts, pig iron, ferro- alloys, etc.	45	109,446,529	11,218	18,534,681	32,514,596	39,717,399	72,231,995
Clothing, women's fac- tory	461	25,087,862	17,024	17,128,421	34,558,860	31,787,557	66,346,417
Machinery	169	75,226,204	12,435	17,091,918	22,264,416	43,428,123	65,692,539
Cigars and cigarettes	72	34,025,963	6,382	5,735,252	17,012,776	47,318,724	64,331,500
Biscuits and confection- ery	281	55,320,902	13,073	12,765,876	27,717,889	34,774,912	62,492,801
Breweries	78	70,390,147	4,839	7,134,256	19,135,208	43,125,713	62,260,921
Hosiery, knitted goods and fabric gloves	168	66,489,608	19,609	16,294,536	31,193,505	29,904,247	61,097,752
Planing mills, sash and door factories	744	58,429,538	13,132	14,966,072	31,679,455	24,912,633	56,592,088
Sheet metal products	152	49,080,661	9,286	11,228,170	28,076,595	25,075,103	53,151,698
Clothing, men's factory	205	28,493,549	11,596	13,371,417	25,653,973	24,926,195	50,580,168
Boots and shoes, leather	191	31,028,229	15,563	15,031,101	25,510,731	23,116,859	48,627,590
Sugar refineries	8	43,534,113	2,325	3,686,037	35,640,124	11,511,830	47,151,960
Furniture and upholster- ing	367	41,851,682	13,082	14,512,073	17,735,090	26,401,086	44,136,176
Distilleries	20	60,211,220	2,219	3,132,497	12,928,920	30,823,500	43,752,420
Printing and bookbind- ing	910	43,506,712	12,378	16,695,127	13,761,259	29,987,450	43,748,715
Agricultural implements	62	103,356,773	11,408	14,775,889	19,016,981	21,642,498	40,659,479
Coke and gas products	43	94,749,062	3,902	5,938,814	18,517,214	21,393,229	39,910,443
Brass and copper pro- ducts	102	27,431,520	6,232	7,800,591	21,118,038	14,997,543	36,115,581
Fish-curing and packing	730	28,644,442	16,367	5,411,855	21,490,859	13,469,401	34,906,260
Bridgebuilding	10	28,895,206	4,977	8,937,427	14,547,679	19,621,809	34,179,488
Automobile supplies	65	19,401,890	4,708	6,711,434	19,045,836	12,919,242	31,965,078
Furnishing goods, men's	162	19,654,505	9,890	7,320,145	17,848,021	12,733,841	30,581,862
Acids, alkalies and salts	15	49,417,431	2,897	4,338,680	6,301,121	21,720,851	28,021,972
Coffee and spices	59	15,402,253	1,701	2,305,912	21,025,868	6,945,922	27,971,790
Totals, Forty Leading Industries	17,555	4,144,173,787	523,571	622,715,494	1,685,419,166	1,547,862,512	3,233,221,978
Grand Totals, All In- dustries	23,597	5,093,044,754	694,434	813,045,842	2,066,636,914	1,997,350,365	4,063,987,279
Percentages of forty leading industries to all industries	74.40	81.53	75.37	76.71	81.55	77.40	79.56

The Forty Leading Industries in 1930.—The completion of part of the compilation of the Census of Manufacturers for 1930 permits the inclusion, as Table 9A, of the forty leading industries in that year. It will be noticed that, compared with 1929, there has been very little change in the order of the ten leading industries when arranged according to gross production although there has been an appreciable decrease in the value of production in nearly every case. In 1930 pulp and paper was again in the lead, followed by slaughtering and meat-packing, and flour and grist mill products as in 1929 but central electric stations, which in the earlier year ranked fifth, was in fourth place in 1930. The automobile industry fell from fourth place in 1929 to ninth place in 1930 with a reduction of nearly 43 p.c. in the value of gross production. The electrical apparatus and supplies industry improved its position slightly.

On the basis of net value, or value added by manufacture, the order of importance of the industries in 1930 was very different from that based on gross values. The pulp and paper industry was foremost in this respect also, but it was followed by central electric stations; electrical apparatus; tobacco, cigars and cigarettes; printing and publishing; and non-ferrous metal smelting in the order given.

In salaries and wages paid the pulp and paper industry is followed by: railway rolling stock, sawmills, central electric stations, printing and publishing, and electrical apparatus in the order named.

9 A.—Principal Statistics of Forty Leading Industries, 1930.

Industry.	Estab-lish-ments.	Capital.	Em-employees.	Salaries and Wages.	Cost of Materials.	Values of Products.	
						Net.	Gross.
	No.	\$	No.	\$	\$	\$	\$
Pulp and paper.....	109	714,437,104	33,207	45,774,976	81,992,255	133,681,991	215,674,246
Slaughtering and meat-packing.....	76	60,778,996	9,290	12,114,667	129,004,327	35,025,626	164,029,953
Flour and grist mill products.....	1,277	62,617,007	5,923	6,679,113	119,677,686	25,178,260	144,855,946
Central electric stations.....	1,034	1,138,200,016	17,858	27,287,443	—	126,038,145	126,038,145
Sawmills.....	3,531	181,116,933	43,457	28,512,901	72,956,762	48,186,223	121,142,985
Butter and cheese.....	2,098	50,502,406	11,980	13,071,916	80,559,841	32,458,948	113,018,789
Railway rolling stock.....	37	95,785,040	25,952	37,625,050	60,289,445	44,633,250	104,922,701
Electrical apparatus and supplies.....	149	102,979,896	20,568	26,260,004	43,111,629	61,466,161	104,577,790
Automobiles.....	16	90,671,678	12,541	19,473,782	66,924,019	34,753,468	101,677,487
Non-ferrous metal smelting and refining.....	14	175,010,086	8,620	13,790,124	45,310,472	55,635,064	100,946,136
Petroleum products.....	28	70,334,381	5,134	8,190,130	71,800,429	19,986,776	91,787,205
Tobacco, cigars and cigarettes.....	103	51,376,115	8,906	7,837,711	24,286,734	61,385,052	85,671,786
Castings and forgings.....	340	100,318,189	20,499	25,871,261	28,262,602	45,971,069	74,233,671
Rubber goods, including footwear.....	47	69,104,512	15,163	15,895,479	28,821,759	44,930,914	73,752,673
Bread and other bakery products.....	2,697	51,914,170	17,736	19,444,533	36,582,843	37,012,051	73,594,894
Printing and publishing.....	776	66,860,624	17,063	26,937,052	15,993,916	56,019,255	72,013,171
Clothing, women's factory.....	455	23,432,441	16,782	16,483,011	35,759,351	26,056,597	61,815,948
Biscuits, confectionery, chocolate, etc.....	260	54,406,093	12,291	11,104,668	25,044,901	33,014,701	58,050,602
Breweries.....	73	67,637,142	4,642	6,756,634	16,534,273	40,986,816	57,521,089
Hosiery, knitted goods and fabric gloves.....	167	65,047,351	18,570	15,057,147	25,509,913	28,608,011	54,117,924
Machinery.....	174	69,454,103	11,044	15,089,887	18,326,621	35,422,861	53,740,482
Primary iron and steel.....	49	112,079,926	9,723	14,934,325	22,765,648	29,823,287	52,588,935
Cotton yarn and cloth.....	33	78,542,804	16,900	13,004,793	27,075,574	20,717,304	48,062,878
Sheet metal products.....	155	53,308,130	8,728	10,452,887	25,090,342	21,977,137	47,067,470
Sugar refineries.....	8	43,855,155	2,281	3,560,260	30,610,701	12,325,021	42,935,722
Clothing, men's factory.....	192	26,294,787	10,830	11,542,990	21,533,514	10,285,909	40,810,423
Boots and shoes, leather.....	179	28,162,582	13,922	12,858,062	20,521,726	19,057,185	40,478,911
Printing and bookbinding.....	905	38,837,176	11,567	15,663,048	11,942,885	25,998,902	37,941,787
Furniture and upholstery.....	366	41,495,827	11,980	12,774,596	13,817,450	23,048,745	36,866,195
Coke and gas products.....	41	89,987,235	3,970	5,864,802	17,082,364	19,510,495	36,592,859
Planing mills, sash and door factories.....	728	49,333,121	9,651	10,981,763	19,220,215	17,263,379	36,483,504
Fish-curing and packing.....	699	30,827,607	10,558	4,302,854	21,081,489	11,891,819	32,973,308
Fruit and vegetable canning, preserving, etc.....	249	35,119,475	9,137	4,155,595	19,816,763	11,041,652	31,458,415
Agricultural imple-ments.....	57	98,684,828	7,405	9,564,049	11,253,523	15,548,610	26,902,139
Bridge and structural steel work.....	13	28,922,951	4,943	8,686,062	12,549,435	13,506,348	26,055,783
Dyeing, cleaning and laundry work.....	387	28,351,092	12,732	12,141,767	2,807,911	22,004,753	25,472,604
Brass and copper pro-ducts.....	117	26,820,527	5,297	6,742,752	13,255,186	12,057,039	25,412,225
Furnishing goods, men's.....	158	17,597,012	8,965	6,437,718	14,790,909	10,363,401	25,154,310
Distilleries.....	16	61,533,825	1,965	2,435,924	6,616,520	18,309,341	24,925,861
Paints, pigments and varnishes.....	78	26,212,828	2,835	4,307,998	11,094,435	12,872,007	23,960,502
Totals, Forty Leading Industries.....	18,510	4,278,972,371	509,725	569,675,744	1,350,776,368	1,365,214,245	2,715,990,613
Grand Totals, All Industries.....	24,020	5,293,316,760	644,439	736,092,766	1,666,983,962	1,761,986,726	3,428,970,628
Percentages of forty leading industries to all industries.....	77.06	82.22	77.70	77.39	81.03	77.48	79.21

Section 3.—Provincial Distribution of Manufacturing Production.

Ontario and Quebec are the most important manufacturing provinces of Canada. Their combined production in 1929 amounted to \$3,264,000,000, or over 80 p.c. of the gross value of manufactured products of the Dominion. Of this amount Ontario contributed \$2,103,000,000 and Quebec \$1,160,000,000. The proximity of Ontario to the coal fields of Pennsylvania, the water-power resources of the two provinces and their nearness to the larger markets of Canada and the United States have all contributed to the above result. British Columbia had, in 1929, the third largest gross manufacturing production, \$277,000,000, and Manitoba the fourth, \$165,000,000. Alberta, Nova Scotia, Saskatchewan and New Brunswick followed in that order with gross production from \$107,557,000 to \$71,434,000, succeeded by Prince Edward Island with \$4,639,000.

Subsection 1.—The Manufactures of the Maritime Provinces, 1929.

Table 10 contains statistics of the ten leading industries of each of the Maritime Provinces for the year 1929. In Prince Edward Island the manufacture of butter and cheese, with a gross production in 1929 of \$1,096,630, was the leading industry, followed by fish-curing and -packing, with a gross production of \$870,876. Manufacturing in Nova Scotia and New Brunswick is, of course, to a considerable extent dominated by the steel industry in the former and the forest industries in the latter, although there is a large sugar refinery in each province. Fish-curing and -preserving, the manufacture of biscuits and confectionery, electric light and power production, and butter and cheese making are also of considerable relative importance. The sawmilling industry of New Brunswick, with a gross value of products in 1929 of \$12,164,604, provided over 8 p.c. of the total of the gross production of the industry throughout the Dominion and if the pulp and paper mills in New Brunswick with a production of \$10,106,069 be added these two forest industries provided 31 p.c. of the gross manufacturing production of the province.

10.—Statistics of Ten Leading Industries of each of the Maritime Provinces, 1929.

NOTE.—Other leading industries, statistics of which cannot be given because there are fewer than three establishments in each industry, are: in Prince Edward Island, tobacco and cigars, coffins and caskets, slaughtering and meat-packing and railway rolling stock; in Nova Scotia, petroleum, sugar refineries, coke and gas, and wire products; in New Brunswick, sugar refineries and railway rolling stock. The statistics for these industries are included in the grand totals.

PRINCE EDWARD ISLAND.

Industry.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$
Butter and cheese.....	38	273,648	114	74,942	912,728	1,096,630
Fish-curing and packing.....	100	179,968	1,264	103,748	631,140	870,876
Printing and publishing.....	4	250,808	104	88,800	29,162	204,319
Central electric stations.....	12	821,340	39	45,067	448	203,633
Flour mills.....	17	107,182	19	11,308	157,020	196,706
Bread or other bakery products.....	7	74,139	33	25,104	98,157	191,588
Castings and forgings.....	3	329,759	67	58,248	74,553	185,450
Sawmills.....	51	150,456	83	18,977	87,336	139,929
Totals, Eight Leading Industries	232	2,187,250	1,723	426,194	1,990,544	3,089,131
Grand Totals, All Industries	276	3,489,934	2,133	781,448	2,864,831	4,638,725

10.—Statistics of Ten Leading Industries of each of the Maritime Provinces, 1929—concluded.

NOVA SCOTIA.

Industry.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$
Steel and rolled products, pig iron, ferro-alloys, etc.....	6	28,626,944	2,150	3,352,388	7,780,915	16,044,488
Fish-curing and packing.....	242	3,805,820	4,086	1,238,813	5,440,337	8,216,653
Railway rolling stock.....	3	6,803,113	942	1,243,376	6,115,282	8,706,782
Central electric stations.....	80	16,094,608	618	725,001	725,468	3,813,379
Biscuits, confectionery, chocolate, etc.....	11	4,084,463	1,233	1,111,542	1,534,703	3,588,760
Sawmills.....	352	2,105,120	2,470	658,922	1,764,150	3,205,217
Butter and cheese.....	31	1,144,610	287	299,662	2,105,860	2,983,026
Shipbuilding and repairs.....	13	11,663,585	792	905,775	728,191	2,253,372
Hosiery, knitted goods and fabric gloves.....	3	3,713,979	613	437,997	1,145,646	2,238,550
Printing and publishing.....	32	2,292,598	665	901,568	414,774	2,047,368
Totals, Ten Leading Industries.	773	81,024,840	13,856	10,875,044	27,761,333	53,097,604
Grand Totals, All Industries...	1,195	135,662,325	20,966	17,925,190	51,566,523	91,292,816

NEW BRUNSWICK.

Sawmills.....	253	25,150,827	4,731	2,888,813	7,664,967	12,164,004
Pulp and paper.....	5	23,554,200	1,587	1,824,957	4,995,425	10,106,069
Fish-curing and packing.....	155	1,729,605	2,135	438,338	2,129,700	3,388,536
Cotton yarn and cloth.....	4	6,378,203	1,622	1,242,563	1,861,248	3,333,521
Coffee and spices.....	5	1,871,490	146	168,320	2,492,883	2,894,191
Central electric stations.....	41	26,215,709	327	389,927	608,312	2,816,978
Biscuits, confectionery, chocolate, etc.....	8	2,282,364	684	556,265	1,343,458	2,746,065
Slaughtering and meat-packing....	8	795,121	193	189,131	1,793,490	2,275,489
Butter and cheese.....	30	946,310	189	107,817	1,261,826	1,926,278
Castings and forgings.....	11	2,236,907	583	715,202	658,687	1,714,565
Totals, Ten Leading Industries.	526	91,166,826	12,199	8,611,333	24,869,996	43,366,296
Grand Totals, All Industries...	869	117,965,970	18,617	15,712,322	40,453,535	71,433,966

Subsection 2.—The Manufactures of Quebec, 1929.

The pulp and paper mills of Quebec, the most important manufacturing unit in the province, produced goods to the gross value of \$129,745,028 in the calendar year 1929. This exceeded by nearly \$59,000,000 the gross value of the products of the railway rolling-stock works (\$70,802,392), which was followed by the cotton yarn and cloth mills (\$59,147,128), and the manufacture of cigars and cigarettes

(\$55,179,216). These four industries were followed in order of gross value of products by the generation of electric light and power, the manufacture of men's clothing, of women's clothing and of leather boots and shoes.

The importance of the pulp and paper industry in Quebec is shown by a comparison with the industry throughout the Dominion. The Quebec industry, in addition to supplying over 11 p.c. of the total gross value of all products manufactured in the province, furnished nearly 53 p.c. of the products of pulp and paper mills throughout the country. The gross value of cotton yarn and cloth products from Quebec mills formed over 75 p.c., the gross value of cigars and cigarettes formed 86 p.c., the value of railway rolling stock 56 p.c., and the value of the boot and shoe products (the eighth industry in order of value of products) over 60 p.c. of the Dominion totals for these products. Thus Quebec is an outstanding manufacturing province rather on account of her great individual industries than because of the diversification of her industrial activities.

11.—Statistics of Forty Leading Industries of the Province of Quebec, 1929.

NOTE.—Leading industries having fewer than 3 establishments are sugar refineries, cement and bridge-building.

Industry.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$
Pulp and paper.....	49	353,401,187	17,862	25,933,911	49,805,089	129,745,028
Railway rolling stock.....	10	43,636,555	13,206	20,021,926	43,001,821	70,812,392
Cotton yarn and cloth.....	17	65,026,747	13,688	11,214,572	32,787,887	59,147,128
Cigars and cigarettes.....	36	27,644,106	5,187	4,635,072	14,429,042	55,179,216
Central electric stations.....	135	421,000,578	3,975	5,911,495	5,411,078	46,322,046
Clothing, men's factory.....	135	16,330,341	6,762	7,448,670	16,439,146	31,700,470
Clothing, women's factory.....	201	10,793,765	7,242	7,019,490	18,045,605	30,607,476
Boots and shoes, leather.....	112	18,266,739	9,745	9,222,767	15,513,386	29,395,381
Butter and cheese.....	1,389	8,331,727	2,264	1,492,492	23,044,923	29,172,614
Sawmills.....	1,044	41,289,126	9,980	4,935,878	18,392,483	28,342,626
Slaughtering and meat-packing.....	17	9,146,898	1,782	2,201,674	22,420,616	27,216,918
Electrical apparatus and supplies.....	18	30,623,818	6,709	8,611,716	12,070,651	27,204,759
Flour and feed mills.....	361	10,637,319	1,084	1,205,504	21,545,487	25,554,977
Non-ferrous metal smelting.....	3	40,251,596	1,507	2,130,224	9,218,355	24,096,120
Breweries.....	7	22,187,320	1,607	2,172,972	6,769,271	22,401,699
Bread and other bakery products.....	854	14,035,072	4,724	4,920,908	10,739,004	21,198,384
Distilleries.....	7	18,579,738	895	1,076,020	4,919,884	20,312,104
Rubber goods, including footwear.....	9	11,413,442	5,333	4,632,452	6,532,300	19,956,106
Castings and forgings.....	71	25,680,148	4,701	5,740,774	7,959,921	19,568,894
Tobacco, chewing, smoking, etc.....	30	15,212,658	2,711	2,437,461	7,354,296	19,252,553
Petroleum products.....	6	15,045,997	1,013	1,708,016	16,040,711	19,087,138
Machinery.....	28	24,086,518	4,387	5,971,919	6,613,086	17,643,571
Printing and publishing.....	65	15,747,157	4,406	5,976,421	4,087,217	17,161,735
Ice-creams, confectionery, chocolate, etc.....	54	12,115,138	3,609	2,967,460	7,766,807	15,450,474
Planing-mill products.....	276	14,378,644	3,585	3,539,829	8,657,671	14,864,724
Hosiery, knitted goods and fabric gloves.....	41	14,331,947	4,413	3,223,635	7,006,870	13,441,316
Furnishing goods, men's.....	76	8,421,608	4,847	3,057,236	7,683,187	12,902,611
Printing and bookbinding.....	257	11,374,193	3,398	4,403,873	3,512,562	11,233,448
Sheet metal products.....	19	10,497,493	2,156	2,451,635	5,837,051	10,726,363
Paints, pigments and varnishes.....	18	13,258,165	1,106	1,522,376	4,890,188	10,482,085
Steel and rolled products, pig iron and ferro-alloys.....	13	11,765,863	2,624	3,569,143	2,670,576	10,344,845
Acids, alkalis and salts.....	3	17,432,387	990	1,360,506	2,736,873	9,670,100
Shipbuilding and repairs.....	5	12,064,335	2,604	3,042,708	2,568,429	9,429,453
Silk and silk goods.....	12	18,368,727	2,569	2,132,391	3,620,406	8,327,576
Furniture, upholstered goods.....	71	5,934,651	2,582	2,772,333	3,190,275	8,000,568
Dyeing, cleaning and laundry work.....	79	8,633,980	3,418	3,157,116	1,181,254	7,815,698
Fur goods.....	77	6,350,380	1,417	1,762,253	5,296,166	7,746,570
Hardware and tools.....	27	13,700,716	1,494	1,629,400	2,231,743	7,624,672
Brass and copper products.....	20	7,526,075	1,677	2,326,293	3,205,289	7,273,691
Wire and wire goods.....	11	9,591,832	1,214	1,395,467	3,304,501	7,141,273
Totals, Forty Leading Industries	5,663	1,451,114,676	174,473	191,836,978	449,102,907	964,141,892
Gross Totals, All Industries	7,156	1,673,011,042	213,467	233,963,672	543,240,589	1,160,612,992
Percentages of forty industries to grand totals.....	79.2	86.9	81.7	82.0	82.7	83.1

Subsection 3.—The Manufactures of Ontario, 1929.

Ontario is the most important manufacturing province of the Dominion. The gross value of its manufactured products in 1929 represented nearly 52 p.c. of those of the whole Dominion, while those of Quebec, the second province in importance in this respect, amounted to about 29 p.c. This premier position in manufacturing has been fairly uniformly maintained by Ontario over a long period, as the following percentages show: in 1926, 52 p.c.; 1920, 50 p.c.; 1918, 53 p.c.; 1910, 50 p.c.; 1900, 50 p.c.; 1890, 51 p.c. and 1880, 51 p.c. Thus, in spite of the rapid industrial development in recent years in other provinces such as Quebec, British Columbia and Manitoba, Ontario is maintaining a manufacturing production more than equal to that of the remainder of the Dominion.

The automobile manufacturing industry of Ontario in 1929 came first in the value of its products. This amounted to \$166,032,688 as compared with \$94,-916,855 for the slaughtering and meat-packing industry, which held second place. Other important industries in descending order, with the value of their products in 1929, were: flour and grist mills, \$94,233,270; electrical apparatus and supplies, \$85,415,684; and pulp and paper, \$82,352,183. As compared with 1928, automobile manufacturing showed an increase of nearly \$4,000,000, and slaughtering and meat packing of over \$4,000,000, electrical apparatus and supplies of over \$13,000,000 and pulp and paper of \$8,000,000, while flour and grist mills decreased about \$12,000,000 from the figures for 1928.

Indicating the greater diversification of industry in Ontario as compared with Quebec, the percentages which the 40 leading industries bear to the total manufactures of the province are higher in nearly every particular in Quebec than in Ontario, especially in the capital employed and the number of establishments and employees. Outstanding among the industries in which the province of Ontario is pre-eminent is that of automobile manufacturing, which is carried on practically in this province alone. Other important industries in which Ontario leads, with the percentage which the production of each bore to that of the Dominion in 1929, are as follows: agricultural implements, 96 p.c.; leather tanneries, 87 p.c.; rubber goods, 79 p.c.; furniture and upholstering, 76 p.c.; fruit and vegetable canning, preserving, etc., 62 p.c.; electric apparatus and supplies, 75 p.c.; castings and forgings, 69 p.c.; steel and rolled products, pig iron, etc., 61 p.c.; slaughtering and meat-packing, 51 p.c.; flour and grist mill products, 52 p.c.; hosiery, knitted goods, etc., 71 p.c.

12.—Statistics of Forty Leading Industries of the Province of Ontario, 1929.

Industry.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$
Automobiles.....	11	90,922,872	15,138	24,773,644	111,481,435	166,032,688
Slaughtering and meat-packing....	25	33,772,742	4,035	6,278,579	77,329,864	94,916,855
Flour and grist mills.....	717	31,415,725	3,279	3,536,731	80,544,323	94,233,270
Electrical apparatus and supplies...	101	70,220,476	13,923	17,974,566	36,107,383	85,415,684
Pulp and paper.....	41	207,005,896	11,023	16,466,093	35,887,813	82,352,183
Rubber goods, including footwear...	33	61,881,704	12,374	15,392,963	36,161,259	76,324,660
Central electric stations.....	423	422,486,669	6,890	11,113,872	22,699,349	73,869,083
Castings and forgings.....	189	64,333,369	15,701	20,996,669	24,811,139	63,193,202
Butter and cheese.....	983	23,234,379	6,289	6,970,664	44,604,112	60,734,140
Non-ferrous metal smelting and refining.....	5	47,359,251	3,400	5,402,213	11,615,103	48,899,838
Machinery.....	120	49,279,134	7,690	10,618,220	15,033,682	46,225,251
Steel and rolled products, pig iron and ferro-alloys.....	18	66,941,099	5,915	10,985,718	21,591,893	43,739,532

12.—Statistics of Forty Leading Industries of the Province of Ontario, 1929—
concluded.

Industry.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$
Hosiery, knitted goods and fabric gloves.....	109	46,573,355	13,994	12,170,938	22,089,753	43,606,685
Agricultural implements.....	39	100,115,590	10,849	14,185,440	18,418,146	38,940,792
Petroleum products.....	9	27,228,752	2,341	3,731,654	26,878,563	36,058,623
Bread and other bakery products.....	1,007	21,158,759	7,947	8,854,267	17,576,925	35,546,101
Biscuits, confectionery, cocoa and chocolate.....	124	31,253,372	6,294	6,798,724	14,303,333	34,357,397
Furniture and upholstered goods.....	213	33,583,762	9,617	10,797,914	13,438,691	33,568,573
Printing and publishing.....	302	30,763,260	7,179	11,333,786	7,799,308	32,796,257
Sawmill products.....	887	49,952,290	10,523	7,460,556	18,586,171	32,743,346
Clothing, women's factory.....	219	13,091,553	8,783	9,232,035	14,568,710	32,499,648
Sheet metal products.....	84	20,669,539	5,559	6,022,199	16,871,313	32,430,632
Automobile supplies.....	42	18,918,196	4,453	6,371,778	18,729,655	31,226,312
Planing-mill products.....	315	30,677,143	6,083	7,120,071	16,714,267	28,247,225
Brass and copper products.....	65	17,886,997	3,819	4,728,149	16,323,011	25,737,217
Coke and gas products.....	21	49,142,427	2,512	3,816,991	11,035,200	25,294,463
Printing and bookbinding.....	413	22,916,083	6,237	8,466,313	7,349,809	23,349,466
Leather, tanned, etc.....	35	22,626,588	2,726	3,268,814	16,036,618	22,374,209
Distilleries.....	8	33,970,531	1,080	1,748,158	6,617,718	21,422,749
Breweries.....	36	23,253,458	6,796	2,569,052	6,446,365	20,100,743
Hardware and tools.....	85	21,712,390	5,465	6,462,577	6,364,396	18,977,571
Acids, alkalis and salts.....	8	31,481,134	1,856	2,888,550	3,411,885	17,908,582
Fruit and vegetable canning, etc.....	163	20,885,349	5,553	2,544,289	10,142,847	17,476,279
Boots and shoes, leather.....	65	11,223,085	5,304	5,318,864	9,035,900	17,468,700
Clothing, men's factory.....	54	11,342,079	4,180	5,466,724	8,420,705	17,432,412
Bridge building.....	6	17,754,370	2,772	4,828,814	7,717,128	16,721,877
Lithographing and engraving.....	68	15,950,075	4,013	6,450,906	4,570,872	15,581,426
Soaps and washing compounds.....	28	13,046,540	1,303	1,756,540	8,504,967	14,678,728
Woolen cloth.....	29	16,382,584	3,363	3,325,741	7,944,057	14,065,835
Cotton yarn and cloth.....	14	27,927,645	4,591	3,900,806	7,601,036	14,003,804
Totals, Forty Leading Industries	7,115	1,959,341,122	256,452	322,551,285	860,854,693	1,659,492,635
Grand Totals, All Industries...	9,910	2,418,340,450	339,859	421,789,723	1,080,166,598	2,103,990,789
Percentages of forty industries to grand totals.....	71.8	80.7	75.5	76.4	79.7	78.4

Subsection 4.—The Manufactures of the Prairie Provinces, 1929.

The flour-milling industry is outstanding among the manufactures of the Prairie Provinces. During 1929, as will be seen from Table 13, the gross value of the products of flour mills was greater in each province except Manitoba than that of any other industry, and amounted to \$17,126,466 in Manitoba, \$18,919,062 in Saskatchewan and \$19,796,461 in Alberta, a combined total of about 16 p.c. of the gross value of all manufactures in these provinces. The second industry in point of gross production was slaughtering and meat-packing, with products valued at \$22,370,467 in Manitoba, \$7,070,567 in Saskatchewan and \$19,455,869 in Alberta. Butter and cheese making showed a gross value of production of \$9,953,940 in Manitoba, \$8,471,388 in Saskatchewan and \$7,315,386 in Alberta.

The importance of these industries, based on such natural resources of the Prairie Provinces as grain-growing and cattle-raising areas, is evident. Attention may also be drawn to the generation of electric light and power in all three provinces and the refining of petroleum in Alberta.

13.—Statistics of Ten Leading Industries of Manitoba, Saskatchewan and Alberta, 1929.

NOTE.—Other leading industries, statistics of which cannot be given because there are fewer than three establishments in each industry, are: in Saskatchewan, petroleum refining and sheet metal products; in Alberta, railway rolling stock and cement. The statistics for these industries are included in the grand totals for the provinces.

MANITOBA.

Industry.	Estab-lish-ments.	Capital.	Em-ployees.	Salaries and Wages.	Cost of Materials.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$
Slaughtering and meat-packing.....	6	5,586,810	1,375	1,781,739	18,418,167	22,370,467
Flour mills.....	39	5,584,017	567	663,001	13,270,231	17,128,466
Railway rolling stock.....	3	8,957,876	3,797	5,706,402	5,363,303	11,702,007
Butter and cheese.....	70	1,140,627	993	1,357,117	6,850,062	9,953,940
Central electric stations.....	41	49,963,898	1,333	1,928,708	1,103,117	7,345,627
Printing and publishing.....	68	4,048,360	1,138	1,984,690	1,036,400	5,727,416
Breweries.....	8	5,853,640	567	905,129	1,384,908	6,643,871
Bags, cotton and jute.....	6	2,139,365	253	311,112	3,915,665	4,626,968
Printing and bookbinding.....	62	4,579,674	1,273	1,829,378	1,459,000	4,423,065
Coffee and spices.....	8	2,218,597	183	233,526	3,356,922	4,272,384
Totals, Ten Leading Industries.	311	83,172,873	11,479	16,730,802	56,138,435	93,392,211
Grand Totals, All Industries...	923	173,132,948	26,318	34,158,583	89,158,381	164,969,127

SASKATCHEWAN.

Flour mills.....	48	7,039,233	629	885,862	15,106,779	18,919,062
Butter and cheese.....	85	4,742,052	692	881,635	6,013,256	8,471,368
Slaughtering and meat-packing.....	3	2,975,498	562	711,135	5,889,622	7,070,567
Central electric stations.....	150	13,846,353	619	913,808	65,622	4,235,212
Printing and publishing.....	137	3,180,817	949	1,680,982	767,044	4,098,578
Breweries.....	8	3,589,315	231	317,436	1,307,241	3,344,124
Bread and other bakery products.....	115	2,464,440	637	756,251	1,472,449	3,091,608
Planing-mill products.....	15	2,198,238	493	665,180	1,187,815	2,300,938
Dyeing, cleaning and laundry work.....	17	1,104,674	403	419,354	139,639	897,342
Sawmills.....	39	877,601	757	250,917	390,001	808,488
Totals, Ten Leading Industries.	617	42,618,521	5,972	7,482,560	32,345,468	53,237,307
Grand Totals, All Industries...	761	58,877,124	8,047	10,438,759	51,208,827	80,501,159

ALBERTA.

Flour mills.....	35	9,948,201	754	1,027,269	15,724,470	19,796,461
Slaughtering and meat-packing.....	6	9,907,551	1,471	1,841,369	15,715,987	19,455,869
Petroleum products.....	4	7,745,833	448	716,007	9,065,313	12,738,164
Butter and cheese.....	100	3,381,051	528	652,093	5,617,870	7,315,386
Breweries.....	5	8,034,590	268	522,180	1,561,490	5,799,113
Central electric stations.....	67	24,840,437	742	1,160,322	732,216	5,118,696
Bread and other bakery products.....	137	3,530,774	729	852,158	1,844,470	3,948,109
Printing and publishing.....	77	3,970,656	751	1,306,183	675,349	3,833,574
Sawmills.....	100	2,806,585	1,628	778,345	1,370,324	2,852,440
Planing-mill products.....	19	2,013,633	424	587,965	936,843	1,821,508
Totals, Ten Leading Industries	559	76,188,311	7,743	9,505,451	53,240,438	82,679,320
Grand Totals, All Industries...	817	107,648,028	13,748	16,460,038	63,432,924	107,556,792

Subsection 5.—The Manufactures of British Columbia, 1929.¹

British Columbia was in 1929 the third most important manufacturing province in the Dominion, producing goods to a gross value of \$276,950,914. About 23 p.c. of this production, or \$64,637,301, is seen in Table 14 to be that of the saw-

¹Including Yukon Territory.

milling industry; the predominance of forest products industries in the industrial life of the province is emphasized if to this figure be added \$16,896,652, the gross value of products of the pulp and paper industry and \$3,797,721, that of the planing mills and sash and door factories. Second in importance among the industries of the province is that of fish-curing and packing, with a gross value of products of \$21,741,910, followed by the pulp and paper industry, electric light and power generation, and slaughtering and meat-packing.

14.—Statistics of Twenty-five Leading Industries of British Columbia, 1929.¹

NOTE.—Other leading industries, statistics of which cannot be given because there are fewer than three establishments in each industry, are non-ferrous metal smelting, sugar refining, cement and explosives. The statistics for these industries are included in the grand total of all industries in the province.

Industry.	Estab- lish- ments.	Capital.	Em- ployees	Salaries and Wages.	Cost of Materials.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$
Sawmills.....	371	56,724,482	15,430	18,605,076	34,628,185	64,637,301
Fish-curing and packing.....	139	22,461,580	7,760	3,488,589	12,820,915	21,741,910
Pulp and paper.....	6	47,590,726	3,077	5,068,733	4,383,848	16,896,652
Central electric stations.....	75	80,461,940	1,621	2,643,621	3,269,320	13,574,731
Slaughtering and meat-packing.....	6	5,375,432	662	917,300	9,644,221	11,744,300
Petroleum products.....	3	6,430,542	366	674,690	8,227,133	8,729,402
Printing and publishing.....	60	4,293,250	1,402	2,502,466	1,388,474	6,490,982
Bread and other baking products.....	217	3,506,965	1,285	1,412,964	2,894,875	5,638,328
Fruit and vegetable packery.....	27	3,975,704	1,208	809,957	3,064,693	5,562,664
Butter and cheese.....	35	1,713,058	510	752,104	3,450,815	5,049,793
Sheet metal products.....	19	7,612,247	562	839,986	2,907,837	5,017,420
Coffee and spices.....	8	945,870	105	136,367	3,115,504	4,175,431
Breweries.....	10	6,215,943	268	511,045	1,341,167	4,111,567
Planing-mill products.....	47	3,610,259	1,053	1,421,189	1,797,591	3,797,721
Dyeing, cleaning and laundry work.....	55	2,598,537	1,605	1,571,518	249,539	2,957,538
Coke and gas products.....	6	15,026,718	525	735,750	1,121,280	2,846,217
Castings and forgings.....	31	3,615,898	888	1,305,172	971,908	2,815,872
Shipbuilding.....	14	6,427,345	837	1,276,410	796,219	2,538,575
Biscuits, confectionery, cocoa and chocolate.....	46	1,458,086	491	516,521	1,131,660	2,500,798
Boxes and packing cases.....	17	1,282,265	587	627,589	1,386,698	2,467,057
Printing and bookbinding.....	73	1,890,072	629	846,810	692,382	2,148,566
Distilleries.....	4	7,196,863	229	284,376	1,360,898	1,948,768
Flour and feed mills.....	4	1,853,635	99	109,965	1,565,129	1,922,192
Paints and varnishes.....	9	1,550,529	167	213,227	766,301	1,462,649
Furniture and upholstery.....	38	1,622,018	502	551,152	571,892	1,421,199
Totals, Twenty-five Leading Industries.....	1,320	295,439,964	41,874	47,822,577	103,518,592	202,206,637
Grand Totals, All Industries...	1,699	394,866,933	51,379	61,996,197	144,664,706	276,950,914
Percentages of twenty-five leading industries to grand totals.....	77.6	74.8	81.5	77.2	71.6	73.0

¹ Including Yukon Territory.

Section 4.—Principal Factors in Manufacturing Production.

Subsection 1.—Capital Employed.

In a retrospective study of capital employed in Canadian manufactures since 1900, the remarkable increase denotes rapid growth in industrial operations. From 1900 to 1905 the capital increased from \$446,900,000 to \$833,900,000, and advanced to \$1,958,700,000 in 1915. During this period returns were received from establishments with 5 hands and over, and while the rise of wholesale prices did not exceed 37 p.c., the capital employed in manufactures increased nearly 340 p.c.

The capital investment in 1929 in all establishments irrespective of the number of employees was \$5,083,014,754, as compared with \$4,780,296,049 in 1928, and with \$3,244,302,410 in 1922, an increase of 57 p.c. in 7 years.

The provincial distribution of the manufactures of Canada may be illustrated by the investments of capital. Capital employed in Ontario during 1920 was 49.5 p.c. of the total, 52.5 p.c. in 1923, 50.4 p.c. in 1925, 49.2 p.c. in 1927 and 47.6 p.c. in 1929. The percentages employed in the plants of Quebec were: 30.5 in 1920, 30.8 in 1921, 29.5 in 1924, 30.6 in 1926, 33.1 in 1928 and 32.9 in 1929. British Columbia held the third place in 1929 with a capital of 7.8 p.c. of the total, while Manitoba, Nova Scotia, New Brunswick and Alberta followed in the order named, with proportions of between 3.4 p.c. and 2.1 p.c. each. (Table 15.)

From a survey of the industrial groups in which the capital of the country is invested, it appears that the wood and paper group led in 1929, with an investment of 22.7 p.c. of the total. The central electric station industry was second with 20.8 p.c., the iron and steel group third with 14.8 p.c., and the vegetable products group fourth with 11.2 p.c. (Table 16.)

The statistics of capital employed in the manufacturing industries are of interest in deducing the proportions of fixed and liquid assets. In 1921 lands, buildings and machinery constituted 60 p.c. of the total capital, while in 1923 the proportion had increased to 64 p.c., in 1924 to 65 p.c. and to 66 p.c. in 1926 to 1929. The fixed assets amounted to \$3,377,590,099 in 1929, while quick assets, including the materials on hand, stocks in process, cash and sundries, were valued at \$1,705,424,655. Details by industrial groups and by provinces are given in Table 17.

15.—Provincial Distribution of Capital Employed in the Manufacturing Industries of Canada, in Percentages, 1921-29.

Province.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.
Prince Edward Island....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Nova Scotia.....	3.3	3.3	3.3	3.2	3.1	3.0	2.9	2.9	2.7
New Brunswick.....	3.1	2.5	2.5	2.5	2.4	2.4	2.3	2.4	2.3
Quebec.....	30.8	29.9	29.9	29.5	29.9	30.6	31.7	33.1	32.9
Ontario.....	50.8	52.3	52.5	51.8	50.4	49.8	49.2	47.6	47.6
Manitoba.....	2.9	2.7	2.7	3.1	3.2	3.2	3.5	3.3	3.4
Saskatchewan.....	1.0	1.0	0.9	0.9	0.8	0.8	0.9	0.9	1.1
Alberta.....	1.7	1.7	1.8	1.9	1.8	1.8	1.9	2.0	2.1
British Columbia and Yukon.....	6.5	6.5	6.5	7.1	8.3	8.3	7.5	7.7	7.8
Totals.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

16.—Distribution of Capital Employed in the Manufacturing Industries of Canada, by Industrial Groups and Percentages, 1927-29.

Industrial Group.	1927.		1928.		1929.	
	Amount.	Percent- age.	Amount.	Percent- age.	Amount.	Percent- age.
	\$		\$		\$	
Vegetable products.....	494,178,054	11.4	531,918,725	11.1	569,064,835	11.2
Animal products.....	233,113,872	5.4	243,550,121	5.1	243,825,065	4.8
Textile products.....	346,512,165	8.0	365,721,591	7.7	383,153,797	7.5
Wood and paper.....	1,023,301,749	23.6	1,158,651,534	24.2	1,152,075,234	22.7
Iron and its products.....	638,014,893	14.7	702,931,186	14.7	754,989,106	14.8
Non-ferrous metals.....	208,957,166	4.8	253,367,370	5.3	298,721,106	5.9
Non-metallic minerals.....	280,033,057	6.4	298,693,122	6.3	329,448,844	6.5
Chemicals and allied pro- ducts.....	134,618,839	3.1	148,939,920	3.1	165,886,912	3.3
Miscellaneous industries.....	111,178,478	2.6	119,602,877	2.5	130,118,324	2.5
Central electric stations.....	866,825,285	20.0	956,910,603	20.0	1,055,731,532	20.8
Totals.....	4,337,631,558	100.0	4,780,296,049	100.0	5,083,014,754	100.0

17.—Forms of Capital Employed in the Manufacturing Industries of Canada, by Provinces and by Groups of Industries, 1929.

Province and Group.	Estab- lish- ments.	Land, Buildings, Fixtures, Machinery and Tools.	Materials on Hand, Stocks in Process, Finished Products, etc.	Cash, Trading and Operating Accounts and Bills Receivable.	Total Capital.
	No.	\$	\$	\$	\$
Totals.....	23,597	3,377,590,099	878,783,691	826,640,964	5,083,014,754
PROVINCE.					
Prince Edward Island.....	270	2,411,564	536,781	541,589	3,489,934
Nova Scotia.....	1,195	96,637,130	22,027,058	16,998,128	135,662,325
New Brunswick.....	860	75,098,124	21,493,818	21,374,028	117,965,970
Quebec.....	7,156	1,187,398,320	257,081,626	228,591,096	1,673,011,042
Ontario.....	9,910	1,509,541,499	457,935,862	450,863,089	2,418,340,450
Manitoba.....	923	123,274,605	25,918,365	23,959,978	173,152,948
Saskatchewan.....	761	38,024,102	13,536,924	7,316,098	58,877,124
Alberta.....	817	74,100,731	19,437,491	14,109,806	107,648,028
British Columbia and Yukon.....	1,699	271,164,015	60,815,766	62,887,152	394,866,933
INDUSTRIAL GROUP.					
Vegetable products.....	5,005	302,983,088	160,566,214	105,515,533	569,064,835
Animal products.....	4,490	119,319,903	67,097,386	57,407,776	243,825,065
Textiles and textile products.....	1,891	193,841,095	99,212,392	90,099,410	383,153,797
Wood and paper products.....	7,405	793,006,939	188,938,055	170,130,240	1,152,075,234
Iron and its products.....	1,160	410,443,034	167,768,708	176,777,363	754,989,105
Non-ferrous metal products.....	408	164,109,880	61,010,346	73,600,880	298,721,106
Non-metallic mineral products.....	1,188	232,680,217	60,110,250	36,658,377	329,448,844
Chemicals and allied products.....	554	93,291,653	33,289,770	39,305,489	165,886,912
Miscellaneous industries.....	463	66,350,028	30,180,651	33,586,745	130,118,324
Central electric stations.....	1,024	1,001,562,462	10,809,919	43,559,151	1,055,731,532

Subsection 2.—Employment in Manufactures.

The total number of persons engaged in those manufacturing industries of Canada for which statistics were obtained in 1929 was in that year 694,434, as compared with 658,023 in the same industries in 1928 and 474,430 in 1922. The 1929 employees included 96,607 salaried employees, this figure being obtained from the manufacturers at the end of the year, and 597,827 wage-earners, the average number employed, as derived from the manufacturers' records of the numbers on the pay-rolls on the 15th of each of the twelve months. Prior to 1925 the number of wage-earners was computed as the sum of the number recorded each month divided by 12 whether the establishment was operating the 12 months or not. Beginning with the statistics for 1925, in seasonal industries which are in operation only a limited number of months in each year, such as sawmilling, fruit and vegetable canning, etc., the average was computed by dividing the sum of the wage-earners reported on the 15th of each month by the number of months in operation. This change of method increased the apparent number of employees, especially in seasonal industries but also in the groups containing such seasonal industries and in provincial and Dominion totals. Consequently, the change of method exerted a reducing influence on apparent average wages and on all other averages per wage-earner and per employee.

The number of salaried employees and of wage-earners, as thus ascertained, is given for each of the years since 1917, the year of the first annual census of manufacturing production, in Table 18. Then, taking the percentages of the wage-earners and the total employees in each year to those in 1917, and dividing these percentages into the volume of manufacturing production in each year (see pages

320 to 323 for the index of volume), the quotients give tentative conclusions regarding the efficiency of production per wage-earner and per employee in years subsequent to 1917, as compared with that year. Since central electric stations were excluded in computing the index of the volume of production, employees in these establishments have been excluded also in computing the percentages relative to 1917 for both wage-earners and total employees, and consequently from the indexes of efficiency of production. These indexes of the efficiency of production are, of course, affected by the change explained above in the method of computing the number of employees in 1925 and subsequent years as compared with 1924 and previous years. Inasmuch as the change increased the apparent number of employees in 1925 and later years, it proportionately decreased the index of the efficiency of production. The table illustrates the development of modern industry which has accomplished a large increase in production with a comparatively small increase in wage-earners by better organization and the use of improved equipment. Capital invested in manufacturing industries, exclusive of central electric stations, has increased by 72.1 p.c. from 1917 to 1929, compared with an increase of only 7.5 p.c. in wage-earners, while the horse power used per wage-earner has increased from 3.04 in 1917 to 6.58 in 1929. The element of better organization is not susceptible of measurement. However, salaried employees have increased by 40.5 p.c. since 1917, or more nearly in proportion to the growth in production than wage-earners. The result of these developments has been the increase of 46.6 p.c. in the volume of production per wage-earner and the somewhat smaller increase of 42.4 p.c. per employee, owing to the increased proportion of salaried employees in the total. The indexes may be considered as supplying satisfactory evidence of a general gain in volume of production per person employed. In this connection it should be remembered, however, that in 1917, owing to the large numbers overseas, many persons of low efficiency were being employed, their inefficiency being concealed at the time by the prevailing inflation of prices; it is possible that the sudden rise in the indexes of efficiency from 1920 to 1921 may be partly accounted for by their elimination in the contraction of industrial operations which occurred at that time.

18.—Salaried Employees and Wage-Earners in the Manufacturing Industries of Canada, with Volume of Manufacturing Production and Comparative Efficiency of Production, 1917-29.

Year.	Salaried Employees.	Wage-Earners.	Total Employees.	Percentage relative to 1917. ¹		Index Number ¹ of Volume of Mfd. Products.	Efficiency of Production. ¹	
				Of Wage-Earners.	Of Total Employees.		Per Wage-Earner.	Per Employee.
	No.	No.	No.	p.c.	p.c.			
1917.....	68,720	532,968	621,694	100.0	100.0	100.0	100.0	100.0
1918.....	70,706	547,599	618,305	99.0	98.8	102.0	103.0	103.2
1919.....	81,681	529,327	611,008	95.7	98.1	98.1	102.5	100.0
1920.....	83,015	526,571	609,586	95.1	97.7	95.0	99.9	97.2
1921.....	74,873	381,203	456,076	68.5	72.6	86.1	125.6	118.6
1922.....	76,040	398,390	474,430	71.6	75.6	96.0	134.1	127.0
1923.....	78,273	446,994	525,267	80.5	83.9	104.8	130.2	124.9
1924.....	76,230	432,273	508,503	77.6	80.8	102.9	132.7	127.3
1925.....	77,623	466,602	544,225	83.8	86.6	112.7	134.5	130.1
1926.....	81,794	499,745	581,539	89.9	92.7	128.1	142.5	138.2
1927.....	85,483	533,450	618,933	95.8	98.6	136.5	142.5	138.5
1928.....	91,243	566,780	658,023	101.7	104.7	148.8	146.3	142.0
1929.....	96,607	597,827	694,434	107.5	110.6	157.5	146.6	142.4

¹Central electric stations excluded.

19.—Percentages of Male and Female Employees on Salaries and Wages and Percentages of Total Salaries and Wages, by Provinces and Groups of Industries, 1929
—concluded.

Group.	Employees on Salaries.			Salaries.	Employees on Wages.			Wages.
	Males.	Females.	Total.		Males.	Females.	Total.	
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Vegetable products.....	12.8	12.6	12.8	13.1	11.0	19.3	12.8	11.0
Animal products.....	11.8	8.6	11.0	9.0	8.8	12.2	9.5	7.2
Textile products.....	9.0	14.9	10.4	10.3	9.0	48.8	17.7	13.8
Wood and paper products.....	22.0	21.7	22.0	23.0	28.2	9.0	24.0	23.9
Iron and its products.....	16.7	15.5	16.5	17.7	24.1	2.6	19.5	24.6
Non-ferrous metal products.....	7.6	8.9	7.9	7.6	5.9	3.7	5.4	6.5
Non-metallic mineral products.....	4.4	3.3	4.1	4.1	5.7	0.7	4.6	5.4
Chemicals and allied products.....	4.5	5.6	4.7	5.0	2.0	2.1	2.0	2.1
Miscellaneous industries.....	3.7	3.2	3.6	4.1	3.3	1.6	2.9	3.4
Central electric stations.....	7.5	5.7	7.0	6.1	2.0	-	1.6	2.1

Monthly Record of Employment in Manufactures, 1929.—A monthly record of the number of wage-earners employed in Canadian manufactures, as compiled by the Census of Industry, is given by sex in Table 20, which shows that the peak of employment was in June. Ordinarily manufacturing employment in Canada reaches its highest point about September. Some of the seasonal industries such as canning are most active then, textile industries are preparing winter goods and industry generally feels the active demand of the agricultural purchasing power resulting from the season's harvests. In 1929, however, the rising tide of "good times" was checked about midsummer and the recession set in during the autumn with the stock market crash. The harvests of 1929 in the Canadian West were disappointing also. Under these circumstances the expansion in manufacturing employment stopped in June and there were declines from month to month thereafter.

While employment for male operatives expanded from the beginning of the year to its maximum in June, the number of female workers was greatest in September, chiefly on account of seasonal activity in the vegetable and fruit preserving group, which employs a considerable proportion of women. Textiles, the one group in which the majority of workers are women, also reported an active period during the autumn. Indicative of the expansion of industrial operations during the first half of 1929 is the fact that in every month the number of wage-earners employed exceeded by a large number the total for the corresponding month of the previous year. After June, however, the excess in each month of 1929 over the corresponding month of 1928 grew less, December, 1929, actually falling below December, 1928.

20.—Total Number of Wage-Earners Employed in the Manufacturing Industries of Canada, by Months, 1928 and 1929.

Month.	1928.			1929.		
	Males.	Females.	Total.	Males.	Females.	Total.
January.....	365,790	107,362	473,152	409,063	111,564	521,227
February.....	379,547	110,764	490,311	422,912	114,904	537,816
March.....	393,416	112,814	506,230	439,106	116,802	555,908
April.....	408,559	114,007	522,566	456,326	118,943	575,269
May.....	432,338	116,874	549,212	473,017	121,952	594,969
June.....	442,945	117,921	560,866	474,157	122,387	596,544
July.....	445,664	116,707	562,371	473,261	121,618	594,879
August.....	447,717	120,082	567,799	464,087	124,422	588,509
September.....	443,060	125,592	568,652	455,918	130,521	586,439
October.....	437,597	125,090	562,687	446,752	127,814	574,566
November.....	422,045	122,168	544,213	425,729	121,968	547,697
December.....	407,257	117,191	524,448	404,700	114,631	519,331

Days in Operation.—During 1929 each plant, on the average, operated 227 days on full time and 17 days part time, making a total of 244 days. The average number of days in operation was lowest for the Maritime Provinces where seasonal industries such as fish-canning and packing and sawmilling form an important part of the total. These same industries reduced the averages for the animal and wood and paper products groups.

21.—Total and Average Number of Days in Operation by Establishments in the Manufactures of Canada, by Provinces and Groups, 1929.

Province and Group.	Number of Establishments.	Time in Operation—Number of Days.			Average Days in Operation per Establishment.		
		Full Time.	Part Time.	Idle.	Full Time.	Part Time.	Total.
PROVINCE.							
Prince Edward Island.....	276	35,323	7,086	38,287	128	26	154
Nova Scotia.....	1,195	216,478	18,394	133,685	181	15	196
New Brunswick.....	860	142,362	12,353	106,494	166	14	180
Quebec.....	7,156	1,564,672	88,385	411,821	219	12	231
Ontario.....	9,910	2,380,226	178,049	393,121	240	18	258
Manitoba.....	923	233,782	16,706	31,482	253	18	271
Saskatchewan.....	761	184,066	32,134	21,856	242	42	284
Alberta.....	817	207,199	13,492	32,840	254	17	271
British Columbia and Yukon.....	1,699	401,115	26,441	96,128	236	16	252
Totals.....	23,597	5,365,223	393,040	1,265,714	227	17	244
INDUSTRIAL GROUP.							
Vegetable products.....	5,005	1,233,450	101,637	209,545	246	20	266
Animal products.....	4,490	944,748	37,284	159,104	210	8	218
Textile products.....	1,891	477,441	43,889	44,110	253	23	276
Wood and paper products....	7,405	1,390,884	105,244	754,991	188	14	202
Iron and its products.....	1,169	331,962	10,682	11,626	284	9	293
Non-ferrous metal products.	408	114,366	3,619	5,752	280	9	289
Non-metallic mineral products.....	1,188	280,403	19,553	60,079	236	16	252
Chemicals and allied products.....	554	146,041	9,943	10,120	269	18	287
Miscellaneous industries....	463	125,275	7,326	7,543	271	16	287
Central electric stations....	1,024	317,653	53,863	2,244	310	53	363

Subsection 3.—Wages and Salaries in Canadian Manufacturing Industries, 1929.

The total amount disbursed by manufacturers in salaries and wages during 1929 was \$813,049,842 paid to 694,434 workers, as compared with \$755,199,372 paid to 658,023 persons in 1928, \$510,431,312 paid to 474,430 persons in 1922 and \$732,120,585 paid to 609,586 persons in 1920 at the peak of the post-war inflation. Of the 1929 aggregate, \$188,747,672 or 23.2 p.c. was paid to 96,607 salaried employees who constituted 13.9 p.c. of the total number, and \$624,302,170 or 76.8 p.c. was paid in wages to 597,827 wage-earners, who formed 86.1 p.c. of the aggregate number of employees.

The average salary paid in the manufacturing industries during 1929 was \$1,954, compared with \$1,915 in 1928, \$1,899 in 1927, \$1,867 in 1926, \$1,843 in 1925, \$1,831 in 1924, \$1,824 in 1923 and \$1,787 in 1922. The average wage paid was \$1,045 in 1929, \$1,024 in 1928, \$997 in 1927, \$1,003 in 1926, \$971 in 1925, \$972 in 1924, \$959 in 1923 and \$937 in 1922.

The average wage in 1929 was \$21 or 2 p.c. higher than in 1928 and \$108 or 11.6 p.c. higher than in 1922. The average salary in 1929 was \$39 or 2 p.c. higher than in 1928 and \$167 or 9.3 p.c. higher than in 1922.

The proportion of female wage-earners per 1,000 was 217 and of male operatives 783 during 1929, while in each 1,000 salary earners 236 were women and 764 were men. The proportion of females among wage-earners was slightly less, while that among salaried employees was greater than in the preceding year.

Average Earnings, by Provinces, of Persons Employed in Manufactures.—Table 22 shows the number of salary and wage-earners and the average salary and wage paid in 1929 by manufacturers in the various provinces, also average earnings in 1928.

There were successive rises in average salaries from Prince Edward Island to Quebec, which showed the highest average of all the provinces, while Ontario was slightly lower than Quebec. The head offices of many large corporations being located in Montreal and Toronto tends to raise the average of salaries in the two provinces. In British Columbia and the Prairie Provinces, the averages were smaller again, especially in Saskatchewan and Alberta, there being comparatively few large executive offices in these two provinces, where salaries were, on the whole, below those in New Brunswick.

There were general increases in average wages from the eastern provinces through to Manitoba, where the mean for the year, \$1,179, was the highest in the Dominion, being \$134 greater than the general average. In the western provinces there was an unusually small proportion of women workers, while many of the male employees were engaged in the better-paid wood and paper, electric light and power industries. In the four provinces situated to the east, average wages in manufacturing were lower than the mean for the Dominion, while from Ontario westward the opposite was the case.

The seasonal nature of some of the leading manufactures, notably fish-preserving and lumbering, tended to reduce the mean wage in the Maritime Provinces and Quebec, while Quebec also has a larger proportion of female wage-earners than any province, other than Prince Edward Island, employed chiefly in the textile, food and tobacco industries. The fact that average wages in Alberta and British Columbia were lower than in Manitoba and Saskatchewan was partly a result of the seasonal nature of some of the industries in the former provinces, especially fish and fruit preserving and sawmilling in British Columbia.

22.—Employees on Salaries and Wages in Manufacturing Industries, 1929, and Average Salaries and Wages, by Provinces, 1928 and 1929.

Province.	Employees on Salaries.			Average Salaries.		Employees on Wages.			Average Wages.	
	Male.	Female.	Total.	1929.	1928.	Male.	Female.	Total.	1929.	1928.
	No.	No.	No.	\$	\$	No.	No.	No.	\$	\$
Prince Edward Island.....	170	36	206	967	1,011	1,175	752	1,927	302	285
Nova Scotia.....	1,381	401	1,782	1,725	1,603	15,580	3,604	19,184	774	745
New Brunswick.....	1,355	384	1,739	1,816	1,855	13,123	3,655	16,778	748	710
Quebec.....	21,282	5,575	26,857	1,988	1,960	137,369	49,241	186,610	966	937
Ontario.....	37,777	13,595	51,372	1,975	1,920	228,378	60,109	288,487	1,110	1,094
Manitoba.....	3,415	953	4,368	1,900	1,887	18,076	3,874	21,950	1,179	1,182
Saskatchewan.....	1,808	337	2,145	1,699	1,721	5,412	490	5,902	1,151	1,160
Alberta.....	1,878	470	2,354	1,778	1,755	9,713	1,681	11,394	1,077	1,078
British Columbia and Yukon.....	4,726	1,058	5,784	1,921	1,955	39,217	6,378	45,595	1,111	1,106
Totals.....	73,792	22,815	96,607	1,954	1,915	468,043	129,784	597,827	1,045	1,024

Average Earnings in 40 Leading Industries.—Table 23 is a record of employees by sex and of average salaries and wages paid in the 40 leading industries of Canada during 1929, together with the average number of days the establishments in each industry operated. Averages for 1928 are also given.

Average Salaries.—In 6 industries the average salaries exceeded \$2,500; in 13 they were from \$2,000 to \$2,500; in 18 they ranged between \$1,500 and \$2,000, while in only 3 were they below \$1,500 during 1929. None of the six industries paying the highest salaries—sugar refineries, distilleries, breweries, non-ferrous metal smelting, bridge building and pulp and paper—reported a proportion of female workers equal to the general percentage in the 40 industries, while the numbers employed were rather small except in the pulp and paper industry. The lowest salaries, ranging between \$1,000 and \$1,500, were reported in the butter and cheese, fish-curing and packing, and baking industries. Various factors contributed to reduce the mean yearly remuneration of these groups. Fish-preserving plants operate during a very short active season; butter and cheese factories, which also work less than the average number of days, are mainly situated in small towns and country places; while in the bread and other bakery products plants the percentage of women on salaries was above the average.

Average Wages.—The highest wages, or those above \$1,500, were paid in 4 metal-working industries—non-ferrous metal smelting, bridge building, blast furnaces and steel mills, automobiles—and in the petroleum products industry, in all of which the proportion of female workers was very low and the proportion of skilled workers probably high. In 11 industries the average wage was between \$1,200 and \$1,500. These also were largely metal-working or chemical industries, together with printing, pulp and paper and central electric stations, and in all of them the proportion of women employed was low. In 11 industries the average wage was below \$1,000. Some of these were industries in which operations were very seasonal such as sawmilling and fish-packing, while the flour and grist-mill industry includes a large number of small grist mills in which work is intermittent. The other industries with this low average of wages were textile, food, and boot and shoe industries in which the proportion of female wage-earners was high, the number in several industries being greater than that of men.

23.—Employees by Sex in Forty Leading Canadian Manufacturing Industries during 1929, with Averages of Salaries and Wages Paid, and of Number of Days Operated by Plants in each Industry for 1928 and 1929.

SALARIES.

Industry.	Employees on Salaries.			Average Salaries.	
	Male.	Female.	Total.	1929.	1928.
	No.	No.	No.	\$	\$
Pulp and paper.....	3,104	634	3,738	2,512	2,485
Slaughtering and meat-packing.....	2,154	345	2,499	1,892	1,828
Flour and grist-mill products.....	993	217	1,210	1,901	1,924
Automobiles.....	1,087	603	2,290	2,282	2,158
Central electric stations.....	5,505	1,309	6,814	1,690	1,683
Sawmills.....	1,643	243	1,886	2,063	2,116
Butter and cheese.....	3,526	656	4,182	1,111	1,098
Railway rolling stock.....	1,521	109	1,630	2,230	2,178
Electrical apparatus and supplies.....	3,503	1,452	4,955	1,793	1,796
Non-ferrous metal smelting.....	621	63	684	2,503	2,388
Petroleum products.....	445	65	510	2,457	2,466
Rubber goods, including footwear.....	1,751	508	2,259	1,841	1,684
Castings and forgings.....	2,000	647	2,647	2,180	2,072
Cotton yarn and cloth.....	575	120	695	2,320	2,429
Bread and other bakery products.....	946	428	1,274	1,400	1,548

23.—Employees by Sex in Forty Leading Canadian Manufacturing Industries during 1929, with Averages of Salaries and Wages Paid, and of Number of Days Operated by Plants in each Industry for 1928 and 1929—continued.

SALARIES—continued.

Industry.	Employees on Salaries.			Average Salaries.	
	Male.	Female.	Total.	1929.	1928.
	No.	No.	No.	\$	\$
Printing and publishing.....	4,965	1,805	6,770	1,695	1,690
Steel and rolled products, pig iron, ferro-alloys, etc.	597	115	712	2,452	2,513
Clothing, women's factory.....	1,163	792	1,955	1,945	1,981
Machinery.....	1,822	614	2,436	1,930	1,951
Cigars and cigarettes.....	1,009	294	1,303	1,823	1,889
Biscuits and confectionery.....	1,723	624	2,347	1,963	1,829
Breweries.....	768	116	884	2,695	2,408
Hosiery, knitted goods and fabric gloves.....	771	491	1,262	2,135	2,130
Planing mills, sash and door factories.....	1,299	247	1,546	1,846	1,846
Sheet metal products.....	997	340	1,337	1,893	1,886
Clothing, men's factory.....	1,008	411	1,420	1,828	1,905
Boots and shoes, leather.....	966	357	1,323	1,978	1,980
Sugar refineries.....	240	61	307	3,053	3,087
Furniture and upholstery.....	871	322	1,193	2,108	2,172
Distilleries.....	289	72	361	2,970	2,466
Printing and bookbinding.....	1,557	573	2,130	2,070	2,038
Agricultural implements.....	1,334	431	1,765	1,883	1,769
Coke and gas products.....	652	237	889	1,652	1,477
Brass and copper products.....	891	214	1,105	1,735	1,785
Fish-curing and -packing.....	583	77	660	1,443	1,355
Bridge building.....	921	107	1,028	2,530	2,472
Automobile supplies.....	401	129	530	2,222	2,178
Furnishing goods, men's.....	600	292	892	1,770	1,677
Acids, alkalis and salts.....	354	26	380	2,160	1,927
Coffee and spices.....	445	136	581	2,082	2,180
Totals, Forty Leading Industries.....	56,107	16,282	72,389	1,921	1,893
Grand Totals, All Industries.....	73,792	22,815	96,607	1,954	1,915

WAGES.

Industry.	Employees on Wages.			Average Wages.		Average Days in Full and Part Time Operation.	
	Male.	Female.	Total.	1929.	1928.	1929.	1928.
	No.	No.	No.	\$	\$	No.	No.
Pulp and paper.....	29,595	869	30,464	1,341	1,282	279	271
Slaughtering and meat-packing.....	7,434	829	8,263	1,122	1,062	290	289
Flour and grist-mill products.....	5,267	141	5,408	976	1,003	226	226
Automobiles.....	13,922	223	14,145	1,529	1,608	263	308
Central electric stations.....	9,350	-	9,350	1,425	1,414	357	364
Sawmills.....	44,501	79	44,580	723	715	95	91
Butter and cheese.....	7,449	241	7,690	1,050	993	223	226
Railway rolling stock.....	23,823	35	23,858	1,455	1,390	285	291
Electrical apparatus and supplies.....	12,352	3,664	15,916	1,120	1,084	287	291
Non-ferrous metal smelting.....	7,408	27	7,435	1,617	1,550	355	359
Petroleum products.....	4,444	24	4,468	1,544	1,496	328	314
Rubber goods, including footwear.....	11,415	4,122	15,537	1,028	1,029	271	281
Castings and forgings.....	20,467	329	20,796	1,206	1,192	294	294
Cotton yarn and cloth.....	11,369	8,157	19,526	771	763	258	282
Bread and other bakery products.....	13,632	2,117	15,749	1,060	1,065	290	299
Printing and publishing.....	8,626	1,564	10,190	1,465	1,397	301	299
Steel and rolled products, pig iron, ferro-alloys, etc.	10,479	27	10,506	1,597	1,650	288	302
Clothing, women's factory.....	4,011	11,058	15,069	884	899	280	283
Machinery.....	9,746	253	9,999	1,239	1,230	299	301
Cigars and cigarettes.....	1,659	3,420	5,079	661	692	262	265
Biscuits and confectionery.....	4,653	6,073	10,726	761	742	273	275
Breweries.....	3,909	461	4,370	1,201	1,182	286	285

23.—Employees by Sex in Forty Leading Canadian Manufacturing Industries during 1929, with Averages of Salaries and Wages Paid, and of Number of Days Operated by Plants in each Industry for 1928 and 1929—concluded.

WAGES—concluded.

Industry.	Employees on Wages.			Average Wage.		Average Days in Full and Part Time Operation.	
	Male.	Female.	Total.	1929.	1928.	1929.	1928.
	No.	No.	No.	\$	\$	No.	No.
Hosiery, knitted goods and fabric gloves.....	5,873	12,474	18,347	741	748	280	284
Planing mills, sash and door factories.....	11,473	113	11,586	1,045	1,007	272	266
Sheet metal products.....	7,085	864	7,949	1,094	1,109	295	293
Clothing, men's factory.....	4,811	5,275	10,086	1,078	994	241	249
Boots and shoes, leather.....	8,652	5,588	14,240	871	868	288	283
Sugar refineries.....	1,916	102	2,018	1,361	1,320	263	265
Furniture and upholstery.....	11,406	483	11,889	1,008	981	291	289
Distilleries.....	1,442	416	1,858	1,108	1,139	264	279
Printing and bookbinding.....	7,569	2,679	10,248	1,198	1,140	296	296
Agricultural implements.....	9,534	100	9,634	1,188	1,158	287	289
Coke and gas products.....	3,009	4	3,013	1,483	1,420	350	348
Brass and copper products.....	4,668	450	5,127	1,147	1,137	287	296
Fish-curing and -packing.....	9,493	6,214	15,707	284	298	103	102
Bridge building.....	3,949	—	3,949	1,605	1,525	290	285
Automobile supplies.....	3,878	300	4,178	1,324	1,250	290	300
Furnishing goods, men's.....	1,346	7,652	8,998	638	647	274	283
Acids, alkalis and salts.....	2,509	8	2,517	1,308	1,274	341	322
Coffee and spices.....	680	440	1,120	977	953	291	295
Totals, Forty Leading Industries.....	364,894	86,378	451,182	1,073	1,052	236	238
Grand Totals, All Industries.....	468,043	129,784	597,827	1,045	1,021	244	245

Real Earnings of Employees in Recent Years.—The average yearly wage of the wage-earner was \$1,045 in 1929, as compared with \$760 in 1917, an increase of 37.5 p.c. in average earnings. When the index number representing the average yearly wages, with 1917 as a base, is divided by the index number of the cost of living, converted to the same base, it is seen that real wages advanced by 17.7 p.c. between 1917 and 1929. The details of the computation are given in Table 24. There was little change in real wages during the three years 1917 to 1920 when prices were rising rapidly. During the following two years, 1921 and 1922, when prices dropped rapidly, real wages increased over 5 p.c. Since then there has been an almost continuous rise from year to year.

24.—Average Yearly Earnings and Real Wages of Wage-Earners in Manufacturing Industries, 1917-29.

Year.	Amount of Wages Paid.	Average Number of Wage-Earners.	Average Yearly Earnings.	Index Numbers.		
				Average Yearly Earnings.	Cost of Living.	Real Value of Average Yearly Earnings.
	\$	No.	\$			
1917.....	420,094,869	552,968	760	100.0	100.0	100.0
1918.....	480,949,569	547,599	878	115.5	113.8	101.5
1919.....	496,570,995	529,327	938	123.4	125.3	98.5
1920.....	583,853,225	526,571	1,109	145.9	145.2	100.4
1921.....	381,910,145	381,203	1,002	131.8	127.6	103.2
1922.....	374,212,141	398,390	939	123.6	116.8	105.8
1923.....	428,731,347	446,994	959	126.1	116.8	107.0
1924.....	420,269,406	432,273	972	127.9	114.5	111.7
1925.....	452,958,655	466,602	971	127.8	116.0	110.2
1926.....	501,144,989	499,745	1,003	132.0	116.8	113.0
1927.....	531,583,250	533,450	997	131.3	115.1	114.1
1928.....	580,428,493	566,780	1,024	134.8	115.6	116.5
1929.....	624,302,170	597,827	1,045	137.5	116.8	117.7

Percentages of Wages and Salaries to Value of Products.—Table 25 shows the relation between wages and salaries paid by manufacturers and the total net value of production. Figures of gross production are often used in such calculations, but the values out of which the wages of employees must in the long run come are the values added to the raw materials while they are in the factory. Such added values constitute the real production of the manufacturing plant and are alone available for payment of wages and salaries, of interest, rent and taxes, charges for fuel, power, lighting, repairs, and all other overhead charges. The percentage of salaries was highest in the years 1921, 1922 and 1924. These were years in which manufacturing production was curtailed and it is probable that, salaried employees being a part of the organization of an industry rather than of its productive force, salaries were an abnormally high percentage of the lower levels of production then prevailing. The percentage has declined with the increasing manufacturing production since 1922, but in 1929 was still much higher than in 1917. It should be borne in mind, however, that salaried employees increased by 40.5 p.c. in the period, while wage-earners increased only 7.5 p.c. (Table 18). The percentage of wages has fluctuated much less than that of salaries. The number of wage-earning employees may be more readily adjusted to the activity of the industry and wage levels likewise more readily adjusted to the price levels of the products. The percentage of wages to the values added in manufacture was thus almost the same in 1929 as in 1917. The percentage was highest in 1920, when, in the post-war inflation, average wages were highest (Table 24) and the efficiency of production lowest (Table 18).

25.—Percentages of Wages and Salaries Paid to Total Net Value of Manufacturing Production, 1917-29.

Year.	Value added by Process of Manufacture.	Salaries Paid.	Wages Paid.	Percentage—		
				of Salaries to Values Added.	of Wages to Values Added.	of Total Salaries and Wages to Values Added.
	\$	\$	\$	p.c.	p.c.	p.c.
1917.....	1,332,180,767	89,287,158	420,094,869	6.7	31.5	38.2
1918.....	1,460,723,777	101,507,889	480,949,599	6.9	32.9	39.8
1919.....	1,509,870,745	121,892,144	496,570,995	8.1	32.9	41.0
1920.....	1,686,978,408	148,267,360	583,853,225	8.8	34.6	43.4
1921.....	1,209,143,344	136,874,992	381,910,145	11.3	31.6	42.9
1922.....	1,198,434,407	136,216,171	374,212,141	11.4	31.2	42.6
1923.....	1,311,025,375	142,738,681	428,731,347	10.9	32.7	43.6
1924.....	1,256,643,901	139,614,639	420,269,406	11.1	33.4	44.5
1925.....	1,360,879,907	143,056,516	452,958,655	10.5	33.3	43.8
1926.....	1,492,645,039	152,705,944	501,144,989	10.2	33.6	43.8
1927.....	1,635,923,936	162,348,978	531,583,250	9.9	32.5	42.4
1928.....	1,819,046,025	174,770,879	580,428,493	9.7	31.9	41.5
1929.....	1,997,350,365	188,747,672	624,302,170	9.6	31.3	40.7

Subsection 4.—Size of Manufacturing Establishments.

An essential characteristic of the recent evolution of industry has been the increase in the size of the typical manufacturing establishment. The full utilization of highly specialized machinery necessitates large-scale production, while the improvements in transportation have widened the market, and the development of more efficient methods of business administration has made it possible for the individual manufacturer to supervise effectively a larger plant. An increase in the scale of production of the typical manufacturing establishment has been experienced in all industrial countries which have been affected by the so-called "Industrial Revolution", and not least in Canada where the rise of the factory system in industry has taken place approximately since Confederation.

The size of the manufacturing establishment is generally measured either by the number of employees or by the value of product, but each of these methods has its limitations. The former takes no account of the differences in capital equipment at different times or in various industries and obviously the increased use of machinery, as in the flour-milling industry, may lead to increased production concurrently with a decrease in the number of employees. The latter measure has to be adjusted for changes in the price level; and, as between industries, it makes those which handle expensive raw materials appear to operate on a larger scale. Both measures are subject to two limitations: first, they depend on the fluctuation of business activity and the demand of the consumer; secondly, over any lengthy period of time there is the difficulty of comparability resulting from changes in the method of the census.

Thus, while it is possible in a general way to state that the average size of the manufacturing establishment in Canada has increased between 1870 and 1929, the 1929 figures are not on the same basis as the 1870 figures, especially since they do not include all the small custom and repair establishments included at the earlier date. The same difficulty arises right up to the most recent times. It is only in the last few years that the statistics have been so analysed as to be strictly comparable, and the results of this analysis are given in Tables 26 to 29.

Size as Measured by Gross Value of Products.—In Tables 26 and 27 the size of the establishments reporting to the Census of Manufactures is shown by the gross value of products—Table 26 giving comparative figures for 1922 (the first year for which the figures are available) and 1929, and Table 27 the figures by provinces for 1929.

The comparative Table 26 shows that, while in 1922 the 420 establishments which had each a gross production of over \$1,000,000 had an aggregate value of products of \$1,268,056,129 or 51 p.c. of the total production of all manufacturing industries, the 719 establishments producing over \$1,000,000 each in 1929 had an aggregate value of products of \$2,516,064,954, or 62 p.c. of the grand total for all manufacturing establishments—a very significant change in the short period of seven years when the general trend of prices of manufactured goods was slightly downward.

26.—Manufacturing Establishments Grouped According to Gross Values of Products, with Total and Average Values of Products in each Class, for Canada, 1922 and 1929.

Group.	1922.			1929.		
	Estab-lish-ments.	Total Production.	Average Pro-duction.	Estab-lish-ments.	Total Production.	Average Pro-duction.
Gross Value of Products.	No.	\$	\$	No.	\$	\$
Under \$25,000.....	14,978	114,205,770	7,625	14,024	106,735,470	7,611
\$ 25,000 but under \$ 50,000.....	2,401	85,075,807	35,433	2,802	99,529,725	35,521
50,000 " 100,000.....	1,793	129,320,047	72,125	2,209	156,308,744	70,760
100,000 " 200,000.....	1,355	191,675,089	141,458	1,688	237,532,492	140,718
200,000 " 500,000.....	1,078	330,533,712	306,617	1,519	504,218,217	331,941
500,000 " 1,000,000.....	516	363,341,076	704,149	636	443,597,677	697,481
1,000,000 " 5,000,000.....	364	692,463,530	1,902,372	601	1,217,866,089	2,026,400
5,000,000 and over.....	56	575,592,599	10,278,439	118	1,298,198,865	11,001,685
Totals.....	22,541	2,482,293,130	110,119	23,597	4,063,987,279	172,275

27.—Manufacturing Establishments, Grouped According to Gross Values of Pro-ducts, with Total Values of Products in each Class, by Provinces, 1929.

Group.	Prince Edward Island.		Nova Scotia.		New Brunswick.	
	Estab-lishments.	Production.	Estab-lishments.	Production.	Estab-lishments.	Production.
Gross Value of Products. (000 omitted.)	No.	\$	No.	\$	No.	\$
Under \$ 25.....	231	1,643,848	874	8,051,608	606	4,401,478
\$ 25—\$ 50.....	29	1,065,503	124	4,394,050	88	3,076,951
50—100.....	8	589,290	83	5,697,216	94	3,610,762
100—200.....	8	1,440,084	54	7,493,177	45	6,065,822
200—500.....	—	—	44	14,124,897	41	12,846,444
500—1,000.....	—	—	5	3,678,228	11	7,610,019
1,000—5,000.....	—	—	7	16,402,873	15	33,818,490
5,000 and over.....	—	—	4	34,450,767	—	—
Totals.....	276	4,638,725	1,195	94,292,816	880	71,433,966
—	Quebec.		Ontario.		Manitoba.	
Under \$ 25.....	4,773	19,980,558	5,137	55,060,392	488	4,177,648
\$ 25—\$ 50.....	703	24,038,398	1,352	48,136,976	106	3,735,087
50—100.....	534	37,502,629	1,067	76,347,830	111	8,141,299
100—200.....	398	56,629,931	837	117,512,051	85	12,307,559
200—500.....	393	122,074,357	787	275,917,299	74	22,759,336
500—1,000.....	156	109,325,043	353	243,730,301	21	13,702,668
1,000—5,000.....	151	312,362,613	328	660,923,625	34	69,731,822
5,000 and over.....	48	478,099,463	49	625,462,314	4	30,353,708
Totals.....	7,156	1,160,612,992	9,910	2,103,696,788	923	164,909,127
—	Saskatchewan.		Alberta.		British Columbia.	
Under \$ 25.....	537	2,749,812	490	4,519,135	888	6,250,991
\$ 25—\$ 50.....	69	2,484,939	128	4,087,155	203	7,310,666
50—100.....	65	4,579,646	80	5,556,106	207	14,283,963
100—200.....	43	5,743,010	45	6,471,263	174	24,315,545
200—500.....	25	7,394,857	32	9,734,694	122	38,922,383
500—1,000.....	12	9,072,223	19	14,171,792	59	42,301,403
1,000—5,000.....	7	16,904,181	20	38,608,324	40	76,935,078
5,000 and over.....	3	31,572,488	3	23,808,323	6	66,630,885
Totals.....	761	80,501,159	817	107,556,792	1,699	276,950,914

¹Includes one of the larger class grouped with those of the smaller class to avoid showing the individual production of any one establishment.

Size of Establishments as Measured by Number of Employees.—In Tables 28 and 29 the establishments reporting to the Census of Manufactures are classified by the number of their employees. In the comparative Table 28, it is shown that out of a total increase of 168,324 employees in our manufacturing industries between 1923 and 1929, 76,806, or almost 46 p.c., were in establishments with over 500 employees.

28.—Number of Establishments and of Employees in Canadian Manufactures, Grouped According to the Number of Employees per Establishment, 1923 and 1929.

Group.	1923.			1929.		
	Establish- ments.	Employees.	Average Employed.	Establish- ments.	Employees.	Average Employed.
	No.	No.	No.	No.	No.	No.
Fewer than 5 employees.....	13,156	23,632	1.7	12,273	30,446	2.5
5 to 20 employees.....	5,310	53,852	10.1	6,160	62,310	10.1
21 " 50 ".....	2,093	67,408	32.2	2,531	81,846	32.4
51 " 100 ".....	1,031	73,449	71.2	1,262	90,238	71.5
101 " 200 ".....	566	79,737	140.8	745	103,944	139.5
201 " 500 ".....	374	115,585	309.0	444	136,397	307.1
501 and over.....	112	112,447	1,004.0	182	189,253	1,040.0
Totals.....	22,642	526,110	23.2	23,597	684,434	29.4

¹ In order to make the figures comparable this total is computed by dividing the employees in each establishment in each month by the actual number of months the establishment was in operation, while in Tables 1-3 of this chapter the sum was divided by 12 for all establishments (see p. 52, subsection 2).

29.—Number of Establishments and of Employees in Canadian Manufactures, by Provinces, and Average Number of Employees per Establishment, 1929.

Province.	Under 5 Employ- ees.	5-20.	21-50.	51-100.	101-200.	201-500.	501 and over.	Total.
Prince Edward Island—								
Establishments.....	165	82	25	4	—	—	—	276
Employees.....	315	864	725	229	—	—	—	2,133
Average per establishment....	1.9	10.5	29.0	57.2	—	—	—	7.7
Nova Scotia—								
Establishments.....	547	442	132	45	16	9	4	1,195
Employees.....	1,549	4,587	4,143	2,986	1,923	2,781	2,997	20,966
Average per establishment....	2.8	10.3	31.3	66.3	120.1	300.0	749.2	17.5
New Brunswick—								
Establishments.....	367	312	117	36	14	9	5	860
Employees.....	904	3,171	3,536	2,465	1,863	2,862	3,716	18,517
Average per establishment....	2.4	10.1	30.2	68.4	133.1	318.0	743.2	21.5
Quebec—								
Establishments.....	4,296	1,476	660	326	192	134	72	7,156
Employees.....	7,513	15,083	21,412	23,236	26,600	42,263	77,360	213,467
Average per establishment....	1.7	10.2	32.4	71.2	138.5	315.3	1,074.4	29.8
Ontario—								
Establishments.....	4,779	2,698	1,130	590	387	232	88	9,910
Employees.....	16,163	27,154	37,006	42,388	54,851	70,937	91,360	339,859
Average per establishment....	3.3	10.1	32.7	71.1	141.7	305.7	1,038.1	34.3
Manitoba—								
Establishments.....	421	267	124	62	24	20	5	923
Employees.....	800	2,735	4,025	4,310	3,241	5,745	5,462	26,318
Average per establishment....	1.9	10.1	32.4	69.5	135.0	287.2	1,092.4	28.5
Saskatchewan—								
Establishments.....	538	143	45	21	9	4	1	761
Employees.....	797	1,300	1,435	1,453	1,271	1,046	745	8,047
Average per establishment....	1.4	9.1	31.8	69.1	141.2	261.5	745.0	10.6
Alberta—								
Establishments.....	481	203	66	35	23	8	1	817
Employees.....	1,024	1,892	2,086	2,503	3,034	2,655	554	13,748
Average per establishment....	2.1	9.3	31.6	71.5	131.9	331.8	554.0	16.8
British Columbia—								
Establishments.....	679	537	232	137	80	28	6	1,699
Employees.....	1,381	5,524	7,478	10,668	11,161	8,108	7,059	51,379
Average per establishment....	2.0	10.2	32.2	77.8	139.5	289.5	1,176.5	30.2

Subsection 5.—Power and Fuel.

Power.—The power equipment installed in manufacturing establishments is a very good barometer of the industrial development of Canada, inasmuch as the production is increasingly dependent on the power equipment. Increases and decreases in productive capacity, measured in horse-power, are not the result of temporary fluctuations in costs and values in the same manner as capital investments, values of products, etc. Power equipment will not reflect temporary depressions, but over a period of several years will indicate industrial growth or decline.

Central electric stations, which generate electricity for both lighting and power purposes, are included in Table 30 with the other groups of industries and are included also with the industries of each province. Internal combustion engines include all gasoline engines, natural, coal and producer gas engines, and diesel and semi-diesel or other engines which produce power by burning the fuel in the cylinder.

Comparisons with the data for 1928 show an increase of 331,783 h.p. or 5.3 p.c. in 1929 in the total primary power equipment installed in manufacturing establishments, by far the largest increase amounting to 310,543 h.p. being in the central electric stations, there being a decrease in primary power installation in some of the other groups due to the replacement of steam equipment by electrical equipment operated by purchased power. The water-power development of central electric stations increased by 273,396 h.p., while steam power installed increased by 31,330 h.p. and internal combustion engines by 5,817 h.p. Provinces with large water-power developments usually show the greatest primary power increases. In 1929, however, while Quebec still led with an increase of 161,148 h.p., New Brunswick came second with an increase of 58,552 h.p., Ontario third with an increase of 43,588 h.p., British Columbia fourth with an increase of 36,143 h.p. and Alberta fifth with an increase of 24,304 h.p. In the utilization of hydraulic power Quebec exceeded Ontario for the first time in 1925. In 1927, Quebec exceeded Ontario or any other province in the total of installed primary power from all sources and has been the leading province since then largely owing to its extensive water-power resources, 92 p.c. of its primary power in 1929 being derived from water.

The rapid increase in the development of power in Canada and in its utilization in manufacturing industries is illustrated by the summary figures for the years 1921 to 1929 in Table 30. The abundance of readily available water power in many parts of Canada, facilitating the development of low-cost hydro-electric power, has no doubt played a large part in this rapid growth. Of the total primary power increase of 3,434,581 h.p. in the 8 years, no less than 3,045,562 h.p. or 89 p.c. was in water power. However, some sections of Canada are not so well provided with water-power resources and chiefly in such sections primary power derived from steam engines and turbines and internal combustion engines has also increased rapidly during the period covered. In the provinces of Prince Edward Island, Nova Scotia, Saskatchewan and Alberta primary power produced from fuels exceeded that from water in 1929. The total installation of electric motors increased 2,120,322 h.p. or 209 p.c. in the 8 years covered, by far the greatest part of this increase being in motors operated by power purchased from central electric stations.

30.—Totals, for Canada, of Power Installed in the Manufacturing Industries, 1921-29, with Details by Provinces and Groups of Industries for 1929.

NOTE.—Total power equipment employed (Col. 8) is the sum of total primary power (Col. 4) and electric motors operated by purchased power (Col. 5). In the case of the groups of industries, since this purchased power is all generated by central electric stations, there is no duplication in the figures for each group of total power equipment employed (Col. 8). There would be duplication, however, by the amount of purchased power (Col. 5) in totals for Canada and each of the provinces. These totals are therefore omitted. The net growth in the power developed in Canada is shown in Col. 4 for the years 1921 to 1929.

Province and Group.	Primary Power.				Electric Motors.			Total Power Equipment Employed.
	Steam Engines and Turbines.	Internal Combustion Engines.	Hydraulic Turbines and Water Wheels.	Total Primary Power.	Operated by Purchased Power.	Operated by Power Generated by Establishments.	Total Electric Motors.	
	Col. 1.	Col. 2.	Col. 3.	Col. 4.	Col. 5.	Col. 6.	Col. 7.	
	h.p.	h.p.	h.p.	h.p.	h.p.	h.p.	h.p.	h.p.
Totals, 1921...	764,725	53,567	2,318,865	3,137,157	-	-	1,014,216	-
Totals, 1922...	833,756	87,022	2,691,084	3,611,862	-	-	1,162,649	-
Totals, 1923...	827,870	64,020	2,869,738	3,761,628	958,692	357,136	1,315,828	-
Totals, 1924...	911,267	72,491	3,283,146	4,299,904	1,256,133	398,001	1,654,184	-
Totals, 1925...	992,916	77,435	4,012,756	5,083,107	1,547,734	434,678	1,982,432	-
Totals, 1926...	1,018,535	78,554	4,213,013	5,310,102	1,770,331	392,322	2,162,656	-
Totals, 1927...	1,038,931	79,753	4,567,607	5,681,291	1,921,687	386,555	2,311,242	-
Totals, 1928...	1,053,307	83,864	5,107,784	6,239,955	2,139,129	457,565	2,596,691	-
Totals, 1929...	1,115,782	91,529	5,364,427	6,571,738	2,393,684	740,854	3,134,538	-
PROVINCE, 1929.								
P.E. Island.....	4,205	1,272	1,948	7,425	540	393	935	-
Nova Scotia.....	118,784	3,938	56,516	179,218	31,567	44,028	75,595	-
New Brunswick...	71,989	3,700	98,617	174,286	35,159	9,865	45,024	-
Quebec.....	209,954	8,060	2,481,780	2,699,794	902,845	118,807	1,111,652	-
Ontario.....	324,030	37,787	1,849,275	2,211,092	907,525	470,487	1,468,012	-
Manitoba.....	45,881	3,371	310,958	360,199	99,859	697	100,556	-
Saskatchewan.....	74,680	16,438	-	91,118	14,963	128	14,961	-
Alberta.....	96,904	6,301	51,544	154,749	30,416	5,066	35,482	-
British Columbia..	169,415	10,662	513,789	693,866	190,910	91,381	282,291	-
GROUP OF INDUSTRIES, 1929.								
Vegetable products	57,804	12,876	39,911	110,591	215,755	24,458	240,213	326,346
Animal products...	24,203	5,597	1,728	31,528	69,740	3,098	72,838	101,268
Textiles.....	26,198	1,203	33,280	60,681	107,933	28,601	136,534	168,614
Wood and paper...	439,978	15,385	483,781	939,144	1,083,695	313,398	1,397,093	2,022,839
Iron and its products	144,326	21,006	4,779	170,111	359,051	326,134	685,185	529,162
Non-ferrous metals	19,726	250	69,585	89,561	262,191	24,910	287,101	351,752
Non-metallic minerals	30,736	3,618	4,025	38,379	172,425	13,523	185,948	210,804
Chemicals.....	17,540	335	8,320	26,195	57,740	6,732	64,472	83,935
Miscellaneous industries	7,630	384	91	8,105	65,154	-	65,154	73,259
Central electric stations.....	347,641	30,875	4,718,927	5,097,443	-	-	-	5,097,443

Fuel.—The fuel used in industrial establishments in 1929 included 7,062,234 tons of bituminous coal, valued at \$39,315,723, constituting 61 p.c. of the total fuel cost. The other chief fuels in order of value were: fuel oil comprising 13.6 p.c., gas (principally natural gas) 9.7 p.c., wood 4.2 p.c., coke 3.7 p.c. and anthracite coal 3.1 p.c. Out of a fuel account of over \$64,000,000, Ontario expended \$31,000,000 or 48.7 p.c. of the total. The manufacturing concerns of Quebec expended \$17,600,000, those of British Columbia \$4,000,000 and those of Nova Scotia nearly \$3,200,000.

The groups of industries in which fuel was most extensively used in 1929 were: non-metallic minerals, \$14,882,000; wood and paper, \$14,432,000; iron and steel, \$11,779,000; and vegetable products, \$7,095,000. Fuel is used quite generally throughout the industrial field for the generation of power by means of internal combustion and steam engines. The principal industries where fuel is used as a material that enters into the actual composition of the product are the manufactures of coke and gas. The most important industries where heat is applied directly to materials to transform them or to facilitate their manipulation are foundries and machine shops, blast-furnaces and steel mills, smelting plants, brick-, tile-, lime- and cement-making, petroleum refining and the glass industry.

The total annual expenditure on fuel increased by \$12,784,577 or 24.8 p.c. in the 8 years from 1921 to 1929, covered by the summary figures in Table 31. During this period prices of fuels generally have declined. Thus there has been an increase of 72 p.c. in the quantity of bituminous coal used while the value has increased only 13 p.c. The fuels which have shown the greatest proportionate increases are gas and oil.

31.—Total Fuel Used in the Manufacturing Industries of Canada, 1921-29, with Details by Provinces and Groups, 1929.

Province and Group.	Bituminous Coal.		Anthracite Coal.	Coke.	Oil.	Wood.	Gas.	Total.
	Quantity.	Value.						
	tons	\$	\$	\$	\$	\$	\$	\$
Totals, 1921...	4,103,071	34,752,681	2,915,752	2,197,400	5,417,800	-	-	51,640,912
Totals, 1922...	4,101,463	29,914,585	3,616,185	3,299,016	5,649,071	2,085,444	1,616,802	48,920,563
Totals, 1923...	5,338,446	38,283,135	4,614,239	3,238,257	6,241,692	2,514,157	1,904,058	58,736,938
Totals, 1924...	5,518,255	34,438,554	4,642,654	2,250,232	5,780,732	2,595,064	4,711,186	57,068,214
Totals, 1925...	5,902,197	31,034,531	2,564,489	5,045,239	7,248,961	2,700,979	3,570,180	57,818,701
Totals, 1926...	6,409,227	36,723,359	2,266,935	4,176,584	7,371,769	2,645,505	4,233,078	59,695,997
Totals, 1927...	6,470,803	36,053,827	2,435,720	3,890,378	7,220,329	2,492,495	5,272,735	60,106,218
Totals, 1928...	6,639,736	37,871,736	2,070,989	1,819,347	7,300,552	2,439,104	5,434,605	59,761,267
Totals, 1929...	7,062,234	39,315,723	1,986,332	2,354,542	8,778,491	2,693,629	6,211,847	64,425,489
PROVINCE, 1929.								
P. E. Island.....	12,466	76,443	636	4,287	10,702	10,926	-	105,290
Nova Scotia.....	353,390	1,721,093	19,035	223,415	525,329	69,615	603,665	3,197,827
New Brunswick...	261,808	1,346,426	12,498	29,840	64,998	190,163	18,024	1,081,023
Quebec.....	2,067,638	12,255,535	1,013,973	424,047	2,337,402	709,505	611,050	17,613,796
Ontario.....	3,697,929	20,011,876	841,534	1,393,041	3,278,529	904,945	4,045,553	31,336,902
Manitoba.....	178,985	1,334,774	82,343	71,131	231,282	231,212	141,305	2,572,661
Saskatchewan.....	88,961	601,298	10,682	78,273	455,562	51,643	177,031	2,172,706
Alberta.....	145,728	541,862	348	23,427	125,257	32,048	460,178	1,678,531
British Columbia and Yukon.....	255,329	1,396,316	5,283	106,475	1,749,439	427,572	156,561	4,066,693
GROUP OF INDUSTRIES, 1929.								
Vegetable products...	709,319	3,718,816	509,436	477,733	761,040	505,851	692,583	7,004,888
Animal products...	356,134	2,108,680	49,041	42,104	190,624	500,052	088,352	3,232,754
Textiles.....	471,389	2,952,161	199,865	46,037	92,575	55,791	89,273	3,557,962
Wood and paper...	2,020,532	11,532,879	714,533	23,389	837,021	811,176	160,551	14,431,777
Iron and steel.....	1,209,714	5,945,548	296,614	612,179	2,420,758	77,467	1,975,220	11,779,052
Non-ferrous metals	356,864	2,206,024	52,533	262,505	1,108,347	8,132	185,592	3,932,473
Non-metallic minerals.....	1,373,331	7,852,484	72,025	774,020	2,334,632	662,608	2,905,627	14,892,045
Chemicals.....	305,350	1,551,275	49,245	71,771	69,480	14,166	26,545	1,841,368
Miscellaneous industries.....	63,884	407,292	23,932	44,804	108,851	7,884	52,726	658,775
Central electric stations.....	195,717	1,040,538	20,108	-	795,163	49,602	58,378	3,014,395

Includes other kinds of fuel which, in 1929, were as follows: lignite coal, \$1,759,415; gasoline, \$470,302; other fuels, \$852,208.

Section 5.—Manufacturing Industries in Cities and Towns.

The prosperity of most of the cities and towns of Canada, especially in the East, is intimately connected with their manufacturing industries, which provide employment for a large proportion of their gainfully employed population. In the West the cities are more largely distributing centres, though manufactures are rapidly increasing there also.

Table 32, indicating the extent to which the manufacturing industries of Canada are concentrated in urban centres, shows by provinces the proportion of the gross manufacturing production which is produced in cities and towns having a gross production of over \$1,000,000 each. In the more highly industrialized provinces of Ontario and Quebec such cities and towns account for about 90 p.c. of the total, while in British Columbia and Prince Edward Island, where sawmilling, fish-packing, and dairying are leading industries, the proportion falls to 55 p.c. or less. In the Prairie Provinces manufacturing is largely confined to a few large urban centres.

The seven chief manufacturing cities of Canada have been Montreal, Toronto, Hamilton, Winnipeg, Vancouver, Oshawa and Ottawa, although a number of other cities had a larger production than Ottawa in 1929. Statistics showing the trend of production in these cities during the last 8 years for which the figures are available are given in Table 33. In the last two cities production was lower in 1929 than in 1928. The drop was especially pronounced in Ottawa, probably due to the fact that the wood and paper industries were in an unfavourable position even before the general depression began at the end of 1929.

According to the census of 1921, Hamilton was proportionately the most largely dependent of these cities upon manufacturing industries. About 45 p.c. of its gainfully employed population was employed in manufacturing industries, as compared with 30 p.c. in Montreal and Toronto, 17 p.c. in Winnipeg and Vancouver and 13 p.c. in Ottawa.

Twenty-five other important cities with a gross production of manufactured goods of over \$20,000,000 each in 1929 were as follows, in descending order of the value of their products: Walkerville, East Windsor, London, Kitchener, Niagara Falls, Calgary, Three Rivers, Shawinigan Falls, Quebec, Peterborough, Brantford, Regina, Sarnia, New Toronto, Edmonton, Sault Ste. Marie, Windsor, Montreal East, Lasalle, Lachine, St. Boniface, Welland, Saint John, Sherbrooke and Leaside. Statistics of manufactures of cities and towns with a gross production of \$200,000 and over and with three or more establishments are given for 1929 in Table 34.

32.—Cities and Towns with a Gross Manufacturing Production of over \$1,000,000 each, Number of Establishments and Total Gross Production in such Cities and Towns as a Percentage of the Grand Total, by Provinces, 1929.

Province.	Cities and Towns with a Gross Production of over \$1,000,000 each.	Establishments Reporting in Cities and Towns Producing over \$1,000,000 each.	Total Production in Cities and Towns Producing over \$1,000,000 each.	Total Production in each Province.	Production in Cities and Towns as a Percentage of Total Production in each Province.
	No.	No.	\$	\$	p.c.
Prince Edward Island.....	1	31	2,112,410	4,638,725	45.5
Nova Scotia.....	9	284	75,765,097	94,292,816	80.4
New Brunswick.....	9	263	49,484,429	71,433,066	69.2
Quebec.....	59	2,951	1,051,399,937	1,163,612,092	90.6
Ontario.....	121	6,132	1,882,367,573	2,103,090,788	89.5
Manitoba.....	7	607	152,158,266	164,009,127	92.3
Saskatchewan.....	4	183	69,401,289	80,801,159	86.2
Alberta.....	5	333	90,721,278	107,556,792	83.4
British Columbia.....	14	989	152,402,730	276,950,914	55.5
Canada.....	229	11,773	3,525,872,979	4,063,987,279	86.8

33.—Principal Statistics of the Manufacturing Industries of Six Leading Manufacturing Cities of Canada, 1922-29.

City.		Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Gross Value of Products.
		No.	\$	No.	\$	\$	\$
Montreal.....	1922	1,461	350,839,911	78,100	81,829,111	198,667,089	389,098,176
	1923	1,451	473,624,425	85,603	93,943,718	220,198,441	459,254,656
	1924	1,500	469,354,640	86,618	91,725,516	224,134,382	444,852,084
	1925	1,661	517,209,355	90,584	98,441,694	233,287,050	460,252,857
	1926	1,736	543,557,131	96,141	109,361,475	275,714,382	556,236,407
	1927	1,823	552,788,702	98,353	113,797,512	259,104,230	540,267,591
	1928	1,834	481,181,947	101,608	119,226,844	273,015,114	554,311,571
	1929	1,818	554,500,877	112,338	131,969,796	337,105,620	637,906,135
Toronto.....	1922	1,811	392,469,184	78,833	92,930,846	205,568,765	394,065,052
	1923	1,933	389,772,678	82,267	97,417,033	210,786,422	409,829,557
	1924	1,928	410,244,068	80,001	96,554,310	213,493,889	401,367,127
	1925	1,957	429,165,022	82,728	100,769,782	246,399,340	447,088,824
	1926	2,013	451,233,965	86,439	107,734,568	270,290,114	489,522,114
	1927	2,092	475,475,308	92,238	115,556,907	270,275,071	520,066,313
	1928	2,221	505,207,656	100,034	125,579,599	293,830,796	565,444,323
	1929	2,236	549,328,334	102,406	133,722,929	304,208,614	593,253,569
Hamilton.....	1922	437	143,168,098	23,476	26,256,146	50,844,910	100,280,131
	1923	436	170,378,119	25,797	31,399,136	77,140,809	141,097,732
	1924	427	170,993,755	23,772	28,513,251	56,884,010	118,591,000
	1925	415	166,294,590	23,619	27,977,060	62,102,984	122,207,849
	1926	417	172,345,587	27,087	33,244,170	74,066,846	146,037,029
	1927	422	179,328,754	29,210	36,984,470	72,757,263	152,107,454
	1928	426	201,584,803	30,787	40,276,968	79,114,898	166,262,355
	1929	416	221,427,642	35,375	47,535,648	94,404,240	197,949,081
Winnipeg.....	1922	436	46,251,208	10,679	13,858,116	38,766,668	66,925,392
	1923	424	70,788,577	11,542	14,704,566	38,172,282	70,529,471
	1924	411	87,489,506	11,934	15,395,262	40,837,275	74,755,670
	1925	409	89,698,323	14,346	18,390,707	42,388,504	79,614,829
	1926	446	96,801,995	15,474	20,086,607	45,501,703	87,696,243
	1927	468	108,635,882	16,759	21,290,107	48,921,620	95,590,961
	1928	491	115,678,092	18,340	23,994,480	35,275,785	105,456,065
	1929	501	125,321,028	19,150	25,216,832	55,116,644	109,320,746
Vancouver.....	1922	485	75,030,953	10,598	10,579,482	35,507,418	63,172,964
	1923	507	80,053,568	11,400	13,815,995	40,518,790	71,221,905
	1924	498	93,699,451	13,417	16,920,959	43,691,647	77,860,759
	1925	507	102,105,028	13,334	16,384,973	42,020,970	75,823,721
	1926	523	106,624,727	14,781	18,347,299	40,120,382	84,831,423
	1927	556	116,754,995	14,897	19,254,035	47,290,240	87,754,347
	1928	620	123,029,880	16,013	20,261,435	49,597,035	94,131,608
	1929	639	129,078,372	16,603	21,882,312	50,933,163	99,646,413
Oshawa.....	1922	34	20,658,430	4,052	4,883,478	28,535,248	40,131,834
	1923	34	23,978,144	5,019	6,223,833	33,338,313	43,876,305
	1924	35	21,311,531	4,554	5,301,282	25,990,264	37,918,099
	1925	34	21,832,973	4,987	6,269,918	30,345,887	47,529,284
	1926	33	23,935,711	5,611	7,391,465	34,447,446	54,571,595
	1927	35	31,883,066	6,846	10,127,271	50,763,745	77,631,290
	1928	37	38,643,526	8,715	12,902,374	56,182,896	84,894,222
	1929	39	35,545,303	7,192	11,034,499	43,619,954	66,317,911

34.—Statistics of Manufactures of Municipalities with a Gross Production of \$200,000 or over, and with Three or more Establishments, 1929.

City or Town.	Estab-lish-ments.	Capital.	Em-ployees.	Salaries and Wages.	Cost of Materials.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$
Prince Edward Island—						
Charlottetown.....	31	2,088,981	464	466,015	1,114,034	2,112,410
Summerside.....	16	495,029	119	84,082	135,655	322,744
Nova Scotia—						
Sydney.....	30	40,943,442	2,313	3,523,329	8,863,116	19,429,966
Dartmouth.....	14	16,735,609	914	1,286,384	12,353,759	16,160,775
Halifax.....	111	34,257,910	4,132	4,548,583	5,701,791	15,988,940
Trenton.....	3	8,653,280	1,391	1,943,609	7,766,896	11,603,045
Truro.....	29	5,031,296	955	738,857	2,100,055	3,935,124
Amherst.....	25	5,040,940	770	788,625	1,168,839	2,665,143
Yarmouth.....	30	3,153,081	518	461,549	1,280,043	2,506,450
New Glasgow.....	30	2,685,368	719	723,285	832,413	2,291,640
Windsor.....	12	2,431,969	311	276,642	577,197	1,124,014
Canso.....	5	387,415	196	141,341	341,625	735,233
Bridgewater.....	17	888,195	184	141,025	408,401	701,492
Pictou.....	10	468,893	282	142,376	304,457	554,763
Stellarton.....	11	771,223	77	69,790	158,131	539,917
North Sydney.....	13	322,726	140	131,804	191,783	465,097
Lockport.....	6	418,277	139	68,441	274,230	438,987
Port Hawkesbury.....	6	460,810	121	85,563	298,515	427,813
Digby.....	8	369,857	74	60,094	234,058	377,716
Oxford.....	12	321,579	153	101,910	190,954	364,706
Clarks Harbour.....	8	37,237	78	20,774	259,233	315,368
Middleton.....	6	281,304	50	51,591	108,267	309,679
Shelburne.....	17	306,502	134	112,984	133,606	308,473
Stewiacke.....	5	153,824	110	64,077	170,728	283,305
Wolfville.....	7	192,249	80	49,149	137,778	278,553
Liverpool.....	10	376,712	138	99,806	132,076	274,237
Glace Bay.....	7	271,634	55	66,134	31,984	258,304
Bridgetown.....	9	609,952	117	71,032	112,098	247,922
Annapolis.....	8	298,988	76	46,315	120,569	226,178
Hantsport.....	4	394,884	98	79,417	90,228	220,768
New Brunswick—						
Saint John.....	126	26,888,010	3,630	3,740,028	14,210,579	23,201,405
Moncton.....	40	8,158,386	2,419	3,071,413	4,258,123	8,497,214
Edmundston.....	10	10,162,725	666	706,319	2,352,582	5,183,320
Bathurst.....	14	9,618,254	602	833,430	1,756,151	3,598,439
St. Stephen.....	17	2,676,985	598	560,686	1,610,494	2,902,944
Fredericton.....	20	3,807,981	621	583,949	1,123,565	2,355,521
Campbellton.....	12	3,039,703	345	311,391	645,986	1,348,682
Sackville.....	12	1,632,009	453	466,840	418,374	1,276,371
Milltown.....	3	2,605,040	601	532,211	547,127	1,120,524
Newcastle.....	12	2,906,005	140	209,786	501,522	954,025
Chatham.....	10	3,419,657	103	197,789	485,202	936,055
Sussex.....	13	488,657	195	137,547	435,207	876,554
Grand Falls.....	10	13,619,193	106	99,858	118,436	612,922
Dalhousie.....	3	251,523	53	35,363	204,970	319,319
Woodstock.....	18	464,418	113	99,243	76,428	241,968
Port Elgin.....	7	168,334	108	52,181	112,133	218,107
Quebec—						
Montreal.....	1,818	554,500,877	112,338	131,969,796	337,105,620	637,906,135
Three Rivers.....	56	84,985,634	7,002	7,792,197	18,045,761	42,477,807
Shawinigan Falls.....	24	175,265,816	3,591	5,135,068	17,130,956	40,746,648
Quebec.....	244	68,054,042	10,076	9,854,134	17,184,311	39,826,822
Montreal East.....	5	31,100,360	1,998	3,069,618	16,306,359	25,911,456
La Salle.....	6	22,427,694	1,186	1,706,028	8,990,376	25,837,602
Lachine.....	29	28,112,579	3,654	5,946,077	9,106,195	25,431,899
Sherbrooke.....	74	23,754,176	4,962	5,040,411	10,697,613	23,154,974
Granby.....	28	10,372,455	3,000	2,531,466	4,883,452	12,481,792
Port Alfred.....	3	39,012,823	994	1,515,530	5,690,109	10,348,787
Valleyfield.....	28	12,421,780	2,751	2,104,596	3,647,825	10,261,077
Drummondville.....	16	10,483,310	2,321	2,045,538	5,046,442	10,148,276
Hull.....	37	10,815,415	2,146	2,370,946	4,184,714	9,930,547
Magog.....	14	6,600,421	1,041	1,318,081	6,243,932	9,031,909
St. Johns.....	42	9,653,654	3,185	3,208,164	4,008,115	8,910,962
St. Jérôme.....	26	8,706,996	2,277	1,995,726	2,917,330	8,866,672
St. Hyacinthe.....	47	9,977,327	2,573	1,912,098	4,484,954	8,166,801
Grand Mère.....	14	20,380,121	1,228	1,754,216	2,355,750	6,253,169
Kenogami.....	3	16,374,798	816	1,369,589	2,296,256	6,058,064
La Tuque.....	13	11,963,412	821	1,234,427	1,953,850	4,790,575
East Angus.....	7	8,613,280	738	832,862	2,522,239	4,484,553

34.—Statistics of Manufactures of Municipalities with a Gross Production of \$200,000 or over, and with Three or more Establishments, 1929—continued.

City or Town.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$
Quebec—continued.						
Westmount.....	13	3,571,758	860	1,242,964	1,434,470	4,283,884
Bakerville.....	9	4,407,482	244	313,116	1,073,771	3,837,471
Donnacona.....	3	12,242,971	614	977,330	1,312,119	3,833,607
Victoriaville.....	23	2,675,628	1,280	1,061,700	1,617,828	3,775,862
Verdun.....	16	3,770,614	811	803,842	1,501,282	3,246,287
St. Joseph d'Alma.....	5	15,732,287	508	852,881	753,207	3,134,200
Outremont.....	6	2,412,944	674	807,358	1,328,146	2,061,938
Brownburg.....	3	3,179,320	531	528,117	1,091,853	2,881,187
Beauharnois.....	8	6,829,732	681	691,996	1,188,901	2,860,647
Joliette.....	39	2,445,030	717	582,772	1,170,822	2,095,603
Cowansville.....	11	2,603,172	622	611,758	1,328,123	2,027,827
St. Pierre.....	6	3,054,691	457	553,104	779,693	2,518,041
Longueuil.....	10	3,344,674	328	479,548	830,441	2,259,760
Sorel.....	20	2,928,121	1,496	1,248,088	686,941	2,230,534
Buckingham.....	13	3,448,887	489	402,062	1,101,435	2,212,726
Windor.....	11	6,029,464	663	869,553	1,079,324	2,211,437
Chicoutimi.....	20	9,108,005	576	623,294	825,353	2,123,073
Bromptonville.....	3	5,880,156	185	230,132	1,031,853	1,957,083
Lauzon.....	6	2,093,058	374	468,040	946,478	1,857,256
Coaticook.....	20	2,443,756	685	436,040	1,112,579	1,823,620
Chaudière.....	4	2,983,227	410	473,394	753,938	1,707,864
Dolson.....	4	1,703,085	445	448,152	394,081	1,588,647
Asbestos.....	9	1,239,460	183	118,354	1,057,012	1,355,849
Rock Island.....	13	2,247,260	362	326,573	541,819	1,298,868
Berthier.....	12	7,021,971	424	356,816	619,020	1,270,024
St. Rémi.....	11	353,686	95	60,181	977,925	1,184,528
Montmagny.....	13	2,358,337	460	389,707	448,976	1,170,947
Cap de la Madeleine.....	8	381,269	90	54,169	773,114	1,125,807
Jonquière.....	10	1,831,069	224	302,321	504,610	1,068,830
Portneuf.....	10	1,408,589	216	166,609	576,955	1,067,683
Loretteville.....	21	1,114,421	452	333,428	596,384	1,056,706
Laprairie.....	8	7,456,467	438	459,840	52,570	1,049,434
Rimouski.....	9	3,208,902	303	330,479	508,167	1,045,601
Marièveville.....	12	886,745	485	335,095	749,497	1,031,676
Acton Vale.....	10	722,429	234	135,943	500,520	1,008,800
St. Laurent.....	8	1,286,082	345	442,874	453,895	1,003,002
Plessisville.....	14	1,039,080	309	252,842	517,738	974,086
Farnham.....	12	963,736	242	175,944	511,033	878,638
Ste. Thérèse.....	13	1,085,719	248	198,189	371,289	838,004
Thurso.....	8	1,085,079	152	167,910	548,444	787,748
Bedford.....	4	991,782	369	274,965	74,858	783,229
Lennoxville.....	6	577,936	105	136,569	381,895	747,835
Rivière du Loup.....	17	2,039,438	301	322,555	241,761	734,073
Charlemagne.....	3	1,137,573	66	69,777	462,263	713,481
St. Raymond.....	57	937,729	208	166,797	379,805	712,879
Terrebonne.....	9	1,145,997	244	213,914	311,192	690,170
Lac au Saumon.....	3	484,063	203	113,541	325,406	661,949
Waterloo.....	12	837,152	295	232,473	263,497	613,792
Chamby Canton.....	3	927,767	141	142,281	156,039	562,226
Pont Rouge.....	13	605,144	174	100,872	349,684	554,056
St. Lambert.....	8	618,314	162	162,649	142,205	499,075
Warwick.....	10	527,944	141	124,335	293,886	487,188
Ste. Marie (Beauce).....	13	192,017	193	95,317	277,224	459,518
Contrecoeur.....	5	273,685	169	140,412	263,696	456,140
Scotstown.....	3	405,415	159	121,044	146,938	439,692
Lachute.....	8	575,604	114	69,699	87,766	427,561
Danville.....	10	414,855	142	108,170	237,561	413,488
Shawville.....	10	109,267	38	25,572	313,870	389,395
Nicolet.....	9	288,458	140	99,978	202,222	387,588
Mont Joli.....	5	261,237	111	103,346	191,139	379,173
Louiseville.....	7	165,985	170	88,512	256,688	378,452
Calumet.....	4	690,260	125	88,055	224,269	376,449
Huntingdon.....	9	165,567	45	45,080	217,310	376,358
Iberville.....	6	249,743	126	188,827	82,278	370,933
Mégantic.....	8	695,842	119	105,238	171,781	359,995
Sutton.....	12	318,446	103	82,061	183,969	358,716
St. Tite.....	14	161,147	92	58,060	222,480	317,480
Beauceville.....	9	234,915	121	80,420	168,437	313,543
Beebe Plain.....	5	151,940	74	60,252	191,587	312,717
Amos.....	8	420,883	117	118,839	149,001	287,421
Thetford Mines.....	16	439,559	105	92,953	111,340	262,749
L'Assomption.....	6	353,909	99	75,302	134,621	259,395
Mont Laurier.....	10	189,342	45	30,289	168,873	241,527

34.—Statistics of Manufactures of Municipalities with a Gross Production of \$200,000 or over, and with Three or more Establishments, 1929—continued.

City or Town.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$
Quebec—concluded.						
Ste. Anne de Bellevue.....	6	628,599	70	88,203	40,753	239,247
Roberval.....	15	225,488	117	56,805	145,028	231,750
St. Casimir.....	11	216,304	84	59,771	118,181	223,220
Beauport.....	5	199,956	47	43,368	157,894	221,901
Waterville.....	4	253,471	91	56,474	101,245	221,635
Disraeli.....	4	85,579	76	56,827	132,886	210,358
Val Brillant.....	4	471,227	61	40,359	133,688	200,296
St. Pie.....	11	136,044	65	32,400	132,316	207,589
Ontario—						
Toronto.....	2,236	549,328,334	102,406	133,722,929	304,208,614	593,253,569
Hamilton.....	416	221,427,642	35,375	47,535,648	94,404,240	197,949,081
Oshawa.....	39	35,545,303	7,182	11,034,490	43,610,954	66,317,911
Warkerville.....	56	42,453,046	5,973	9,917,274	35,991,419	64,203,465
East Windsor.....	13	41,898,796	6,697	11,254,704	33,943,575	59,617,888
London.....	231	47,413,765	10,134	11,996,633	21,102,010	50,346,829
Kitchener.....	136	40,931,499	9,559	10,518,382	23,065,798	50,314,798
Niagara Falls.....	64	46,529,499	3,370	4,967,892	26,269,587	49,890,515
Peterborough.....	80	26,206,623	5,727	6,140,108	21,254,539	37,788,540
Ottawa.....	202	56,543,292	8,604	10,578,982	10,180,685	36,098,047
Brantford.....	99	64,204,680	8,424	9,689,185	17,073,251	35,394,500
Samia.....	42	27,830,801	3,064	4,624,895	22,745,061	32,126,714
New Toronto.....	13	25,083,063	3,314	4,890,197	19,061,957	31,217,314
Sault Ste. Marie.....	46	61,726,462	2,527	4,511,597	13,933,100	29,768,172
Windsor.....	137	25,752,714	3,975	6,033,844	12,932,606	26,773,730
Welland.....	41	22,438,592	3,342	3,963,281	13,020,710	24,288,206
Leaside.....	8	12,978,084	1,816	2,908,683	14,910,791	21,377,821
Guelph.....	92	18,532,718	4,799	5,152,525	9,924,762	19,970,647
St. Catharines.....	105	19,169,616	4,323	5,245,579	8,742,568	19,645,506
Chatham.....	75	15,531,405	2,374	3,178,817	11,734,352	18,835,937
Galt.....	79	17,792,971	4,410	4,842,422	7,758,062	16,936,876
Cornwall.....	40	29,114,661	3,960	3,871,376	6,248,499	15,470,566
Port Colborne.....	15	11,250,012	713	1,033,857	11,248,953	14,862,832
Stratford.....	61	10,850,591	3,109	3,966,280	7,655,197	14,103,331
Woodstock.....	55	12,398,244	2,805	3,119,989	6,952,852	13,615,099
Thorold.....	17	28,921,190	1,471	2,399,864	5,577,520	12,807,000
Brockville.....	36	7,884,314	1,084	1,209,351	9,808,660	12,750,990
Port William.....	38	29,319,893	1,290	1,633,112	5,767,321	11,578,360
Wallaceburg.....	20	7,122,347	1,236	1,570,930	6,398,709	9,999,782
Waterloo.....	36	12,207,234	1,502	1,738,738	3,881,690	9,809,148
Iroquois Falls.....	3	24,138,504	1,118	2,056,484	2,789,972	9,510,678
Kenora.....	18	18,301,969	628	877,413	5,396,933	8,728,065
Port Arthur.....	20	19,288,833	1,198	1,737,796	2,433,341	8,681,263
Fergus.....	13	1,599,616	746	821,819	2,627,718	8,463,547
Kapuskasing.....	8	30,138,117	1,198	1,810,464	2,822,560	8,135,078
Kingston.....	56	13,489,360	1,656	1,927,953	3,501,930	7,614,965
Preston.....	35	6,884,254	1,775	2,010,745	3,122,408	6,921,367
Bellefleur.....	54	10,005,427	1,457	1,492,116	1,689,753	6,342,392
Port Frances.....	14	14,589,169	773	1,163,878	2,535,177	6,216,917
Owen Sound.....	55	7,892,208	1,909	1,865,308	2,617,212	5,975,858
Simcoe.....	32	4,134,092	737	626,339	3,186,535	5,806,350
Leamington.....	17	3,691,305	571	559,743	2,655,482	5,080,239
St. Thomas.....	48	4,378,482	1,218	1,267,892	2,719,546	5,322,017
Pembroke.....	37	5,152,793	1,322	1,120,807	2,805,932	5,130,055
Goderich.....	20	2,318,378	369	349,516	3,825,849	4,839,295
Hawkesbury.....	6	6,102,063	816	618,144	2,402,071	4,710,129
Chippawa.....	4	1,178,069	259	99,447	948,786	4,599,432
Sandwich.....	12	7,802,073	969	1,497,095	801,493	4,464,074
Weston.....	15	4,467,502	1,071	1,333,144	1,973,670	4,403,914
Midland.....	18	3,259,209	755	838,095	2,921,252	4,270,258
Elmira.....	14	2,315,353	775	773,474	1,441,516	4,073,037
Ingersoll.....	23	4,283,506	841	933,496	2,055,137	4,007,279
Acton.....	14	2,554,758	460	512,121	2,801,027	3,989,463
Newmarket.....	17	2,578,242	713	778,528	1,872,329	3,980,063
Bowmanville.....	19	3,796,384	640	655,825	1,677,515	3,962,587
Paris.....	20	6,552,897	1,150	1,072,544	1,801,389	3,913,253
St. Marys.....	20	4,454,618	471	580,805	1,723,418	3,639,906
Orillia.....	36	5,133,643	1,060	1,149,662	1,748,301	3,579,034
Cardinal.....	9	3,348,881	282	369,627	2,470,849	3,573,690
Blind River.....	6	6,262,731	388	563,395	2,078,978	3,464,146
Renfrew.....	21	4,646,320	692	744,276	1,747,019	3,437,751
Hespeler.....	15	5,624,883	1,089	1,095,492	1,594,308	3,415,475

34.—Statistics of Manufactures of Municipalities with a Gross Production of \$200,000 or over, and with Three or more Establishments, 1929—continued.

City or Town.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$
Ontario—continued.						
Merritton.....	9	5,233,559	531	806,052	1,613,154	3,352,967
Dundas.....	21	4,557,537	727	979,119	1,603,733	3,268,793
Sudbury.....	27	5,061,010	462	596,934	1,447,767	3,220,534
Brampton.....	21	2,512,197	890	883,409	1,402,028	3,141,614
Perth.....	21	3,958,419	722	849,646	1,300,223	3,132,571
Amherstburg.....	10	13,862,778	278	453,147	408,074	3,064,933
Bridgeburg.....	20	2,420,145	352	527,829	1,188,261	3,051,770
Petrolia.....	14	2,494,437	253	288,817	1,825,418	2,984,057
Huntsville.....	15	4,346,565	402	357,873	2,139,121	2,807,877
Gannock.....	22	3,604,300	080	787,835	1,420,015	2,873,106
Georgetown.....	15	2,654,551	518	546,920	1,635,381	2,805,090
Lindsay.....	35	3,664,398	478	522,206	1,316,075	2,810,634
Harvey.....	15	3,734,531	715	692,822	1,243,593	2,575,295
Aylmer.....	7	2,269,072	245	206,913	1,226,716	2,467,087
Aurora.....	9	1,342,563	417	427,498	1,742,626	2,460,509
Cobourg.....	28	2,686,454	496	445,140	1,023,884	2,456,060
Trenton.....	26	3,341,001	604	586,563	1,180,060	2,307,397
Smiths Falls.....	22	3,098,754	691	785,443	1,111,250	2,272,021
Port Hope.....	28	3,104,575	048	708,727	745,302	2,191,402
Carleton Place.....	17	2,338,761	602	642,780	860,325	2,114,850
Barrie.....	11	1,741,914	348	414,854	1,353,461	2,084,963
Caletonia.....	18	1,353,091	249	290,771	834,443	2,075,182
Dryden.....	8	5,625,532	329	451,084	814,478	2,069,632
Dunville.....	20	2,444,495	781	717,977	935,922	2,052,553
Tilsonburg.....	20	1,918,405	399	369,232	1,195,410	2,027,658
Port Credit.....	4	2,446,195	202	246,229	1,227,850	2,016,153
Oakville.....	18	1,540,656	377	423,303	1,076,534	1,958,747
Listowel.....	19	1,125,799	508	410,477	1,026,043	1,897,665
Sturgeon Falls.....	9	7,117,109	350	528,195	1,329,698	1,888,519
Kincardine.....	14	1,614,035	477	448,968	958,492	1,850,048
Arnprior.....	15	3,659,833	506	541,983	861,401	1,832,748
Chesterville.....	7	958,330	173	240,416	1,302,697	1,855,959
Napanee.....	20	1,381,427	330	330,120	924,446	1,792,246
Milton.....	18	3,104,748	411	399,668	464,299	1,756,051
Tilbury.....	7	940,280	358	406,824	846,931	1,708,194
Menford.....	16	1,434,426	342	298,972	986,389	1,540,652
Collingwood.....	24	4,604,697	458	403,513	790,320	1,546,011
North Bay.....	23	1,621,764	311	357,719	700,348	1,499,332
Ayr.....	7	1,139,073	112	117,328	638,590	1,463,722
Lakefield.....	19	3,122,082	188	109,015	180,988	1,446,748
New Liskeard.....	15	2,091,942	201	304,844	702,898	1,437,982
Strathroy.....	16	1,450,668	321	314,134	871,370	1,434,452
Almonte.....	19	1,610,461	445	355,758	816,270	1,432,629
Tavistock.....	11	487,178	170	150,119	1,094,308	1,360,875
Wingham.....	16	1,045,085	341	324,658	808,323	1,366,518
Catch Bay.....	3	1,083,507	217	240,639	919,950	1,267,239
Elora.....	8	1,019,600	317	335,541	371,014	1,250,450
Milverton.....	9	423,710	87	78,748	901,675	1,206,721
Grimsby.....	14	1,146,608	418	277,306	670,535	1,185,872
Chesley.....	14	1,030,875	376	335,974	529,039	1,165,232
Walkerton.....	20	2,149,448	315	290,790	623,534	1,151,955
Gravenhurst.....	9	1,658,131	375	405,908	499,070	1,138,363
Bracebridge.....	17	2,226,021	243	210,012	575,963	1,120,692
Prescott.....	16	1,038,761	209	226,619	475,141	1,111,892
Kingsville.....	12	482,901	178	145,801	746,275	1,075,809
Penetanguishene.....	14	1,172,427	347	378,589	459,804	1,055,869
Port Dalhousie.....	5	1,016,247	302	328,513	276,413	1,035,439
Campbellford.....	15	1,268,686	257	239,416	563,590	1,030,207
Clinton.....	17	812,275	216	183,884	529,730	1,005,290
Norwich.....	10	425,020	199	110,798	721,470	995,215
Frankford.....	13	2,232,152	228	147,824	558,773	993,258
Pictou.....	24	1,073,131	272	161,064	559,544	950,757
Alexandria.....	16	793,435	202	173,403	555,788	900,086
Burlington.....	9	1,188,276	223	228,520	528,500	874,213
Whitby.....	9	926,275	204	268,830	420,763	860,578
Seaforth.....	15	555,481	141	134,423	562,782	855,027
Brignton.....	18	939,399	274	118,953	409,847	819,629
Mount Forest.....	17	712,351	177	145,940	507,959	825,482
Humberstone.....	8	598,664	188	173,741	451,473	734,342
Harrison.....	11	662,535	153	150,678	430,342	724,696
New Hamburg.....	11	808,451	185	171,386	412,504	690,567
Delhi.....	7	830,303	90	67,282	353,139	678,682

34.—Statistics of Manufactures of Municipalities with a Gross Production of \$200,000 or over, and with Three or more Establishments, 1929—continued.

City or Town.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$
Ontario—concluded.						
Durham.....	10	524,053	204	197,343	376,063	677,548
Southampton.....	8	914,204	246	231,636	362,226	675,483
Orangeville.....	15	702,230	154	118,045	433,315	653,611
Wellington.....	9	851,045	208	95,984	355,967	648,622
West Lorne.....	7	562,599	103	48,385	460,121	628,211
Streetsville.....	9	445,653	113	233,550	237,652	616,583
Port Elgin.....	6	641,283	171	173,114	284,108	611,466
Lucknow.....	13	386,936	85	73,723	428,373	606,006
Exeter.....	11	699,570	112	70,709	366,336	594,060
Dresden.....	13	573,153	151	114,282	313,595	594,604
Forest.....	12	521,134	125	95,970	322,675	589,280
Waterford.....	8	578,230	146	77,084	358,714	579,368
Burk's Falls.....	8	730,378	232	215,610	150,652	568,714
Copper Cliff.....	3	7,054,948	86	52,772	31,804	540,440
Mitchell.....	13	582,849	100	77,880	356,198	532,824
Teeswater.....	10	235,297	43	41,534	245,852	531,604
Twedd.....	12	360,398	140	132,108	302,001	527,162
Mimico.....	7	555,070	88	124,395	14,391	520,009
Jarvis.....	6	182,037	30	29,452	416,097	517,978
Warrton.....	11	382,983	99	93,215	282,750	505,690
Waterdown.....	9	576,509	99	146,720	10,359	494,802
Dutton.....	10	157,145	57	33,164	387,168	494,499
Bloomfield.....	10	786,053	199	74,246	295,503	489,583
South River.....	7	559,743	170	120,101	212,893	477,273
Essex.....	10	699,725	85	82,479	232,494	499,246
Cusselman.....	12	350,401	116	71,103	306,571	428,436
Halesbury.....	5	988,370	88	97,320	147,468	401,073
Port Dover.....	11	637,450	95	64,691	234,097	394,801
Deseronto.....	10	393,507	97	68,935	209,192	394,578
Stirling.....	15	105,029	66	35,923	301,664	384,911
Timmins.....	13	700,323	105	108,284	168,968	382,837
Ridgetown.....	17	475,174	89	66,000	233,501	382,323
Hagersville.....	6	112,372	16	16,400	295,259	375,571
Palmerston.....	7	147,909	22	20,976	282,839	373,135
Sioux Lookout.....	8	555,338	72	42,891	238,000	362,572
Sherburne.....	6	129,692	26	21,688	297,730	361,184
Latchford.....	3	470,001	71	77,682	204,500	344,379
Paisley.....	10	113,492	32	23,698	253,446	328,081
Kennettville.....	9	286,170	75	58,148	149,482	314,832
Winchester.....	14	135,500	56	37,059	207,934	307,176
Neustadt.....	4	214,764	65	51,707	156,840	300,048
Port Perry.....	10	178,105	38	31,200	193,267	293,010
Watford.....	9	231,123	65	59,813	166,407	270,000
Iroquois.....	9	500,611	59	58,457	127,188	268,965
Perry Sound.....	15	508,301	92	55,613	105,678	264,294
Stayner.....	8	95,448	24	17,018	199,412	262,110
Arthur.....	4	69,437	10	9,775	208,097	255,723
Uxbridge.....	11	129,776	22	17,922	184,664	254,959
Alliston.....	12	205,300	28	27,800	177,462	253,470
Eganville.....	11	352,340	73	49,189	151,099	247,801
Bradford.....	5	204,221	57	60,905	78,986	247,132
Beamsville.....	10	118,276	57	45,655	156,517	240,396
Tarn.....	7	69,877	15	13,489	188,579	230,643
Coblen.....	6	100,390	19	13,712	173,804	232,676
Markdale.....	7	104,684	30	17,232	182,795	230,090
Grand Valley.....	5	50,577	14	11,331	182,401	222,100
Stouffville.....	7	128,695	22	19,469	161,225	218,953
Markham.....	6	137,422	32	28,540	148,114	218,861
Brussels.....	6	57,795	15	10,378	177,424	217,061
Bolton.....	7	94,995	17	14,952	170,460	213,907
Clifford.....	6	41,492	13	7,365	160,661	213,863
Bancroft.....	10	106,117	73	22,831	143,654	213,075
Tottenham.....	4	61,157	14	13,146	163,275	211,671
Belle River.....	5	371,939	44	41,903	67,057	206,049
Sutton West.....	4	100,689	22	17,419	138,140	200,224
Manitoba—						
Winnipeg.....	501	125,321,028	19,150	25,216,832	55,116,644	100,320,746
St. Boniface.....	36	10,357,696	1,685	2,114,032	18,000,728	24,833,836
Transcona.....	3	6,896,589	2,123	3,202,371	3,783,535	7,801,037
Brandon.....	38	4,552,802	633	671,222	2,506,168	4,288,029
Portage la Prairie.....	13	734,513	232	258,735	1,990,378	2,853,038

34.—Statistics of Manufactures of Municipalities with a Gross Production of \$200,000 or over, and with Three or more Establishments, 1929—concluded.

City or Town.	Estab- lish- ments.	Capital.	Em- ployees.	Salaries and Wages.	Cost of Materials.	Gross Value of Products.
	No.	\$	No.	\$	\$	\$
Manitoba—concluded.						
Selkirk.....	9	2,117,238	451	506,276	461,138	1,877,134
The Pas.....	7	1,241,136	323	434,865	504,120	1,584,446
Dauphin.....	13	494,598	88	82,771	351,181	588,038
Neepawa.....	4	216,470	37	41,216	224,108	327,308
Shoal Lake.....	4	83,085	19	17,527	197,999	250,072
Rapid City.....	4	30,091	9	12,141	200,002	240,204
Saskatchewan—						
Regina.....	75	27,824,792	3,134	4,632,788	22,077,014	34,842,487
Saskatoon.....	63	10,443,592	1,491	2,101,869	9,654,746	15,961,102
Moose Jaw.....	27	7,791,932	927	1,336,857	10,648,850	14,646,351
Prince Albert.....	18	2,533,389	428	504,037	2,418,750	3,951,349
North Battleford.....	12	727,053	122	177,259	473,424	917,639
Swift Current.....	13	843,848	82	113,814	275,871	649,683
Estevan.....	9	925,709	123	138,487	255,962	556,549
Yorkton.....	10	431,633	52	61,713	289,043	479,902
Melville.....	5	140,355	25	27,563	337,231	448,508
Weyburn.....	12	535,378	65	77,946	184,011	397,256
Melfort.....	6	123,823	17	23,643	129,975	207,627
Alberta—						
Calgary.....	149	35,680,545	4,378	5,952,651	26,080,174	44,694,679
Edmonton.....	134	25,702,207	4,701	5,983,615	17,968,863	30,388,021
Medicine Hat.....	19	7,450,474	746	907,928	7,389,186	10,335,125
Lethbridge.....	25	3,181,884	445	546,362	1,681,438	4,206,859
Redcliffe.....	6	1,989,510	290	352,999	308,946	1,096,603
Raymond.....	3	2,430,251	77	132,375	609,539	967,388
Drumheller.....	6	1,984,005	76	130,683	31,382	409,683
Wetaskiwin.....	8	218,440	24	32,276	281,271	371,378
Red Deer.....	8	175,881	38	52,405	204,018	350,267
Camrose.....	9	201,979	36	48,220	191,456	340,056
Highbury.....	6	167,142	36	40,450	231,153	329,010
Blairmore.....	8	402,326	66	79,307	141,231	282,014
Vegreville.....	7	99,672	20	26,765	148,278	241,818
Penoka.....	6	64,372	13	16,104	172,719	233,792
Attabaska.....	6	170,103	59	46,535	101,856	202,577
British Columbia—						
Vancouver.....	639	129,078,372	16,663	21,882,312	50,933,163	90,646,413
New Westminster.....	59	14,540,635	2,575	3,093,334	10,117,810	16,531,325
Victoria.....	140	21,189,997	3,331	4,284,297	5,530,236	14,416,792
North Vancouver.....	18	6,374,540	879	1,256,593	1,942,892	4,032,703
Prince Rupert.....	20	4,734,271	403	736,786	2,126,118	3,126,046
Rosland.....	6	12,108,387	325	492,800	20,975	2,305,452
Port Alberni.....	7	1,592,570	382	471,695	1,040,083	2,280,852
Port Moody.....	5	1,811,128	346	423,620	1,067,348	1,920,888
Duncan.....	11	768,701	476	525,851	792,877	1,741,007
Nanaimo.....	27	1,559,603	545	479,983	697,758	1,518,552
Pernie.....	8	6,209,694	175	268,404	510,926	1,449,795
Kelowna.....	22	950,619	444	286,953	712,531	1,404,368
Nelson.....	23	1,660,074	261	348,023	352,966	1,068,495
Port Coquitlam.....	4	695,308	191	248,037	458,346	1,013,472
Vernon.....	16	2,080,760	207	175,735	367,779	755,169
Kamloops.....	15	943,550	186	195,061	273,718	684,573
Meritt.....	8	381,932	90	142,583	252,563	512,607
Cranbrook.....	12	413,985	94	127,867	183,046	489,497
Courtenay.....	8	250,763	65	73,585	150,112	282,404
Chilliwack.....	8	179,807	94	91,739	95,588	255,465

NOTE

Alphabetical List of Products.—Due to the demand for early publication, it was found advisable to issue the alphabetical list of products for 1929 in mimeograph form instead of including it with the present report as was done for the year 1928. Those interested in this list may obtain a copy of same on application to the Dominion Bureau of Statistics, Ottawa, Ont.

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