

# MARYLAND.

## INDUSTRIES IN GENERAL.

General character of the state.—Maryland, with a gross area of 12,327 square miles, of which 2,386 represent water surface, and a population in 1910 of 1,295,346, ranks forty-first in area and twenty-seventh in population among the 49 states and territories of continental United States. The total population was 1,188,044 in 1900 and 1,042,390 in 1890. Over two-fifths of its total population live within the corporate limits of the city of Baltimore, whose population in 1910 was 558,485. There is, moreover, a very considerable population immediately suburban to Baltimore not included within its corporate limits. No other city in the state approaches Baltimore in population, but there were three other cities which in 1910 had a population of 10,000 or more. These cities named in order of their importance were: Cumberland, Hagerstown, and Frederick. Outside of these four cities and their immediate vicinities the population of the state is largely scattered and devoted to agriculture. The density of population in 1910 was 130.3, as compared with 119.5 in 1900. Baltimore is an important seaport, ranking fourth among all the ports of the United States in the value of exports and sixth in the value of imports in 1910. The transportation facilities of the state, which is traversed by

the main lines of two important railroad systems, are excellent.

Importance and growth of manufactures.—The manufactures of the state have increased in value during the last decade 49.6 per cent, a rate of increase much higher than that shown by the population, which increased 9 per cent. In gross value of manufactured products Maryland has, moreover, maintained its rank among the states for a very considerable period. In 1849 it ranked seventh among the states in gross value of manufactured products; in 1869 it was fourteenth, which position it still held in 1904. In 1909, however, it was the fifteenth state when measured by value of products. During this period the gross value of products per capita of the total population of the state increased from \$57 in 1849 to \$244 in 1909. With the rapid development of manufactures in other sections, however, Maryland's proportion of the total value of manufactures in the country declined from 3.2 per cent in 1849 to 1.6 per cent in 1904, and to 1.5 per cent in 1909.

The following table gives the more important figures relative to all classes of manufactures combined for 1909, 1904, and 1890, together with the percentages of increase from census to census:

	NUMBER OR AMOUNT.			PER CENT OF INCREASE. <sup>1</sup>	
	1900	1904	1890	1904-1900	1890-1904
Number of establishments.....	4,837	3,852	3,880	25.6	-0.9
Persons engaged in manufactures.....	125,489	107,303	( <sup>2</sup> )	16.9	.....
Proprietors and firm members.....	5,376	4,505	( <sup>2</sup> )	19.3	.....
Salaried employees.....	12,192	8,624	6,741	41.4	27.9
Wage earners (average number).....	107,921	94,174	94,170	14.6	( <sup>3</sup> )
Primary horsepower.....	218,244	165,449	132,052	31.9	25.3
Capital.....	\$251,227,000	\$201,878,000	\$149,155,000	24.4	35.3
Expenses.....	285,955,000	216,917,000	183,398,000	31.8	18.3
Services.....	59,053,000	44,988,000	39,250,000	31.3	14.6
Salaries.....	13,617,000	8,844,000	6,845,000	54.0	29.2
Wages.....	45,436,000	36,144,000	32,414,000	25.7	11.5
Materials.....	199,049,000	150,024,000	129,354,000	32.7	16.0
Miscellaneous.....	27,853,000	21,905,000	14,785,000	27.2	48.2
Value of products.....	315,669,000	243,376,000	211,076,000	29.7	15.3
Value added by manufacture (value of products less cost of materials).....	116,620,000	93,352,000	81,722,000	24.9	14.2

<sup>1</sup> A minus sign (-) denotes decrease.

<sup>2</sup> Figures not available.

<sup>3</sup> Less than one-tenth of 1 per cent.

In 1909 the state of Maryland had 4,837 manufacturing establishments, which gave employment to an average of 125,489 persons during the year and paid out \$59,053,000 in salaries and wages. Of the persons employed, 107,921 were wage earners. These establishments turned out products to the value of \$315,669,000, to produce which materials costing \$199,049,000 were consumed. The

value added by manufacture was thus \$116,620,000, which figure, as explained in the Introduction, best represents the net wealth created by manufacturing operations during the year.

The totals presented in the above statement do not include the statistics for an establishment operated by the Federal Government, the United States Naval Smokeless Powder Factory, located at Indian Head.

In 1909 this plant employed an average of 331 wage earners and turned out products valued at \$581,763.

In general, this table also brings out the fact that the manufacturing industries of Maryland as a whole showed a greater development during the more recent five-year period, 1904-1909, than for the preceding five-year period, 1899-1904. During the past five years the number of establishments increased 25.6 per cent, and the average number of wage earners 14.6 per cent, while the value of products increased 29.7 per cent and the value added by manufacture 24.9 per cent. As pointed out in the Introduction, it would be improper to infer that manufactures increased in volume to the full extent indicated by these figures regarding values, since the increase shown is certainly due, in part, to the increase that has taken place in the

prices of commodities. Furthermore, the great fire in Baltimore, which occurred early in the census year of 1904, so curtailed the production of manufactures at that census as somewhat to affect the returns for the entire state.

It is a matter of interest to note that the percentages of increase shown for wages, value of products, and value added by manufacture are considerably larger than that for average number of wage earners. The only decrease shown in the table is that of less than 1 per cent in the number of establishments during the period 1899-1904.

The relative importance and growth of the leading manufacturing industries of the state are shown in the following table:

INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		PER CENT OF INCREASE. <sup>1</sup>			
		Average number.	Percent distribution.	Amount.	Percent distribution.	Amount.	Percent distribution.	Value of products.		Value added by manufacture.	
								1904-1909	1899-1904	1904-1909	1899-1904
All industries.....	4,837	107,921	100.0	\$315,669,000	100.0	\$116,620,000	100.0	29.7	15.3	24.9	14.3
Clothing, men's, including shirts.....	359	19,784	18.3	36,921,000	11.7	15,955,000	13.7	43.9	20.4	46.6	26.3
Copper, tin, and sheet-iron products.....	81	5,275	4.9	16,900,000	5.4	6,101,000	5.2	82.5	32.3	92.6	41.2
Canning and preserving.....	468	8,613	8.0	13,709,000	4.3	3,619,000	3.1	6.0	-11.0	-3.8	-3.7
Slaughtering and meat packing.....	54	1,034	1.0	13,683,000	4.3	2,180,000	1.9	99.8	7.2	127.1	45.2
Lumber and timber products.....	561	7,003	6.5	12,134,000	3.8	5,627,000	4.8	35.8	13.9	39.6	15.2
Foundry and machine-shop products.....	157	4,798	4.4	11,978,000	3.8	6,022,000	5.2				
Tobacco manufactures.....	263	3,476	3.2	10,559,000	3.3	4,893,000	4.2				
Fertilizers.....	41	1,439	1.3	9,673,000	3.1	2,710,000	2.3	45.9	21.0	65.2	-10.8
Flour-mill and gristmill products.....	295	506	0.5	9,268,000	2.9	1,265,000	1.1	26.6	1.1	14.2	-2.4
Cars and general shop construction and repairs by steam-railroad companies.....	21	5,549	5.1	9,059,000	2.9	3,866,000	3.3	57.5	25.8	23.6	56.6
Printing and publishing.....	371	3,386	3.1	8,300,000	2.6	5,896,000	5.1	32.3	13.1	28.6	16.1
Bread and other bakery products.....	516	1,962	1.8	6,808,000	2.2	2,505,000	2.1	33.1	29.8	19.7	22.7
Liquors, malt.....	20	969	0.8	5,690,000	1.8	4,121,000	3.5	14.6	20.1	12.4	12.6
Patent medicines and compounds and druggists' preparations.....	83	1,193	1.1	5,548,000	1.8	3,361,000	2.9	14.7	49.1	12.7	50.5
Cotton goods, including cotton small wares.....	16	3,966	3.7	5,522,000	1.7	1,510,000	1.3	5.3	-3.3	10.1	-42.4
Liquors, distilled.....	25	276	0.3	5,262,000	1.7	4,213,000	3.6	108.9	58.8	260.7	45.8
Confectionery.....	54	1,573	1.5	5,082,000	1.6	1,820,000	1.6	94.1	34.0	74.4	40.4
Paper and wood pulp.....	13	1,249	1.2	4,894,000	1.6	1,616,000	1.4	48.5	27.3	91.7	-1.9
Clothing, women's.....	72	2,641	2.4	4,851,000	1.4	2,066,000	1.8	36.2	19.0	38.1	14.0
Shipbuilding, including boat building.....	46	1,793	1.7	3,535,000	1.1	1,686,000	1.4	-22.2	10.3	-38.8	13.3
Furniture and refrigerators.....	48	1,856	1.7	3,350,000	1.1	1,749,000	1.5	-2.8	15.8	-4.0	3.2
Hats, straw.....	7	1,694	1.6	3,347,000	1.1	1,564,000	1.3	64.4		58.8	
Gas, illuminating and heating.....	18	476	0.4	3,223,000	1.0	2,594,000	2.2	61.6	11.0	68.9	16.7
Leather, tanned, curried, and finished.....	13	466	0.4	2,661,000	0.8	547,000	0.5	39.2	9.0	27.8	24.8
Marble and stone work.....	89	1,455	1.3	2,427,000	0.8	1,470,000	1.3	8.2	55.6	7.4	50.1
Umbrellas and carcases.....	9	514	0.5	1,650,000	0.5	574,000	0.5	29.8	15.8	21.9	34.6
Musical instruments, pianos and organs and materials.....	7	757	0.7	1,466,000	0.5	900,000	0.8	5.5	47.5	-21.4	112.3
Boots and shoes, including cut stock and findings.....	14	594	0.6	1,431,000	0.5	519,000	0.4	37.6	-17.5	5.1	0.4
Carrriages and wagons and materials.....	120	757	0.7	1,330,000	0.4	789,000	0.7	-10.4	49.8	0.3	-29.9
Beltting and hose, woven and rubber.....	4	279	0.3	1,318,000	0.4	323,000	0.3	72.3		17.5	
Chemicals.....	3	285	0.3	1,313,000	0.4	629,000	0.5	21.3	-14.9	27.6	0.3
Hosiery and knit goods.....	11	1,022	0.9	1,172,000	0.4	475,000	0.4	23.1	85.2	12.8	152.1
Leather goods.....	43	326	0.3	1,043,000	0.3	436,000	0.4	3.1	0.8	-14.0	28.4
Glass.....	7	1,052	1.0	1,038,000	0.3	801,000	0.7	75.9	5.7	85.8	6.2
Ice, manufactured.....	42	355	0.3	1,022,000	0.3	722,000	0.6	40.0	103.3	31.3	100.0
Paint and varnish.....	12	127	0.1	1,001,000	0.3	301,000	0.3	47.0	34.3	11.5	30.4
Brick and tile.....	40	1,226	1.1	971,000	0.3	722,000	0.6	-11.5	30.0	-17.0	26.5
Boxes, fancy and paper.....	17	684	0.6	853,000	0.3	453,000	0.4	72.0	67.6	66.5	61.8
Baking powders and yeast.....	7	146	0.1	840,000	0.3	351,000	0.3	17.2	107.8	-19.3	245.2
Pottery, terra-cotta, and fire-clay products.....	16	720	0.7	757,000	0.2	551,000	0.5	-11.2	2.0	22.8	11.7
Brass and bronze products.....	17	219	0.2	748,000	0.2	316,000	0.3	135.2	-11.7	132.4	-19.0
Mattresses and spring beds.....	19	198	0.2	729,000	0.2	260,000	0.2	26.1	124.0	23.1	77.5
Stoves and furnaces, including gas and oil stoves.....	8	304	0.4	676,000	0.2	471,000	0.4	4.6		4.9	
Butter, cheese, and condensed milk.....	44	69	0.1	654,000	0.2	130,000	0.1	26.0	-25.2	8.3	-11.8
Cooperage and wooden goods, not elsewhere specified.....	40	323	0.3	617,000	0.2	259,000	0.2	-19.3	19.7	-23.4	19.9
Silk and silk goods, including throwsters.....	4	655	0.6	512,000	0.2	275,000	0.2	37.5		169.6	
Baskets, and rattan and willow ware.....	25	526	0.5	471,000	0.2	244,000	0.2	279.8	-14.5	243.7	
Time.....	43	397	0.4	420,000	0.1	288,000	0.2	5.5		-1.4	
Millinery and lace goods.....	14	243	0.2	389,000	0.1	217,000	0.2	101.6	-35.2	193.2	-53.8
Silverware and plated ware.....	10	199	0.2	355,000	0.1	240,000	0.2	15.3	13.2	21.2	19.3
Jewelry.....	15	90	0.1	257,000	0.1	125,000	0.1	36.7	-11.3	13.6	5.8
Hats and caps, other than felt, straw, and wool.....	17	122	0.1	205,000	0.1	118,000	0.1	-2.3		2.6	
Boxes, cigar.....	9	167	0.2	194,000	0.1	84,000	0.1	44.8	24.1	27.3	29.4
All other industries.....	523	13,103	12.1	78,121,000	24.7	15,966,000	13.7				

<sup>1</sup> Percentages are based on figures in Table I; a minus sign (-) denotes decrease. Where the percentages are omitted, comparable figures can not be given.

It should be borne in mind, in considering this table, that the value of products in some of the industries involves a certain amount of duplication due to the use of the product of one establishment in the industry as the material for another establishment.

In addition to the industries presented separately, there are 11 important industries each of which had a value of product in 1909 in excess of \$1,000,000. They are included in the group of "All other industries" in the table, because in some cases the operations of individual establishments would be disclosed if they were shown separately; in others, the returns do not properly present the true condition of the industry, for the reason that it is more or less interwoven with one or more industries of similar character; while for others the comparable statistics for the different census years can not be presented on account of change in classification. Of the industries which are not presented separately, those which are of special importance are the smelting and refining of copper, and steel works and rolling mills. The other industries not shown separately are as follows: Bags, other than paper; brushes; coffee and spice, roasting and grinding; coke; drug grinding; food preparations; blast furnaces; petroleum refining; and upholstering materials. The 1909 statistics, however, for the manufacture of brushes are presented in Table II.

It will be seen from Table II that there is considerable diversity in the manufacturing activities of the state. The most important industries listed in the preceding table, in which they are arranged in the order of the value of products, call for brief consideration.

*Clothing.*—The manufacture of clothing is by far the most important industry of the state. The two branches, men's clothing and women's clothing, combined gave employment in 1909 to an average of 22,425 wage earners and turned out products valued at \$41,272,000. These figures represent 20.8 per cent and 13.1 per cent, respectively, of the totals for the state. In 1904 and in 1909 Maryland ranked fourth among the states in the production of men's clothing and ninth and eighth, respectively, in women's clothing.

*Copper, tin, and sheet-iron products.*—The establishments which manufacture tinware, stamped and enameled ware, as well as those which produce copper and sheet-iron products, are included under this classification. The large increase in value of products of 82.5 per cent in 1909 over 1904 was due mostly to the increased production of stamped and enameled ware.

*Canning and preserving.*—This classification covers the canning and preserving of fruits, vegetables, fish, and oysters, and the manufacture of pickles, preserves, and sauces. Soon after 1850, when the industry first attained commercial recognition, Maryland

became its chief center. In 1904 when canning and preserving had become one of the leading industries of the country, Maryland ranked third among the states. The chief characteristic of the industry is its extremely seasonal character. Considering the short season during which it is active, the value of its products compared with other industries is very large.

*Slaughtering and meat packing.*—This classification covers wholesale establishments which slaughter, prepare, or pack meats or manufacture sausage. Since 1849, when six establishments, with a capital of \$170,000 and products valued at \$452,000, were reported, it has increased steadily in importance. In 1904 the value of products was \$6,848,000, whereas in 1909 it was \$13,683,000, an increase of \$6,835,000, or 99.8 per cent during the five-year period.

*Lumber and timber products.*—This industry, which has more establishments than any other in the state, consists of logging plants, which produce logs and bolts as a final product; mills which manufacture rough lumber, shingles, cooperage materials, or carry the manufacture further, producing finished lumber, sash, doors, blinds, interior finish, etc.; and also those which manufacture wooden packing boxes. The gross value of products increased from \$7,847,000 in 1899 to \$12,134,000 in 1909, or 54.6 per cent for the decade.

*Foundry and machine-shop products.*—A great diversity of products is covered under this heading, embracing articles which in 1904 would have been reported under the following classifications: Bells; foundry and machine-shop products; gas machines and gas and water meters; hardware; plumbers' supplies; and structural ironwork. The industry was really of greater importance in the state than is indicated by the statistics, as some machine shops manufactured a distinctive product and were assigned to other classifications. A number of the most important establishments were engaged in the manufacture of machinery for canning and packing, for flour mills and gristmills, and for gas works.

*Tobacco manufactures.*—The statistics included in this industry for censuses prior to 1909 were shown under two headings: Tobacco, chewing and smoking, and snuff; and tobacco, cigars and cigarettes. At the census of 1904 the five establishments that were engaged in the first-mentioned branch of the industry could not be shown separately without disclosing individual operations; therefore the statistics of the combined industry for that year are not presented in Table I. There was but little growth of the industry as a whole for the 10-year period 1899-1909.

*Fertilizers.*—About 1832 the demand for a commercial fertilizer arose in Maryland on account of the increase in tobacco culture and various other forms of agriculture which gave the industry in the state its first real impetus. Bone was first crushed for fer-

tilizer, but subsequently crushed bone was mixed with phosphate rock from South Carolina, guano from the West Indies, and kainit from Germany. As early as 1869 there were 15 establishments engaged in this class of manufacture which reported an output valued at \$632,352. During the following decade the industry was remarkably developed. In 1879 Maryland was the leading state in the Union in the manufacture of fertilizers, with 48 establishments and products valued at \$5,770,198. It retained this position until 1904, since when it has ranked second.

*Flour-mill and gristmill products.*—As a rule, the mills are small and are located in the rural districts. Owing to the comparatively simple processes involved and the extent to which these processes are carried on by machinery, the value added by manufacture is not commensurate with the gross value of products or the number of establishments. This industry shows substantial gains from 1904 to 1909, with the exception of a slight decrease in the average number of wage earners employed.

*Cars and general shop construction and repairs by steam-railroad companies.*—This industry is peculiar among the manufacturing industries of the country. It represents the work done in the car shops of steam-railroad companies, and practically is confined to repairs to the rolling stock and equipment of their own roads, although to a limited extent there may be some new construction of rolling stock. The statistics are exclusive of minor repairs in roundhouses. There were 21 repair shops reported in both 1909 and 1904, and 19 in 1899; the value of products, which is equivalent to the cost of repairs and construction work, increased from \$4,573,000 in 1899 to \$9,059,000 in 1909, or 98.1 per cent. The industry gave employment to 5,549 wage earners in 1909.

Measured by value added by manufacture, only 11 of the 53 industries presented in the preceding table held the same rank as when measured by value of products. Interesting variations in this respect are shown for some of the industries. Canning and preserving drops from third place in value of products to tenth in value added by manufacture, while foundry and machine-shop products rises from sixth place in value of products to third in value added by manufacture. Still greater variations are shown for slaughtering and meat packing and distilled liquors.

This table shows also the percentages of increase for these leading industries in respect to value of products and value added by manufacture where the figures are comparable. Exceptionally large increases are shown for several of the industries from 1904 to 1909. Of the first 40 industries the largest gains are shown for distilled liquors, but these increases are due largely to the difference in method of reporting products in 1909 and 1904. In 1909 the internal-revenue tax on all liquors manufactured was reported, whether

sold or not, whereas in 1904 this tax was usually reported only on liquors sold. The slaughtering and meat-packing industry also showed remarkable increases in value of products and in value added by manufacture. From 1904 to 1909, of the same 40 industries, shipbuilding, furniture, carriages and wagons, brick and tile, and pottery each showed a loss in value of products, and the canning, shipbuilding, furniture, musical instruments, leather goods, brick and tile, and baking-powder industries each showed a loss in value added by manufacture.

Persons engaged in manufacturing industries.—The following table shows for 1909 the distribution of the number of persons engaged in manufactures, the average number of wage earners being distributed by sex and age. It should be borne in mind, however, that the sex and age classification of the average number of wage earners in this and other tables is an estimate obtained by the method described in the Introduction.

CLASS.	PERSONS ENGAGED IN MANUFACTURES.		
	Total.	Male.	Female.
All classes .....	125,489	91,239	34,250
Proprietors and officials .....	8,574	8,321	253
Proprietors and firm members .....	5,376	5,220	156
Salaried officers of corporations .....	1,317	1,294	23
Superintendents and managers .....	1,881	1,807	74
Clerks .....	8,994	7,345	1,649
Wage earners (average number) .....	107,921	75,573	32,348
16 years of age and over .....	101,373	72,416	28,957
Under 16 years of age .....	6,548	3,157	3,391

The average number of persons engaged in manufactures during 1909 was 125,489, of whom 107,921 were wage earners. The remainder were about equally divided between proprietors and officials and clerks. Corresponding figures for individual industries will be found in Table II.

The next table shows, for 1909, the percentage of proprietors and officials, clerks, and wage earners, respectively, among the total number of persons employed in manufactures. It covers all industries combined and 19 important industries individually.

Of the persons engaged in all manufacturing industries, 6.8 per cent were proprietors and officials, 7.2 per cent clerks, and 86 per cent wage earners. In such industries as bakeries and flour mills and gristmills a majority of the establishments are small and the work is to a large extent done by the proprietors or their immediate representatives; the proportion of proprietors and officials is, therefore, much greater than for other industries or for all industries combined. The greatest proportion of wage earners is reported for the cotton industry and the least for flour mills and gristmills. The largest proportion of clerks, which includes all classes of salaried employees except



officers of corporations and superintendents and managers, is employed in the manufacture of patent medicines.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	125,489	6.8	7.2	86.0
Bread and other bakery products.....	2,820	20.4	10.0	69.6
Canning and preserving.....	9,755	8.8	2.0	88.3
Cars and general shop construction and repairs by steam-railroad companies.....	5,026	2.1	4.3	93.6
Clothing, men's, including shirts.....	21,946	3.4	6.5	90.1
Clothing, women's.....	3,030	5.2	7.7	87.2
Confectionery.....	1,888	4.6	12.1	83.3
Copper, tin, and sheet-iron products.....	5,980	3.9	7.0	88.2
Cotton goods, including cotton small wares.....	4,077	1.0	1.7	97.3
Fertilizers.....	1,750	7.4	10.3	82.2
Flour-mill and gristmill products.....	935	40.4	5.5	54.1
Foundry and machine-shop products.....	5,520	6.5	6.6	86.9
Liquors, distilled.....	387	13.2	15.5	71.3
Liquors, malt.....	1,095	5.7	11.3	83.0
Lumber and timber products.....	8,165	11.5	2.7	85.8
Paper and wood pulp.....	1,349	3.4	4.0	92.6
Patent medicines and compounds and druggists' preparations.....	1,846	9.8	25.0	64.6
Printing and publishing.....	4,942	12.0	10.5	68.5
Slaughtering and meat packing.....	1,324	7.6	14.3	78.1
Tobacco manufactures.....	4,098	8.6	6.6	84.8
All other industries.....	38,656	6.0	7.3	86.1

The following table shows, for 1909, in percentages, for all industries combined, the distribution of the average number of wage earners by age periods and sex, calculated in the manner described in the Introduction. It also shows for some of the important industries separately the per cent distribution by age periods and sex of wage earners as reported for December 15, or the nearest representative day. As a means of judging the importance of the several industries, the average total number employed for the year is also given in each case.

INDUSTRY.	WAGE EARNERS.			
	Average number. <sup>1</sup>	Per cent of total.		
		10 years of age and over.		Under 10 years of age.
Male.	Female.			
All industries.....	107,921	67.1	26.8	6.1
Bread and other bakery products.....	1,002	39.7	7.7	5.6
Canning and preserving.....	8,613	34.6	51.9	13.5
Cars and general shop construction and repairs by steam-railroad companies.....	5,549	99.0	0.3	0.1
Clothing, men's, including shirts.....	19,784	43.2	51.5	5.4
Clothing, women's.....	2,041	21.0	70.9	2.0
Confectionery.....	1,573	33.2	49.2	17.5
Copper, tin, and sheet-iron products.....	5,275	72.5	16.2	11.3
Cotton goods, including cotton small wares.....	3,966	41.6	42.5	15.9
Fertilizers.....	1,439	99.2	0.8	0.0
Flour-mill and gristmill products.....	600	99.0	0.2	0.8
Foundry and machine-shop products.....	4,798	97.4	1.8	0.8
Liquors, distilled.....	276	94.6	5.1	0.4
Liquors, malt.....	900	98.5	0.7	0.9
Lumber and timber products.....	7,003	91.3	3.8	4.9
Paper and wood pulp.....	1,249	87.5	12.3	0.2
Patent medicines and compounds and druggists' preparations.....	1,193	35.2	62.7	2.1
Printing and publishing.....	3,386	30.9	13.3	5.8
Slaughtering and meat packing.....	1,034	99.7	0.1	0.2
Tobacco manufactures.....	3,476	41.5	51.0	7.5
All other industries.....	33,280	78.8	15.9	5.3

<sup>1</sup> For method of estimating the distribution, by sex and age periods, of the average number of all industries combined, see Introduction.

For all industries combined, 67.1 per cent of the average number of wage earners were males 16 years of age and over; 26.8 per cent were females 16 years of age and over; and 6.1 per cent were persons under the age of 16. More women are employed in making men's clothing than in any other industry. The average number of wage earners in that industry consisted of 8,539 males and 10,183 females 16 years of age and over, and 1,062 persons of both sexes under that age. The largest number of children was in the canning and preserving industry, where the average number of wage earners included 2,981 males and 4,467 females 16 years of age and over, and 1,165 persons of both sexes under that age. Of the total of 28,957 female wage earners 16 years of age and over in all industries combined, 14,650, or 50.6 per cent, were employed in these two industries. The same two industries combined gave employment to 2,227 children under 16 years of age, or 34 per cent of the total.

In order to compare the distribution of persons engaged in manufactures in 1909 with that shown at the census of 1904, it is necessary to use the classification employed at the earlier census. (See Introduction.) The following table makes this comparison according to occupational status:

CLASS.	PERSONS ENGAGED IN MANUFACTURES.				Per cent of increase, 1904-1909.
	1909		1904		
	Number.	Percent distribution.	Number.	Percent distribution.	
Total.....	125,489	100.0	107,303	100.0	16.9
Proprietors and firm members.....	5,376	4.3	4,605	4.2	19.3
Salaried employees.....	12,192	9.7	8,624	8.0	41.4
Wage earners (average number)....	107,921	86.0	94,174	87.8	14.6

Comparable figures are not obtainable for 1899. The table shows that the greatest percentage of increase was among salaried employees.

The following table shows the average number of wage earners, distributed according to age periods, and in the case of those 16 years of age and over according to sex, for 1909, 1904, and 1899. The averages for 1909 are estimated on the basis of the actual number reported for a single representative day. (See Introduction.)

CLASS.	AVERAGE NUMBER OF WAGE EARNERS.					
	1909		1904		1899	
	Number.	Percent distribution.	Number.	Percent distribution.	Number.	Percent distribution.
Total.....	107,921	100.0	94,174	100.0	94,170	100.0
16 years of age and over.....	101,373	93.9	88,641	94.1	88,562	94.0
Male.....	72,416	67.1	63,492	67.4	61,654	65.5
Female.....	28,957	26.8	25,149	26.7	26,908	28.6
Under 16 years of age.....	6,548	6.1	5,533	5.9	5,608	6.0

This table indicates that for all industries combined variations from census to census in the proportions of men, women, and children employed were very small. In 1909 males 16 years of age and over formed 67.1 per cent of all wage earners, as compared with 67.4 per cent in 1904 and 65.5 per cent in 1899. Although the number of children under 16 years of age is greater for 1909 than for 1904, or for 1899, the proportion of children among wage earners has remained practically unchanged at each census.

**Wage earners employed, by months.**—The following table gives the number of wage earners employed on the 15th of each month during the year 1909, for all industries combined, for the canning and preserving industry, and for all other industries combined; it also gives the percentage which the number reported for each month is of the greatest number reported for any month. In Table II, page 482, is shown, for practically all of the important industries in the state, the largest number and also the smallest number of wage earners reported for any month. The figures are for the 15th day, or the nearest representative day, of the month.

MONTH.	WAGE EARNERS.					
	All industries.		Canning and preserving.		All other industries.	
	Number.	Per cent of maximum.	Number.	Per cent of maximum.	Number.	Per cent of maximum.
January.....	95,070	71.3	1,227	3.9	93,843	91.3
February.....	97,225	73.0	2,013	6.5	95,212	92.6
March.....	99,541	74.7	2,086	6.7	97,455	94.8
April.....	100,753	75.6	2,640	8.5	98,113	95.5
May.....	103,000	77.3	3,441	11.1	99,559	96.9
June.....	105,652	79.3	5,884	18.9	99,768	97.1
July.....	105,116	78.9	6,194	19.9	98,022	96.2
August.....	124,505	93.4	25,192	80.9	99,313	96.6
September.....	133,268	100.0	31,131	100.0	102,137	99.4
October.....	118,475	88.9	16,014	51.4	102,461	99.7
November.....	106,932	80.2	4,799	15.4	102,133	99.4
December.....	105,514	79.2	2,730	8.8	102,784	100.0

The single industry of canning and preserving, which is a seasonal industry, giving employment to a large number of persons in August, September, and October, affects greatly the total for all industries combined. This industry determines for all industries combined the month of the greatest employment, September, and magnifies for the total the irregularity of employment throughout the year. From 1,227 wage earners in canning and preserving in January the number employed gradually increased to

31,131 in September, when fruits and vegetables generally are maturing. The number reported for January, the month of minimum activity, is only 3.9 per cent of the number reported for September, the month of greatest activity. For all industries combined, including canning and preserving, the number reported for January is only 71.3 per cent as great as the number reported for September. The month of maximum employment for all industries combined, exclusive of canning and preserving, shifts to December, and the number reported for January, the month of minimum employment for these industries, is 91.3 per cent of the number reported for December. During the last four months of the year the number in these industries was practically unchanged.

**Prevailing hours of labor.**—In the table following wage earners have been classified according to the hours of labor prevailing in the establishments in which they are employed. In making this classification the average number of wage earners employed during the year is used, and the number employed in each establishment is classified as a total, according to the hours prevailing in that establishment, even though some few employees work a greater or less number of hours.

Almost three-fourths of the total number of wage earners employed in the manufacturing industries of Maryland were in establishments where the prevailing hours of labor per week range from 54 to 60, or from 9 to 10 a day, and of these over one-half were employed 60 hours per week. Only 18 per cent of all wage earners were employed in establishments working less than 54 hours a week, and only 8.4 per cent were employed in establishments working more than 60 hours a week.

It will be noted that the canning and preserving industry is mainly on a 10-hour-per-day basis (60 hours per week). Relatively long hours are usual in a seasonal industry where the operations for the entire year are confined largely to a few weeks. The manufacture of brick and tile, of copper, tin, and sheet-iron products, and the fertilizer, furniture, hosiery and knit goods, lumber, and slaughtering industries are similarly on a 60-hour-a-week basis, while cotton goods and silk goods are wholly on a 10-hour-per-day basis. In the manufacture of men's clothing, which gives employment to the greatest number of wage earners, about equal numbers are employed between 48 and 54, 54, between 54 and 60, and 60 hours.

INDUSTRY.	AVERAGE NUMBER OF WAGE EARNERS IN ESTABLISHMENTS GROUPED ACCORDING TO PREVALING HOURS OF WORK PER WEEK.								
	Total.	48 and under.	Between 48 and 64.	64.	Between 64 and 80.	80.	Between 80 and 72.	72.	Over 72.
All industries.....	107,921	6,166	13,229	16,274	21,601	41,574	6,103	1,974	1,000
Baking powders and yeast.....	146	93	.....	.....	.....	53	.....	.....	.....
Baskets, and rattan and willow ware.....	523	12	0	3	430	66	6	.....	.....
Belting and hose, woven and rubber.....	270	.....	.....	.....	9	270	.....	.....	.....
Boots and shoes, including out stock and findings.....	594	1	67	4	120	402	.....	.....	.....
Boxes, cigar.....	167	.....	.....	29	2	136	.....	.....	.....
Boxes, fancy and paper.....	684	.....	40	218	238	170	.....	.....	.....
Brass and bronze products.....	219	26	46	25	25	97	.....	.....	.....
Bread and other bakery products.....	1,962	73	315	161	273	836	148	140	10
Brick and tile.....	1,226	89	.....	20	61	1,029	.....	.....	.....
Butter, cheese, and condensed milk.....	69	17	.....	1	.....	28	20	2	.....
Canning and preserving.....	8,613	223	317	90	126	6,192	616	1,000	40
Carriages and wagons and materials.....	757	3	54	276	87	337	.....	.....	.....
Cars and general shop construction and repairs by steam-railroad companies.....	5,540	21	.....	.....	3,163	1,596	769	.....	.....
Chemicals.....	285	.....	.....	.....	.....	.....	131	.....	164
Clothing, men's, including shirts.....	19,784	308	4,965	4,776	5,340	4,324	10	1	.....
Clothing, women's.....	2,641	311	383	742	782	423	.....	.....	.....
Confectionery.....	1,573	111	9	288	467	637	.....	61	.....
Cooperage and wooden goods, not elsewhere specified.....	323	74	20	93	82	63	.....	1	.....
Copper, tin, and sheet-iron products.....	5,276	237	23	265	641	4,109	.....	.....	.....
Cotton goods, including cotton small wares.....	3,696	.....	.....	.....	.....	3,696	.....	.....	.....
Fertilizers.....	1,439	.....	3	30	.....	1,030	376	.....	.....
Flour-mill and gristmill products.....	593	16	1	1	16	229	57	184	2
Foundry and machine-shop products.....	4,798	174	1,567	1,747	424	886	.....	.....	.....
Furniture and refrigerators.....	1,859	181	79	258	345	663	.....	.....	.....
Gas, illuminating and heating.....	476	1	.....	.....	0	16	8	4	441
Glass.....	1,052	181	482	380	.....	.....	.....	.....	.....
Hats and caps, other than felt, straw, and wool.....	122	25	72	.....	12	11	.....	.....	.....
Hats, straw.....	1,604	.....	.....	46	1,251	307	.....	.....	.....
Hosiery and knit goods.....	1,022	1	.....	.....	41	980	.....	.....	.....
Ice, manufactured.....	355	.....	.....	2	.....	52	20	40	241
Jewelry.....	90	18	2	7	53	10	.....	.....	.....
Leather goods.....	326	2	4	149	65	106	.....	.....	.....
Leather, tanned, curried, and finished.....	460	50	.....	169	14	233	.....	.....	.....
Lime.....	397	.....	.....	25	14	357	.....	1	.....
Liquors, distilled.....	276	83	.....	34	11	68	42	38	.....
Liquors, malt.....	909	316	185	384	.....	24	.....	.....	.....
Lumber and timber products.....	7,093	349	404	847	1,341	4,044	13	5	.....
Marble and stone work.....	1,455	263	146	598	267	181	.....	.....	.....
Mattresses and spring beds.....	198	21	.....	35	10	132	.....	.....	.....
Millinery and lace goods.....	243	36	28	89	64	27	.....	.....	.....
Musical instruments, pianos and organs and materials.....	757	2	.....	400	208	147	.....	.....	.....
Paint and varnish.....	127	3	10	10	71	33	.....	.....	.....
Paper and wood pulp.....	1,249	.....	.....	.....	.....	82	1,103	63	.....
Patent medicines and compounds and druggists' preparations.....	1,193	211	732	30	119	92	.....	.....	.....
Pottery, terra-cotta, and fire-clay products.....	720	337	.....	101	20	262	.....	.....	.....
Printing and publishing.....	3,386	1,179	1,082	670	240	215	.....	.....	.....
Shipbuilding, including boat building.....	1,793	74	32	404	1,056	167	.....	.....	.....
Silk and silk goods, including throwsters.....	655	.....	.....	.....	.....	655	.....	.....	.....
Silverware and plated ware.....	199	.....	.....	109	.....	.....	.....	.....	.....
Slaughtering and meat packing.....	1,034	22	4	21	7	673	1	6	.....
Stoves and furnaces, including gas and oil stoves.....	394	.....	.....	222	.....	172	.....	.....	.....
Tobacco manufactures.....	3,470	350	1,219	177	1,554	167	.....	.....	.....
Umbrellas and canes.....	514	29	5	1	303	176	.....	.....	.....
All other industries.....	13,103	585	915	2,151	2,212	3,932	2,783	428	97

Location of establishments.—The next table shows the extent to which the manufactures of Maryland are centralized in cities of 10,000 population and over. The statistics for 1904 are omitted from this table, because there was no census of population for that year, and it was impossible to determine the cities that came within the group having over 10,000 inhabitants.

In 1900 Baltimore, Cumberland, and Hagerstown were the only cities with a population of 10,000 or over, but the increase in population brought the city of Frederick into this classification in 1909.

In 1909, 62.6 per cent of the total value of manufactured products was reported from cities having over 10,000 inhabitants, and 70.5 per cent of the average number of wage earners were employed in such cities. The figures indicate that, while the population of the cities has increased more rapidly than that for the outside territory, nevertheless the manufactures of the outside districts have grown more rapidly than in the cities during the last 10 years. The fact that Frederick was a part of the outside territory in 1899 and one of the cities in 1909 makes these gains more conspicuous.

ITEM.	Year.	Total.	LOCATION OF ESTABLISHMENTS.		PER CENT OF TOTAL.	
			In cities with population of 10,000 and over.	Outside districts.	In cities with population of 10,000 and over.	Outside districts.
Population.....	1910 1900	1,295,346 1,188,044	607,242 539,676	688,104 648,368	46.9 45.4	53.1 54.6
Number of establishments.	1909 1899	4,837 3,886	2,704 2,410	2,133 1,476	55.9 62.0	44.1 38.0
Average number of wage earners.	1909 1899	107,921 94,170	76,124 69,729	31,797 24,441	70.5 74.0	29.5 26.0
Value of products.	1909 1899	\$315,669,150 211,076,143	\$197,619,972 139,828,392	\$118,049,178 71,247,751	62.6 66.2	37.4 33.8
Value added by manufacture.	1909 1899	116,620,245 81,721,731	84,047,316 61,831,896	32,572,929 19,889,835	72.1 75.7	27.9 24.3

The population for 1910 and 1900 of the four cities which had 10,000 inhabitants or over in 1910 is given in the following statement:

CITY.	POPULATION.	
	1910	1900
Baltimore.....	558,485	508,957
Cumberland.....	21,839	17,128
Hagerstown.....	16,507	13,591
Frederick.....	10,411	9,296

The relative importance of each of the four cities having a population of 10,000 or over in 1910 is shown in the following table, in which the value of products and average number of wage earners are shown separately for 1909, 1904, and 1899:

CITY.	AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS.		
	1909	1904	1899	1909	1904	1899
Baltimore <sup>1</sup> .....	71,444	65,050	66,571	\$186,977,710	\$150,170,762	\$135,107,626
Cumberland.....	1,936	2,276	1,643	4,534,077	4,595,023	2,909,267
Hagerstown.....	1,718	2,210	1,515	3,197,242	3,026,901	1,820,499
Frederick.....	1,026	1,032	939	2,910,943	1,937,921	1,438,228

<sup>1</sup> Figures do not agree with those published in 1904, because it was necessary to revise the totals in order to include data only for those establishments located within the corporate limits of the city.

From 1904 to 1909 the number of wage earners decreased in Cumberland and Hagerstown, although the value of products in the latter increased. The loss in Cumberland from 1904 to 1909 was due to a decrease in the production of iron and steel in that city.

This table shows how largely the manufacturing in the state is confined to the city of Baltimore. In 1909, 59.2 per cent of the total value of products reported for the state was made in this city, while 66.2 per cent of the average number of wage earners were employed there.

Ranked by value of manufactured products, it was eighth among the cities of the United States in 1899, ninth in 1904, and thirteenth in 1909. In value of products the manufactures of this city increased 24.5 per cent from 1904 to 1909, while from 1899 to 1904 a gain of only 11.1 per cent was made. The men's clothing industry in the state is practically confined to Baltimore, 98.2 per cent of the total value of that class of products being credited to that city. The manufacture of men's clothing in Baltimore, measured by value of products, is almost three times as great as any other industry in the city. This industry also led in 1904 and 1899 and shows an increase in value of products of 43.5 per cent in the later 5-year period and 74 per cent in the 10-year period. Other industries named in order of their importance, as measured by value of products, are: Copper, tin, and sheet-iron products; tobacco manufactures; slaughtering and meat packing; foundry and machine-shop products; printing and publishing; and steam-railroad repair shops. Each of these industries had an output in 1909 exceeding \$7,000,000 in value.

Character of ownership.—The table that follows has for its purpose the presentation of conditions in respect to the character of ownership, or legal organization, of manufacturing enterprises. For all industries combined comparative figures are given covering the censuses of 1909 and 1904. Comparative data for 1899 are not available. Figures for 1909 only are presented for several important industries individually. In order to avoid disclosing the operations of individual concerns, it is necessary to omit several important industries from this and the table following.

For all industries combined, 18 per cent of the total number of establishments were, in 1909, under corporate ownership, as against 82 per cent under all other forms. The corresponding figures for 1904 were 16.9 per cent and 83.1 per cent, respectively. In respect to value of products the change since 1904 was more pronounced, for in 1909 the establishments operated by corporations reported 65.6 per cent of the total value as compared with 60.7 per cent in 1904.

Although establishments under individual ownership predominate in number in all of the industries shown separately in the table, the factories operated by corporations report the larger part of the value of products and of the value added by manufacture for six of the nine industries; individual concerns lead in value of products and value added by manufacture in bakeries and flour mills and gristmills, and firms lead in the men's clothing industry.

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>	<b>4,837</b>	<b>107,921</b>	<b>\$315,669,150</b>	<b>\$116,020,245</b>	<b>Copper, tin, and sheet-iron products, 1909</b>	<b>81</b>	<b>5,275</b>	<b>\$16,908,447</b>	<b>\$6,101,288</b>
1909.....	3,852	94,174	243,375,999	83,361,930	Individual.....	32	330	902,988	319,540
1904.....	2,917	16,826	41,522,012	17,034,602	Firm.....	19	224	732,807	250,658
Individual:	2,242	15,248	32,833,090	13,970,500	Corporation.....	30	4,721	15,273,562	5,531,100
1909.....	1,038	31,418	66,984,823	27,489,514	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	953	30,281	62,622,809	27,114,711	Individual.....	39.5	6.3	5.3	5.2
Firm:	873	59,676	207,102,289	72,037,412	Firm.....	23.5	4.2	4.3	4.1
1909.....	650	48,597	147,744,248	52,207,725	Corporation.....	37.0	89.5	90.3	90.7
1904.....	9	1	59,120	58,717	Flour-mill and gristmill products, 1909	295	506	\$9,267,903	\$1,264,930
Other:	7	48	175,249	58,938	Individual.....	211	252	4,535,083	621,574
1909.....	100.0	100.0	100.0	100.0	Firm.....	58	87	1,634,992	220,198
1904.....	100.0	100.0	100.0	100.0	Corporation.....	26	107	3,097,248	423,158
Individual:	60.3	15.6	13.2	14.6	Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	58.2	16.2	13.5	15.0	Individual.....	71.5	49.8	48.9	49.1
1904.....	21.5	29.1	21.2	23.0	Firm.....	10.7	17.2	17.6	17.4
Firm:	24.7	32.2	25.7	29.0	Corporation.....	8.8	33.0	33.4	33.5
1909.....	18.0	55.3	65.0	61.8	Foundry and machine-shop products, 1909	157	4,798	\$11,977,794	\$6,021,308
1904.....	16.9	51.6	60.7	55.9	Individual.....	63	644	1,100,982	704,230
Other:	0.2	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Firm.....	41	603	1,000,088	810,692
1909.....	0.2	( <sup>1</sup> )	0.1	0.1	Corporation.....	53	3,591	8,877,724	4,506,881
1904.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Individual:	60.3	15.6	13.2	14.6	Individual.....	40.1	13.4	9.9	11.7
1909.....	58.2	16.2	13.5	15.0	Firm.....	20.1	11.7	15.9	13.5
1904.....	21.5	29.1	21.2	23.0	Corporation.....	33.8	74.8	74.1	74.8
Firm:	24.7	32.2	25.7	29.0	Lumber and timber products, 1909	561	7,009	\$12,134,202	\$5,027,203
1909.....	18.0	55.3	65.0	61.8	Individual.....	331	1,041	2,274,567	1,359,607
1904.....	16.9	51.6	60.7	55.9	Firm.....	160	2,348	4,100,051	1,912,536
Other:	0.2	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Corporation.....	64	2,714	5,758,984	2,355,060
1909.....	0.2	( <sup>1</sup> )	0.1	0.1	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0	Individual.....	56.0	27.7	18.7	24.2
Individual:	60.3	15.6	13.2	14.6	Firm.....	29.6	33.6	33.8	34.0
1909.....	58.2	16.2	13.5	15.0	Corporation.....	11.4	38.8	47.5	41.0
1904.....	21.5	29.1	21.2	23.0	Printing and publishing, 1909	271	3,386	\$5,359,779	\$5,895,391
Firm:	24.7	32.2	25.7	29.0	Individual.....	209	824	1,529,889	1,134,455
1909.....	18.0	55.3	65.0	61.8	Firm.....	62	728	2,023,281	1,820,550
1904.....	16.9	51.6	60.7	55.9	Corporation.....	92	1,834	4,748,180	3,372,051
Other:	0.2	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Other.....	8	828	58,485	58,485
1909.....	0.2	( <sup>1</sup> )	0.1	0.1	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0	Individual.....	56.3	24.3	18.3	19.2
Individual:	60.3	15.6	13.2	14.6	Firm.....	16.7	21.5	24.2	22.6
1909.....	58.2	16.2	13.5	15.0	Corporation.....	24.8	54.2	56.8	57.2
1904.....	21.5	29.1	21.2	23.0	Other.....	2.2	0.7	0.7	1.0
Firm:	24.7	32.2	25.7	29.0	Slaughtering and meat packing, 1909	54	1,034	\$13,682,951	\$3,180,385
1909.....	18.0	55.3	65.0	61.8	Individual.....	36	819	4,740,522	935,885
1904.....	16.9	51.6	60.7	55.9	Firm.....	10	124	1,060,420	205,330
Other:	0.2	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Corporation.....	8	501	7,281,779	1,039,120
1909.....	0.2	( <sup>1</sup> )	0.1	0.1	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0	Individual.....	66.7	89.0	34.6	42.0
Individual:	60.3	15.6	13.2	14.6	Firm.....	18.5	12.0	12.1	0.4
1909.....	58.2	16.2	13.5	15.0	Corporation.....	14.8	57.2	53.2	47.7
1904.....	21.5	29.1	21.2	23.0					

<sup>1</sup> Less than one-tenth of 1 per cent.

Size of establishment.—The tendency for manufacturing to become concentrated in large establishments, or the reverse, is a matter of interest from the standpoint of industrial organization. In order to throw some light upon it, the table following groups the establishments according to the value of their products. The table also shows the average size of establishments for all industries combined and for important industries separately as measured by number of wage earners, value of products, and value added by manufacture. The totals for all industries are shown for the last two censuses, while for certain important industries figures are given for 1909 only.

In 1909, of the 4,837 establishments in the state, only 41, or eight-tenths of 1 per cent, had a value of

products exceeding \$1,000,000. These establishments, however, notwithstanding their small number, had an average number of wage earners of 28,332, or 26.3 per cent of the total number in all establishments; and the importance of their operations as measured by value of product was 39.5 per cent of the total, and by value added by manufacture 29.5 per cent of the total.

On the other hand, small establishments—that is, those having a value of product of less than \$5,000—constituted a very considerable proportion (34.9 per cent) of the total number of establishments, but the value of their products amounted to only 1.3 per cent of the total. The great bulk of the manufacturing was carried on in establishments having a product

valued at not less than \$100,000. The distribution of establishments and of value of product among the several groups was not materially different in 1904.

The average value of products per establishment increased from \$63,182 in 1904 to \$65,261 in 1909, but the value added by manufacture decreased from \$24,235 to \$24,110. The average number of wage earners per establishment also decreased slightly. The table shows further that when the size of estab-

lishment is measured by the average value of products per establishment, the manufacture of bread and other bakery products and lumber and timber products, as well as the printing and publishing industry, are conducted chiefly in rather small establishments, while the slaughtering and meat-packing industry and the manufacture of copper, tin, and sheet-iron products are conducted mainly in larger establishments.

INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>					<b>Copper, tin, and sheet-iron products, 1909</b>	81	5,275	\$16,909,447	\$8,101,888
1909.....	4,837	107,921	\$315,689,150	\$116,620,245	Less than \$5,000.....	17	24	53,333	30,328
1904.....	3,852	94,174	243,375,996	93,351,930	\$5,000 and less than \$20,000.....	21	108	223,938	119,167
Less than \$5,000:					\$20,000 and less than \$100,000.....	19	397	828,910	308,349
1909.....	1,689	3,040	4,227,777	2,547,434	\$100,000 and less than \$1,000,000.....	18	1,421	4,642,049	1,357,134
1904.....	1,249	2,250	3,165,600	1,800,851	\$1,000,000 and over.....	6	8,325	11,161,217	4,226,320
\$5,000 and less than \$20,000:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	1,767	11,346	17,825,972	8,899,931	Less than \$5,000.....	21.0	0.5	0.3	0.5
1904.....	1,382	9,254	14,264,140	7,086,712	\$5,000 and less than \$20,000.....	25.9	2.0	1.3	2.0
\$20,000 and less than \$100,000:					\$20,000 and less than \$100,000.....	23.5	7.5	4.9	6.0
1909.....	899	18,344	38,980,483	17,364,553	\$100,000 and less than \$1,000,000.....	22.2	20.9	27.5	22.2
1904.....	821	18,027	30,907,882	17,035,104	\$1,000,000 and over.....	7.4	63.0	66.0	66.3
\$100,000 and less than \$1,000,000:					Average per establishment.....	65		\$208,760	\$75,325
1909.....	441	46,859	130,048,877	53,355,069	<b>Flour-mill and gristmill products, 1909</b>	295	506	\$9,267,903	\$1,284,930
1904.....	366	37,936	93,431,472	39,708,619	Less than \$5,000.....	62	13	166,649	81,442
\$1,000,000 and over:					\$5,000 and less than \$20,000.....	141	125	1,580,651	288,210
1909.....	41	28,332	124,586,041	34,463,258	\$20,000 and less than \$100,000.....	80	204	3,218,307	459,805
1904.....	34	26,107	95,606,842	27,720,584	\$100,000 and less than \$1,000,000 <sup>1</sup> .....	12	164	4,302,290	485,412
Per cent of total:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	100.0	100.0	100.0	100.0	Less than \$5,000.....	21.0	2.0	1.8	2.5
1904.....	100.0	100.0	100.0	100.0	\$5,000 and less than \$20,000.....	47.8	24.7	17.1	22.8
Less than \$5,000:					\$20,000 and less than \$100,000.....	27.1	40.3	34.7	36.4
1909.....	34.9	2.8	1.3	2.2	\$100,000 and less than \$1,000,000 <sup>1</sup> .....	4.1	32.4	46.4	38.4
1904.....	32.4	2.4	1.3	1.9	Average per establishment.....	2		\$31,417	\$4,288
\$5,000 and less than \$20,000:					<b>Foundry and machine-shop products, 1909</b>	157	4,798	\$11,977,794	\$6,021,303
1909.....	36.5	10.5	5.6	7.6	Less than \$5,000.....	36	60	96,241	64,548
1904.....	35.9	9.8	5.9	7.6	\$5,000 and less than \$20,000.....	47	249	470,480	290,541
\$20,000 and less than \$100,000:					\$20,000 and less than \$100,000.....	51	1,177	2,372,899	1,390,875
1909.....	18.6	17.0	12.3	14.9	\$100,000 and less than \$1,000,000 <sup>1</sup> .....	23	3,306	9,088,174	4,275,339
1904.....	21.3	19.8	15.2	18.2	Per cent of total.....	100.0	100.0	100.0	100.0
\$100,000 and less than \$1,000,000:					Less than \$5,000.....	22.9	1.4	0.8	1.1
1909.....	9.1	43.4	41.2	45.8	\$5,000 and less than \$20,000.....	29.9	5.2	3.9	4.8
1904.....	9.5	40.3	38.4	42.5	\$20,000 and less than \$100,000.....	32.5	24.5	19.8	23.1
\$1,000,000 and over:					\$100,000 and less than \$1,000,000 <sup>1</sup> .....	14.6	68.9	75.5	71.0
1909.....	0.8	26.3	39.5	29.5	Average per establishment.....	81		\$76,292	\$38,352
1904.....	0.9	27.7	39.3	29.7	<b>Lumber and timber products, 1909</b>	561	7,003	\$12,134,202	\$5,627,203
Average per establishment:					Less than \$5,000.....	281	751	616,050	430,098
1909.....	22		\$65,261	\$24,110	\$5,000 and less than \$20,000.....	181	1,743	1,728,309	1,122,411
1904.....	24		63,182	24,235	\$20,000 and less than \$100,000.....	68	1,793	2,941,831	1,349,725
<b>Bread and other bakery products, 1909</b>	516	1,932	\$8,868,479	\$2,505,380	\$100,000 and less than \$1,000,000 <sup>1</sup> .....	31	2,716	6,848,012	2,724,969
Less than \$5,000.....	182	100	533,880	209,615	Per cent of total.....	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000.....	290	709	2,610,668	976,424	Less than \$5,000.....	35.3	5.1	7.8	8.4
\$20,000 and less than \$100,000.....	35	339	1,228,172	432,536	\$5,000 and less than \$20,000.....	56.2	36.1	38.0	39.0
\$100,000 and less than \$1,000,000.....	9	814	2,495,769	886,805	\$20,000 and less than \$100,000.....	6.8	17.3	17.9	17.3
Per cent of total.....	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000.....	1.7	41.5	36.3	35.4
Less than \$5,000.....	35.3	5.1	7.8	8.4	Average per establishment.....	4		\$13,311	\$4,855
\$5,000 and less than \$20,000.....	56.2	36.1	38.0	39.0	<b>Canning and preserving, 1909</b>	468	8,613	\$13,709,449	\$3,619,815
\$20,000 and less than \$100,000.....	6.8	17.3	17.9	17.3	Less than \$5,000.....	108	337	299,637	92,457
\$100,000 and less than \$1,000,000.....	1.7	41.5	36.3	35.4	\$5,000 and less than \$20,000.....	229	2,087	2,495,053	637,606
Average per establishment.....	4		\$13,311	\$4,855	\$20,000 and less than \$100,000.....	108	2,572	4,085,044	1,090,008
<b>Canning and preserving, 1909</b>	468	8,613	\$13,709,449	\$3,619,815	\$100,000 and less than \$1,000,000.....	23	3,617	6,819,685	1,779,684
Less than \$5,000.....	108	337	299,637	92,457	Per cent of total.....	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000.....	229	2,087	2,495,053	637,606	Less than \$5,000.....	23.1	3.9	2.2	2.6
\$20,000 and less than \$100,000.....	108	2,572	4,085,044	1,090,008	\$5,000 and less than \$20,000.....	48.9	24.2	18.2	18.2
\$100,000 and less than \$1,000,000.....	23	3,617	6,819,685	1,779,684	\$20,000 and less than \$100,000.....	23.1	20.0	29.9	30.1
Per cent of total.....	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000.....	4.9	42.0	49.7	49.2
Less than \$5,000.....	23.1	3.9	2.2	2.6	Average per establishment.....	18		\$29,294	\$7,735
\$5,000 and less than \$20,000.....	48.9	24.2	18.2	18.2	<b>Clothing, men's, including shirts, 1909</b>	359	19,784	\$36,921,294	\$15,955,219
\$20,000 and less than \$100,000.....	23.1	20.0	29.9	30.1	Less than \$5,000.....	94	485	308,487	283,473
\$100,000 and less than \$1,000,000.....	4.9	42.0	49.7	49.2	\$5,000 and less than \$20,000.....	156	2,387	1,822,271	1,280,547
Average per establishment.....	18		\$29,294	\$7,735	\$20,000 and less than \$100,000.....	51	946	2,276,513	1,068,072
<b>Clothing, men's, including shirts, 1909</b>	359	19,784	\$36,921,294	\$15,955,219	\$100,000 and less than \$1,000,000.....	51	5,879	15,488,342	6,958,080
Less than \$5,000.....	94	485	308,487	283,473	\$1,000,000 and over.....	7	10,087	17,325,701	7,864,447
\$5,000 and less than \$20,000.....	156	2,387	1,822,271	1,280,547	Per cent of total.....	100.0	100.0	100.0	100.0
\$20,000 and less than \$100,000.....	51	946	2,276,513	1,068,072	Less than \$5,000.....	26.2	2.5	0.8	1.8
\$100,000 and less than \$1,000,000.....	51	5,879	15,488,342	6,958,080	\$5,000 and less than \$20,000.....	48.5	12.1	4.1	8.0
\$1,000,000 and over.....	7	10,087	17,325,701	7,864,447	\$20,000 and less than \$100,000.....	14.2	4.8	6.2	6.7
Per cent of total.....	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000.....	14.2	29.7	41.9	37.3
Less than \$5,000.....	26.2	2.5	0.8	1.8	\$1,000,000 and over.....	1.9	51.0	46.9	46.2
\$5,000 and less than \$20,000.....	48.5	12.1	4.1	8.0	Average per establishment.....	55		\$102,845	\$44,444
\$20,000 and less than \$100,000.....	14.2	4.8	6.2	6.7	<b>Slaughtering and meat packing, 1909</b>	54	1,034	\$13,682,951	\$2,180,335
\$100,000 and less than \$1,000,000.....	14.2	29.7	41.9	37.3	Less than \$5,000.....	13	19	167,909	35,750
\$1,000,000 and over.....	1.9	51.0	46.9	46.2	\$5,000 and less than \$20,000.....	24	97	1,123,860	167,107
Average per establishment.....	55		\$102,845	\$44,444	\$20,000 and less than \$100,000.....	12	317	5,151,358	942,846
<b>Slaughtering and meat packing, 1909</b>	54	1,034	\$13,682,951	\$2,180,335	\$100,000 and less than \$1,000,000.....	5	601	7,239,824	1,034,032
Less than \$5,000.....	13	19	167,909	35,750	Per cent of total.....	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000.....	24	97	1,123,860	167,107	Less than \$5,000.....	24.1	1.8	1.2	1.6
\$20,000 and less than \$100,000.....	12	317	5,151,358	942,846	\$5,000 and less than \$20,000.....	44.4	9.4	8.2	7.7
\$100,000 and less than \$1,000,000.....	5	601	7,239,824	1,034,032	\$20,000 and less than \$100,000.....	22.2	30.7	37.6	43.2
Per cent of total.....	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000.....	9.3	58.1	52.9	47.5
Less than \$5,000.....	24.1	1.8	1.2	1.6	Average per establishment.....	19		\$253,388	\$40,377
\$5,000 and less than \$20,000.....	44.4	9.4	8.2	7.7	<b>Printing and publishing, 1909</b>	371	3,388	\$8,358,779	\$5,895,391
\$20,000 and less than \$100,000.....	22.2	30.7	37.6	43.2	Less than \$5,000.....	187	289	459,991	348,251
\$100,000 and over.....	9.3	58.1	52.9	47.5	\$5,000 and less than \$20,000.....	120	696	1,206,519	870,178
Average per establishment.....	19		\$253,388	\$40,377	\$20,000 and less than \$100,000.....	49	1,091	2,040,023	1,381,108
<b>Printing and publishing, 1909</b>	371	3,388	\$8,358,779	\$5,895,391	\$100,000 and less than \$1,000,000.....	15	1,310	4,647,241	3,297,854
Less than \$5,000.....	187	289	459,991	348,251	Per cent of total.....	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000.....	120	696	1,206,519	870,178	Less than \$5,000.....	50.4	8.5	5.5	5.9
\$20,000 and less than \$100,000.....	49	1,091	2,040,023	1,381,108	\$5,000 and less than \$20,000.....	32.3	20.6	14.4	14.8
\$100,000 and less than \$1,000,000.....	15	1,310	4,647,241	3,297,854	\$20,000 and less than \$100,000.....	13.2	32.2	24.5	23.4
Per cent of total.....	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000.....	4.0	38.7	55.6	55.9
Less than \$5,000.....	50.4	8.5	5.5	5.9	Average per establishment.....	9		\$22,533	\$15,891
\$5,000 and less than \$20,000.....	32.3	20.6	14.4	14.8	<b>Printing and publishing, 1909</b>	371	3,388	\$8,358,779	



MANUFACTURES—MARYLAND.

In some respects, and especially from the standpoint of conditions under which persons engaged in manufactures work, the best classification of establishments to bring out the feature of size is a classification according to the number of wage earners employed. The

next table shows, for 1909, such a classification for all industries combined and for 19 important industries individually, and gives not only the number of establishments falling in each group but also the average number of wage earners employed.

INDUSTRY.	Total.	ESTABLISHMENTS EMPLOYING—								
		No wage earners.	1 to 5 wage earners.	6 to 20 wage earners.	21 to 50 wage earners.	51 to 100 wage earners.	101 to 250 wage earners.	251 to 500 wage earners.	501 to 1,000 wage earners.	Over 1,000 wage earners.
NUMBER OF ESTABLISHMENTS.										
All industries.....	4,837	504	2,348	1,190	414	182	127	42	22	8
Bread and other bakery products.....	510	97	372	38	4	3	1	1		
Canning and preserving.....	468	0	171	208	50	14	12	4		
Cars and general shop construction and repairs by steam-railroad companies.....	21		3	4		2	7	2	2	1
Clothing, men's, including shirts.....	350	11	86	109	53	14	11	5	0	4
Clothing, women's.....	72	1	12	34	12	9	1	3		
Confectionery.....	54	0	22	13	5	2	0			
Copper, tin, and sheet-iron products.....	81	1	33	15	19	3	3	4	3	
Cotton goods, including cotton small wares.....	10			3	2	1	5	3	1	1
Fertilizers.....	41		21	7	4	5	3	1		
Flour-mill and gristmill products.....	295	82	109	12	1	1				
Foundry and machine-shop products.....	167	5	59	45	26	14	5	2	1	
Liquors, distilled.....	25	-1	10	10	4					
Liquors, malt.....	20	1	3	2	8	4	2			
Lumber and timber products.....	551	14	300	182	33	20	12			
Paper and wood pulp.....	13		3	3	4		2		1	
Patent medicines and compounds and druggists' preparations.....	83	20	43	14	2	2	1		1	
Printing and publishing.....	371	65	194	75	26	7	4			
Slaughtering and meat packing.....	54	1	31	11	4	0	1		2	
Tobacco manufactures.....	263	85	128	33	7	3	3		2	
All other industries.....	1,367	105	658	312	150	72	48	15	5	2
AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	107,921		5,630	12,999	12,184	12,065	10,858	14,318	15,028	12,210
Bread and other bakery products.....	1,002		770	308	120	235	155	208		
Canning and preserving.....	8,613		594	2,320	1,483	1,024	1,700	1,390		
Cars and general shop construction and repairs by steam-railroad companies.....	5,540		11	59		132	1,088	610	1,341	2,302
Clothing, men's, including shirts.....	10,784		267	1,870	1,043	978	1,808	1,350	4,224	7,590
Clothing, women's.....	2,041		38	419	397	609	125	1,053		
Confectionery.....	1,573		59	130	201	133	1,030			
Copper, tin, and sheet-iron products.....	5,275		94	182	582	211	550	1,401	2,150	
Cotton goods, including cotton small wares.....	3,066			38	89	79	803	1,002	750	1,130
Fertilizers.....	1,430		52	87	150	354	447	340		
Flour-mill and gristmill products.....	5,606		320	99	27	60				
Foundry and machine-shop products.....	4,798		153	470	338	1,028	777	655	371	
Liquors, distilled.....	276		24	118	134					
Liquors, malt.....	909		5	13	204	273	349			
Lumber and timber products.....	7,093		773	2,045	1,017	1,404	1,704			
Paper and wood pulp.....	1,240		8	34	134				733	
Patent medicines and compounds and druggists' preparations.....	1,193		60	150	50	125	110		644	
Printing and publishing.....	3,356		490	701	840	530	720			
Slaughtering and meat packing.....	1,034		72	118	141	470	238			
Tobacco manufactures.....	3,476		226	353	256	197	478	710	1,250	
All other industries.....	33,280		1,563	3,307	4,791	5,173	7,330	5,209	3,644	2,182
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	100.0		5.3	12.0	12.2	12.1	12.4	13.3	14.5	12.2
Bread and other bakery products.....	100.0		39.6	18.8	0.6	12.0	7.9	15.2		
Canning and preserving.....	100.0		6.9	27.0	17.2	11.9	20.8	16.2		
Cars and general shop construction and repairs by steam-railroad companies.....	100.0		0.2	1.1		2.4	19.6	11.1	24.2	41.5
Clothing, men's, including shirts.....	100.0		1.3	9.5	8.3	4.9	9.1	7.0	21.4	33.4
Clothing, women's.....	100.0		1.4	15.9	15.0	23.1	4.7	39.9		
Confectionery.....	100.0		3.8	8.8	12.8	8.8	65.0			
Copper, tin, and sheet-iron products.....	100.0		1.8	3.4	11.0	4.0	10.6	28.3	40.9	
Cotton goods, including cotton small wares.....	100.0			1.0	2.2	2.0	20.2	26.8	19.1	23.6
Fertilizers.....	100.0		3.0	6.0	10.4	24.6	31.1	24.3		
Flour-mill and gristmill products.....	100.0		63.2	10.6	5.3	11.9				
Foundry and machine-shop products.....	100.0		3.2	9.9	17.5	21.4	16.2	13.7	18.2	
Liquors, distilled.....	100.0		8.7	42.8	48.6					
Liquors, malt.....	100.0		0.6	1.4	20.0	30.6	38.4			
Lumber and timber products.....	100.0		11.0	20.2	14.5	20.9	24.3			
Paper and wood pulp.....	100.0		0.6	2.7	10.7		27.2		53.7	
Patent medicines and compounds and druggists' preparations.....	100.0		5.3	13.1	4.9	10.5	9.2		54.0	
Printing and publishing.....	100.0		14.0	23.4	25.1	15.7	21.3			
Slaughtering and meat packing.....	100.0		7.0	10.9	13.6	45.5	23.0			
Tobacco manufactures.....	100.0		6.5	10.2	7.4	5.7	13.8	20.4	30.1	
All other industries.....	100.0		4.7	9.9	14.4	15.5	22.0	15.9	10.9	6.6

The per cent distribution of the number of establishments is not shown in this table. Of the 4,837 establishments reported for all industries, 10.4 per cent employed no wage earners; 48.5 per cent employed from 1 to 5; and 24.6 per cent, from 6 to 20. The most numerous single group consists of the 2,348 establishments employing 1 to 5 wage earners, the next being the group employing from 6 to 20, with 1,190 establishments. There were 72 establishments that employed over 250 wage earners; 8 employed over 1,000.

Of the total number of wage earners, 40 per cent were in establishments employing over 250 wage earners. The single group having the largest number of employees was the group employing from 101 to 250 wage earners. This group employed 19,858 wage earners, or 18.4 per cent of the total. The individual industries listed in this table, but not in the preceding one, namely, steam-railroad repair shops, women's clothing, confectionery, cotton goods, distilled liquors, fertilizers, malt liquors, paper and wood pulp, patent medicines and compounds, and tobacco manufactures, are all, with the exception of distilled liquors, industries in which comparatively large establishments do most of the business, as appears from the classification of the wage earners.

**Expenses.**—As stated in the Introduction, the census does not purport to furnish figures that can be used for determining the cost of manufacture and profits. Facts of interest can, however, be brought out concerning the relative importance of the different classes of expenses which make up the total.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
All industries.....	4.8	15.9	69.6	9.7
Bread and other bakery products.....	3.4	15.0	73.1	8.5
Canning and preserving.....	2.7	14.9	78.0	4.4
Cars and general shop construction and repairs by steam-railroad companies.....	3.1	39.0	57.3	0.5
Clothing, men's, including shirts.....	5.3	22.1	61.3	11.4
Clothing, women's.....	6.9	22.6	58.0	12.5
Confectionery.....	6.6	10.7	72.8	9.9
Copper, tin, and sheet-iron products.....	5.5	13.9	72.1	8.5
Cotton goods, including cotton small wares.....	2.8	20.6	72.7	3.9
Fertilizers.....	4.9	7.2	81.3	6.7
Flour-mill and gristmill products.....	1.1	2.6	93.3	3.0
Foundry and machine-shop products.....	6.7	25.7	55.0	12.0
Liquors, distilled.....	4.2	2.8	22.5	70.5
Liquors, malt.....	7.6	14.6	32.2	45.5
Lumber and timber products.....	4.0	23.8	63.0	9.1
Paper and wood pulp.....	3.3	15.0	77.1	4.6
Patent medicines and compounds and druggists' preparations.....	17.5	10.0	50.5	22.0
Printing and publishing.....	17.7	27.5	34.5	20.2
Slaughtering and meat packing.....	2.1	4.7	89.6	3.8
Tobacco manufactures.....	3.8	12.6	57.6	26.1
All other industries.....	4.1	14.0	76.5	5.5

The preceding table shows, for 1909, in percentages, the distribution of expenses among the classes indicated for all industries combined and for certain important industries separately. The figures on which the percentages are based appear in Table II.

This table shows that for all industries combined 69.6 per cent of the total expenses were incurred for materials, 20.7 per cent for services—that is, salaries and wages—and but 9.7 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries. The large proportional miscellaneous expenses for the two liquor industries was caused by the amounts paid for internal revenue.

**Engines and power.**—The following table shows, for all industries combined, the number of engines or other motors, according to their character, employed in generating power (including electric motors operated by purchased current), and their total horsepower at the censuses of 1909, 1904, and 1899. It also shows separately the number and horsepower of electric motors, including those operated by current generated in the manufacturing establishments.

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899 <sup>1</sup>	1909	1904	1899 <sup>1</sup>	1909	1904	1899
Primary power, total.....	6,470	2,790	2,808	218,244	165,449	132,052	100.0	100.0	100.0
Owned.....	3,523	2,790	2,808	200,205	160,781	129,000	91.7	97.2	98.2
Steam.....	2,688	2,121	2,153	181,326	142,096	115,500	83.1	85.9	87.5
Gas.....	504	398	332	5,736	4,377	3,139	2.6	2.6	2.4
Water wheels.....	309	265	323	11,953	10,610	10,416	5.5	6.4	7.9
Water motors.....	17	6	( <sup>2</sup> )	121	167	( <sup>2</sup> )	0.1	0.1	( <sup>2</sup> )
Other.....				1,069	3,531	525	0.5	2.1	0.4
Rented.....	2,947	( <sup>2</sup> )	( <sup>2</sup> )	18,039	4,668	2,383	8.3	2.8	1.8
Electric.....	2,947	( <sup>2</sup> )	( <sup>2</sup> )	17,108	3,309	733	7.8	2.0	0.6
Other.....				931	1,359	1,650	0.4	0.8	1.2
Electricmotors.....	5,024	802	229	44,921	18,823	4,174	100.0	100.0	100.0
Run by current generated by establishment.....	2,077	802	229	27,813	15,514	3,441	61.9	82.4	82.4
Run by rented power.....	2,947	( <sup>2</sup> )	( <sup>2</sup> )	17,108	3,309	733	38.1	17.6	17.6

<sup>1</sup> Includes the neighborhood industries and hand trades, omitted in 1904 and 1909.  
<sup>2</sup> Not reported.

The table indicates that the increase in primary power was due principally to the increase in owned power generated by steam. The relative proportion which steam power bears to the total primary power used at each census is, however, becoming less. It constituted 87.5 per cent in 1899, 85.9 per cent in 1904, and 83.1 per cent in 1909. The more general use of gas

engines is shown, there being 504 of such engines with a capacity of 5,736 horsepower reported in 1909, as against 398 engines with 4,377 horsepower in 1904 and 332 engines with 3,139 horsepower in 1899. The figures also show an increase in the practice of renting electric power, 7.8 per cent of the total power being rented electric in 1909, as against 2 per cent in 1904, and six-tenths of 1 per cent in 1899. The use of electric motors for the purpose of applying the power generated within the establishments is also shown to be rapidly increasing, the horsepower of such motors increasing from 3,441 in 1899 to 15,514 in 1904, and 27,813 in 1909.

Fuel.—Closely related to the question of kind of power employed is that of the fuel used in generating this power, or otherwise consumed as material in the manufacturing processes. The table in the next column shows the quantity of each kind of fuel used in 1909 for all industries combined and for certain selected industries.

INDUSTRY.	An-thra-cite coal (tons).	Bitu-minous coal (tons).	Coke (tons).	Wood (cfs.).	Oil, includ-ing gas-oline (bar-rels).	Gas (1,000 feet).
All industries.....	84,091	1,640,480	438,044	33,284	251,037	1,281,303
Bread and other bakery products.....	5,946	7,303	511	5,739	58	14,417
Canning and preserving.....	99	27,721	108	7,062	2,773	2,844
Cars and general shop construction and repairs by steam-rail-road companies.....	11,270	63,978	2,429	.....	11,285	367
Clothing, men's, including shirts.....	1,016	14,412	.....	88	834	20,334
Clothing, women's.....	425	622	.....	5	70	5,998
Confectionery.....	281	15,800	2,199	42	8	2,290
Copper, tin, and sheet-iron products.....	858	20,834	489	4	0,086	23,286
Cotton goods, including cotton small wares.....	100	31,998	.....	78	.....	.....
Fertilizers.....	.....	25,183	10	10	61	150
Flour-mill and gristmill products.....	1,012	18,257	.....	4,869	804	871
Foundry and machine-shop products.....	495	34,315	20,282	1,105	003	10,091
Gas, illuminating and heating.....	32,307	16,874	3,494	17	170,032	11,540
Liquors, distilled.....	45	32,478	249	182	2	.....
Lumber and timber products.....	0	40,122	.....	25	7	717
Paper and wood pulp.....	0	11,003	4	144	1,512	2,785
Patent medicines and compounds and druggists' preparations.....	215	4,396	.....	1	1	949
Printing and publishing.....	2,224	5,804	.....	33	223	10,207
Slaughtering and meat packing.....	80	40,765	.....	1,225	14	1,014
Tobacco manufactures.....	468	4,490	33	8	20	1,859
All other industries.....	27,317	1,070,340	403,266	12,067	44,020	795,100

NOTE.—In addition, there were 16,244 tons of other varieties of fuel reported.

SUPPLEMENTARY DATA REGARDING IMPORTANT INDUSTRIES.

(With statistics for laundries and custom sawmills and gristmills.)

For certain industries the Census Bureau collects, by means of special schedules, details regarding the quantity and value of materials and products which do not appear on the general schedule. Certain data for the quantity and value of products for seven important industries in Maryland are here presented.

Canning and preserving.—Canning and preserving as a factory industry is of comparatively recent origin. In 1859 there were in Maryland 25 establishments reported as engaged in canning oysters and 4 engaged in preserving fruits, etc., with combined products valued at \$1,089,620. It is probable that this number includes many establishments, the output of which was not canned shucked oysters, thereby making the statistics not strictly comparable. The remarkable growth in the industry is shown, however, by comparing these figures with the 468 establishments reported in 1909, which had a total value of products amounting to \$13,709,449. Of the establishments reported in 1909, 19 were primarily engaged in canning and preserving fish; 423 in canning and preserving fruits and vegetables; 2 in canning and preserving oysters; and 24 in the manufacture of pickles, preserves, and sauces. Several of the large fruit and vegetable canneries continue to operate their plants as oyster canneries during what would otherwise be their closed season.

The quantity and value of products, by classes, for 1909, 1904, and 1899, are given in the first table on the next page.

The case which is used as the unit of measure consists of 24 standard-size, number 2 or number 3, cans; also called 2-pound and 3-pound cans, according to the kind of fruit or vegetable canned or preserved. All beans, corn, peas, blackberries, cherries, raspberries,

and strawberries have been reduced to the standard-size number 2 can, while all other fruits and vegetables have been reduced to the standard-size number 3 can.

The total value of products was greater in 1909 than in 1904, but smaller than in 1899. The figures for 1899, however, include the value of large quantities of tin cans manufactured and sold and of oysters sold in bulk, which are included under the head of "All other products" for that year. It will be observed that the total value of all canned vegetables increased throughout the decade; that the total value of all canned fruits was greater in 1904 than in 1899, but smaller in 1909; and that the total value of all canned oysters fell off in 1904 and recovered in 1909.

Sweet potatoes and tomatoes were the only vegetables showing a gain in quantity and value during the period from 1904 to 1909, but each variety of vegetable increased in both items from 1899 to 1904. The gain, however, during the former period in the value of tomatoes—which comprised, in 1909, 71.2 per cent of the aggregate value of all vegetable products for the industry—was great enough to more than overcome the combined loss in the value of all other vegetables. Apples and strawberries were the only canned fruits to show increases in 1909 over 1904, while the largest decrease was in peaches. It must be remembered, however, in using these comparative figures, that the packs of various fruits and vegetables fluctuate from year to year according to the extent of their respective crops.

Of the 468 establishments embraced within this classification in 1909, tomatoes were canned or preserved to some extent by 398, corn by 63, peas by 29, sweet potatoes by 36, apples and peaches by 23, strawberries by 22, and spinach by 16.

PRODUCT.	1909	1904	1899
Total value.....	\$13,709,449	\$12,935,065	\$14,533,000
Canned vegetables.....	10,779,540	9,556,611	6,260,691
Beans—			
Cases.....	611,287	870,121	405,071
Value.....	\$778,732	\$1,031,025	\$470,314
Corn—			
Cases.....	772,828	1,000,802	848,959
Value.....	\$1,030,905	\$2,021,627	\$1,070,096
Peas—			
Cases.....	381,894	622,263	505,642
Value.....	\$619,981	\$1,019,131	\$957,430
Pumpkins—			
Cases.....	2,033	19,592	4,810
Value.....	\$4,292	\$24,283	\$6,315
Sweet potatoes—			
Cases.....	136,252	109,347	59,362
Value.....	\$206,919	\$148,906	\$85,020
Spinach—			
Cases.....	110,882		
Value.....	\$188,352		
Tomatoes—			
Cases.....	5,747,477	3,638,263	2,599,454
Value.....	\$7,674,960	\$4,976,098	\$3,659,137
Okra and tomatoes—			
Cases.....	30,629		
Value.....	\$53,572		
All other canned vegetables—			
Cases.....	118,190	197,118	6,430
Value.....	\$212,327	\$335,541	\$12,373
Canned fruits.....	\$1,005,014	\$1,765,824	\$1,422,008
Apples—			
Cases.....	111,347	47,117	85,927
Value.....	\$168,458	\$70,980	\$137,834
Blackberries—			
Cases.....	29,884	58,758	72,087
Value.....	\$39,316	\$81,164	\$88,425
Cherries—			
Cases.....	10,092	30,104	25,033
Value.....	\$18,204	\$47,869	\$42,096
Gooseberries—			
Cases.....	53,513		
Value.....	\$77,987		
Peaches—			
Cases.....	80,489	352,244	362,087
Value.....	\$158,839	\$753,003	\$758,919
Pears—			
Cases.....	67,427	126,213	80,540
Value.....	\$111,949	\$199,802	\$151,012
Pineapples—			
Cases.....	67,695		
Value.....	\$252,384		
Raspberries—			
Cases.....	14,052	30,442	44,411
Value.....	\$25,619	\$47,349	\$71,190
Strawberries—			
Cases.....	106,724	72,130	116,973
Value.....	\$228,360	\$129,324	\$178,008
All other canned fruits—			
Cases.....	9,017	201,597	434
Value.....	\$13,398	\$436,333	\$434
Preserved and pickled fruits and vegetables, including jams, jellies, sauces, ketchups, and similar products.....	\$664,408	( <sup>1</sup> )	( <sup>2</sup> )
Oysters.....	\$868,706	\$548,646	\$823,567
Canned, smoked and salt fish, clams and crabs.....	\$227,633	( <sup>1</sup> )	\$132,100
All other products.....	\$74,148	\$1,063,954	\$5,893,674

<sup>1</sup> Does not include two establishments engaged in preparing fish, to avoid disclosures of individual operations.

<sup>2</sup> Included in "All other products."

**Slaughtering and meat packing.**—The next table shows the products reported for this industry at the last three censuses.

In 1904 there was a slight increase over 1899 in total value of products. The increase in value of pork products, embracing fresh pork, pork salted and cured, sausage fresh or cured, and lard, was sufficiently large to more than offset the decreases in beef, veal, and mutton products. A comparison for the 10-year period 1899 to 1909 shows that the quantities of fresh beef and fresh pork increased, while the quantities of salted or cured beef, fresh veal, fresh mutton, salted or cured pork, and lard decreased. In 1909 the quantity of fresh beef shown was nearly five times the quantity reported in 1904. The industry as a whole shows a

greater growth during the five years 1904-1909 than in any decade since 1879, the value of products having increased 99.8 per cent. The value of all other products shows an extraordinary gain in 1909 over 1904, which was due in part to the increased production of compound lard, lard substitute, edible oils, and other by-products.

PRODUCT.	1909	1904	1899
Total value.....	\$13,682,951	\$6,847,973	\$6,331,066
Beef, fresh:			
Pounds.....	19,979,567	4,123,530	6,752,680
Value.....	\$1,768,714	\$278,381	\$533,364
Beef, salted or cured:			
Pounds.....	191,480	160,800	307,820
Value.....	\$19,109	\$9,098	\$24,959
Veal, fresh:			
Pounds.....	1,482,710	533,372	1,549,400
Value.....	\$177,732	\$67,120	\$163,120
Mutton, fresh:			
Pounds.....	630,729	1,316,012	3,826,000
Value.....	\$77,541	\$117,610	\$510,012
Pork, fresh:			
Pounds.....	13,166,197	17,690,875	11,081,713
Value.....	\$1,768,932	\$1,538,427	\$840,063
Pork, salted or cured:			
Pounds.....	28,231,007	30,676,342	31,739,703
Value.....	\$3,648,005	\$3,033,386	\$2,666,284
Sausage, fresh or cured.....	\$1,375,720	\$791,478	\$676,534
Lard:			
Pounds.....	9,577,942	10,389,572	11,359,953
Value.....	\$1,162,407	\$785,185	\$720,124
Fertilizers and fertilizer materials:			
Tons.....	21,827	3,705	590
Value.....	\$398,965	\$100,166	\$8,600
Hides:			
Number.....	58,891	13,659	29,917
Pounds.....	2,755,685	622,976	917,570
Value.....	\$349,077	\$54,408	\$75,543
Pelts:			
Number.....	19,173	37,074	( <sup>1</sup> )
Value.....	\$10,963	\$11,034	( <sup>1</sup> )
All other products.....	\$2,935,786	\$71,778	\$166,463

<sup>1</sup> Figures not available.

**Lumber and timber products.**—The following is a statement comparing the quantities of rough lumber, lath, and shingles produced in 1909 and 1899:

PRODUCT.	QUANTITY.	
	1909	1899
Rough lumber.....M feet b. m.....	267,939	183,711
Lath.....thousands..	17,583	5,369
Shingles.....thousands..	12,352	22,324

The principal varieties and the quantities in M feet board measure, of rough lumber sawed in 1909 were: Yellow pine, 97,598; oak, 71,792; and chestnut, 32,251.

**Fertilizers.**—The principal products manufactured during 1909, 1904, and 1899, by kind, quantity, and value, are shown in the first table on the next page.

The statistics presented in this table pertain to the distinctly fertilizer establishments. There were, however, considerable quantities manufactured as a secondary product by establishments primarily engaged in other manufacturing industries which in 1909 reported 19,814 tons of fertilizers, valued at \$353,550.

The quantity of all kinds of fertilizers shown in the following table was 608,699 tons in 1909, compared with 500,889 tons in 1904 and 383,774 tons in 1899, a gain

of 107,810 tons in 1909 over 1904 and 117,115 tons in 1904 over 1899. Complete fertilizers constituted the largest class manufactured during each of the three census years, representing 44.1 per cent in 1909, 30.9 per cent in 1904, and 47.9 per cent in 1899, of the total quantities produced. Of the five different groups, complete fertilizers showed the largest actual and relative increases from 1904 to 1909, while ammoniated fertilizers showed the largest increases from 1899 to 1904. The principal materials used in 1909 by fertilizer establishments consisted of 249,167 tons of phosphate rock, 187,988 tons of sulphuric acid, 75,468 tons of ammoniates, and 45,041 tons of kainit, and in 1904 of 138,515 tons of phosphate rock, 40,987 tons of ammoniates, 35,941 tons of sulphuric acid, and 33,052 tons of superphosphates. Besides the products shown in the table, 308,794 tons of acid phosphate, 22,495 tons of sulphuric acid, and 20,284 tons of other products were manufactured in 1909 by the 41 establishments reporting and consumed by them in further processes.

PRODUCT.	1909	1904	1899
Total value .....	\$9,872,786	\$9,031,703	\$5,481,908
Superphosphates from minerals, bones, etc.:			
Tons.....	184,524	132,803	124,444
Value.....	\$1,838,959	\$1,309,020	\$1,176,009
Ammoniated fertilizers:			
Tons.....	40,972	134,020	48,008
Value.....	\$1,260,024	\$1,801,507	\$600,671
Concentrated phosphate:			
Tons.....	24,377	.....	.....
Value.....	\$200,324	.....	.....
Complete fertilizers:			
Tons.....	268,570	154,065	183,705
Value.....	\$4,764,519	\$2,441,425	\$2,977,015
Other fertilizers:			
Tons.....	81,256	78,402	27,017
Value.....	\$338,830	\$690,872	\$330,872
Sulphuric acid:			
Tons.....	15,359	2,222	2,311
Value.....	\$92,154	\$13,332	\$124,170
Other acids:			
Tons.....	.....	44,805	.....
Value.....	.....	\$213,251	.....
Fish scrap:			
Tons.....	1,400	.....	.....
Value.....	\$42,000	.....	.....
All other products.....	\$554,787	\$60,338	\$183,378

Flour-mill and gristmill products.—The following tabular statement gives the quantity and value of products for the last two census years:

PRODUCT.	QUANTITY.		VALUE.	
	1909	1904	1909	1904
Total value.....			\$9,267,803	\$7,318,212
Wheat flour:				
White..... barrels..	1,128,475	1,015,866	6,080,115	4,860,200
Graham..... barrels..	1,000	80	8,756	344
Corn meal..... barrels..	228,349	1,298,199	732,877	722,091
Corn flour..... barrels..	1,983	.....	8,198	.....
Rye flour..... barrels..	5,200	2,858	23,304	14,403
Buckwheat flour..... pounds..	2,558,744	1,042,706	60,270	45,100
Hominy..... pounds..	997,417	3,011,460	18,223	41,861
Grits..... pounds..	1,202,200	.....	20,743	.....
Feed..... tons.....	40,344	25,356	1,130,253	649,773
Offal..... tons.....	41,400	45,637	1,056,007	947,858
All other products.....	.....	.....	123,148	35,623

<sup>1</sup> Includes corn flour.

<sup>2</sup> Includes grits.

White wheat flour, which constituted 65.7 per cent of the total value of all products in 1909 compared

with 66.4 per cent in 1904, shows an increase of 112,609 barrels, or 11.1 per cent, in quantity and \$1,228,825, or 25.3 per cent, in value during the five years. Each of the different classes of products shows an increase in value and all except corn meal, corn flour, hominy and grits combined, and offal an increase in quantity. There were, however, 1,997,086 bushels of corn ground by merchant mills in 1909, compared with 1,898,891 bushels in 1904. The decrease in the corn products above specified was offset by an increase in feed, a large part of which is derived from corn.

Printing and publishing.—Though the printing and publishing industry as a whole in Maryland shows considerable growth during the last five years as measured by the financial statistics, the number of publications and aggregate circulation have decidedly decreased during the same period, as shown by the following table:

PERIOD OF ISSUE.	NUMBER OF PUBLICATIONS.			AGGREGATE CIRCULATION PER ISSUE.		
	1909	1904	1899	1909	1904	1899
Total.....	163	189	168	600,550	873,694	678,867
Daily.....	18	20	18	310,870	200,878	247,552
Sunday.....	5	5	2	182,582	182,500	(1)
Semiweekly.....	2	2	2	18,075	10,175	17,300
Weekly.....	120	139	127	185,554	228,001	310,505
Monthly.....	13	22	15	100,000	123,150	93,250
All other classes.....	4	11	4	3,400	26,800	5,200

<sup>1</sup> Included in circulation of dailies.

<sup>2</sup> Includes one triweekly publication.

During the 1904-1909 period the total number of publications decreased 18.1 per cent, accompanied by a decrease of 8.4 per cent in aggregate circulation per issue. With exception of semiweeklies and Sunday publications, which remained the same, each of the different classes of publications shows a decrease in number in 1909, as compared with 1904, the greatest decline being in weeklies. The average circulation of daily publications increased during the same period, but the gain was not enough to equal the combined losses in the circulation of weeklies, monthlies, and the publications included under the head "All other classes." All the publications were in the English language, except two dailies and two Sunday publications—one of each was in German and one of each in German and English—and nine weeklies, one of which was in Bohemian, four in German, two in Italian, one in Polish, and one in Yiddish.

Cotton goods, including cotton small wares.—This industry is one of the oldest in the state. As early as 1849 there were 24 establishments reported, with products valued at \$2,120,504. During the years from 1849 to 1909 the number of establishments decreased one-third, yet the value of products much more than doubled.

The quantity and cost of materials used, by kinds, in 1909, 1904, and 1899, are given in the next table.

MATERIAL.	1909	1904	1899
Total cost .....	\$4,011,741	\$3,873,475	\$3,039,396
Cotton:			
Pounds.....	27,460,792	27,054,032	39,901,955
Cost.....	\$3,230,428	\$3,233,937	\$2,644,129
Cotton yarn, purchased:			
Pounds.....	2,254,334	1,910,717	926,469
Cost.....	\$414,199	\$329,655	\$117,456
Cotton waste, purchased:			
Pounds.....	952,245	916,992	.....
Cost.....	\$50,917	\$46,528	.....
Starch.....	\$2,924	\$4,208	\$5,476
Fuel and rent of power.....	\$86,911	\$70,769	\$55,082
All other materials.....	\$226,362	\$122,378	\$217,253

Of the total cost of materials used, raw cotton represented 80.5 per cent in 1909, which was a less proportion of the total than was reported in 1904 and 1899, when the per cents were 85 and 87, respectively. All the raw cotton used was domestic.

The following is a statement of the products reported for the industry at the last three censuses:

PRODUCT.	1909	1904	1899
Total cost .....	\$5,523,293	\$5,244,742	\$5,423,251
Duck:			
Square yards.....	13,872,294	14,148,404	25,139,642
Value.....	\$3,478,113	\$3,622,713	\$4,036,003
Other cloth:			
Square yards.....	7,556,494	8,652,972	8,770,940
Value.....	\$958,335	\$384,074	\$607,185
Cotton yarns and twine for sale:			
Pounds.....	4,479,173	2,371,451	2,745,548
Value.....	\$703,310	\$431,076	\$390,325
All other products.....	\$382,535	\$356,879	\$389,138

With the exception of duck, which shows a decrease, the value of each of the different specified classes of products shows an increase in 1909 over 1904. The quantity of duck and of other cloth manufactured shows a decrease. Cotton yarns and twine for sale show a gain in 1909 over 1904, amounting to 1,607,722 pounds, or 56 per cent in quantity, and \$272,234, or 63.2 per cent in value.

Shipbuilding, including boat building.—This industry includes the building of both iron and steel and wood vessels, as well as small craft of all kind and the repairs to such vessels.

The number and tonnage of all vessels launched in 1909, 1904, and 1899 are shown by classes below:

	1909		1904		1899	
	Num-ber.	Gross tonnage.	Num-ber.	Gross tonnage.	Num-ber.	Gross tonnage.
Total.....	129	34,160	111	32,003	91	29,357
5 tons gross and over:						
Iron and steel—						
Steam.....	5	17,473	10	10,170	14	15,173
Sail.....	1	1,034	.....	.....	.....	.....
Unrigged.....	3	650	2	1,052	.....	.....
Wooden—						
Steam.....	2	260	10	1,550	9	1,701
Motor.....	3	45	.....	.....	.....	.....
Sail.....	8	664	4	384	24	456
Unrigged.....	30	14,034	46	18,847	29	12,027
Small power boats, all kinds, under 5 tons gross.....	77	.....	39	.....	15	.....

The foregoing table shows that the gross tonnage of all vessels launched grew steadily during the period from 1899 to 1909. The growth in number of vessels launched increased much more rapidly than did the gross tonnage.

In addition to the vessels shown in the table, there were sailboats, rowboats, canoes, and scows built, each of which were of less than 5 tons gross register, representing a total value of \$46,632 in 1909, \$12,140 in 1904, and \$19,864 in 1899. The amounts received for repair work were \$985,112, \$1,010,622, and \$1,138,420, respectively, for the three years.

Laundries.—Statistics for steam laundries are not included in the general tables or in the totals for manufacturing industries. There were 41 such establishments in the state of Maryland, 18 of which were in Baltimore, 4 in Cumberland, 2 in Hagerstown, and 2 in Frederick.

The following statement summarizes the statistics:

Number of establishments.....	41
Persons engaged in the industry.....	1,497
Proprietors and firm members.....	44
Salaried employees.....	175
Wage earners (average number).....	1,278
Primary horsepower.....	1,091
Capital.....	\$643,458
Expenses.....	834,814
Services.....	466,569
Materials.....	155,695
Miscellaneous.....	212,550
Amount received for work done.....	993,766

The most common form of organization was the individual, with 19 establishments. The firm and corporate forms of ownership were each represented by 11 establishments. Ten establishments had receipts for the year's business of less than \$5,000; 15, \$5,000 but less than \$20,000; 14, \$20,000 but less than \$100,000; and 2, \$100,000 but less than \$1,000,000.

The number of wage earners employed each month and the per cent which this number represented of the greatest number employed in any month were as follows:

MONTH.	WAGE EARNERS.		MONTH.	WAGE EARNERS.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	1,267	96.4	July.....	1,288	98.8
February.....	1,252	96.0	August.....	1,287	98.7
March.....	1,260	96.6	September.....	1,283	98.4
April.....	1,265	97.0	October.....	1,300	99.7
May.....	1,285	98.5	November.....	1,304	100.0
June.....	1,272	97.5	December.....	1,285	98.5

The different kinds of primary power, the number of engines or motors, and the horsepower used in 1909 are shown in the following tabular statement:

KIND.	Number of engines or motors.	Horsepower.
Primary horsepower, total.....		1,091
Owned:		
Steam.....	39	1,019
Gas.....	1	4
Rented:		
Electric.....	11	8
Other.....	.....	60

The kind and amount of fuel used are shown in the next table.



MANUFACTURES—MARYLAND.

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	1,067
Bituminous coal.....	Tons.....	10,390
Wood.....	Cords.....	7
Oil.....	Barrels.....	29
Gas.....	1,000 feet.....	4,089

Custom sawmills and gristmills.—Statistics for custom sawmills and gristmills are not included in the general tables or in the totals for manufacturing industries, but are presented in the summary in the next column.

	Custom sawmills.	Custom gristmills.
Number of establishments.....	120	114
Persons engaged in the industry.....	435	148
Proprietors and firm members.....	158	129
Salried employees.....	1	1
Wage earners (average number).....	276	18
Total primary horsepower.....	2,492	2,123
Capital.....	\$106,069	\$181,625
Expenses.....	90,839	414,439
Services.....	69,779	6,722
Materials.....	2,157	1,399,939
Miscellaneous.....	18,903	8,778
Value of products.....	178,450	1,484,793

<sup>1</sup> Includes estimate of all grain ground.

## MANUFACTURES—MARYLAND.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899.  
THE STATE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.					Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).								
Expressed in thousands.														
STATE—All industries.....	1909	4,837	125,489	5,376	12,192	107,931	218,244	\$251,227	\$13,617	\$45,436	\$109,049	\$315,669	\$116,680	
	1904	3,852	107,303	4,505	8,624	94,174	165,449	201,878	8,844	36,144	150,024	249,376	83,352	
	1899	3,886	.....	.....	6,741	94,170	132,052	149,165	6,845	32,414	129,364	211,076	81,732	
Baking powders and yeast.....	1909	7	201	3	52	146	322	251	47	40	490	840	351	
	1904	6	229	10	44	175	296	256	44	65	282	717	435	
	1899	7	156	7	43	106	.....	98	42	34	219	345	126	
Baskets, and rattan and willow ware.....	1909	25	583	26	34	526	502	317	27	112	227	471	244	
	1904	21	103	20	13	75	60	57	15	28	53	134	71	
	1899	17	.....	.....	7	134	.....	76	4	30	74	145	71	
Belting and hose, woven and rubber.....	1909	4	315	1	35	279	305	826	49	87	995	1,318	323	
	1904	4	255	1	31	223	223	580	43	71	490	765	275	
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Boots and shoes, including cut stock and findings.....	1909	14	670	11	65	594	252	678	64	239	912	1,431	519	
	1904	20	756	20	55	681	182	445	44	247	546	1,040	494	
	1899	29	.....	.....	51	920	.....	551	54	299	769	1,261	492	
Boxes, cigar.....	1909	9	183	10	6	167	145	117	8	45	110	194	84	
	1904	8	126	9	1	116	55	76	1	38	68	134	66	
	1899	10	109	10	3	96	.....	62	2	30	57	108	51	
Boxes, fancy and paper.....	1909	17	770	15	71	684	365	733	61	183	395	853	458	
	1904	15	587	20	65	502	219	519	25	132	221	496	275	
	1899	11	401	13	32	356	.....	136	10	78	126	296	170	
Brass and bronze products.....	1909	17	267	11	37	219	243	346	61	98	432	748	316	
	1904	9	130	7	16	107	153	134	26	44	182	318	136	
	1899	10	106	9	22	135	.....	156	24	47	192	300	168	
Bread and other bakery products.....	1909	518	2,820	545	313	1,962	1,212	3,214	202	893	4,363	6,868	2,505	
	1904	428	2,292	444	187	1,691	766	1,921	113	763	3,067	5,159	2,062	
	1899	415	.....	.....	180	1,581	.....	1,870	117	568	2,271	3,976	1,705	
Brick and tile.....	1909	40	1,331	36	69	1,226	4,815	5,117	77	463	249	971	722	
	1904	50	1,590	50	78	1,464	4,353	5,337	78	534	227	1,097	870	
	1899	45	1,608	50	57	1,501	2,613	3,993	52	453	156	844	688	
Butter, cheese, and condensed milk.....	1909	44	137	54	14	69	522	257	10	39	524	654	120	
	1904	55	156	71	8	80	576	176	2	29	399	519	120	
	1899	84	222	91	18	113	300	234	7	34	558	694	136	
Canning and preserving.....	1909	408	9,755	655	487	3,613	7,907	8,377	351	1,926	10,090	13,709	3,619	
	1904	2408	10,167	682	439	3,146	5,799	7,151	332	1,790	9,173	12,935	3,762	
	1899	297	.....	.....	296	9,223	.....	5,368	287	1,772	10,627	14,533	3,906	
Carriages and wagons and materials.....	1909	126	900	154	49	757	879	1,192	45	372	541	1,330	789	
	1904	119	1,158	160	52	946	985	1,219	37	415	698	1,485	787	
	1899	115	.....	.....	33	769	.....	777	25	294	385	991	606	
Cars and general shop construction and repairs by steam-railroad companies.....	1909	21	5,926	.....	377	5,540	7,308	4,264	283	3,535	5,193	9,059	3,800	
	1904	21	5,203	.....	226	4,977	4,245	2,837	205	2,837	2,610	5,752	3,142	
	1899	19	3,754	.....	134	3,020	3,436	2,878	101	1,850	2,567	4,573	2,006	
Chemicals.....	1909	3	316	.....	31	285	1,676	37	158	684	1,313	629	.....	
	1904	3	306	.....	2	41	323	625	52	141	589	1,082	493	
	1899	7	511	.....	3	33	475	1,806	51	246	782	1,271	489	
Clothing, men's, including shirts.....	1909	369	21,946	496	1,666	19,784	4,061	19,578	1,801	7,563	20,966	36,921	15,656	
	1904	157	15,274	272	1,153	13,849	2,185	12,768	1,010	4,110	14,772	25,653	10,881	
	1899	187	.....	.....	919	13,336	.....	9,781	855	3,879	12,694	21,306	8,612	
Clothing, women's.....	1909	72	3,030	105	284	2,641	370	1,694	271	888	2,285	4,351	2,066	
	1904	56	2,126	82	153	1,891	233	1,215	128	601	1,689	3,195	1,496	
	1899	61	2,426	100	151	2,175	247	841	128	563	1,374	2,686	1,312	
Confectionery.....	1909	54	1,888	48	267	1,573	1,424	2,753	285	463	3,162	5,082	1,920	
	1904	44	1,286	48	184	1,054	800	1,155	170	294	1,517	2,618	1,101	
	1899	43	.....	.....	134	863	.....	807	118	253	1,156	1,940	784	
Cooperage and wooden goods, not elsewhere specified.....	1909	40	384	46	15	323	441	428	20	135	358	617	259	
	1904	29	437	39	17	381	332	390	14	108	427	765	338	
	1899	32	.....	.....	17	374	.....	388	11	156	357	639	282	
Copper, tin, and sheet-iron products.....	1909	81	5,980	76	629	5,275	5,532	24,719	317	2,076	10,868	16,969	6,101	
	1904	75	3,054	77	250	2,727	1,523	16,455	421	987	6,096	9,263	3,167	
	1899	72	.....	.....	149	3,240	.....	4,120	132	1,062	4,760	7,003	2,243	
Cotton goods, including cotton small wares.....	1909	16	4,077	3	108	3,966	13,128	9,024	152	1,139	4,012	5,522	1,510	
	1904	12	4,101	8	100	3,993	11,995	6,955	93	934	3,873	5,245	1,372	
	1899	14	4,818	7	84	4,727	10,804	7,709	133	1,186	3,039	5,423	2,384	
Fertilizers.....	1909	41	1,750	36	275	1,439	5,324	9,098	418	617	6,963	9,673	2,710	
	1904	39	1,500	38	206	1,256	3,964	6,058	230	524	4,092	6,632	1,640	
	1899	40	1,265	37	212	1,016	3,442	7,003	246	458	3,444	5,452	1,838	
Flour-mill and gristmill products.....	1909	295	935	336	93	506	13,807	3,729	93	227	3,003	9,268	1,265	
	1904	202	890	249	91	550	10,663	2,717	73	212	6,210	7,318	1,108	
	1899	196	.....	.....	85	500	10,097	3,006	80	212	6,103	7,238	1,186	

<sup>1</sup> Figures can not be shown without disclosing individual operations.

<sup>2</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.

<sup>3</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.

MANUFACTURES—MARYLAND.

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TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.  
THE STATE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm numbers.	Salari- ed em- ploy- ees.	Wage earners (average number).							
Expressed in thousands.													
STATE—Continued.													
Foundry and machine-shop products.....	1909	167	5,520	160	502	4,708	0,785	\$10,324	\$718	\$2,751	\$5,956	\$11,978	\$6,022
	1904	118	5,451	117	435	4,809	5,027	8,274	431	2,810	3,940	10,580	6,640
	1899	136				404	5,615		8,033	442	2,729	4,080	9,940
Furniture and refrigerators.....	1909	48	2,133	68	209	1,856	2,876	2,507	199	835	1,001	3,350	1,749
	1904	51	2,525	63	182	2,280	2,859	2,291	198	959	1,024	3,445	1,821
	1899	42	2,065	55	141	1,809	1,861	1,585	118	823	1,212	2,976	1,704
Gas, illuminating and heating.....	1909	18	817	4	397	476	1,555	26,954	267	220	629	3,223	2,504
	1904	12	416	1	188	227	1,361	21,227	177	128	458	1,994	1,536
	1899	11	321		84	237	469	18,554	85	137	481	1,797	1,310
Glass.....	1909	7	1,105	6	47	1,052	427	887	64	505	237	1,038	801
	1904	6	982	5	28	949	426	623	35	354	159	590	431
	1899	7	777	4	31	742	230	581	30	340	152	558	406
Hats and caps, other than felt, straw, and wool.	1909	17	155	24	9	122	53	69	4	66	90	208	118
	1904	11	133	14	10	109	3	77	4	58	98	213	115
	1899												
Hats, straw.....	1909	7	1,808	4	110	1,694	630	2,607	296	688	1,783	3,347	1,564
	1904	6	1,226	6	81	1,130	507	1,452	136	460	1,051	2,030	985
	1899												
Hosiery and knit goods.....	1909	11	1,062	10	30	1,022	460	930	29	234	697	1,172	475
	1904	4	919	4	39	876	405	639	29	195	531	952	421
	1899	4	712	2	28	682	160	312	15	119	347	514	167
Ice, manufactured.....	1909	42	406	31	80	355	7,192	2,552	83	230	300	1,022	722
	1904	27	318	15	60	253	4,280	1,088	40	126	180	730	550
	1899	18	163	6	19	138	2,140	660	15	75	84	350	275
Jewelry.....	1909	15	121	20	11	90	46	202	9	57	132	257	125
	1904	12	102	14	7	81	24	193	6	45	78	188	110
	1899	8	87	8	4	75		170	3	43	108	212	104
Leather goods.....	1909	43	430	48	65	326	132	682	55	150	607	1,043	436
	1904	34	552	39	76	437	212	698	55	168	605	1,012	507
	1899	40		37	67	502		712	50	159	609	1,004	395
Leather, tanned, curried, and finished.....	1909	13	523	15	42	466	1,321	2,208	80	211	2,114	2,661	547
	1904	17	583	28	24	531	652	2,019	37	218	1,493	1,911	428
	1899	22	501	28	18	465	1,008	1,080	17	156	1,411	1,754	343
Lime.....	1909	43	473	43	33	367	942	833	20	128	132	420	288
	1904	25	382	25	22	335	357	539	13	100	106	398	292
	1899												
Liquors, distilled.....	1909	25	387	10	101	270	2,095	4,863	215	142	1,140	5,362	4,213
	1904	27	412	21	87	304	2,804	3,710	152	201	1,390	2,567	1,198
	1899	26	248	19	43	186	1,130	2,326	74	95	815	1,616	801
Liquors, malt.....	1909	20	1,095	7	179	909	6,187	8,834	369	711	1,560	5,000	4,121
	1904	21	988	5	163	820	5,063	6,490	277	599	1,362	4,667	3,665
	1899	16	922	9	161	752	4,650	13,857	263	484	870	4,134	3,255
Lumber and timber products.....	1909	501	8,165	718	444	7,003	23,553	9,182	417	2,457	6,507	12,134	5,027
	1904	301	6,851	400	302	5,149	16,740	5,432	250	1,959	4,906	8,937	4,031
	1899	322		206	5,102			5,587	143	1,540	4,349	7,847	3,498
Marble and stone work.....	1909	89	1,658	85	118	1,455	4,241	2,164	198	793	957	2,427	1,470
	1904	42	1,232	53	88	1,091	1,414	1,327	200	660	875	2,244	1,369
	1899	36		51	1,111			708	66	522	530	1,442	912
Mattresses and spring beds.....	1909	19	252	20	34	198	178	373	20	80	460	720	290
	1904	20	223	25	24	174	116	256	24	75	365	578	213
	1899	15		19	110			173	14	42	138	268	120
Millinery and lace goods.....	1909	14	300	16	41	243	42	213	26	74	172	359	217
	1904	8	197	10	24	163	11	77	13	85	119	193	74
	1899	11	306	17	23	266		187	15	81	138	298	160
Musical instruments, pianos and organs and materials.	1909	7	833	8	68	757	613	2,301	82	464	566	1,400	900
	1904	8	725	13	67	645	689	1,742	127	356	244	1,389	1,745
	1899	9	574	10	41	523	553	1,253	47	263	404	942	538
Paint and varnish.....	1909	12	190	20	43	127	450	503	35	55	700	1,001	301
	1904	11	253	16	55	182	600	444	51	74	411	681	270
	1899	16	181	24	35	122	380	339	33	51	300	507	297
Paper and wood pulp.....	1909	13	1,349	15	85	1,249	11,407	8,399	140	639	3,278	4,894	1,616
	1904	10	1,074	19	47	1,008	7,343	6,350	76	397	2,453	3,266	843
	1899	21	983	11	35	937	8,503	2,721	59	326	1,731	2,590	859
Patent medicines and compounds and druggists' preparations.	1909	83	1,840	62	501	1,193	683	4,114	749	429	2,167	5,548	3,381
	1904	74	1,310	75	273	971	779	3,223	373	266	1,839	4,839	3,000
	1899	62			345	963		1,474	444	280	1,252	3,245	1,993
Pottery, terra-cotta, and fire-clay products.....	1909	16	799	12	67	720	1,336	973	71	316	206	757	551
	1904	10	997	14	58	925	1,484	1,143	55	389	138	852	714
	1899	18	1,144	15	47	1,082	693	1,081	44	385	196	835	639

1 Excluding statistics for two establishments, to avoid disclosure of individual operations.  
2 Excluding statistics for one establishment, to avoid disclosure of individual operations.  
3 Figures not comparable.  
4 Not reported separately.

MANUFACTURES—MARYLAND.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.  
THE STATE.—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Consus.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).							
Expressed in thousands.													
<b>STATE—Continued.</b>													
Printing and publishing.....	1909 1904 1899	371 1 330 1 333	4,942 4,201 4,328	365 354 384	1,191 936 596	3,386 2,971 3,348	3,094 2,434	\$6,075 5,068 4,455	\$1,204 855 556	\$1,965 1,611 1,509	\$2,464 1,732 1,639	\$8,360 6,317 5,587	\$5,896 4,688 3,948
Shipbuilding, including boat building.....	1909 1904 1899	46 35 38	1,968 2,959	47 47 93	128 140 2,551	1,793 2,772 2,170	6,795 5,215 2,170	4,413 4,226 4,424	160 173 104	1,098 1,340 1,503	1,849 1,785 1,787	3,535 4,541 4,116	1,686 2,750 2,329
Silk and silk goods, including throwsters.....	1909 1904 1899	4 3 2	681 188	2 13	24 175	655 175	915 765	498 421	32 9	160 48	237 171	512 273	275 102
Silverware and plated ware.....	1909 1904 1899	10 6 8	215 237	5 9	11 20 20	199 203 167	201 166	322 307 316	15 25 19	121 111 85	115 110 100	355 308 272	240 198 166
Slaughtering and meat packing.....	1909 1904 1899	54 44 50	1,324 653	61 61 43	229 502 465	1,034 502 465	3,024 1,204	3,808 1,213	265 58 28	604 320 220	11,503 5,838 5,730	13,033 6,848 6,391	2,180 960 661
Stoves and furnaces, including gas and oil stoves.....	1909 1904 1899	8 5 4	471 405	4 3	73 53	394 349	273 187	754 704	80 58	209 196	205 197	670 646	471 449
Tobacco manufactures.....	1909 1904 1899	203 390	4,098	291	331	3,476	559	6,644	375	1,229	5,006	10,559	4,893
Umbrellas and canes.....	1909 1904 1899	9 9 11	640 450 508	15 14 28	111 65 84	514 371 401	95 83	827 468 393	144 40 61	168 94 110	1,076 800 748	1,650 471 1,098	574 471 350
All other industries.....	1909 1904 1899	523 772 500	15,427 19,769	513 826	1,811 1,632 1,168	13,103 17,311 16,169	53,715 50,158	\$6,234 50,025 21,888	1,048 1,696 1,243	6,334 6,879 5,607	62,155 56,880 44,683	78,121 76,262 59,776	15,966 19,382 15,083

CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES.

BALTIMORE—All industries.....	1909 1904 1899	2,502 2,158 2,274	83,473 74,234	2,680 2,432	9,869 6,752 5,501	71,444 65,050 66,571	76,764	\$164,437 146,961 107,217	\$10,571 6,997 5,871	\$31,171 25,507 23,493	\$107,024 80,555 75,223	\$186,978 150,171 135,108	\$79,954 69,618 59,885
Belting and hose, woven and rubber.....	1909 1904 1899	4 4 2	315 255	1 1	35 31	279 223	305	826 580	49 43	87 71	995 490	1,318 765	323 275
Boots and shoes, including cut stock and findings.....	1909 1904 1899	14 20 28	670 756	11 20	65 55 44	594 681 870	252	678 445 520	64 44 50	239 247 279	912 540 728	1,431 1,040 1,197	519 494 469
Bread and other bakery products.....	1909 1904 1899	375 341 336	2,323 1,958	396 353	295 146 170	1,632 1,459 1,417	976	2,666 1,666 1,669	198 108 116	750 668 536	3,639 2,680 2,099	5,716 4,483 3,647	2,077 1,803 1,548
Canning and preserving.....	1909 1904 1899	51 45 45	3,460 4,429	49 45	245 272 207	3,166 4,112 5,631	1,283	3,885 3,728 3,704	238 254 243	844 979 1,235	4,317 4,305 8,118	5,831 6,226 10,764	1,514 1,861 2,646
Carriages and wagons and materials.....	1909 1904 1899	40 67 6	496 638	46 78	37 20	413 540	406	641 682	37 15	235 262	278 340	732 828	454 483
Cars and general shop construction and repairs by steam-railroad companies.....	1909 1904 1899	8 7 6	4,451 3,805 2,531	318 153 93	4,163 3,712 2,438	6,318	3,471 1,589 2,236	229 141 73	2,705 2,104 1,268	4,383 2,084 2,151	7,365 4,478 3,530	2,982 2,394 1,379	
Clothing, men's, including shirts.....	1909 1904 1899	324 130 155	20,670 14,174	453 231	1,621 1,120 883	18,596 12,823 12,044	3,785	19,283 12,436 9,549	1,768 983 339	7,326 3,924 3,661	29,672 14,667 12,635	36,269 25,276 20,843	15,597 10,609 8,308
Clothing, women's.....	1909 1904 1899	69 51 58	2,953 1,963 2,125	99 76 96	282 145 150	2,572 1,742 1,879	348	1,686 1,162 829	270 122 128	878 562 505	2,279 1,654 1,261	4,333 3,065 2,507	2,054 1,411 1,246
Confectionery.....	1909 1904 1899	50 43 42	1,867 1,274	45 47	258 178	1,564 1,049	1,416	2,701 1,125 777	277 166 116	459 292 252	3,116 1,500 1,924	5,011 2,698 1,924	1,895 1,089 780
Copper, tin, and sheet-iron products.....	1909 1904 1899	58 50 59	4,734 2,792	55 50	507 230 133	4,172 2,512 2,745	4,297	20,655 15,455 3,690	662 383 120	1,675 903 808	8,172 5,030 4,047	12,833 8,609 5,933	4,661 2,979 1,886
Foundry and machine-shop products.....	1909 1904 1899	101 81 94	4,245 4,278	94 79	432 352 320	3,719 3,847 4,265	4,576	7,863 6,740 6,579	544 354 360	2,205 2,295 2,274	4,204 2,836 2,862	9,074 8,396 7,548	4,870 5,660 4,686

1 Excluding statistics for one establishment, to avoid disclosure of individual operations.  
 2 Figures can not be shown without disclosing individual operations.  
 3 Excluding statistics for two establishments, to avoid disclosure of individual operations.  
 4 Not reported separately.  
 5 Figures do not agree with those published in 1904, because it was necessary to revise the totals in order to include data only for those establishment located within the corporate limits of the city.  
 6 Figures not comparable.

MANUFACTURES—MARYLAND.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY AND CITY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salari- ed employ- ees.	Wage earners (aver- age num- ber).							
Expressed in thousands.													
<b>BALTIMORE—Continued.</b>													
Furniture and refrigerators .....	1909	34	1,358	48	153	1,187	1,780	\$1,825	\$145	\$548	\$1,014	\$2,197	\$1,183
	1904	<sup>1</sup> 38	1,985	46	163	1,776		1,001	189	799	1,297	2,854	1,557
	1899	<sup>2</sup> 36	1,804	48	129	1,027		1,417	112	745	1,097	2,091	1,594
Hats, straw .....	1909	7	1,808	4	110	1,094	930	2,007	299	688	1,783	3,347	1,504
	1904	6	1,220	6	81	1,139		1,462	130	460	1,051	2,030	985
	1899												
Ice, manufactured .....	1909	12	242	1	40	195	5,102	1,094	65	151	222	694	472
	1904	9	167	1	21	145		1,324	31	85	143	575	452
	1899	5	60	2	4	63		342	5	44	52	238	180
Leather goods .....	1909	35	410	40	64	306	181	610	55	143	500	963	403
	1904	<sup>1</sup> 30	520	36	76	417		675	55	161	479	904	485
	1899	<sup>2</sup> 24			66	466		661	50	160	588	954	366
Leather, tanned, curried, and finished .....	1909	7	85	11	6	68	156	145	7	32	249	321	72
	1904	8	164	12	5	147		58	6	58	157	300	143
	1899	10	161	13	6	142		141	6	59	474	594	120
Liquors, distilled .....	1909	5	127		35	62	636	1,372	69	42	331	1,062	1,271
	1904	7	120		23	106		1,540	38	70	523	954	451
	1899	7	100		24	83		1,034	29	50	424	610	495
Liquors, malt .....	1909	11	639	5	82	552	3,270	5,350	174	451	906	3,150	2,244
	1904	13	613	3	85	525		4,135	141	401	858	3,177	2,310
	1899	12	605	7	120	538		6,089	187	351	622	2,934	2,312
Lumber and timber products .....	1909	48	2,258	49	103	2,016	5,009	2,853	206	804	3,022	4,805	1,783
	1904	<sup>1</sup> 34	1,765	35	158	1,572		1,770	143	650	1,949	3,320	1,371
	1899	<sup>2</sup> 35			79	1,002		2,324	68	620	2,050	3,320	1,270
Marble and stone work .....	1909	48	890	45	82	742	1,420	1,100	158	485	758	1,704	646
	1904	28	896	34	66	796		1,087	176	487	775	1,841	1,066
	1899	27			36	727		671	46	381	480	1,183	793
Patent medicines and compounds and drug- gists' preparations .....	1909	71	1,813	53	580	1,180	667	4,056	744	426	2,136	5,471	3,335
	1904	67	1,291	70	267	954		3,168	371	282	1,817	4,750	2,933
	1899	67			340	950		1,438	442	270	1,238	3,106	1,958
Printing and publishing .....	1909	238	4,157	220	1,071	2,866	3,194	5,025	1,199	1,747	2,227	7,553	5,326
	1904	<sup>2</sup> 202	3,472	211	840	2,421		4,251	700	1,390	1,578	5,068	4,030
	1899	<sup>2</sup> 217	3,042	254	538	2,850		3,787	524	1,345	1,403	4,912	3,509
Shipbuilding, including boat building .....	1909	13	616	11	50	555	3,563	2,078	67	340	260	871	611
	1904	<sup>1</sup> 12	515	16	30	469		945	47	221	202	640	438
	1899	16			50	1,393		1,687	63	753	701	2,021	1,320
Slaughtering and meat packing .....	1909	48	1,023	57	158	808	2,611	2,852	212	479	8,052	10,082	1,430
	1904	41	503	57	51	455		967	51	250	4,749	5,552	803
	1899	46			36	395		1,062	25	184	5,033	5,612	579
Tobacco manufactures .....	1909	212	3,840	236	319	3,294	559	6,442	369	1,107	5,530	10,270	4,740
	1904												
	1899	320			270	4,024		3,170	364	1,228	3,418	9,574	6,156
Umbrellas and canes .....	1909	9	640	15	111	514	65	827	144	168	1,076	1,650	574
	1904	9	450	14	65	371		468	40	94	800	1,271	471
	1899	10	409	18	83	308		301	61	100	745	1,093	348
All other industries .....	1909	610	17,365	616	2,214	14,535	23,023	60,286	2,327	6,007	25,331	42,385	17,054
	1904	825	24,087	911	2,119	21,057		77,504	2,167	7,783	27,376	50,565	23,139
	1899	629			1,571	19,100		40,950	1,844	6,370	21,953	37,974	16,021

CITIES OF 10,000 TO 50,000 INHABITANTS—ALL INDUSTRIES COMBINED.

Cumberland .....	1909	71	2,200	53	211	1,836	5,119	\$4,095	\$185	\$948	\$2,076	\$4,534	\$1,858
	1904	72	2,512	55	181	2,276		4,139	200	1,084	2,078	4,595	1,917
	1899	56			124	1,643		2,362	111	684	1,674	2,900	1,226
Frederick .....	1909	55	1,184	63	95	1,026	1,989	2,370	97	361	2,075	2,911	836
	1904	56	1,184	62	90	1,032		1,421	61	278	1,223	1,938	715
	1899	54			68	989		1,033	48	197	919	1,438	519
Hagerstown .....	1909	76	1,698	79	141	1,718	2,068	2,970	116	583	1,798	3,197	1,399
	1904	67	2,467	65	182	2,210		2,194	119	718	1,651	3,027	1,376
	1899	80			83	1,515		1,121	48	396	1,100	1,820	720

<sup>1</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.  
<sup>2</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.  
<sup>3</sup> Figures can not be shown without disclosing individual operations.

TABLE II.—DETAIL STATEMENT FOR

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners.					Total.	16 and over.		Under 16.		
					Male.	Female.	Average number.	Number.		Male.	Female.		Male.	Female.			
								Maximum month.	Minimum month.								
<b>I All industries.....</b>	<b>4,837</b>	<b>125,489</b>	<b>5,376</b>	<b>3,198</b>	<b>7,345</b>	<b>1,649</b>	<b>107,921</b>	<b>Se 133,268</b>	<b>Ja 95,070</b>	(1)	(1)	(1)	(1)	(1)	<b>218,244</b>		
2 Automobiles, including bodies and parts.....	5	241	3	19	12	5	202	Au 244	No 146	180	180				223		
3 Baking powders and yeast.....	7	201	3	19	38	7	146	Ja 166	Oc 132	151	82	60		9	322		
4 Baskets, and rattan and willow ware.....	25	586	26	13	20	1	528	Fe 652	Oc 310	514	410	25	20	50	502		
5 Belting and hose, woven and rubber.....	4	315	1	10	19	6	279	Jy 295	De 268	268	60	170	3	35	305		
6 Blacking and cleansing and polishing preparations.....	7	36	5	4	12	3	12	Ja 12	Je 12	12	9	2	1		17		
7 Boots and shoes, including cut stock and findings.....	14	670	11	25	32	8	504	Ap 613	Je 555	599	353	190	38	13	262		
8 Boxes, cigar.....	9	183	10	4	2		167	De 171	Au 164	171	76	79	9	7	145		
9 Boxes, fancy and paper.....	17	770	15	24	29	18	684	Oc 748	Fe 638	718	183	391	22	122	865		
10 Brass and bronze products.....	17	267	11	20	14	3	219	Au 236	Ja 202	213	208				243		
11 Bread and other bakery products.....	516	2,820	545	31	191	91	1,962	Oc 2,070	Ja 1,832	1,984	1,720	153	80	31	1,212		
12 Brick and tile.....	40	1,331	36	47	20	2	1,226	Jy 1,693	Ja 742	1,177	1,152		25		4,815		
13 Brooms.....	24	140	27	8	3	4	101	No 119	Au 81	115	101	3	11		39		
14 Brushes.....	11	575	14	10	55	8	488	Oc 550	Je 435	539	432	55	33	19	558		
15 Butter, cheese, and condensed milk.....	44	137	54	11	2	1	69	My 82	Ja 56	81	79				522		
16 Canning and preserving.....	468	9,755	655	204	245	38	8,613	Se 31,131	Ja 1,227	28,151	9,742	14,600	1,581	2,228	7,007		
17 Carriages and wagons and materials.....	126	960	154	31	12	6	757	Ap 796	No 712	748	739		9		879		
18 Cars and general shop construction and repairs by steam-railroad companies.....	21	5,926		124	252	1	5,549	Oc 6,143	Ap 5,001	6,017	5,993	19	5		7,308		
19 Chemicals.....	8	316		7	16	8	285	Oc 321	Ja 231	315	313	2			1,855		
20 Cloth, sponging and refinishing.....	4	71	5	3	4		59	Ja 59	Jy 59	59	58				128		
21 Clothing, men's, including shirts.....	359	21,946	496	250	1,142	274	19,784	De 20,420	Se 19,303	20,413	8,810	10,607	259	837	4,061		
22 Clothing, women's.....	72	3,030	105	52	162	70	2,641	Ap 2,767	Au 2,510	2,757	579	2,121	4	53	370		
23 Confectionery.....	54	1,888	48	39	186	42	1,573	No 2,009	Je 1,353	1,887	627	929	48	283	1,424		
24 Cooperage and wooden goods, not elsewhere specified.....	40	384	46	9	5	1	323	De 349	My 301	398	345	30	8	15	441		
25 Copper, tin, and sheet-iron products.....	81	5,980	76	158	371	100	5,275	Se 6,268	Ja 4,052	5,133	3,723	832	403	175	5,532		
26 Cotton goods, including cotton small wares.....	16	4,077	3	37	53	13	3,966	No 4,110	My 3,652	4,133	1,720	1,755	357	301	13,128		
27 Cutlery and tools, not elsewhere specified.....	6	42	8	5	7		22	Oc 27	Mh 19	24	18		6		36		
28 Electrical machinery, apparatus, and supplies.....	7	142	2	9	6	4	121	De 134	Au 111	134	110	16	8		266		
29 Electroplating.....	10	67	13			1	53	Se 56	Jy 49	54	52		2		84		
30 Fertilizers.....	41	1,750	36	94	165	16	1,439	Se 2,115	No 1,110	1,326	1,316	10			5,324		
31 Flags, banners, regalia, society banners, and emblems.....	7	110	6	5	5	8	86	Ap 105	No 59	96	37	50	5	4	16		
32 Flour-mill and gristmill products.....	295	935	336	42	45	6	506	De 541	Ap 490	542	537	1	4		13,807		
33 Foundry and machine-shop products.....	157	5,520	160	200	312	50	4,798	De 5,231	Fe 4,430	5,319	5,178	96	45		6,785		
34 Fur goods.....	7	65	10	1	5		49	No 70	Fe 24	74	36	38					
35 Furnishing goods, men's.....	26	550	35	6	58	15	436	De 499	My 403	502	93	379	13	17	53		
36 Furniture and refrigerators.....	48	2,133	68	49	132	28	1,850	No 1,972	Fe 1,746	1,955	1,855	7	93		2,876		
37 Gas and electric fixtures and lamps and reflectors.....	9	96	6	7	5	7	71	No 77	Au 67	75	75				35		
38 Gas, illuminating and heating.....	18	817	4	40	265	32	476	My 603	Fe 336	415	415				1,555		
39 Glass.....	7	1,105	6	21	23	3	1,052	Ap 1,279	Au 417	1,348	1,162	90	97	9	427		
40 Hand stamps and stencils and brands.....	4	60	6		4	2	48	Se 54	Ap 42	53	42	8	3		10		
41 Hats and caps, other than felt, straw, and wool.....	17	155	24	1	7	1	122	Au 133	Fe 103	130	103	21	4	2	53		
42 Hats, straw.....	7	1,808	4	31	56	23	1,694	De 1,971	Jy 503	1,970	664	1,193	34	85	930		
43 Hosiery and knit goods.....	11	1,062	10	15	9	6	1,022	Ja 1,046	Oc 1,002	1,021	102	666	51	112	460		
44 Ice, manufactured.....	42	466	31	60	16	4	355	Au 489	Ja 196	271	270		1		7,192		
45 Jewelry.....	15	121	20	9	2	9	90	No 96	Jy 85	95	86	3	4	2	46		
46 Kaolin and ground earths.....	5	53		9	1	1	42	My 49	Ja 34	48	48				547		
47 Leather goods.....	43	439	48	8	56	1	326	Fe 338	Ja 320	323	288	13	21	1	182		
48 Leather, tanned, curried, and finished.....	13	523	16	16	23	3	466	Je 515	Ja 415	485	480	5			1,321		
49 Lime.....	43	473	43	14	14	5	397	Ap 515	Ja 284	389	375		14		942		
50 Liquors, distilled.....	25	387	10	41	53	7	276	Fe 375	Au 171	300	284	15	1		2,695		
51 Liquors, malt.....	20	1,095	7	55	113	6	909	Jy 995	Ja 845	892	878	6	8		6,187		
52 Lumber and timber products.....	561	8,165	718	220	193	31	7,093	Mh 7,612	Au 6,152	8,401	7,670	817	339	75	23,553		
53 Marble and stone work.....	39	1,658	85	57	53	8	1,455	Au 1,626	Fe 1,246	1,553	1,541	10	2		4,241		
54 Mattresses and spring beds.....	19	252	20	10	13	11	198	Oc 215	Fe 182	205	169	30	6		178		
55 Millinery and lace goods.....	14	300	16	9	13	14	243	De 289	Jy 200	235	56	221	3	5	42		
56 Models and patterns, not including paper patterns.....	9	49	12		1		36	Se 33	Jy 28	35	35				50		

1 No figures given for reasons explained in the Introduction.



MANUFACTURES—MARYLAND.

THE STATE, BY INDUSTRIES: 1909.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$251,226,828	\$285,954,852	\$5,894,257	\$7,722,632	\$45,435,829	\$7,044,049	\$192,004,856	\$1,725,422	\$7,058,493	\$3,278,207	\$15,791,107	\$315,669,150	\$116,620,245
2 625,226	468,358	20,372	10,132	118,399	4,376	280,739	300	2,000	.....	25,893	592,761	247,046
3 250,918	712,300	14,196	32,858	49,381	14,062	474,336	14,448	2,392	.....	110,033	839,872	350,874
4 317,977	422,684	16,657	10,705	111,741	637	226,414	1,655	1,930	16,267	30,698	471,233	244,182
5 235,720	1,250,324	27,090	21,095	87,058	13,108	981,010	4,700	5,710	.....	109,053	1,817,501	322,433
6 36,076	86,262	3,902	10,128	4,830	799	21,255	2,965	278	5,000	37,105	70,413	54,259
7 677,706	1,362,474	32,368	32,116	239,242	8,093	904,070	12,835	3,381	48,618	81,742	1,431,017	518,845
8 117,601	169,837	5,000	3,120	45,113	2,491	107,031	1,635	814	.....	4,633	104,437	84,915
9 733,288	736,071	31,650	20,549	182,500	9,639	885,630	24,895	3,941	3,386	65,865	862,753	457,678
10 345,695	656,215	50,607	9,849	98,470	11,430	420,670	7,842	1,367	80	55,960	747,650	315,650
11 3,213,873	5,965,541	43,838	167,700	892,730	130,229	4,232,870	48,380	30,127	227	429,364	6,868,479	2,505,390
12 5,117,008	874,324	65,793	11,640	462,570	212,818	30,668	2,001	11,653	1,740	69,432	970,625	721,139
13 129,827	289,850	5,845	2,215	41,284	1,340	227,261	1,994	554	2,392	6,956	334,043	106,333
14 1,628,204	1,013,442	25,500	70,624	217,924	9,883	638,120	6,478	3,769	6,694	34,390	1,123,516	476,512
15 237,063	587,238	9,225	670	38,981	11,445	512,480	938	.....	.....	12,520	653,702	129,768
16 3,376,649	12,937,109	109,848	161,642	1,926,062	125,292	9,964,342	56,452	34,743	6,014	472,814	13,709,440	3,619,315
17 1,191,906	1,032,974	36,784	8,546	372,416	15,048	526,130	19,434	7,601	3,382	43,573	1,330,008	789,390
18 4,283,967	9,059,574	82,470	200,543	3,534,842	99,321	5,063,830	.....	3,809	.....	44,689	9,059,266	3,866,045
19 1,675,900	943,885	18,400	18,391	158,346	60,006	623,682	.....	7,435	16,639	40,786	1,313,103	629,115
20 100,907	67,301	5,600	3,835	42,676	2,795	1,044	1,600	626	.....	8,525	106,534	102,095
21 19,573,476	34,214,120	392,324	1,408,612	7,563,126	149,801	20,810,274	410,014	63,417	2,048,741	1,366,811	36,921,294	15,955,219
22 1,694,363	3,937,613	77,867	192,652	888,268	26,115	2,259,108	97,057	5,757	95,771	325,016	4,351,263	2,066,040
23 2,762,928	4,341,437	122,547	192,605	463,434	54,637	3,107,205	35,998	10,190	.....	378,921	5,081,552	1,920,110
24 427,768	1,041,107	16,024	2,911	134,856	2,951	356,286	5,895	2,305	.....	41,276	619,687	258,460
25 24,718,688	14,980,879	415,364	491,908	2,075,704	142,046	10,666,103	65,995	53,447	23,413	1,139,830	16,009,447	6,101,298
26 9,024,145	5,519,730	96,291	55,988	1,138,706	86,911	3,924,830	4,451	30,269	6,681	176,553	5,522,293	1,510,552
27 36,563	44,404	3,500	4,000	9,850	943	22,044	2,373	304	.....	1,890	58,510	35,520
28 216,225	129,023	16,833	5,339	40,725	2,857	50,768	1,434	974	1,895	0,208	147,098	93,483
29 28,540	44,030	.....	520	26,152	2,277	0,061	3,100	97	356	1,567	58,872	46,634
30 9,097,853	8,568,699	222,847	194,999	618,033	79,320	6,883,405	20,793	45,820	171	504,644	9,672,786	2,710,061
31 99,367	119,400	6,107	5,760	33,138	1,200	61,017	3,050	1,212	.....	7,800	147,154	84,877
32 3,720,202	8,577,040	51,393	41,981	226,693	74,888	7,928,085	22,778	17,292	1,235	212,695	9,267,903	1,264,930
33 10,324,262	10,708,638	454,064	264,222	2,760,481	215,900	5,740,591	78,157	54,325	86,422	1,063,870	11,977,794	6,021,303
34 106,768	111,940	3,500	21,373	566	566	71,003	5,608	380	100	6,004	159,438	87,869
35 398,432	774,729	4,840	92,360	154,632	2,499	491,428	13,878	613	680	43,790	894,912	400,985
36 2,507,077	2,887,696	71,090	127,324	835,147	30,592	1,570,692	43,799	14,719	8,742	184,982	3,850,369	1,749,685
37 199,219	137,931	10,700	3,664	31,264	1,793	76,863	2,950	350	.....	10,341	150,022	71,366
38 26,953,646	1,512,742	50,191	216,905	220,158	593,490	125,993	.....	207,921	.....	188,084	3,223,001	2,593,518
39 837,464	885,093	39,822	24,539	504,634	69,518	107,301	1,120	4,936	.....	73,223	1,038,308	801,540
40 34,536	76,448	.....	3,300	16,220	414	44,584	3,116	77	.....	8,678	94,759	40,761
41 68,549	173,026	600	3,604	60,056	1,772	83,572	3,618	309	896	7,699	208,209	117,865
42 2,607,298	3,061,417	149,264	146,371	637,048	17,431	1,765,783	44,037	8,112	.....	242,771	3,347,330	1,564,116
43 929,500	1,045,862	16,550	12,697	233,819	15,256	881,890	1,560	2,667	40,674	40,970	1,172,325	476,170
44 2,852,240	838,017	70,199	13,194	229,076	107,630	102,030	4,729	14,377	6,787	199,516	1,022,360	722,791
45 292,001	214,653	.....	9,205	57,016	2,453	129,589	4,562	865	314	10,640	259,997	124,955
46 160,143	64,077	12,106	1,300	25,305	5,970	11,848	850	1,020	855	4,754	67,280	49,402
47 682,060	901,894	10,600	44,718	150,303	4,359	602,902	17,431	5,853	7,656	57,952	1,042,009	435,648
48 2,293,388	2,486,828	59,760	20,069	210,040	15,518	2,008,510	2,996	4,648	.....	74,072	2,661,000	547,032
49 832,538	323,049	13,356	6,343	128,233	93,356	38,504	2,980	3,334	2,845	33,562	420,173	288,313
50 4,863,223	5,107,514	128,288	80,575	141,500	80,412	1,062,700	4,161	3,423,551	100	174,131	5,361,689	4,212,571
51 3,833,848	4,865,114	202,171	197,280	711,220	128,122	1,440,906	1,160	1,034,461	.....	1,179,795	5,689,651	4,129,624
52 9,182,109	10,321,505	205,781	151,430	2,457,402	38,417	6,468,582	49,137	54,723	347,772	488,201	12,134,202	5,627,203
53 2,164,270	2,147,351	145,452	52,873	792,528	47,855	909,381	15,099	9,913	11,305	162,343	2,427,436	1,470,200
54 372,738	641,270	13,795	80,356	6,220	6,220	462,536	17,438	2,046	.....	38,095	728,800	260,044
55 213,337	307,554	9,345	16,931	74,292	3,792	168,642	11,001	1,706	.....	21,715	388,725	210,291
56 36,632	37,946	.....	1,040	21,824	1,101	9,928	1,904	216	.....	1,905	54,010	42,081

\* Same number reported throughout the year.

\* Same number reported for one or more other months.

TABLE II.—DETAIL STATEMENT FOR THE

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.				Primary horse-power.		
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners.				Total.	16 and over.		Under 16.				
					Male.	Female.	Average number.	Number.		Male.		Female.	Male.	Female.				
								Maximum month.	Minimum month.									
1 Musical instruments, pianos and organs and materials.	7	833	8	12	43	13	757	De	792	Ja	721	792	741	12	39	.....	618	
2 Optical goods.....	4	50	3	3	9	7	28	De <sup>1</sup>	29	Je	27	29	27	.....	2	.....	11	
3 Paint and varnish.....	12	190	20	7	24	12	127	No <sup>1</sup>	133	Fe	120	134	115	19	.....	.....	450	
4 Paper and wood pulp.....	13	1,349	15	31	46	8	1,249	No	1,290	Ja	1,158	1,247	1,091	154	2	.....	11,407	
5 Patent medicines and compounds and druggists' preparations.	83	1,846	62	118	355	118	1,193	Oc	1,313	Ja	1,038	1,189	419	745	10	15	.....	683
6 Photo-engraving.....	4	73	1	4	13	3	52	De	60	Ja	45	60	54	.....	6	.....	18	
7 Pottery, terra-cotta, and fire-clay products.	16	799	12	35	27	5	720	No	747	Ja	654	724	565	92	61	6	.....	1,336
8 Printing and publishing.....	371	4,942	365	229	751	211	3,386	De	3,530	Au	3,295	3,547	2,870	472	155	50	.....	3,684
9 Shipbuilding.....	46	1,968	47	77	43	8	1,793	Ap	1,925	Ja	1,533	1,956	1,925	31	.....	.....	6,795	
10 Silk and silk goods, including throwsters.	4	681	2	8	8	8	655	Ap	717	No	555	663	196	280	58	129	.....	915
11 Silverware and plated ware.....	10	215	5	7	3	1	199	De <sup>1</sup>	206	Jy <sup>1</sup>	192	206	194	1	11	.....	201	
12 Slaughtering and meat packing.....	54	1,324	61	40	173	16	1,034	De	1,107	Je	990	1,107	1,104	1	2	.....	3,024	
13 Stereotyping and electrotyping.....	5	56	2	3	4	6	41	No <sup>1</sup>	45	My	39	45	39	1	5	.....	53	
14 Stoves and furnaces, including gas and oil stoves.	8	471	4	24	47	2	394	Oc	429	Jy	342	404	398	.....	6	.....	273	
15 Surgical appliances and artificial limbs..	4	20	3	3	1	.....	13	Ap <sup>1</sup>	14	No <sup>1</sup>	12	13	10	2	1	.....	12	
16 Tobacco manufactures.....	263	4,098	291	62	233	36	3,470	De	3,725	Ja	3,280	3,740	1,554	1,908	43	235	.....	559
17 Type founding and printing materials..	3	13	2	1	1	2	7	Je <sup>1</sup>	7	Fe <sup>1</sup>	6	.....	.....	.....	.....	.....	10	
18 Umbrellas and canes.....	9	640	15	14	74	23	514	De	578	Jy	469	575	148	381	20	26	.....	95
19 All other industries*.....	362	12,918	350	348	916	168	11,186	.....	.....	.....	.....	.....	.....	.....	.....	.....	56,549	

<sup>1</sup> Same number reported for one or more other months.

\* All other industries embrace—

Agricultural implements.....	2	Cars, steam-railroad, not including operations of railroad companies.....	1	Engraving, wood.....	2
Artificial flowers and feathers and plumes.....	4	Cement.....	1	Explosives.....	1
Artificial stone.....	9	Charcoal.....	2	Fancy articles, not elsewhere specified.....	3
Awnings, tents, and sails.....	18	Clocks and watches, including cases and materials.....	1	Fireworks.....	1
Babbit metal and solder.....	2	Clothing, men's, buttonholes.....	2	Flavoring extracts.....	12
Bags, other than paper.....	2	Coffee and spice, roasting and grinding.....	15	Food preparations.....	29
Bags, paper.....	4	Coffins, burial cases, and undertakers' goods.....	3	Galvanizing.....	2
Belting and hose, leather.....	2	Coke.....	1	Glass, cutting, staining, and ornamenting.....	5
Billiard tables and materials.....	1	Cordage and twine and jute and linen goods.....	1	Gloves and mittens, leather.....	1
Bluing.....	2	Cork cutting.....	1	Glue.....	1
Butter, reworking.....	1	Corsets.....	2	Gold and silver, leaf and foil.....	1
Calcium lights.....	1	Dairymen's, poulterers', and apiarists' supplies.....	1	Grease and tallow.....	5
Card cutting and designing.....	1	Drug grinding.....	3	Hair work.....	2
Carpets and rugs, other than rag.....	1	Dyeing and finishing textiles.....	3	Hat and cap materials.....	1
Carpets, rag.....	2	Enameling and japanning.....	4	Hats, fur-felt.....	4
Carriages and sleds, children's.....	3	Engraving and diesinking.....	7	House-furnishing goods, not elsewhere specified.....	1
Cars and general shop construction and repairs by street-railroad companies.....	5	.....	.....	Instruments, professional and scientific.....	6
.....	.....	.....	.....	Iron and steel, blast furnaces.....	2

MANUFACTURES—MARYLAND.

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STATE, BY INDUSTRIES: 1909—Continued.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$2,301,098	\$1,260,845	\$37,875	\$43,790	\$463,631	\$10,304	\$556,110	\$1,080	\$16,214	\$38	\$130,894	\$1,466,344	\$390,930
2 58,448	74,478	7,525	9,670	13,980	1,560	35,385	3,740	534	.....	2,066	113,514	70,560
3 502,670	917,052	9,336	25,862	54,982	5,998	603,516	3,625	2,440	.....	121,203	1,000,938	301,424
4 8,398,665	4,253,865	63,250	77,076	639,057	230,571	3,041,851	.....	9,974	.....	186,086	4,894,401	1,615,970
5 4,114,258	4,287,630	289,218	459,621	429,304	17,803	2,149,406	50,402	35,187	68,227	788,372	5,547,515	3,380,306
6 70,324	86,709	7,280	8,144	42,744	1,900	12,906	3,087	90	.....	10,558	104,148	80,342
7 973,443	663,352	43,070	27,579	316,110	71,429	134,683	3,118	8,570	1,596	57,197	766,795	550,683
8 6,675,108	7,183,217	446,123	818,119	1,065,077	70,007	2,384,781	172,159	34,361	305,580	866,410	8,359,779	5,895,391
9 4,413,069	3,295,118	122,847	37,233	1,097,846	80,852	1,708,277	12,540	24,353	450	150,720	3,534,575	1,685,446
10 487,503	450,727	22,815	9,366	159,943	11,210	225,410	.....	818	7,143	22,983	511,908	275,330
11 321,915	278,126	11,800	2,050	120,766	5,301	110,188	8,115	1,830	.....	17,197	354,768	230,279
12 3,807,576	12,863,466	98,278	106,916	603,512	131,355	11,371,261	13,730	16,306	.....	452,018	13,682,951	2,180,335
13 62,463	96,536	5,460	5,113	27,241	2,434	41,861	1,794	104	984	11,955	111,802	68,007
14 763,881	565,965	40,620	39,601	209,231	11,576	193,444	3,050	6,069	.....	62,344	676,193	471,173
15 23,458	18,966	2,400	500	7,844	504	2,882	3,808	40	204	658	20,404	17,018
16 6,643,923	9,841,832	124,852	249,983	1,228,849	34,425	5,631,773	43,415	1,554,222	84	974,228	10,558,807	4,892,608
17 10,199	13,220	1,700	800	3,044	103	4,596	1,310	75	.....	1,232	16,597	11,538
18 827,463	1,523,749	21,324	122,947	167,745	4,702	1,071,152	20,262	1,984	.....	113,633	1,649,810	573,956
19 32,382,219	69,024,639	684,719	900,138	5,434,061	3,488,673	56,601,430	194,787	133,014	38,134	1,648,077	73,747,441	13,757,332

\* All other industries embrace—Continued.

Iron and steel, steel works and rolling mills.....	5	Oakum.....	1	Starch.....	1
Iron and steel forgings.....	1	Oil, not elsewhere specified.....	2	Stationery goods, not elsewhere specified.....	1
Iron and steel, nails and spikes, cut and wrought, not made in steel works or rolling mills.....	2	Oleomargarine.....	1	Statuary and art goods.....	3
Jewelry and instrument cases.....	1	Paper patterns.....	1	Sugar and molasses.....	1
Labels and tags.....	3	Paving materials.....	1	Sulphuric, nitric, and mixed acids.....	3
Lard, refined, not made in slaughtering and meat-packing establishments.....	1	Petroleum, refining.....	2	Toys and games.....	4
Lead, bar, pipe, and sheet.....	1	Pipes, tobacco.....	2	Upholstering materials.....	5
Looking-glass and picture frames.....	13	Roofing materials.....	4	Vinegar and cider.....	3
Malt.....	1	Safts and vaults.....	1	Wall plaster.....	2
Mats and matting.....	1	Saws.....	1	Waste.....	1
Mineral and soda waters.....	53	Show cases.....	2	Whips.....	1
Mirrors.....	2	Signs and advertising novelties.....	2	Window shades and fixtures.....	3
Mucilage and paste.....	2	Smelting and refining, copper.....	1	Wirework, including wire rope and cable.....	12
Musical instruments and materials, not specified..	1	Soap.....	3	Wood, turned and carved.....	6
		Soda-water apparatus.....	1	Woolen, worsted, and felt goods, and wool hats....	2
		Sporting and athletic goods.....	1		

MANUFACTURES—MARYLAND.

TABLE III.—DETAIL STATEMENT FOR CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES, CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES.

BALTIMORE.

INDUSTRY AND CITY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).			Total.	16 and over.		Under 16.				
					Male.	Female.	Total.	16 and over.			Under 16.	Male.	Female.	Male.	Female.		
								Male.	Female.								
1 All industries .....	2,502	83,473	2,660	2,054	5,897	1,418	71,444	44,258	22,876	4,311	60,717	36,375	21,007	1,502	1,833	76,764	
2 Belting and hose, woven and rubber.....	4	315	1	10	19	6	279	62	177	40	268	60	170	3	35	305	
3 Boots and shoes, including cut stock and findings.....	14	670	11	25	32	8	594	350	188	56	599	353	190	38	18	222	
4 Bread and other bakery products.....	375	2,323	396	30	186	79	1,632	1,404	140	88	1,630	1,402	140	59	29	976	
5 Canning and preserving.....	51	3,400	49	80	139	26	3,166	891	2,067	218	4,480	1,201	2,910	188	121	1,283	
6 Carriages and wagons and materials.....	40	496	46	23	11	3	413	412	.....	1	406	405	.....	1	.....	406	
7 Cars and general shop construction and repairs by steam-railroad companies.....	8	4,481	.....	117	200	1	4,163	4,149	13	1	4,605	4,590	14	1	.....	6,318	
8 Clothing, men's, including shirts.....	324	20,670	453	221	1,130	270	18,596	8,504	9,081	1,011	19,042	8,708	9,299	256	779	3,785	
9 Clothing, women's.....	69	2,953	99	52	162	68	2,572	543	1,975	54	2,715	573	2,085	4	53	343	
10 Confectionery.....	50	1,867	45	39	178	41	1,664	514	774	276	1,877	617	929	48	283	1,416	
11 Copper, tin, and sheet-iron products.....	58	4,734	55	123	302	82	4,172	3,153	579	440	4,099	3,098	509	321	111	4,297	
12 Foundry and machine-shop products.....	101	4,245	94	148	247	37	3,719	3,595	86	38	4,129	3,991	96	42	.....	4,576	
13 Furniture and refrigerators.....	34	1,358	48	27	108	18	1,157	1,103	7	47	1,224	1,167	7	50	.....	1,786	
14 Hats, straw.....	7	1,808	4	31	56	23	1,694	569	1,023	102	1,976	664	1,193	84	85	930	
15 Ice, manufactured.....	12	242	1	31	12	3	195	195	.....	.....	133	133	.....	.....	.....	5,102	
16 Leather goods.....	35	410	40	8	55	1	306	273	13	20	304	271	13	19	1	181	
17 Leather, tanned, curried, and finished.....	7	85	11	.....	5	1	68	62	6	.....	61	56	5	.....	.....	158	
18 Liquors, distilled.....	5	127	.....	9	22	4	92	84	7	1	119	109	9	1	.....	636	
19 Liquors, malt.....	11	639	5	24	57	1	652	551	1	.....	541	540	1	.....	.....	3,270	
20 Lumber and timber products.....	48	2,258	49	66	113	14	2,016	1,787	.....	229	2,076	1,840	.....	236	.....	5,609	
21 Marble and stone work.....	48	869	45	32	43	7	742	731	9	2	811	799	10	2	.....	1,420	
22 Patent medicines and compounds and druggists' preparations.....	71	1,813	53	115	350	115	1,180	414	741	25	1,173	411	737	10	15	667	
23 Printing and publishing.....	238	4,157	220	189	688	194	2,866	2,354	350	162	3,004	2,467	367	127	43	3,194	
24 Shipbuilding, including boat building.....	13	616	11	27	21	2	555	552	.....	3	489	486	.....	3	.....	3,563	
25 Slaughtering and meat packing.....	48	1,023	57	35	111	12	808	805	1	2	868	865	1	2	.....	2,611	
26 Tobacco manufactures.....	212	3,849	236	60	223	36	3,294	1,276	1,764	254	3,513	1,361	1,881	37	234	559	
27 Umbrellas and canes.....	9	640	15	14	74	23	514	132	341	41	575	148	381	20	26	95	
28 All other industries.....	610	17,365	616	518	1,353	343	14,535	9,793	3,542	1,200	14,997	10,104	3,655	730	568	23,023	

1 All other industries embrace: Artificial flowers and feathers and plumes, 3; artificial stone, 1; automobiles, including bodies and parts, 3; awnings, tents, and sails, 13; babbitt metal and solder, 2; bags, other than paper, 2; bags, paper, 3; baking powders and yeast, 6; baskets and rattan and willow ware, 17; belting and hose, leather, 2; billiard tables and materials, 1; blacking and cleansing and polishing preparations, 7; bluing, 2; boxes, cigar, 6; boxes, fancy and paper, 16; brass and bronze products, 14; brick and tile, 2; brooms, 10; brushes, 9; calcium lights, 1; card cutting and designing, 1; carpets, rag, 2; carriages and sleds, children's, 3; cars and general shop construction and repairs by steam-railroad companies, 1; chemicals, 2; clocks and watches, including cases and materials, 1; cloth, sponging and refinishing, 4; clothing, men's, button-holes, 12; coffee and spice, roasting and grinding, 15; coffins, burial cases, and undertakers' goods, 2; cooperage and wooden goods, not elsewhere specified, 14; cordage and twine and jute and linen goods, 3; cordials and sirups, 1; cork, cutting, 1; corsets, 2; cotton goods, including cotton small wares, 3; cutlery and tools, not elsewhere specified, 6; drug grinding, 3; dyeing and finishing textiles, 2; electrical machinery, apparatus, and supplies, 5; electroplating, 10; enameling and japanning, 4; engraving and diesinking, 7; engraving, wood, 1; fancy articles, not elsewhere specified, 3; fertilizers, 9; fireworks, 1; flags, banners, regalia, society badges, and emblems, 7; flavoring extracts, 12; flour-mill and gristmill products, 3; food preparations, 27; fur goods, 7; furnishing goods, men's, 23; galvanizing, 2; gas and electric fixtures and lamps and reflectors, 9; gas, illuminating and heating, 2; glass, 2; glass, cutting, staining, and ornamenting, 4; glucose and starch, 1; glue, 1; gold and silver, leaf and foil, 1; grease and tallow, 1; hair

CITIES OF 10,000 TO 50,000 INHABITANTS—ALL INDUSTRIES COMBINED.

1 CUMBERLAND.....	71	2,200	53	74	113	24	1,936	1,578	225	133	2,122	1,729	247	68	78	5,119
2 FREDERICK.....	55	1,184	63	27	56	12	1,026	762	166	98	926	688	150	38	50	1,989
3 HAGERSTOWN.....	76	1,938	79	46	78	17	1,718	978	625	115	1,806	1,028	657	52	69	2,068

MANUFACTURES—MARYLAND.

AND TOTALS FOR ALL INDUSTRIES IN CITIES OF 10,000 BUT LESS THAN 50,000 INHABITANTS: 1909.

CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES.

BALTIMORE.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$164,436,758	\$168,814,788	\$4,187,092	\$6,403,996	\$31,170,787	\$2,250,977	\$104,772,906	\$1,539,691	\$3,929,706	\$2,831,016	\$11,848,615	\$186,977,710	\$79,953,827
2 825,720	1,250,324	27,090	21,095	87,058	13,108	681,010	4,700	5,710	-----	109,053	1,817,501	322,463
3 677,706	1,362,474	32,368	32,116	239,242	8,093	904,070	12,835	3,381	48,618	81,742	1,431,017	518,845
4 2,666,076	5,028,715	43,578	153,945	750,188	108,942	3,530,186	38,517	26,558	227	376,574	5,715,502	2,076,374
5 3,385,498	5,718,020	129,640	108,369	843,746	49,004	4,268,032	40,590	19,585	4,067	248,381	5,831,279	1,514,243
6 641,470	695,620	29,898	7,295	234,650	0,115	209,289	15,078	4,491	1,025	24,230	732,482	454,078
7 3,471,038	7,364,879	67,645	161,466	2,705,380	67,102	4,316,291	-----	3,201	-----	43,785	7,364,880	2,991,487
8 19,233,106	33,628,699	372,132	1,305,484	7,326,304	130,508	20,532,827	403,022	62,041	2,041,241	1,355,480	36,260,212	15,596,817
9 1,685,753	3,919,147	77,867	192,340	873,116	25,375	2,254,108	66,772	5,732	95,771	323,056	4,333,171	2,053,688
10 2,709,836	4,280,080	122,547	154,913	453,707	54,162	3,062,141	35,336	15,552	-----	376,722	5,011,253	1,894,950
11 20,654,713	11,587,021	350,573	311,271	1,675,237	107,372	8,064,461	64,250	45,584	19,936	949,187	12,832,900	4,661,076
12 7,862,893	8,049,075	329,335	214,445	2,205,072	133,820	4,070,627	71,901	44,902	86,422	892,491	9,073,725	4,869,278
13 1,824,953	1,916,895	50,640	94,748	647,704	22,013	991,521	41,566	11,783	3,735	143,185	2,197,239	1,133,705
14 2,607,298	3,061,417	149,264	146,371	687,048	17,431	1,765,783	44,037	8,112	-----	242,771	3,347,330	1,504,116
15 1,964,302	611,351	54,310	11,172	151,028	141,055	80,455	4,387	9,431	-----	158,913	693,823	471,718
16 610,078	841,446	10,660	44,212	142,034	4,044	556,274	16,678	4,304	7,056	54,384	963,010	402,701
17 145,029	309,741	-----	4,931	32,224	1,898	246,730	2,996	833	-----	20,120	321,056	72,419
18 1,371,991	1,463,904	33,498	35,703	41,527	24,979	306,305	690	1,006,859	-----	44,433	1,601,616	1,270,332
19 5,350,236	2,770,655	92,321	81,719	450,022	74,238	831,093	927	625,600	-----	613,535	3,150,681	2,244,150
20 2,852,931	4,380,896	107,859	98,108	4,304,423	14,014	3,008,476	33,748	25,331	1,140	192,707	4,304,673	1,782,383
21 1,189,744	1,548,104	113,512	44,790	484,575	23,575	734,358	14,223	6,802	11,230	115,039	1,704,405	946,472
22 4,056,157	4,231,974	288,102	455,911	425,844	17,420	2,110,031	49,438	34,830	68,227	773,165	5,470,590	3,334,133
23 5,625,280	6,543,906	409,072	789,077	1,747,003	67,565	2,159,574	158,001	29,691	359,014	823,409	7,552,695	5,325,556
24 2,077,571	794,590	47,501	19,243	340,326	14,891	245,100	11,854	17,326	-----	98,223	871,470	611,383
25 2,852,013	9,766,618	88,863	123,172	478,680	111,401	8,540,744	7,730	13,532	-----	402,406	10,081,572	1,429,427
26 6,442,026	9,600,059	123,860	245,420	1,167,406	33,452	5,490,844	40,828	1,523,605	-----	968,584	10,270,429	4,740,133
27 827,463	1,523,749	21,324	122,947	167,745	4,792	1,071,152	20,262	1,984	-----	113,633	1,649,810	573,650
28 60,284,840	36,734,497	992,133	1,333,733	6,007,570	962,032	24,364,810	327,089	372,406	70,507	2,298,217	42,384,766	17,059,924

work, 2; hand stamps and stoneills and brands, 4; hat and cap materials, 1; hats and caps, other than felt, straw, and wool, 17; hats, fur-felt, 1; hosiery and knit goods, 5; house-furnishing goods, not elsewhere specified, 4; instruments, professional and scientific, 5; iron and steel forgings, 1; iron and steel, nails and spikes, cut and wrought, including wire nails, not made in steel works and rolling mills, 2; jewelry, 15; jewelry and instrument cases, 1; kaolin and ground earths, 1; labels and tags, 3; lard, refined, not made in slaughtering and meat-packing establishments, 1; lead, bar, pipe, and sheet, 1; lime, 2; looking-glass and picture frames, 13; malt, 1; mattresses and spring beds, 16; millinery and lace goods, 14; mineral and soda waters, 26; mirrors, 2; models and patterns, not including paper patterns, 9; mucllage and paste, 2; musical instruments and materials, not specified, 1; musical instruments, pianos and organs and materials, 6; oakum, 1; oil, not elsewhere specified, 2; oleomargarine, 1; optical goods, 4; paint and varnish, 11; paper patterns, 1; photo-engraving, 4; pipes, tobacco, 2; pottery, terra-cotta, and fire-clay products, 7; roofing materials, 4; safes and vaults, 1; saws, 1; show cases, 2; signs and advertising novelties, 2; silverware and plated ware, 10; soap, 3; soda-water apparatus, 1; sporting and athletic goods, 1; statuary and art goods, 3; stereotyping and electrotyping, 5; stoves and furnaces, including gas and oil stoves, 5; sugar and molasses, 1; sulphuric, nitric, and mixed acids, 1; surgical appliances and artificial limbs, 4; toys and games, 4; type founding and printing materials, 3; upholstering materials, 3; vinegar and cider, 1; waste, 1; window shades and fixtures, 3; wirework, including wire rope and cable, 11; wood, turned and carved, 5.

CITIES OF 10,000 TO 50,000 INHABITANTS—ALL INDUSTRIES COMBINED.

1 \$4,094,876	\$4,271,572	\$112,140	\$72,811	\$947,750	\$81,540	\$2,594,563	\$7,436	\$71,400	\$21,448	\$362,475	\$4,534,077	\$1,857,974
2 2,369,559	2,643,187	36,794	60,585	300,543	48,564	2,026,197	6,809	12,903	905	80,822	2,910,943	836,182
3 2,969,680	2,762,519	45,234	70,754	592,586	56,674	1,741,235	9,193	31,033	47,666	178,144	3,197,242	1,399,333

# MASSACHUSETTS

## INDUSTRIES IN GENERAL.

**General character of the state.**—Massachusetts, with a gross area of 8,266 square miles, of which 227 represent water surface, is the fifth smallest state in the Union, only Rhode Island, Delaware, Connecticut, and New Jersey having smaller areas. Its population in 1910 was 3,366,416, as compared with 2,805,346 in 1900 and 2,238,947 in 1890. It ranked sixth among the 49 states and territories of continental United States as regards population in 1910 and seventh in 1900. In density of population Massachusetts ranked second in 1910, having 418.8 persons per square mile, the corresponding figure for 1900 being 349. Ninety-two and eight-tenths per cent of the entire population of the state resided in cities and towns having 2,500 inhabitants or over in 1910, as against 91.5 per cent in 1900.

In 1910, 12 cities in the state had a population of over 50,000: Boston, 670,585; Worcester, 145,986; Fall River, 119,295; Lowell, 106,294; Cambridge, 104,839; New Bedford, 96,652; Lynn, 89,336; Springfield, 88,926; Lawrence, 85,892; Somerville, 77,236; Holyoke, 67,730; and Brockton, 56,878. There were also 43 cities and towns having a population of over 10,000 but less than 50,000. (See table on page 500.) These 55 cities and towns contained 77.4 per cent of the total population of the state and were credited in 1909 with 82.9 per cent of the total value of its manufactures. Apart from these places only 15.4 per cent of the population resided in towns of 2,500 inhabitants or over.

The raw materials used in the manufacturing industries of Massachusetts are for the most part produced elsewhere, and most of its manufactured products are sold for consumption beyond its borders. There were 2,116 miles of main and branch lines of steam-railroad trackage in the state in 1909,<sup>1</sup> which connect the various manufacturing districts of the state with its leading industrial centers and those of other states. The network of electric railways in the state is not only an important factor in connection with its manufactures but adds greatly to its facilities for local trade. Furthermore, Boston, the second seaport in importance on the Atlantic coast, affords excellent opportunities for domestic and foreign commerce. Several other cities and towns likewise have good water facilities which augment to some extent the water traffic to and from Boston and ports outside the state.

<sup>1</sup> Statistics of Railways in the United States, Interstate Commerce Commission, 1909.

**Importance and growth of manufactures.**—Massachusetts is preeminently a manufacturing state, its early industrial development being due in part to the fact that it contained one of the first permanent settlements of North America. The superior water-power advantages which the state affords were largely instrumental in bringing about the establishment of a number of important mills and factories. At each census since 1849 the state has contributed a smaller proportion of the total value of the products of manufacturing industries in the United States, notwithstanding a steady actual growth from census to census. This proportion was 15.5 per cent in 1849 and 7.2 per cent in 1909.

The growth and concentration of population in the state have been closely related to the increase in the importance of its manufacturing industries, although considerably less in degree. In 1849 the total value of the manufactured products of the state, including those of the neighborhood and hand industries, amounted to \$157,743,994, while in 1909, exclusive of the value of the products of the neighborhood and hand industries, it reached a total of \$1,490,529,386, or more than nine times that in 1849. During the same period the population of the state increased 238.5 per cent. In 1849 an average of 177,461 wage earners, representing 17.8 per cent of the total population, were employed in manufactures, while in 1909 an average of 584,559 wage earners, or 17.4 per cent of the total population, were so engaged. The value of manufactured products per capita of the total population of the state increased from \$159 to \$443 during this period. The state ranked second among the states of the Union with respect to value of manufactured products in 1849, third from 1859 to 1879, inclusive, and fourth at each subsequent census.

The table on the following page gives the most important figures relative to all classes of manufactures combined for 1909, 1904, and 1899, together with the percentages of increase from census to census.

In 1909 the state of Massachusetts had 11,684 manufacturing establishments, which gave employment to an average of 644,399 persons during the year and paid out \$364,452,000 in salaries and wages. Of the persons employed, 584,559 were wage earners. These establishments turned out products to the value of \$1,490,529,000, to produce which materials costing \$830,765,000 were utilized. The value added by



manufacture was thus \$659,764,000, which figure, as explained in the Introduction, best represents the net wealth created by manufacturing operations during the year.

	NUMBER OR AMOUNT.			PER CENT OF INCREASE. <sup>1</sup>	
	1909	1904	1899	1904-1909	1899-1904
Number of establishments.....	11, 684	10, 723	10, 929	9. 0	-1. 9
Persons engaged in manufactures.....	644, 399	532, 481	( <sup>2</sup> )	21. 0	.....
Proprietors and firm members.....	11, 194	11, 258	( <sup>2</sup> )	-0. 6	.....
Salaried employees.....	48, 646	32, 824	25, 256	48. 2	30. 0
Wage earners (average number).....	584, 559	488, 399	438, 234	19. 7	11. 4
Primary horsepower.....	1, 175, 071	938, 007	796, 061	25. 3	17. 8
Capital.....	\$1, 279, 637, 000	\$965, 949, 000	\$781, 868, 000	32. 5	23. 5
Expenses.....	1, 320, 866, 000	992, 294, 000	785, 805, 000	33. 1	26. 8
Services.....	364, 452, 000	272, 044, 000	224, 758, 000	34. 0	21. 0
Salaries.....	63, 279, 000	39, 655, 000	29, 480, 000	59. 6	34. 5
Wages.....	301, 173, 000	232, 389, 000	195, 278, 000	29. 6	19. 0
Materials.....	830, 765, 000	626, 410, 000	498, 655, 000	32. 6	25. 6
Miscellaneous.....	125, 649, 000	93, 840, 000	62, 392, 000	33. 9	50. 4
Value of products.....	1, 490, 529, 000	1, 124, 092, 000	907, 626, 000	32. 6	23. 8
Value added by manufacture (value of products less cost of materials).....	659, 764, 000	497, 682, 000	408, 971, 000	32. 6	21. 7

<sup>1</sup> A minus sign (-) denotes decrease.

<sup>2</sup> Figures not available.

In general, this table brings out the fact that the manufacturing industries of Massachusetts as a whole showed a greater development during the more recent five-year period, 1904-1909, than during the preceding five-year period, 1899-1904. During the later period the number of establishments increased 9 per cent and the average number of wage earners 19.7 per cent, while the value of products and the value added by manufacture each increased 32.6 per cent. As pointed out in the Introduction, it would be improper to infer that manufactures increased in volume to the full extent indicated by these figures relating to values, since the increase shown is certainly due, in part, to the increase that has taken place in the prices of commodities.

The only decreases shown in the table are one of six-tenths of 1 per cent in the number of proprietors and firm members during the period 1904-1909 and one of 1.9 per cent in the number of establishments during the period 1899-1904.

The relative importance and growth of the leading manufacturing industries of the state are shown in the table on page 491.

It should be borne in mind, in considering that table, that the value of products in some of the industries involves a certain amount of duplication due to the use of the product of one establishment in the industry as material for another establishment.

The table gives separate statistics for 76 industries or industry groups for which products valued at more than \$500,000 were reported in 1909. These industries include 4, with products exceeding \$50,000,000 in value; 6, with products between \$25,000,000 and \$50,000,000 in value; and 16, with products between \$10,000,000 and \$25,000,000 in value, making an aggregate of 26 industries with a value of products in excess of \$10,000,000 each. The other industries shown separately comprise 15, with products between

\$5,000,000 and \$10,000,000 in value; 23, with products between \$1,000,000 and \$5,000,000 in value; and 12, with products between \$500,000 and \$1,000,000 in value.

Of the industries included under the head of "All other industries," the dyeing and finishing of textiles, which covers the bleaching, dyeing, and mercerizing of raw fiber, yarns, and woven cloth, as well as the printing of cotton piece goods, is the most important. A considerable number of the cotton, woolen, and silk mills carry on one or more of these subordinate processes with the primary manufacturing process in the same establishment, and therefore the statistics for the independent establishments engaged in dyeing and finishing do not fully represent the statistics for this branch of manufacture as a whole. In 1909 reports for some of the dyeing and finishing establishments in the state included the cost of the material upon which the work was performed and its value as finished. In such cases the cost and value of these goods were deducted, in order to place all of the reports on a uniform basis and to make the statistics comparable with those for prior censuses, when the value of products represented only the value added to the materials by the processes. It is of interest to know that forty-eight of these independent establishments, giving employment to an average of 9,079 wage earners, were reported at the census of 1909, as compared with forty-six establishments, employing on the average 7,508 wage earners, in 1904. The industry ranked twelfth among the industries of the state in 1909, as measured by value of products, with \$21,893,000. Massachusetts led all other states in this respect, contributing 26.2 per cent of the total value of products reported for the industry in the United States, while in 1904, with products valued at \$11,049,000, it ranked second in this branch of manufacture, New Jersey being first.

INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		PER CENT OF INCREASE. <sup>1</sup>			
		Average number.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.	Value of products.		Value added by manufacture.	
								1904-1909	1899-1904	1904-1909	1899-1904
All industries.....	11,084	584,559	100.0	\$1,490,529,000	100.0	\$659,764,000	100.0	32.6	23.8	32.6	21.7
Boots and shoes, including cut stock and findings.....	860	83,063	14.2	236,343,000	15.9	83,353,000	12.6	36.1	23.0	32.2	33.7
Cotton goods, including cotton small wares.....	182	108,914	18.6	186,462,000	12.5	81,805,000	12.3	43.4	17.0	63.3	-12.2
Woolen, worsted, and felt goods, and wool hats.....	133	53,873	9.2	141,067,000	9.5	53,991,000	8.2	42.9	34.1	47.8	26.2
Foundry and machine-shop products.....	857	44,179	7.6	86,926,000	5.8	55,744,000	8.4	36.4	0.4	41.8	1.4
Printing and publishing.....	1,279	17,532	3.0	47,445,000	3.2	34,564,000	5.2	20.8	11.8	21.9	8.3
Slaughtering and meat packing.....	94	3,325	0.6	44,403,000	3.0	5,517,000	0.8	16.8	17.5	33.6	10.1
Paper and wood pulp.....	88	12,848	2.2	40,097,000	2.7	17,747,000	2.7	25.3	44.0	26.2	37.6
Leather, tanned, curried, and finished.....	132	10,252	1.8	40,002,000	2.7	11,236,000	1.7	19.9	27.9	9.0	64.4
Electrical machinery, apparatus, and supplies.....	83	14,507	2.5	28,143,000	1.9	15,408,000	2.3	77.2	51.4	80.0	63.3
Bread and other bakery products.....	1,201	6,697	1.1	26,146,000	1.8	10,419,000	1.6	40.1	21.0	31.2	12.2
Lumber and timber products.....	708	8,976	1.5	23,026,000	1.5	10,542,000	1.6	13.4	24.6	15.7	19.2
Boots and shoes, rubber.....	8	6,928	1.2	18,722,000	1.3	8,032,000	1.2	22.8	23.9	26.2	16.0
Clothing, women's.....	254	7,335	1.3	18,314,000	1.2	8,558,000	1.3	22.8	23.9	26.2	16.0
Clothing, men's, including shirts.....	31	6,690	1.1	16,632,000	1.1	5,434,000	0.8	7.1	26.7	39.3	-7.6
Cordage and twine and jute and linen goods.....	117	5,548	0.9	15,266,000	1.0	6,077,000	0.9	63.8	60.8	59.5	65.3
Confectionery.....	175	7,423	1.3	15,211,000	1.0	9,632,000	1.5	51.0	-2.2	51.9	7.3
Hosiery and knit goods.....	65	9,941	1.7	14,736,000	1.0	7,704,000	1.2	46.0	52.0	53.0	36.3
Furniture and refrigerators.....	155	7,277	1.2	13,868,000	0.9	8,060,000	1.2	22.1	-1.2	34.0	-12.3
Iron and steel, steel works and rolling mills.....	9	3,115	0.5	13,538,000	0.9	3,536,000	0.5	13.6	-10.9	-29.9	-14.8
Paper goods, not elsewhere specified.....	61	5,135	0.9	13,533,000	0.9	6,067,000	0.9	33.6	-10.9	-29.9	-14.8
Carpets and rugs, other than rag.....	11	5,954	1.0	12,812,000	0.9	5,311,000	0.8	31.9	39.4	76.4	1.2
Liquors, malt.....	37	1,739	0.3	12,724,000	0.9	9,131,000	1.4	14.8	-1.6	16.5	6.8
Clothing, women's.....	174	5,813	1.0	11,728,000	0.8	5,217,000	0.8	34.9	67.2	33.5	62.3
Cutlery and tools, not elsewhere specified.....	135	6,747	1.2	11,611,000	0.8	8,127,000	1.2	41.0	31.6	43.6	31.4
Automobiles, including bodies and parts.....	62	4,138	0.7	11,359,000	0.8	5,868,000	0.9	326.5	240.8	320.6	201.9
Gas, illuminating and heating.....	64	2,292	0.4	11,074,000	0.7	7,264,000	1.1	37.8	36.9	47.1	17.1
Musical instruments, pianos and organs and materials.....	59	4,245	0.7	9,106,000	0.6	4,057,000	0.8	10.0	34.1	-4.0	33.5
Silk and silk goods, including throwsters.....	19	4,109	0.7	8,942,000	0.6	3,512,000	0.5	27.5	17.7	23.0	33.8
Tobacco manufactures.....	417	3,651	0.6	7,888,000	0.5	4,967,000	0.8	19.9	24.2	21.6	20.0
Marble and stone work.....	330	5,015	0.9	7,804,000	0.5	5,612,000	0.8	1.6	24.4	-5.1	24.7
Cars and general shop construction and repairs by steam-railroad companies.....	21	5,162	0.9	7,804,000	0.5	3,828,000	0.6	22.9	71.0	39.2	40.3
Patent medicines and compounds and druggists' preparations.....	154	1,183	0.2	7,432,000	0.5	4,705,000	0.7	-7.5	21.9	-1.3	8.1
Canning and preserving.....	71	1,440	0.2	6,840,000	0.5	2,257,000	0.3	4.0	3.8	28.3	1.4
Fancy articles, not elsewhere specified.....	78	3,558	0.6	6,618,000	0.4	3,104,000	0.5	73.1	40.3	68.7	38.0
Hats, straw.....	18	2,668	0.5	6,589,000	0.4	2,900,000	0.4	98.1	.....	120.0	.....
Silverware and plated ware.....	21	2,465	0.4	6,539,000	0.4	3,811,000	0.6	33.5	76.8	37.0	70.8
Copper, tin, and sheet-iron products.....	150	2,627	0.4	6,185,000	0.4	3,252,000	0.5	41.8	29.0	38.5	28.7
Brass and bronze products.....	85	1,791	0.3	6,042,000	0.4	2,379,000	0.4	.....	.....	.....	.....
Chemicals.....	24	1,358	0.2	5,916,000	0.4	2,808,000	0.4	68.6	74.5	43.8	114.5
Boxes, fancy and paper.....	90	3,838	0.7	5,768,000	0.4	3,039,000	0.5	58.4	-12.3	49.4	-12.4
Belting and hose, leather.....	16	955	0.2	5,047,000	0.4	1,981,000	0.3	409.7	-4.3	553.8	-22.9
Flour-mill and gristmill products.....	120	229	( <sup>2</sup> )	4,632,000	0.3	501,000	0.1	0.3	-14.4	-0.8	-43.6
Leather goods.....	119	1,710	0.3	4,373,000	0.3	1,086,000	0.3	34.7	.....	28.4	.....
Millinery and lace goods.....	79	1,680	0.3	3,977,000	0.3	1,695,000	0.3	-17.1	163.7	-12.9	144.9
Corsets.....	10	1,980	0.3	3,752,000	0.3	2,145,000	0.3	93.4	20.0	83.5	9.3
Hats, fur-felt.....	11	2,224	0.4	3,746,000	0.3	1,814,000	0.3	61.7	-12.0	52.3	-4.0
Blacking and cleansing and polishing preparations.....	80	527	0.1	3,713,000	0.3	1,834,000	0.3	47.1	42.7	62.6	20.1
Stoves and furnaces, including gas and oil stoves.....	21	1,703	0.3	3,542,000	0.2	2,463,000	0.4	-4.9	.....	19.4	.....
Paint and varnish.....	41	428	0.1	3,469,000	0.2	1,304,000	0.2	34.8	2.7	47.7	4.9
Firearms and ammunition.....	8	2,327	0.4	3,408,000	0.2	2,656,000	0.4	.....	.....	.....	.....
Carrriages and wagons and materials.....	177	1,539	0.3	3,185,000	0.2	1,903,000	0.3	-35.3	-21.7	-34.2	-17.0
Optical goods.....	11	2,400	0.4	3,058,000	0.2	1,895,000	0.3	34.0	27.1	49.2	35.5
Whips.....	29	1,005	0.2	2,774,000	0.2	1,702,000	0.3	43.3	17.3	46.1	25.9
Liquors, distilled.....	6	49	( <sup>2</sup> )	2,755,000	0.2	2,008,000	0.3	112.1	51.6	110.4	79.1
Bicycles, motorcycles, and parts.....	10	843	0.1	2,706,000	0.2	1,328,000	0.2	304.9	-78.6	353.2	-79.2
Mattresses and spring beds.....	52	607	0.1	2,227,000	0.2	930,000	0.1	2.2	36.1	8.8	23.5
Emery and other abrasive wheels.....	13	615	0.1	1,982,000	0.1	1,418,000	0.2	98.0	48.7	105.5	60.8
Copperage and wooden goods, not elsewhere specified.....	70	974	0.2	1,930,000	0.1	845,000	0.1	-8.5	37.4	-18.4	28.1
Laces.....	27	675	0.1	1,903,000	0.1	1,298,000	0.2	58.2	41.3	57.1	31.5
Shoddy.....	27	442	0.1	1,760,000	0.1	573,000	0.1	-2.7	83.7	1.4	86.5
Sewing machines, cases, and attachments.....	6	800	0.1	1,548,000	0.1	989,000	0.1	-16.4	8.9	-26.6	27.0
Gas and electric fixtures and lamps and reflectors.....	25	693	0.1	1,509,000	0.1	697,000	0.1	123.9	21.2	48.3	30.9
Gold and silver, reducing and refining, not from the ore.....	8	78	( <sup>2</sup> )	1,359,000	0.1	250,000	( <sup>2</sup> )	295.1	681.8	293.8	242.1
Brick and tile.....	52	991	0.2	1,243,000	0.1	913,000	0.1	6.1	-20.2	8.0	-21.3
Buttons.....	12	659	0.1	978,000	0.1	560,000	0.1	21.6	18.1	-1.6	30.5
Fur goods.....	16	210	( <sup>2</sup> )	955,000	0.1	403,000	0.1	105.8	8.9	87.4	-9.3
Coffins, burial cases, and undertakers' goods.....	12	334	0.1	941,000	0.1	497,000	0.1	-5.4	45.7	-19.3	59.2
Lime.....	9	557	0.1	864,000	0.1	527,000	0.1	115.5	.....	164.8	.....
Surgical appliances and artificial limbs.....	23	227	( <sup>2</sup> )	846,000	0.1	362,000	0.1	251.0	10.0	118.1	5.1
Electroplating.....	54	407	0.1	678,000	( <sup>2</sup> )	514,000	0.1	55.9	60.5	52.5	67.7
Butter, cheese, and condensed milk.....	24	56	( <sup>2</sup> )	694,000	( <sup>2</sup> )	116,000	( <sup>2</sup> )	-24.3	-26.8	18.4	-43.4
Hats and caps, other than felt, straw, and wool.....	30	274	( <sup>2</sup> )	659,000	( <sup>2</sup> )	224,000	( <sup>2</sup> )	-51.0	-69.3	-44.0	-72.3
Agricultural implements.....	5	340	0.1	647,000	( <sup>2</sup> )	360,000	0.1	-1.1	22.2	-10.4	26.0
Pottery, terra-cotta, and fire-clay products.....	20	465	0.1	644,000	( <sup>2</sup> )	465,000	0.1	-10.3	-0.7	-14.4	8.4
Models and patterns, not including paper patterns.....	62	342	0.1	625,000	( <sup>2</sup> )	506,000	0.1	33.0	22.4	34.2	18.9
Screws, machine.....	13	348	0.1	570,000	( <sup>2</sup> )	343,000	0.1	-27.9	16.2	-31.5	6.4
All other industries.....	1,815	61,316	10.5	199,658,000	13.4	84,310,000	12.8	.....	.....	.....	.....

<sup>1</sup> Percentages are based on figures in Table I; a minus sign (-) denotes decrease. Where the percentages are omitted, comparable figures can not be given.  
<sup>2</sup> Less than one-tenth of 1 per cent.

In addition to the 64 industries with products valued at more than \$1,000,000 which are shown separately in the preceding table, and the dyeing and finishing of textiles, 34 other industries had a value of products in 1909 in excess of this amount.<sup>1</sup> These industries include 5, with products valued at \$5,000,000 but less than \$10,000,000; 26, with products valued at \$1,000,000 but less than \$5,000,000; and 3, with products valued at \$10,000,000 or over. These industries are included under the head of "All other industries" in the table in some instances, because the operations of individual establishments would be disclosed if they were shown separately; in others, because the returns do not properly present the true condition of the industry, for the reason that it is more or less interwoven with other industries; and in still others, because comparative statistics can not be presented for either 1904 or 1899 on account of changes in classification. The 1909 statistics, however, for six of these industries, namely, the manufacture of brushes, steam-railroad cars, men's furnishing goods, oilcloth and linoleum, and rubber goods, and the work done in the street-railroad repair shops, are presented separately in Table II, page 532.

While a few industries predominate in the state, there are, as already noted, a very large number which are of considerable importance. The leading products of the state, measured by value, are boots and shoes, cotton goods, woolen goods, and foundry and machine-shop products. However, the textile group considered as a whole much exceeds boots and shoes in importance. The leading industries call for special consideration.

*Textiles.*—The textile industries of Massachusetts comprise mainly the manufacture of cotton goods, including cotton small wares; woolen, worsted, and felt goods, and wool hats; cordage and twine and jute and linen goods; hosiery and knit goods; carpets and rugs, other than rag; silk and silk goods, including throwsters; fur-felt hats; and shoddy. Combined, the eight allied industries gave employment in 1909 to an average of 192,147 wage earners, and the value of their products amounted to \$387,063,000. These figures represent an increase over 1904 of 35,976, or 23 per cent, in number of wage earners, and \$111,205,000, or 40.3 per cent, in value of products. From

<sup>1</sup> These industries are:

Belting and hose, woven and rubber.  
Brushes.  
Carriages and sleds, children's.  
Cars and general shop construction and repairs by street-railroad companies.  
Cars, steam-railroad, not including operations of railroad companies.  
Chocolate and cocoa products.  
Clocks and watches, including cases and materials.  
Coffee and spice, roasting and grinding.  
Coke.  
Fertilizers.  
Food preparations.  
Furnishing goods, men's.  
Glue.  
Grease and tallow.  
Iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills.  
Iron and steel forgings.

Iron and steel, nails and spikes, cut and wrought, including wire nails, not made in steel works or rolling mills.  
Mineral and soda waters.  
Mucilage and paste.  
Oil, not elsewhere specified.  
Oilcloth and linoleum.  
Rubber goods, not elsewhere specified.  
Saws.  
Shipbuilding, including boat building.  
Soap.  
Soda-water apparatus.  
Sporting and athletic goods.  
Stationery goods, not elsewhere specified.  
Sugar refining, not including beet sugar.  
Toys and games.  
Waste.  
Wire.  
Wirework, including wire rope and cable.  
Wood, turned and carved.

1899 to 1904 the gain in number of wage earners was 4,548, or 3 per cent, and that in value of products was \$55,224,000, or 25 per cent. The relative importance of the textile industries in Massachusetts is apparent from the fact that, in 1909, 32.9 per cent of the aggregate number of wage earners employed in manufacturing industries in the state and 26 per cent of the aggregate value of manufactured products were reported for these industries. The corresponding proportions for 1904 were 32 per cent and 24.5 per cent, respectively. Massachusetts is not only the foremost state in the Union in the production of all textiles combined, but is first as regards three of the most important branches—cotton goods, including cotton small wares; woolen, worsted, and felt goods, and wool hats; and cordage and twine and jute and linen goods. It ranks second in the production of shoddy, third in that of hosiery and knit goods and of carpets and rugs, and fifth in that of silk and silk goods and of fur-felt hats.

*Boots and shoes, including cut stock and findings.*—Of the 860 establishments included under this classification in 1909, 469 were engaged primarily in the manufacture of boots and shoes, 215 in the production of boot and shoe findings, and 176 in the manufacture of boot and shoe cut stock. There is some overlapping between these three branches, for which there were separate classifications in 1904, which makes it desirable to combine them in presenting the statistics. Although this industry is one of the oldest in the state, dating from about 1629, it was not until after the period from 1851 to 1865, when various kinds of shoemaking machinery were introduced, that the real expansion of the industry began. In 1869 there were 2,562 boot and shoe factories, including custom and repair shops, in the state, which gave employment to an average of 56,443 wage earners and turned out products valued at \$90,561,000, whereas in 1909 the 860 establishments operating under the factory system employed an average of 83,063 wage earners and had an output valued at \$236,343,000. The figures for wage earners and value of products in 1869 represented 20.2 per cent and 16.3 per cent of the respective totals for all manufacturing industries in the state, while the corresponding percentages for 1909 were 14.2 and 15.9, respectively. Massachusetts continues to lead all other states of the Union in the combined industry and in each of the three branches. During recent years, however, there has been a marked development of this industry in a number of other states, in consequence of which the value of such products reported for Massachusetts formed a smaller proportion of the total value for the United States in 1909 than in 1899, the percentages being 46.1 and 48.7, respectively. The increase in value of products was \$32,441,000 from 1899 to 1904, and \$62,663,000 from 1904 to 1909, the total gain during the decade being \$95,104,000, or 67.3 per cent.

The 469 establishments which reported boots and shoes as their principal product in 1909 gave employment to an average of 74,710 wage earners and manufactured products valued at \$187,046,000, while the 502 establishments reported in 1904 employed 62,633 wage earners and turned out products valued at \$144,291,000. During the five years, therefore, a decrease of 33 occurred in the number of establishments, but there were increases of 12,077 in the number of wage earners and \$42,755,000 in the value of products.

*Foundry and machine-shop products.*—The development of this industry has been in a measure dependent upon and largely stimulated by the growth of the textile, boot and shoe, printing and publishing, paper and wood pulp, and other important industries of the state which employ machinery extensively in their manufacturing processes. A large amount of the machinery used throughout the United States in these industries, particularly in the first two, is manufactured in Massachusetts. This classification covers products of great diversity, embracing not only the output of foundries and machine shops but also that of establishments engaged in the manufacture of gas machines and gas and water meters, hardware, plumbers' supplies, steam fittings and heating apparatus, and structural iron-work. During the period from 1899 to 1904 the industry was practically at a standstill, but from 1904 to 1909 its growth was greater, relatively, than that shown for all industries combined. The foundry and machine-shop industry in its broadest sense is of greater importance in the state than is indicated by the statistics presented under this specific head, for the reason that the chief products of some machine shops are of a character which caused the establishment to be assigned to some other classification.

*Printing and publishing.*—Under this head are included job printing; the printing and publishing of books, newspapers and periodicals, and music; book-binding and blank-book making; steel engraving, including plate printing; and lithographing. More establishments were reported for this industry than for any other single industry in the state. Although in value of products the industry shows an advance of only 20.8 per cent from 1904 to 1909, this relative gain was nearly double that shown for the preceding five-year period. The absolute increase in value of products from 1904 to 1909 was \$8,171,000 and from 1899 to 1904 it was \$4,140,000.

*Slaughtering and meat packing.*—Under this head are included the wholesale slaughtering and meat-packing establishments and those engaged in the manufacture of sausage only. The first census at which establishments in the slaughtering and meat-packing industry were reported for Massachusetts was that of 1859, when the total output of the eight plants in operation during that year was valued at \$173,000. Since that date the

industry in the state has grown very rapidly. In 1889, 43 establishments with products valued at \$32,344,000 were reported, and in 1909 there were 94 establishments with products valued at \$44,403,000, an increase for the decade of \$12,059,000, or 37.3 per cent. The relative growth in value of products was practically the same during each of the five-year periods 1899-1904 and 1904-1909. Of the 94 establishments reported for the industry as a whole in 1909, 17 were engaged in both wholesale slaughtering and wholesale meat packing, 28 in wholesale slaughtering only, and 49 in the manufacture of sausage only, the value of the output of these three branches representing 79.2 per cent, 16.6 per cent, and 4.2 per cent, respectively, of the total for the combined industry.

*Paper and wood pulp.*—All establishments which manufacture paper exclusively, pulp exclusively, or both paper and pulp are included in this classification. The mills engaged in the production of paper alone, however, largely predominate. This branch of the industry was developed and brought to its high standard of efficiency mainly in Massachusetts and for many years it has ranked among the principal manufacturing activities of the state. In 1869, 1879, and 1889, when the manufacture of paper and that of pulp were treated as separate industries, Massachusetts led all other states in the value of paper manufactured. Beginning with the census of 1899, however, the two branches were treated together and owing to the fact that the state produced very little wood pulp it dropped to second place, where it has since remained. Of the aggregate value of the output of all paper and pulp mills in the United States, Massachusetts contributed 17.4 per cent in 1899, 17 per cent in 1904, and 15 per cent in 1909. The development of the industry in the state during the last 10 years is due mainly to the increase in the production of fine paper and book paper, the value of which formed about three-fourths of the total for the industry in 1909.

*Leather, tanned, curried, and finished.*—This industry includes establishments engaged primarily in the manufacture of leather and those which treat hides or skins for others. The cost of materials and the value of products, however, do not include the cost or value of the hides or skins treated under contract. In 1849 Massachusetts was the third state of the Union in this industry with respect to value of products, reporting 397 establishments, which employed 2,623 wage earners and turned out products valued at \$6,538,775. The state retained the same rank in 1909, in which year, although only 132 establishments were engaged in the industry, the number of wage earners was nearly four times as great and the value of products more than six times as great as in 1849.

*Clothing.*—While neither the manufacture of men's clothing nor that of women's clothing is among the

12 leading industries of the state, the 2 industries combined had an output for 1909 valued at \$30,042,000. The increase in value of products from 1904 to 1909 was \$6,433,000, or 27.2 per cent, and that from 1899 to 1904, \$6,366,000, or 36.9 per cent. In 1869 Massachusetts was the third state in the Union in the manufacture of clothing, as measured by value of products, but largely owing to the great fire of 1872 in Boston, the center of the industry in the state, it dropped to fifth place in 1879. From the effects of this fire the wholesale clothing industry of the state has never fully recovered. At the census of 1889 the first attempt was made to segregate the statistics for establishments manufacturing clothing under the factory system from establishments doing custom tailoring and dressmaking. Although the value of the ready-made clothing reported by Massachusetts has increased substantially during the last 40 years, its proportion of the aggregate value of products reported for the industry in the United States has been growing less, this proportion being 3.6 per cent in 1899 and 3.2 per cent in 1909. The value of men's clothing has represented the major part of the total value shown for the combined industries at each census, but that of the women's clothing branch has increased its percentage of the combined value of products of the industry from 30.2 per cent in 1899 to 36.8 per cent in 1904 and 39 per cent in 1909.

*Electrical machinery, apparatus, and supplies.*—The exceptionally rapid extension during recent years of the uses of electricity has created a demand for appliances with which to utilize this energy. Massachusetts shows a remarkable development during the last decade, the value of products having increased from \$10,490,000 in 1899 to \$15,882,000 in 1904 and to \$28,143,000 in 1909, and in this respect it held fourth place among the states in the industry in 1909.

*Manufactures from precious metals.*—The manufacture of jewelry is allied closely to the production of silverware and plated ware, and the reducing and refining of gold and silver from clippings, sweepings, and scrap. In 1909 these three industries combined employed an average of 9,966 wage earners and turned out products valued at \$23,109,000. This group of manufactures had its beginning in the state about 1805, the chief finished products at that time being such articles as silver spoons, gold beads, and finger rings, and later included a cheaper grade of jewelry, in the manufacture of which Massachusetts is now one of the leading states.

*Lumber and timber products.*—This industry includes the timber plants, whose chief products are logs and bolts; the sawmills, shingle mills, and planing mills, which produce rough and dressed lumber, shingles, lath, cooperage stock, sash, doors, blinds, interior finish, and other millwork; and the wooden packing-

box factories. This industry in the state in 1909 was represented by 208 independent planing mills, 391 sawmills and timber plants, and 109 packing-box factories, which reported 42.2 per cent, 22.7 per cent, and 35.1 per cent, respectively, of the value of products for the industry. The corresponding percentages of the total value of products in 1899 contributed by these three branches were: 38.6, 38.5, and 22.9. It is apparent, therefore, that the growth of the industry as a whole was due to the increase in the production of the planing mills and box factories. Although the total cut of rough lumber increased from 344,190 M feet board measure in 1899 to 361,200 M feet in 1909, Massachusetts is one of the five states in which the cut reported for 1909 was less than that for 1908. In the industry as a whole there was an increase during the decade 1899-1909 of \$6,732,000, or 41.3 per cent, in value of products.

*Boots and shoes, rubber.*—Massachusetts leads all other states of the Union in the production of rubber footwear, reporting 37.7 per cent of the total value of the product of the industry in 1909, 55.7 per cent in 1904, and 40.1 per cent in 1899. The value of products reported for the industry in the state as given in Table I shows an increase of 136.7 per cent from 1899 to 1904. In explanation of this large apparent gain, the statement is made in the reports for the census of 1904, that it is probable that instead of reporting the value of products on a basis similar to that used in 1899, some of the establishments reported their products on the basis of a list price, subject to a large discount peculiar to the industry. This would naturally result in an excessive figure for value of products in 1904. The value of products reported for 1909 is more in harmony with that for 1899 than is that for 1904. A comparison of the statistics for 1909 and 1899 shows that during the decade as a whole the number of wage earners increased 1,678, or 32 per cent; the value of products, \$2,232,000, or 13.5 per cent; and the value added by manufacture, \$430,000, or 5.6 per cent.

There are five industries presented separately in the preceding table, which are not among the leading ones in the state as measured by value of products, yet in respect to which Massachusetts leads all other states of the Union. These industries, with the share of the state in the value of the total production in 1909, are: The manufacture of paper goods outside of paper mills—including the cutting and boxing of writing paper and the making of shelf paper, glazed paper, paper tubes, playing cards, and other similar products—24.5 per cent; the manufacture of cutlery and tools other than those reported as separate industries, 21.8 per cent; the whip industry, 70.2 per cent; the manufacture of bicycles, motorcycles, and parts, 25.3 per cent; and the making of lasts, 45.9 per cent.



The rank of the industries shown in the state when measured by value added by manufacture differs considerably from the rank by value of products, which is the order shown in the table on page 491. Of all the industries listed in this table, only eight hold the same position when ranked according to value added by manufacture. Noticeable changes in rank are found in the case of slaughtering and meat packing, which drops from the sixth place in gross value to the twenty-third place in added value; in the cordage, twine, jute, and linen goods industry, which falls from fourteenth to twenty-fourth place; and in the steel works and rolling mills, which falls from the nineteenth to the thirty-second place. On the other hand, the malt-liquor industry advances from twenty-second place to twelfth; the manufacture of cutlery and tools from twenty-fourth to fourteenth; the gas industry from twenty-sixth to eighteenth; and marble and stone work from thirtieth to twenty-second. The greatest variation is shown for the flour-mill and gristmill industry, which ranks forty-second in value of products and sixty-seventh in value added by manufacture.

This table also shows the percentages of increase or decrease for these leading industries in respect to value of products and value added by manufacture in all cases where comparable figures can be given in Table I. Exceptionally large relative increases are shown for several of the industries during each of the five-year periods, while others show marked relative decreases. From 1904 to 1909 the largest increases in both items are shown for the manufacture of leather belting and hose, the manufacture of bicycles, motorcycles, and parts, the manufacture of automobiles, including bodies and parts, and the reduction and refining of gold and silver. From 1899 to 1904 the largest gains in both items are shown for the reduction and refining of gold and silver, and for the automobile, and the millinery and lace-goods industries. None of the industries just mentioned, however, is among the 20 leading industries shown in the table. In value of products 13 industries showed a decrease from 1904 to 1909, and 14 a decrease from 1899 to 1904, while in value added by manufacture decreases were reported for 15 and 14 industries, respectively. The largest relative decreases shown in value of products from 1904 to 1909 were in the hat and cap industry (51 per cent), and in the carriage and wagon industry (35.3 per cent).

**Persons engaged in manufacturing industries.**—The next table shows, for 1909, the distribution of the number of persons engaged in manufactures, the average number of wage earners being distributed by sex and age. It should be borne in mind, however, that the sex and age classification of the average number of wage earners in this and other tables is an estimate obtained by the method described in the Introduction.

The average number of persons engaged in manufactures during 1909 was 644,399, of whom 584,559

were wage earners. Of the remainder, 23,985 were proprietors and officials and 35,855 were clerks. Corresponding figures for individual industries will be found in Table II, page 532.

CLASS.	PERSONS ENGAGED IN MANUFACTURES.		
	Total.	Male.	Female.
All classes.....	644,399	447,267	197,132
Proprietors and officials.....	23,985	23,181	804
Proprietors and firm members.....	11,194	10,605	499
Salaried officers of corporations.....	4,615	4,481	134
Superintendents and managers.....	8,176	8,005	171
Clerks.....	35,855	22,914	12,941
Wage earners (average number).....	584,559	401,172	183,387
16 years of age and over.....	563,824	390,544	173,280
Under 16 years of age.....	20,735	10,628	10,107

The following table shows, for 1909, the percentage of proprietors and officials, clerks, and wage earners, respectively, among the total number of persons employed in manufactures. It covers all industries combined and 32 important industries individually.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	644,399	3.7	5.6	90.7
Automobiles, including bodies and parts.....	4,624	3.7	6.8	89.5
Boots and shoes, including cut stock and findings.....	90,048	2.6	5.1	92.2
Boots and shoes, rubber.....	7,451	1.2	5.8	93.0
Bread and other bakery products.....	9,755	18.5	12.8	68.7
Carpets and rugs, other than rag.....	6,251	0.8	4.0	95.2
Cars and general shop construction and repairs by steam-railroad companies.....	5,410	2.0	2.7	95.3
Clothing, men's, including shirts.....	8,208	5.2	5.4	89.4
Clothing, women's.....	6,086	5.0	8.0	86.9
Confectionery.....	6,308	3.3	10.0	86.7
Cordage and twine and jute and linen goods.....	7,003	1.2	3.2	95.5
Cotton goods, including cotton small wares.....	210,086	0.7	0.9	98.4
Cutlery and tools, not elsewhere specified.....	7,432	3.6	5.0	90.8
Electrical machinery, apparatus, and supplies.....	16,725	3.5	9.8	86.7
Foundry and machine-shop products.....	49,393	4.1	6.5	89.4
Furniture and refrigerators.....	7,940	4.4	4.0	91.6
Gas, illuminating and heating.....	2,800	0.9	11.2	81.0
Hosiery and knit goods.....	10,287	1.4	1.9	95.6
Iron and steel, steel works and rolling mills.....	3,465	3.2	0.9	89.9
Jewelry.....	8,590	6.1	8.2	86.7
Leather, tanned, curried, and finished.....	11,006	3.3	3.0	93.1
Liquors, malt.....	2,091	5.3	11.5	83.2
Lumber and timber products.....	10,478	10.4	3.9	85.7
Marble and stone work.....	5,712	9.3	2.9	87.8
Musical instruments, pianos and organs and materials.....	4,681	3.6	5.7	90.7
Paper and wood pulp.....	13,742	2.1	4.4	93.5
Paper goods, not elsewhere specified.....	5,710	3.3	6.7	89.9
Patent medicines and compounds and druggists' preparations.....	1,805	12.6	21.8	65.5
Printing and publishing.....	24,410	8.3	19.8	71.8
Silk and silk goods, including throwsters.....	4,308	1.7	2.9	95.4
Slaughtering and meat packing.....	3,832	3.7	0.6	89.3
Tobacco manufactures.....	4,258	12.1	4.5	83.4
Woolen, worsted, and felt goods, and wool hats.....	55,533	1.3	1.7	97.0
All other industries.....	127,705	5.5	7.6	87.0

Of the total number of persons engaged in all manufacturing industries, 3.7 per cent were proprietors and officials, 5.6 per cent clerks, and 90.7 per cent wage earners. In the bakery industry the majority of the establishments are small and the work to a large extent is done by the proprietors or their immediate representatives, so that the proportion of persons

engaged in the industry falling into the class of proprietors and officials is very much higher than for most other industries or for all industries combined. Similar conditions prevail to some extent in the manufacture of patent medicines, in tobacco manufactures, and in the lumber industry, in which proprietors and officials form 12.6, 12.1, and 10.4 per cent, respectively, of the total number of persons engaged in the industry.

On account of the fact that the cotton-goods, carpet and rug, and woolen-goods industries and the manufacture of rubber boots and shoes and of cordage and twine are conducted in relatively large establishments measured by number of wage earners employed, these industries show the smallest proportions of proprietors and officials. The largest proportion of wage earners, 98.4 per cent, is reported for the cotton-goods industry, and the smallest, 65.5 per cent, for the manufacture of patent medicines. The highest percentage of clerks is shown for the manufacture of patent medicines.

The next table shows, for 1909, in percentages, for all industries combined, the distribution of the average number of wage earners by age periods, and for those 16 years of age and over by sex, calculated in the manner described in the Introduction. It also shows, for some of the important industries separately, a similar distribution of wage earners as reported for December 15, or the nearest representative day. As a means of judging the importance of the several industries, the average number employed for the year is also given in each case.

For all industries combined, 66.8 per cent of the average number of wage earners were males 16 years of age and over; 29.6 per cent, females 16 years of age and over; and 3.5 per cent, children under the age of 16. The larger part of the total number of female wage earners 16 years of age and over is made up of those employed in the textile and the boot and shoe industries.

In the carpet and rug and the cotton-goods industries and in the manufacture of cordage and twine, over two-fifths of the wage earners are women 16 years of age and over; in the knitting mills, over one-half; in the silk mills, nearly three-fifths; and in the woolen and worsted mills, nearly two-fifths. Of the wage earners employed in the manufacture of boots and shoes, including cut stock and findings, nearly one-third are women 16 years of age and over. The industries in the table, however, which show the largest percentages of female wage earners are the women's clothing industry, with 77.4 per cent; the confectionery industry, with 64 per cent; and the men's clothing industry, with 61 per cent.

The textile and boot and shoe industries combined also include the larger part of the total number of

wage earners under 16 years of age. The proportion of such wage earners in the total number engaged in the manufacture of textiles was 5.9 per cent, while the corresponding proportion for the boot and shoe industry was 3.7 per cent. In six of the industries given in the table at least 5 per cent of the wage earners were children, the proportion ranging from 10.8 per cent for the silk mills to 5.7 per cent for the cotton mills.

INDUSTRY.	Average number. <sup>1</sup>	WAGE EARNERS.		
		Per cent of total.		Under 16 years of age.
		16 years of age and over.		
		Male.	Female.	
All industries.....	584,559	66.8	29.6	3.5
Automobiles, including bodies and parts.....	4,138	98.3	1.4	0.4
Boots and shoes, including cut stock and findings.....	83,063	64.1	32.2	3.7
Boots and shoes, rubber.....	6,928	58.8	33.7	2.5
Bread and other bakery products.....	6,697	78.3	19.0	2.7
Carpets and rugs, other than rag.....	5,954	51.8	42.2	6.0
Cars and general shop construction and repairs by steam-railroad companies.....	5,182	99.4	0.6	.....
Clothing, men's, including shirts.....	7,335	38.0	61.0	1.0
Clothing, women's.....	5,813	21.6	77.4	1.0
Confectionery.....	5,548	26.3	64.0	9.6
Cordage and twine and jute and linen goods.....	6,690	50.5	41.4	8.1
Cotton goods, including cotton small wares.....	108,914	51.2	43.1	5.7
Cutlery and tools, not elsewhere specified.....	6,747	82.4	15.1	2.5
Electrical machinery, apparatus, and supplies.....	14,507	78.8	20.3	0.9
Foundry and machine-shop products.....	44,179	97.2	1.5	1.3
Furniture and refrigerators.....	7,277	89.8	7.9	2.3
Gas, illuminating and heating.....	2,292	89.4	6.9	.....
Hosiery and knit goods.....	9,041	41.6	53.9	4.4
Iron and steel, steel works and rolling mills.....	3,115	96.7	3.3	( <sup>2</sup> )
Jewelry.....	7,423	62.7	34.7	2.5
Leather, tanned, curried, and finished.....	10,252	98.2	1.3	0.5
Liquors, malt.....	1,739	99.3	0.7	.....
Lumber and timber products.....	8,976	96.2	3.0	0.8
Marble and stone work.....	5,015	99.6	( <sup>2</sup> )	0.4
Musical instruments, pianos and organs and materials.....	4,245	91.9	5.7	2.4
Paper and wood pulp.....	12,848	65.1	33.9	1.0
Paper goods, not elsewhere specified.....	5,135	49.0	46.1	4.9
Patent medicines and compounds and druggists' preparations.....	1,183	46.7	51.9	1.4
Printing and publishing.....	17,532	70.1	27.1	2.8
Silk and silk goods, including throwsters.....	4,109	29.6	59.6	10.8
Slaughtering and meat packing.....	3,325	98.2	1.1	0.7
Tobacco manufactures.....	3,551	73.5	25.6	0.8
Woolen, worsted, and felt goods, and wool hats.....	53,873	56.2	38.0	5.8
All other industries.....	111,053	72.2	25.0	2.8

<sup>1</sup> For method of estimating the distribution, by sex and age periods, of the average number in all industries combined, see Introduction.

<sup>2</sup> Less than one-tenth of 1 per cent.

In order to compare the distribution of persons engaged in manufactures in 1909 with that shown at the census of 1904, it is necessary to use the classification employed at the earlier census. (See Introduction.) The following table makes this comparison according to occupational status:

CLASS.	PERSONS ENGAGED IN MANUFACTURES.				Per cent of increase, 1904-1909. <sup>1</sup>
	1909		1904		
	Number.	Percent distribution.	Number.	Percent distribution.	
Total.....	644,399	100.0	532,481	100.0	21.0
Proprietors and firm members.....	11,194	1.7	11,268	2.1	-0.6
Salariated employees.....	48,646	7.5	32,824	6.2	48.2
Wage earners (average number).....	584,559	90.7	488,399	91.7	19.7

<sup>1</sup> A minus sign (-) denotes decrease.



Comparable figures are not obtainable for 1899. The table shows that the greatest percentage of increase was for salaried employees, the only class with a higher proportion of the total in 1909 than in 1904.

The following table shows the average number of wage earners, distributed according to age periods, and in the case of those 16 years of age and over according to sex, for 1909, 1904, and 1899. The averages for 1909 are estimated on the basis of the actual number reported for a single representative day. (See Introduction.)

CLASS.	AVERAGE NUMBER OF WAGE EARNERS.					
	1909		1904		1899	
	Number.	Percent distribution.	Number.	Percent distribution.	Number.	Percent distribution.
Total.....	584,559	100.0	488,399	100.0	438,234	100.0
16 years of age and over..	563,824	96.5	473,630	97.0	425,000	97.2
Male.....	300,544	66.8	320,586	66.0	292,019	66.6
Female.....	173,280	29.0	147,044	30.1	133,890	30.0
Under 16 years of age....	20,735	3.5	14,760	3.0	12,325	2.8

This table indicates that for all industries combined the number of children under 16 years of age employed in 1909 was decidedly greater than the number reported for 1899, and that the proportion of such employees in the total number of wage earners increased slightly during the decade. Although the number of females 16 years of age and over increased during the same period, the proportion of such wage earners became somewhat less. In 1909 males 16 years of age and over formed 66.8 per cent of all wage earners, as compared with 66.9 per cent in 1904 and 66.6 per cent in 1899.

**Wage earners employed, by months.**—The next table gives the number of wage earners employed on the 15th of each month during the year 1909, for all industries combined, and also the percentage which the number reported for each month is of the greatest number reported for any month. In Table II, page 532 are shown, for the majority of the important industries in the state, the largest number and also the smallest number of wage earners reported for any month. The figures are for the 15th day, or the nearest representative day, of the month.

There are no seasonal industries of importance in Massachusetts. On the contrary, most of the leading industries show comparatively little fluctuation throughout the year in the number of wage earners employed. (See Table II, page 532.) Among them the greatest relative variation is in the foundry and machine-shop industry, in which the minimum number,

40,164, was employed in January, and the maximum number, 48,740, in December. For all industries combined the smallest number, 565,750, was employed in the month of January. The number increased somewhat in February and March, but a slight decrease occurred in every month from March to July. From then on the number increased steadily, until in December 612,615 wage earners were employed, the largest number reported for any month. The difference between the figures for the months of greatest and least employment was thus 46,865, or 7.6 per cent of the maximum.

MONTH.	WAGE EARNERS.		MONTH.	WAGE EARNERS.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	565,750	92.4	July.....	573,402	93.6
February.....	572,618	93.5	August.....	581,008	94.8
March.....	579,519	94.0	September.....	594,086	97.1
April.....	576,618	94.1	October.....	601,533	98.2
May.....	576,370	94.1	November.....	604,406	98.7
June.....	576,055	94.0	December.....	612,615	100.0

**Prevailing hours of labor.**—In the table on page 498 wage earners have been classified according to the hours of labor prevailing in the establishments in which they are employed. In making this classification the average number of wage earners employed during the year is used, and the number employed in each establishment is classified as a total according to the hours prevailing in that establishment, even though a few employees work a greater or less number of hours.

It is evident from this table that for the great majority of wage earners employed in the manufacturing industries of Massachusetts the usual hours of labor are between 54 and 60 a week, 27.6 per cent of the total being employed in establishments where the prevailing hours are 54 or less, and only 7.4 per cent in establishments where they are 60 or more a week.

In 33 of the 76 industries shown separately in the table at least half the wage earners were in establishments in which the prevailing period of employment is a week of between 54 and 60 hours. More than six-sevenths of the wage earners in the iron and steel industry and more than half of those in the slaughtering and meat-packing and in the paper and wood-pulp industries, however, are employed in establishments where the prevailing number of hours are 60 or over per week, while for the majority of the wage earners engaged in marble and stone work, printing and publishing, and tobacco manufactures the prevailing hours of labor are 48 or less per week.

INDUSTRY.	AVERAGE NUMBER OF WAGE EARNERS IN ESTABLISHMENTS GROUPED ACCORDING TO PREVAILING HOURS OF WORK PER WEEK.								
	Total.	48 and under.	Between 48 and 54.	54.	Between 54 and 60.	60.	Between 60 and 72.	72.	Over 72.
All industries.....	584,559	29,484	28,555	103,114	380,223	35,887	4,599	1,230	1,467
Agricultural implements.....	346			5	265	76			
Automobiles, including bodies and parts.....	4,138	3	232	2,045	1,242	16			
Belting and hose, leather.....	955		13	33	909				
Bicycles, motorcycles, and parts.....	843			123	720				
Blacking and cleansing and polishing preparations.....	527	57	100	41	300	11			
Boots and shoes, including cut stock and findings.....	83,063	212	4,258	33,007	44,568	1,023			
Boots and shoes, rubber.....	6,928			6,928					
Boxes, fancy and paper.....	3,538	28	594	938	2,278				
Brass and bronze products.....	1,791	40	55	492	664	540			
Bread and other bakery products.....	6,097	303	94	1,649	1,855	2,611	109	69	7
Brick and tile.....	991	32	46	107	207	597	13	19	
Butter, cheese, and condensed milk.....	50	12		9	3	28	4		
Buttons.....	659	4		58	597				
Canning and preserving.....	1,449	66	94	1,103	154	32			
Carpets and rugs, other than rag.....	5,954		45		5,909				
Carriages and wagons and materials.....	1,539	18	498	704	172	147			
Cars and general shop construction and repairs by steam-railroad companies.....	5,162	231	1,188	3,089			54		
Chemicals.....	1,358	8		16	1,033	241		13	39
Clothing, men's, including shirts.....	7,335	255	1,271	2,590	2,973	246			
Clothing, women's.....	5,813	542	2,671	949	1,610	41			
Coffins, burial cases, and undertakers' goods.....	384	2		139	192	50	1		
Confectionery.....	5,548	35	2,966	747	1,785	15			
Cooperage and wooden goods, not elsewhere specified.....	974	157	8	107	494	208			
Copper, tin, and sheet-iron products.....	2,627	714	347	520	987	59			
Cordage and twine and jute and linen goods.....	6,090	52	1	1,347	5,268	5	17		
Corsets.....	1,989		101	33	1,855				
Cotton goods, including cotton small wares.....	108,914		11	41	08,766	38	58		
Cutlery and tools, not elsewhere specified.....	6,747	177	298	2,820	2,543	909			
Electrical machinery, apparatus, and supplies.....	14,507	266	395	902	12,851	93			
Electroplating.....	467	15	70	47	334	1			
Emery and other abrasive wheels.....	615			1	561	53			
Fancy articles, not elsewhere specified.....	3,558	41	181	97	2,696	543			
Firearms and ammunition.....	2,327	1		892	984	450			
Flour-mill and gristmill products.....	229	22	4	28	30	144			
Foundry and machine-shop products.....	44,179	310	1,259	11,059	29,735	1,747	69		
Fur goods.....	210		97	113					
Furniture and refrigerators.....	7,277	542	916	2,108	3,312	304	5		
Gas and electric fixtures and lamps and reflectors.....	868	33	270	814	40				
Gas, illuminating and heating.....	2,292	23		735	314	12	195	14	699
Gold and silver, reducing and refining, not from the ore.....	78				71	7			
Hats and caps, other than felt, straw, and wool.....	274	20	67	72	114	1			
Hats, fur-felt.....	2,224	83		20	2,121				
Hats, straw.....	2,668			14	2,331	323			
Hosiery and knit goods.....	9,941	12	245	86	9,593				
Iron and steel, steel works and rolling mills.....	3,115		13	39	376	2,687			
Jewelry.....	7,423	54	215	234	6,755	165			
Lasts.....	675			235	419	21			
Leather goods.....	1,710	31	288	463	602	326			
Leather, tanned, curried, and finished.....	10,252	155	108	120	8,292	1,577			
Lime.....	557			4	110	199		147	97
Liquors, distilled.....	49	5		13		31			
Liquors, malt.....	1,739	305	35	1,392	7				
Lumber and timber products.....	8,976	1,058	987	1,793	3,600	1,486	41	11	
Marble and stone work.....	5,015	3,991	332	304	142	187	59		
Mattresses and spring beds.....	667	73	90	151	289	64			
Millinery and lace goods.....	1,680	311	663	169	543				
Models and patterns, not including paper patterns.....	342	23	82	97	140				
Musical instruments, pianos and organs and materials.....	4,245	700	420	2,855	195	75			
Optical goods.....	2,460	5	12		2,443				
Paint and varnish.....	428	8	158	42	149	71			
Paper and wood pulp.....	12,848	944	386	848	3,697	4,023	2,425	525	
Paper goods, not elsewhere specified.....	5,135	48	46	1,776	2,922	190	153		
Patent medicines and compounds and druggists' preparations.....	1,133	356	434	63	252	70	8		
Pottery, terra-cotta, and fire-clay products.....	465	4	11	151	218	81			
Printing and publishing.....	17,532	11,404	1,853	2,911	1,342	20			2
Screws, machine.....	343			14	278	56			
Sewing machines, cases, and attachments.....	869			861	8				
Shoddy.....	442		24	2	184	206			26
Silk and silk goods, including throwsters.....	4,109	1	39		4,069				
Silverware and plated ware.....	2,465			300	2,165				
Slaughtering and meat packing.....	3,325	59	35	70	1,337	1,819	4	1	
Stoves and furnaces, including gas and oil stoves.....	1,703	44	48	1,431	180				
Surgical appliances and artificial limbs.....	227	5	23	96	101	2			
Tobacco manufactures.....	3,551	3,256	87	59	141	8			
Whips.....	1,005	2		7	898				
Woolen, worsted, and felt goods, and wool hats.....	53,873	359	138	255	48,567	4,554			
All other industries.....	61,316	1,967	3,616	9,031	37,351	7,240	1,383	431	297

Location of establishments.—The next table shows the extent to which the manufactures of Massachusetts are centralized in cities and towns of 10,000 population or over. (See Introduction.) The com-

parison is confined here, as in other states, to the years 1899 and 1909, in the absence of a Federal census of population by which the grouping of cities or towns in 1904 in all states could be determined.

ITEM.	Year.	Aggregate.	CITIES AND TOWNS HAVING A POPULATION OF 10,000 AND OVER.								DISTRICTS OUTSIDE OF CITIES AND TOWNS HAVING A POPULATION OF 10,000 AND OVER.	
			Total.		10,000 to 25,000.		25,000 to 100,000.		100,000 and over.			
			Number or amount.	Percent of total.	Number or amount.	Percent of total.	Number or amount.	Percent of total.	Number or amount.	Percent of total.		
Population.....	1910	3,360,416	2,006,380	77.4	450,898	13.4	1,008,483	30.0	1,146,999	34.1	760,036	22.6
	1900	2,805,346	2,050,802	73.1	413,698	14.7	852,988	30.4	784,170	28.0	754,484	26.0
Number of establishments.....	1909	11,684	9,210	78.8	1,468	12.6	3,124	26.7	4,618	39.5	2,474	21.2
	1899	10,929	8,210	75.1	1,404	13.7	3,133	28.7	3,583	32.8	2,719	24.0
Average number of wage earners.	1909	584,559	477,700	81.7	88,952	15.2	205,982	35.2	182,832	31.3	106,793	18.3
	1899	438,234	341,251	77.9	70,042	16.0	165,117	37.7	106,092	24.2	96,983	22.1
Value of products.....	1909	\$1,490,529,386	\$1,230,269,442	82.9	\$209,652,301	14.1	\$543,367,703	36.5	\$483,249,438	32.4	\$254,259,044	17.1
	1899	907,626,439	715,626,978	78.8	120,241,566	13.2	340,724,807	38.2	248,680,605	27.4	191,990,461	21.2
Value added by manufacture.....	1909	659,764,443	548,852,906	83.2	95,301,949	14.4	229,499,986	34.8	224,151,061	34.0	110,911,447	16.8
	1899	408,971,406	326,159,070	79.8	50,674,925	13.9	144,655,457	35.4	124,825,688	30.5	82,815,330	20.2

In 1909, 82.9 per cent of the total value of products for all manufacturing industries in the state was reported from cities and towns having over 10,000 inhabitants, and 81.7 per cent of the average number of wage earners were employed in such cities and towns. The figures indicate that while there was very little relative change during the last 10 years, yet on the whole the industries of the cities and towns with a population of 10,000 or over have gained somewhat on those of the remainder of the state.

It should be understood that in making the classification of cities and towns for 1899 in this table the population in 1900 was used as the basis. Hence the towns that had less than 10,000 inhabitants each in 1900 but more than that number in 1910, namely, Arlington, Greenfield, Methuen, Plymouth, Wakefield, Watertown, Webster, and Winthrop, are included for 1899 with the districts outside. The total value of products reported for these eight towns in 1909 was \$47,001,185, or 3.2 per cent of the total for the state. If, therefore, the statistics for these towns in 1909 were deducted from the totals for cities and towns having a population of 10,000 or over and added to the districts outside, the proportion of the aggregate value of products credited to the former group would be 79.7 per cent and that credited to the latter 20.3 per cent. These figures represent the relative proportions of the total value of manufactured products for the state contributed by the same areas for which statistics are given in 1899.

The composition of each of the groups of cities and towns having more than 10,000 inhabitants has been affected by changes in the population of different cities and towns. In 1900 Brookline, Chicopee, Everett, Pittsfield, Quincy, and Waltham had less than 25,000 inhabitants, but during the following decade the population of each increased so that all in 1910 belonged to the group comprising cities and towns having between 25,000 and 100,000 inhabitants. Cambridge and Lowell had less than 100,000 inhabitants in 1900, but by 1910 had so gained in population that they were included with Boston, Worcester, and Fall River in the group of cities having more than 100,000 inhabitants.

On the other hand, Gloucester, which in 1900 was included among the cities having between 25,000 and 100,000 inhabitants, as the result of a decrease in population during the decade in 1910 fell into the group comprising cities and towns having between 10,000 and 25,000 inhabitants.

Although each of the three groups into which the cities and towns having over 10,000 inhabitants are divided showed a substantial increase during the decade in average number of wage earners, value of products, and value added by manufacture, the group comprising the places having between 25,000 and 100,000 inhabitants showed a smaller proportion of the total for each item in 1909 than in 1899, while the proportion for the group comprising the cities of over 100,000 inhabitants was larger in each case. These changes are of course due largely to changes in the composition of the different groups. Of the total value of products shown for the state at the census of 1909, 14.1 per cent was reported from the 30 cities and towns having between 10,000 and 25,000 inhabitants, 36.4 per cent from the 19 cities and 1 town having between 25,000 and 100,000 inhabitants, and 32.4 per cent from the 5 cities having more than 100,000 inhabitants.

The population in 1910 and 1900 of the 55 cities and towns which had 10,000 inhabitants or more in 1910 is given in the first tabular statement on page 500.

The relative importance in manufactures of each of these cities and towns is shown in the second tabular statement on page 500, in which the value of products and average number of wage earners are shown separately for 1909, 1904, and 1899, so far as comparative figures are available.

Every city and town for which comparative figures are available shows an increase during the decade in number of wage earners, with the exception of North Adams, Gloucester, Melrose, and Medford, while for all except North Adams and Melrose there was a gain in value of products. From 1904 to 1909 all except four of the cities and towns show an increase in value of products, and all except seven an increase in number of wage earners employed. During the period from

1899 to 1904 a decrease in value of products occurred in three of the places shown, and a decrease in wage earners in nine. Some cities show decided increases from 1904 to 1909 in value of products. The largest relative gain, 149.1 per cent, was made by Chicopee, and was due in part to the increased production of cotton goods, rubber goods, and sporting goods, as well as to the establishment of such new industries as slaughtering and meat packing and the manufacture of automobiles. In Medford there was an increase of 134.6 per cent, due largely to gains in the foundry and machine-shop and wool-pulling industries of the city and to the establishment of a tannery there since 1904. Beverly shows a gain of 111 per cent, representing primarily an increase in the output of its foundries and machine shops and boot and shoe factories. A gain in Webster of 92.5 per cent was due mostly to increases in the textile and boot and shoe industries and in the dyeing and finishing of textiles, and a gain in New Bedford of 80.7 per cent was mainly the result of the marked increase in the manufacture of cotton goods in that city.

CITY OR TOWN.	1910	1900	CITY OR TOWN.	1910	1900
Boston.....	670,585	560,892	Northampton.....	19,431	18,643
Worcester.....	145,986	118,421	Beverly.....	18,650	13,884
Fall River.....	119,295	104,863	Revere.....	18,219	10,395
Lowell.....	105,294	94,969	Leominster.....	17,580	12,392
Cambridge.....	104,839	91,886	Attleborough.....	16,215	11,335
New Bedford.....	96,652	62,442	Westfield.....	16,044	12,310
Lynn.....	89,336	68,513	Peabody.....	15,721	11,523
Springfield.....	88,926	62,059	Melrose.....	15,715	12,962
Lawrence.....	85,892	62,559	Hyde Park.....	15,507	13,244
Somerville.....	77,236	61,643	Woburn.....	15,308	14,254
Holyoke.....	57,730	45,712	Newburyport.....	14,940	14,478
Brookton.....	56,878	40,063	Gardner.....	14,099	10,813
Malden.....	44,404	33,064	Marlborough.....	14,579	13,009
Haverhill.....	44,115	37,175	Clinton.....	13,075	13,067
Salem.....	43,697	35,969	Milford.....	13,085	11,370
Newton.....	39,866	33,587	Adams.....	13,026	11,134
Fitchburg.....	37,820	31,531	Frammingham.....	12,948	11,302
Taunton.....	34,259	31,036	Weymouth.....	12,895	11,324
Everett.....	33,484	24,395	Watertown.....	12,875	9,706
Quincy.....	23,642	23,899	Southbridge.....	12,592	10,025
Chelsea.....	32,452	34,072	Plymouth.....	12,141	9,592
Pittsfield.....	32,121	21,766	Webster.....	11,500	8,804
Waltham.....	27,834	23,481	Methuen.....	11,448	7,512
Brookline.....	27,792	19,935	Wakefield.....	11,404	9,290
Chicopee.....	25,401	19,167	Arlington.....	11,187	8,603
Glocester.....	24,398	26,121	Greenfield.....	10,427	7,927
Medford.....	23,150	18,244	Winthrop.....	10,132	6,058
North Adams.....	22,019	24,200			

Boston, the capital and metropolis of the state, shows an increase in 1909, as compared with 1904, of \$53,106,309, or 28.8 per cent, in value of products and 10,477, or 17.7 per cent, in the average number of wage earners employed. The relative importance of Boston as a manufacturing city is indicated by the fact that when ranked by value of products it was eighth among the cities of the United States in 1909 and sixth in 1904 and 1899. Eleven and nine-tenths per cent of the wage earners and 15.9 per cent of the value of products shown for the state in 1909 were reported from Boston. Unlike most of the other important manufacturing cities of the state, Boston does not owe its importance to any particular branch of manufactures but, on the contrary, to a wide range

of industries. Measured by value of products, the most important industries are printing and publishing, with \$28,021,000; the manufacture of boots and shoes, with \$26,147,000; the clothing industries, with \$22,377,000; and foundries and machine shops, with \$13,474,000. The value of the combined output of these industries, however, represents only 37.9 per cent of the total reported for the city. Other industries of importance are the confectionery industry, with products valued at \$10,341,000; the bakery industry, with products valued at \$8,109,000; the brewery industry, with products valued at \$7,554,000; and tobacco manufactures, with products valued at \$5,506,000.

CITY OR TOWN.	AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS.		
	1909	1904	1899	1909	1904	1899
Boston.....	69,037	59,160	52,853	\$237,457,472	\$184,351,163	\$162,764,523
Lawrence.....	30,542	21,910	20,599	79,992,668	48,036,593	41,741,930
Worcester.....	28,221	22,796	22,598	77,147,884	52,144,065	46,793,372
Lynn.....	27,368	21,540	16,377	71,503,140	55,003,923	39,347,493
Fall River.....	37,139	26,836	30,646	64,145,726	43,473,105	39,102,710
Lowell.....	32,575	29,303	29,254	60,270,961	46,879,212	41,202,984
New Bedford.....	26,566	17,855	15,263	53,237,839	29,409,349	23,397,401
Brookton.....	14,737	13,889	10,296	45,972,388	37,790,993	24,855,362
Cambridge.....	15,200	14,586	11,070	44,227,895	42,407,064	29,062,103
Holyoke.....	16,513	14,685	12,519	40,097,224	30,731,332	24,092,610
Somerville.....	5,280	3,474	3,528	38,686,527	22,955,197	20,064,519
Haverhill.....	11,689	9,574	9,761	35,376,617	24,446,594	23,418,790
Springfield.....	11,855	10,523	8,152	31,772,815	25,800,250	18,155,071
Fitchburg.....	8,497	6,408	6,218	23,252,155	15,390,507	13,088,021
Chicopee.....	7,290	4,070	4,085	19,219,106	7,715,033	5,388,930
Chelsea.....	5,054	4,939	2,959	17,002,492	13,879,169	9,518,700
Peabody.....	4,850	3,953	2,661	16,548,732	10,296,669	6,949,736
Taunton.....	7,407	6,608	6,590	15,379,821	13,644,536	11,544,190
Pittsfield.....	6,353	4,455	3,108	15,215,262	8,577,358	6,783,546
Attleborough.....	6,429	5,044	4,811	15,100,359	10,050,384	8,761,427
Salem.....	6,338	5,945	5,625	14,576,276	12,202,217	10,711,026
Plymouth.....	2,912	2,300	1,511	11,618,020	11,115,713	5,530,015
Watertown.....	4,335	3,322	1,935	11,545,555	15,524,075	6,330,026
Webster.....	3,409	3,107	2,377	11,296,271	5,867,769	4,007,872
Leominster.....	5,601	4,127	3,412	10,530,815	7,501,720	5,396,528
Quincy.....	5,492	5,371	2,128	10,505,403	8,982,446	3,011,950
Marlborough.....	4,265	3,479	2,524	10,382,277	7,408,849	4,498,385
North Adams.....	5,414	5,502	6,312	10,314,847	8,035,705	10,741,495
Everett.....	2,680	2,186	1,877	8,746,923	6,135,650	4,437,180
Beverly.....	4,487	2,083	2,275	8,652,547	4,101,168	3,781,498
Malden.....	2,900	2,954	2,416	8,205,852	11,235,635	6,002,462
Clinton.....	4,123	3,482	3,836	7,844,543	5,457,865	5,042,549
Waltham.....	6,037	6,208	4,861	7,149,178	7,149,697	5,889,792
Gloucester.....	2,181	1,763	2,367	7,753,463	6,920,984	6,292,772
Westfield.....	3,060	2,034	2,370	7,361,528	5,818,130	4,440,797
Hyde Park.....	4,320	3,901	2,483	7,336,034	6,739,307	4,383,959
Northampton.....	3,150	2,963	2,635	6,908,992	5,756,381	4,706,820
Newburyport.....	3,215	2,955	2,801	6,931,040	6,809,979	5,140,554
Frammingham.....	3,069	2,484	2,207	6,916,864	4,173,579	3,007,301
Weymouth.....	1,991	1,841	1,922	6,627,168	4,021,955	5,388,531
Gardner.....	3,617	3,168	2,896	6,485,148	5,019,019	4,380,077
Adams.....	3,991	3,994	3,182	6,410,054	5,492,001	3,894,071
Newton.....	2,174	1,893	1,823	6,278,714	4,140,996	3,079,273
Southbridge.....	4,037	3,223	2,687	6,269,131	4,201,853	3,512,171
Wakefield.....	2,230	1,804	1,436	5,257,102	4,807,728	2,047,190
Woburn.....	1,653	1,482	1,356	5,408,081	4,654,067	4,002,576
Milford.....	1,801	1,782	1,357	4,442,140	3,890,504	2,552,150
Methuen.....	1,572	(1)	(1)	3,475,702	(1)	(1)
Melrose.....	1,038	1,571	1,180	2,824,069	9,450,929	3,416,240
Greenfield.....	1,251	(1)	(1)	2,801,011	(1)	(1)
Medford.....	560	484	575	2,045,289	871,820	1,132,131
Arlington.....	283	209	122	695,356	493,208	256,411
Brookline.....	340	405	324	532,303	782,845	485,359
Revere.....	101	125	87	407,336	355,060	155,813
Winthrop.....	7	(1)	(1)	42,168	(1)	(1)

<sup>1</sup> Figures not available.

In addition to the 32 industries presented separately for Boston in Table I, there are 143 others which, for various reasons, are included in the group of "All other industries." Some of these are among the more important in the city, in fact 11 reported products in

1909 valued at more than \$1,000,000.<sup>1</sup> These industries include 1, with products exceeding \$10,000,000 in value; 2, with products between \$5,000,000 and \$10,000,000 in value; and 8, with products between \$1,000,000 and \$5,000,000 in value.

The totals presented in this report for Boston do not include the statistics for an establishment operated by the Federal Government—the United States navy yard—located there. In 1909 this plant employed an average of 1,665 wage earners, and the value of the work performed at the yard during that year was reported at \$3,817,755.

Lawrence, which was the fourth in importance among the manufacturing cities in the state in 1904 on the basis of value of products, rose to second place in 1909, having exchanged places with Lynn during the five-year period. The total value of manufactured products for this city increased 66.5 per cent from 1904 to 1909, due primarily to the increased production of woolen and worsted goods, in the manufacture of which the city outranks any other in the state or in the United States. The value of such goods manufactured in 1909 was \$58,536,000, which represented 73.2 per cent of the total reported for all manufacturing industries of the city. The manufacture of cotton goods, paper, and machine-shop products, the lumber industry, and the dyeing and finishing of textiles are also important industries in Lawrence. The statistics for the paper mills and the dyeing and finishing establishments, however, can not be presented separately for Lawrence in Table I without disclosing the operations of individual establishments.

Worcester continued to be the third city of the state in rank according to value of products, showing an increase in this respect of 47.9 per cent from 1904 to 1909. The city owes its position to a comparatively wide range of industries, important among which are foundries and machine shops, with products valued at \$13,219,000; the manufacture of woolen and worsted goods, with products valued at \$4,460,000; the clothing industries, with products valued at \$2,498,000; the manufacture of boots and shoes, with products valued at \$2,414,000; bakeries, with products valued at \$1,472,000; and printing and publishing, with products valued at \$1,233,000. In 1909, 23 per cent of the wage earners reported for all manufacturing industries of the city were employed in foundries and machine shops. The manufacture of steel, wire, leather belting and hose, corsets, paper goods, carpets and rugs, and emery and abrasive wheels, and slaughtering and meat packing are also important industries, but the statistics for each are included under the head of "All other industries" for Worcester in Table I, in order not to disclose the operations of individual establishments.

With the exception of St. Louis, Mo., which held third place in 1909, Lynn, Brockton, and Haverhill are the three most important centers of the boot and shoe industry in the entire country, ranking in the order named. The value of the boots and shoes manufactured in 1909 in the three Massachusetts cities was \$46,660,000, \$39,293,000, and \$29,150,000, respectively. The aggregate value, \$115,103,000, which represented the output of 516 factories that gave employment to an average of 38,455 wage earners, formed 48.7 per cent of the total for the industry in the state, 39.2 per cent of the total for the New England states, and 22.4 per cent of that for the country as a whole. In Lynn the value of products of the boot and shoe industry in 1909 formed 65.3 per cent of the total value of products reported for the city. Other important industries there were the manufacture of electrical machinery (shown under the head of "All other industries" in Table I), leather (tanned, curried, and finished), and patent medicines. From 1904 to 1909 there was an increase of 30 per cent in the value of all manufactured products in Lynn. The corresponding percentages of increase for Brockton and Haverhill were 21.6 per cent and 44.7 per cent, respectively. In the two cities last mentioned the boot and shoe industry contributed 85.5 per cent and 82.4 per cent, respectively, of the total value of products, the remaining industries being of comparatively little importance.

Fall River, Lowell, and New Bedford, which in the value of manufactured products in 1909 ranked fifth, sixth, and seventh, respectively, in the state, owe their prominence primarily to the manufacture of cotton goods. In 1909 the total value of cotton goods produced in Fall River was \$48,576,000, or 75.7 per cent of the value of all products for the city; in Lowell, \$24,744,000, or 41.1 per cent of the total; and in New Bedford, \$42,505,000, or 79.8 per cent of the total. These three cities led all others in the state as well as in the United States in the manufacture of this class of textiles. Of the remaining industries in these cities, the dyeing and finishing of textiles, the manufacture of fur-felt hats, and the foundry and machine-shop industry were important in Fall River, the first two being included under the head of "All other industries" for Fall River in Table I; the manufacture of woolen and worsted goods, of hosiery and knit goods, and of carpets and rugs, foundries and machine shops, the tanning, currying, and finishing of leather, the manufacture of boots and shoes, and of patent medicines, and the lumber industry in Lowell, the hosiery and knit goods, the carpet and rug, and the leather industries being included under "All other industries" for Lowell in Table I; and the boot and shoe, brass and bronze products, and bakery industries in New Bedford, the first two being included under "All other industries" for New Bedford in Table I. During the five-year period from 1904 to 1909 the value of products reported for all manufacturing industries increased 47.6 per cent in Fall River, 28.6 per cent in Lowell, and 80.7 per cent in New Bedford.

<sup>1</sup> These industries are:

Belting and hose, woven and rubber.  
Brushes.  
Carpets and rugs, other than rag.  
Chocolate and cocoa products.  
Coffee and spice, roasting and grinding.  
Food preparations.

Furnishing goods, men's.  
Gas, illuminating and heating.  
Liquors, distilled.  
Oil, not elsewhere specified.  
Sugar, refining, not including beet sugar.

Cambridge, the ninth manufacturing city in the state, is dependent upon no one industry for its industrial position. Although the total value of products for the city in 1909 shows but little gain over that reported in 1904, a large increase is shown for the period from 1899 to 1904. Among the industries of importance, as measured by value of products, are foundries and machine shops, printing and publishing, bakeries, the manufacture of rubber belting and hose, rubber boots and shoes, pianos and organs and materials, electrical machinery, and blacking and cleansing preparations, the confectionery and the furniture industries, and the refining of cane sugar.

Holyoke is the center of the paper industry in the state and also the leading city in the United States in the manufacture of fine paper. The value of products of the Holyoke paper and pulp mills in 1909 was \$12,305,000, which represented 30.7 per cent both of the total value of products reported for the paper and wood-pulp industry of the state and of the total value of products for all manufacturing industries of the city. The manufacture of all textiles combined is even more important in Holyoke, however, than the paper industry; the output of the leading classes of textiles made there being valued at \$18,104,000 in 1909. Other prominent industries are the foundries and machine shops, with an output valued at \$2,095,000; the manufacture of stationery goods, with products valued at \$1,930,000; paper goods, with products valued at \$1,424,000; and printing and publishing, with products valued at \$1,450,000.

Somerville outranked all other cities of the state in the slaughtering and meat-packing industry, which constituted the principal manufacturing activity of the city. Of the total value of manufactured products for this city in 1909, amounting to \$38,687,000, this industry contributed \$31,270,000, or 80.8 per cent. The remaining industries are of little comparative importance. The total value of the manufactures of the city increased 68.5 per cent from 1904 to 1909.

Springfield is the thirteenth city of the state in the value of manufactured products. The leading industries in 1909, as measured by value of products, were automobiles, including bodies and parts, printing and publishing, paper goods, and foundry and machine-shop products. The statistics for the city as a whole are not fully representative, however, of its manufacturing activities, since they do not include those for the Springfield Armory, operated by the Federal Government. In 1909 this establishment employed an average of 1,125 wage earners during the year and turned out products valued at \$1,312,568.

In Fitchburg the leading branch of manufacture was the production of textiles, the output of which represented 40.2 per cent of the value of all products manufactured in the city in 1909. There were, however, a number of other important industries, chief of which were the production of paper and wood pulp,

foundries and machine shops, steam-railroad repair shops, and the manufacture of saws.

Chelsea owes its prominence in manufactures to the production of rubber goods and of boots and shoes, the printing and publishing industry, and the manufacture of suspenders and elastic goods, which four industries gave employment to nearly three-fourths of the total number of wage earners engaged in all manufacturing industries in the city. Of the remaining industries in the city the foundries and machine shops were the most important.

Peabody led all cities and towns of the state in the tanning, currying, and finishing of leather, reporting an output valued at \$12,893,653 in 1909 and \$7,919,370 in 1904, the increase for the five-year period being \$4,974,283, or 62.8 per cent. The value of this class of products constituted 82.9 per cent of the total for the town in 1909 and 77.4 per cent in 1904.

In Woburn the tanning, currying, and finishing of leather also largely predominates, the value of the leather manufactured in 1909 being \$3,415,105 out of \$5,408,081 reported for all manufactures in the city.

Taunton, Plymouth, Webster, North Adams, Clinton, Northampton, Adams, Newton, and Methuen are all textile-manufacturing cities or towns. The cotton-goods industry was the most prominent in Taunton, North Adams, Adams, and Methuen, although the output of woolen and worsted goods was also large in North Adams. The leading industry of Plymouth was the production of cordage and twine, followed closely by that of worsted goods. In Clinton the manufacture of carpets and rugs and that of cotton goods were the most important. The chief industry in Northampton was the production of silk and silk goods, although hosiery and knit goods were extensively manufactured. The woolen and worsted goods industry led in Webster and in Newton; the manufacture of cotton goods and boots and shoes and the dyeing and finishing of textiles were also important in Webster.

Pittsfield is noted for its output of electrical machinery and apparatus, this industry having supplanted the manufacture of textiles in first place since 1904, as determined by value of products. Stationery goods are also manufactured in comparatively large quantities.

Of the value of the products manufactured in Attleborough during 1909, more than two-thirds represented the value of jewelry, silverware and plated ware, and products obtained by the reduction and refining of gold and silver from sweepings, clippings, and scrap. The value of jewelry alone was \$7,396,558, or 48.8 per cent of the total for the town.

The boot and shoe industry was the leading industry in Salem, Marlborough, Newburyport, Weymouth, and Milford, with a value of products for 1909 amounting to \$6,449,608 in Salem, \$9,565,993 in Marlborough, \$3,296,468 in Newburyport, \$3,897,999 in Weymouth, and \$2,210,461 in Milford. Other



prominent industries in Salem were the manufacture of leather and of cotton goods; in Newburyport, the manufacture of silverware and plated ware; in Weymouth, the manufacture of fertilizers; and in Milford, the straw-hat industry. Of the value of products reported for Watertown, Malden, and Melrose, a large part represented that of rubber boots and shoes, although worsted mills were also important in Watertown and the soap factories in Malden. The totals presented for Watertown do not include the statistics for the arsenal in that city, operated by the Federal Government. In 1909 this plant employed an average of 482 wage earners and turned out products, mainly gun carriages, valued at \$859,936.

About two-fifths of the wage earners reported for Leominster in 1909 were engaged in the manufacture of fancy articles from ivory, shell, and bone, including combs and hairpins, which were valued at \$4,245,578, or 40.3 per cent of the total value of products for the town. The production of pianos and materials and that of shirts were also prominent among the various manufactures in Leominster.

In Quincy shipbuilding, marble and stone work, and the manufacture of iron and steel, bolts, nuts, washers, and rivets predominated; in Everett the chief products were coke, chemicals, boots and shoes, and foundry and machine-shop products; and in Framingham, paper goods, boots and shoes, and worsted goods.

Waltham ranked first in 1909 among the cities and towns of the state in the manufacture of clocks and watches, Gloucester in canning and preserving, Westfield in the manufacture of whips, Gardner in the furniture industry, and Southbridge in the manufacture of optical goods. In the manufacture of whips Westfield also outranks all other cities and towns of the United States. The most important industry in Greenfield was the manufacture of cutlery and edge tools, and that in Wakefield the manufacture of hosiery and knit goods. The manufacture of cotton goods was also an important industry in Waltham; the manufacture of glue, in Gloucester; foundries and machine shops, in Westfield; the manufacture of children's carriages and sleds, in Gardner; the furniture industry, in Wakefield; the worsted-goods industry, in Southbridge; and the manufacture of silverware and plated ware, in Greenfield.

The manufacture of machinery was the leading industry in Beverly and Hyde Park, although the boot and shoe industry in the former, and steam-railroad repair shops in the latter, were nearly as important.

The remaining places included in the preceding table—Medford, Arlington, Brookline, Revere, and Winthrop—are comparatively unimportant from a manufacturing standpoint.

**Character of ownership.**—The table that follows presents statistics as to the character of ownership, or legal organization, of manufacturing enterprises.

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>									
1909.....	11,684	584,559	\$1,490,529,388	\$659,794,443	<b>Bread and other bakery products, 1909.....</b>	1,201	6,697	\$26,146,044	\$10,418,611
1904.....	10,723	488,399	1,124,092,051	497,681,620	Individual.....	1,000	3,050	12,611,605	5,011,147
Individual:					Firm.....	167	1,215	4,880,692	1,926,334
1909.....	0,015	55,318	137,804,436	65,831,571	Corporation <sup>2</sup> .....	44	2,432	8,044,747	3,481,130
1904.....	5,084	55,989	127,500,985	60,174,689	Per cent of total.....	100.0	100.0	100.0	100.0
Firm:					Individual.....	83.3	45.5	48.2	48.1
1909.....	2,084	58,684	162,323,389	68,901,041	Firm.....	13.1	18.1	18.7	18.5
1904.....	2,423	77,494	184,809,987	78,087,376	Corporation <sup>2</sup> .....	3.7	36.3	33.1	33.4
Corporation:					<b>Clothing, men's, including shirts, 1909.....</b>	254	7,335	\$18,313,783	\$8,558,132
1909.....	3,483	468,301	1,182,935,652	521,101,657	Individual.....	145	2,200	2,970,248	1,645,927
1904.....	2,555	354,711	810,543,002	358,044,586	Firm.....	74	1,976	6,421,749	3,038,274
Other:					Corporation.....	35	3,159	8,921,786	3,873,931
1909.....	102	2,250	7,405,900	3,920,674	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	61	205	1,178,077	474,070	Individual.....	57.1	30.0	16.2	19.2
Per cent of total:					Firm.....	29.1	26.9	35.1	35.5
1909.....	100.0	100.0	100.0	100.0	Corporation.....	13.8	43.1	48.7	45.3
1904.....	100.0	100.0	100.0	100.0	<b>Clothing, women's, 1909.....</b>	174	5,813	\$11,727,980	\$5,216,648
Individual:					Individual.....	81	1,727	3,750,580	1,029,331
1909.....	51.5	9.5	9.2	10.0	Firm.....	54	1,772	3,640,312	1,702,890
1904.....	53.0	11.5	11.3	12.1	Corporation.....	39	2,314	4,331,088	1,884,427
Firm:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	17.8	10.0	10.9	10.4	Individual.....	46.6	29.7	32.0	31.2
1904.....	22.6	15.9	16.4	15.7	Firm.....	31.0	30.5	31.0	32.6
Corporation:					Corporation.....	22.4	39.8	36.9	36.1
1909.....	20.8	80.1	70.4	70.0	<b>Confectionery, 1909.....</b>	117	5,548	\$15,288,453	\$6,077,935
1904.....	23.8	72.6	72.1	72.1	Individual.....	62	440	1,395,070	575,217
Other:					Firm.....	15	510	1,013,500	445,160
1909.....	0.0	0.4	0.5	0.6	Corporation.....	30	4,598	12,957,784	5,057,558
1904.....	0.6	(1)	0.1	0.1	Per cent of total.....	100.0	100.0	100.0	100.0
<b>Automobiles, including bodies and parts, 1909.....</b>	62	4,138	\$11,359,224	\$5,887,746	Individual.....	53.0	7.9	8.5	9.5
Individual.....	20	370	1,044,788	563,080	Firm.....	13.7	9.2	6.6	7.3
Firm.....	8	126	346,727	176,809	Corporation.....	33.3	82.0	84.9	83.2
Corporation.....	34	3,642	9,967,709	5,127,811	<b>Cordage and twine and jute and linen goods, 1909.....</b>	31	6,690	\$16,631,643	\$5,433,937
Per cent of total.....	100.0	100.0	100.0	100.0	Individual.....	7	69	171,084	50,006
Individual.....	32.3	8.9	0.2	0.6	Firm.....	5	201	273,280	136,507
Firm.....	12.0	3.0	3.1	3.0	Corporation.....	19	6,420	16,180,679	5,246,824
Corporation.....	54.8	88.0	87.8	87.4	Per cent of total.....	100.0	100.0	100.0	100.0
<b>Boots and shoes, including outstock and findings, 1909.....</b>	860	83,063	\$236,342,915	\$83,352,063	Individual.....	22.6	1.0	1.0	0.9
Individual.....	399	10,663	30,483,211	11,107,991	Firm.....	16.1	3.0	1.6	2.5
Firm.....	225	16,956	55,361,516	18,529,205	Corporation.....	61.3	96.0	97.3	96.6
Corporation <sup>2</sup> .....	236	55,444	150,498,188	53,715,707	<b>Character of ownership.</b>				
Per cent of total.....	100.0	100.0	100.0	100.0	Individual.....				
Individual.....	46.4	12.8	12.9	13.3	Firm.....				
Firm.....	26.2	20.4	23.4	22.2	Corporation.....				
Corporation <sup>2</sup> .....	27.4	66.7	63.7	64.4					

<sup>1</sup> Less than one-tenth of 1 per cent.

<sup>2</sup> Includes the group "Other," to avoid disclosure of individual operations.



INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>Cotton goods, including cotton small wares, 1909.</b>	182	108,914	\$186,462,313	\$81,305,519	<b>Lumber and timber products, 1909.</b>	708	8,976	\$23,025,837	\$10,541,712
Individual.....	12	643	1,181,169	380,666	Individual.....	444	3,106	6,908,798	3,457,232
Firm.....	13	1,593	2,321,164	1,012,783	Firm.....	151	1,749	4,203,016	1,957,907
Corporation.....	157	106,678	182,959,980	79,912,070	Corporation <sup>1</sup> .....	113	4,121	11,914,023	5,126,573
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	6.6	0.6	0.6	0.5	Individual.....	62.7	34.6	30.0	32.3
Firm.....	7.1	1.5	1.2	1.2	Firm.....	21.3	19.5	18.3	18.6
Corporation.....	86.3	97.9	98.1	98.3	Corporation <sup>1</sup> .....	16.0	45.9	51.7	48.6
<b>Cutlery and tools, not elsewhere specified, 1909.</b>	135	6,747	\$11,610,749	\$8,126,350	<b>Musical instruments, pianos and organs and materials, 1909.</b>	59	4,245	\$9,106,470	\$4,957,214
Individual.....	56	379	628,895	443,571	Individual.....	17	475	1,080,176	490,200
Firm.....	19	172	506,136	195,933	Firm.....	7	206	282,555	165,650
Corporation.....	60	6,196	10,476,718	7,486,846	Corporation.....	35	3,564	7,743,739	4,301,355
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	41.5	5.6	5.4	5.5	Individual.....	28.8	11.2	11.9	9.9
Firm.....	14.1	2.5	4.4	2.4	Firm.....	11.9	4.9	3.1	3.3
Corporation.....	44.4	91.8	90.2	92.1	Corporation.....	59.3	84.0	85.0	86.8
<b>Electrical machinery, apparatus, and supplies, 1909.</b>	83	14,507	\$28,142,889	\$15,408,069	<b>Paper and wood pulp, 1909.</b>	88	12,848	\$40,096,713	\$17,747,100
Individual.....	16	203	464,517	245,905	Individual.....	4	786	2,955,881	2,163,091
Firm.....	8	233	441,672	237,304	Firm.....	8	710	2,304,008	1,284,038
Corporation.....	59	14,071	27,236,700	14,924,860	Corporation <sup>1</sup> .....	76	11,352	34,836,824	14,358,001
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	19.3	1.4	1.7	1.6	Individual.....	4.5	6.1	7.4	12.2
Firm.....	9.6	1.6	1.6	1.5	Firm.....	9.1	5.5	5.7	7.0
Corporation.....	71.1	97.0	96.8	96.9	Corporation <sup>1</sup> .....	86.4	88.4	86.9	80.9
<b>Foundry and machine-shop products, 1909.</b>	857	44,179	\$86,925,671	\$55,743,781	<b>Paper goods, not elsewhere specified, 1909.</b>	61	5,135	\$18,532,976	\$6,097,069
Individual.....	330	3,343	6,885,091	4,203,916	Individual.....	10	79	110,326	76,315
Firm.....	135	1,684	4,162,904	2,561,833	Firm.....	6	83	269,185	117,225
Corporation.....	392	38,852	75,877,676	48,918,032	Corporation.....	45	4,973	13,163,465	5,903,529
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	38.5	7.9	7.9	7.6	Individual.....	16.4	1.5	0.8	1.3
Firm.....	15.8	4.5	4.8	4.6	Firm.....	9.8	1.6	1.9	1.9
Corporation.....	45.7	87.9	87.3	87.8	Corporation.....	73.8	96.8	97.3	96.8
<b>Furniture and refrigerators, 1909.</b>	155	7,277	\$13,887,548	\$8,059,640	<b>Printing and publishing, 1909.</b>	1,279	17,532	\$47,445,096	\$34,564,455
Individual.....	60	811	1,436,221	861,539	Individual.....	739	4,039	7,731,293	5,557,548
Firm.....	47	1,352	2,496,716	1,395,058	Firm.....	153	2,886	4,721,255	3,208,882
Corporation.....	48	5,114	9,934,611	5,803,043	Corporation.....	318	10,877	33,313,993	24,543,300
Per cent of total.....	100.0	100.0	100.0	100.0	Other.....	69	230	1,678,405	1,254,025
Individual.....	38.7	11.1	10.4	10.7	Per cent of total.....	100.0	100.0	100.0	100.0
Firm.....	30.3	18.6	18.0	17.3	Individual.....	57.8	23.0	16.3	16.1
Corporation.....	31.0	70.3	71.6	72.0	Firm.....	12.0	13.6	10.0	9.3
<b>Hosiery and knit goods, 1909.</b>	65	9,941	\$14,738,025	\$7,764,419	Corporation.....	24.9	62.0	70.2	71.0
Individual.....	20	215	474,926	190,521	Other.....	5.4	1.3	3.5	3.6
Firm.....	7	1,001	2,549,024	1,130,605	<b>Slaughtering and meat packing, 1909.</b>	94	3,325	\$44,402,972	\$5,516,333
Corporation.....	38	8,725	11,712,075	6,443,293	Individual.....	57	238	1,948,761	492,049
Per cent of total.....	100.0	100.0	100.0	100.0	Firm.....	14	117	1,904,890	244,628
Individual.....	30.8	2.2	3.2	2.5	Corporation.....	23	2,070	40,549,312	4,780,156
Firm.....	10.8	10.1	17.3	14.6	Per cent of total.....	100.0	100.0	100.0	100.0
Corporation.....	58.5	87.8	79.5	83.0	Individual.....	60.6	7.2	4.4	8.9
<b>Jewelry, 1909.</b>	175	7,423	\$15,210,738	\$9,631,413	Firm.....	14.9	3.5	4.3	4.4
Individual.....	62	1,183	2,372,099	1,461,464	Corporation.....	24.5	89.3	91.3	86.0
Firm.....	53	2,460	5,201,421	3,466,319	<b>Woolen, worsted, and felt goods, and wool hats, 1909.</b>	183	53,873	\$141,966,882	\$53,990,551
Corporation.....	60	3,780	7,637,218	4,704,630	Individual.....	26	2,262	5,822,008	2,001,336
Per cent of total.....	100.0	100.0	100.0	100.0	Firm.....	27	4,810	11,885,145	4,658,985
Individual.....	35.4	15.9	15.6	15.2	Corporation.....	130	46,801	124,259,729	47,330,230
Firm.....	30.3	33.1	34.2	36.0	Per cent of total.....	100.0	100.0	100.0	100.0
Corporation.....	34.3	50.9	50.2	48.8	Individual.....	14.2	4.2	4.1	3.7
<b>Leather, tanned, curried, and finished, 1909.</b>	132	10,252	\$40,002,079	\$11,236,571	Firm.....	14.8	8.9	8.4	8.6
Individual.....	42	1,039	2,413,413	1,131,280	Corporation.....	71.0	86.9	87.5	87.7
Firm.....	30	1,546	4,571,004	1,651,555					
Corporation.....	60	7,667	33,017,662	8,453,736					
Per cent of total.....	100.0	100.0	100.0	100.0					
Individual.....	31.8	10.1	6.0	10.1					
Firm.....	22.7	15.1	11.4	14.7					
Corporation.....	45.5	74.8	82.5	75.2					

<sup>1</sup> Includes the group "Other," to avoid the disclosure of individual operations.

Comparative data for 1899 are not available. Figures for 1909 only are presented for several important industries individually. In order to avoid disclosing the operations of individual concerns it is necessary to omit several important industries from this table and the one following.

The most important distinction shown is that between corporate and all other forms of ownership. Of the total number of establishments in all industries combined, 29.8 per cent were under corporate ownership in 1909, as against 70.2 per cent under

all other forms. The corresponding figures for 1904 were 23.8 per cent and 76.2 per cent, respectively. In respect to value of products the difference was even more pronounced, but in the opposite direction, for in 1909 the establishments operated by corporations reported 79.4 per cent of the total value of products, as against 20.6 per cent for establishments under all other forms of ownership, while in 1904 the corresponding figures were 72.1 per cent and 27.9 per cent, respectively. The greatest decrease in relative importance from 1904 to 1909 is shown for establishments operated

by firms, which represented only 17.8 per cent of the total number of establishments in 1909, as compared with 22.6 per cent in 1904, and contributed only 10.9 per cent of the total value of products in 1909, as compared with 16.4 per cent in 1904. Establishments under corporate ownership reported a larger proportion of the total value of products (98.1 per cent) in the cotton-goods industry than in any other shown separately in the table, while the proportion of the total reported by establishments under individual ownership was highest in the bakery industry (48.2 per cent) and that for establishments under firm ownership in the men's clothing industry (35.1 per cent).

Size of establishment.—The tendency for manufacturing to become concentrated in large establishments, or the reverse, is a matter of interest from the standpoint of industrial organization. In order to throw some light upon it, the following table groups the establishments according to the value of their products. The table also shows the average size of establishments for all industries combined and for important industries separately, as measured by number of wage earners, value of products, and value added by manufacture. The totals for all industries are shown for the last two censuses, while for the industries presented separately figures are given for 1909 only.

INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>									
1909.....	11,684	584,559	\$1,490,529,386	\$650,704,443	<b>Bread and other bakery products, 1909—Con.</b>				
1904.....	10,723	488,399	1,124,092,051	497,681,620	Per cent of total.....	100.0	100.0	\$100.0	\$100.0
Less than \$5,000:					Less than \$5,000.....	18.2	2.4	2.7	2.9
1909.....	2,760	3,503	7,102,781	4,707,415	\$5,000 and less than \$20,000.....	63.0	28.8	30.0	30.8
1904.....	2,033	3,834	6,808,333	4,517,346	\$20,000 and less than \$100,000.....	15.0	25.2	25.5	25.0
\$5,000 and less than \$20,000:					\$100,000 and less than \$1,000,000 <sup>1</sup> .....	2.6	43.6	41.8	41.3
1909.....	3,826	19,012	40,731,897	24,009,431	Average per establishment.....		6	\$21,770	\$8,975
1904.....	3,594	20,257	37,326,510	22,109,860	<b>Clothing, men's, including shirts, 1909.....</b>	254	7,335	\$18,313,783	\$8,558,132
\$20,000 and less than \$100,000:					Less than \$5,000.....	61	263	195,111	108,135
1909.....	2,932	61,041	136,002,841	73,120,246	\$5,000 and less than \$20,000.....	91	1,334	1,001,078	828,782
1904.....	2,673	60,075	120,969,102	63,758,232	\$20,000 and less than \$100,000.....	66	1,800	2,787,365	1,525,876
\$100,000 and less than \$1,000,000:					\$100,000 and less than \$1,000,000 <sup>1</sup> .....	30	3,848	14,830,220	6,035,830
1909.....	1,873	222,800	585,830,505	261,501,513	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	1,932	215,631	500,755,635	218,741,203	Less than \$5,000.....	24.0	3.6	1.1	2.0
\$1,000,000 and over:					\$5,000 and less than \$20,000.....	35.8	18.2	5.5	6.7
1909.....	293	277,208	710,811,362	290,305,838	\$20,000 and less than \$100,000.....	26.0	25.8	15.2	17.8
1904.....	101	188,702	458,142,511	188,654,880	\$100,000 and less than \$1,000,000 <sup>1</sup> .....	14.2	52.5	78.2	70.5
Per cent of total:					Average per establishment.....		29	\$72,102	\$33,603
1909.....	100.0	100.0	100.0	100.0	<b>Clothing, women's, 1909.....</b>	174	5,813	\$11,727,980	\$5,216,648
1904.....	100.0	100.0	100.0	100.0	Less than \$5,000.....	10	28	33,260	32,648
Less than \$5,000:					\$5,000 and less than \$20,000.....	35	322	422,300	242,334
1909.....	23.6	0.0	0.5	0.7	\$20,000 and less than \$100,000.....	95	2,400	5,041,751	2,222,550
1904.....	24.0	0.8	0.6	0.0	\$100,000 and less than \$1,000,000.....	34	2,964	6,230,564	2,720,107
\$5,000 and less than \$20,000:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	32.7	3.4	2.7	3.6	Less than \$5,000.....	5.7	0.5	0.3	0.4
1904.....	33.5	4.1	3.3	4.4	\$5,000 and less than \$20,000.....	20.1	5.5	3.6	4.6
\$20,000 and less than \$100,000:					\$20,000 and less than \$100,000.....	54.6	43.0	43.0	42.6
1909.....	25.1	10.4	0.2	11.1	\$100,000 and less than \$1,000,000.....	19.5	51.0	53.1	52.3
1904.....	24.9	12.3	10.8	12.8	Average per establishment.....		33	\$67,402	\$29,081
\$100,000 and less than \$1,000,000:					<b>Confectionery, 1909.....</b>	117	5,548	\$15,266,452	\$8,077,925
1909.....	16.0	38.1	30.3	30.6	Less than \$5,000.....	17	14	55,370	31,817
1904.....	15.2	44.1	44.5	44.0	\$5,000 and less than \$20,000.....	38	161	429,881	212,487
\$1,000,000 and over:					\$20,000 and less than \$100,000.....	34	516	1,302,826	583,021
1909.....	2.5	47.4	48.3	44.0	\$100,000 and less than \$1,000,000.....	25	3,120	7,718,840	3,038,636
1904.....	1.8	38.6	40.8	37.0	\$1,000,000 and over.....	3	1,738	5,074,527	2,211,374
Average per establishment:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....		50	\$127,570	\$50,467	Less than \$5,000.....	14.5	0.3	0.4	0.5
1904.....		46	104,830	40,413	\$5,000 and less than \$20,000.....	32.5	2.9	2.8	3.5
<b>Automobiles, including bodies and parts, 1909.....</b>	62	4,138	\$11,359,224	\$5,667,746	\$20,000 and less than \$100,000.....	29.1	0.3	0.1	0.6
Less than \$5,000.....	6	3	11,850	7,720	\$100,000 and less than \$1,000,000.....	21.4	56.2	50.5	50.0
\$5,000 and less than \$20,000.....	8	39	78,008	51,204	\$1,000,000 and over.....	2.6	31.3	37.2	36.4
\$20,000 and less than \$100,000.....	27	533	1,364,483	802,975	Average per establishment.....		47	\$130,482	\$51,948
\$100,000 and less than \$1,000,000 <sup>1</sup> .....	21	3,563	9,904,885	5,005,847	<b>Cordage and twine and jute and linen goods, 1909.....</b>	31	6,690	\$16,631,643	\$5,433,937
Per cent of total.....	100.0	100.0	100.0	100.0	Less than \$5,000.....	4	6	11,530	5,542
Less than \$5,000.....	9.7	0.1	0.1	0.0	\$5,000 and less than \$20,000.....	3	9	31,384	6,746
\$5,000 and less than \$20,000.....	12.9	0.9	0.7	0.9	\$20,000 and less than \$100,000.....	9	188	456,685	163,109
\$20,000 and less than \$100,000.....	43.5	12.9	12.0	13.7	\$100,000 and less than \$1,000,000.....	12	2,445	4,909,231	1,777,534
\$100,000 and less than \$1,000,000 <sup>1</sup> .....	33.9	86.1	87.2	85.3	\$1,000,000 and over.....	3	4,042	11,223,813	3,481,006
Average per establishment.....		67	\$183,213	\$64,041	Per cent of total.....	100.0	100.0	100.0	100.0
<b>Boots and shoes, including cut stock and findings, 1909.....</b>	660	83,063	\$236,342,915	\$89,352,063	Less than \$5,000.....	12.9	0.1	0.1	0.1
Less than \$5,000.....	74	115	215,018	121,427	\$5,000 and less than \$20,000.....	0.7	0.1	0.2	0.1
\$5,000 and less than \$20,000.....	105	1,507	2,106,375	1,232,088	\$20,000 and less than \$100,000.....	29.0	2.8	2.7	3.0
\$20,000 and less than \$100,000.....	248	5,243	12,154,908	5,128,784	\$100,000 and less than \$1,000,000.....	38.7	36.5	29.5	32.7
\$100,000 and less than \$1,000,000.....	279	36,269	104,620,002	36,792,782	\$1,000,000 and over.....	9.7	60.4	67.5	64.1
\$1,000,000 and over.....	64	30,929	117,156,632	40,077,332	Average per establishment.....		216	\$536,505	\$175,288
Per cent of total.....	100.0	100.0	100.0	100.0	<b>Cotton goods, including cotton small wares, 1909.....</b>	182	108,014	\$186,462,313	\$81,805,519
Less than \$5,000.....	8.0	0.1	0.1	0.1	\$5,000 and less than \$20,000.....	12	93	132,651	63,063
\$5,000 and less than \$20,000.....	22.7	1.8	0.9	1.5	\$20,000 and less than \$100,000.....	23	755	1,252,042	520,586
\$20,000 and less than \$100,000.....	28.8	6.3	5.1	6.2	\$100,000 and less than \$1,000,000.....	79	22,367	37,098,054	15,308,391
\$100,000 and less than \$1,000,000.....	32.4	43.7	44.3	44.1	\$1,000,000 and over.....	68	85,699	147,978,999	65,352,879
\$1,000,000 and over.....	7.4	43.1	49.0	48.1	Per cent of total.....	100.0	100.0	100.0	100.0
Average per establishment.....		97	\$274,817	\$96,922	Less than \$5,000.....	6.6	0.1	0.1	0.1
<b>Bread and other bakery products, 1909.....</b>	1,201	6,697	\$28,146,044	\$10,418,611	\$5,000 and less than \$20,000.....	12.6	0.7	0.7	0.6
Less than \$5,000.....	219	158	706,602	304,774	\$20,000 and less than \$100,000.....	43.4	20.5	19.9	18.0
\$5,000 and less than \$20,000.....	704	1,032	7,848,841	3,204,356	\$100,000 and less than \$1,000,000.....	37.4	78.7	79.4	80.4
\$20,000 and less than \$100,000.....	187	1,638	6,051,851	2,604,415	Average per establishment.....		598	\$1,024,518	\$446,734
\$100,000 and less than \$1,000,000 <sup>1</sup> .....	31	2,919	10,928,750	4,305,066					

<sup>1</sup> Includes the group "\$1,000,000 and over."

<sup>2</sup> Includes the group "Less than \$5,000."

INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>Cutlery and tools, not elsewhere specified, 1909.</b>	<b>135</b>	<b>6,747</b>	<b>\$11,610,749</b>	<b>\$8,126,350</b>	<b>Lumber and timber products, 1909.</b>	<b>708</b>	<b>8,976</b>	<b>\$23,025,837</b>	<b>\$10,541,712</b>
Less than \$5,000	34	42	93,304	67,945	Less than \$5,000	231	384	576,547	385,843
\$5,000 and less than \$20,000	43	293	435,806	323,636	\$5,000 and less than \$20,000	243	1,467	2,585,747	1,577,574
\$20,000 and less than \$100,000	35	1,141	1,737,694	1,233,439	\$20,000 and less than \$100,000	176	3,328	8,285,588	3,856,627
\$100,000 and less than \$1,000,000	23	5,272	9,343,855	6,501,330	\$100,000 and less than \$1,000,000	58	3,797	11,577,955	4,721,708
Per cent of total	100.0	100.0	100.0	100.0	Per cent of total	100.0	100.0	100.0	100.0
Less than \$5,000	25.2	0.6	0.8	0.8	Less than \$5,000	32.6	4.3	2.5	3.7
\$5,000 and less than \$20,000	31.9	4.3	3.8	4.0	\$5,000 and less than \$20,000	34.3	16.3	11.2	15.0
\$20,000 and less than \$100,000	25.9	16.9	15.0	15.2	\$20,000 and less than \$100,000	24.9	37.1	36.0	36.6
\$100,000 and less than \$1,000,000	17.0	78.1	80.5	80.0	\$100,000 and less than \$1,000,000	8.2	42.3	50.3	44.8
Average per establishment		50	\$80,006	\$60,195	Average per establishment		13	\$32,622	\$14,889
<b>Electrical machinery, apparatus, and supplies, 1909.</b>	<b>83</b>	<b>14,507</b>	<b>\$28,142,889</b>	<b>\$15,408,089</b>	<b>Musical instruments, pianos and organs and materials, 1909.</b>	<b>59</b>	<b>4,245</b>	<b>\$9,106,470</b>	<b>\$4,987,214</b>
Less than \$5,000	5	13	8,921	2,704	Less than \$5,000	8	5	20,816	13,346
\$5,000 and less than \$20,000	19	97	236,813	141,428	\$5,000 and less than \$20,000	12	68	122,819	74,149
\$20,000 and less than \$100,000	31	917	1,682,854	999,015	\$20,000 and less than \$100,000	12	350	622,925	335,812
\$100,000 and less than \$1,000,000	28	13,480	26,204,301	14,264,922	\$100,000 and less than \$1,000,000	27	3,832	8,338,810	4,476,907
Per cent of total	100.0	100.0	100.0	100.0	Per cent of total	100.0	100.0	100.0	100.0
Less than \$5,000	6.0	0.1	( <sup>a</sup> )	( <sup>a</sup> )	Less than \$5,000	13.6	0.1	0.2	0.3
\$5,000 and less than \$20,000	22.9	0.7	0.8	0.9	\$5,000 and less than \$20,000	20.3	1.4	1.4	1.6
\$20,000 and less than \$100,000	37.3	6.3	6.0	6.5	\$20,000 and less than \$100,000	20.3	8.2	6.8	7.9
\$100,000 and less than \$1,000,000	33.7	92.9	93.1	92.6	\$100,000 and less than \$1,000,000	45.8	90.3	91.6	90.3
Average per establishment		175	\$339,071	\$185,639	Average per establishment		72	\$154,347	\$84,021
<b>Foundry and machine-shop products, 1909.</b>	<b>857</b>	<b>44,179</b>	<b>\$86,825,671</b>	<b>\$55,743,781</b>	<b>Paper and wood pulp, 1909.</b>	<b>88</b>	<b>12,848</b>	<b>\$40,096,713</b>	<b>\$17,747,100</b>
Less than \$5,000	152	210	406,446	274,148	\$5,000 and less than \$20,000	5	36	65,864	25,588
\$5,000 and less than \$20,000	255	1,501	2,799,023	1,918,817	\$20,000 and less than \$100,000	14	271	649,922	292,877
\$20,000 and less than \$100,000	287	7,297	14,149,812	8,567,392	\$100,000 and less than \$1,000,000	65	10,469	30,033,696	13,102,767
\$100,000 and less than \$1,000,000	149	16,764	36,784,419	22,156,361	\$1,000,000 and over	4	2,072	9,317,231	4,320,168
\$1,000,000 and over	14	18,401	32,785,971	22,827,063	Per cent of total	100.0	100.0	100.0	100.0
Per cent of total	100.0	100.0	100.0	100.0	Less than \$5,000	5.7	0.3	0.2	0.1
Less than \$5,000	17.7	0.5	0.5	0.5	\$5,000 and less than \$20,000	15.9	2.1	1.6	1.6
\$5,000 and less than \$20,000	29.8	3.4	3.2	3.4	\$20,000 and less than \$100,000	73.9	81.5	75.0	73.8
\$20,000 and less than \$100,000	33.5	16.5	16.3	15.4	\$100,000 and less than \$1,000,000	4.5	16.1	23.2	24.4
\$100,000 and less than \$1,000,000	17.4	37.9	42.3	39.7	\$1,000,000 and over		146	\$455,644	\$201,672
\$1,000,000 and over	1.6	41.0	37.7	40.9	Average per establishment				
Average per establishment		52	\$101,430	\$65,045	<b>Paper goods, not elsewhere specified, 1909.</b>	<b>61</b>	<b>5,135</b>	<b>\$13,532,976</b>	<b>\$6,097,089</b>
<b>Furniture and refrigerators, 1909.</b>	<b>155</b>	<b>7,277</b>	<b>\$13,867,548</b>	<b>\$8,059,640</b>	Less than \$5,000	8	15	23,749	13,544
Less than \$5,000	22	37	64,980	43,961	\$5,000 and less than \$20,000	14	104	173,585	100,024
\$5,000 and less than \$20,000	37	199	413,432	257,603	\$20,000 and less than \$100,000	16	272	687,938	335,809
\$20,000 and less than \$100,000	66	1,632	3,056,414	1,719,582	\$100,000 and less than \$1,000,000	23	4,744	12,047,704	5,648,192
\$100,000 and less than \$1,000,000	30	3,409	10,327,713	6,038,494	Per cent of total	100.0	100.0	100.0	100.0
Per cent of total	100.0	100.0	100.0	100.0	Less than \$5,000	13.1	0.3	0.2	0.2
Less than \$5,000	14.2	0.5	0.5	0.5	\$5,000 and less than \$20,000	23.0	2.0	1.3	1.6
\$5,000 and less than \$20,000	23.9	2.7	3.0	3.2	\$20,000 and less than \$100,000	26.2	5.3	5.1	5.5
\$20,000 and less than \$100,000	42.6	22.4	22.0	21.3	\$100,000 and less than \$1,000,000	37.7	92.4	93.5	92.5
\$100,000 and less than \$1,000,000	19.4	74.3	74.5	74.9	Average per establishment		84	\$221,852	\$99,952
Average per establishment		47	\$89,468	\$51,998	<b>Printing and publishing, 1909.</b>	<b>1,279</b>	<b>17,532</b>	<b>\$47,445,096</b>	<b>\$34,584,455</b>
<b>Hosiery and knit goods, 1909.</b>	<b>65</b>	<b>9,941</b>	<b>\$14,736,025</b>	<b>\$7,764,419</b>	Less than \$5,000	491	594	1,223,106	965,746
Less than \$5,000	12	11	23,506	13,060	\$5,000 and less than \$20,000	470	2,480	4,707,863	3,675,431
\$5,000 and less than \$20,000	6	64	72,399	35,335	\$20,000 and less than \$100,000	230	4,426	9,383,248	7,388,352
\$20,000 and less than \$100,000	24	672	1,391,835	619,378	\$100,000 and less than \$1,000,000	79	6,624	18,479,010	13,724,154
\$100,000 and less than \$1,000,000	20	3,310	6,029,313	3,140,690	\$1,000,000 and over	9	3,408	13,171,779	8,810,769
\$1,000,000 and over	3	5,884	7,218,973	3,955,941	Per cent of total	100.0	100.0	100.0	100.0
Per cent of total	100.0	100.0	100.0	100.0	Less than \$5,000	38.4	3.4	2.6	2.8
Less than \$5,000	18.5	0.1	0.2	0.2	\$5,000 and less than \$20,000	36.7	14.1	9.9	10.6
\$5,000 and less than \$20,000	9.2	0.6	0.5	0.5	\$20,000 and less than \$100,000	18.0	25.2	20.8	21.4
\$20,000 and less than \$100,000	36.9	6.8	9.4	8.0	\$100,000 and less than \$1,000,000	6.2	37.8	38.9	39.7
\$100,000 and less than \$1,000,000	30.8	33.3	40.9	40.4	\$1,000,000 and over	0.7	19.4	27.8	25.5
\$1,000,000 and over	4.6	59.2	49.0	50.9	Average per establishment		14	\$37,085	\$27,025
Average per establishment		153	\$226,708	\$119,453	<b>Slaughtering and meat packing, 1909.</b>	<b>94</b>	<b>3,325</b>	<b>\$44,402,972</b>	<b>\$5,516,833</b>
<b>Jewelry, 1909.</b>	<b>175</b>	<b>7,423</b>	<b>\$15,210,738</b>	<b>\$9,631,413</b>	Less than \$5,000	5	4	19,385	5,489
Less than \$5,000	20	26	53,312	36,180	\$5,000 and less than \$20,000	25	58	291,957	87,579
\$5,000 and less than \$20,000	35	219	389,168	252,465	\$20,000 and less than \$100,000	41	274	1,959,346	620,753
\$20,000 and less than \$100,000	63	1,806	3,542,137	2,284,668	\$100,000 and less than \$1,000,000	18	303	6,027,941	676,174
\$100,000 and less than \$1,000,000	57	5,372	11,226,123	7,067,102	\$1,000,000 and over	5	2,691	36,104,343	4,226,835
Per cent of total	100.0	100.0	100.0	100.0	Per cent of total	100.0	100.0	100.0	100.0
Less than \$5,000	11.4	0.4	0.4	0.4	Less than \$5,000	5.3	0.1	( <sup>a</sup> )	0.1
\$5,000 and less than \$20,000	20.0	3.0	2.6	2.7	\$5,000 and less than \$20,000	26.6	1.6	0.7	1.6
\$20,000 and less than \$100,000	36.0	24.3	23.3	23.5	\$20,000 and less than \$100,000	43.6	3.2	4.4	9.4
\$100,000 and less than \$1,000,000	32.6	72.4	73.8	73.4	\$100,000 and less than \$1,000,000	19.1	9.1	13.6	12.3
Average per establishment		42	\$86,918	\$55,037	\$1,000,000 and over	5.3	80.9	81.3	76.6
<b>Leather, tanned, curried, and finished, 1909.</b>	<b>132</b>	<b>10,252</b>	<b>\$40,002,079</b>	<b>\$11,236,571</b>	Average per establishment		35	\$472,372	\$58,690
Less than \$5,000	9	20	22,640	14,116	<b>Woolen, worsted, and felt goods, and wool hats, 1909.</b>	<b>183</b>	<b>53,873</b>	<b>\$141,966,882</b>	<b>\$53,990,551</b>
\$5,000 and less than \$20,000	19	164	216,426	140,389	Less than \$5,000	4	8	13,475	9,578
\$20,000 and less than \$100,000	45	1,251	2,135,768	1,198,880	\$5,000 and less than \$20,000	6	83	68,288	53,195
\$100,000 and less than \$1,000,000	52	4,226	19,349,210	6,109,076	\$20,000 and less than \$100,000	33	1,340	2,035,947	895,843
\$1,000,000 and over	7	4,591	18,278,035	4,774,110	\$100,000 and less than \$1,000,000	116	18,034	43,146,440	14,992,501
Per cent of total	100.0	100.0	100.0	100.0	\$1,000,000 and over	24	34,408	96,702,732	38,039,494
Less than \$5,000	6.8	0.2	0.1	0.1	Per cent of total	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000	14.4	1.6	0.5	1.2	Less than \$5,000	2.2	( <sup>a</sup> )	( <sup>a</sup> )	( <sup>a</sup> )
\$20,000 and less than \$100,000	34.1	12.2	6.3	10.7	\$5,000 and less than \$20,000	3.3	0.2	( <sup>a</sup> )	0.1
\$100,000 and less than \$1,000,000	30.4	41.2	48.4	45.5	\$20,000 and less than \$100,000	18.0	2.5	1.4	1.7
\$1,000,000 and over	5.3	44.8	45.7	42.5	\$100,000 and less than \$1,000,000	63.4	33.5	30.4	27.8
Average per establishment		77	\$303,046	\$85,126	\$1,000,000 and over	13.1	63.9	68.1	70.5
<b>Includes the group "\$1,000,000 and over."</b>					Average per establishment		294	\$775,775	\$206,030

<sup>a</sup> Includes the group "\$1,000,000 and over."

<sup>a</sup> Less than one-tenth of 1 per cent.

The preceding table shows that, in 1909, of the 11,684 establishments, only 293, or 2.5 per cent, had a value of products exceeding \$1,000,000. These establishments, however, employed an average of 277,208 wage earners, or 47.4 per cent of the total number in all establishments, and reported 48.3 per cent of the total value of products and 44.9 per cent of the total value added by manufacture.

On the other hand, the very small establishments—that is, those having a value of products of less than \$5,000—constituted a considerable proportion (23.6 per cent) of the total number of establishments, but the value of their products amounted to only one-half of 1 per cent of the total. The great bulk of the manufacturing was done in establishments having products valued at not less than \$100,000.

It will be seen from the preceding table that during the five years from 1904 to 1909 there was a considerable increase, as measured by value of products, in the relative importance of the largest establishments—those reporting products of not less than \$1,000,000 in value—and a decrease in that of all other classes.

The fact that the average value of products per establishment increased from \$104,830 to \$127,570, and the average value added by manufacture from \$46,413 to \$56,467, can not be taken as in itself indicating a tendency toward concentration. The increased values shown may be, and probably are, due in part to the increase that has taken place in the prices of commodities. The average number of wage earners per establishment increased from 46 in 1904 to 50 in 1909.

The preceding table shows further that among the industries given separately in the table the average value of products per establishment is highest in the cotton-goods, woolen and worsted goods, cordage and twine, slaughtering and meat-packing, and paper and wood-pulp industries, while the average is lowest in the bakery, lumber, printing and publishing, women's clothing, and men's clothing industries. The average value of products in the cotton mills was \$1,024,518 and in the bakeries, \$21,770.

In some respects, and especially from the standpoint of conditions under which persons engaged in manufactures work, the best classification of establishments to bring out the feature of size is a classification according to the number of wage earners employed. The following table shows, for 1909, such a classification for all industries combined and for 32 important industries individually, and gives not only the number of establishments in each group but also the average number of wage earners employed.

Of the 11,684 establishments reported for all industries, 8.1 per cent employed no wage earners; 41.1 per cent, from 1 to 5; 23.5 per cent, from 6 to 20; and 12 per cent, from 21 to 50. The most numerous single group consists of the 4,807 establishments employing from 1 to 5 wage earners each, and the next of the 2,741 establishments employing from 6 to 20. There were 471 establishments that employed over 250 wage earners; of these, 88 employed over 1,000, of which 39 were cotton mills, 8 boot and shoe factories, 8 woolen and worsted mills, and 7 foundries and machine shops.

INDUSTRY.	Total.	ESTABLISHMENTS EMPLOYING—								
		No wage earners.	1 to 5 wage earners.	6 to 20 wage earners.	21 to 50 wage earners.	51 to 100 wage earners.	101 to 250 wage earners.	251 to 500 wage earners.	501 to 1,000 wage earners.	Over 1,000 wage earners.
		NUMBER OF ESTABLISHMENTS.								
All industries.....	11,684	943	4,807	2,741	1,400	709	613	254	129	88
Automobiles, including bodies and parts.....	62	2	13	17	17	5	4	2	2	.....
Boots and shoes, including out stock and findings.....	800	20	191	219	154	78	95	72	22	8
Boots and shoes, rubber.....	3	1	1	1	1	1	1	1	1	3
Bread and other bakery products.....	1,201	123	868	176	20	6	5	2	1	.....
Carpets and rugs, other than rag.....	11	1	1	1	1	1	1	2	2	2
Cars and general shop construction and repairs by steam-railroad companies.....	21	.....	.....	2	7	5	2	2	2	1
Clothing, men's, including shirts.....	254	4	63	96	62	19	7	1	2	.....
Clothing, women's.....	174	1	21	65	56	23	7	1	.....	.....
Confectionery.....	117	5	43	36	10	8	10	3	2	.....
Cordage and twine and jute and linen goods.....	31	1	7	5	3	1	10	1	1	2
Cotton goods, including cotton small wares.....	182	.....	8	11	14	20	21	29	40	39
Cutlery and tools, not elsewhere specified.....	135	7	48	34	16	12	13	2	7	1
Electrical machinery, apparatus, and supplies.....	83	2	14	22	10	11	10	3	.....	2
Foundry and machine-shop products.....	897	33	279	233	155	84	40	10	7	7
Furniture and refrigerators.....	155	2	47	42	38	13	7	4	1	1
Gas, illuminating and heating.....	64	2	21	18	7	8	7	1	.....	.....
Hosiery and knit goods.....	65	3	12	10	17	10	6	3	2	2
Iron and steel, steel works and rolling mills.....	9	.....	.....	2	2	.....	.....	2	.....	1
Jewelry.....	175	7	31	39	42	37	18	1	.....	.....
Leather, tanned, curried, and finished.....	132	.....	20	28	40	23	15	.....	5	1
Liquors, malt.....	37	.....	2	6	14	13	2	.....	.....	.....
Lumber and timber products.....	708	18	364	207	83	26	10	.....	.....	.....
Marble and stone work.....	330	14	143	119	30	18	4	2	.....	.....
Musical instruments, pianos and organs and materials.....	59	4	13	8	8	9	13	4	.....	.....
Paper and wood pulp.....	88	.....	2	12	12	11	37	12	2	.....
Paper goods, not elsewhere specified.....	61	.....	16	17	7	6	12	2	.....	1
Patent medicines and compounds and druggists' preparations.....	154	47	74	17	12	3	1	.....	.....	.....
Printing and publishing.....	1,279	326	521	277	92	32	20	7	4	.....
Silk and silk goods, including throwsters.....	19	.....	1	2	6	1	1	1	1	1
Slaughtering and meat packing.....	94	2	52	30	3	2	1	2	1	1
Tobacco manufactures.....	417	98	242	54	12	6	3	1	1	.....
Woolen, worsted, and felt goods, and wool hats.....	183	1	5	8	31	37	60	26	7	8
All other industries.....	3,659	221	1,685	627	410	181	153	54	21	7

## MANUFACTURES—MASSACHUSETTS.

INDUSTRY.	ESTABLISHMENTS EMPLOYING—									
	Total.	No wage earners.	1 to 5 wage earners.	6 to 20 wage earners.	21 to 50 wage earners.	51 to 100 wage earners.	101 to 250 wage earners.	251 to 500 wage earners.	501 to 1,000 wage earners.	Over 1,000 wage earners.
AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	584,559		11,912	31,222	45,621	50,368	96,931	88,945	90,776	168,784
Automobiles, including bodies and parts.....	4,138		40	214	588	890	567	744	1,595	
Boots and shoes, including cut stock and findings.....	83,063		584	2,618	4,997	5,645	15,279	26,230	14,618	13,082
Boots and shoes, rubber.....	6,928						137	947	601	5,236
Bread and other bakery products.....	6,697		2,012	1,645	654	422	714	716	534	
Carpets and rugs, other than rag.....	5,954		3	13	45	80	168	747	1,644	3,254
Cars and general shop construction and repairs by steam-railroad companies.....	5,162			32	213	331	357	608	1,681	1,940
Clothing, men's, including shirts.....	7,335		192	1,120	1,897	1,327	1,190	364	1,245	
Clothing, women's.....	5,813		74	857	1,854	1,595	1,061	372		
Confectionery.....	5,548		106	421	380	591	1,516	925	1,600	
Cordage and twine and jute and linen goods.....	6,690		21	08	115	82	1,727	417	635	3,625
Cotton goods, including cotton small wares.....	108,914		25	134	488	1,431	3,519	11,184	29,019	63,114
Cutlery and tools, not elsewhere specified.....	6,747		125	371	495	805	1,993	648	1,180	1,070
Electrical machinery, apparatus, and supplies.....	14,507		40	271	664	841	1,754	1,070		9,867
Foundry and machine-shop products.....	44,179		811	2,589	5,163	5,936	8,025	3,109	4,989	13,557
Furniture and refrigerators.....	7,277		133	536	1,249	1,044	919	1,217	702	1,477
Gas, illuminating and heating.....	2,292		49	200	200	525	1,048	270		
Hosiery and knit goods.....	9,941		26	116	569	749	1,017	944	1,457	5,063
Iron and steel, steel works and rolling mills.....	3,115			26	49		254	554		2,232
Jewelry.....	7,423		81	439	1,395	2,619	2,605	284		
Leather, tanned, curried, and finished.....	10,252		60	350	1,356	1,652	2,385		3,128	1,321
Liquors, malt.....	1,739		3	74	502	876	284			
Lumber and timber products.....	8,676		883	2,351	2,639	1,735	1,338			
Marble and stone work.....	5,015		372	1,394	847	1,244	631	527		
Musical instruments, pianos and organs and materials.....	4,245		31	105	248	674	1,067	1,220		
Paper and wood pulp.....	12,848		9	158	390	867	6,379	3,652	1,383	
Paper goods, not elsewhere specified.....	5,135		36	200	236	469	1,912	613		1,600
Patent medicines and compounds and druggists' preparations.....	1,183		140	161	406	252	224			
Printing and publishing.....	17,532		1,371	3,019	2,890	2,273	2,989	2,426	2,558	
Silk and silk goods, including throwsters.....	4,109		1	33	240	67	899	384	585	1,910
Slaughtering and meat packing.....	3,325		132	274	83	145	196	568	912	1,015
Tobacco manufactures.....	3,551		507	531	347	433	600	407	726	
Woolen, worsted, and felt goods, and wool hats.....	53,873		17	121	1,117	2,687	9,698	9,033	5,420	25,780
All other industries.....	111,053		4,028	10,744	13,305	12,525	23,579	18,755	14,555	13,562
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	100.0		2.0	5.3	7.8	8.6	16.6	15.2	15.5	28.9
Automobiles, including bodies and parts.....	100.0		1.0	5.2	14.2	9.4	13.7	18.0	38.5	
Boots and shoes, including cut stock and findings.....	100.0		0.7	3.2	6.0	6.5	18.4	31.6	17.6	15.8
Boots and shoes, rubber.....	100.0			0.1			2.0	13.7	8.7	76.6
Bread and other bakery products.....	100.0		30.0	24.6	9.8	6.3	10.7	10.7	8.0	
Carpets and rugs, other than rag.....	100.0		0.1	0.2	0.8	1.3	2.8	12.5	27.6	54.7
Cars and general shop construction and repairs by steam-railroad companies.....	100.0			0.6	4.1	6.4	6.9	11.8	32.6	37.6
Clothing, men's, including shirts.....	100.0		2.6	15.3	25.9	18.1	16.2	5.0	17.0	
Clothing, women's.....	100.0		1.3	14.7	31.9	27.4	18.3	6.4		
Confectionery.....	100.0		1.9	7.6	6.8	10.7	27.3	16.7	29.0	
Cordage and twine and jute and linen goods.....	100.0		0.3	1.0	1.7	1.2	25.8	6.2	9.5	54.2
Cotton goods, including cotton small wares.....	100.0		(1)	0.1	0.4	1.2	3.2	10.3	26.6	57.9
Cutlery and tools, not elsewhere specified.....	100.0		1.9	5.5	7.3	12.8	29.5	9.6	17.5	15.9
Electrical machinery, apparatus, and supplies.....	100.0		0.3	1.9	4.6	5.8	12.1	7.4		68.0
Foundry and machine-shop products.....	100.0		1.8	5.9	11.7	13.4	18.2	7.0	11.3	30.7
Furniture and refrigerators.....	100.0		1.8	7.4	17.2	14.3	12.6	16.7	9.6	20.3
Gas, illuminating and heating.....	100.0		2.1	8.7	8.7	22.9	45.7	11.8		
Hosiery and knit goods.....	100.0		0.3	1.2	5.7	7.5	10.2	9.5	14.7	50.9
Iron and steel, steel works and rolling mills.....	100.0			0.8	1.6		8.2	17.8		71.7
Jewelry.....	100.0		1.1	5.9	18.8	35.3	35.1	3.8		
Leather, tanned, curried, and finished.....	100.0		0.6	3.4	13.2	16.1	23.3		30.5	12.9
Liquors, malt.....	100.0		0.2	4.3	28.9	50.4	16.3			
Lumber and timber products.....	100.0		9.8	26.5	29.4	19.3	14.9			
Marble and stone work.....	100.0		7.4	27.8	16.9	24.8	12.6	10.5		
Musical instruments, pianos and organs and materials.....	100.0		0.7	2.5	5.8	15.9	45.3	28.7		
Paper and wood pulp.....	100.0		0.1	1.2	3.0	6.7	49.6	28.5	10.8	
Paper goods, not elsewhere specified.....	100.0		0.7	3.9	4.6	9.1	37.2	11.9		32.5
Patent medicines and compounds and druggists' preparations.....	100.0		11.8	13.6	34.3	21.3	18.9			
Printing and publishing.....	100.0		7.8	17.2	16.5	13.0	17.0	13.8	14.6	
Silk and silk goods, including throwsters.....	100.0		(1)	0.8	5.8	1.4	21.9	9.3	14.2	46.5
Slaughtering and meat packing.....	100.0		4.0	8.2	2.5	4.4	5.9	17.1	27.4	30.5
Tobacco manufactures.....	100.0		14.3	15.0	9.8	12.2	16.9	11.5	20.4	
Woolen, worsted, and felt goods, and wool hats.....	100.0		(1)	0.2	2.1	5.0	18.0	16.8	10.1	47.9
All other industries.....	100.0		3.6	9.7	12.0	11.3	21.2	16.9	13.1	12.2

<sup>1</sup> Less than one-tenth of 1 per cent.

Of the total number of wage earners, 59.6 per cent were in establishments employing over 250 wage earners. The single group having the largest number of wage earners was the group comprising the establishments employing over 1,000 wage earners. This group employed 168,784 wage earners, or 28.9 per cent of the total. With the exception of the breweries, marble

and stone work, patent medicines, and tobacco manufactures, the 10 individual industries listed in this table but not in the preceding one are industries in which establishments employing more than 100 wage earners did most of the business, as appears from the classification according to the number of wage earners employed.

Expenses.—As stated in the Introduction, the census does not purport to furnish figures that can be used for determining the cost of manufacture and profits. Facts of interest can, however, be brought out concerning the relative importance of the different classes of expenses which make up the total. The following table shows, for 1909, in percentages, the distribution of expenses among the classes indicated for all industries combined and for certain important industries separately. The figures on which the percentages are based appear in Table II, page 532.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
All industries.....	4.8	22.8	62.9	9.5
Automobiles, including bodies and parts.....	5.0	28.4	55.8	10.8
Boots and shoes, including out stock and findings.....	3.0	21.1	70.1	5.8
Boots and shoes, rubber.....	3.3	22.0	69.4	5.3
Bread and other bakery products.....	4.0	10.0	68.5	10.8
Carpets and rugs, other than rag.....	4.2	24.7	67.0	4.2
Cars and general shop construction and repairs by steam-railroad companies.....	3.1	44.5	51.3	1.2
Clothing, men's, including shirts.....	4.2	20.8	59.8	15.2
Clothing, women's.....	0.3	23.0	62.8	7.2
Confectionery.....	8.0	13.0	67.2	11.3
Cordage and twine and jute and linen goods.....	3.2	16.0	72.5	7.0
Cotton goods, including cotton small wares.....	2.1	27.4	68.9	9.7
Cutlery and tools, not elsewhere specified.....	8.0	38.0	36.2	10.3
Electrical machinery, apparatus, and supplies.....	0.4	31.4	48.0	10.0
Foundry and machine-shop products.....	8.7	30.0	42.2	12.6
Furniture and refrigerators.....	5.8	34.4	50.1	9.7
Gas, illuminating and heating.....	7.5	17.7	54.0	20.8
Hosiery and knit goods.....	4.2	31.4	56.7	7.7
Iron and steel, steel works and rolling mills.....	2.0	15.1	76.4	5.7
Jewelry.....	0.0	35.0	44.2	11.7
Leather, tanned, curried, and finished.....	2.5	14.5	70.8	6.1
Liquors, malt.....	7.2	14.7	35.0	42.0
Lumber and timber products.....	3.0	24.0	61.8	9.4
Marble and stone work.....	5.3	52.8	32.0	9.3
Musical instruments, pianos and organs and materials.....	7.2	32.1	49.0	10.7
Paper and wood pulp.....	4.9	18.0	64.5	11.8
Paper goods, not elsewhere specified.....	0.5	10.0	63.1	10.0
Patent medicines and compounds and druggists' preparations.....	10.2	8.0	42.0	38.0
Printing and publishing.....	14.8	28.5	31.5	25.2
Silk and silk goods, including throwsters.....	2.4	22.1	65.1	10.4
Slaughtering and meat packing.....	1.2	4.4	92.3	2.2
Tobacco manufactures.....	4.4	36.0	42.0	16.4
Woolen, worsted, and felt goods, and wool hats.....	2.4	10.0	71.2	6.5
All other industries.....	0.2	20.3	62.2	11.2

This table shows that, for all industries combined, 62.9 per cent of the total expenses were incurred for materials, 27.6 per cent for services—that is, salaries and wages—and but 9.5 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries. The largest proportions for the various items of expense in the industries shown separately are as follows: For salaries, 14.8 per cent in printing and publishing; for wages, 52.8 per cent in marble and stone work; for materials, 92.3 per cent in slaughtering and meat packing; and for miscellaneous expenses, which include internal-revenue taxes, 42.6 per cent in the breweries.

Engines and power.—The next table shows, for all industries combined, the number of engines or other motors, according to their character, employed in generating power (including electric motors operated by purchased current), and their total horsepower at

the censuses of 1909, 1904, and 1899. It also shows separately the number and horsepower of electric motors, including those operated by current generated in the manufacturing establishments.

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899 <sup>1</sup>	1909	1904	1899 <sup>1</sup>	1909	1904	1899
Primary power, total.....	19,279	8,449	8,996	1,175,071	938,007	796,061	100.0	100.0	100.0
Owned.....	8,485	8,440	8,000	1,040,438	885,369	764,067	88.5	94.4	96.0
Steam.....	5,784	5,855	0,430	834,701	690,467	570,525	71.0	73.0	72.4
Gas.....	896	654	468	18,326	7,487	4,074	1.6	0.8	0.5
Water wheels.....	1,750	1,808	2,080	185,990	183,135	181,907	15.8	19.5	22.8
Water motors.....	55	72	( <sup>2</sup> )	520	292	( <sup>2</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>2</sup> )
Other.....	.....	.....	.....	895	3,088	1,561	0.1	0.4	0.2
Rented.....	10,794	( <sup>2</sup> )	( <sup>2</sup> )	134,633	52,638	31,994	11.5	5.6	4.0
Electric.....	10,794	( <sup>2</sup> )	( <sup>2</sup> )	109,990	27,073	13,409	9.4	2.9	1.7
Other.....	.....	.....	.....	24,637	25,565	18,585	2.1	2.7	2.3
Electric motors.....	29,344	3,697	823	402,492	91,012	32,828	100.0	100.0	100.0
Run by current generated by establishment.....	18,550	3,697	823	292,496	63,930	19,419	72.7	70.3	59.2
Run by rented power.....	10,794	( <sup>2</sup> )	( <sup>2</sup> )	109,996	27,073	13,409	27.3	29.7	40.8

<sup>1</sup> Includes the neighborhood industries and hand trades, omitted in 1904 and 1909.  
<sup>2</sup> Not reported.  
<sup>3</sup> Less than one-tenth of 1 per cent.

The table indicates that the total primary horsepower increased 141,946, or 17.8 per cent, from 1899 to 1904 and 237,064, or 25.3 per cent, from 1904 to 1909. The greater part of this increase was in owned steam and rented electric power. In 1909, as in 1904, steam power formed the major part of the total power reported, but notwithstanding an increase during the five-year period of 144,234 horsepower, the proportion which this kind of power formed of the total primary power decreased from 73.6 per cent in 1904 to 71 per cent in 1909. The more general use of gas engines in recent years is shown, 896 such engines with an indicated capacity of 18,326 horsepower being reported in 1909, as against 654 engines with a capacity of 7,487 horsepower in 1904 and 468 engines with a capacity of 4,074 horsepower in 1899. The figures also show that the practice of renting electric power is increasing rapidly, 9.4 per cent of the total power being of this character in 1909, as compared with 2.9 per cent in 1904 and 1.7 per cent in 1899. The use of electric motors for the purpose of applying the power generated within the manufacturing establishments is rapidly becoming more common, the horsepower of such motors having increased from 19,419 in 1899 to 63,930 in 1904 and 292,496 in 1909.

Fuel.—Closely related to the question of the kind of power employed is that of the fuel consumed in generating this power, or otherwise used as material in the manufacturing processes. The next table shows the quantity of each kind of fuel used in 1909 for all industries combined and for certain selected industries.



INDUSTRY.	Anthracite coal (tons).	Bituminous coal (tons).	Coke (tons).	Wood (cords).	Oil, including gasoline (barrels).	Gas (1,000 feet).	INDUSTRY.	Anthracite coal (tons).	Bituminous coal (tons).	Coke (tons).	Wood (cords).	Oil, including gasoline (barrels).	Gas (1,000 feet).
All industries.....	801,158	5,872,727	207,953	126,958	811,658	774,436	Gas, illuminating and heating.	109,399	290,835	58,940	3	484,513	.....
Automobiles, including bodies and parts.....	2,561	7,411	75	12	154	7,302	Hosiery and knit goods.....	3,212	35,190	785	.....	22	1,040
Boots and shoes, including cutstock and findings.....	4,134	96,144	1,895	364	622	5,309	Iron and steel, steel works and rolling mills.....	1,801	155,952	2,231	335	140,432	645
Boots and shoes, rubber.....	5,055	31,719	.....	.....	468	.....	Jewelry.....	510	9,012	555	7	660	15,997
Bread and other bakery products.....	25,382	12,304	23,556	7,844	264	45,239	Leather, tanned, curried, and finished.....	17,226	114,138	236	261	304	472
Carpets and rugs, other than rag.....	1,140	56,952	.....	.....	.....	727	Liquors, malt.....	11,750	63,729	752	200	18	154
Cars and general shop construction and repairs by steam-railroad companies.....	146	45,753	7,719	208	.....	.....	Lumber and timber products.....	1,650	10,628	620	2,335	2,058	5,438
Clothing, men's, including shirts.....	452	7,692	.....	5	25	14,820	Marble and stone work.....	1,836	43,997	115	13	1,388	4,843
Clothing, women's.....	380	1,122	5	6	42	8,600	Musical instruments, pianos and organs and materials.....	1,652	17,852	678	515	64	779
Confectionery.....	4,507	13,807	987	61	17	12,777	Paper and wood pulp.....	60,131	465,347	.....	4,769	19	.....
Cordage and twine and jute and linen goods.....	2,633	40,425	.....	59	2,031	812	Paper goods, not elsewhere specified.....	1,656	26,312	5,264	3	16	572
Cotton goods, including cotton small wares.....	166,788	918,635	924	530	4,823	31,855	Patent medicines and compounds and druggists' preparations.....	841	2,587	15	82	81	2,931
Cutlery and tools, not elsewhere specified.....	5,924	22,993	943	517	23,190	2,610	Printing and publishing.....	9,408	22,959	131	125	221	88,614
Electrical machinery, apparatus, and supplies.....	7,946	103,916	4,154	40	27,066	241,011	Silk and silk goods, including throwsters.....	13	12,682	.....	160	.....	60
Foundry and machine-shop products.....	38,538	164,829	64,674	3,761	36,168	94,106	Slaughtering and meat packing.....	34,007	12,584	103	2,320	13	1,583
Furniture and refrigerators.....	4,856	15,854	1,002	10,557	121	3,862	Tobacco manufactures.....	905	474	14	38	11	3,592
							Woolen, worsted, and felt goods, and wool hats.....	43,709	1,390,218	253	1,260	1,636	3,536
							All other industries.....	321,834	1,658,671	31,327	90,678	85,202	177,151

NOTE.—In addition, there were 14,063 tons of other varieties of fuel reported.

### SUPPLEMENTARY DATA REGARDING IMPORTANT INDUSTRIES.

(With statistics for laundries and custom sawmills and gristmills.)

For certain industries the Census Bureau collects, by means of special schedules, details regarding the quantity and cost of materials and the quantity and value of products and other information for securing which no provision is made on the general schedule. Data of this character for eight important industries in Massachusetts are here presented.

Textiles.—The next two tables display the relative importance of each of the important textile industries in Massachusetts as measured by value of products, and exhibit the progress of the textile industries by showing the number of the principal machines used in the combined industries and for each of the several

branches separately. In both tables figures are given for the years 1909, 1904, and 1899.

INDUSTRY.	VALUE OF PRODUCTS.		
	1909	1904	1899
Total.....	\$387,063,000	\$275,858,000	\$220,634,000
Cotton goods, including cotton small wares.....	186,462,000	130,069,000	111,125,000
Woolen, worsted, and felt goods, and wool hats.....	141,907,000	109,314,000	74,075,000
Cordage and twine and jute and linen goods.....	10,632,000	15,523,000	12,250,000
Hosiery and knit goods.....	14,736,000	10,095,000	6,641,000
Carpets and rugs, other than rag.....	12,812,000	9,714,000	6,966,000
Silk and silk goods, including throwsters.....	8,942,000	7,012,000	5,958,000
Hats, fur-felt.....	3,746,000	2,316,000	2,631,000
Shoddy.....	1,766,000	1,815,000	988,000

<sup>1</sup> Excluding statistics for two establishments engaged in the manufacture of wool hats, to avoid disclosure of individual operations.

MACHINE.	Census.	Total.	Carpets and rugs, other than rag.	Cordage and twine and jute and linen goods.	Cotton goods, including cotton small wares.	Hosiery and knit goods.	Shoddy	Silk and silk goods, including throwsters.	Woolen, worsted, and felt goods, and wool hats.
Producing spindles.....	1809	10,874,515	53,244	59,037	9,377,984	163,248	.....	99,699	1,121,203
	1904	8,596,637	42,464	43,052	8,411,249	124,580	.....	57,419	917,873
	1899	8,794,923	39,388	( <sup>1</sup> )	7,784,687	102,362	.....	68,058	799,898
Looms.....	1909	263,929	1,778	( <sup>2</sup> )	234,249	.....	.....	2,717	25,185
	1904	223,757	1,367	( <sup>2</sup> )	200,192	.....	.....	1,610	20,588
	1899	200,368	1,223	( <sup>2</sup> )	179,582	.....	.....	1,040	18,523
Knitting machines.....	1909	7,741	.....	.....	.....	7,741	.....	( <sup>1</sup> )	.....
	1904	6,728	.....	.....	.....	6,715	.....	13	.....
	1899	5,034	.....	.....	.....	5,003	.....	31	.....
Woolen cards (sets).....	1909	1,721	80	.....	.....	36	202	.....	1,403
	1904	1,882	80	.....	.....	39	176	.....	1,587
	1899	1,691	66	.....	.....	39	58	.....	1,628
Wool-combing machines.....	1909	703	40	.....	.....	.....	.....	.....	657
	1904	497	47	.....	.....	.....	.....	.....	450
	1899	424	47	.....	.....	.....	.....	.....	377

<sup>1</sup> Figures not available.

<sup>2</sup> Not reported.

The total number of producing spindles shows an increase from 1904 to 1909 of 1,277,878, or 13.3 per cent; that of looms an increase of 40,172, or 18 per cent; that of knitting machines an increase of 1,013, or 15.1 per cent; and that of wool-combing machines an increase of 206, or 41.4 per cent. The number of sets

of woolen cards decreased 161, or 8.6 per cent. The absolute and relative gains in the number of producing spindles and looms from 1904 to 1909 were much greater than those from 1899 to 1904. From 1899 to 1904 the increases were 801,714, or 9.1 per cent, and 23,389, or 11.7 per cent, respectively. Not-



withstanding these decided increases, and the fact that more of these two classes of machines are reported from Massachusetts than from any other state in the Union, the number of each class used in the state has formed a smaller proportion of the corresponding total for the United States at each census since 1899. The proportions for producing spindles were 36.8 per cent in 1899, 33.4 per cent in 1904, and 32.1 per cent in 1909, the corresponding percentages for looms being 35, 32.1, and 32, respectively.

The cotton mills reported by far the largest number of spindles and looms, 9,377,984 and 234,249, respectively. These figures represent increases over 1904 of 966,735, or 11.5 per cent, in the number of spindles and 34,057, or 17 per cent, in the number of looms. About one-eighth as many spindles and about one-ninth as many looms were used in the woolen and worsted mills during 1909 as in the cotton mills, the increase in the number of spindles during the five-year period being 203,430, or 22.2 per cent, and that in the number of looms being 4,597, or 22.3 per cent. The number of spindles in the knitting mills increased during the period at a more rapid rate, 31 per cent, than those in either the cotton or the woolen and worsted mills.

**Cotton goods, including cotton small wares.**—Although the manufacture of cotton goods under the factory system in the United States began in Rhode Island in 1790, the introduction in 1814 of the power loom and at about the same time of the dressing machine in Waltham, Mass., marked the beginning of the real growth of the industry.<sup>1</sup>

The quantity and cost of the materials used during 1909, 1904, and 1899 are given in the next table.

The cotton consumed in this industry during 1909 amounted to 622,368,027 pounds, costing \$77,738,315, these figures representing increases since 1904 of 132,378,442 pounds, or 27 per cent, in quantity and of \$15,505,497, or 24.9 per cent, in cost. The aggregate quantity of yarn of all kinds purchased in 1909 was 29,079,341 pounds, costing \$12,405,031, compared with 19,497,310 pounds, costing \$6,003,657, in 1904, and 18,000,406 pounds, costing \$4,884,733, in 1899. Although the quantity of cotton yarn increased considerably during the later five-year period, silk and spun-silk yarns showed much greater relative gains. Of the total quantities of raw cotton and purchased cotton yarn consumed during 1909 in the cotton industry of the United States, the mills of Massachusetts used 26.6 per cent and 21.4 per cent, respectively. The corresponding proportions for 1904 were 26.1 per cent and 17.1 per cent, and for 1899, 30.9 per cent and 17.5 per cent, respectively. Cotton waste purchased increased 4,839,664 pounds, or 31.9 per cent, in quantity and \$103,279, or 10.4 per cent, in cost from 1904 to 1909.

MATERIAL.	1909	1904	1899
<b>Total cost.</b> .....	\$105,156,794	\$80,267,952	\$54,389,045
<b>Cotton:</b>			
Pounds.....	622,368,027	489,980,585	560,034,204
Cost.....	\$77,738,315	\$62,232,818	\$38,910,908
Domestic—			
Pounds.....	578,315,382	467,110,958	525,691,880
Cost.....	\$70,495,332	\$58,267,914	\$34,972,153
Foreign—			
Pounds.....	44,052,645	22,878,627	35,292,324
Cost.....	\$7,242,983	\$3,964,904	\$3,944,845
Cotton waste, purchased:			
Pounds.....	20,024,977	15,185,813	22,399,384
Cost.....	\$1,100,785	\$697,506	\$689,250
Yarns, purchased:			
Cotton—			
Pounds.....	27,175,076	18,048,019	16,537,770
Cost.....	\$8,270,665	\$4,907,050	\$3,502,765
Silk—			
Pounds.....	872,303	129,206	142,249
Cost.....	\$2,554,181	\$405,747	\$676,210
Spun-silk—			
Pounds.....	187,691	40,745	78,670
Cost.....	\$802,763	\$121,030	\$306,273
All other—			
Pounds.....	844,271	1,279,340	1,241,702
Cost.....	\$408,422	\$509,704	\$339,485
Starch.....	\$471,045	\$365,513	\$406,020
Chemicals and dyestuffs.....	\$1,609,008	\$1,697,580	\$2,358,277
Fuel and rent of heat and power.....	\$4,041,092	\$3,137,878	\$2,100,914
All other materials.....	\$7,790,618	\$5,842,991	\$4,942,844

The following table shows the quantity and value of the principal products of the cotton mills reported at the last three censuses:

PRODUCT.	1909	1904	1899
<b>Total value.</b> .....	\$189,462,313	\$130,068,982	\$111,125,175
<b>Plain cloths for printing or converting:</b>			
Square yards.....	1,054,755,770	840,308,546	927,405,189
Value.....	\$51,541,020	\$37,204,095	\$31,939,320
<b>Brown or bleached sheetings and shirtings:</b>			
Square yards.....	175,923,550	138,190,541	170,283,924
Value.....	\$11,480,548	\$8,180,188	\$9,255,612
<b>Twills and satens:</b>			
Square yards.....	159,658,540	130,315,041	80,608,240
Value.....	\$14,889,807	\$9,070,474	\$5,859,028
<b>Fancy woven fabrics:</b>			
Square yards.....	197,402,265	130,060,271	137,064,111
Value.....	\$22,378,381	\$12,388,041	\$10,905,087
<b>Ginghams:</b>			
Square yards.....	130,552,491	70,831,304	53,932,358
Value.....	\$10,763,018	\$5,708,934	\$9,949,351
<b>Ducks:</b>			
Square yards.....	29,109,491	14,480,473	17,003,657
Value.....	\$5,988,828	\$1,532,440	\$1,077,230
<b>Drills:</b>			
Square yards.....	17,088,244	9,238,069	20,476,203
Value.....	\$1,998,810	\$607,270	\$1,310,071
<b>Ticks, denims, and stripes:</b>			
Square yards.....	58,716,976	65,030,519	63,704,305
Value.....	\$9,897,895	\$9,460,567	\$5,890,680
<b>Napped fabrics:</b>			
Square yards.....	123,082,755	144,456,060	137,100,384
Value.....	\$9,470,477	\$11,620,551	\$9,828,653
<b>Corduroy, cotton velvet, and plush:</b>			
Square yards.....	6,109,288	4,149,010	1,087,697
Value.....	\$1,707,507	\$1,211,404	\$349,343
<b>Thread:</b>			
Pounds.....	6,593,210	4,717,974	3,390,883
Value.....	\$5,285,760	\$3,909,470	\$2,800,495
<b>Cotton yarns, for sale:</b>			
Pounds.....	108,930,800	83,390,133	87,656,177
Value.....	\$31,725,674	\$21,363,138	\$18,205,806
<b>Cotton waste, for sale:</b>			
Pounds.....	115,007,265	82,270,060	114,597,274
Value.....	\$4,650,374	\$3,814,247	\$2,013,069
<b>All other products.....</b>	\$7,687,615	\$6,325,664	\$7,454,624

Plain cloth for printing or converting was the main product in each of the three census years. During the five years from 1904 to 1909 the output of this product increased 208,447,224 square yards, or 24.6 per cent, and its value \$14,276,925, or 38.3 per cent, while the output of fancy woven fabrics, which ranked next in importance in 1909, increased 66,441,994 square yards, and its value \$9,989,440. Between 1899 and 1904, however, the quantities of both these classes of goods decreased. The largest relative gains in production during the later five-year period are shown for duck,

<sup>1</sup>Introduction and Early Progress of the Cotton Manufacture in the United States, by Samuel Batchelder, 1863, p. 70.

the quantity of which more than doubled, and for ginghams and drills, in the output of which there were increases of 97 per cent and 85 per cent, respectively.

With the exception of decreases in the quantity of ticks, denims, and stripes, and in the quantity and value of napped fabrics, each of the different classes of products shows substantial increases in both quantity and value from 1904 to 1909. It is significant, however, that in the case of most of the products the quantity did not increase relatively as much as the value, which fact is due principally to the general rise in prices and in part, perhaps, to the manufacture of higher grade fabrics in 1909 than in 1904.

To the extent that the cotton yarn and waste made in the state for sale were sold by the establishment producing them to other establishments in Massachusetts engaged in the cotton-goods industry, for use as material in their manufacturing processes, a duplication is involved in both the total cost of materials and the total value of products for the state.

Woolen, worsted, and felt goods, and wool hats.—This industry is second in importance among the textile industries of Massachusetts, and is also one of the oldest industries in the state. The manufacturing processes involved in the production of woolen and worsted goods in the United States were largely perfected in Massachusetts. As early as 1839 there were 144 mills in operation in the state, which gave employment to an average of 5,076 wage earners and turned out products valued at \$7,082,898.

The quantity and cost of the different kinds of materials reported for this industry in 1909, 1904, and 1899 are shown in the next table.

In 1909, 156,338,534 pounds of wool were consumed in this industry, compared with 127,507,629 pounds in 1904 and 104,935,180 pounds in 1899, these figures representing 32 per cent, 29.5 per cent, and 30.6 per cent, respectively, of all wool used in this class of mills in the United States in the years named. Although the major part of the wool consumed in each of the three years was domestic wool, the relative increase in foreign wool has been the more rapid, particularly for the later five-year period. The quantity of cotton used in the woolen and worsted mills decreased materially during the decade. A total of 29,947,889 pounds of purchased yarns were used in 1909, as compared with 18,806,047 pounds in 1904 and 15,015,933 pounds in 1899. Worsted yarn constituted 58.7 per cent of the quantity of all purchased yarns used in the industry in 1909, 42.5 per cent in 1904, and 45.6 per cent in 1899, both the quantity and value of this kind of yarn being more than two and one-half times as great in 1909 as in 1899. Cotton yarn shows an increase of 2,740,689 pounds in 1909 as compared with 1904. The quantity of woolen yarn reported in 1909 was comparatively insignificant, whereas 1,120,010 pounds were used in 1904. The consumption of shoddy decreased 4,711,410 pounds during the same period.

MATERIAL.	1909	1904	1899
Total cost.....	\$87,978,331	1 \$62,777,588	\$45,130,236
Wool:			
In condition purchased—			
Pounds.....	156,338,534	127,507,629	104,935,180
Cost.....	\$44,803,728	\$33,802,852	\$24,660,518
Foreign—			
Pounds.....	59,636,561	36,294,811	28,539,585
Cost.....	\$19,028,951	\$10,286,318	\$7,447,617
Domestic—			
Pounds.....	96,701,973	91,212,818	76,395,595
Cost.....	\$25,774,777	\$23,516,534	\$17,212,901
Equivalent in scoured condition, pounds.....	99,133,605	74,265,049	57,347,302
Cotton:			
Pounds.....	6,899,651	9,257,173	8,123,319
Cost.....	\$886,281	\$1,230,363	\$755,288
Domestic—			
Pounds.....	5,979,362	7,989,134	8,123,319
Cost.....	\$734,368	\$1,057,870	\$755,288
Egyptian and other foreign—			
Pounds.....	890,289	1,268,039	( <sup>1</sup> )
Cost.....	\$151,423	\$172,493	( <sup>2</sup> )
Buffalo, cow, mohair, and other animal hair:			
Pounds.....	3,612,888	4,004,693	3,681,611
Cost.....	\$1,058,176	\$1,124,049	\$833,767
Shoddy:			
Pounds.....	3,687,530	8,398,940	9,808,403
Cost.....	\$547,990	\$1,030,990	\$1,145,000
Waste and noils of wool, mohair, camel's hair, etc., purchased:			
Pounds.....	9,501,027	8,518,733	4,181,175
Cost.....	\$2,671,034	\$2,239,602	\$1,207,606
Tops, purchased:			
Pounds.....	5,045,551	2,990,927	1,576,891
Cost.....	\$3,466,257	\$1,605,067	\$702,140
Yarns, purchased:			
Pounds.....	29,947,889	18,806,047	15,015,933
Cost.....	\$20,937,624	\$10,381,470	\$8,285,677
Woolen—			
Pounds.....	53,324	1,120,010	1,427,101
Cost.....	\$30,522	\$537,560	\$609,772
Worsted—			
Pounds.....	17,569,506	7,988,800	6,849,748
Cost.....	\$16,905,864	\$6,627,945	\$5,943,303
Merino—			
Pounds.....	33,115	157,881	254,434
Cost.....	\$6,623	\$49,508	\$47,275
Cotton—			
Pounds.....	12,116,277	9,375,588	6,453,607
Cost.....	\$3,624,646	\$2,618,113	\$1,603,406
Silk—			
Pounds.....	30,529	57,979	1,454
Cost.....	\$126,330	\$250,677	\$3,715
Spun-silk—			
Pounds.....	74,332	88,694	19,321
Cost.....	\$240,174	\$295,374	\$69,574
Jute, ramie, or other vegetable fiber—			
Pounds.....	70,806	17,095	10,268
Cost.....	\$3,465	\$2,293	\$3,632
Hatters' fur, etc.:			
Pounds.....	62,940		
Cost.....	\$78,480		
Chemicals and dyestuffs.....	\$3,247,159	\$2,644,687	\$2,213,422
Fuel and rent of power.....	\$2,360,070	\$1,759,840	\$1,088,339
All other materials.....	\$7,917,982	\$6,959,168	\$4,178,473

<sup>1</sup> Excluding statistics for two establishments engaged in the manufacture of wool hats, to avoid disclosure of individual operations.

<sup>2</sup> Not reported separately.

The next table compares the quantity and value reported for the different kinds of products at the last three censuses.

The quantity of all-wool woven goods reported was 109,221,437 square yards in 1909, as compared with 85,615,420 in 1904 and 72,351,338 in 1899, the gain from 1904 to 1909 being 27.6 per cent, and that in the earlier five-year period 18.3 per cent. The most conspicuous features of the development of the industry in this state during the more recent five-year period are the remarkable increases in the quantities and values of worsted fabrics and the accompanying decreases in both quantity and value of woolen fabrics. The output of worsted coatings and suitings and worsted dress goods in 1909 was 78,242,027 square yards, constituting 71.6 per cent of the total output of all-wool woven goods, whereas in 1904 it was only 34,074,137 square yards, representing 39.8 per cent of the total, and in 1899, 36,167,802 square yards, forming 50 per cent of the total.

PRODUCT.	1909	1904	1899
Total value.....	\$141,966,882	\$99,313,895	\$74,075,300
All-wool woven goods:			
Square yards.....	109,221,437	85,615,420	72,351,338
Value.....	\$78,873,571	\$53,001,910	\$43,704,294
Woolen suitings for men's wear—			
Square yards.....	13,096,053	14,308,537	12,830,426
Value.....	\$9,156,405	\$9,887,650	\$8,275,730
Worsted coatings and suitings—			
Square yards.....	56,772,066	20,514,811	22,055,157
Value.....	\$48,051,832	\$22,480,282	\$18,080,753
Woolen overcoatings—			
Square yards.....	4,538,760	10,570,400	7,517,046
Value.....	\$3,048,648	\$7,328,883	\$6,032,733
Woolen dress goods—			
Square yards.....	11,731,023	24,017,024	12,600,040
Value.....	\$6,220,727	\$7,044,565	\$4,347,790
Worsted dress goods—			
Square yards.....	21,469,061	13,550,326	14,112,645
Value.....	\$10,856,014	\$4,977,318	\$4,442,385
Flannels for underwear—			
Square yards.....	506,182	1,240,300	2,210,563
Value.....	\$207,183	\$430,405	\$689,248
All other—			
Square yards.....	1,106,483	1,205,023	1,000,861
Value.....	\$732,702	\$537,708	\$410,655
Union or cotton-mixed woven goods:			
Square yards.....	10,236,836	13,401,009	13,706,236
Value.....	\$3,332,000	\$5,103,788	\$4,541,880
Unions, tweeds, etc.—			
Square yards.....	4,837,123	7,130,838	3,840,310
Value.....	\$1,031,000	\$2,888,540	\$1,535,204
Overcoatings—			
Square yards.....	1,241,172	1,360,028	1,430,836
Value.....	\$678,010	\$853,993	\$715,543
Sackings, tricots, etc.—			
Square yards.....	326,735	1,005,107	4,583,862
Value.....	\$228,258	\$893,693	\$1,400,142
All other—			
Square yards.....	3,831,806	2,007,026	3,833,228
Value.....	\$794,610	\$557,562	\$801,000
Goods woven on cotton warp:			
Square yards.....	104,303,227	87,766,935	55,244,610
Value.....	\$24,858,337	\$21,834,123	\$13,377,088
Wool-filling cassimeres—			
Square yards.....	13,793,980	11,005,728	7,416,602
Value.....	\$4,220,707	\$3,660,593	\$2,508,525
Worsted-filling cassimeres—			
Square yards.....	6,936,133	2,880,672	2,574,582
Value.....	\$3,132,020	\$1,038,335	\$1,370,428
Wool-filling overcoatings and cloak-			
ings—			
Square yards.....	1,550,017	3,870,781	1,055,861
Value.....	\$448,905	\$917,463	\$224,270
Satinets and linseys—			
Square yards.....	4,120,737	17,550,146	10,320,148
Value.....	\$600,202	\$3,213,400	\$2,237,905
Worsted-filling dress goods—			
Square yards.....	51,588,003	34,083,350	21,704,250
Value.....	\$10,140,751	\$3,280,010	\$4,128,150
Domestic flannels and shirtings—			
Square yards.....	794,709	1,710,840	167,000
Value.....	\$130,005	\$420,274	\$182,700
Blankets and carriage robes—			
Square yards.....	2,060,734	3,086,020	2,188,007
Value.....	\$350,051	\$853,219	\$460,948
All other—			
Square yards.....	13,440,824	12,000,480	9,721,170
Value.....	\$5,803,107	\$3,443,861	\$2,255,093
Felt goods:			
Felt cloths—			
Square yards.....	2,062,534	2,193,203	670,584
Value.....	\$480,838	\$1,062,421	\$100,840
Boot and shoe linings—			
Square yards.....	1,444,078	2,045,811	1,001,137
Value.....	\$400,015	\$701,101	\$500,738
All other.....	\$1,500,746	\$882,381	\$681,563
Wool-felt hats:			
Dozens.....	148,457		247,103
Value.....	\$941,502		\$939,298
Yarns, for sale:			
Woolen, all wool—			
Pounds.....	920,184	1,333,033	1,110,332
Value.....	\$383,327	\$600,541	\$483,861
Woolen or worsted, union or			
marine—			
Pounds.....	1,283,261	743,771	1,075,700
Value.....	\$1,043,693	\$408,056	\$789,744
Worsted yarn and tops—			
Pounds.....	26,180,428	15,430,810	8,878,568
Value.....	\$22,227,154	\$10,119,400	\$5,020,268
Mohair and other yarns—			
Pounds.....	651,206	868,437	445,016
Value.....	\$484,856	\$584,483	\$302,809
Waste, for sale:			
Pounds.....	6,476,430	4,802,626	1,576,293
Value.....	\$711,520	\$744,742	\$244,702
Noils, for sale:			
Pounds.....	10,894,622	4,835,934	4,880,617
Value.....	\$3,576,221	\$1,443,455	\$1,282,138
All other products.....	\$1,607,049	\$1,466,108	\$1,025,185
Work on materials for others.....	\$1,445,454	\$482,326	\$391,703

one-fifth of the worsted dress goods manufactured in the United States in 1909.

The output of goods woven on cotton warps was 104,303,227 square yards in 1909, compared with 87,766,935 square yards in 1904 and 55,244,610 square yards in 1899, these figures representing 49.6 per cent, 48.2 per cent, and 36.1 per cent, respectively, of the total quantities of such fabrics manufactured in all woolen and worsted mills of the Union in the years named. Worsted-filling dress goods constituted the most important class of cotton-warp goods at each of the three censuses. In the quantity of satinets and linseys a marked decrease is shown, from 17,559,146 square yards in 1904 to 4,120,737 square yards in 1909.

The growth of the worsted branch of the industry is further indicated by the increases throughout the 10-year period in the quantity of worsted yarn manufactured for sale. The production of worsted yarn and tops for sale in 1909 was 26,180,428 pounds, which was 10,749,618 pounds, or 69.7 per cent, more than in 1904, and 17,301,860 pounds, or 194.9 per cent, more than in 1899. To the extent that the yarns, waste, and noils manufactured for sale were sold by the establishments in the state producing them to other establishments in the state engaged in the same industry, for use as materials in their manufacturing processes, a duplication is involved in both the total cost of materials and value of products for the industry.

Hosiery and knit goods.—Measured by value of products, this is the fourth of the textile industries in Massachusetts, where the industry in the United States had its beginning. The only stocking factory in the United States in 1831 was located at Newburyport. In 1837, however, an establishment for the manufacture of knit hose and shirts was started at Lowell.<sup>1</sup> In 1859 there were 15 knitting mills in operation in the state, and the value of their products was \$314,000.

The first statement on the following page shows the quantity and cost of the different kinds of materials used in 1909, 1904, and 1899.

The principal material used was raw cotton, the cost of which formed over one-fourth of the total cost of all materials used during each of the three census years. The cost of cotton yarn formed about the same proportion of the total, although the quantity used was only about two-fifths as great as that of raw cotton in 1909, less than one-third as great in 1904, and less than one-fourth as great in 1899. From 1904 to 1909 there was an increase in the amount of each kind of yarn consumed, except worsted yarn, which also decreased in value. The quantity of cotton yarn nearly doubled during the five years, while the value increased 74.6 per cent. The largest relative gain is shown for merino yarn. Shoddy decreased in both quantity and value, and wool waste and noils decreased in quantity only.

<sup>1</sup> Statistics of Manufactures, Massachusetts Bureau of Statistics of Labor, 1898, p. 225.

<sup>1</sup> Excluding statistics for two establishments engaged in the manufacture of wool hats, to avoid disclosure of individual operations.

The mills of Massachusetts produced nearly one-half of the worsted coatings and suitings and over

MATERIAL.	1909	1904	1899
Total cost.....	\$6,971,606	\$5,020,770	\$2,916,612
Cotton:			
Pounds.....	16,459,053	12,043,679	10,915,958
Cost.....	\$1,912,046	\$1,445,852	\$781,259
Domestic—			
Pounds.....	16,034,818	12,380,800	10,915,958
Cost.....	\$1,843,846	\$1,400,173	\$781,259
Foreign—			
Pounds.....	424,235	262,879	(1)
Cost.....	\$68,200	\$45,679	(1)
Shoddy:			
Pounds.....	289,443	284,974	65,075
Cost.....	\$34,382	\$40,993	\$9,797
Wool waste and noils:			
Pounds.....	271,388	301,545	204,756
Cost.....	\$107,839	\$99,908	\$68,796
Yarns, purchased:			
Pounds.....	8,295,153	4,635,801	3,226,950
Cost.....	\$3,359,779	\$1,966,254	\$1,196,713
Cotton—			
Pounds.....	6,963,775	3,711,210	2,610,885
Cost.....	\$1,771,206	\$1,014,714	\$628,635
Woolen—			
Pounds.....	113,368	80,380	128,631
Cost.....	\$87,798	\$57,192	\$63,321
Worsted—			
Pounds.....	619,140	736,826	411,468
Cost.....	\$638,014	\$672,606	\$380,425
Silk and spun-silk—			
Pounds.....	124,715	53,679	80,684
Cost.....	\$369,777	\$181,278	\$95,860
Merino—			
Pounds.....	466,747	53,706	44,604
Cost.....	\$475,769	\$40,464	\$27,794
All other—			
Pounds.....	7,408	.....	678
Cost.....	\$17,215	.....	\$678
Chemicals and dyestuffs.....	\$242,632	\$155,410	\$121,525
Fuel and rent of power.....	\$174,846	\$140,226	\$71,836
All other materials.....	\$1,140,082	\$1,172,118	\$669,688

<sup>1</sup> Foreign cotton included with domestic.

The quantity and value of the different products reported at the last three censuses are shown in the following statement:

PRODUCT.	1909	1904	1899
Total value.....	\$14,736,025	\$10,084,897	\$6,640,936
Half hose and hose:			
Dozen pairs.....	4,506,960	2,790,860	2,363,872
Value.....	\$4,780,351	\$2,869,037	\$1,952,320
Shirts and drawers:			
Dozens.....	1,067,482	1,253,170	996,144
Value.....	\$6,080,517	\$4,268,233	\$3,133,037
Combination suits:			
Dozens.....	183,175	123,144	44,833
Value.....	\$2,011,791	\$1,172,512	\$367,936
Gloves and mittens:			
Dozen pairs.....	27,829	52,840	51,440
Value.....	\$51,156	\$108,991	\$110,449
Cardigan jackets, sweaters, etc.:			
Dozens.....	40,544	15,023	7,476
Value.....	\$718,562	\$300,699	\$110,756
All other products.....	\$1,093,648	\$1,375,225	\$960,438

With the exception of gloves and mittens, each kind of products shown separately increased in quantity and in value both from 1904 to 1909 and from 1899 to 1904. The chief class of products in point of value at each census was shirts and drawers, the aggregate output of which was 1,667,482 dozens, valued at \$6,080,517, in 1909, representing an increase of 33.1 per cent in number and 42.5 per cent in value during the five years. From 1899 to 1904 the relative increases were somewhat smaller. The output of hose and half hose, the product next in importance, amounted to 4,506,960 dozen pairs, valued at \$4,780,351, in 1909, an increase of 1,716,100 dozen pairs, or 61.5 per cent, in number, and of \$1,911,314, or 66.6 per cent, in value, since 1904. During the preceding five years the output of hose and half hose increased 18.1 per cent and their value 47 per cent. Combination suits show large gains in both

quantity and value for the decade as a whole and for each of the five-year periods. Cardigan jackets, sweaters, etc., however, show larger relative increases from 1904 to 1909 in both number and value than any other class of products.

Other textile industries.—The manufacture of cordage and twine and jute and linen goods ranked third among the textile industries of the state in 1909, as measured by value of products; that of carpets and rugs, other than rag, fifth; that of silk and silk goods, including the operations of throwsters, sixth; that of fur-felt hats, seventh; and that of shoddy, eighth. A detailed statement of the materials and products for these industries can not be shown without disclosing the operations of individual establishments. However, the principal products of the carpet factories were Wilton, Axminster, and Brussels carpets; of the silk mills, plain and fancy silk-mixed broad silks; and of the shoddy mills, shoddy and mungo, amounting to 11,661,993 pounds and valued at \$1,325,053. In the felt-hat factories 320,587 dozen fur-felt hats, valued at \$3,544,067, were made in 1909, an increase compared with 1904 of 85,795 dozens, or 36.5 per cent, in number, and of \$1,232,976, or 53.4 per cent, in value.

Boots and shoes.—The following statement shows the total number of pairs of the various kinds of boots, shoes, and slippers manufactured in Massachusetts during 1909, 1904, and 1899:

KIND.	NUMBER OF PAIRS.		
	1909	1904	1899
Boots and shoes.....	102,826,648	93,546,297	89,680,941
Men's.....	45,155,939	44,878,020	40,004,899
Boys' and youths'.....	9,019,124	8,439,461	10,685,620
Women's.....	36,775,432	28,190,958	24,500,767
Misses' and children's.....	11,873,153	12,036,958	14,509,745
Slippers.....	10,155,324	12,069,180	12,052,114
Men's, boys', and youths'.....	3,369,808	3,549,189	3,282,260
Women's, misses', and children's.....	6,785,516	8,519,971	8,769,854
Infants' shoes and slippers.....	3,610,576	(1)	(1)
All other kinds of footwear.....	1,411,378	1,044,410	999,490

<sup>1</sup> Not reported separately.

In 1909, 102,826,648 pairs of boots and shoes were produced in the factories of Massachusetts, or 41.5 per cent of the total number reported for the United States, as compared with 93,546,297 pairs, or 43.3 per cent of the total, in 1904, and 89,680,941 pairs, or 45.9 per cent of the total, in 1899. The total number of pairs of boots and shoes manufactured in the state increased 9,280,351, or 9.9 per cent, from 1904 to 1909, and 3,865,356, or 4.3 per cent, from 1899 to 1904.

Men's boots and shoes constituted the leading class of footwear manufactured, forming 43.9 per cent of the total number of boots and shoes in 1909, 48 per cent in 1904, and 44.6 per cent in 1899. Women's shoes, which were second in importance, have formed a larger proportion of the total number at each succeeding census, the percentage being 27.3 in 1899, 30.1 in 1904, and 35.8 in 1909. This class shows the largest relative increase during each five-year period and the largest absolute increase from 1904 to 1909. For

misses' and children's shoes decreases are shown, amounting to 163,805 pairs from 1904 to 1909, and 2,472,787 pairs from 1899 to 1904.

The number of pairs of slippers produced in 1909 was 10,155,324, a decrease of 1,913,836 pairs since 1904, when the number was about the same as in 1899. It is probable, however, that infants' shoes and slippers,

reported separately in 1909, were, to some extent, included with children's slippers in 1904 and 1899. Of the total output of slippers in the United States in 1909, about three-fifths were made in Massachusetts factories.

The following table shows a distribution of the various kinds of footwear produced in 1909 according to the methods employed in their manufacture:

KIND.	NUMBER OF PAIRS, BY METHOD OF MANUFACTURE.					
	Total.	Machine or hand welt.	Turned.	McKay.	Wooden-pegged.	Wire-screw or metal fastened.
Boots and shoes.....	102,826,648	41,486,895	9,615,918	38,947,521	4,109,749	8,666,565
Men's.....	45,155,030	27,994,422	384,108	8,106,707	2,950,357	5,720,345
Boys' and youths'.....	9,010,124	1,548,486	(1)	5,354,449	462,069	1,654,090
Women's.....	30,778,432	10,867,921	7,001,247	16,970,000	507,507	824,797
Misses' and children's.....	11,873,153	1,076,068	1,630,563	8,509,408	189,726	467,333
Slippers.....	10,155,324	565,673	5,276,409	4,185,149		
Men's, boys', and youths'.....	3,369,808	427,404	1,540,032	1,236,219		
Women's, misses', and children's.....	6,785,516	138,269	3,736,377	2,808,930	19,531	131,068
Infants' shoes and slippers.....	3,610,578	580,551	2,378,013	638,257		
All other kinds of footwear.....	1,411,378	435,007	830,216	139,314		

<sup>1</sup> Included with "All other kinds of footwear."

Of the boots and shoes manufactured in the state in 1909, 41,486,895 pairs, or 40.3 per cent, were machine or hand welt sewed; 38,947,521, or 37.9 per cent, McKay sewed; 9,615,918, or 9.4 per cent, turned; 8,666,565, or 8.4 per cent, wire-screw or metal fastened; and 4,109,749, or 4 per cent, wooden-pegged. These proportions differ somewhat from the corresponding figures for the United States, the differences being greatest in the case of the first two classes named, which represented 45.3 per cent and 32.6 per cent, respectively, of the total output for the country as a whole. The majority of the men's shoes were machine or hand welt sewed, while most of the boys' and youths', the women's, and the misses' and children's shoes were McKay sewed. More than half of the slippers produced were turned.

Printing and publishing.—Though the printing and publishing industry as a whole in Massachusetts shows considerable growth during the last five years when measured by the financial statistics, the number of newspapers and periodicals has decreased during the same period, while the aggregate circulation shows but little relative increase.

The following table shows the number of the different classes of newspapers and periodicals published in the state and their aggregate circulation per issue for 1909, 1904, and 1899:

PERIOD OF ISSUE.	NUMBER OF PUBLICATIONS.			AGGREGATE CIRCULATION PER ISSUE.		
	1909	1904	1899	1909	1904	1899
	Total.....	537	575	497	9,636,182	9,079,506
Daily.....	86	89	98	1,765,690	1,453,263	1,130,820
Sunday.....	15	16	11	1,122,049	926,441	(1)
Semiweekly and tri-weekly.....	8	5	7	23,225	38,025	32,350
Weekly.....	271	309	273	1,011,486	1,445,984	2,066,369
Monthly.....	107	117	85	2,789,665	4,374,209	2,257,142
Quarterly.....	31	27	15	1,401,844	445,581	363,096
All other classes.....	19	12	8	222,223	306,003	349,350

<sup>1</sup> Included in circulation of dailies.

From 1904 to 1909 the number of the three leading classes of publications decreased, although for two of these classes—the weeklies and the dailies—an increase in circulation is shown. The decrease in the number of monthlies was only 8.5 per cent, whereas their circulation decreased 36.2 per cent. The weeklies show the largest decrease in number, amounting to 38, or 12.3 per cent. The largest increase in circulation, 956,263, was reported for quarterly publications. In 1909, 14 of the 86 daily papers, with an aggregate circulation of 650,932, were morning papers.

Among the states, Massachusetts ranked sixteenth in 1909 in number of newspapers and periodicals and fifth in the circulation of such publications.

The following statement shows the number and circulation of the various classes of publications in English and in foreign languages, respectively, reported in 1909 and 1904:

PERIOD OF ISSUE.	Year.	TOTAL.		IN ENGLISH.		IN FOREIGN LANGUAGES.	
		Num-ber.	Aggregate circulation per issue.	Num-ber.	Aggregate circulation per issue.	Num-ber.	Aggregate circulation per issue.
		Daily and Sunday.....	1909 1904	101 105	2,887,730 2,379,704	96 102	2,871,539 2,368,472
Semiweekly and tri-weekly.....	1909 1904	8 5	23,225 38,025	3 2	0,725 32,325	5 3	13,500 5,700
Weekly.....	1909 1904	271 309	1,011,486 1,445,984	242 287	1,817,380 1,322,134	29 22	94,106 53,850
Monthly.....	1909 1904	101 115	2,744,183 4,277,957	101 115	2,744,183 4,277,957	(2) (2)	(2) (2)
All other classes.....	1909 1904	50 41	2,060,549 937,836	48 38	1,818,317 830,184	8 3	251,232 98,632

<sup>1</sup> Does not include monthly publications issued in foreign languages.  
<sup>2</sup> Included in "All other classes."

In 1909 and in 1904 the aggregate circulation of publications in foreign languages included under the head of "All other classes" was greater than that of all other groups of publications in foreign lan-

guages. Among the publications in foreign languages, all of the daily and Sunday papers in both years were printed in French; of the semiweeklies and triweeklies in 1909 one each was in Arabic, Finnish, German, Greek, and Lettish, and of those in 1904 two were in French and one in German. Of the weeklies published in foreign languages in 1909 two each were in Armenian and Finnish, seven in French, one each in French and English, Greek, Italian, Lithuanian, and Yiddish, six in German, three in Portuguese, and four in Swedish, while of those published in 1904 two each were in Armenian, Finnish, and Portuguese, five in French, one each in French and English and in Italian, six in German, and three in Swedish. In 1909 two each of the publications included under the head of "All other classes" were in German and Swedish, one each in Finnish and German, and two in French and English, while in 1904 one was in Armenian and two in German.

Of the total number of publications reported in 1909, 326, with an aggregate circulation of 3,341,597, were devoted to politics, news, and family reading; 55, with a circulation of 2,280,886, were religious in character; and 18, with a circulation of 1,207,930, were devoted to general literature. The circulation of the first two classes represented decided increases over the totals reported for 1904, whereas that of the third class was less than half as great as in 1904.

**Slaughtering and meat packing.**—The first census to show any slaughtering and meat-packing establishments in Massachusetts was that of 1859, when eight plants, with products valued at \$172,625, were reported. Since then the industry has developed rapidly.

The following table shows the quantities and values of the various products for 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
<b>Total value.....</b>	<b>\$44,402,972</b>	<b>\$38,012,208</b>	<b>\$32,343,950</b>
Beef, fresh:			
Pounds.....	34,589,397	40,510,084	17,960,150
Value.....	\$2,865,011	\$2,803,289	\$1,365,198
Beef, salted or cured:			
Pounds.....	4,745,224	2,294,090	1,116,500
Value.....	\$605,667	\$116,071	\$62,000
Veal, fresh:			
Pounds.....	8,317,482	6,601,707	5,173,540
Value.....	\$801,055	\$585,981	\$408,934
Mutton, fresh:			
Pounds.....	13,346,470	16,915,035	16,207,400
Value.....	\$1,538,054	\$1,502,370	\$1,311,978
Pork, fresh:			
Pounds.....	66,463,331	82,117,964	44,607,608
Value.....	\$7,966,169	\$7,314,614	\$3,526,589
Pork, salted or cured:			
Pounds.....	122,689,181	167,090,994	207,246,776
Value.....	\$15,044,381	\$14,414,435	\$16,613,348
Sausage, fresh or cured	\$4,228,821	\$2,349,245	\$2,384,979
Lard:			
Pounds.....	60,840,711	84,617,813	69,843,633
Value.....	\$7,169,116	\$6,393,846	\$4,280,098
Tallow, oleo stock, and stearin:			
Pounds.....	2,775,149	( <sup>1</sup> )	( <sup>1</sup> )
Value.....	\$172,280	( <sup>1</sup> )	( <sup>1</sup> )
Fertilizers and fertilizer materials:			
Tons.....	8,441	3,684	5,099
Value.....	\$229,019	\$88,632	\$88,810
Hides:			
Number.....	191,837	154,654	106,492
Pounds.....	4,672,435	6,149,456	2,659,300
Value.....	\$686,312	\$577,076	\$237,662
Pelts:			
Number.....	341,956	423,080	( <sup>1</sup> )
Value.....	\$190,214	\$144,222	( <sup>1</sup> )
Amount received for custom or contract work.....	\$85,582	\$24,524	\$13,983
All other products.....	\$2,841,301	\$1,697,903	\$2,050,371

<sup>1</sup> Figures not available.

The changes in this industry were due mainly to the fluctuations in the production of the two staple products, fresh beef and fresh pork. It will be noted that the quantity of fresh beef increased 22,549,934 pounds, or 125.6 per cent, from 1899 to 1904, but decreased 5,920,687 pounds, or 14.6 per cent, from 1904 to 1909. In the production of fresh pork there was an increase of 37,610,356 pounds, or 84.5 per cent, during the earlier five-year period, followed by a decline of 15,649,633 pounds, or 19.1 per cent, during the next five years. The output of mutton and lard, although showing substantial increases from 1899 to 1904, decreased from 1904 to 1909. The production of salted or cured pork, including hams, bacon, and shoulders, decreased during both five-year periods, while that of salted or cured beef, veal, and hides and the amount received for custom work increased during the 10 years.

In 1909, 62,900 beeves, 129,162 calves, 342,491 sheep, and 1,501,456 hogs were slaughtered in the wholesale establishments of the state, as compared with 68,103 beeves, 88,651 calves, 418,580 sheep, and 1,549,365 hogs in 1904.

**Paper and wood pulp.**—Of the 88 mills in the state engaged in this industry in 1909, 83 manufactured paper only, 4 made both paper and pulp, and 1 produced pulp only. The following table gives the quantity and cost of the materials used in the industry during 1909, 1904, and 1899:

MATERIAL.	1909	1904	1899
<b>Total cost.....</b>	<b>\$22,349,613</b>	<b>\$17,946,726</b>	<b>\$11,918,802</b>
Pulp wood.....	\$357,838	\$338,044	\$245,657
Wood pulp, purchased—			
Total tons.....	143,905	120,937	85,304
Total cost.....	\$6,762,838	\$5,048,871	\$3,278,705
Ground—			
Tons.....	12,191	14,980	21,033
Cost.....	\$277,421	\$302,997	\$400,299
Soda fiber—			
Tons.....	38,434	39,991	25,493
Cost.....	\$1,731,456	\$1,712,642	\$1,069,036
Sulphite fiber—			
Tons.....	91,103	63,313	36,912
Cost.....	\$4,654,074	\$2,908,563	\$1,709,804
Other chemical fiber—			
Tons.....	2,177	2,653	1,861
Cost.....	\$99,887	\$124,179	\$99,666
Rags, including cotton and flax waste and sweepings:			
Tons.....	93,558	99,468	86,715
Cost.....	\$4,859,930	\$4,837,815	\$3,306,699
Old and waste paper:			
Tons.....	106,216	60,424	42,866
Cost.....	\$1,861,709	\$1,009,927	\$815,272
Manila stock, including jute bagging, rope, waste, threads, etc.:			
Tons.....	17,515	14,339	10,955
Cost.....	\$660,065	\$437,761	\$236,238
Fuel and rent of power.....	\$2,331,897	\$1,815,681	\$1,254,211
All other materials.....	\$5,515,280	\$4,459,127	\$2,752,120

Although wood pulp purchased formed a larger proportion of the total tonnage reported than any other kind of material used, there has been a decided increase during each five-year period in the consumption of old and waste paper and manila stock. These, together with rags, including cotton and flax waste and sweepings, represent a very large proportion of the weight of all materials used. The tonnage of rags reported in 1909 was greater than in 1899 but less than in 1904, when 33.8 per cent of the total quantity of rags used in



the paper mills of the United States was reported from Massachusetts. In 1909, 26.2 per cent of the rags consumed in the industry throughout the country, 15 per cent of the manila stock, and 10.8 per cent of the old and waste paper were used by the mills of this state. The large amounts shown for "All other materials" includes the cost of such items as chemicals, sizing clay, freight, and mill supplies.

The following statement shows the quantity and value of the various products reported for the last three census years:

PRODUCT.	1909	1904	1899
Total value.....	\$40,006,713	\$32,012,247	\$22,141,461
Book, cover, plate, and coated paper:			
Tons.....	125,200	100,004	55,465
Value.....	\$10,500,994	\$8,070,720	\$4,405,334
Writing and other fine paper:			
Tons.....	89,595	80,775	68,055
Value.....	\$17,438,508	\$14,971,411	\$11,298,028
Wrapping paper:			
Tons.....	16,362	16,150	22,238
Value.....	\$1,000,385	\$1,417,915	\$1,441,201
Boards:			
Tons.....	53,233	27,020	17,238
Value.....	\$2,005,805	\$1,338,346	\$654,111
Building, roofing, sheathing, and asbestos paper:			
Tons.....	14,602	7,153	14,372
Value.....	\$1,870,079	\$917,682	\$615,038
All other products.....	\$6,320,822	\$5,287,173	\$3,337,059

Book paper and fine paper are the principal products of the Massachusetts paper mills. In 1909 the state contributed 18 per cent of the total quantity of book paper and 45.2 per cent of the total amount of writing and other fine paper produced in the United States. The corresponding proportions for fine paper in 1904 and 1899 were 55 per cent and 60.4 per cent, respectively. The production of wrapping paper decreased between 1899 and 1904, while that of boards increased steadily during the decade and the value of building, roofing, sheathing, and asbestos paper more than trebled.

The number and capacity of the paper machines, the number of digesters and grinders, and the total yearly capacity of the mills in pulp and in paper for 1909, 1904, and 1899 are shown in the following statement:

CLASS OF EQUIPMENT.	1909	1904	1899
Paper machines:			
Fourdriner, number.....	150	157	152
Capacity, tons, 24 hours.....	920	862	( <sup>1</sup> )
Cylinder, number.....	65	44	50
Capacity, tons, 24 hours.....	454	204	( <sup>1</sup> )
Digesters, number.....	17	17	21
Grinders, number.....	11	18	42
Yearly capacity of mills, tons of pulp.....	24,401	31,110	31,920
Yearly capacity of mills, tons of paper.....	410,530	331,680	283,576

<sup>1</sup> Not reported.

In general, the capacity for the production of pulp decreased during the decade from 1899 to 1909 considered as a whole, while the total equipment and capacity for the production of paper increased.

Leather, tanned, curried, and finished.—The quantity and cost of the different kinds of materials used in this industry during the last three census years are shown in the next table.

MATERIAL.	1909	1904	1899
Total cost.....	\$23,765,508	\$23,040,897	\$19,793,757
Hides (all kinds):			
Number.....	1,251,030	1,126,634	1,020,535
Cost.....	\$9,603,898	\$4,789,002	\$4,703,949
Skins:			
Calf and kip—			
Number.....	5,439,226	4,009,400	2,229,559
Cost.....	\$7,010,409	\$4,673,907	\$2,705,877
Goat—			
Dozens.....	524,966	624,427	810,427
Cost.....	\$3,935,024	\$3,987,947	\$4,708,971
Sheep—			
Dozens.....	727,557	702,428	627,454
Cost.....	\$3,277,748	\$3,188,877	\$2,299,309
All other—			
Number.....	223,752	56,890	47,946
Cost.....	\$129,705	\$36,632	\$41,963
Purchased rough leather used:			
Whole sides—			
Number.....	343,701	301,589	338,091
Cost.....	\$1,187,204	\$951,020	\$1,051,403
Grains—			
Sides.....	35,544	22,007	12,578
Cost.....	\$70,344	\$80,758	\$31,704
Splits—			
Number.....	814,985	813,640	1,550,723
Cost.....	\$504,223	\$723,547	\$1,050,070
All other.....	\$157,309	\$131,618	\$352,284
Fuel and rent of power.....	\$607,523	\$342,178	\$220,216
All other materials.....	\$4,283,121	\$4,128,511	\$2,021,411

<sup>1</sup> Cattle hides only.

<sup>2</sup> Includes some horsehides.

Calf and kip skins not only constitute the most important class of material, but show a greater increase during the decade than any other class. Hides and every kind of skins except goatskins, were used in larger quantities in 1909 than in 1904 or 1899. In 1909, 27.6 per cent of the calf and kip skins tanned in the United States were treated in the Massachusetts tanneries, while the proportion for cattle hides was 6.8 per cent.

The next table presents the quantity and value of the different products for this industry in 1909, 1904, and 1899.

Of the value of the main groups of products shown in the table on page 518, that of the three classes of upper leather was the largest in each year, although in 1904 that of tanned and finished calf and kip skins was almost as large. During each five-year period finished grain calf and kip skins show a greater absolute increase in value than any other class of products, but from 1904 to 1909 an almost equal gain took place in the value of patent and enameled shoe leather, due mainly to the decided increase in the demand for that class of leather on account of its improved quality and finish during recent years. Black tanned and finished goatskins decreased in number and value from 1904 to 1909, while the colored increased in both respects. The largest decrease in value during that period is shown for belting leather.

In 1909 the value of products of this industry in Massachusetts, \$40,002,079, represented 12.2 per cent of the total shown for the industry in the United States. The corresponding percentages for 1904 and 1899 were 13.2 and 12.8, respectively. Of the totals reported for the United States in 1909, the state contributed 55.1 per cent of the sides of patent and enameled shoe leather; 41.5 per cent of the tanned and finished sheepskins; 33.7 per cent of the finished



upper leather splits; 26.8 per cent of the colored tanned and finished goatskins; 25.8 per cent of the grain-finished calf and kip skins; and 19 per cent of the sides of grain, satin, and pebble upper leather.

The amount received for tanning, currying, or finishing for others more than doubled from 1899 to 1904 and nearly doubled from 1904 to 1909. The estimated value after treatment of the stock treated for others who were not tanners, curriers, or finishers was \$13,324,293 in 1909. If this amount be added to the total value of products, \$40,002,079, reported for the industry, and the amount received for work performed, \$4,769,157, be deducted, the result, \$48,557,215, fairly indicates the importance of the leather industry in the state.

PRODUCT.	1909	1904	1899
<b>Total value</b> .....	<b>\$40,002,079</b>	<b>\$33,352,999</b>	<b>\$26,067,714</b>
<b>Leather:</b>			
<b>Sole leather—</b>			
Sides.....	29,634	175,200	69,980
Value.....	\$185,317	\$229,236	\$207,500
<b>Upper leather, other than calf, kip, or colt skins—</b>			
Grain, satin, pebble, etc. (side leather)—			
Sides.....	1,509,748	1,881,547	1,859,287
Value.....	\$4,174,700	\$4,180,031	\$4,361,481
<b>Finished splits—</b>			
Number.....	2,742,777	2,357,182	3,581,012
Value.....	\$2,967,535	\$2,087,982	\$2,852,551
<b>Patent and enameled shoe leather—</b>			
Sides.....	1,490,165	506,450	18,050
Value.....	\$4,003,000	\$981,551	\$61,054
<b>Calf and kip skins, tanned and finished—</b>			
Grain-finished—			
Number.....	4,516,129	3,705,070	2,241,919
Value.....	\$9,793,257	\$6,569,889	\$4,009,820
All other—			
Number.....	941,642	336,260	6,335
Value.....	\$1,173,905	\$393,199	\$7,395
<b>Goatskins, tanned and finished—</b>			
Black—			
Number.....	3,810,919	4,972,847	5,001,784
Value.....	\$3,176,182	\$3,922,335	\$3,427,021
Colored—			
Number.....	2,026,482	1,906,108	3,954,334
Value.....	\$1,676,323	\$1,355,656	\$2,585,184
<b>Sheepskins, tanned and finished—</b>			
Number.....	8,162,771	6,892,980	8,590,563
Value.....	\$4,254,219	\$3,900,149	\$3,036,339
<b>Belting—</b>			
Sides.....	58,719	230,870	226,443
Value.....	\$370,605	\$1,350,481	\$945,723
Trunk, bag, and pocketbook.....	\$645,264	\$372,895	\$316,646
Leather sold in rough.....	\$442,439	\$179,152	\$283,434
All other.....	\$870,580	\$1,170,906	\$1,229,146
<b>All other products</b> .....	<b>\$1,499,596</b>	<b>\$2,851,199</b>	<b>\$992,728</b>
<b>Work on materials for others</b> .....	<b>\$4,769,157</b>	<b>\$2,728,340</b>	<b>\$1,081,183</b>

<sup>1</sup> Value of oak sole leather included in "All other products," to avoid disclosure of individual operations.

The next statement gives for 1909 and 1904 the quantity and estimated value after treatment of materials tanned, curried, or finished by the establishments engaged in this industry in Massachusetts, for others who were not tanners, curriers, or finishers.

The number both of hides and of skins tanned in 1909 for others who were not engaged in the industry

was less than half as great as in 1904. Increases from 1904 to 1909 are shown, however, in the numbers of sides, splits, and skins curried or finished.

KIND.	1909	1904
<b>Total estimated value of stock after treatment</b>	<b>\$13,324,293</b>	<b>\$10,091,036</b>
<b>Hides, tanned:</b>		
Number.....	90,591	218,377
Estimated value.....	\$647,084	\$1,332,870
<b>Skins tanned:</b>		
Number.....	1,315,017	3,459,516
Estimated value.....	\$761,784	\$1,808,914
<b>Curried or finished:</b>		
<b>Sides—</b>		
Number.....	<sup>1</sup> 1,115,217	1,070,337
Estimated value.....	\$4,312,216	\$2,701,279
<b>Splits—</b>		
Number.....	740,889	336,988
Estimated value.....	\$936,778	\$394,666
<b>Skins—</b>		
Number.....	9,818,397	6,290,135
Estimated value.....	\$6,660,431	\$3,863,407

<sup>1</sup> Includes 34,510 sides, valued at \$143,500, reported as 17,255 hides.

**Laundries.**—Statistics for steam laundries are not included in the general tables, or in the totals for manufacturing industries. In 1909 there were 280 such establishments in the state of Massachusetts, of which 53 were in Boston; 13 in Worcester; 12 in Springfield; 10 each in Fall River, Lynn, and New Bedford; 9 each in Lawrence and Lowell; 7 in Cambridge; 6 in Haverhill; and 5 each in Somerville and Taunton. No other city or town having more than 10,000 inhabitants reported as many as 5 laundries.

The following statement summarizes the statistics:

Number of establishments.....	280
Persons engaged in the industry.....	6,655
Proprietors and firm members.....	313
Salaried employees.....	384
Wage earners (average number).....	5,958
Primary horsepower.....	6,802
Capital.....	\$2,951,025
Expenses.....	4,745,135
Services.....	2,918,919
Materials.....	903,845
Miscellaneous.....	922,371
Amount received for work done.....	5,754,572

The most common form of ownership was the individual, with 168 establishments. The firm and corporate forms were represented by 67 and 44 establishments, respectively. Fifty-two establishments had receipts for the year's business of less than \$5,000; 139, receipts of \$5,000 but less than \$20,000; 82, receipts of \$20,000 but less than \$100,000; and 7, receipts of \$100,000 but less than \$1,000,000.

The number of wage earners employed each month and the percentage which this number represented of the greatest number employed in any month are shown in the next statement.

MONTH.	WAGE EARNERS.		MONTH.	WAGE EARNERS.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	5,671	91.0	July.....	6,226	99.0
February.....	5,668	90.9	August.....	6,136	98.4
March.....	5,677	91.0	September.....	6,235	100.0
April.....	5,734	92.0	October.....	6,113	98.0
May.....	5,839	93.6	November.....	6,066	97.3
June.....	6,039	96.9	December.....	6,096	97.8

The different kinds of primary power, the number of engines or motors, and the horsepower used in 1909 are shown in the following statement:

KIND.	Number of engines or motors.	Horsepower.
<b>Primary power, total.....</b>		<b>6,802</b>
<b>Owned:</b>		
Steam.....	209	5,514
Gas.....	7	78
Water wheels.....	2	110
<b>Rented:</b>		
Electric.....	110	660
Other.....		434

The kind and amount of fuel used are shown in the next statement.

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	7,051
Bituminous coal.....	Tons.....	37,423
Coke.....	Tons.....	2,211
Wood.....	Cords.....	167
Oil.....	Barrels.....	57
Gas.....	1,000 feet.....	30,462

Custom sawmills and gristmills.—Statistics for custom sawmills and gristmills are not included in the general tables or in the totals for manufacturing industries, but are presented in the following summary:

	Custom sawmills.	Custom gristmills.
Number of establishments.....	35	15
Persons engaged in the industry.....	92	26
Proprietors and firm members.....	40	16
Wage earners (average number).....	52	10
Primary horsepower.....	1,512	584
Capital.....	\$78,685	\$42,780
Expenses.....	29,614	88,574
Services.....	22,548	2,333
Materials.....	601	185,510
Miscellaneous.....	6,465	781
Value of products.....	47,754	199,381

<sup>1</sup> Includes estimate of all grain ground. A similar estimate of the value of the lumber sawed by custom sawmills is impracticable.

## MANUFACTURES—MASSACHUSETTS.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899.

THE STATE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>STATE—All industries.....</b>	1909	11,684	644,399	11,194	48,646	584,569	1,175,071	\$1,279,687	\$63,279	\$301,173	\$830,765	\$1,490,529	\$659,764
	1904	10,723	532,481	11,258	32,824	488,399	938,007	965,949	30,655	232,389	626,410	1,124,092	497,622
	1899	10,929	.....	.....	25,256	438,234	796,061	781,888	29,480	195,278	498,655	907,626	408,971
Agricultural implements.....	1909	5	401	2	53	346	487	605	63	188	267	647	360
	1904	9	452	7	27	418	888	732	36	213	252	654	402
	1899	9	356	9	35	312	752	706	45	160	216	536	319
Automobiles, including bodies and parts.....	1909	62	4,024	38	448	4,138	2,896	7,458	497	2,793	5,491	11,359	5,868
	1904	18	1,229	15	114	1,100	909	1,939	128	709	1,268	2,663	1,395
	1899	12	.....	.....	18	303	.....	476	24	188	307	760	462
Belting and hose, leather.....	1909	16	1,260	5	300	955	897	4,426	335	555	3,666	5,647	1,081
	1904	12	236	7	52	177	206	622	54	104	805	1,108	303
	1899	17	239	12	45	182	.....	564	59	113	765	1,158	393
Bicycles, motorcycles, and parts.....	1909	10	950	7	100	843	899	2,077	153	580	1,378	2,706	1,328
	1904	8	397	6	47	344	645	690	45	180	289	582	283
	1899	25	1,739	19	139	1,581	1,428	2,646	117	815	1,308	2,715	1,407
Blacking and cleansing and polishing preparations.....	1909	80	850	76	247	527	892	1,735	331	257	1,879	3,713	1,834
	1904	74	614	78	143	393	875	1,350	144	186	1,896	2,524	1,128
	1899	64	570	80	148	342	.....	1,473	159	132	830	1,769	699
Boots and shoes, including outstock and findings.....	1909	860	90,048	911	6,074	83,063	35,051	90,243	6,649	45,990	152,990	236,343	83,353
	1904	893	75,156	1,110	3,898	70,148	24,536	59,925	3,737	36,175	110,610	173,680	63,070
	1899	1,056	69,580	1,423	2,922	65,235	.....	45,546	2,815	30,302	94,049	141,239	47,190
Boots and shoes, rubber.....	1909	8	7,451	.....	523	6,928	8,330	15,692	507	3,376	10,640	18,722	8,082
	1904	7	7,971	2	295	7,674	8,987	14,845	287	3,754	13,178	39,035	25,867
	1899	6	5,403	.....	153	5,250	8,415	13,157	220	2,456	8,838	16,490	7,652
Boxes, fancy and paper.....	1909	99	4,209	76	295	3,838	2,370	2,939	351	1,557	2,719	5,758	3,039
	1904	88	3,347	87	234	3,026	1,870	2,095	227	1,059	1,602	3,636	2,024
	1899	95	4,153	112	151	3,890	.....	2,415	126	1,381	1,824	4,145	2,321
Brass and bronze products.....	1909	85	2,036	71	174	1,791	6,407	4,351	243	1,115	3,663	6,042	2,379
	1904	175	1,780	68	153	1,559	1,243	2,418	177	863	1,702	3,362	1,600
	1899	67	.....	.....	88	1,597	.....	2,365	102	895	2,536	4,005	1,469
Bread and other bakery products.....	1909	1,201	9,755	1,700	1,358	6,697	4,316	12,752	919	3,814	15,727	26,146	10,419
	1904	1,108	7,735	1,208	915	5,552	1,841	7,017	502	3,072	10,721	18,660	7,939
	1899	1,005	7,393	1,113	1,030	5,250	.....	6,316	668	2,538	8,347	15,421	7,074
Brick and tile.....	1909	52	1,104	53	60	991	2,967	1,476	67	509	330	1,243	913
	1904	64	1,208	63	47	1,098	3,745	2,461	41	466	330	1,171	841
	1899	81	1,591	108	54	1,429	3,858	2,319	44	622	400	1,468	1,068
Butter, cheese, and condensed milk.....	1909	24	95	18	21	56	318	115	7	29	548	664	116
	1904	36	123	12	47	64	354	211	9	41	779	877	98
	1899	50	141	18	24	99	449	324	13	62	1,025	1,198	173
Buttons.....	1909	12	728	9	60	650	898	1,044	83	301	409	978	569
	1904	12	858	12	30	816	554	740	54	318	226	804	578
	1899	13	803	12	19	772	463	626	31	276	238	681	443
Canning and preserving.....	1909	71	1,819	61	309	1,449	1,043	4,112	324	642	4,583	6,840	2,257
	1904	85	1,663	116	205	1,342	570	2,838	180	572	4,815	6,574	1,789
	1899	95	.....	.....	227	1,746	.....	2,309	187	623	4,599	6,334	1,735
Carpets and rugs, other than rag.....	1909	11	6,251	3	294	5,954	10,037	11,450	466	2,763	7,501	12,812	5,311
	1904	10	5,267	2	89	5,179	7,875	7,905	141	2,188	6,703	9,714	3,011
	1899	8	4,552	1	71	4,480	5,875	9,401	127	1,720	3,990	6,966	2,976
Carriages and wagons and materials.....	1909	177	1,857	205	113	1,539	2,038	2,824	109	986	1,282	3,185	1,903
	1904	305	3,040	369	141	2,530	2,807	4,494	133	1,541	2,030	4,922	2,832
	1899	349	.....	.....	154	3,271	.....	5,905	131	1,703	2,803	6,289	3,486
Cars and general shop construction and repairs by steam-railroad companies.....	1909	21	5,416	.....	254	5,162	5,697	5,109	240	3,447	3,976	7,804	3,828
	1904	22	4,202	.....	198	4,004	2,576	4,494	168	2,522	3,600	6,340	2,749
	1899	16	3,142	.....	111	3,031	1,583	3,056	104	1,823	1,753	3,712	1,959
Chemicals.....	1909	24	1,604	9	237	1,358	3,731	5,185	385	811	3,048	5,916	2,868
	1904	14	969	3	106	860	3,281	2,652	188	504	1,514	3,509	1,695
	1899	17	722	8	92	622	2,169	1,877	133	339	1,081	2,011	630
Clothing, men's, including shirts.....	1909	254	8,208	310	554	7,335	1,753	8,242	682	3,398	9,756	18,314	8,558
	1904	187	6,175	283	629	5,263	1,354	6,325	613	2,311	8,076	14,913	6,637
	1899	217	.....	.....	373	5,195	.....	5,178	414	2,061	6,147	12,041	5,694
Clothing, women's.....	1909	174	6,086	210	663	5,813	1,024	4,223	658	2,446	6,511	11,728	5,217
	1904	142	5,186	188	305	4,603	736	2,766	314	1,742	4,789	8,696	3,907
	1899	119	3,742	159	140	3,443	539	1,617	145	1,083	2,795	5,202	2,407
Coffins, burial cases, and undertakers' goods.....	1909	12	460	7	69	384	733	968	103	231	444	941	497
	1904	14	425	15	55	355	473	854	47	199	370	905	616
	1899	15	352	15	53	284	.....	716	64	100	296	683	387
Confectionery.....	1909	117	6,398	95	755	5,548	4,278	7,371	1,090	1,860	9,189	15,266	6,077
	1904	93	4,664	91	407	4,167	2,085	3,747	425	1,362	5,508	9,318	3,810
	1899	71	.....	.....	277	2,572	.....	1,773	244	876	3,490	5,795	2,305
Cooperage and wooden goods, not elsewhere specified.....	1909	70	1,098	76	48	974	2,863	1,402	59	452	1,094	1,930	845
	1904	74	1,320	83	72	1,165	4,498	1,598	61	547	1,084	2,120	1,036
	1899	49	.....	.....	40	968	.....	975	42	442	734	1,543	809

1 Excluding statistics for one establishment, to avoid disclosure of individual operations.

MANUFACTURES—MASSACHUSETTS.

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TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

THE STATE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
STATE—Continued.													
Copper, tin, and sheet-iron products.....	1909	150	3,145	142	376	2,627	1,808	\$6,308	\$437	\$1,481	\$2,933	\$6,185	\$3,252
	1904	112	2,122	134	190	1,789	1,043	4,079	229	977	1,907	4,128	2,221
	1899	98			173	1,040		2,368	175	852	1,507	3,237	1,730
Cordage and twine and jute and linen goods.	1909	31	7,003	22	291	6,690	24,864	17,510	498	2,560	11,198	16,632	5,434
	1904	27	5,031	13	156	4,892	11,140	12,098	264	1,607	11,023	15,523	3,900
	1899	33	5,292	20	152	5,120		11,008	234	1,700	8,028	12,250	4,222
Corsets.....	1909	10	2,156	2	165	1,989	455	1,857	370	735	1,607	3,752	2,145
	1904	9	1,427	5	74	1,348	402	1,233	144	477	771	1,940	1,109
	1899	6			95	1,063		928	145	321	534	1,064	1,070
Cotton goods, including cotton small wares.	1909	182	110,686	43	1,729	108,014	302,043	214,017	3,450	45,117	105,157	186,462	81,305
	1904	161	90,239	47	1,552	88,040	290,244	174,552	2,714	32,555	80,268	130,069	40,801
	1899	177	93,667	48	1,101	92,513	276,101	166,280	2,046	32,479	54,398	111,125	50,730
Cutlery and tools, not elsewhere specified.	1909	135	7,432	101	584	6,747	13,293	12,410	830	3,738	3,484	11,611	8,127
	1904	136	5,714	133	355	5,226	11,275	9,476	473	2,769	2,573	8,233	5,000
	1899	139			237	4,081		7,012	322	2,080	1,048	6,266	4,308
Electrical machinery, apparatus, and supplies.	1909	83	10,725	34	2,184	14,507	14,835	32,001	2,458	8,209	12,735	28,143	15,408
	1904	72	9,706	37	871	8,798	9,341	12,735	963	5,003	7,324	16,882	8,558
	1899	54	5,801	34	505	5,202	3,008	8,200	557	2,714	5,250	10,490	5,240
Electroplating.....	1909	54	584	73	44	467	406	431	36	239	164	678	514
	1904	45	322	55	8	259	263	223	6	150	98	435	337
	1899	43			3	205		128	1	105	70	271	201
Emery and other abrasive wheels.....	1909	13	744	7	122	615	1,710	1,739	171	420	564	1,082	1,418
	1904	10	405	2	85	408	666	1,165	90	241	311	1,001	690
	1899	9	322	4	47	271		597	52	162	244	673	420
Fancy articles, not elsewhere specified..	1909	78	3,867	61	248	3,558	2,882	2,925	209	1,630	3,514	6,618	3,104
	1904	68	2,640	74	137	2,429	1,583	1,614	128	1,011	1,084	3,821	1,840
	1899	97	1,853	83	87	1,683		1,085	89	705	1,401	2,720	1,325
Firearms and ammunition.....	1909	8	2,483	5	151	2,327	3,059	4,313	224	1,458	752	3,408	2,056
	1904	1	2,020	10	117	2,790	12,848	3,431	166	1,662	858	4,011	3,153
	1899	10	1,091	10	78	1,603		1,933	81	863	510	1,928	1,418
Flour-mill and gristmill products.....	1909	120	437	151	57	229	5,042	2,222	35	120	4,131	4,632	501
	1904	142	499	181	41	277	9,363	1,881	25	154	4,113	4,618	565
	1899	140		52	52	278		1,689	32	182	4,497	5,363	800
Foundry and machine-shop products...	1909	857	40,393	643	4,571	44,179	52,802	103,052	6,439	27,032	31,182	86,926	55,744
	1904	777	39,570	708	3,018	35,844	43,038	78,022	4,121	20,834	24,426	63,750	39,324
	1899	921			2,435	35,850		60,528	3,203	19,870	24,734	63,514	38,780
Fur goods.....	1909	16	277	20	47	210	28	730	30	153	552	655	403
	1904	12	150	19	13	124	0	157	9	77	249	464	215
	1899	11			23	144		99	21	102	189	426	237
Furniture and refrigerators.....	1909	155	7,940	165	468	7,277	12,203	10,813	677	3,986	5,808	13,868	8,060
	1904	136	7,164	171	368	6,625	8,724	13,794	457	3,362	5,346	11,360	6,014
	1899	132	6,691	175	317	6,109		11,144	369	2,988	4,638	11,497	6,869
Gas and electric fixtures and lamps and reflectors.	1909	25	766	17	86	603	478	725	100	309	812	1,500	697
	1904	25	385	25	28	332	154	315	37	201	204	674	470
	1899	19	392	24	44	324		343	37	186	197	550	359
Gas, illuminating and heating.....	1909	64	2,800	3	505	2,292	7,371	52,984	520	1,260	3,810	11,074	7,264
	1904	64	2,225		378	1,847	5,444	33,174	425	1,091	3,097	8,036	4,939
	1899	68	1,843		494	1,409	4,212	30,033	420	813	1,652	5,869	4,217
Gold and silver, reducing and refining, not from the ore.	1909	8	100	0	13	78	88	566	21	57	1,103	1,350	250
	1904	6	32	8	4	20	136	143	4	13	270	344	65
	1899	4	15	7	1	7		44	2	5	25	44	10
Hats and caps, other than felt, straw, and wool.	1909	30	355	44	37	274	52	179	24	161	335	659	324
	1904	27	568	30	53	470	112	521	59	276	767	1,346	579
	1899	50	2,800	65	80	2,245		1,708	100	1,039	2,260	4,368	2,093
Hats, fur-felt.....	1909	11	2,341	10	107	2,224	1,149	2,202	147	990	1,932	3,746	1,814
	1904	6	1,654	9	60	1,586	1,180	1,845	93	627	1,125	2,310	1,191
	1899	11	1,895	18	54	1,823	855	1,408	56	791	1,390	2,631	1,241
Hats, straw.....	1909	18	2,811	19	124	2,668	1,099	2,573	306	1,448	3,680	6,589	2,900
	1904	15	1,815	17	76	1,722	629	1,544	91	826	2,004	3,326	1,322
	1899												
Hosiery and knit goods.....	1909	65	10,287	37	300	9,941	9,113	12,477	516	3,855	6,072	14,736	7,764
	1904	62	8,417	54	244	8,119	10,390	7,836	318	2,842	5,021	10,095	5,074
	1899	63	6,891	45	167	6,079	6,691	6,306	213	2,097	2,917	6,641	3,724
Iron and steel, steel works and rolling mills.	1909	9	3,465		350	3,115	24,600	14,194	375	1,977	10,032	13,568	3,536
	1904	5	4,939		395	4,544	28,210	14,348	365	2,593	6,002	11,948	5,040
	1899	7	6,192		93	6,099	28,965	13,600	155	3,402	7,491	13,412	5,921
Jewelry.....	1909	175	8,500	202	935	7,423	4,018	13,566	1,140	4,422	5,579	15,211	9,632
	1904	131	6,322	187	509	6,626	2,305	8,705	500	2,820	3,733	10,074	6,341
	1899	132			350	5,600		4,911	373	2,777	4,388	10,300	5,912

<sup>1</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.  
<sup>2</sup> Not reported separately.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

THE STATE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>STATE—Continued.</b>													
Lasts.....	1909	27	803	27	101	675	1,610	\$1,469	\$175	\$526	\$611	\$1,909	\$1,298
	1904	23	595	31	63	501	1,581	1,076	87	396	381	1,207	826
	1899	23	480	35	31	414		679	35	287	226	854	628
Leather goods.....	1909	119	2,106	124	272	1,710	684	2,371	306	859	2,387	4,373	1,986
	1904	88	1,772	100	175	1,497	655	1,832	164	606	1,699	3,246	1,547
	1899	66			123	1,215		1,369	123	549	1,337	2,535	1,198
Leather, tanned, curried, and finished..	1909	132	11,006	112	642	10,252	19,231	41,197	952	5,444	28,766	40,002	11,238
	1904	132	9,752	152	526	9,074	15,303	27,070	686	4,556	23,041	33,353	10,312
	1899	119	7,525	160	355	7,010	11,543	15,318	406	3,380	19,794	26,068	6,274
Lime.....	1909	9	588	2	29	557	589	1,307	32	304	337	804	527
	1904	8	242	6	16	220	112	245	14	110	202	401	199
	1899												
Liquors, distilled.....	1909	6	72	5	18	49	366	840	26	36	687	2,755	2,068
	1904	6	52	7	12	33	240	601	20	25	316	1,299	983
	1899	8	53	6	18	29	265	554	21	22	308	857	549
Liquors, malt.....	1909	37	2,091	8	344	1,739	9,917	20,288	724	1,481	3,593	12,724	9,131
	1904	37	1,872	18	329	1,525	7,841	23,293	639	1,323	3,244	11,081	7,837
	1899	40	1,988	15	322	1,651	6,719	18,137	639	1,340	2,843	11,256	8,413
Lumber and timber products.....	1909	708	10,478	793	709	8,976	44,784	17,552	795	5,031	12,484	23,026	10,542
	1904	618	9,836	772	563	8,501	37,851	13,714	583	4,501	11,195	20,308	9,113
	1899	603			422	8,063		11,003	392	3,761	8,646	16,294	7,648
Marble and stone work.....	1909	330	5,712	412	285	5,015	10,515	6,093	358	3,552	2,192	7,804	5,012
	1904	228	6,217	308	289	5,620	11,563	8,214	325	3,428	1,768	7,684	5,916
	1899	245			238	4,900		6,059	238	2,764	1,433	6,173	4,745
Mattresses and spring beds.....	1909	52	826	49	110	667	592	609	132	336	1,297	2,227	930
	1904	43	753	47	77	629	577	680	74	283	1,323	2,179	856
	1899	32			86	616		493	67	209	908	1,601	693
Millinery and lace goods.....	1909	79	2,004	82	236	1,686	391	1,585	265	607	2,282	3,977	1,695
	1904	51	2,754	66	185	2,503	372	1,506	199	1,047	2,850	4,797	1,947
	1899	25	1,067	33	41	993		706	42	481	1,024	1,819	795
Models and patterns, not including paper patterns.	1909	62	454	78	34	342	290	300	27	239	119	625	506
	1904	65	356	90	16	250	1,220	229	14	168	93	470	377
	1899	75	301	92	10	259		163	7	150	67	384	317
Musical instruments, pianos and organs and materials.	1909	59	4,681	33	403	4,245	4,454	11,632	600	2,668	4,149	9,106	4,957
	1904	55	4,500	37	292	4,171	3,381	8,306	429	2,488	3,114	8,279	5,105
	1899	61	3,433	57	201	3,175	2,757	7,007	318	1,903	2,302	6,172	3,870
Optical goods.....	1909	11	2,661	6	195	2,460	2,230	2,194	379	1,103	1,163	3,058	1,895
	1904	6	1,898	3	74	1,791	1,332	1,345	164	746	1,012	2,282	1,270
	1899	5			55	1,363		1,197	56	605	859	1,796	937
Paint and varnish.....	1909	41	672	24	220	428	1,819	2,195	286	251	2,075	3,469	1,394
	1904	33	580	25	109	446	1,536	1,858	152	237	1,630	2,574	944
	1899	44	542	37	117	388	1,657	1,659	147	208	1,607	2,607	900
Paper and wood pulp.....	1909	88	13,742	24	870	12,848	115,792	42,524	1,090	6,542	22,350	40,097	17,747
	1904	87	12,365	33	627	11,705	104,954	41,074	1,185	5,888	17,947	32,012	14,065
	1899	93	9,606	35	510	9,061	82,200	26,693	801	3,938	11,919	22,141	10,222
Paper goods, not elsewhere specified....	1909	61	5,710	24	551	5,135	6,776	12,963	704	2,344	7,436	13,533	6,097
	1904												
	1899	46	2,770	30	277	2,463		5,402	350	1,020	3,940	6,465	2,515
Patent medicines and compounds and druggists' preparations.	1909	154	1,805	109	513	1,183	1,370	5,293	652	566	2,727	7,432	4,705
	1904	134	1,698	115	387	1,196	1,148	5,115	471	542	3,266	8,035	4,769
	1899	121			352	1,427		3,266	358	475	2,178	6,591	4,413
Pottery, terra-cotta, and fire-clay products.	1909	20	541	9	67	465	932	1,167	76	256	179	644	465
	1904	25	644	22	55	567	1,216	1,592	61	294	175	718	543
	1899	29	682	26	72	584	1,209	1,628	60	262	188	713	535
Printing and publishing.....	1909	1,279	24,410	1,089	5,789	17,532	47,629	33,473	6,048	11,684	12,881	47,445	34,564
	1904	1,144	20,933	1,067	4,724	15,112	11,785	28,235	4,954	9,064	10,918	39,274	28,356
	1899	1,147	19,592	1,177	3,516	14,899		23,957	3,230	8,948	8,948	35,134	26,186
Screws, machine.....	1909	13	392	9	35	348	387	686	38	186	227	570	343
	1904	10	721	7	65	649	762	1,014	69	289	290	701	501
	1899	11	632	9	37	586		532	38	252	210	681	471
Sewing machines, cases, and attachments.	1909	6	981	3	109	869	1,364	2,101	170	533	550	1,543	989
	1904	6	864	3	134	727	993	3,459	212	473	503	1,351	1,348
	1899	9			52	742	1,594	3,373	113	483	639	1,700	1,061
Shoddy.....	1909	27	518	21	55	442	4,688	1,519	89	202	1,193	1,766	573
	1904	31	520	29	47	444	4,083	1,206	69	190	1,250	1,815	565
	1899	29	366	29	30	307		769	34	128	685	988	303
Silk and silk goods, including throwsters.	1909	19	4,308	24	175	4,109	5,305	7,801	201	1,840	5,430	8,942	3,512
	1904	18	3,387	10	126	3,261	4,221	5,523	142	1,162	4,157	7,012	2,855
	1899	20	3,277	11	156	3,110	4,331	5,650	227	1,110	3,824	5,958	2,134

1 Not reported separately.

2 Figures can not be shown without disclosing individual operations.

MANUFACTURES—MASSACHUSETTS.

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TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

THE STATE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
			Expressed in thousands.										
STATE—Continued.													
Silverware and plated ware.....	1909	21	2,734	11	258	2,465	2,113	\$6,818	\$382	\$1,725	\$2,728	\$6,530	\$3,811
	1904	26	2,152	20	190	1,942	1,766	4,060	288	1,150	2,115	4,897	2,782
	1899	17	1,398	16	159	1,223	.....	4,162	204	705	1,140	2,760	1,629
Slaughtering and meat packing.....	1909	94	3,832	87	420	3,325	4,844	15,547	488	1,837	38,886	44,403	5,517
	1904	80	3,520	81	412	3,027	3,390	12,983	402	1,595	33,881	38,012	4,131
	1899	43	3,148	48	226	2,874	.....	11,445	253	1,300	28,591	32,344	3,763
Stores and furnaces, including gas and oil stoves.	1909	21	1,911	5	203	1,703	1,804	3,324	317	1,239	1,070	3,542	2,468
	1904	19	1,733	7	168	1,558	1,232	2,910	249	1,024	1,661	3,724	2,093
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Surgical appliances and artificial limbs..	1909	23	301	26	48	227	337	458	39	125	484	846	362
	1904	22	200	28	25	147	114	125	10	75	75	241	166
	1899	27	188	33	13	142	.....	119	11	66	61	219	158
Tobacco manufactures.....	1909	417	4,258	458	240	3,551	251	3,720	304	2,506	2,921	7,888	4,967
	1904	348	4,131	392	164	3,575	28	2,342	200	2,492	2,492	6,578	4,086
	1899	331	3,255	370	133	2,752	25	2,369	154	1,750	1,011	5,298	3,397
Whips.....	1909	29	1,203	28	170	1,065	645	2,770	183	489	1,072	2,774	1,702
	1904	26	984	20	68	896	358	2,150	80	376	703	1,930	1,173
	1899	31	854	35	124	605	.....	1,108	152	292	719	1,651	932
Woolen, worsted, and felt goods, and wool hats.	1909	183	55,533	103	1,557	53,873	117,119	133,955	2,964	24,583	87,976	141,967	53,001
	1904	190	45,264	141	1,073	44,050	88,890	104,257	1,759	18,137	62,778	99,314	36,536
	1899	137	.....	.....	977	37,589	70,279	80,728	1,583	14,338	45,130	74,075	28,945
All other industries.....	1909	1,815	70,401	1,048	7,437	61,316	117,684	181,769	10,379	32,467	115,848	199,658	84,310
	1904	1,758	63,811	1,781	4,878	57,152	102,076	142,495	6,448	27,268	85,032	149,450	83,827
	1899	1,783	.....	.....	3,648	37,030	.....	106,063	4,605	17,765	70,558	115,193	44,635

CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES.

BOSTON—All industries.....	1909	3,155	85,158	2,373	12,648	69,637	68,419	\$175,182	\$15,641	\$39,910	\$124,577	\$237,457	\$112,880
	1904	2,747	71,421	2,833	9,428	59,160	.....	131,563	10,464	31,873	94,603	184,351	89,748
	1899	2,878	.....	.....	7,691	52,853	.....	130,143	8,180	28,209	82,295	162,705	80,470
Belting and hose, leather.....	1909	5	76	.....	30	40	43	412	37	35	513	608	185
	1904	5	68	5	21	42	.....	208	21	33	320	453	133
	1899	0	57	4	18	35	.....	171	22	23	186	318	132
Blackening and cleansing and polishing preparations.	1909	23	206	10	71	125	114	302	133	67	417	320	403
	1904	21	176	16	69	91	.....	379	82	52	519	377	358
	1899	21	343	24	84	235	.....	410	122	78	459	1,028	509
Boots and shoes, including out stock and findings.	1909	43	6,790	32	642	6,116	2,062	11,257	670	3,046	19,835	26,147	6,312
	1904	132	4,273	32	256	3,985	.....	4,440	204	1,601	8,049	11,411	3,365
	1899	40	3,011	47	213	2,751	.....	1,846	193	1,202	4,996	7,907	2,311
Boxes, fancy and paper.....	1909	21	1,040	18	67	904	414	488	62	302	558	1,213	655
	1904	22	882	15	48	819	.....	355	45	266	358	887	529
	1899	23	770	24	37	718	.....	202	34	232	250	687	437
Brass and bronze products.....	1909	33	407	32	42	333	244	348	50	224	363	800	443
	1904	33	484	35	45	404	.....	515	40	240	410	855	445
	1899	32	553	43	36	474	.....	686	34	249	366	821	455
Bread and other bakery products..	1909	285	2,758	308	456	1,999	0,663	3,543	335	1,068	4,825	8,109	3,284
	1904	269	1,898	287	310	1,301	.....	1,764	133	805	2,931	4,098	2,017
	1899	251	2,132	262	354	1,516	.....	1,661	160	778	2,602	4,567	1,965
Canning and preserving.....	1909	21	454	14	117	323	577	1,008	130	140	1,383	1,951	568
	1904	20	361	22	76	263	.....	786	58	117	1,378	1,622	544
	1899	29	.....	.....	109	303	.....	677	92	152	1,481	2,071	590
Carriages and wagons and materials...	1909	26	347	20	20	298	450	419	19	204	222	682	360
	1904	33	537	44	42	451	.....	775	48	297	317	874	557
	1899	56	.....	.....	37	595	.....	1,778	33	256	437	1,257	820
Cars and general shop construction and repairs by steam-railroad companies.	1909	0	1,224	.....	52	1,172	201	761	47	768	652	1,536	884
	1904	7	997	.....	53	944	.....	1,191	49	661	622	1,339	717
	1899	7	1,330	.....	52	1,278	.....	1,553	49	822	773	1,664	891
Clothing, men's, including shirts.....	1909	196	5,167	256	432	4,470	1,086	6,172	544	2,286	7,756	14,535	6,770
	1904	134	3,985	200	469	3,277	.....	4,669	488	1,577	6,235	11,580	5,345
	1899	156	.....	.....	276	2,747	.....	3,284	304	1,217	4,457	8,946	4,489
Clothing, women's.....	1909	122	4,101	147	414	3,540	491	2,400	383	1,649	4,306	7,842	3,536
	1904	99	3,112	133	246	2,733	.....	1,668	241	1,073	3,147	5,705	2,558
	1899	88	1,958	112	80	1,760	.....	731	85	625	1,764	3,258	1,494
Confectionery.....	1909	54	4,716	31	548	4,137	2,797	5,048	864	1,344	6,117	10,341	4,224
	1904	41	3,130	42	265	2,823	.....	2,371	257	852	3,738	6,210	2,472
	1899	37	.....	.....	157	1,845	.....	1,150	143	632	2,602	4,210	1,608
Copper, tin, and sheet-iron products....	1909	85	1,999	84	213	1,702	845	4,544	233	990	1,870	3,925	2,055
	1904	62	1,427	67	125	1,235	.....	3,617	165	663	1,351	2,878	1,527
	1899	61	.....	.....	109	1,052	.....	1,242	109	571	909	1,305	366

<sup>1</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.

<sup>2</sup> Not reported separately.

<sup>3</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.



## MANUFACTURES—MASSACHUSETTS.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.  
CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>BOSTON—Continued.</b>													
Cutlery and tools, not elsewhere specified.	1909	14	1,428	13	102	1,813	1,000	\$2,117	\$160	\$537	\$940	\$2,864	\$1,924
	1904	15	460	19	38	403	.....	565	50	218	391	965	574
	1899	16	237	18	18	201	.....	404	16	108	142	423	281
Electrical machinery, apparatus, and supplies.	1909	27	1,609	11	218	1,380	1,502	3,007	244	700	1,003	3,028	2,025
	1904	23	650	12	94	544	.....	1,310	108	289	393	1,127	734
	1899	23	689	16	92	581	.....	1,022	89	273	577	1,274	987
Foundry and machine-shop products.	1909	211	7,515	154	1,038	6,323	6,886	14,026	1,351	4,180	5,100	13,474	8,374
	1904	180	7,486	152	780	6,554	.....	12,057	1,002	4,088	5,147	13,336	8,189
	1899	240	.....	.....	710	6,552	.....	10,926	843	3,787	5,266	13,116	7,850
Furniture and refrigerators.	1909	64	1,134	74	117	943	822	1,115	133	617	1,159	2,654	1,495
	1904	60	1,309	65	122	1,181	.....	1,160	131	703	1,012	2,404	1,392
	1899	59	1,325	74	127	1,124	.....	1,388	146	667	1,063	3,072	2,009
Gas and electric fixtures and lamps and reflectors.	1909	16	231	12	41	178	131	231	46	133	212	464	252
	1904	18	248	13	19	211	.....	183	21	126	147	441	294
	1899	15	208	19	37	212	.....	274	32	181	144	424	280
Hosiery and knit goods.	1909	8	761	2	30	729	168	543	66	253	583	1,026	448
	1904	6	250	1	12	237	.....	144	20	76	147	298	151
	1899	9	466	5	19	442	.....	135	17	110	107	284	177
Jewelry.	1909	32	394	30	61	303	82	306	54	189	248	710	462
	1904	16	233	18	24	191	.....	279	28	106	175	456	281
	1899	16	232	20	16	190	.....	265	16	107	200	464	264
Leather goods.	1909	45	711	40	104	598	152	654	112	280	797	1,434	637
	1904	27	352	33	49	270	.....	324	35	137	349	734	385
	1899	20	.....	32	292	.....	.....	515	40	139	262	690	328
Liquors, malt.	1909	20	1,338	2	210	1,126	4,799	13,436	478	1,019	1,957	7,554	5,507
	1904	23	1,164	10	203	951	.....	14,400	409	844	1,827	6,715	4,838
	1899	25	1,493	5	227	1,261	.....	12,229	464	1,008	1,796	7,519	5,723
Lumber and timber products.	1909	67	1,214	66	114	1,034	3,295	1,500	132	727	1,538	3,027	1,489
	1904	62	1,182	73	78	1,031	.....	1,409	89	670	1,176	2,432	1,256
	1899	39	850	49	66	735	.....	1,558	76	428	1,198	2,105	907
Marble and stone work.	1909	31	649	28	40	581	1,146	905	77	459	453	1,152	669
	1904	17	513	21	37	455	.....	1,116	39	301	414	1,025	611
	1899	26	.....	44	650	.....	.....	1,405	45	416	430	1,107	767
Mattresses and spring beds.	1909	28	616	24	96	496	383	642	117	248	1,048	1,770	722
	1904	23	479	27	58	394	.....	365	59	185	992	1,545	553
	1899	17	445	18	67	360	.....	263	54	156	609	1,038	429
Millinery and lace goods.	1909	65	1,724	68	202	1,454	311	1,254	217	580	1,931	3,425	1,494
	1904	38	1,559	48	122	1,389	.....	707	110	520	1,376	2,439	1,063
	1899	18	370	21	30	319	.....	151	22	152	369	710	347
Musical instruments, pianos and organs and materials.	1909	21	1,575	11	154	1,410	917	5,497	264	958	1,408	3,428	1,000
	1904	21	1,626	13	127	1,486	.....	4,234	220	969	1,055	3,722	2,667
	1899	21	1,454	18	105	1,331	.....	4,183	169	903	939	2,830	1,900
Paint and varnish.	1909	12	249	4	103	142	484	750	139	80	617	1,065	448
	1904	11	159	8	52	99	.....	446	64	58	414	687	273
	1899	16	156	14	50	92	.....	445	58	52	440	719	279
Patent medicines and compounds and druggists' preparations.	1909	60	924	44	206	614	280	1,632	363	282	1,538	3,966	2,428
	1904	63	767	57	216	494	.....	1,704	257	218	2,125	3,946	1,821
	1899	68	.....	104	317	.....	.....	801	154	142	955	2,267	1,312
Printing and publishing.	1909	564	12,113	418	3,438	8,257	6,248	18,410	3,988	6,033	6,962	28,021	21,059
	1904	498	10,472	428	3,231	6,813	.....	14,559	3,398	4,402	5,286	22,435	17,149
	1899	518	9,957	514	2,311	7,132	.....	12,631	2,166	4,471	4,407	21,063	16,656
Slaughtering and meat packing.	1909	24	367	23	71	273	313	504	77	172	3,514	4,096	582
	1904	18	139	22	13	104	.....	243	17	67	1,996	2,300	304
	1899	12	69	17	6	40	.....	67	4	29	947	1,088	141
Tobacco manufactures.	1909	145	2,646	148	180	2,318	70	2,696	242	1,780	2,046	5,506	3,460
	1904	106	2,088	120	104	2,464	.....	1,442	145	1,706	1,799	4,593	2,794
	1899	107	1,993	130	83	1,780	.....	1,305	104	1,207	1,224	3,503	2,281
All other industries.	1909	772	18,666	736	2,950	14,971	23,293	60,156	3,844	8,500	42,646	70,288	27,642
	1904	744	18,295	780	1,994	15,521	.....	52,139	2,342	7,983	38,957	62,759	23,802
	1899	806	.....	1,919	13,861	.....	.....	64,606	2,285	7,116	39,938	61,623	21,685
<b>BROCKTON—All industries.</b>													
Blackening and cleansing and polishing preparations.	1909	196	16,291	176	1,378	14,737	9,773	\$18,978	\$1,696	\$9,122	\$28,565	\$45,972	\$17,407
	1904	201	15,007	228	890	13,889	.....	15,336	931	8,833	22,553	37,791	15,238
	1899	186	.....	604	10,296	.....	.....	9,635	639	5,775	15,333	24,855	9,522
Boots and shoes, including cut stock and findings.	1909	12	70	17	22	31	45	121	18	23	166	328	162
	1904	11	44	19	9	16	.....	87	6	11	98	188	90
	1899	4	23	6	1	16	.....	21	.....	6	29	75	46
Boxes, fancy and paper.	1909	75	13,570	54	1,022	12,503	6,802	14,117	1,296	7,751	25,384	39,293	13,000
	1904	82	13,034	80	631	12,273	.....	11,840	715	7,853	20,902	33,853	12,951
	1899	80	9,622	89	412	9,121	.....	7,032	482	5,129	14,138	22,068	7,930

<sup>1</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.

<sup>2</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.

MANUFACTURES—MASSACHUSETTS.

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TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>BROCKTON—Continued.</b>													
Bread and other bakery products.....	1909	11	295	10	62	223	198	\$388	\$55	\$120	\$453	\$892	\$430
	1904	13	104	15	3	86	.....	101	2	57	175	297	122
	1899	11	78	11	30	37	.....	47	16	24	82	190	108
Cutlery and tools, not elsewhere specified.	1909	8	119	6	11	102	90	142	17	85	47	204	157
	1904	8	66	11	5	50	.....	50	5	39	17	65	78
	1899	11	76	14	4	58	.....	60	3	37	28	115	87
Foundry and machine-shop products...	1909	9	196	10	24	162	278	345	20	110	110	391	275
	1904	10	173	15	22	136	.....	373	27	90	83	284	201
	1899	16	162	22	15	125	.....	280	16	87	56	250	194
Lasts.....	1909	6	212	8	34	170	313	416	44	124	183	539	356
	1904	5	176	5	24	147	.....	376	35	122	124	430	306
	1899	3	130	4	11	124	.....	253	15	88	90	202	202
Lumber and timber products.....	1909	6	116	5	9	102	495	300	10	63	194	340	146
	1904	4	69	3	5	61	.....	117	4	34	100	105	59
	1899	5	.....	.....	4	59	.....	70	2	30	65	119	54
Printing and publishing.....	1909	16	345	14	51	280	321	359	45	211	192	670	478
	1904	15	260	18	30	212	.....	237	21	156	158	484	326
	1899	9	97	11	8	78	.....	100	7	45	71	180	109
All other industries.....	1909	48	1,126	47	129	950	1,083	2,581	162	531	1,690	2,086	1,296
	1904	48	834	55	94	685	.....	1,941	100	382	753	1,601	938
	1899	43	.....	.....	106	498	.....	1,621	87	253	661	1,300	630
<b>CAMBRIDGE—All industries..</b>													
	1909	275	17,475	223	1,992	15,260	21,372	\$37,929	\$2,404	\$8,305	\$23,566	\$44,227	\$20,661
	1904	262	16,343	270	1,478	14,588	.....	32,200	1,713	7,494	25,117	42,407	17,200
	1899	243	.....	.....	1,033	11,070	.....	24,591	1,221	5,461	16,773	29,092	12,319
Bread and other bakery products.....	1909	40	1,042	37	204	801	862	4,230	149	440	1,961	2,962	1,001
	1904	36	1,115	41	103	881	.....	2,040	163	385	1,238	2,593	1,355
	1899	33	.....	.....	141	857	.....	1,965	215	285	1,253	2,391	1,138
Carriages and wagons and materials....	1909	4	71	4	10	57	49	67	9	34	30	105	66
	1904	12	140	15	4	121	.....	200	3	70	91	220	129
	1899	17	.....	.....	7	161	.....	244	6	94	104	275	171
Confectionery.....	1909	12	804	11	93	700	517	855	132	218	1,172	1,610	733
	1904	17	757	15	65	677	.....	617	73	197	943	1,634	691
	1899	11	.....	.....	56	418	.....	805	55	117	457	844	387
Copper, tin, and sheet-iron products....	1909	6	246	4	42	200	100	448	55	104	274	530	256
	1904	3	.....	.....	30	135	.....	270	32	72	185	374	182
	1899	5	.....	.....	19	263	.....	571	29	119	308	507	199
Foundry and machine-shop products...	1909	25	2,002	13	329	2,200	3,170	8,094	403	1,430	1,761	4,789	3,028
	1904	22	2,377	20	131	2,226	.....	5,008	290	1,395	2,294	4,644	2,650
	1899	23	.....	.....	119	1,002	.....	5,170	120	1,167	1,936	4,180	2,244
Furniture and refrigerators.....	1909	13	874	14	80	780	1,262	1,443	125	603	417	1,392	975
	1904	14	640	17	43	580	.....	912	57	416	264	1,006	742
	1899	10	480	14	31	435	.....	553	51	310	220	692	472
Lumber and timber products.....	1909	11	394	10	39	345	1,261	654	55	232	409	875	466
	1904	7	288	10	38	240	.....	424	36	170	397	715	318
	1899	16	121	6	8	107	.....	115	9	63	130	235	105
Marble and stone work.....	1909	12	338	7	29	302	887	442	41	242	183	605	422
	1904	9	385	14	19	352	.....	355	22	280	254	680	426
	1899	17	.....	.....	6	175	.....	273	9	124	154	366	212
Musical instruments, pianos and organs and materials.	1909	7	1,272	6	128	1,138	1,211	2,708	153	636	943	2,174	1,231
	1904	4	730	6	13	720	.....	632	16	298	308	848	450
	1899	6	769	7	20	733	.....	1,043	32	325	551	1,169	618
Patent medicine and compounds and druggists' preparations.	1909	5	144	2	40	102	102	215	34	60	120	264	144
	1904	4	.....	.....	9	145	.....	185	14	57	107	254	147
	1899	3	.....	.....	4	174	.....	236	5	44	125	205	80
Printing and publishing.....	1909	41	2,178	45	140	1,993	1,442	2,350	101	1,185	1,280	3,368	2,088
	1904	38	2,155	54	240	1,861	.....	3,850	280	1,028	1,644	4,009	2,365
	1899	31	2,039	45	230	1,764	.....	3,219	212	942	1,530	3,600	2,079
All other industries.....	1909	99	7,510	70	858	6,582	10,563	16,423	1,057	3,181	15,067	25,253	10,246
	1904	96	.....	.....	693	6,048	.....	17,065	808	3,126	17,302	25,130	7,828
	1899	91	.....	.....	383	4,081	.....	10,897	460	1,861	10,005	14,619	4,614
<b>FALL RIVER—All industries..</b>													
	1909	288	38,210	247	824	37,139	122,061	\$82,058	\$1,514	\$15,339	\$35,524	\$64,146	\$28,622
	1904	234	27,711	208	697	26,536	.....	69,375	1,142	10,099	28,098	43,473	17,377
	1899	240	.....	.....	512	30,646	.....	57,415	861	10,742	18,070	30,103	21,033
Bread and other bakery products.....	1909	74	318	74	27	217	19	184	13	127	470	796	317
	1904	55	220	58	6	162	.....	116	3	88	280	472	183
	1899	63	209	68	37	194	.....	127	10	97	313	555	242
Cordage and twine and jute and linen goods.	1909	5	71	5	1	65	150	336	(a)	10	63	102	39
	1904	5	51	5	1	45	.....	815	1	10	64	96	32
	1899	3	28	2	1	25	.....	23	1	7	30	44	14

<sup>1</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.  
<sup>2</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.  
<sup>3</sup> Less than \$500.

## MANUFACTURES—MASSACHUSETTS.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>FALL RIVER—Continued.</b>													
Cotton goods, including cotton small wares.	1909	45	30,790	8	375	30,407	110,975	\$62,748	\$826	\$12,106	\$27,563	\$48,576	\$21,013
	1904	42	22,101	7	365	21,729	.....	51,346	650	7,966	20,616	32,539	11,923
	1899	46	26,722	11	246	26,465	.....	45,743	477	8,843	13,137	26,287	16,150
Foundry and machine-shop products.	1909	33	860	43	58	759	629	969	83	373	605	1,342	737
	1904	30	580	37	33	510	.....	581	44	239	277	738	461
	1899	32	699	39	37	623	.....	653	42	327	365	933	568
Liquors, malt.	1909	3	99	.....	19	80	1,800	1,116	29	45	106	381	275
	1904	3	97	.....	19	78	.....	1,117	40	57	171	695	434
	1899	4	93	1	31	61	.....	919	39	56	187	566	379
Lumber and timber products.	1909	8	99	13	18	68	648	183	19	38	206	318	112
	1904	2 4	49	7	4	38	.....	119	3	23	78	126	48
	1899	1 5	31	6	2	23	.....	71	2	16	43	80	37
Marble and stone work.	1909	12	120	13	4	103	549	81	3	81	24	158	134
	1904	2 5	156	5	7	144	.....	97	6	75	18	127	109
	1899	2 3	.....	.....	2	16	.....	18	1	9	5	23	18
Printing and publishing.	1909	21	240	17	33	190	171	418	83	142	95	365	270
	1904	15	195	14	42	139	.....	243	39	87	66	278	212
	1899	1 17	192	18	19	155	.....	239	16	94	62	266	204
All other industries.	1909	87	5,613	74	289	5,250	7,000	16,051	508	2,408	6,383	12,108	5,725
	1904	75	4,256	75	190	3,991	.....	14,841	355	1,554	4,617	8,432	3,075
	1899	67	.....	.....	137	3,084	.....	9,622	294	1,293	3,928	7,349	3,421
<b>HOLYOKE—All industries.</b>													
	1909	187	17,776	153	1,110	16,513	60,269	\$42,675	\$1,677	\$8,076	\$22,301	\$40,087	\$17,796
	1904	179	15,563	158	720	14,685	.....	37,150	1,018	6,693	16,579	30,731	14,152
	1899	158	.....	.....	580	12,519	.....	25,935	810	5,254	12,706	24,093	11,387
Brass and bronze products.	1909	3	61	4	12	45	55	95	12	29	64	140	76
	1904	4	181	4	31	146	.....	207	28	89	82	268	186
	1899	3	.....	.....	5	29	.....	43	4	18	30	62	32
Bread and other bakery products.	1909	27	181	33	40	108	24	159	20	76	275	464	189
	1904	27	143	36	19	88	.....	147	6	55	160	292	120
	1899	20	80	20	4	56	.....	48	1	29	92	183	61
Foundry and machine-shop products.	1909	17	1,190	14	174	1,002	1,455	2,838	226	621	843	2,065	1,252
	1904	17	1,324	13	95	1,216	.....	2,878	114	703	731	2,162	1,381
	1899	1 18	1,014	15	53	946	.....	1,693	68	546	625	1,828	1,203
Lumber and timber products.	1909	4	153	2	20	131	410	233	20	71	177	362	185
	1904	1 4	119	3	17	99	.....	248	22	77	124	272	148
	1899	2 3	117	1	17	99	.....	269	19	61	208	339	131
Paper and wood pulp.	1909	23	4,754	.....	274	4,450	39,069	14,036	552	2,211	7,244	12,305	5,061
	1904	19	4,204	.....	165	4,039	.....	16,884	316	1,925	6,001	10,620	4,619
	1899	19	3,509	1	169	3,399	.....	10,089	271	1,397	4,525	8,109	3,584
Paper goods, not elsewhere specified.	1909	4	457	.....	40	417	740	1,353	81	204	947	1,424	477
	1904	2 3	189	.....	21	168	.....	422	31	79	359	530	171
	1899	1 4	424	1	28	395	.....	820	60	177	886	1,284	398
Printing and publishing.	1909	27	886	10	131	736	371	1,428	137	371	633	1,450	817
	1904	1 28	1,162	24	95	1,043	.....	1,639	94	459	1,131	2,247	1,116
	1899	1 29	961	20	116	825	.....	1,327	95	364	808	1,633	825
Tobacco manufactures.	1909	17	96	17	6	73	.....	58	3	44	38	128	90
	1904	11	68	11	4	53	.....	49	3	32	41	115	74
	1899	10	52	11	.....	41	.....	35	.....	25	29	73	44
All other industries.	1909	65	9,998	64	413	9,521	18,145	22,475	625	4,449	12,080	21,729	9,649
	1904	66	8,173	67	273	7,833	.....	14,676	404	3,274	7,894	14,225	6,331
	1899	52	.....	.....	188	6,729	.....	11,606	292	2,637	5,563	10,582	5,079
<b>LAWRENCE—All industries.</b>													
	1909	162	31,589	145	902	30,542	73,066	\$79,550	\$1,581	\$13,787	\$45,438	\$79,993	\$34,555
	1904	187	22,726	183	633	21,910	.....	60,063	971	8,908	29,416	46,037	18,621
	1899	167	.....	.....	648	20,899	.....	48,827	997	8,197	24,842	41,742	18,900
Bread and other bakery products.	1909	26	184	32	9	143	129	292	9	89	367	572	205
	1904	36	200	41	8	151	.....	145	6	85	336	527	191
	1899	25	108	25	9	74	.....	53	3	36	117	201	84
Carriages and wagons and materials.	1909	8	193	7	15	171	220	401	20	100	170	384	214
	1904	1 7	70	6	6	58	.....	115	3	35	37	90	53
	1899	1 10	95	16	3	76	.....	142	1	39	54	124	70
Cotton goods, including cotton small wares.	1909	6	4,978	1	63	4,914	16,172	9,150	121	2,030	3,918	6,826	2,908
	1904	2 5	4,027	.....	71	3,956	.....	6,549	139	1,507	3,792	5,746	1,954
	1899	1 7	6,056	1	78	6,067	.....	12,218	156	2,336	4,227	8,147	3,920
Foundry and machine-shop products.	1909	27	1,126	23	91	1,012	1,238	1,441	108	578	727	1,720	993
	1904	1 25	1,064	27	80	897	.....	1,727	90	485	545	1,418	873
	1899	2 6	913	26	65	822	.....	1,648	66	430	566	1,334	768
Lumber and timber products.	1909	5	423	2	19	402	1,170	775	22	230	1,037	1,390	353
	1904	2 4	138	2	3	133	.....	242	4	75	137	263	126
	1899	2 3	142	1	13	128	.....	256	12	73	125	249	124

<sup>1</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.  
<sup>2</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.

MANUFACTURES—MASSACHUSETTS.

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TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>LAWRENCE—Continued.</b>													
Printing and publishing.....	1909	18	176	21	20	120	166	\$169	\$33	\$89	\$66	\$254	\$188
	1904	19	174	24	25	125	.....	162	25	77	52	216	164
	1899	16	167	21	8	138	.....	147	7	74	48	186	138
Woolen, worsted, and felt goods, and wool hats.	1909	15	20,068	17	448	20,203	44,638	57,467	937	8,899	33,657	58,536	24,870
	1904	10	12,435	6	213	12,216	.....	40,498	370	4,672	10,386	30,027	11,541
	1899	12	11,786	6	325	11,455	.....	20,855	538	4,215	15,027	25,585	9,658
All other industries.....	1909	57	3,841	42	228	3,571	9,333	9,855	331	1,772	5,496	10,311	4,815
	1904	81	4,078	77	227	4,374	.....	10,625	334	1,972	5,131	8,850	3,719
	1899	68	.....	.....	147	2,199	.....	4,608	214	904	3,778	5,916	2,138
<b>LOWELL—All industries.....</b>													
	1909	320	34,108	316	1,217	32,575	72,012	\$61,984	\$1,662	\$14,149	\$32,831	\$80,271	\$27,440
	1904	253	30,544	277	964	29,303	.....	54,809	1,345	11,590	28,911	46,879	19,968
	1899	286	.....	.....	664	29,264	.....	45,510	929	10,863	20,279	41,203	20,924
Boots and shoes, including cut stock and findings.	1909	7	1,343	3	81	1,259	618	964	86	502	1,082	2,050	968
	1904	6	850	4	27	819	.....	413	30	310	956	1,457	501
	1899	7	530	5	14	517	.....	387	16	201	684	974	290
Bread and other bakery products.....	1909	46	208	65	67	163	58	171	33	163	482	750	288
	1904	40	256	49	44	103	.....	131	18	98	407	644	237
	1899	57	304	71	34	199	.....	141	12	99	325	589	264
Cotton goods, including cotton small wares.	1909	11	14,003	2	168	13,833	41,955	24,270	331	5,653	13,943	24,744	10,801
	1904	11	13,173	4	204	12,905	.....	22,580	344	4,848	12,544	19,554	6,540
	1899	18	13,847	2	115	13,730	.....	21,355	243	4,785	8,774	17,039	8,295
Foundry and machine-shop products...	1909	35	2,785	30	106	2,590	2,706	4,485	184	1,418	1,822	4,333	2,511
	1904	34	2,403	35	74	2,204	.....	6,431	129	1,168	1,509	3,430	1,930
	1899	147	3,088	52	98	2,938	.....	6,145	153	1,477	1,901	4,258	2,697
Lumber and timber products.....	1909	17	462	18	34	410	1,637	720	27	211	734	1,009	332
	1904	12	450	15	19	410	.....	626	17	163	646	938	292
	1899	111	379	16	15	348	.....	589	11	152	467	728	261
Patent medicines and compounds and druggists' preparations.	1909	7	257	4	70	183	406	1,650	32	65	340	1,130	781
	1904	6	360	3	87	279	.....	1,519	97	155	281	1,471	1,190
	1899	7	.....	.....	116	301	.....	824	120	141	403	1,780	1,377
Printing and publishing.....	1909	26	354	26	78	250	349	616	104	178	260	798	407
	1904	19	334	23	62	250	.....	318	64	161	150	525	375
	1899	22	278	26	47	205	.....	231	37	123	110	385	275
Woolen, worsted, and felt goods, and wool hats.	1909	12	3,187	10	128	3,049	6,257	6,152	134	1,337	4,048	6,105	2,057
	1904	9	2,690	11	54	2,625	.....	4,024	96	1,622	2,783	4,558	1,775
	1899	8	2,551	4	51	2,406	.....	4,174	82	882	2,803	4,689	1,836
All other industries.....	1909	159	11,469	158	485	10,826	17,036	22,947	701	4,592	9,472	18,697	9,225
	1904	119	10,019	133	403	9,483	.....	18,167	550	3,665	7,335	14,463	7,128
	1899	119	.....	.....	194	8,430	.....	11,664	250	2,993	5,112	10,761	5,049
<b>LYNN—All industries.....</b>													
	1909	431	30,685	469	2,848	27,368	17,089	\$42,784	\$3,008	\$15,666	\$41,361	\$71,503	\$30,142
	1904	431	23,811	565	1,700	21,540	.....	23,139	1,530	11,738	32,616	55,003	22,387
	1899	423	.....	.....	1,176	16,377	.....	16,037	964	7,971	24,471	39,347	14,876
Blacking and cleansing and polishing preparations.	1909	14	100	19	40	44	70	178	37	31	271	537	206
	1904	12	69	17	14	38	.....	83	11	24	110	245	135
	1899	12	51	18	17	16	.....	62	10	11	66	172	106
Boots and shoes, including cut stock and findings.	1909	207	17,942	240	1,353	16,349	5,488	17,488	1,359	9,532	29,148	46,000	17,512
	1904	211	14,581	298	967	13,286	.....	12,155	882	7,035	22,173	35,431	13,258
	1899	207	10,900	309	697	10,060	.....	8,888	484	4,769	17,052	24,082	7,030
Boxes, fancy and paper.....	1909	6	378	1	20	348	265	238	39	169	404	730	326
	1904	3	94	2	27	65	.....	80	10	27	108	172	64
	1899	7	317	6	19	292	.....	233	16	110	213	417	204
Bread and other bakery products.....	1909	37	222	38	19	165	42	119	14	111	443	681	238
	1904	42	212	40	14	149	.....	110	7	89	271	480	209
	1899	28	146	20	14	103	.....	82	6	54	148	283	135
Foundry and machine-shop products...	1909	26	518	29	78	411	370	826	77	254	178	800	622
	1904	23	422	19	49	354	.....	566	47	222	146	588	442
	1899	30	.....	.....	35	452	.....	699	32	259	278	887	609
Lasts.....	1909	5	95	8	6	81	187	163	8	61	75	266	191
	1904	4	87	9	12	66	.....	96	16	45	40	126	86
	1899	5	79	10	6	63	.....	78	5	36	20	100	71
Leather, tanned, curried, and finished..	1909	8	1,148	1	85	1,062	1,185	2,050	147	457	4,099	5,064	1,085
	1904	12	1,124	18	48	1,058	.....	1,063	51	499	3,475	4,670	1,095
	1899	12	700	17	51	638	.....	1,031	35	282	2,039	2,451	412
Lumber and timber products.....	1909	6	142	5	8	129	363	296	7	82	188	330	142
	1904	7	260	5	36	219	.....	233	25	100	236	420	160
	1899	.....	.....	.....	.....	.....	.....	739	18	44	272	1,338	1,066
Patent medicines and compounds and druggists' preparations.	1909	7	93	5	14	74	41	1,051	39	39	200	948	748
	1904	6	85	5	11	69	.....	1,049	33	36	219	1,328	1,166
	1899	4	.....	.....	15	323	.....	.....	.....	.....	.....	.....	.....

<sup>1</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.  
<sup>2</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.  
<sup>3</sup> Figures can not be shown without disclosing individual operations.

## MANUFACTURES—MASSACHUSETTS.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.  
CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>LYNN—Continued.</b>													
Printing and publishing.....	1909	26	331	27	76	228	177	\$313	\$77	\$145	\$162	\$537	\$375
	1904	25	262	28	46	188	.....	227	52	102	81	362	281
	1899	19	.....	.....	16	160	.....	212	13	92	62	244	182
All other industries.....	1909	89	9,707	96	1,134	8,477	8,895	19,426	1,210	4,785	6,283	14,920	8,037
	1904	86	6,615	115	452	6,048	.....	6,577	390	3,559	5,757	11,275	6,518
	1899	99	.....	.....	405	4,270	.....	4,633	335	2,305	4,312	8,473	4,161
<b>NEW BEDFORD—All industries</b>													
	1909	207	27,538	303	689	26,566	76,147	\$58,970	\$1,245	\$12,598	\$28,564	\$53,238	\$24,674
	1904	178	18,563	189	519	17,855	.....	40,410	781	7,251	16,091	29,469	13,378
	1899	171	.....	.....	425	15,263	.....	23,182	635	6,123	11,783	23,397	11,614
Bread and other bakery products.....	1909	44	492	163	40	289	99	331	30	160	548	1,023	475
	1904	36	189	42	6	141	.....	81	5	80	257	444	187
	1899	32	257	35	41	181	.....	216	24	92	242	470	228
Carriages and wagons and materials....	1909	6	76	6	4	66	45	105	4	37	36	105	69
	1904	8	68	9	3	56	.....	64	3	30	31	88	57
	1899	6	.....	.....	5	75	.....	180	4	47	48	120	72
Cotton goods, including cotton small wares.	1909	22	22,457	3	313	22,141	68,155	50,318	734	10,115	23,290	42,505	19,215
	1904	15	14,787	.....	242	14,545	.....	34,294	448	5,576	12,685	22,412	9,727
	1899	15	12,426	.....	140	12,286	.....	21,871	263	4,003	8,208	16,749	8,541
Foundry and machine-shop products...	1909	16	313	13	24	276	1,019	325	19	176	192	454	262
	1904	19	315	24	30	261	.....	362	21	148	138	405	267
	1899	17	238	17	25	196	.....	370	22	124	203	425	222
Lumber and timber products.....	1909	8	196	11	14	171	759	406	27	93	232	412	180
	1904	5	82	12	3	67	.....	118	4	39	100	243	83
	1899	4	47	8	1	38	.....	59	1	21	49	90	41
Printing and publishing.....	1909	17	314	18	31	265	199	345	52	171	129	493	354
	1904	116	209	17	26	166	.....	239	42	104	74	335	261
	1899	14	165	19	24	122	.....	148	35	74	49	254	205
All other industries.....	1909	94	3,690	89	243	3,353	5,871	7,140	379	1,846	4,137	8,256	4,119
	1904	77	2,913	86	209	2,619	.....	5,254	258	1,275	2,746	5,542	2,798
	1899	83	.....	.....	189	2,365	.....	5,338	196	1,162	2,984	5,289	2,305
<b>SOMERVILLE—All industries.</b>													
	1909	114	5,951	97	574	5,289	7,680	\$17,282	\$692	\$2,870	\$31,923	\$38,687	\$6,764
	1904	78	3,961	80	397	3,474	.....	10,264	431	1,763	19,170	22,955	3,779
	1899	85	.....	.....	224	3,528	.....	9,503	231	1,721	16,721	20,065	3,344
Bread and other bakery products.....	1909	28	180	33	27	120	55	155	12	68	269	429	160
	1904	19	113	22	15	76	.....	62	6	53	140	272	126
	1899	14	116	21	35	60	.....	78	18	34	123	239	110
Foundry and machine-shop products....	1909	6	108	7	7	94	72	208	7	46	95	197	102
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	5	.....	.....	8	73	.....	85	4	33	48	154	106
Slaughtering and meat packing.....	1909	7	2,553	2	259	2,292	3,308	12,221	326	1,236	27,866	31,270	3,404
	1904	5	1,730	2	236	1,542	.....	7,225	243	815	17,186	18,959	1,773
	1899	5	.....	.....	45	1,445	.....	6,813	71	700	14,205	15,764	1,469
All other industries.....	1909	73	3,110	55	281	2,774	4,245	4,698	347	1,520	3,693	6,791	3,098
	1904	54	2,058	56	146	1,856	.....	2,977	182	885	1,844	3,724	1,880
	1899	61	.....	.....	136	1,950	.....	2,527	138	954	2,255	3,908	1,653
<b>SPRINGFIELD—All industries.</b>													
	1909	348	14,455	288	2,312	11,855	17,744	28,658	2,362	6,867	14,863	31,773	17,410
	1904	296	11,957	246	1,188	10,523	.....	24,081	1,499	5,645	12,380	25,660	13,480
	1899	278	.....	.....	848	8,152	.....	16,071	982	3,975	8,892	18,155	9,283
Brass and bronze products.....	1909	7	197	6	27	164	129	230	32	104	246	431	185
	1904	3	85	2	5	48	.....	85	4	34	78	142	64
	1899	3	193	2	10	151	.....	268	19	92	135	333	193
Bread and other bakery products.....	1909	27	171	30	14	127	52	191	9	83	356	611	255
	1904	20	218	20	14	184	.....	204	15	105	407	656	249
	1899	26	176	26	17	133	.....	181	14	68	224	393	169
Carriages and wagons and materials....	1909	8	99	10	7	82	18	116	7	56	68	177	109
	1904	6	63	6	2	55	.....	76	3	33	29	96	67
	1899	4	.....	.....	2	61	.....	92	2	31	26	90	64
Confectionery.....	1909	5	407	3	78	326	184	305	65	119	559	903	344
	1904	5	338	3	37	298	.....	218	54	101	350	611	261
	1899	3	.....	.....	16	145	.....	93	14	68	193	313	125
Cutlery and tools, not elsewhere specified.	1909	4	312	5	20	287	648	486	41	185	154	523	369
	1904	6	165	7	16	142	.....	287	22	53	59	233	174
	1899	4	123	3	14	106	.....	146	15	44	30	151	121
Electrical machinery, apparatus, and supplies.	1909	5	131	1	26	154	198	288	25	82	63	191	128
	1904	5	132	1	23	153	.....	352	33	72	104	370	266
	1899	3	146	1	18	127	.....	284	28	60	138	302	164
Fancy articles, not elsewhere specified..	1909	5	71	4	11	56	23	60	11	21	30	106	76
	1904	7	21	4	6	12	.....	25	3	4	8	21	13
	1899	3	.....	.....	2	13	.....	17	6	6	6	19	13

<sup>1</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.

<sup>2</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.

<sup>3</sup> Figures can not be shown without disclosing individual operations.

MANUFACTURES—MASSACHUSETTS.

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TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.					Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).								
Expressed in thousands.														
<b>SPRINGFIELD—Continued.</b>														
Foundry and machine-shop products...	1900	39	1,779	21	204	1,554	3,488	\$3,851	\$342	\$973	\$1,027	\$3,006	\$1,970	
	1904	28	1,455	13	128	1,314		2,503	218	783	788	2,456	1,038	
	1899	29			76	910		2,046	91	505	652	1,751	1,099	
Lumber and timber products.....	1900	10	380	7	39	334	1,436	657	41	211	580	945	365	
	1904	8	291	8	31	252		692	32	142	283	560	277	
	1899	5			21	253		409	21	134	251	489	238	
Printing and publishing.....	1900	51	2,077	38	1,014	1,025	1,632	3,527	618	666	1,000	3,901	2,895	
	1904	41	1,138	30	310	792		2,000	364	515	708	2,402	1,694	
	1899	43	1,226	26	321	870		1,667	293	533	533	2,145	1,612	
Slaughtering and meat packing.....	1900	3	136	4	23	109	125	278	34	76	1,033	1,251	218	
	1904	3	317	2	53	262		1,298	30	130	2,528	3,053	525	
	1899	3			13	293		652	13	110	2,254	2,545	201	
Tobacco manufactures.....	1900	29	463	33	22	408	0	275	17	277	256	720	404	
	1904	22	361	25	13	323		202	14	207	172	534	392	
	1899	19	294	22	6	260		247	9	160	177	440	293	
All other industries.....	1900	153	8,182	120	827	7,229	9,805	18,394	1,120	4,014	8,085	19,098	10,023	
	1904	142	7,353	125	540	6,683		16,130	707	3,436	6,866	14,720	7,890	
	1899	133			334	4,785		9,959	463	2,168	4,273	9,170	4,006	
<b>WORCESTER—All Industries.</b>														
	1900	580	32,154	750	3,183	28,221	53,405	\$64,039	\$4,169	\$15,295	\$42,601	\$77,148	\$34,547	
	1904	470	25,259	420	2,043	22,796		48,772	2,377	11,825	27,011	52,145	25,134	
	1899	465			1,328	22,593		41,384	1,708	11,281	23,470	46,793	23,323	
Boots and shoes, including cut stock and findings.	1900	11	896	8	50	829	399	1,351	81	409	1,466	2,414	948	
	1904	12	814	11	56	747		870	48	381	1,097	1,756	659	
	1899	14	890	10	31	852		681	35	300	1,119	1,709	590	
Bread and other bakery products.....	1900	67	840	329	104	413	160	442	67	207	877	1,472	595	
	1904	30	230	35	34	161		93	10	95	360	572	212	
	1899	26	342	33	50	250		334	34	117	378	700	322	
Carriages and wagons and materials.....	1900	12	87	10	6	71	63	131	3	51	62	160	98	
	1904	10	81	12	4	65		103	3	46	31	109	78	
	1899	8			3	50		101	4	34	35	112	77	
Clothing, men's, including shirts.....	1900	16	322	21	13	288	50	223	13	111	302	556	194	
	1904	10	225	14	10	201		115	10	79	317	462	145	
	1899	4	131	5		126		97		53	164	230	66	
Clothing, women's.....	1900	18	1,252	29	163	1,060	219	902	167	371	1,081	1,942	861	
	1904	19	1,108	27	37	1,044		568	51	372	867	1,629	772	
	1899	7	721	11	19	691		460	30	194	447	853	406	
Copper, tin, and sheet-iron products....	1900	10	232	0	31	195	247	388	31	113	166	411	245	
	1904	9	108	10	14	84		256	13	50	76	181	105	
	1899	7			4	60		134	4	34	44	112	68	
Cotton goods, including cotton small wares.	1900	4	274	1	10	254	425	415	20	98	680	883	203	
	1904	3	198	1	13	184		460	18	79	514	737	223	
	1899	3	138		13	125		318	12	40	296	417	121	
Cutlery and tools, not elsewhere specified.	1900	11	448	7	32	400	1,104	641	51	241	214	569	355	
	1904	13	425	12	10	394		618	30	211	236	575	339	
	1899	10	287	7	14	266		300	24	103	103	366	263	
Foundry and machine-shop products...	1900	89	7,161	55	603	6,503	6,891	13,009	982	3,841	4,793	13,219	8,420	
	1904	89	5,131	77	404	4,650		10,792	618	2,706	3,198	8,589	5,191	
	1899	97			258	4,989		9,451	454	2,848	3,706	8,705	5,059	
Lumber and timber products.....	1900	12	302	0	33	320	1,154	461	49	195	476	814	338	
	1904	17	470	15	41	414		722	49	247	535	968	433	
	1899	13	170	1	17	152		253	18	73	139	268	129	
Marble and stone work.....	1900	10	253	10	16	227	892	388	29	218	93	383	290	
	1904	9	401	10	39	421		694	53	230	70	636	616	
	1899	9			11	420		598	28	205	51	458	407	
Printing and publishing.....	1900	53	767	45	137	585	384	605	162	302	371	1,233	862	
	1904	44	619	38	204	377		584	160	248	219	906	747	
	1899	49			125	481		422	82	290	213	822	609	
Tobacco manufactures.....	1900	20	94	25	4	65	2	54	3	37	42	117	75	
	1904	17	61	20	7	64		31	5	36	40	114	74	
	1899	16	107	18	5	84		49	5	47	47	142	95	
Woolen, worsted, and felt goods, and wool hats.	1900	15	1,802	8	72	1,722	3,990	3,530	105	630	3,200	4,400	1,260	
	1904	14	1,641	8	57	1,676		2,292	80	610	2,356	3,530	1,174	
	1899	14	1,132	10	30	1,092		1,537	47	406	1,212	2,018	806	
All other industries.....	1900	232	17,358	187	1,891	15,280	37,440	42,039	2,397	8,262	28,718	48,515	19,797	
	1904	174	13,667	130	1,113	12,414		30,598	1,223	6,385	17,105	31,471	14,366	
	1899	198			737	12,949		26,623	929	6,346	15,510	29,821	14,805	

<sup>1</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.

<sup>2</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.



## MANUFACTURES—MASSACHUSETTS.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

CITIES OF 10,000 TO 50,000 INHABITANTS—ALL INDUSTRIES COMBINED.

CITY OR TOWN.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
Adams.....	1909	31	4,100	32	77	3,901	10,173	\$8,019	\$183	\$1,719	\$3,082	\$6,410	\$3,328
	1904	23	4,089	25	70	3,904		6,945	151	1,509	2,688	5,492	2,804
	1899	26			51	3,182		6,500	125	1,166	1,713	3,894	2,181
Arlington.....	1909	19	335	18	34	283	851	778	46	177	311	695	384
	1904	18	250	18	23	209		474	20	111	226	493	267
	1899	12			18	122		302	13	74	112	256	144
Attleborough.....	1909	128	7,168	132	607	6,429	5,991	14,305	785	3,763	6,813	15,160	8,247
	1904	108	5,553	128	381	5,044		10,438	451	2,474	4,651	10,050	5,399
	1899	108			273	4,811		5,724	285	2,191	3,706	8,751	4,955
Beverly.....	1909	63	4,896	60	349	4,487	3,778	8,658	496	2,929	3,291	8,653	5,362
	1904	71	2,292	91	118	2,083		1,900	93	1,088	2,323	4,101	1,778
	1899	73			96	2,275		2,112	64	1,021	2,140	3,781	1,632
Brookline.....	1909	16	404	19	45	340	339	617	37	194	196	532	336
	1904	13	552	14	43	495		618	43	286	271	733	462
	1899	8			21	324		320	25	168	219	485	266
Chelsea.....	1909	110	6,694	98	642	5,954	8,339	11,021	869	3,326	10,569	17,002	6,433
	1904	130	5,532	139	454	4,939		9,684	581	2,442	8,307	13,879	5,572
	1899	120			328	2,959		7,960	343	1,406	5,451	9,519	4,058
Chicopee.....	1909	58	7,776	45	471	7,260	18,738	14,803	468	3,696	10,952	19,210	8,267
	1904	40	4,899	41	188	4,670		6,829	255	1,936	4,330	7,716	3,356
	1899	46			120	4,085		5,976	148	1,588	2,700	5,389	2,680
Clinton.....	1909	39	4,357	33	201	4,123	10,882	7,607	276	1,872	4,216	7,845	3,629
	1904	35	3,646	35	129	3,482		5,590	177	1,438	3,408	5,458	2,050
	1899	22			85	3,336		6,930	115	1,510	2,715	5,043	2,328
Everett.....	1909	62	3,096	56	360	2,680	7,816	22,905	471	1,508	4,506	8,747	4,241
	1904	51	2,451	49	216	2,186		8,477	284	1,155	3,123	6,136	3,013
	1899	52			152	1,877		5,975	108	903	2,474	4,437	1,963
Fitchburg.....	1909	122	9,103	101	505	8,497	28,754	20,888	711	4,231	14,442	23,252	8,810
	1904	107	6,904	111	295	6,493		13,109	379	3,168	9,421	15,391	5,970
	1899	115			290	6,213		12,586	364	2,602	7,480	13,008	5,528
Framingham.....	1909	27	3,307	19	219	3,069	4,486	7,770	326	1,446	3,411	6,917	3,506
	1904	36	2,009	36	89	2,484		5,613	133	1,121	2,517	4,174	1,657
	1899	34			69	2,207		2,821	66	857	1,092	3,007	1,315
Gardner.....	1909	52	3,849	40	192	3,617	5,031	10,273	300	1,774	2,833	6,485	3,652
	1904	50	3,386	62	156	3,168		8,610	201	1,491	2,570	5,019	2,449
	1899	46			108	2,895		5,888	125	1,199	2,284	4,386	2,102
Gloucester.....	1909	102	2,593	104	308	2,181	2,427	5,693	337	1,042	4,770	7,753	2,983
	1904	132	2,141	175	203	1,703		4,821	197	811	4,682	6,921	2,239
	1899	137			183	2,367		3,865	108	916	4,232	6,293	2,061
Greenfield.....	1909	47	1,484	24	209	1,251	2,327	2,520	228	701	1,034	2,801	1,767
	1904												
	1899												
Haverhill.....	1909	346	12,791	407	695	11,689	7,930	14,786	707	6,668	21,686	35,377	13,691
	1904	320	10,529	404	551	9,574		10,306	542	4,818	14,257	24,447	10,190
	1899	390			479	9,761		6,358	366	4,538	14,994	23,419	8,425
Hyde Park.....	1909	40	4,649	37	292	4,320	8,856	8,158	377	2,476	3,351	7,336	3,985
	1904	40	4,297	24	282	3,991		7,487	333	2,020	3,531	6,739	3,153
	1899	33			98	2,483		3,554	148	1,122	2,507	4,384	1,877
Leominster.....	1909	94	6,000	70	323	5,601	5,890	6,633	442	2,704	5,576	10,531	4,955
	1904	65	4,437	64	246	4,127		4,573	268	1,046	3,904	7,502	3,538
	1899	70			155	3,412		3,862	165	1,481	2,769	5,397	2,628
Malden.....	1909	86	3,259	71	288	2,900	3,433	9,910	330	1,346	4,388	8,206	3,818
	1904	59	3,154	65	135	2,954		5,553	133	1,428	4,045	11,236	7,191
	1899	53			104	2,416		5,631	122	1,135	4,084	6,002	2,518
Marlborough.....	1909	59	4,585	46	274	4,265	2,721	3,378	289	2,224	6,375	10,382	4,007
	1904	46	3,708	43	186	3,479		2,661	180	1,644	4,586	7,469	2,883
	1899	50			73	2,524		2,001	100	1,152	2,834	4,498	1,664
Medford.....	1909	40	673	33	80	580	1,123	1,596	115	321	1,250	2,045	795
	1904	37	572	37	51	484		1,449	67	244	356	872	486
	1899	36			58	575		1,051	71	279	540	1,132	592
Melrose.....	1909	25	1,141	21	82	1,038	1,535	2,015	86	493	1,589	2,825	1,236
	1904	24	1,653	25	67	1,571		4,645	51	796	2,915	9,451	6,536
	1899	16			65	1,180		3,151	77	566	2,146	3,416	1,270
Methuen.....	1909	19	1,626	12	42	1,572	5,772	2,956	63	689	2,226	3,476	1,250
	1904												
	1899												
Milford.....	1909	53	1,980	50	129	1,801	2,410	1,756	205	945	2,389	4,442	2,053
	1904	44	1,930	55	93	1,782		1,663	94	910	1,776	3,391	1,615
	1899	50			75	1,357		1,077	71	633	1,466	2,552	1,086

1 Figures not available.

MANUFACTURES—MASSACHUSETTS.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

CITIES OF 10,000 TO 50,000 INHABITANTS—ALL INDUSTRIES COMBINED—Continued.

CITY OR TOWN.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
Newburyport.....	1909	74	3,543	71	257	3,215	3,820	\$4,000	\$320	\$1,042	\$3,781	\$6,931	\$3,150
	1904	69	3,261	68	238	2,955	.....	4,020	213	1,392	4,262	6,810	2,548
	1899	64	.....	.....	209	2,801	.....	3,696	205	1,175	3,051	5,141	2,090
Newton.....	1909	46	2,373	39	160	2,174	4,153	5,069	802	1,125	3,383	6,279	2,396
	1904	45	2,077	45	139	1,893	.....	4,324	201	944	2,242	4,141	1,899
	1899	45	.....	.....	103	1,823	.....	4,321	142	846	1,894	3,679	1,785
North Adams.....	1909	60	5,846	62	370	5,414	11,928	15,043	617	2,567	5,576	10,315	4,739
	1904	58	5,831	60	293	5,502	.....	18,168	373	2,333	4,011	8,036	4,025
	1899	68	.....	.....	248	6,312	.....	14,127	401	2,708	5,047	10,741	5,094
Northampton.....	1909	71	3,434	58	226	3,150	6,139	7,996	302	1,503	3,163	6,099	3,336
	1904	77	3,235	71	201	2,963	.....	4,380	211	1,217	3,042	5,756	2,714
	1899	69	.....	.....	141	2,635	.....	4,629	150	1,129	2,540	4,707	2,167
Peabody.....	1909	74	5,231	55	326	4,850	9,981	15,804	417	2,038	10,102	15,549	5,357
	1904	76	4,227	74	200	3,953	.....	7,654	230	1,990	6,748	10,237	3,459
	1899	86	.....	.....	146	2,061	.....	4,330	149	1,273	5,074	6,944	1,870
Pittsfield.....	1909	71	7,414	59	1,002	6,353	8,301	15,080	1,081	3,718	8,528	15,215	6,687
	1904	44	4,781	34	292	4,455	.....	8,035	469	2,082	4,629	8,577	3,948
	1899	69	.....	.....	205	3,168	.....	5,597	243	1,271	3,073	5,754	2,676
Plymouth.....	1909	32	3,104	24	168	2,912	6,230	10,700	268	1,416	3,475	11,018	3,143
	1904	35	2,422	34	88	2,300	.....	7,010	141	664	8,568	11,110	2,548
	1899	27	.....	.....	81	1,611	.....	4,322	104	614	3,564	5,530	1,966
Quincy.....	1909	183	6,247	241	514	5,402	9,147	11,075	806	3,434	3,844	10,505	6,661
	1904	161	5,938	222	345	5,371	.....	9,221	440	3,060	3,704	8,932	5,278
	1899	153	.....	.....	113	2,128	.....	1,886	100	1,145	909	3,012	2,103
Revere.....	1909	14	125	12	12	101	548	661	11	54	292	407	115
	1904	12	161	12	14	125	.....	765	14	66	249	355	106
	1899	17	.....	.....	8	87	.....	388	8	46	51	150	105
Salem.....	1909	155	6,852	149	865	6,338	11,436	9,345	306	2,893	8,640	14,576	5,936
	1904	143	6,303	167	281	5,945	.....	9,670	269	2,506	7,921	12,202	4,281
	1899	162	.....	.....	214	5,025	.....	6,947	262	2,390	6,583	10,711	4,128
Southbridge.....	1909	36	4,281	28	216	4,037	7,636	4,266	423	1,805	3,125	6,269	3,144
	1904	32	3,342	28	91	3,223	.....	3,705	199	1,305	2,280	4,202	1,922
	1899	32	.....	.....	66	2,687	.....	4,144	94	1,123	1,782	3,512	1,730
Taunton.....	1909	146	7,045	110	428	7,407	19,141	16,504	701	3,334	7,775	15,380	7,605
	1904	127	7,020	118	294	6,608	.....	14,790	468	3,147	7,687	13,045	5,958
	1899	114	.....	.....	313	6,590	.....	11,267	418	3,043	5,540	11,544	6,004
Wakefield.....	1909	23	2,350	14	115	2,230	1,729	3,804	157	1,046	2,335	5,527	2,692
	1904	22	1,947	15	128	1,804	.....	2,841	164	828	2,338	4,808	1,970
	1899	25	.....	.....	70	1,436	.....	3,090	96	711	1,254	2,647	1,393
Waltham.....	1909	80	6,354	67	250	6,037	7,583	12,871	406	3,288	2,444	7,314	5,370
	1904	60	6,484	55	221	6,268	.....	10,003	370	3,240	2,067	7,150	5,033
	1899	74	.....	.....	179	4,861	.....	8,777	255	2,371	1,889	5,890	4,001
Watertown.....	1909	25	4,805	13	467	4,335	4,862	7,220	440	2,235	6,463	11,546	5,083
	1904	20	3,555	8	225	3,322	.....	5,169	235	1,065	5,529	15,525	9,996
	1899	27	.....	.....	110	1,935	.....	4,169	164	931	3,499	5,330	1,831
Webster.....	1909	23	3,621	14	198	3,409	7,204	10,479	322	1,476	7,320	11,296	3,476
	1904	16	3,107	13	77	3,107	.....	6,623	125	1,142	3,941	5,868	1,927
	1899	20	.....	.....	48	2,377	.....	3,088	51	812	2,462	4,008	1,546
Westfield.....	1909	91	3,500	86	354	3,000	3,731	7,500	462	1,695	2,868	7,362	4,494
	1904	86	2,945	78	233	2,694	.....	5,888	312	1,346	2,251	5,818	3,567
	1899	97	.....	.....	250	2,370	.....	4,157	321	1,077	2,085	4,441	2,356
Weymouth.....	1909	41	2,233	45	202	1,991	1,902	5,504	240	1,110	4,204	6,627	2,423
	1904	46	2,035	54	140	1,841	.....	3,652	155	927	2,998	4,922	1,924
	1899	51	.....	.....	216	1,922	.....	4,333	286	378	3,178	5,389	2,211
Winthrop.....	1909	7	19	6	6	7	41	25	3	5	25	42	17
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Woburn.....	1909	59	1,867	65	149	1,653	3,560	8,405	195	932	3,114	5,408	2,294
	1904	52	1,622	59	81	1,482	.....	4,427	107	783	2,808	4,054	1,846
	1899	47	.....	.....	51	1,356	.....	2,832	63	617	2,879	4,003	1,124

1 Figures not available.

TABLE II.—DETAIL STATEMENT FOR

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, supts. and managers.		Clerks.		Average number.	Wage earners.		Total.	16 and over.		Under 16.			
				Male.	Female.	Maximum month.	Minimum month.		Male.	Female.		Male.	Female.				
														Number.	Number.		
<b>All industries.....</b>	<b>11,684</b>	<b>644,399</b>	<b>11,194</b>	<b>12,791</b>	<b>22,914</b>	<b>12,941</b>	<b>584,559</b>	<b>De 612,615</b>	<b>Ja 565,750</b>	<b>(1)</b>	<b>(1)</b>	<b>(1)</b>	<b>(1)</b>	<b>(1)</b>	<b>1,175,071</b>		
1 Agricultural implements.....	5	401	2	11	36	6	346	Ap 377	Au 318	353	353				487		
2 Artificial stone.....	35	234	47	11	14	4	158	Jy 196	Ja 83	172	172				217		
3 Automobiles, including bodies and parts.....	62	4,624	38	132	197	119	4,138	De 4,437	Ja 3,338	4,536	4,457	62	17		2,886		
4 Baskets, and rattan and willow ware.....	21	260	24	5	4	5	222	De 236	Fe 202	238	226	0	4	2	289		
5 Belting and hose, leather.....	16	1,290	5	24	232	44	955	De 1,005	Jy 894	1,013	941	34	37	1	897		
6 Bicycles, motorcycles, and parts.....	10	950	7	21	45	34	843	De 1,100	Ja 713	1,100	1,066	4	30		899		
7 Billiard tables and materials.....	7	42	8	4	1	1	28	My 29	Jy 26	29	28		5		13		
8 Blacking and cleansing and polishing preparations.....	80	850	76	47	134	66	527	Ap 557	Ja 457	490	279	204	1	2	892		
9 Boots and shoes, including out stock and findings.....	860	90,048	911	1,459	2,120	2,495	83,063	De 87,797	My 78,536	89,751	57,494	28,922	1,959	1,376	35,051		
10 Boots and shoes, rubber.....	8	7,451		88	253	182	6,928	No 7,463	Ja 6,238	7,495	4,407	2,904	132	52	8,330		
11 Boxes, cigar.....	5	161	2	11	13	5	130	De 142	Ap 109	142	66	71	3	2	120		
12 Boxes, fancy and paper.....	99	4,209	70	130	70	95	3,838	No 4,222	Au 3,582	4,236	1,322	2,629	42	243	2,370		
13 Brass and bronze products.....	85	2,036	71	80	60	34	1,791	De 1,951	Ja 1,681	1,979	1,937	36	5	1	6,407		
14 Bread and other bakery products.....	1,201	9,755	1,700	107	730	521	6,937	Se 6,840	Ja 6,256	6,885	5,390	1,311	78	106	4,316		
15 Brick and tile.....	52	1,104	53	38	18	4	991	Jy 1,808	Fe 160	1,127	1,125	1			2,907		
16 Brooms.....	24	155	29	2	3	3	118	Mh 132	Oc 104	115	106	6	3		73		
17 Brushes.....	30	1,810	29	44	74	34	1,629	De 1,773	Jy 1,449	1,774	679	1,051	19	25	580		
18 Butter, cheese, and condensed milk.....	24	95	18	15	5	1	56	Je 58	Mh 2	58	56				318		
19 Buttons.....	12	728	9	9	33	18	659	Ja 752	No 583	585	225	313	21	26	898		
20 Canning and preserving.....	71	1,819	61	70	160	79	1,440	Oc 1,769	My 1,220	1,746	1,272	447	14	13	1,043		
21 Carpets and rugs, other than rag.....	11	6,251	3	46	205	43	5,954	Fe 6,102	Ap 5,855	6,087	3,155	2,566	213	153	10,037		
22 Carpets, rag.....	24	168	32	11	1	2	122	Jy 138	Fe 97	115	93	12	10		225		
23 Carriages and wagons and materials.....	177	1,857	205	44	35	34	1,539	My 1,720	De 1,382	1,458	1,441	15	2		2,038		
24 Cars and general shop construction and repairs by steam-railroad companies.....	21	5,416		107	141	6	5,162	De 5,416	Je 5,028	5,416	5,386	30			5,997		
25 Cars and general shop construction and repairs by street-railroad companies.....	46	1,741		23	7	3	1,708	Jy 1,772	Fe 1,669	1,727	1,708	18	1		1,788		
26 Cars, steam-railroad, not including operations of railroad companies.....	4	705	1	31	53	4	616	Ja 839	Se 469	751	747		4		1,510		
27 Cash registers and calculating machines.....	4	54		7	1	4	42	De 61	Fe 20	61	60		1		194		
28 Chemicals.....	24	1,604	9	49	133	55	1,358	My 1,412	Fe 1,287	1,391	1,257	105	14	15	3,731		
29 Cloth, sponging and refinishing.....	4	52	5				47	Au 49	Ja 45	47	47				15		
30 Clothing, men's, including shirts.....	254	8,208	319	110	307	137	7,335	De 8,034	Ja 6,801	8,087	3,077	4,932	26	52	1,763		
31 Clothing, women's.....	174	6,686	210	127	271	265	5,813	Ap 6,212	Au 5,200	6,021	1,299	4,662	13	47	1,024		
32 Coffins, burial cases, and undertakers' goods.....	12	460	7	16	41	12	384	My 394	Je 376	380	327	62		1	733		
33 Confectionery.....	117	6,398	95	117	432	206	5,548	Oc 6,723	Jy 4,796	6,465	1,703	4,140	45	577	4,273		
34 Cooperage and wooden goods, not elsewhere specified.....	70	1,098	76	25	11	12	974	Ap 1,005	Ja 940	1,024	975	6	43		2,863		
35 Copper, tin, and sheet-iron products.....	150	3,145	142	118	171	87	2,627	No 2,821	Mh 2,349	2,722	2,434	241	34	13	1,806		
36 Cordage and twines and jute and linen goods.....	31	7,003	22	64	147	80	6,690	Ap 7,132	No 5,188	6,917	3,496	2,863	266	202	24,364		
37 Corsets.....	10	2,156	2	43	92	30	1,989	Mh 2,062	Au 1,833	1,979	165	1,712	7	95	455		
38 Cotton goods, including cotton small wares.....	182	110,686	43	750	711	268	108,914	De 110,781	Ja 106,070	111,253	56,914	47,992	3,101	3,246	362,043		
39 Cutlery and tools, not elsewhere specified.....	135	7,432	101	169	265	150	6,747	De 7,363	Jy 6,386	7,392	6,092	1,114	166	30	13,263		
40 Dairymen's, poulterers', and apiarists' supplies.....	5	18	5	2	1	1	9	No 10	Je 8	10	9	1			22		
41 Electrical machinery, apparatus, and supplies.....	83	16,725	34	544	1,149	491	14,507	De 16,926	Ja 12,239	17,020	13,414	3,451	114	41	14,835		
42 Electroplating.....	54	584	73	14	12	18	467	Oc 519	Au 410	553	342	196	8	7	406		
43 Emery and other abrasive wheels.....	13	744	7	22	88	12	615	De 706	Ja 523	705	677	14	14		1,710		
44 Enameling and japanning.....	16	147	16	6	3	3	119	De 129	My 103	136	78	54	4		132		
45 Fancy articles, not elsewhere specified.....	78	3,867	61	114	63	71	3,555	Oc 4,011	My 3,119	3,921	2,771	1,002	80	58	2,332		
46 Firearms and ammunition.....	8	2,483	5	28	73	50	2,327	Ja 2,430	No 2,200	2,300	2,070	161	64	5	3,059		
47 Fireworks.....	4	217		8	5	3	199	Ja 233	Jy 133	204	161	39	2	2	150		
48 Flags, banners, regalia, society badges, and emblems.....	14	79	10	10	6	7	48	Ja 52	Fe 42	48	11	35			8		
49 Flour-mill and gristmill products.....	120	437	151	18	24	15	229	De 237	Au 223	243	240	3			5,642		
50 Foundry and machine-shop products.....	857	49,393	643	1,360	2,335	876	44,179	De 48,740	Ja 40,164	49,396	48,036	737	583	40	52,802		
51 Fur goods.....	16	277	20	1	37	9	210	No 295	Mh 130	275	124	150		1	28		
52 Furnishing goods, men's.....	55	4,673	49	106	160	98	4,260	No 4,523	Jy 4,001	4,441	1,532	2,731	41	137	2,306		
53 Furniture and refrigerators.....	155	7,940	165	182	212	104	7,277	De 7,790	Ja 6,870	7,829	7,034	619	144	32	12,203		
54 Gas and electric fixtures and lamps and reflectors.....	25	766	17	25	36	25	663	De 773	Ja 586	818	708	78	31	1	478		
55 Gas, illuminating and heating.....	64	2,800	3	190	188	127	2,292	Jy 2,541	Mh 2,020	2,239	2,226	13			7,371		
56 Gloves and mittens, leather.....	8	129	5	4	6	5	109	Ja 127	Jy 89	120	35	84		1	21		
57 Gold and silver, leaf and foil.....	11	172	14	2	1	3	152	De 163	Au 106	163	86	74	3		33		
58 Gold and silver, reducing and refining, not from the ore.....	8	100	9	8		5	78	Ja 81	De 75	76	76				88		
59 Hand stamps and stencils and brands.....	31	175	37	2	10	9	117	De 122	Au 112	122	99	13	9	1	32		
60 Hats and caps, other than felt, straw, and wool.....	30	355	44	4	17	16	274	Au 287	De 250	294	208	82	3	1	52		
61 Hats, fur-felt.....	11	2,341	10	35	43	20	2,224	Mh 2,539	No 2,065	2,497	1,503	963	22	9	1,149		

1 No figures given for reasons explained in the Introduction.

MANUFACTURES—MASSACHUSETTS.

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THE STATE, BY INDUSTRIES: 1909.

Capital.	EXPENSES.										Value of products.	Value added by manu- facture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$1,279,686,553	\$1,320,860,282	\$32,629,601	\$30,648,942	\$301,173,464	\$25,817,129	\$804,947,814	\$6,988,812	\$14,306,552	\$12,092,607	\$92,261,361	\$1,490,529,386	\$659,764,443
2 605,234	592,553	26,200	36,637	188,056	5,930	280,702	10,550	6,577	.....	37,892	646,534	359,893
3 245,176	228,715	11,306	12,470	96,720	2,074	81,024	3,585	1,833	470	17,732	276,604	192,096
4 7,467,889	9,849,642	303,335	193,700	2,793,281	75,400	5,416,078	132,834	50,000	41,943	843,121	11,350,224	5,807,746
5 303,950	295,506	8,628	7,346	104,046	2,923	135,102	3,045	1,964	.....	32,452	326,245	188,220
6 4,426,900	5,040,989	67,370	277,990	554,562	20,125	3,636,962	17,705	31,613	2,020	432,681	5,647,360	1,981,273
7 2,070,835	2,302,332	54,950	98,079	579,565	24,911	1,352,665	2,000	8,119	115	181,910	2,708,258	1,328,082
8 63,115	74,192	8,000	1,200	21,925	1,079	30,749	4,444	446	.....	6,240	71,088	79,260
9 1,735,434	2,939,741	135,357	196,015	256,096	15,168	1,864,283	42,974	10,072	1,000	418,186	3,715,071	1,833,630
10 90,242,915	218,209,055	2,956,866	3,602,281	45,990,138	652,487	152,337,405	989,920	395,254	1,225,419	10,059,726	230,342,915	83,352,963
11 15,692,273	15,328,125	226,230	281,132	3,375,595	135,633	10,564,071	300	159,794	.....	645,364	18,722,363	8,082,669
12 181,988	233,821	15,302	12,308	60,810	2,474	129,630	1,510	1,824	.....	9,939	255,335	123,222
13 2,939,285	5,086,078	231,746	119,141	1,556,931	55,488	2,663,950	97,109	27,523	6,041	328,140	5,757,611	3,038,164
14 4,361,102	5,490,475	156,913	85,398	1,114,802	133,091	3,520,010	46,501	36,002	.....	14,530	6,042,216	2,379,206
15 12,761,629	22,045,254	182,771	735,759	3,814,002	445,011	15,281,522	400,990	90,980	8,649	1,975,670	26,146,044	10,418,611
16 1,476,337	1,030,100	50,304	16,912	509,302	205,175	34,723	9,082	16,553	.....	98,069	1,243,247	913,347
17 101,186	253,626	3,300	5,304	50,758	1,681	152,073	4,106	722	100	29,522	298,118	144,304
18 2,236,339	2,568,998	105,160	105,325	652,790	20,987	1,328,813	30,599	25,478	855	262,985	2,874,524	1,518,724
19 114,798	800,218	5,442	1,062	28,958	4,014	543,631	550	979	6,024	8,958	864,119	115,874
20 1,044,196	908,483	31,622	50,925	300,904	4,242	404,363	5,702	7,950	.....	102,775	978,442	509,837
21 4,112,374	6,124,706	156,915	166,662	642,102	33,235	4,549,662	43,691	20,022	600	505,907	6,840,306	2,257,400
22 11,450,096	11,202,188	202,914	262,873	2,793,293	237,869	7,263,241	9,923	138,591	3,400	320,114	12,811,981	5,310,871
23 64,853	112,475	16,868	2,280	52,530	2,887	20,276	6,579	332	406	10,308	132,280	109,117
24 2,823,651	2,588,858	60,578	48,224	985,994	50,227	1,231,554	53,415	23,208	8,318	122,340	3,184,835	1,903,054
25 5,100,017	7,753,807	118,579	121,655	3,446,605	141,060	3,835,374	.....	33,260	.....	57,004	7,803,807	3,827,373
26 2,135,202	2,139,830	31,100	6,770	1,095,709	20,448	654,263	700	16,060	500	14,281	2,139,828	1,165,127
27 3,529,948	3,341,417	59,725	38,259	501,069	28,551	2,463,233	850	19,178	.....	240,582	3,487,811	1,006,027
28 187,055	72,003	10,340	2,108	28,056	2,098	15,667	1,191	1,123	.....	11,030	88,594	70,829
29 5,185,221	5,048,399	164,028	219,742	811,378	187,060	2,861,192	9,147	44,009	.....	750,943	5,916,451	2,893,199
30 16,550	41,188	.....	.....	33,096	2,160	396	4,060	34	.....	1,442	63,402	60,906
31 8,241,940	16,310,781	278,909	402,950	3,398,387	83,459	9,672,192	189,141	81,151	1,601,284	603,258	18,313,783	8,563,132
32 4,222,853	10,362,486	241,403	416,388	2,446,277	50,621	6,460,711	190,797	25,091	23,632	506,906	11,727,980	5,216,648
33 967,897	857,963	30,314	77,605	230,997	5,892	438,189	4,392	6,107	.....	64,477	941,168	497,077
34 7,371,337	13,682,418	368,302	721,824	1,860,336	120,580	9,067,038	274,249	61,980	1,238	1,205,963	15,200,453	6,077,935
35 1,402,400	1,730,538	39,773	19,389	451,688	14,668	1,079,032	12,966	15,564	1,258	96,200	1,939,106	845,406
36 6,307,624	5,401,380	256,943	179,617	1,481,450	54,273	2,878,900	101,194	30,650	2,044	415,700	6,185,328	3,252,146
37 17,510,244	15,436,123	236,759	261,634	2,560,324	157,431	11,040,225	8,057	148,283	2,404	1,021,056	16,631,643	5,433,937
38 1,857,397	3,175,592	180,657	179,998	735,405	10,257	1,598,942	16,366	14,800	.....	432,107	3,751,041	2,144,442
39 214,017,247	164,686,952	2,014,077	835,114	46,117,069	4,041,092	101,115,702	32,045	2,539,622	375,840	8,015,785	180,462,313	81,305,519
40 12,415,650	9,616,905	435,604	394,766	3,738,254	207,525	3,276,874	32,190	104,194	11,557	1,415,851	11,610,749	8,120,350
41 12,802	37,834	2,500	1,800	4,782	487	23,416	1,101	136	350	3,202	57,850	33,947
42 32,961,277	26,182,536	1,188,180	1,275,078	8,209,174	401,831	12,272,080	86,786	120,781	122,552	2,450,165	28,142,880	15,408,060
43 431,043	491,031	15,260	20,460	238,670	9,608	154,045	29,435	1,593	1,450	20,510	678,346	514,895
44 1,738,740	1,485,484	69,311	102,058	429,396	64,833	499,540	4,382	13,563	6,000	295,710	1,981,536	1,417,102
45 141,522	201,950	12,100	4,069	55,714	5,640	170,561	5,429	1,329	25	6,433	345,235	169,034
46 2,924,990	5,814,539	201,483	97,660	1,630,122	55,936	3,458,173	44,790	16,813	4,000	305,622	6,018,241	3,104,132
47 4,312,518	3,044,548	115,999	107,504	1,457,784	63,540	688,041	7,476	45,107	.....	558,497	3,407,338	2,659,657
48 140,870	234,221	22,180	10,274	84,601	3,173	90,286	1,900	802	.....	21,305	285,475	192,016
49 79,665	120,449	10,642	6,068	19,904	760	72,406	7,255	300	.....	10,791	173,320	100,154
50 2,222,028	4,374,789	17,731	17,254	126,201	35,019	4,095,756	14,167	11,915	.....	56,746	4,632,145	501,370
51 103,651,669	78,985,362	3,546,140	2,893,622	27,931,771	1,325,431	29,856,450	560,924	680,841	594,684	7,459,484	80,925,671	55,743,781
52 730,232	820,751	4,160	20,339	152,988	2,141	550,348	25,332	4,171	3,000	52,272	954,790	402,801
53 6,004,809	10,340,021	305,073	303,793	1,952,480	52,836	6,599,125	41,696	54,441	84,513	940,064	12,020,510	5,377,558
54 16,813,397	11,661,356	417,228	259,972	3,986,177	159,957	5,647,921	94,999	16,796	16,796	913,724	13,867,543	8,059,640
55 724,903	1,442,048	54,209	45,291	399,953	22,955	788,704	20,128	3,681	616	107,321	1,500,354	697,725
56 52,983,671	7,053,566	323,861	205,199	1,250,097	2,770,366	1,039,798	10	707,308	27,421	729,826	11,074,854	7,264,220
57 107,153	116,057	5,890	7,099	52,484	1,252	41,533	2,580	463	250	4,516	134,937	91,852
58 99,606	255,022	3,210	4,085	77,337	1,290	102,361	2,212	348	1,250	2,903	281,926	118,249
59 566,225	1,297,351	18,142	3,185	57,270	4,941	1,008,242	6,690	2,444	.....	106,417	1,359,102	255,919
60 140,646	181,043	2,962	11,227	69,064	2,525	64,870	15,501	626	1,410	13,758	239,054	172,559
61 179,017	569,889	5,393	18,459	161,274	3,784	351,447	17,714	643	.....	21,235	658,696	323,435
62 2,261,684	3,356,205	95,028	51,665	990,107	44,698	1,887,204	15,370	8,468	20,748	242,917	3,745,873	1,813,971

\* Same number reported for one or more other months.

TABLE II.—DETAIL STATEMENT FOR THE

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.				Primary horse-power.	
		Total.	Proprietors and firm members.	Salaried officers, supts. and managers.	Clerks.		Average number.	Wage earners.			Total.	16 and over.		Under 16.			
					Male.	Female.		Maximum month.	Minimum month.	Male.		Female.	Male.	Female.			
															Number.		
1 Hats, straw.....	18	2,811	19	37	65	22	2,668	Mh	3,390	Jy	1,487	3,367	1,236	2,118	5	8	1,009
2 Hosiery and knit goods.....	65	10,287	37	110	121	78	9,941	No	10,399	Ja	9,625	10,287	4,284	5,549	128	326	9,113
3 Ice, manufactured.....	7	84	5	2	2	2	55	Jy	75	Ja	13	54	54	54	1	1	2,034
4 Iron and steel, steel works and rolling mills.....	9	3,465	110	187	53	3,115	3,115	De	3,544	Ap	2,820	3,544	3,427	116	1	1	24,500
5 Jewelry.....	175	8,560	202	237	394	304	7,423	De	8,195	Ap	6,794	8,201	5,143	2,849	116	93	4,018
6 Kaolin and ground earths.....	9	122	6	13	6	2	95	No	103	Ja	83	107	107	1	14	1	1,456
7 Lasts.....	27	803	27	38	47	16	675	Do	714	Ap	633	727	712	1	14	1	1,610
8 Leather goods.....	119	2,106	124	63	141	68	1,710	No	1,879	Ja	1,484	1,822	1,089	673	29	31	634
9 Leather, tanned, curried, and finished.....	132	11,006	112	246	309	87	10,252	De	11,546	Ap	9,708	11,309	11,105	147	49	8	10,231
10 Lime.....	9	588	2	20	0	3	557	Jy	643	Ja	385	520	520	520	520	520	589
11 Liquors, distilled.....	6	72	5	7	8	3	49	De	52	Au	42	52	52	52	52	52	806
12 Liquors, malt.....	37	2,091	8	103	231	10	1,739	Jy	1,856	Ja	1,648	1,728	1,716	12	12	12	9,917
13 Lumber and timber products.....	708	10,478	793	299	231	179	8,978	De	9,821	Au	8,101	10,577	10,176	316	80	5	44,784
14 Marble and stone work.....	330	5,712	412	119	128	38	5,015	My	5,533	Fe	4,044	4,943	4,923	2	18	2	16,515
15 Mattresses and spring beds.....	52	826	49	34	50	26	667	Oc	741	Fe	575	660	492	157	9	2	562
16 Millinery and lace goods.....	79	2,004	82	62	103	71	1,686	Mh	2,060	Au	1,271	1,789	313	1,443	5	28	391
17 Mirrors.....	6	127	2	6	5	4	110	De	128	Fe	97	126	123	3	3	3	140
18 Models and patterns, not including paper patterns.....	62	454	78	12	6	16	342	Jy	374	My	311	361	339	15	7	7	290
19 Musical instruments and materials, not specified.....	18	193	17	7	5	10	154	No	170	Ja	136	170	140	27	3	3	213
20 Musical instruments, pianos and organs and materials.....	59	4,681	33	137	195	71	4,245	De	4,612	Jy	4,037	4,553	4,185	257	32	79	4,454
21 Oil, essential.....	5	12	6	8	3	6	6	De	11	Ja	2	11	11	40	40	40	12
22 Oilcloth and linoleum.....	3	239	8	8	8	220	220	Au	224	Ja	211	226	186	40	40	40	375
23 Optical goods.....	11	2,661	6	69	32	44	2,460	Ap	2,650	Se	2,241	2,414	1,661	636	37	80	2,230
24 Paint and varnish.....	41	672	24	56	137	27	428	Ap	442	Ja	395	422	385	84	3	3	1,819
25 Paper and wood pulp.....	88	13,742	24	268	401	201	12,848	De	13,234	Jy	12,611	13,313	8,673	4,508	22	110	115,792
26 Paper goods, not elsewhere specified.....	61	5,710	24	167	229	155	5,135	De	5,527	Jy	4,909	5,507	2,701	2,536	78	192	6,778
27 Patent medicines and compounds and druggists' preparations.....	154	1,805	109	119	248	146	1,183	No	1,471	Au	1,022	1,371	639	712	6	14	1,376
28 Pens, fountain, stylographic, and gold.....	3	39	7	1	2	29	33	Au	33	De	22	28	25	2	2	2	9
29 Photographic apparatus and materials.....	5	48	2	10	3	1	32	Je	40	Fe	28	31	28	5	1	1	50
30 Photo-engraving.....	24	636	21	36	63	33	483	De	504	Ja	445	510	458	46	6	6	134
31 Pottery, terra-cotta, and fire-clay products.....	20	541	9	27	24	16	465	No	507	Fe	360	509	470	27	12	12	932
32 Printing and publishing.....	1,279	24,410	1,080	946	2,723	2,120	17,532	De	18,158	Au	10,746	18,317	12,837	4,968	404	108	47,629
33 Rubber goods, not elsewhere specified.....	29	3,924	9	97	244	156	3,418	Ja	3,958	Ja	3,069	3,937	3,095	745	56	41	10,123
34 Scales and balances.....	3	20	1	1	1	1	15	Se	18	Fe	12	16	16	16	16	16	16
35 Screws, machine.....	13	392	9	11	10	14	348	De	391	Ja	298	391	322	22	47	47	387
36 Sewing machines, cases, and attachments.....	6	981	3	22	82	5	869	Je	903	No	840	843	793	40	8	2	1,364
37 Shoddy.....	27	518	21	34	14	7	442	Mh	400	Se	422	474	414	58	2	2	4,688
38 Show cases.....	8	55	7	2	3	2	41	De	45	My	36	46	46	46	46	46	30
39 Signs and advertising novelties.....	14	197	10	13	29	9	136	De	157	Fe	116	167	109	50	1	1	30
40 Silk and silk goods, including throwsters.....	10	4,308	24	51	77	47	4,109	De	4,370	Ja	3,745	4,370	1,293	2,607	101	369	5,305
41 Silverware and plated ware.....	21	2,734	11	45	133	80	2,465	No	2,796	Jy	2,242	2,735	2,241	440	34	20	2,113
42 Slaughtering and meat packing.....	94	3,832	87	54	305	61	3,325	Ja	3,552	My	3,176	3,371	3,310	37	22	2	4,844
43 Steam packing.....	10	99	7	11	9	3	69	My	72	Ja	65	70	68	2	2	2	120
44 Stereotyping and electrotyping.....	11	292	11	13	19	10	239	Oc	244	Ja	234	240	229	9	2	2	243
45 Stoves and furnaces, including gas and oil stoves.....	21	1,911	5	48	124	31	1,703	De	1,795	Ja	1,376	1,814	1,803	8	3	3	1,804
46 Surgical appliances and artificial limbs.....	23	301	26	7	18	23	227	Se	235	Ja	205	230	151	78	1	1	337
47 Tobacco manufactures.....	417	4,258	458	56	149	44	3,551	Se	3,906	Ja	2,975	3,775	2,776	967	26	6	251
48 Type founding and printing materials.....	10	219	3	13	18	11	174	Ap	179	Au	157	177	118	57	2	2	118
49 Whips.....	29	1,203	28	36	88	46	1,005	Je	1,027	Fe	974	1,026	703	282	24	17	645
50 Woolen, worsted, and felt goods, and wool hats.....	183	55,533	103	634	598	325	53,873	Oc	55,879	Ja	49,715	56,182	31,563	21,368	1,420	1,841	117,119
51 All other industries.....	1,802	53,123	1,220	1,425	3,141	1,130	46,207										94,203

<sup>1</sup> Same number reported for one or more other months.

<sup>2</sup> All other industries embrace

Artificial flowers and feathers and plumes.....	1	Coke.....	1	Glass, cutting, staining, and ornamenting.....	33
Artists' materials.....	3	Cordials and sirups.....	7	Glucose and starch.....	4
Awning, tents, and sails.....	45	Cork, cutting.....	2	Glue.....	14
Axle grease.....	2	Crucibles.....	2	Grease and tallow.....	35
Babbitt metal and solder.....	4	Dentists' materials.....	4	Hair work.....	6
Bags, other than paper.....	5	Drug grinding.....	2	Hammocks.....	5
Bags, paper.....	3	Dyeing and finishing textiles.....	48	Hat and cap materials.....	3
Baking powders and yeast.....	9	Dyestuffs and extracts.....	10	Horseshoes, not made in steel works or rolling mills.....	3
Belting and hose, woven and rubber.....	8	Engravers' materials.....	1	House-furnishing goods, not elsewhere specified.....	18
Bluing.....	7	Engraving and diesinking.....	30	Ink, printing.....	2
Bone, carbon, and lamp black.....	3	Engraving, wood.....	4	Ink, writing.....	5
Butter, reworking.....	6	Explosives.....	2	Instruments, professional and scientific.....	23
Card cutting and designing.....	7	Fertilizers.....	6	Iron and steel, blast furnaces.....	1
Carriages and sleds, children's.....	7	Files.....	7	Iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills.....	10
Charcoal.....	2	Fire extinguishers, chemical.....	2	Iron and steel, doors and shutters.....	1
China decorating.....	1	Flavoring extracts.....	38	Iron and steel forgings.....	11
Chocolate and cocoa products.....	14	Food preparations.....	50	Iron and steel, nails and spikes, cut and wrought, including wire nails, not made in steel works or rolling mills.....	26
Clocks and watches, including cases and materials.....	2	Foundry supplies.....	1	Jewelry and instrument cases.....	10
Clothing, horse.....	3	Furs, dressed.....	1		
Clothing, men's, buttonholes.....	2	Galvanizing.....	3		
Coffee and spice, roasting and grinding.....	17	Glass.....	2		

STATE, BY INDUSTRIES: 1909—Continued.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.		
	Total.	Services.			Materials.		Miscellaneous.							
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.				
1	\$2,672,977	\$5,882,922	\$210,110	\$95,392	\$1,448,058	\$66,462	\$3,013,393	\$3,623	\$17,801		\$428,083	\$6,589,477	\$2,909,622	
2	12,477,388	12,287,791	309,390	206,677	3,854,828	174,846	6,708,700	28,717	95,280	\$168,501	652,786	14,736,025	7,764,419	
3	344,125	136,223	3,000	560	41,827	45,299	21,832		3,780		19,916	202,915	135,784	
4	14,193,549	13,131,504	187,723	187,351	1,976,966	760,307	0,271,966	1,050	85,048	1,271	660,182	13,567,628	8,535,355	
5	13,805,575	12,616,711	474,776	665,109	4,421,969	137,720	5,441,596	219,496	61,678	100,635	1,093,723	15,210,738	9,631,413	
6	392,227	260,560	23,630	6,287	43,351	12,394	145,649	2,300	5,068		2,500	19,381	300,060	142,026
7	1,469,019	1,561,492	110,110	64,458	525,603	25,794	585,320	21,329	7,775		36,068	184,975	1,909,386	1,298,272
8	2,371,434	3,922,542	120,351	185,503	858,851	19,000	2,366,709	71,523	10,299		225	283,121	4,373,266	1,986,697
9	41,196,568	37,445,910	624,805	327,018	5,443,944	607,623	28,157,985	116,926	166,112	241,533	1,759,904	40,002,070	11,236,671	
10	1,307,199	705,403	24,028	8,245	303,906	177,760	150,384	3,180	4,377		2,305	22,168	864,330	527,106
11	840,412	2,482,432	13,850	12,604	36,046	17,894	660,427	3,000	1,705,487			23,124	2,755,323	2,068,002
12	20,288,248	10,104,492	431,724	292,596	1,480,638	298,593	3,294,807	100	2,198,040	33,124		2,075,231	12,728,730	9,130,330
13	17,561,637	20,208,005	491,891	303,339	5,030,501	117,346	12,366,779	178,726	109,526		413,593	1,137,204	23,025,837	10,541,712
14	6,993,409	6,720,901	220,835	137,426	3,551,794	225,409	1,066,983	56,326	55,820		191,777	320,522	7,804,387	5,611,995
15	909,229	1,985,448	72,322	59,527	336,216	17,208	1,280,224	62,094	6,865			150,092	2,227,374	629,942
16	1,584,763	3,518,897	98,600	160,630	600,755	24,680	2,257,641	77,270	13,628		17,745	196,033	3,676,609	1,694,279
17	151,494	330,093	17,600	11,140	70,875	3,431	218,190	6,138	2,203			9,604	404,877	183,937
18	300,017	444,905	10,475	10,070	238,881	8,101	111,277	23,675	1,260		722	34,435	624,510	505,182
19	168,359	214,205	10,265	7,002	80,872	2,810	81,056	10,182	592		3,702	10,824	259,781	175,015
20	11,632,136	8,309,051	337,788	262,015	2,607,970	93,371	4,055,885	141,758	68,481		3,557	678,276	9,106,470	4,957,214
21	3,450	9,701			2,544	300	5,628	200	35			994	13,156	7,228
22	688,617	1,476,153	20,598	12,816	117,704	12,573	1,197,947	2,760	4,942			97,753	1,704,470	493,950
23	2,193,569	2,817,522	283,257	96,136	1,102,810	20,690	1,142,499	5,937	22,536			143,742	3,058,018	1,894,923
24	2,105,084	3,028,327	133,439	152,902	260,992	47,837	2,026,827	31,283	21,145			303,872	3,468,560	1,393,890
25	42,523,682	34,670,135	1,093,632	506,738	6,541,930	2,331,897	20,017,716	12,195	395,010	280,504		3,400,267	40,036,713	17,747,100
26	12,962,370	11,788,031	450,157	313,541	2,344,135	144,492	7,261,415	62,398	70,055		2,081	1,103,757	13,532,976	6,097,069
27	5,292,843	6,359,686	333,203	318,041	505,810	28,690	2,698,202	101,685	37,308		4,602	2,271,485	7,431,764	4,704,872
28	20,585	64,361		1,800	17,924	602	39,107	1,230	45			3,658	79,139	30,430
29	98,298	81,395		27,390	1,890	14,008	2,180	22,674	354		1,213	500	100,510	75,056
30	444,148	849,150	70,425	100,132	402,933	17,894	133,506	20,976	2,279		16,291	69,715	937,236	785,330
31	1,166,607	583,330	43,197	32,802	255,970	67,627	110,877	4,454	10,350		1,216	56,777	644,286	405,782
32	33,473,465	40,953,662	2,347,170	3,701,135	11,683,634	436,088	12,445,403	763,941	288,437		3,204,475	6,084,813	47,445,006	34,504,455
33	10,495,423	14,940,623	323,003	285,804	1,769,209	240,302	10,769,909	8,238	85,710		5,697	1,458,471	15,796,490	4,701,119
34	52,907	43,151	2,600	1,274	8,451	61	25,209	1,320	289			306	62,700	30,900
35	686,175	483,717	23,520	14,714	186,280	12,890	213,978	4,252	3,556			352	24,103	343,482
36	2,190,728	1,449,773	82,637	87,606	533,409	20,540	538,266	11,280	27,023			148,856	1,548,271	989,459
37	1,518,773	1,608,530	64,031	24,665	202,252	51,814	1,141,587	4,436	12,567		699	106,470	1,765,609	572,268
38	41,583	117,870	2,124	1,848	32,333	1,121	61,816	2,890	268		1,500	13,500	133,138	70,261
39	185,545	320,637	16,661	29,057	85,992	2,920	147,583	7,634	6,055			29,198	375,670	225,164
40	7,809,736	8,337,761	100,004	94,705	1,840,247	82,802	5,340,989	17,330	42,302		504,326	302,936	8,942,246	3,512,895
41	6,818,066	5,515,765	154,015	228,300	1,725,234	39,090	2,688,603	13,500	40,444			511,943	6,538,736	3,811,043
42	15,547,180	42,124,655	144,337	343,683	1,837,103	231,950	38,654,189	66,095	106,718		114,540	750,517	44,402,072	5,510,833
43	107,517	241,401	18,175	14,497	40,554	3,038	132,509	3,714	743			27,271	281,562	145,115
44	244,447	374,941	18,490	20,788	182,928	14,766	83,478	16,226	2,431			31,134	451,324	348,080
45	3,323,944	3,030,344	146,843	170,273	1,239,181	67,544	1,011,008	4,619	25,025		7,628	388,225	3,542,140	2,463,590
46	457,503	735,153	8,207	31,101	124,728	8,178	476,131	14,630	1,884		225	69,970	846,147	361,838
47	3,729,412	6,850,622	125,298	178,544	2,505,545	15,405	2,905,750	105,099	610,492		2,520	401,969	7,888,162	4,967,007
48	464,486	288,836	21,050	19,222	60,219	7,197	102,600	16,257	3,033			29,343	308,232	198,526
49	2,778,730	2,000,125	70,898	112,061	488,077	11,320	1,000,555	23,009	13,880		8,632	209,584	2,774,373	1,702,498
50	133,955,422	123,597,299	2,147,773	815,986	24,592,763	2,360,970	85,615,361	183,864	773,838		1,524,423	5,582,321	141,966,882	53,990,551
51	151,112,790	137,133,015	4,017,019	4,075,810	24,434,356	4,230,178	84,869,614	649,571	1,065,134		957,390	12,833,934	154,042,157	65,542,365

2 All other industries embrace—Continued.

Labels and tags.....	6	Pumps, not including steam pumps.....	3	Toys and games.....	16
Lard, refined, not made in slaughtering and meat-packing establishments.....	1	Roofing materials.....	4	Typewriters and supplies.....	1
Lead, bar, pipe, and sheet.....	1	Rules, ivory and wood.....	1	Umbrellas and canes.....	2
Looking-glass and picture frames.....	32	Safes and vaults.....	1	Upholstering materials.....	10
Mats and matting.....	2	Sand and emery paper and cloth.....	1	Vault lights and ventilators.....	2
Mineral and soda waters.....	145	Saws.....	10	Vinegar and cider.....	60
Mucilage and paste.....	20	Screws, wood.....	2	Wall paper.....	2
Needles, pins, and hooks and eyes.....	3	Shipbuilding, including boat building.....	115	Wall plaster.....	2
Oil, castor.....	1	Smelting and refining, not from the ore.....	3	Washing machines and clothes wringers.....	2
Oil, not elsewhere specified.....	17	Soap.....	38	Waste.....	9
Ordnance and accessories.....	1	Soda-water apparatus.....	5	Windmills.....	1
Paper patterns.....	1	Sporting and athletic goods.....	18	Window shades and fixtures.....	13
Paving materials.....	2	Springs, steel, car and carriage.....	3	Wire.....	10
Peanuts, grading, roasting, cleaning, and shelling.....	2	Stationery goods, not elsewhere specified.....	21	Wirework, including wire rope and cable.....	31
Pencils, lead.....	1	Statuary and art goods.....	15	Wood, turned and carved.....	69
Phonographs and graphophones.....	1	Straw goods, not elsewhere specified.....	1	Wool pulling.....	1
Pipes, tobacco.....	5	Sugar, refining, not including beet sugar.....	2	Wool scouring.....	8
		Sulphuric, nitric, and mixed acids.....	1		



TABLE III.—DETAIL STATEMENT FOR CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES, CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES. BOSTON.

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.						Pri- mary horse- power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).			Total.	16 and over.		Under 16.					
					Male.	Female.	Total.	Male.	Female.		Under 16.	Male.	Female.	Male.	Female.			
																16 and over.		
1 All industries.....	3,155	85,158	2,873	2,580	6,656	3,412	69,637	45,168	22,090	2,379	75,066	48,412	24,015	1,288	1,361	68,419		
2 Belting and hose, leather.....	5	76	.....	8	15	7	46	43	3	.....	48	45	3	.....	.....	43		
3 Blacking and cleansing and polishing preparations.....	23	206	10	23	31	17	125	71	48	6	123	70	47	4	2	114		
4 Boots and shoes, including cut stock and findings.....	43	6,790	32	111	189	342	6,116	3,174	1,890	1,052	6,823	3,540	2,108	685	490	2,062		
5 Boxes, fancy and paper.....	21	1,049	18	29	15	23	964	259	600	45	1,103	297	755	3	48	414		
6 Brass and bronze products.....	33	407	32	20	15	7	333	324	5	4	359	350	5	4	244			
7 Bread and other bakery products.....	285	2,758	303	16	291	149	1,999	1,529	434	30	2,042	1,563	442	9	28	6,603		
8 Canning and preserving.....	21	454	14	20	67	24	323	193	118	7	365	224	133	2	6	577		
9 Carriages and wagons and materials.....	26	347	29	11	3	6	298	297	1	.....	278	277	1	.....	460			
10 Cars, and general shop construction and repairs by steam-railroad companies.....	0	1,224	.....	7	45	.....	1,172	1,149	23	.....	1,209	1,185	24	.....	291			
11 Clothing, men's, including shirts.....	196	5,167	256	66	262	104	4,479	2,150	2,307	22	4,890	2,348	2,516	19	7	1,086		
12 Clothing, women's.....	122	4,101	147	85	169	160	3,540	1,037	2,469	34	3,520	1,031	2,455	11	23	491		
13 Confectionery.....	54	4,716	31	80	308	162	4,137	964	2,792	381	4,923	1,146	3,322	16	438	2,797		
14 Copper, tin, and sheet-iron products.....	85	1,999	84	59	102	52	1,702	1,499	177	20	1,666	1,494	176	22	4	840		
15 Cutlery and tools, not elsewhere specified.....	14	1,428	13	16	55	31	1,313	555	731	17	1,569	675	873	1	20	1,062		
16 Electrical machinery, apparatus, and supplies.....	27	1,609	11	58	94	66	1,380	858	494	28	1,703	1,060	610	28	5	1,505		
17 Foundry and machine-shop products.....	211	7,515	154	307	547	184	6,323	6,196	70	57	7,050	6,921	78	56	4	6,886		
18 Furniture and refrigerators.....	64	1,134	74	34	53	25	943	877	61	5	997	927	65	4	1	822		
19 Gas and electric fixtures and lamps and reflectors.....	16	231	12	9	18	14	178	157	2	19	200	177	2	21	.....	131		
20 Hosiery and knit goods.....	8	761	2	15	8	7	729	62	508	69	766	65	620	10	62	168		
21 Jewelry.....	32	394	30	12	20	29	303	252	39	12	325	270	42	13	.....	82		
22 Leather goods.....	45	711	49	21	53	30	558	341	208	9	607	371	226	3	7	152		
23 Liquors, malt.....	20	1,338	2	55	154	1	1,126	1,116	10	.....	1,099	1,089	10	.....	4,799			
24 Lumber and timber products.....	67	1,214	66	36	53	25	1,034	1,029	4	1	1,076	1,071	4	1	.....	3,295		
25 Marble and stone work.....	31	649	28	14	18	8	581	579	1	1	580	578	1	1	.....	1,146		
26 Mattresses and spring beds.....	28	616	24	29	45	22	496	363	120	8	492	365	119	6	2	383		
27 Millinery and lace goods.....	65	1,724	68	50	88	58	1,454	250	1,179	25	1,537	265	1,246	3	23	311		
28 Musical instruments, pianos and organs and materials.....	21	1,575	11	52	78	29	1,410	1,383	26	1	1,477	1,449	27	1	.....	917		
29 Paint and varnish.....	12	249	4	27	58	18	142	130	12	.....	137	125	12	.....	484			
30 Patent medicines and compounds and druggists' preparations.....	69	924	44	62	132	72	614	261	347	6	779	331	441	2	5	280		
31 Printing and publishing.....	564	12,113	418	514	1,884	1,040	8,257	5,862	2,213	182	8,679	6,163	2,324	167	25	6,248		
32 Slaughtering and meat packing.....	24	367	23	15	41	15	273	271	2	.....	299	297	2	.....	313			
33 Tobacco manufactures.....	145	2,646	148	30	115	35	2,318	1,796	510	12	2,432	1,885	535	9	3	70		
34 All other industries.....	772	18,666	736	677	1,632	650	14,971	10,121	4,526	314	15,774	10,658	4,781	187	148	23,293		

1 All other industries embrace: Artificial stone, 1; automobiles, including bodies and parts, 15; awnings, tents, and sails, 10; axle grease, 1; babbit metal and solder, 1; bags, other than paper, 2; baking powders and yeast, 6; baskets, and rattan and willow ware, 5; belting and hose, woven and rubber, 3; billiard tables and materials, 6; boxes, cigar, 2; brick and tile, 1; brooms, 4; brushes, 11; butter, cheese, and condensed milk, 2; butter, reworking, 1; buttons, 2; card cutting and designing, 4; carpets and rugs, other than rag, 1; carpets, rag, 2; cars and general shop construction and repairs by street-railroad companies, 1; cars, steam-railroad, not including operations of railroad companies, 1; cash registers and calculating machines, 1; chemicals, 9; chocolate and cocoa products, 1; clocks and watches, including cases and materials, 4; cloth, sponging and refinishing, 4; clothing, men's, buttonholes, 2; coffee and spice, roasting and grinding, 11; coffins, burial cases, and undertakers' goods, 3; cooperage and wooden goods, not elsewhere specified, 5; cordage and twine and jute and linen goods, 3; cordials and sirups, 6; cork, cutting, 2; corsets, 1; cotton goods, including cotton small wares, 1; dairymen's, poulterers', and apairists' supplies, 2; dentists' materials, 2; drug grinding, 1; dyeing and finishing textiles, 2; dyestuffs and extracts, 6; electroplating, 20; emery and other abrasive wheels, 1; enameling and japanning, 6; engravers' materials, 1; engraving and diesinking, 15; engraving, wood, 3; fancy articles, not elsewhere specified, 12; fertilizers, 2; files, 2; flags, banners, regalia, society badges, and emblems, 8; flavoring extracts, 15; flour-mill and gristmill products, 1; food preparations, 14; fur goods, 12; furnishing goods, men's, 20; furs, dressed, 1; galvanizing, 3; gas, illuminating and heating, 4; glass, cutting, staining and ornamenting, 22; gloves and mittens, leather, 5; glucose and starch, 1; glue, 2; gold and silver, leaf and foil, 4; gold and silver reducing and refining, not from the ore, 1; grease and tallow, 3; hair work, 4; hammocks, 2; hand stamps and stencils and brands, 17; hat and cap materials, 1; hats and caps, other than felt, straw, and wool, 28; hats, fur-felt, 5; hats, straw, 2; horseshoes, not made in steel works or rolling mills, 1; house-furnishing goods, not elsewhere specified, 6; ice, manufactured, 1; ink, printing, 1; instruments, professional and

BROCKTON.

1 All industries.....	196	16,291	176	286	600	492	14,737	10,661	3,834	242	16,386	11,840	4,279	143	124	9,778
2 Blacking and cleansing and polishing preparations.....	12	70	17	2	15	5	31	26	5	.....	34	28	6	.....	.....	45
3 Boots and shoes, including cut stock and findings.....	75	13,579	54	197	451	374	12,503	8,840	3,488	175	14,013	9,907	3,911	117	78	6,802
4 Boxes, fancy and paper.....	5	233	5	4	5	5	214	62	130	22	229	66	139	.....	24	148
5 Bread and other bakery products.....	11	295	10	6	31	25	223	165	41	17	234	173	43	2	16	188
6 Cutlery and tools, not elsewhere specified.....	8	119	6	4	4	3	102	102	.....	.....	110	110	.....	.....	.....	90
7 Foundry and machine-shop products.....	9	196	10	4	14	6	102	161	.....	1	170	169	.....	1	.....	273
8 Lasts.....	6	212	8	10	20	4	170	163	.....	7	186	178	.....	8	.....	318
9 Lumber and timber products.....	6	116	5	6	1	2	102	101	.....	1	109	108	.....	1	.....	495
10 Printing and publishing.....	16	345	14	15	12	24	280	240	32	8	301	258	35	8	.....	321
11 All other industries.....	43	1,126	47	38	47	44	950	801	138	11	1,000	843	145	6	6	1,083

1 All other industries embrace: Automobiles, including bodies and parts, 1; bicycles, motorcycles, and parts, 1; brass and bronze products, 1; carpets, rag, 1; carriages and wagons and materials, 2; cars and general shop construction and repairs by street-railroad companies, 1; clothing, men's, including shirts, 1; clothing, women's, 1; confectionery, 1; cooperage and wooden goods, not elsewhere specified, 1; copper, tin, and sheet-iron products, 1; cotton goods, including cotton small wares, 2; electroplating, 1; flavoring extracts, 2; flour-mill and gristmill products, 2; furnishing goods, men's, 3; gas, illuminating and heating, 1; gloves and mittens, leather, 1; hand

MANUFACTURES—MASSACHUSETTS.

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AND TOTALS FOR ALL INDUSTRIES IN CITIES OF 10,000 BUT LESS THAN 50,000 INHABITANTS: 1909.

CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES.

BOSTON.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$175,181,571	\$211,132,069	\$6,826,445	\$8,814,385	\$39,900,807	\$2,857,411	\$121,719,744	\$3,204,202	\$4,317,265	\$4,393,847	\$19,088,903	\$237,457,472	\$112,880,217
2 411,771	613,440	15,400	21,040	35,232	2,345	510,159	5,750	2,985	.....	19,569	988,278	185,774
3 301,797	713,411	83,900	49,022	66,799	5,246	411,892	10,780	2,145	900	76,715	810,983	402,855
4 11,257,336	24,325,047	324,407	345,764	3,046,062	01,090	10,743,366	100,412	37,910	2,279	632,857	20,140,755	6,311,399
5 488,209	1,131,715	60,057	31,286	362,148	13,205	544,748	42,016	3,475	.....	74,180	1,213,407	655,454
6 348,434	703,504	35,430	14,479	223,997	18,259	344,791	31,076	2,300	855	32,217	805,771	442,711
7 3,543,043	7,345,953	47,638	287,624	1,068,131	142,220	4,682,340	161,062	32,830	5,310	018,794	8,109,419	3,284,859
8 1,007,745	1,817,882	58,326	71,967	136,636	16,639	1,366,826	35,566	8,298	900	120,032	1,951,234	567,760
9 418,865	484,071	12,064	6,823	204,220	10,700	211,213	18,800	3,472	1,337	15,442	581,589	350,670
10 761,060	1,485,737	10,366	36,506	768,366	16,239	635,647	.....	6,857	.....	11,456	1,535,737	883,551
11 6,171,834	12,818,806	210,729	332,700	2,286,050	51,316	7,704,648	167,468	67,862	1,580,044	417,900	14,535,008	6,779,045
12 2,409,499	6,763,479	139,903	242,736	1,649,482	32,181	4,273,532	148,183	13,842	20,602	242,028	7,841,740	3,536,027
13 5,045,327	9,012,310	205,879	567,876	1,344,101	80,423	6,036,309	250,473	40,592	1,236	905,331	10,341,275	4,224,543
14 4,643,950	3,424,779	114,084	118,777	989,616	31,289	1,838,227	75,237	18,199	1,604	237,146	3,925,155	2,055,639
15 2,117,108	2,449,977	68,825	101,263	536,087	35,060	905,374	6,576	14,380	3,367	788,439	2,863,827	1,923,387
16 3,090,512	2,482,421	180,791	113,431	699,710	31,166	971,774	39,362	14,283	38,694	443,210	3,027,568	2,024,628
17 14,026,258	12,042,672	754,010	696,210	4,189,008	244,056	4,855,581	176,462	104,333	70,990	1,049,922	13,473,971	8,373,734
18 1,114,542	2,317,211	78,085	54,760	617,077	19,805	1,139,587	63,403	8,328	3,547	332,610	2,653,777	1,494,385
19 230,969	430,787	22,259	23,860	133,305	6,674	205,440	13,464	813	616	24,347	464,087	251,964
20 542,711	949,147	51,882	13,863	252,805	5,743	577,321	9,578	3,237	.....	34,718	1,026,293	443,229
21 395,632	552,014	21,947	32,390	189,391	5,155	243,168	22,591	2,310	2,610	32,446	710,164	461,841
22 653,899	1,319,710	35,285	76,758	279,036	7,471	789,899	37,872	4,328	25	88,160	1,433,593	630,253
23 13,435,765	5,885,733	279,830	198,339	1,049,213	101,565	1,795,309	.....	1,324,479	.....	1,109,538	7,553,099	5,590,795
24 1,496,814	2,618,798	69,492	62,272	726,656	28,381	1,696,945	77,988	14,161	6,128	123,775	3,026,594	1,488,268
25 904,065	1,074,560	55,340	21,567	459,030	19,306	433,582	30,739	6,798	5,803	42,455	1,152,198	690,310
26 641,650	1,602,374	64,450	53,011	248,088	11,015	1,036,701	56,346	4,439	.....	127,724	1,770,103	721,787
27 1,254,113	3,014,039	80,550	136,324	579,577	21,234	1,009,436	73,893	11,276	17,745	183,968	3,425,242	1,494,572
28 5,497,959	3,116,039	133,321	130,219	957,063	23,709	1,438,667	95,292	30,526	160	301,201	3,427,911	1,900,254
29 749,703	1,047,908	67,265	71,645	79,940	15,195	602,255	23,744	4,317	.....	183,601	1,064,915	447,525
30 1,631,954	3,272,564	195,747	167,228	282,422	12,830	1,525,425	67,720	13,188	2,942	1,005,062	3,965,908	2,427,743
31 18,409,787	24,364,963	1,467,144	2,521,235	6,033,088	210,779	6,751,333	497,326	174,300	2,275,512	4,434,240	28,021,108	21,050,056
32 503,890	3,908,507	29,811	47,695	171,706	21,251	3,492,006	31,504	1,880	.....	112,055	4,005,940	681,993
33 2,695,566	4,868,594	95,743	145,796	1,779,930	8,135	2,037,744	64,375	422,372	388	314,111	5,506,307	3,460,428
34 69,158,380	62,571,372	1,724,523	2,110,080	8,489,739	1,450,713	41,194,210	763,204	1,016,638	350,553	4,562,703	70,288,786	27,643,863

scientific, 15; iron and steel, steel works, and rolling mills, 2; iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills, 4; iron and steel forgings, 1; iron and steel, nails and spikes, cut and wrought, including wire nails, not made in steel works or rolling mills, 1; jewelry and instrument cases, 4; kaolin and ground earths, 1; labels and tags, 3; lasts, 1; lead, bar, pipe, and sheet, 1; leather, tanned, curried, and finished, 6; liquors, distilled, 2; looking-glass and picture frames, 19; mineral and soda waters, 25; mirrors, 5; models and patterns, not including paper patterns, 24; mucilage and paste, 5; musical instruments and materials, not specified, 10; oil, not elsewhere specified, 5; optical goods, 2; ordnance and accessories, 1; paper goods, not elsewhere specified, 14; peanuts, grading, roasting, cleaning, and shelling, 2; pens, fountain, stylographic, and gold, 1; photographic apparatus and materials, 1; photo-engraving, 19; pipes, tobacco, 4; pottery, terra-cotta, and fire-clay products, 4; pumps, not including steam pumps, 2; roofing materials, 2; rubber goods, not elsewhere specified, 5; rules, ivory and wood, 1; safes and vaults, 1; saws, 3; scales and balances, 2; screws, machine, 4; sewing machines, cases, and attachments, 4; shipbuilding, including boat building, 22; show cases, 6; signs and advertising novelties, 8; silk and silk goods, including throwsters, 3; silverware and plated ware, 6; smelting and refining, not from the ore, 1; soap, 13; soda-water apparatus, 4; sporting and athletic goods, 2; springs, steel, car and carriage, 1; stationery goods, not elsewhere specified, 3; statuary and art goods, 12; steam packing, 5; stereotyping and electrotyping, 6; stoves and furnaces, including gas and oil stoves, 3; sugar, refining, not including beet sugar, 1; surgical appliances and artificial limbs, 11; toys and games, 3; type founding and printing materials, 9; typewriters and supplies, 1; umbrellas and canes, 1; upholstering materials, 2; vane lights and ventilators, 2; wall plaster, 1; waste, 2; window shades and fixtures, 8; wirework, including wire rope and cable, 9; wood, turned and carved, 11; wool scouring, 1; woolen, worsted, and felt goods, and wool hats, 2.

BROCKTON.

1 \$18,978,317	\$42,439,766	\$720,355	\$976,091	\$9,122,298	\$214,575	\$28,350,822	\$110,995	\$104,065	\$165,177	\$2,665,788	\$45,972,388	\$17,406,991
2 120,963	247,837	2,611	15,501	23,484	410	165,283	3,540	291	.....	36,767	327,598	161,905
3 14,117,246	36,863,794	518,567	777,927	7,751,232	100,982	25,282,700	70,489	70,054	162,192	2,129,651	39,293,118	13,909,436
4 209,016	278,736	10,648	9,062	89,225	3,458	136,595	3,020	1,544	.....	25,184	329,020	188,967
5 387,701	793,029	16,710	37,990	125,567	11,833	441,530	6,652	3,254	.....	119,493	892,439	439,123
6 142,144	168,617	9,525	7,922	85,110	4,459	42,912	3,262	1,037	.....	14,390	203,888	156,517
7 344,704	323,594	9,470	19,122	119,137	3,103	113,145	4,240	2,253	.....	53,110	391,078	274,830
8 416,432	423,289	19,200	25,002	124,178	4,374	178,382	1,500	2,676	.....	67,977	538,793	355,947
9 300,079	290,184	7,960	2,313	62,860	2,052	192,144	3,456	2,345	2,000	15,045	340,433	145,237
10 359,167	489,529	24,542	20,611	211,133	4,833	187,603	8,565	2,003	985	20,254	669,504	477,008
11 2,580,865	2,591,107	101,122	60,641	530,363	79,071	1,610,528	15,271	19,203	.....	174,908	2,986,557	1,296,958

stamps and stencils and brands, 1; hosiery and knit goods, 1; house-furnishing goods, not elsewhere specified, 1; iron and steel, nails and spikes, cut and wrought, including wire nails, not made in steel works or rolling mills, 4; leather goods, 3; marble and stone work, 1; models and patterns, not including paper patterns, 3; mucilage and paste, 2; rubber goods, not elsewhere specified, 1; signs and advertising novelties, 1; slaughtering and meat packing, 3; sporting and athletic goods, 1; surgical appliances and artificial limbs, 1; tobacco manufactures, 1.

MANUFACTURES—MASSACHUSETTS.

TABLE III.—DETAIL STATEMENT FOR CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES, AND CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES—Continued.

CAMBRIDGE.

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).			Total.	16 and over.		Under 16.				
					Male.	Female.	Total.	16 and over.			Under 16.	Male.	Female.	Male.	Female.		
								Male.	Female.								
1 All industries.....	275	17,475	223	405	1,165	422	15,260	10,630	4,211	419	15,789	10,997	4,357	116	319	21,372	
2 Bread and other bakery products.....	40	1,042	37	19	132	53	801	577	195	29	789	568	192	6	23	862	
3 Carriages and wagons and materials.....	4	71	4	3	5	2	57	57			51	51			49		
4 Confectionery.....	12	804	11	19	55	19	700	164	449	87	757	177	485	5	90	517	
5 Copper, tin, and sheet-iron products.....	6	246	4	12	22	8	200	184	14	2	208	191	15	2	100		
6 Foundry and machine-shop products.....	25	2,602	13	58	240	31	2,260	2,165	90	5	2,381	2,281	95	5	3,176		
7 Furniture and refrigerators.....	13	874	14	25	44	11	780	751	15	14	842	811	16	15	1,262		
8 Lumber and timber products.....	11	394	10	20	11	8	345	345			382	382			1,261		
9 Marble and stone work.....	12	338	7	14	11	4	302	302			243	243			887		
10 Musical instruments, pianos and organs and materials.....	7	1,272	6	24	83	21	1,138	905	147	86	1,206	959	156	18	73	1,211	
11 Patent medicines and compounds and druggists' preparations.....	5	144	2	5	28	7	102	44	56	2	107	46	59		102		
12 Printing and publishing.....	41	2,178	45	52	59	29	1,993	1,134	823	36	2,014	1,146	832	22	14	1,442	
13 All other industries <sup>1</sup> .....	99	7,510	70	154	475	229	6,582	4,402	2,422	158	6,809	4,142	2,507	43	117	10,603	

<sup>1</sup> All other industries embrace: Artificial stone, 1; automobiles, including bodies and parts, 3; babbitt metal and solder, 1; belting and hose, woven and rubber, 1; blacking and cleansing and polishing preparations, 6; boots and shoes, rubber, 1; boxes, cigar, 1; boxes, fancy paper, 4; brass and bronze products, 2; brick and tile, 1; brooms, 1; brushes, 2; butter, cheese, and condensed milk, 1; canning and preserving, 1; cars and general shop construction and repairs by steam-railroad companies, 2; clothing, horse, 1; clothing, men's, including shirts, 2; clothing, women's, 1; coffins, burial cases, and undertakers' goods, 1; cooperage and wooden goods, not elsewhere specified, 1; cordage and twine and jute and linen goods, 1; cutlery and tools, not elsewhere specified, 1; electrical machinery, apparatus, and supplies, 4; flavoring extracts, 1; food preparations, 1; furnishing goods, men's 1; gas and electric fixtures and lamps and reflectors, 1; gas, illuminating and heating, 2; glass, cutting, staining, and ornamenting, 2; grease and tallow, 1; horseshoes, not made in steel works or rolling mills, 1; ink, writing, 1; instruments, professional and scientific, 2; jewelry, 2; jewelry

FALL RIVER.

1 All industries.....	288	38,210	247	336	382	106	37,139	20,459	14,949	1,731	38,078	21,032	15,284	808	894	122,061
2 Bread and other bakery products.....	74	318	74		13	14	217	188	22	7	223	193	23	6	1	19
3 Cordage and twine and jute and linen goods.....	5	71	5				65	42	10	13	66	43	10	13		160
4 Cotton goods, including cotton small wares.....	45	30,790	8	174	157	44	30,407	15,204	13,683	1,520	31,016	15,517	13,957	715	827	110,975
5 Foundry and machine-shop products.....	33	860	43	32	20	6	759	651	78	30	790	677	81	19	13	629
6 Liquors, malt.....	3	99		7	12		80	80			96	96				1,860
7 Lumber and timber products.....	8	99	13	3	15		68	66		2	78	76		2		648
8 Marble and stone work.....	12	120	13	1	3		103	99		4	101	97		4		549
9 Printing and publishing.....	21	240	17	13	15	5	190	167	20	3	200	176	21	2	1	171
10 All other industries <sup>1</sup> .....	87	5,613	74	106	147	36	5,250	3,962	1,136	152	5,508	4,157	1,192	107	52	7,060

<sup>1</sup> All other industries embrace: Awnings, tents, and sails, 2; belting and hose, leather, 2; blacking and cleansing and polishing preparations, 1; boots and shoes, including cut stock and findings, 1; brooms, 1; brushes, 2; canning and preserving, 2; carpets, rag, 1; carriages and wagons and materials, 5; cars and general shop construction and repairs by street-railroad companies, 1; clothing, horse, 1; clothing, men's, including shirts, 1; clothing, women's, 1; coffins, burial cases, and undertakers' goods, 1; confectionery, 4; copper, tin, and sheet-iron products, 6; cutlery and tools, not elsewhere specified, 1; dyeing and finishing textiles, 4; electroplating, 1; flavoring extracts, 1;

HOLYOKE.

1 All industries.....	187	17,776	153	326	484	300	16,513	8,906	6,458	1,149	17,417	9,373	6,815	496	733	60,269
2 Brass and bronze products.....	3	61	4	3	5	4	45	43	2		45	43	2			55
3 Bread and other bakery products.....	27	181	33	6	9	25	108	103	3	2	109	104	3	2		24
4 Foundry and machine-shop products.....	17	1,190	14	43	106	25	1,002	976	1	25	1,092	1,084	1	27		1,455
5 Lumber and timber products.....	4	153	2	11	7	2	131	127		4	131	127		4		410
6 Paper and wood pulp.....	23	4,754		86	122	66	4,480	2,643	1,805	32	4,540	2,678	1,820	5	23	30,069
7 Paper goods, not elsewhere specified.....	4	457		8	14	18	417	266	139	12	435	277	145	4	9	740
8 Printing and publishing.....	27	886	19	21	59	51	736	444	195	97	765	461	203	63	38	371
9 Tobacco manufactures.....	17	96	17		4	2	73	58	14	1	74	59	14	1		181
10 All other industries <sup>1</sup> .....	65	9,098	64	148	158	107	9,521	4,246	4,299	976	10,226	4,500	4,618	390	658	18,145

<sup>1</sup> All other industries embrace: Artificial stone, 4; belting and hose, leather, 1; bluing, 1; boxes, fancy and paper, 1; brick and tile, 1; brooms, 1; carpets, rag, 1; carriages and wagons and materials, 3; copper, tin, and sheet-iron products, 4; cotton goods, including cotton small wares, 4; cutlery and tools, not elsewhere specified, 1; dyeing and finishing textiles, 1; electroplating, 1; flour-mill and gristmill products, 2; furniture and refrigerators, 1; gas, illuminating and heating, 1; hand stamps and stencils and brands, 1; leather goods, 3; marble and stone work, 3; mattresses and spring beds, 1; mineral and soda waters, 3; models and patterns, not including paper

LAWRENCE.

1 All industries.....	162	31,689	145	322	278	202	30,542	17,493	11,444	1,605	30,747	17,704	11,443	833	767	73,066
2 Bread and other bakery products.....	20	184	32		6	3	143	128	12	3	157	141	13	2	1	129
3 Carriages and wagons and materials.....	8	193	7	5	4	6	171	171			176	176				220
4 Cotton goods, including cotton small wares.....	6	4,978	1	29	22	12	4,914	2,439	2,262	213	5,145	2,554	2,368	124	99	16,172
5 Foundry and machine-shop products.....	27	1,126	23	38	26	27	1,012	911	82	19	1,031	928	84	11	8	1,238
6 Lumber and timber products.....	5	423	2	7	9	3	402	401		1	428	427		1		1,170
7 Printing and publishing.....	18	176	21	9	12	8	126	113	8	5	131	118	8	5		166
8 Woolen, worsted, and felt goods and wool hats.....	15	20,668	17	162	190	96	20,203	10,585	8,378	1,240	19,783	10,365	8,204	613	601	44,638
9 All other industries <sup>1</sup> .....	57	3,841	42	72	100	47	3,571	2,745	702	124	3,896	2,995	766	77	58	9,333

<sup>1</sup> All other industries embrace: Belting and hose, leather, 1; belting and hose, woven and rubber, 1; boots and shoes, including cut stock and findings, 2; boxes, fancy and paper, 1; brass and bronze products, 2; brooms, 2; brushes, 2; cars and general shop construction and repairs by steam-railroad companies, 1; cars and general shop construction and repairs by street-railroad companies, 1; clothing, women's, 1; copper, tin, and sheet-iron products, 1; dyeing and finishing textiles, 6; files, 1; flour-mill

MANUFACTURES—MASSACHUSETTS.

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TOTALS FOR ALL INDUSTRIES IN CITIES OF 10,000 BUT LESS THAN 50,000 INHABITANTS: 1909—Continued.

CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES—Continued.

CAMBRIDGE.

	Capital.	EXPENSES.										Value of products.	Value added by manufacture.
		Total.	Services.			Materials.			Miscellaneous.				
			Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1	\$37,928,906	\$38,452,610	\$1,038,932	\$1,365,266	\$8,365,454	\$750,197	\$22,815,460	\$204,053	\$323,944	\$192,543	\$3,306,161	\$44,227,395	\$20,661,738
2	4,229,958	2,787,932	37,420	111,708	440,038	45,094	1,914,710	10,073	18,283	1,000	199,700	2,962,488	1,001,778
3	66,651	91,183	3,528	5,484	34,355	2,247	37,121	5,030	494	.....	104,957	104,957	65,589
4	855,174	1,629,470	41,958	89,590	217,568	15,524	1,156,187	5,845	8,668	.....	94,130	1,909,771	738,000
5	448,273	488,793	36,128	18,492	104,487	0,363	287,366	3,674	4,506	.....	47,717	530,191	259,432
6	8,093,990	4,113,817	188,284	215,125	1,420,048	65,813	1,695,350	10,268	38,746	101,483	368,600	4,788,694	3,027,531
7	1,445,037	1,287,249	53,908	71,024	603,280	23,200	393,308	15,825	11,694	4,652	110,448	1,392,270	975,762
8	653,901	773,240	42,171	13,247	231,757	7,055	400,739	10,948	6,797	4,000	469,609	875,063	466,322
9	441,797	515,875	26,367	14,102	241,838	13,301	199,569	7,318	3,996	3,970	35,234	605,048	422,088
10	2,708,312	1,984,745	66,066	89,776	635,775	20,520	922,035	17,137	20,835	1,907	213,595	2,173,633	1,230,069
11	214,746	245,791	6,728	27,439	59,848	2,516	117,145	730	3,718	.....	27,607	264,435	144,774
12	2,350,069	2,907,004	110,852	80,321	1,185,204	24,099	1,255,644	30,892	22,449	64,491	126,992	3,367,588	2,087,845
13	16,422,998	21,628,041	425,522	631,868	3,181,596	522,566	14,480,293	65,913	183,878	10,960	2,119,545	25,253,357	10,244,588

and instrument cases, 1; leather, tanned, curried, and finished, 1; looking-glass and picture frames, 4; mattresses and spring beds, 1; mineral and soda waters, 2; models and patterns, not including paper patterns, 1; mucilage and paste, 2; oil, not elsewhere specified, 1; paint and varnish, 1; paper goods, not elsewhere specified, 1; paving materials, 1; pottery, terra-cotta, and fire-clay products, 1; shipbuilding, including boat building, 2; show cases, 1; silk and silk goods, including throwsters, 1; slaughtering and meat packing, 6; smelting and refining, not from the ore, 1; soap, 3; springs, steel, car and carriage, 1; stationary goods, not elsewhere specified, 1; steam packing, 1; sugar, refining, not including beet sugar, 1; tobacco manufactures, 4; window shades and fixtures, 1; wirework, including wire rope and cable, 1; wood, turned and carved, 3.

FALL RIVER.

1	\$82,086,197	\$56,477,066	\$1,146,234	\$367,978	\$15,339,041	\$1,720,300	\$33,803,032	\$74,788	\$1,041,478	\$182,181	\$2,801,434	\$64,145,726	\$28,621,794
2	183,624	663,873	.....	12,662	126,875	17,793	461,589	10,430	1,010	190	20,424	790,054	316,672
3	335,646	87,289	.....	468	19,455	900	62,049	1,200	585	532	2,040	102,020	39,011
4	62,747,923	43,287,104	666,707	159,312	12,105,778	1,230,448	20,332,719	6,625	853,613	145,950	1,791,662	48,570,114	21,012,947
5	999,201	1,119,270	63,767	18,892	372,810	20,377	584,310	12,575	7,153	476	38,932	1,341,712	737,016
6	1,115,990	324,910	21,240	8,213	45,114	16,325	89,887	.....	64,641	33,124	46,366	800,620	274,398
7	183,499	269,036	5,270	13,790	38,150	1,003	205,079	792	1,003	.....	3,947	318,300	112,218
8	80,961	119,912	1,100	2,380	80,058	7,041	16,562	624	1,908	1,310	8,020	158,252	134,649
9	417,998	321,508	20,810	11,758	142,204	6,986	89,440	8,527	3,681	300	38,712	269,309	269,883
10	16,051,355	10,284,164	307,340	140,533	2,407,607	420,367	5,961,088	34,015	106,982	300	845,032	12,107,445	5,725,090

flour-mill and gristmill products, 3; furnishing goods, men's, 2; furniture and refrigerators, 1; gas, illuminating and heating, 1; grease and tallow, 1; hat and cap materials, 1; hats, fur-felt, 2; jewelry, 1; mattresses and spring beds, 1; millinery and lace goods, 1; mineral and soda waters, 6; models and patterns, not including paper patterns, 1; musical instruments, pianos and organs and materials, 4; paint and varnish, 1; paper goods, not elsewhere specified, 3; patent medicines and compounds and druggists' preparations, 2; pipes, tobacco, 1; slaughtering and meat packing, 7; tobacco manufactures, 7; waste, 1; wood, turned and carved, 1.

HOLYOKE.

1	\$42,674,771	\$36,454,896	\$1,001,399	\$675,892	\$8,075,977	\$1,169,800	\$21,130,787	\$58,205	\$364,730	\$1,421,770	\$2,556,736	\$40,097,224	\$17,796,637
2	94,851	126,307	5,900	7,072	28,009	2,597	61,879	1,280	448	.....	19,482	139,080	75,504
3	159,059	403,773	5,304	14,274	70,008	0,279	295,894	8,823	1,405	.....	22,786	464,258	180,085
4	2,837,551	1,807,720	125,408	100,333	621,479	39,289	806,878	2,404	15,177	540	69,212	2,004,014	1,251,747
5	233,411	295,918	12,517	7,474	70,558	1,149	175,390	.....	3,650	.....	25,271	391,843	185,295
6	14,036,314	10,959,322	374,139	177,633	2,210,881	745,346	6,500,302	655	148,812	.....	803,254	12,304,300	5,061,152
7	1,353,499	1,326,266	39,343	41,757	203,798	14,481	932,830	850	8,399	.....	84,898	1,423,820	476,509
8	1,427,597	1,280,029	44,760	92,600	370,598	9,748	623,746	4,443	10,316	23,170	100,594	1,449,545	819,051
9	58,143	103,037	.....	3,242	43,725	644	37,096	3,480	19,736	.....	3,544	128,235	89,925
10	22,474,436	20,152,564	394,938	231,441	4,450,023	352,267	11,720,193	35,970	165,977	1,398,000	1,397,095	21,729,829	9,651,369

patterns, 1; mucilage and paste, 1; musical instruments and materials, not specified, 1; silk and silk goods, including throwsters, 2; slaughtering and meat packing, 3; stationary goods, not elsewhere specified, 7; stereotyping and electrotyping, 1; umbrellas and canes, 1; washing machines and clothes wringers, 1; wire, 1; wirework, including wire rope and cable, 2; woolen, worsted, and felt goods, and wool hats, 5.

LAWRENCE.

1	\$79,550,475	\$65,297,219	\$1,062,461	\$518,120	\$13,786,580	\$1,615,772	\$43,822,290	\$50,729	\$560,363	\$446,799	\$3,434,105	\$79,992,668	\$34,554,606
2	292,311	490,500	.....	8,944	88,835	12,202	355,074	4,278	2,419	250	24,553	572,225	204,940
3	400,759	311,117	13,970	5,980	99,631	4,838	104,875	1,740	3,794	.....	350	383,756	214,043
4	9,149,634	6,451,207	93,705	26,926	2,029,092	147,195	3,771,249	200	107,949	2,457	271,834	6,825,500	2,007,056
5	1,440,953	1,539,830	69,410	38,601	578,487	34,607	692,270	13,435	10,038	9,388	87,498	1,720,443	993,470
6	774,899	1,324,077	13,813	8,366	229,776	3,243	1,034,008	2,190	7,443	.....	25,325	1,389,832	352,681
7	169,314	210,564	20,254	12,773	88,020	7,880	58,627	8,736	1,105	1,260	11,314	253,851	187,355
8	57,487,392	46,573,913	637,538	299,849	8,898,508	942,056	32,714,237	8,037	281,832	228,400	2,662,796	58,535,960	24,879,057
9	9,855,213	8,389,951	213,771	116,681	1,773,025	463,072	5,031,944	12,203	139,783	204,634	434,838	10,311,111	4,816,095

and gristmill products, 1; food preparations, 1; gas, illuminating and heating, 1; jewelry, 1; leather goods, 1; liquors, malt, 1; marble and stone work, 6; mats and matting, 1; mattresses and spring beds, 1; mineral and soda waters, 4; models and patterns, not including paper patterns, 1; paper and wood pulp, 4; shipbuilding, including boat building, 1; slaughtering and meat packing, 3; soap, 1; tobacco manufactures, 4; wood, turned and carved, 2; wool scouring, 1.

MANUFACTURES—MASSACHUSETTS.

TABLE III.—DETAIL STATEMENT FOR CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES, AND CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES—Continued.

LOWELL.

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).					Total.	16 and over.		Under 16.		
					Male.	Female.	Total.	16 and over.		Under 16.	Male.		Female.	Male.	Female.		
								Male.	Female.								
1 All industries.....	320	34,108	316	343	539	335	32,575	20,263	11,083	1,229	34,009	21,299	11,427	617	666	72,012	
2 Boots and shoes, including cut stock and findings.....	7	1,343	3	32	25	24	1,250	822	346	91	1,603	1,047	441	81	34	618	
3 Bread and other bakery products.....	46	298	65	3	27	37	166	157	7	2	178	169	7	2	58		
4 Cotton goods, including cotton small wares.....	11	14,003	2	51	83	34	13,833	7,550	5,789	494	13,904	7,589	5,810	224	272	41,955	
5 Foundry and machine-shop products.....	35	2,735	30	40	38	28	2,509	2,573	13	13	3,044	3,013	15	12	4	2,706	
6 Lumber and timber products.....	17	492	18	13	8	13	410	408	.....	2	458	456	.....	2	.....	1,637	
7 Patent medicines and compounds and druggists' preparations.....	7	257	4	7	23	40	183	109	73	1	193	115	77	.....	1	496	
8 Printing and publishing.....	26	354	26	25	34	19	250	208	40	2	295	220	43	2	.....	349	
9 Woolen, worsted, and felt goods, and wool hats.....	12	3,187	10	29	58	41	3,049	1,497	1,372	180	3,422	1,681	1,540	68	133	6,257	
10 All other industries <sup>1</sup> .....	159	11,469	158	143	243	99	10,826	6,939	3,443	444	10,942	7,009	3,485	226	222	17,636	

<sup>1</sup> All other industries embrace: Artists' materials, 1; awnings, tents, and sails, 2; baking powders and yeast, 1; belting and hose, leather, 1; blacking and cleansing and polishing preparations, 3; bluing, 1; boxes, fancy and paper, 3; brass and bronze products, 3; brushes, 2; buttons, 1; canning and preserving, 2; carpets and rugs, other than rag, 2; carpets, rag, 1; carriages and wagons and materials, 3; cars and general shop construction and repairs by street-railroad companies, 1; clothing, men's, including shirts, 1; clothing, women's, 3; coffee and spice, roasting and grinding, 1; coffins, burial cases, and undertakers' goods, 1; confectionery, 7; copper, tin, and sheet-iron products, 6; cordage and twine and jute and linen goods, 1; cutlery and tools, not elsewhere specified, 1; dyeing and finishing textiles, 2; electrical machinery, apparatus, and supplies, 6; electroplating, 2; fancy articles, not elsewhere specified, 1; files, 1; firearms and ammunition, 1; flags, banners, regalia, society badges, and emblems, 1; flavoring extracts, 1; flour-mill and gristmill products, 1; food preparations, 4; furniture and refrigerators, 2; gas and electric fixtures and lamps

LYNN.

1 All industries.....	431	30,685	469	731	1,212	905	27,368	19,077	8,063	228	29,508	20,657	8,609	155	87	17,089
2 Blacking and cleansing and polishing preparations.....	14	109	19	6	27	13	44	44	.....	.....	44	44	.....	.....	.....	76
3 Boots and shoes, including cut stock and findings.....	207	17,942	240	343	440	570	16,340	9,024	6,229	106	17,176	10,422	6,546	136	72	5,488
4 Boxes, fancy and paper.....	6	378	1	14	2	13	348	157	174	17	369	167	184	4	14	265
5 Bread and other bakery products.....	37	222	38	4	7	8	165	145	19	1	167	147	19	1	.....	42
6 Foundry and machine-shop products.....	26	518	29	28	26	24	411	409	1	1	482	480	1	1	.....	370
7 Lasts.....	5	95	8	.....	6	.....	81	81	.....	.....	83	83	.....	.....	.....	187
8 Leather, tanned, curried, and finished.....	8	1,148	1	32	40	13	1,062	1,062	.....	2	1,074	1,072	.....	2	.....	1,185
9 Lumber and timber products.....	6	142	5	2	1	5	129	106	23	.....	134	110	24	.....	.....	363
10 Patent medicines and compounds and druggists' preparations.....	7	93	5	8	4	2	74	29	45	.....	77	30	47	.....	.....	41
11 Printing and publishing.....	26	331	27	10	49	17	223	184	38	6	233	188	39	6	.....	177
12 All other industries <sup>1</sup> .....	89	9,707	96	284	610	240	8,477	6,038	1,534	5	9,660	7,014	1,740	5	1	3,895

<sup>1</sup> All other industries embrace: Artificial stone, 2; awnings, tents, and sails, 1; brass and bronze products, 2; brick and tile, 2; carriages and wagons and materials, 5; cars and general shop construction and repairs by street-railroad companies, 1; clothing, men's, buttonholes, 1; clothing, men's, including shirts, 2; clothing, women's, 1; confectionery, 2; cooperage and wooden goods, not elsewhere specified, 2; copper, tin, and sheet-iron products, 1; cutlery and tools, not elsewhere specified, 2; electrical machinery, apparatus, and supplies, 6; fancy articles, not elsewhere specified, 1; flavoring extracts, 2; flour-mill and gristmill products, 2; food preparations, 2; gas,

NEW BEDFORD.

1 All industries.....	207	27,538	303	205	334	130	26,566	15,700	9,516	1,350	27,340	16,224	9,731	687	698	76,147
2 Bread and other bakery products.....	44	492	163	6	25	9	289	233	52	4	311	251	56	3	1	99
3 Carriages and wagons and materials.....	6	76	6	2	1	1	66	66	.....	.....	66	66	.....	.....	.....	45
4 Cotton goods, including cotton small wares.....	22	22,457	3	104	169	40	22,141	12,026	8,375	1,240	22,580	12,264	9,051	613	652	68,155
5 Foundry and machine-shop products.....	16	313	13	16	2	6	276	257	17	2	301	281	18	2	.....	1,019
6 Lumber and timber products.....	8	196	11	3	7	4	171	161	.....	10	245	230	.....	15	.....	759
7 Printing and publishing.....	17	314	18	12	10	9	265	221	40	4	272	227	41	4	.....	199
8 All other industries <sup>1</sup> .....	94	3,690	89	62	120	61	3,358	2,736	532	90	3,565	2,905	565	50	45	5,871

<sup>1</sup> All other industries embrace: Artificial stone, 3; awnings, tents, and sails, 2; baking powders and yeast, 1; boots and shoes, including cut stock and findings, 3; boxes, fancy and paper, 2; brass and bronze products, 3; brooms, 1; card cutting and designing, 1; carpets and rugs, other than rag, 1; cars and general shop construction and repairs by street-railroad companies, 1; chemicals, 1; clothing, men's, including shirts, 1; confectionery, 1; cooperage and wooden goods, not elsewhere specified, 2; copper, tin, and sheet-iron products, 5; cordage and twine and jute and linen goods, 4; cutlery and tools, not elsewhere specified, 1; electrical machinery, apparatus, and supplies, 1; electroplating, 1; fancy articles, not elsewhere specified, 1; firearms and ammunition, 1; furniture and refrigerators, 2; gas, illuminating and heating, 1; glass, 1; glass,

SOMERVILLE.

1 All industries.....	114	5,951	97	99	363	112	5,280	4,841	370	69	5,446	4,081	393	69	3	7,680
2 Bread and other bakery products.....	28	180	33	2	5	20	120	83	35	2	126	87	37	2	.....	55
3 Foundry and machine-shop products.....	6	108	7	.....	3	4	94	92	.....	2	78	76	.....	2	.....	72
4 Slaughtering and meat packing.....	7	2,553	2	20	211	25	2,292	2,244	27	21	2,271	2,224	27	18	2	3,308
5 All other industries <sup>1</sup> .....	73	3,110	55	77	144	60	2,774	2,422	308	44	2,971	2,594	329	47	1	4,245

<sup>1</sup> All other industries embrace: Artificial stone, 1; blacking and cleansing and polishing preparations, 1; bluing, 1; boxes, fancy and paper, 1; brass and bronze products, 2; brooms, 1; brushes, 1; carriages and wagons and materials, 3; cars and general shop construction and repairs by steam-railroad companies, 2; clothing, men's, including shirts, 1; clothing, women's, 1; coffins, burial cases, and undertakers' goods, 1; confectionery, 4; cooperage and wooden goods, not elsewhere specified, 3; copper, tin, and sheet-iron products, 1; cutlery and tools, not elsewhere specified, 2; dyeing and finishing textiles, 1; electrical machinery, apparatus, and supplies, 2; fancy articles, not

MANUFACTURES—MASSACHUSETTS.

TOTALS FOR ALL INDUSTRIES IN CITIES OF 10,000 BUT LESS THAN 50,000 INHABITANTS: 1909—Continued.

CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES—Continued.

LOWELL.

	Capital.	EXPENSES.									Value of products.	Value added by manufacture.	
		Total.	Services.			Materials.		Miscellaneous.					
			Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.			Other.
1	\$61,083,551	\$53,714,612	\$917,937	\$764,474	\$14,149,106	\$1,245,648	\$31,585,097	\$200,289	\$709,798	\$72,087	\$4,070,176	\$60,270,961	\$27,440,216
2	963,999	2,443,359	53,126	33,292	561,739	13,773	1,068,227	9,734	5,286	.....	98,182	2,649,838	967,838
3	171,152	662,430	4,736	23,391	103,320	15,231	467,150	16,682	2,179	.....	24,720	750,090	267,703
4	24,270,467	21,701,563	216,302	114,286	5,652,636	522,211	13,420,692	4,023	204,340	.....	1,507,073	24,744,240	10,801,337
5	4,484,935	3,751,735	104,530	79,732	1,418,293	76,340	1,745,840	11,023	44,179	3,869	207,270	4,332,069	2,510,789
6	719,722	1,011,019	14,658	11,958	211,162	3,442	730,454	16,925	5,488	.....	16,934	1,066,171	332,275
7	1,653,668	1,046,633	29,262	52,596	94,610	5,588	343,278	19,550	7,089	150	494,560	1,130,049	781,183
8	616,395	662,812	59,274	44,674	177,853	12,613	280,849	14,735	5,183	13,394	48,237	796,064	496,002
9	6,152,264	5,842,718	83,050	50,585	1,336,700	126,765	3,921,083	40,104	40,049	52,803	191,579	6,165,052	2,637,235
10	22,945,940	18,592,293	352,949	348,960	4,592,787	469,685	9,001,518	66,913	396,007	1,871	1,361,003	18,696,457	9,225,254

and reflectors, 1; gas, illuminating and heating, 1; glucose and starch, 1; glue, 1; hand stamps and stencils and brands, 3; hats, fur-felt, 1; hosiery and knit goods, 5; jewelry, 2; leather goods, 5; leather, tanned, curried, and finished, 3; liquors, malt, 1; marble and stone work, 9; mats and matting, 1; mattresses and spring beds, 2; millinery and lace goods, 2; mineral and soda waters, 4; models and patterns, not including paper patterns, 2; musical instruments, pianos and organs and materials, 1; needles, pins, and hooks and eyes, 1; paint and varnish, 1; paper goods, not elsewhere specified, 4; phonographs and graphophones, 1; scales and balances, 1; screws, machine, 1; shipbuilding, including boat building, 1; silk and silk goods, including throwsters, 1; slaughtering and meat packing, 2; soap, 2; stationery goods, not elsewhere specified, 1; stereotyping and electrotyping, 1; surgical appliances and artificial limbs, 2; tobacco manufactures, 13; vinegar and cider, 1; waste, 1; wirework, including wire rope and cable, 3; wood, turned and carved, 4.

L Y N N.

1	\$42,784,070	\$65,098,218	\$1,380,372	\$1,627,342	\$16,665,818	\$559,110	\$40,801,977	\$565,153	\$185,487	\$220,589	\$4,092,370	\$71,563,140	\$30,142,058
2	178,313	393,522	8,480	28,602	30,784	299	270,140	11,738	598	.....	42,782	536,691	266,243
3	17,488,156	42,724,036	589,754	775,611	9,532,137	53,656	29,094,006	435,412	59,027	170,000	2,016,833	46,659,700	17,512,047
4	238,297	654,636	29,200	9,639	169,130	2,558	401,269	12,900	2,781	.....	27,150	730,147	326,320
5	119,353	601,400	5,931	7,910	110,900	9,449	433,587	13,387	982	.....	19,243	631,043	238,007
6	825,545	642,845	41,041	35,539	253,578	8,865	169,062	21,921	4,974	.....	107,895	799,840	621,913
7	192,943	198,219	.....	7,609	60,030	2,153	78,086	4,426	524	35,934	13,857	266,207	190,968
8	2,656,152	4,897,520	100,356	46,950	456,925	25,711	3,983,756	22,433	9,674	3,501	243,205	5,093,927	1,084,460
9	296,168	293,933	2,760	3,767	82,311	1,551	186,496	780	1,394	.....	14,874	330,140	142,093
10	1,651,144	846,467	32,600	8,336	38,564	951	108,011	1,010	7,221	140	564,030	948,401	748,830
11	313,030	440,321	33,292	43,252	144,989	5,521	156,724	10,669	4,304	4,384	37,716	530,672	374,427
12	19,424,979	13,404,819	545,988	665,028	4,785,864	448,396	5,835,231	30,473	93,408	630	999,801	14,020,363	8,036,736

illuminating and heating, 1; grease and tallow, 1; hand stamps and stencils and brands, 1; hosiery and knit goods, 1; jewelry, 1; lard, refined, not made in slaughtering and meat-packing establishments, 1; leather goods, 5; liquors, malt, 1; marble and stone work, 6; mattresses and spring beds, 2; millinery and lace goods, 1; mineral and soda waters, 2; models and patterns, not including paper patterns, 10; mullage and paste, 2; photo-engraving, 1; shipbuilding, including boat building, 5; slaughtering and meat packing, 1; soap, 2; steam packing, 1; surgical appliances and artificial limbs, 1; tobacco manufactures, 4; upholstery materials, 1; wood, turned and carved, 1.

NEW BEDFORD.

1	\$58,970,015	\$45,333,937	\$756,355	\$489,092	\$12,597,978	\$1,018,029	\$27,545,539	\$41,073	\$795,399	\$112,826	\$1,976,755	\$53,237,839	\$24,674,271
2	331,298	820,641	5,284	24,558	159,874	12,403	535,462	10,465	1,518	.....	77,677	1,022,829	474,064
3	105,308	82,824	2,500	1,700	37,168	1,393	34,998	180	1,022	.....	3,737	105,114	69,023
4	50,317,516	36,101,728	519,055	214,794	10,114,760	764,525	22,585,232	500	660,680	64,917	1,237,289	42,565,007	10,215,250
5	324,673	406,755	14,688	4,257	170,107	11,354	181,085	8,042	1,075	1,199	8,348	454,106	261,667
6	405,614	377,359	7,880	18,759	93,377	1,300	230,152	1,240	1,413	.....	23,172	412,393	180,851
7	345,100	396,883	39,928	12,352	171,122	8,428	121,085	8,667	1,182	5,425	27,744	482,574	363,111
8	7,140,506	7,142,707	107,020	212,092	1,845,674	228,596	3,907,875	12,867	127,900	40,865	599,408	8,255,816	4,119,375

cutting, staining and ornamenting, 1; grease and tallow, 2; hand stamps and stencils and brands, 1; ice, manufactured, 3; leather goods, 3; liquors, malt, 2; marble and stone work, 6; mineral and soda waters, 3; musical instruments and materials, not specified, 1; oil, not elsewhere specified, 4; paint and varnish, 2; paper and wood pulp, 1; paper goods, not elsewhere specified, 1; patent medicines and compounds and druggists' preparations, 2; screws, wood, 1; shipbuilding, including boat building, 4; silk and silk goods, including throwsters, 1; silverware and plated ware, 1; slaughtering and meat packing, 6; tobacco manufactures, 4; toys and games, 1; waste, 1; wood, turned and carved, 1; woolen, worsted, and felt goods, and wool hats, 1.

SOMERVILLE.

1	\$17,282,271	\$38,581,008	\$244,357	\$447,210	\$2,869,808	\$315,843	\$31,607,019	\$53,865	\$178,985	\$18,124	\$845,797	\$38,686,527	\$6,783,665
2	154,834	373,394	1,080	10,568	67,867	7,967	260,843	7,739	1,632	.....	15,108	429,170	160,370
3	207,963	186,462	.....	7,419	45,941	6,293	88,867	1,158	1,086	.....	15,552	196,951	101,845
4	12,221,306	29,897,543	84,360	241,315	1,236,352	166,182	27,699,331	14,532	87,551	.....	367,870	31,270,291	3,404,698
5	4,698,168	6,143,009	158,317	187,908	1,519,048	135,465	3,557,928	30,436	88,716	.....	447,267	6,790,145	3,096,752

elsewhere specified, 1; furniture and refrigerators, 3; glass, 1; glass, cutting, staining, and ornamenting, 1; grease and tallow, 3; jewelry, 4; leather goods, 3; liquors, distilled, 1; looking glass and picture frames, 1; lumber and timber products, 2; marble and stone work, 1; mineral and soda waters, 1; printing and publishing, 14; soap, 1; stationery goods, not elsewhere specified, 1; tobacco manufactures, 2; vinegar and cider, 1; window shades and fixtures, 1; wirework, including wire rope and cable, 1; wood, turned and carved, 1.



## MANUFACTURES—MASSACHUSETTS.

TABLE III.—DETAIL STATEMENT FOR CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES, AND CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES—Continued.  
SPRINGFIELD.

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.									WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.				Primary horsepower.	
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).			Total.	16 and over.		Under 16.			
					Male.	Female.	Total.	16 and over.	Under 16.		Male.	Female.	Male.	Female.		
																Male.
1 All industries.....	346	14,455	288	425	878	1,009	11,855	8,715	2,728	414	12,620	9,261	2,910	205	244	17,744
2 Brass and bronze products.....	7	197	6	10	10	7	164	151	13	1	167	154	13	1	1	129
3 Bread and other bakery products.....	27	171	30	1	7	6	127	105	21	1	142	118	23	1	1	52
4 Carriages and wagons and materials.....	8	99	10	1	5	2	32	79	2	1	74	71	2	1	1	18
5 Confectionery.....	5	407	3	7	61	10	326	129	137	60	391	155	164	23	49	184
6 Cutlery and tools, not elsewhere specified.....	4	312	5	8	7	5	287	272	15	15	332	314	18	18	648	
7 Electrical machinery, apparatus, and supplies.....	5	181	1	8	8	10	154	129	19	6	192	161	23	6	2	198
8 Fancy articles, not elsewhere specified.....	5	71	4	4	4	3	56	25	30	1	122	55	65	2	2	23
9 Foundry and machine-shop products.....	39	1,779	21	51	113	40	1,554	1,509	16	29	1,679	1,630	17	32	1	3,488
10 Lumber and timber products.....	10	380	7	18	14	7	334	329	5	5	345	340	5	5	1,436	
11 Printing and publishing.....	51	2,077	38	66	244	704	1,025	787	200	38	1,089	836	213	27	13	1,632
12 Slaughtering and meat packing.....	3	136	4	4	15	4	109	107	2	2	114	112	2	2	125	
13 Tobacco manufactures.....	20	463	33	2	16	4	408	235	168	5	455	262	187	4	2	6
14 All other industries <sup>1</sup> .....	153	8,182	126	246	374	207	7,229	4,858	2,118	253	7,518	5,053	2,201	88	176	9,805

<sup>1</sup> All other industries embrace: Artificial stone, 1; automobiles, including bodies and parts, 10; awnings, tents, and sails, 1; bicycles, motorcycles, and parts, 2; billiard tables and materials, 1; boots and shoes, including out stock and findings, 1; boxes, fancy and paper, 2; brick and tile, 2; brooms, 1; brushes, 1; butter, cheese, and condensed milk, 2; buttons, 3; canning and preserving, 1; card cutting and designing, 1; carpets, rag, 2; cars and general shop construction and repairs by steam-railroad companies, 2; cars and general shop construction and repairs by street-railroad companies, 1; cars, steam-railroad, not including operations of railroad companies, 1; cash registers and calculating machines, 1; chemicals, 1; clothing, men's, including shirts, 2; clothing, women's, 1; coffee and spice, roasting and grinding, 2; cooperage and wooden goods, not elsewhere specified, 1; copper, tin, and sheet-iron products, 4; corsets, 2; cotton goods, including cotton small wares, 3; electroplating, 2; emery and other abrasive wheels, 1; engraving and diesinking, 2; firearms and ammunition, 1; flags, banners, regalia, society badges, and emblems, 2; flavoring extracts, 2; flour-mill and gristmill products, 1; food preparations, 2; fur goods, 2; furniture and refrigerators, 1; gas and electric fixtures and lamps and reflectors, 2; gas, illuminating and heating, 1; gold and silver.

## WORCESTER.

1 All industries.....	580	32,154	750	810	1,700	673	28,221	21,355	5,745	1,121	31,162	23,608	6,327	641	586	53,405
2 Boots and shoes, including cut stock and findings.....	11	890	8	18	27	14	829	485	294	50	867	507	308	21	31	399
3 Bread and other bakery products.....	67	846	329	18	50	36	413	267	122	24	419	271	124	3	21	160
4 Carriages and wagons and materials.....	12	87	10	2	1	3	71	71	1	1	67	67	1	1	1	63
5 Clothing, men's, including shirts.....	16	322	21	7	5	1	288	74	200	14	330	85	229	10	10	56
6 Clothing, women's.....	18	1,252	29	17	64	82	1,060	150	900	10	1,208	171	1,026	11	11	219
7 Copper, tin, and sheet-iron products.....	10	232	6	13	10	8	195	153	30	12	228	179	35	6	8	247
8 Cotton goods, including cotton small wares.....	4	274	1	8	5	6	254	51	174	29	255	61	175	5	24	425
9 Cutlery and tools, not elsewhere specified.....	11	448	7	13	7	12	400	362	27	20	459	406	30	20	3	1,104
10 Foundry and machine-shop products.....	89	7,161	55	172	302	120	6,503	6,314	46	143	7,393	7,176	50	165	2	6,891
11 Lumber and timber products.....	12	362	9	17	6	10	320	304	14	2	338	321	15	2	1,154	
12 Marble and stone work.....	10	253	10	7	7	2	227	227	1	1	193	193	1	1	1	862
13 Printing and publishing.....	53	767	45	40	69	28	585	505	65	15	604	521	67	16	1	384
14 Tobacco manufactures.....	20	94	25	2	2	2	65	40	16	1	83	62	21	1	1	2
15 Woolen, worsted, and felt goods, and wool hats.....	15	1,802	8	42	21	9	1,722	730	816	176	1,885	800	893	57	135	3,090
16 All other industries <sup>1</sup> .....	232	17,358	187	434	1,124	333	15,280	11,013	3,041	626	16,833	12,798	3,354	346	335	37,449

<sup>1</sup> All other industries embrace: Agricultural implements, 2; artificial stone, 2; automobiles, including bodies and parts, 1; awnings, tents, and sails, 2; bags, other than paper, 2; belting and hose, leather, 3; belting and hose, woven and rubber, 1; bicycles, motorcycles, and parts, 3; billiard tables and materials, 1; blacking and cleansing and polishing preparations, 2; bluing, 1; boxes, cigar, 1; boxes, fancy and paper, 1; brass and bronze products, 4; brick and tile, 1; brooms, 1; brushes, 3; buttons, 2; canning and preserving, 1; carpets and rugs, other than rag, 1; carpets, rag, 2; cars and general shop construction and repairs by steam-railroad companies, 1; cars and general shop construction and repairs by street-railroad companies, 1; cars, steam-railroad, not including operations of railroad companies, 1; coffee and spice, roasting and grinding, 1; coffins, burial cases, and undertakers' goods, 1; confectionery, 4; cooperage and wooden goods, not elsewhere specified, 2; cordials and syrups, 1; corsets, 6; dairymen's, poultryers', and apiarists' supplies, 1; dentists' materials, 1; dyeing and finishing textiles, 3; electrical machinery, apparatus, and supplies, 5; electroplating, 7; emery and other abrasive wheels, 2; engraving, wood, 1; fancy articles, not elsewhere specified, 2; files, 2; firearms and ammunition, 1; flags, banners, regalia, society badges, and emblems, 2; flavoring extracts, 3; flour-mill and gristmill products, 2; food preparations, 4; fur goods, 2; furnishing goods, men's, 4; furniture and refrigerators, 4; gas and electric fixtures and lamps and reflectors, 1; gas, illuminating and heating, 1; glass, cutting, staining, and ornamenting, 2; hand stamps and stencils and brands, 3; hosiery and knit goods, 3; house-furnish-

MANUFACTURES—MASSACHUSETTS.

TOTALS FOR ALL INDUSTRIES IN CITIES OF 10,000 BUT LESS THAN 50,000 INHABITANTS: 1909—Continued.

CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES—Continued.

SPRINGFIELD.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$28,657,799	\$28,188,121	\$1,044,036	\$1,318,248	\$6,867,314	\$475,576	\$13,887,509	\$222,346	\$484,222	\$678,647	\$3,210,223	\$31,772,815	\$17,409,730
2 230,313	404,062	14,023	17,414	104,407	9,461	236,524	7,300	1,320	.....	12,953	431,214	185,229
3 101,444	529,049	1,900	7,000	83,059	9,076	346,730	7,313	1,210	378	72,293	611,333	255,527
4 116,453	144,780	.....	7,015	56,457	2,335	65,508	3,455	922	870	8,224	177,110	109,207
5 305,480	812,059	13,750	51,343	119,273	0,370	552,422	2,644	4,547	.....	61,704	902,547	343,749
6 486,147	427,801	28,025	11,947	184,877	12,046	141,514	6,160	3,479	.....	39,153	522,603	369,043
7 288,467	200,037	14,600	10,882	81,695	4,671	58,106	4,205	908	.....	24,820	191,476	128,099
8 60,333	86,715	4,900	6,034	21,274	440	20,998	1,983	120	.....	22,966	106,370	70,832
9 3,850,825	2,025,907	155,803	185,951	972,725	50,140	976,761	20,702	28,944	.....	225,872	3,006,484	1,970,574
10 657,156	898,029	28,656	12,686	210,904	3,714	576,061	900	5,262	.....	59,786	945,317	365,542
11 3,520,749	3,604,855	184,412	433,173	666,143	35,744	970,184	25,270	25,437	660,241	688,251	3,901,287	2,895,359
12 277,637	1,207,131	8,030	25,280	75,002	8,312	1,024,882	3,409	1,290	.....	59,426	1,250,531	217,337
13 275,445	623,456	4,700	12,486	277,336	800	254,920	6,859	54,921	465	10,069	719,992	404,272
14 18,391,350	16,534,174	583,537	536,047	4,013,202	332,452	8,654,799	122,966	355,772	10,693	1,923,806	19,006,551	10,019,300

leaf and foil, 3; grease and tallow, 1; hand stamps and stencils and brands, 3; hats and caps, other than felt, straw, and wool, 2; hosiery and knit goods, 5; house-furnishing goods, not elsewhere specified, 1; leather goods, 3; liquors, malt, 3; looking-glass and picture frames, 1; marble and stone work, 3; mattresses and spring beds, 3; millinery and lace goods, 1; mineral and soda waters, 6; mirrors, 1; models and patterns, not including paper patterns, 5; musical instruments and materials, not specified, 1; musical instruments, pianos and organs and materials, 1; needles, pins, and hooks and eyes, 1; paint and varnish, 1; paper goods, not elsewhere specified, 10; patent medicines and compounds and druggists' preparations, 3; photographic apparatus and materials, 1; photo-engraving, 2; saws, 1; screws, machine, 1; sewing machines, cases, and attachments, 1; ship-building, including boat building, 1; soap, 2; sporting and athletic goods, 2; stationery goods, not elsewhere specified, 1; stereotyping and electrotyping, 1; toys and games, 2; upholstering materials, 1; wall plaster, 1; washing machines and clothes wringers, 2; whips, 1; windmills, 1; wirework, including wire rope and cable, 1; wood, turned and carved, 2.

WORCESTER.

1 \$64,638,783	\$68,972,539	\$2,062,943	\$2,106,084	\$15,295,266	\$1,812,565	\$40,788,323	\$451,206	\$626,759	\$83,717	\$5,745,076	\$77,147,884	\$34,546,996
2 1,351,381	2,244,070	33,828	40,783	468,948	9,521	1,456,327	11,935	8,244	6,012	202,478	2,414,078	948,230
3 442,048	1,230,420	22,072	45,315	206,763	23,191	853,634	37,108	4,122	33	44,281	1,472,268	505,533
4 130,822	127,282	2,012	1,200	51,272	2,307	58,951	7,558	811	.....	2,491	159,761	97,913
5 223,663	516,129	7,725	5,141	110,586	2,959	358,730	0,335	1,069	6,845	10,730	555,892	194,194
6 901,892	1,763,419	58,960	107,644	370,690	7,547	1,073,834	26,816	0,174	2,000	109,704	1,942,387	800,956
7 388,031	357,273	10,260	11,352	113,380	3,462	102,908	11,231	2,544	820	32,376	411,360	244,990
8 415,427	828,378	20,790	7,935	98,073	9,991	669,674	9,400	2,702	.....	9,810	882,563	262,895
9 641,422	534,069	25,570	25,115	240,855	17,259	106,648	4,300	5,094	6,000	12,658	598,405	355,498
10 13,068,880	11,158,149	559,422	422,801	3,841,049	171,818	4,620,808	103,296	113,393	1,248	1,324,344	13,219,286	8,426,000
11 460,848	757,435	39,630	9,753	194,522	4,138	471,529	15,149	3,935	.....	18,779	814,135	358,408
12 387,572	353,288	20,019	7,932	218,228	5,911	87,292	2,150	2,699	.....	8,457	383,250	290,047
13 694,714	1,053,141	60,401	90,038	392,324	9,805	301,634	28,193	3,499	29,307	65,890	1,232,526	801,087
14 53,069	109,332	2,550	601	36,587	421	41,219	3,050	11,188	.....	4,113	116,559	74,002
15 3,530,051	4,153,518	81,288	23,988	688,587	103,487	3,096,806	27,400	12,128	14,186	107,654	4,400,011	1,259,724
16 42,038,983	43,787,621	1,102,876	1,294,346	8,263,462	1,440,245	27,278,210	156,679	448,677	17,266	3,785,011	48,514,393	19,795,029

ing goods, not elsewhere specified, 1; instruments, professional and scientific, 1; iron and steel, steel works and rolling mills, 1; iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills, 1; iron and steel forgings, 4; iron and steel, nails and spikes, cut and wrought, including wire nails, not made in steel works or rolling mills, 1; jewelry, 2; lasts, 3; leather goods, 10; liquors, malt, 2; looking-glass and picture frames, 4; mattresses and spring beds, 4; mineral and soda waters, 7; models and patterns, not including paper patterns, 1; musical instruments and materials, not specified, 1; musical instruments, pianos and organs and materials, 5; oil, not elsewhere specified, 1; paper goods, not elsewhere specified, 9; patent medicines and compounds and druggists' preparations, 10; photographic apparatus and materials, 3; photo-engraving, 2; rubber goods, not elsewhere specified, 1; saws, 1; screws, machine, 4; screws, wood, 1; shoddy, 1; show cases, 1; signs and advertising novelties, 1; slaughtering and meat packing, 7; soap, 2; sporting and athletic goods, 2; stationery goods, not elsewhere specified, 1; stereotyping and electrotyping, 1; surgical appliances and artificial limbs, 3; type founding and printing materials, 1; vinegar and cider, 1; wall paper, 1; window shades and fixtures, 2; wire, 6; wirework, including wire rope and cable, 8; wood, turned and carved, 3.

MANUFACTURES—MASSACHUSETTS.

TABLE III.—DETAIL STATEMENT FOR CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES, AND CITIES OF 10,000 TO 50,000 INHABITANTS—ALL INDUSTRIES COMBINED.

CITY OR TOWN.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.						Pri- mary horse- power.
		Total.	Pro- pri- ators and firm mem- bers.	Sala- ried offi- cers, super- intend- ents, and man- agers.	Clerks.		Wage earners (average number).				Total.	16 and over.		Under 16.				
					Male.	Fe- male.	Total.	16 and over.		Un- der 16.		Male.	Fe- male.	Male.	Fe- male.			
								Male.	Fe- male.									
1 ADAMS.....	31	4,100	32	46	21	10	3,091	2,026	1,478	487	4,093	2,078	1,516	237	262	10,173		
2 ARLINGTON.....	19	335	18	16	8	10	283	259	22	2	320	298	25	3	3	851		
3 ATTLEBOROUGH.....	123	7,168	132	178	226	203	6,429	4,306	1,853	180	7,092	4,849	2,044	128	71	5,091		
4 BEVERLY.....	63	4,896	60	117	104	123	4,487	3,679	732	56	4,783	3,922	801	49	11	3,778		
5 BROOKLINE.....	16	404	19	7	15	23	340	280	54	6	361	297	58	6	6	339		
6 CHELSEA.....	110	6,694	98	170	202	180	5,054	4,213	1,611	130	6,568	4,648	1,777	74	69	8,339		
7 CHICOPEE.....	58	7,776	45	83	216	172	7,260	4,994	2,020	246	7,611	5,235	2,118	169	89	18,738		
8 CLINTON.....	39	4,357	33	54	111	36	4,123	2,204	1,670	189	4,159	2,284	1,684	107	84	10,882		
9 EVERETT.....	62	3,096	60	90	196	74	2,680	2,353	257	70	2,900	2,540	278	34	42	7,816		
10 FITCHBURG.....	122	9,103	101	177	212	116	8,497	5,825	2,271	401	9,013	6,179	2,409	216	209	28,754		
11 FRAMINGHAM.....	27	3,307	19	80	97	42	3,069	1,797	1,156	116	3,648	2,136	1,374	60	69	4,486		
12 GARDNER.....	52	3,849	40	82	62	48	3,617	3,100	415	102	3,886	3,331	446	64	25	5,031		
13 GLOUCESTER.....	102	2,593	104	90	137	81	2,151	1,658	482	41	2,363	1,796	522	15	30	2,427		
14 GREENFIELD.....	47	1,484	24	58	95	56	1,251	1,043	139	69	1,422	1,136	158	70	8	2,327		
15 HAVERHILL.....	346	12,791	407	209	194	292	11,639	7,686	3,762	241	12,652	8,319	4,072	164	97	7,930		
16 HYDE PARK.....	40	4,649	37	110	135	47	4,320	3,078	317	25	4,747	4,371	948	19	9	8,856		
17 LEOMINSTER.....	94	6,000	76	152	99	72	5,601	3,708	1,746	147	6,064	4,015	1,890	98	61	6,890		
18 MALDEN.....	86	3,259	71	99	105	84	2,900	1,649	1,222	29	3,048	1,733	1,284	10	12	3,433		
19 MARLBOROUGH.....	69	4,585	46	62	118	94	4,265	2,787	1,201	277	4,373	2,858	1,231	138	146	2,721		
20 MEDFORD.....	40	673	33	36	31	13	560	486	66	8	583	506	69	5	3	1,123		
21 MELROSE.....	25	1,141	21	28	39	15	1,038	438	591	9	996	420	567	6	3	1,535		
22 METHUEN.....	19	1,626	12	18	16	8	1,572	663	793	128	1,649	685	832	55	77	6,772		
23 MILFORD.....	63	1,980	50	52	42	35	1,801	1,045	710	46	1,785	1,036	704	30	15	2,410		
24 NEWBURYPORT.....	74	3,543	71	68	105	84	3,215	2,083	1,035	97	3,499	2,267	1,126	72	34	3,820		
25 NEWTON.....	46	2,373	39	57	68	35	2,174	1,604	520	50	2,242	1,653	536	24	28	4,153		
26 NORTH ADAMS.....	60	5,846	62	98	222	50	5,414	3,508	1,560	346	5,804	3,761	1,672	185	186	11,928		
27 NORTHAMPTON.....	71	3,434	58	82	82	62	3,150	2,012	977	161	3,250	2,076	1,008	77	89	6,139		
28 PEABODY.....	74	5,231	55	110	151	65	4,850	4,270	518	62	5,739	5,053	613	29	44	9,961		
29 PITTSFIELD.....	71	7,414	59	211	580	211	6,353	4,508	1,679	166	7,455	5,290	1,970	81	114	8,301		
30 PLYMOUTH.....	32	3,104	24	51	75	42	2,912	2,124	665	123	3,091	2,254	706	69	62	6,229		
31 QUINCY.....	183	6,247	241	191	253	70	5,492	4,769	560	163	5,808	5,044	592	170	2	9,147		
32 REVERE.....	14	125	12	5	5	2	101	98	3	3	117	113	4	158	142	548		
33 SALEM.....	155	6,852	149	151	104	110	6,338	4,070	1,985	283	6,708	4,307	2,101	158	142	11,436		
34 SOUTHBRIDGE.....	36	4,281	28	83	86	47	4,037	2,680	1,183	174	4,007	2,660	1,174	60	113	7,636		
35 TAUNTON.....	146	7,945	110	145	204	79	7,407	5,345	1,820	242	7,991	5,745	1,956	148	112	19,141		
36 WAKEFIELD.....	23	2,359	14	41	45	29	2,230	1,200	994	36	2,282	1,228	1,017	31	6	1,729		
37 WALTHAM.....	80	6,354	67	110	64	76	6,037	3,580	2,369	88	6,836	4,054	2,682	36	64	7,583		
38 WATERTOWN.....	25	4,805	13	48	243	166	4,335	2,817	1,372	146	4,787	3,111	1,515	91	70	4,882		
39 WEBSTER.....	23	3,621	14	52	100	46	3,409	2,127	1,005	277	3,658	2,283	1,078	154	143	7,204		
40 WESTFIELD.....	91	3,500	86	96	175	83	3,060	2,390	594	76	3,282	2,503	637	46	36	3,731		
41 WYMOUTH.....	41	2,238	45	43	63	63	1,991	1,393	554	39	2,161	1,517	601	24	19	1,902		
42 WINTHROP.....	7	19	6	1	5	7	7	7	7	7	6	6	6	6	6	41		
43 WOBURN.....	59	1,867	65	48	71	30	1,653	1,523	111	14	1,908	1,819	132	12	5	3,560		

MANUFACTURES—MASSACHUSETTS.

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TOTALS FOR ALL INDUSTRIES IN CITIES OF 10,000 BUT LESS THAN 50,000 INHABITANTS: 1909—Continued.

CITIES OF 10,000 TO 50,000 INHABITANTS—ALL INDUSTRIES COMBINED.

	Capital.	EXPENSES.									Value of products.	Value added by manufacture.	
		Total.	Services.			Materials.		Miscellaneous.					
			Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.			Other.
1	\$3,018,545	\$5,304,340	\$149,946	\$32,755	\$1,718,679	\$175,660	\$2,000,352	\$3,510	\$119,105	\$49	\$198,293	\$3,410,054	\$3,328,042
2	777,613	687,789	33,634	11,987	177,204	23,160	287,770	6,570	7,143	3,787	36,544	605,350	384,426
3	14,304,864	12,679,477	389,150	396,178	3,703,100	163,927	6,648,903	172,245	106,200	107,287	932,447	15,160,359	8,347,529
4	8,667,676	8,018,352	212,016	283,822	2,928,806	106,511	3,184,729	118,474	31,287	11,975	1,140,732	8,652,547	5,361,307
5	616,841	469,711	17,453	19,612	194,483	5,315	190,733	11,582	3,184	680	20,660	532,303	336,255
6	11,020,840	15,893,771	426,111	443,191	3,326,255	240,063	10,328,683	46,063	116,620	8,551	962,934	17,002,492	6,493,740
7	14,802,824	17,461,687	250,130	217,475	3,606,206	258,466	10,093,609	70,732	200,452	875	2,073,642	19,219,166	8,264,426
8	7,606,673	6,809,921	141,998	134,283	1,872,031	100,416	4,025,728	11,067	96,702	12,883	324,753	7,844,643	3,628,309
9	23,904,539	7,514,065	221,110	250,140	1,507,848	1,387,503	3,118,793	17,700	301,293	106,036	602,772	8,746,923	4,240,657
10	20,888,278	21,166,162	460,532	250,606	4,230,516	651,362	13,700,905	37,371	154,633	25,468	1,564,679	23,352,155	8,809,888
11	7,770,084	5,573,259	231,031	94,021	1,440,421	74,714	3,336,592	8,720	42,940	.....	388,220	6,910,864	3,505,553
12	10,272,673	6,299,368	205,397	94,535	1,774,406	87,761	2,745,315	9,682	46,219	2,000	334,053	6,485,148	3,652,072
13	5,692,501	6,897,634	184,038	153,225	1,042,438	94,901	4,675,627	21,673	47,915	6,007	671,550	7,753,463	2,982,975
14	2,520,280	2,285,593	134,080	94,358	700,884	53,034	980,165	10,774	23,751	2,802	285,145	2,801,011	1,767,212
15	14,786,251	31,250,321	330,837	376,041	6,657,993	306,083	21,370,786	232,587	68,049	737,227	1,161,208	35,376,617	13,690,748
16	8,158,338	6,914,490	218,358	158,280	2,475,875	171,180	3,180,038	12,005	36,502	222,698	438,951	7,336,084	3,984,857
17	6,633,474	9,494,981	305,343	136,387	2,703,000	130,331	5,439,028	30,440	48,038	25,043	579,853	10,530,815	4,954,556
18	9,910,489	6,814,078	182,195	148,128	1,346,452	180,540	4,201,012	22,742	104,000	4,571	618,348	8,205,852	3,818,300
19	3,378,088	9,707,414	123,939	166,282	2,224,431	62,110	6,312,755	25,741	30,383	.....	761,853	10,382,277	4,007,412
20	1,595,568	1,828,041	82,624	32,149	331,101	58,050	1,101,824	11,400	12,239	1,628	107,026	2,046,289	795,415
21	2,014,905	2,364,261	46,248	30,518	492,882	20,516	1,568,191	2,367	20,073	2,070	161,596	2,824,669	1,235,962
22	2,956,246	3,181,008	45,802	16,906	688,076	120,217	2,105,299	1,015	37,515	3,582	161,696	3,475,702	1,250,186
23	1,756,146	3,837,930	137,000	67,791	945,179	41,653	2,347,610	10,980	21,556	.....	266,152	4,442,140	2,052,808
24	4,900,635	6,540,164	155,416	164,966	1,642,209	82,096	3,668,926	13,423	91,042	23,643	344,200	6,931,049	3,150,027
25	5,669,439	5,243,565	215,611	86,272	1,125,288	67,652	3,315,837	12,970	36,899	204,188	178,848	6,278,714	2,895,225
26	15,942,717	9,515,018	255,193	362,212	2,507,484	362,907	5,272,597	21,160	192,422	580	630,454	10,314,847	4,739,343
27	7,996,009	5,965,310	188,220	113,928	1,502,834	125,832	3,030,991	11,269	78,242	400,122	507,872	9,998,992	3,836,160
28	15,804,274	14,568,353	260,396	196,973	2,038,162	406,777	9,785,310	22,581	71,102	190,080	1,030,972	15,548,732	5,366,645
29	15,079,888	14,709,255	499,827	580,941	3,718,453	248,498	8,279,473	66,954	70,196	9,577	1,236,336	15,215,202	6,087,231
30	10,769,978	10,754,288	157,110	110,970	1,415,528	104,590	8,370,704	3,984	56,397	500	534,505	11,618,020	3,142,726
31	11,974,782	9,739,261	500,724	305,379	3,433,040	216,016	3,026,951	23,360	64,423	763,711	804,167	10,505,403	6,661,536
32	661,166	381,297	7,202	3,883	54,092	31,351	200,012	1,200	5,250	.....	17,341	407,369	115,103
33	9,345,244	12,680,200	268,174	128,180	2,892,786	204,428	8,435,428	84,823	74,581	105,308	486,492	14,570,270	5,936,420
34	4,266,335	5,640,164	316,702	106,533	1,804,010	120,661	3,004,104	2,602	51,298	1,800	231,564	6,269,131	3,144,376
35	16,503,965	13,541,628	393,906	300,882	3,833,713	328,868	7,445,854	29,951	142,281	2,025	1,057,548	15,370,821	7,606,090
36	3,884,496	4,302,044	106,476	50,315	1,045,900	45,120	2,780,834	5,821	31,111	91,436	135,965	5,527,102	2,662,142
37	12,870,737	7,133,686	279,280	127,089	3,288,292	167,571	2,276,770	15,913	184,209	14,435	780,127	7,814,178	5,369,837
38	7,220,006	9,708,625	173,732	206,186	2,235,005	121,254	6,341,507	3,330	74,616	2,410	490,585	11,545,555	5,082,794
39	10,479,435	10,189,853	131,958	189,575	1,476,140	173,852	7,645,905	2,426	49,384	.....	520,607	11,296,271	3,476,514
40	7,499,794	5,972,680	198,546	263,044	1,695,204	77,732	2,789,908	33,532	67,110	17,212	830,392	7,361,528	4,499,888
41	5,563,936	5,902,801	94,529	145,765	1,109,935	36,380	4,108,060	19,781	22,351	18,943	296,157	6,627,168	2,422,728
42	25,479	36,802	1,000	1,500	4,751	1,509	23,485	1,528	464	.....	2,605	42,163	17,174
43	8,405,106	4,663,614	107,227	87,285	932,274	140,149	2,974,358	14,135	36,306	47,699	324,181	5,408,081	2,263,574

# MICHIGAN.

## INDUSTRIES IN GENERAL.

**General character of the state.**—Michigan, with a gross area of 57,980 square miles, of which 500 represent water surface, and a population in 1910 of 2,810,173, ranks twenty-second in area and eighth in population among the 49 states and territories of continental United States. The total population was 2,420,982 in 1900 and 2,093,890 in 1890. In 1910 the density of population for the entire state was 48.9 per square mile, the corresponding figure for 1900 being 42.1. In 1910, 47.2 per cent of the entire population of the state resided in cities and incorporated villages having 2,500 inhabitants or over, as against 39.3 per cent in 1900.

In 1910 the following three cities in the state had a population of over 50,000: Detroit, 465,766; Grand Rapids, 112,571; and Saginaw, 50,510. There were also 21 cities having a population of over 10,000 but less than 50,000. (See table on page 556.) These 24 cities of more than 10,000 inhabitants contained 37.1 per cent of the total population of the state in 1910 and were credited with 68.5 per cent of the total value of its manufactures for 1909. Apart from these cities, only 10.1 per cent of the population resided in places of 2,500 inhabitants or over.

The growth of the manufacturing industries has been closely related to the development of the transportation facilities of the state. The rapid advance in manufactures dates from about 1825, when the Erie Canal, affording connection with the eastern seaboard, was opened. The transportation facilities of the state at present, both by rail and by water, are excellent. With 9,059 miles of railroad in 1909, Michigan was the sixth state in the Union in the length of its trackage.<sup>1</sup> The state borders on four of the Great Lakes, which furnish splendid intrastate and interstate communication by water. Detroit, located on the main lines of several of the most important railroad systems connecting the Eastern states with the Middle West, and near the western end of Lake Erie, is particularly well situated as a commercial center.

**Importance and growth of manufactures.**—Michigan has for many years been one of the leading manufacturing states. In 1849 the value of its manufactured products amounted to \$11,169,000; by 1869 it had increased to \$118,395,000; and in 1909 it amounted to \$685,109,000. The early development of manufactures in the state was due largely to the utilization

of its extensive forests, while the growing markets afforded by the rapidly developing West, the advantageous situation of the state with respect to the markets of both the East and the West, and its important agricultural and mineral resources have also been influential factors in its later progress.

During 1849 an average of 9,344 wage earners, representing 2.3 per cent of the total population of the state, were employed in manufactures, while in 1909 an average of 231,499 wage earners, or 8.2 per cent of the total population, were so engaged. During this period the gross value of manufactured products per capita of the total population of the state increased from \$28 to \$244. The proportion which the manufactures of the state represented of the total value of the products of manufacturing industries in the United States increased from 1.1 per cent in 1849 to 2.8 per cent in 1899 and 3.3 per cent in 1909. The growing industrial importance of Michigan is indicated by the fact that in the value of manufactured products it has advanced from seventeenth place among the states of the Union in 1849 to ninth in 1899, eighth in 1904, and seventh in 1909.

The table on the next page gives the most important figures relative to all classes of manufactures combined for 1909, 1904, and 1899, together with the percentages of increase from census to census.

In 1909 the state of Michigan had 9,159 manufacturing establishments, which gave employment to an average of 271,071 persons during the year and paid out \$153,838,000 in salaries and wages. Of the persons employed, 231,499 were wage earners. These establishments turned out products to the value of \$685,109,000, to produce which materials costing \$368,612,000 were utilized. The value added by manufacture was thus \$316,497,000, which figure, as explained in the Introduction, best represents the net wealth created by manufacturing operations during the year.

In general, this table brings out the fact that the manufacturing industries of Michigan as a whole showed a greater development during the more recent five-year period, 1904–1909 than during the preceding five-year period, 1899–1904. The absolute gain in value of products for the five years from 1904 to 1909 was \$255,989,000, which surpassed the total value of products for the state in any census year prior to 1889. During this period the number of establishments increased 23 per cent, the average number of wage

<sup>1</sup> Statistics of Railways in the United States, Interstate Commerce Commission, 1909.

## MANUFACTURES—MICHIGAN.

earners 32.1 per cent, and the amount paid in wages 46.4 per cent, while the value of products increased 59.7 per cent and the value added by manufacture 59 per cent.

As pointed out in the Introduction, it would be

improper to infer that manufactures increased in volume to the full extent indicated by these figures regarding values, since the increase shown is certainly due, in part, to the increase that has taken place in the prices of commodities.

	NUMBER OR AMOUNT.			PER CENT OF INCREASE.	
	1909	1904	1899	1904-1909	1899-1904
Number of establishments.....	9, 159	7, 446	7, 310	23. 0	1. 9
Persons engaged in manufactures.....	271, 071	200, 196	( <sup>1</sup> )	35. 4	.....
Proprietors and firm members.....	8, 965	7, 732	( <sup>1</sup> )	15. 9	.....
Salaried employees.....	30, 607	17, 235	13, 350	77. 6	29. 1
Wage earners (average number).....	231, 499	175, 229	155, 800	32. 1	12. 5
Primary horsepower.....	598, 288	440, 890	368, 497	35. 7	19. 6
Capital.....	\$583, 947, 000	\$337, 894, 000	\$246, 997, 000	72. 8	36. 8
Expenses.....	591, 296, 000	374, 842, 000	275, 876, 000	57. 7	35. 9
Services.....	153, 838, 000	98, 749, 000	74, 868, 000	55. 8	31. 9
Salaries.....	34, 870, 000	17, 470, 000	12, 336, 000	99. 6	41. 6
Wages.....	118, 968, 000	81, 279, 000	62, 532, 000	46. 4	30. 0
Materials.....	368, 612, 000	230, 081, 000	175, 966, 000	60. 2	30. 8
Miscellaneous.....	68, 846, 000	46, 012, 000	25, 042, 000	49. 6	83. 7
Value of products.....	685, 109, 000	429, 120, 000	319, 692, 000	59. 7	34. 2
Value added by manufacture (value of products less cost of materials).....	316, 497, 000	199, 039, 000	143, 726, 000	59. 0	38. 5

<sup>1</sup> Figures not available.

The relative importance and growth of the leading manufacturing industries of the state are shown in the table on page 549.

It should be borne in mind, in considering this table, that the value of products in some of the industries involves a certain amount of duplication, due to the use of the product of one establishment in the industry as material for another establishment.

In addition to the 58 industries presented separately in the table for which products valued at more than \$1,000,000 were reported, there are 13 other industries which had a value of products in excess of that amount in 1909. They are included under the head of "All other industries" in the table, in some cases, because the operations of individual establishments would be disclosed if they were shown separately; in others, because the returns do not properly present the true condition of the industry, for the reason that it is more or less interwoven with one or more other industries; and in still others, because comparative statistics can not be presented for either 1899 or 1904, on account of changes in classification or because such figures would disclose the operations of individual establishments. Of these industries the smelting and refining of copper was the most important, and ranked high among the leading industries of the state. The construction of steam-railroad cars, consisting in Michigan almost entirely of freight cars, was next in importance, but there were only two establishments in the state in 1909 engaged in this industry. Detroit was an important center of the industry, having one of the largest car plants in the country. The manufacture of cash registers and calculating machines is another important industry for which separate statistics can not be presented. This industry also was centered in Detroit and has developed almost wholly within the

past five years. The manufacture of billiard tables and materials, and the manufacture of matches are not among the leading industries in the state, but are worthy of mention because Michigan is one of the chief states of the Union in both branches of manufacture. The eight remaining industries having products valued at more than \$1,000,000 which are included under "All other" are: Blacking and cleansing and polishing preparations; explosives; house-furnishing goods, "not elsewhere specified;" iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills; liquors, distilled; rubber goods, "not elsewhere specified;" silk and silk goods; and wire. The statistics for 1909, however, for the manufacture of blacking and cleansing and polishing preparations, and the manufacture of iron and steel, bolts, nuts, washers, and rivets, other than in steel works or rolling mills, are presented in Table II, page 578.

The most important industries listed in the table, in which they are arranged in the order of the value of products, call for brief consideration.

*Automobiles, including bodies and parts.*—The manufacture of automobiles in Michigan on any considerable scale commenced in Detroit less than a decade ago, although it had been carried on to a limited extent prior to that time. The industry developed rapidly, and by 1904 Michigan had become the leading state in the manufacture of automobiles, which position it held in 1909. In 1904 Michigan contributed 26.6 per cent of the total value of products for this industry for the country as a whole, while in 1909 the proportion had increased to 38.8 per cent. The total value of products for this industry in Michigan in 1909 was \$96,651,000, which was more than twelve times the amount reported for 1904, while the value added by



manufacture in 1909 was over nine times that reported for 1904. Of the total value of manufactured products and value added by manufacture for the state in 1909, the automobile industry contributed 14.1 per cent and 13.5 per cent, respectively, while of the total increase of \$255,989,000 in value of products for all manufacturing industries in the state from 1904 to 1909,

\$88,654,000, or over one-third, was reported for this one industry. This classification also includes the manufacture of automobile parts and accessories, but this branch of the industry has become so interwoven with other industries that it is impossible to determine to what extent it is covered by the statistics for the automobile industry.

INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		PER CENT OF INCREASE. <sup>1</sup>			
		Average number.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.	Value of products.		Value added by manufacture.	
								1904-1900	1899-1904	1904-1900	1899-1904
All industries.....	9,159	231,499	100.0	\$685,109,000	100.0	\$318,497,000	100.0	59.7	34.2	59.0	38.5
Automobiles, including bodies and parts.....	113	25,444	11.0	90,651,000	14.1	42,769,000	13.5	1,108.6	.....	830.2	.....
Lumber and timber products.....	1,180	35,027	15.4	61,514,000	9.0	32,472,000	10.3	7.5	-16.7	(-)	-11.2
Foundry and machine-shop products.....	654	21,049	9.4	45,399,000	6.6	26,688,000	8.4	44.4	23.0	58.8	10.6
Flour-mill and gristmill products.....	520	1,530	0.7	34,801,000	5.1	5,502,000	1.7	31.5	22.5	77.6	-4.3
Furniture and refrigerators.....	202	10,010	7.2	28,042,000	4.2	10,924,000	5.4	30.7	27.8	42.7	38.0
Printing and publishing.....	1,045	7,219	3.1	17,348,000	2.5	12,413,000	3.9	44.0	46.8	43.0	37.8
Tobacco manufacturers.....	720	7,876	3.4	16,179,000	2.4	8,071,000	2.8	36.4	28.3	27.8	14.8
Leather, tanned, curried, and finished.....	24	2,201	1.0	15,331,000	2.2	3,210,000	1.0	64.1	55.3	55.1	60.9
Butter, cheese, and condensed milk.....	435	1,073	0.5	14,287,000	2.1	1,010,000	0.6	74.0	109.5	61.6	83.3
Paper and wood pulp.....	32	4,327	1.9	13,922,000	2.0	4,807,000	1.6	89.6	74.0	77.4	82.8
Brass and bronze products.....	60	4,771	2.1	13,850,000	2.0	4,897,000	1.6	.....	.....	.....	.....
Patent medicines and compounds and druggists' preparations.....	160	3,249	1.4	13,475,000	2.0	8,534,000	2.7	28.7	43.7	27.0	51.7
Slaughtering and meat packing.....	45	902	0.4	13,435,000	2.0	1,769,000	0.6	111.4	17.7	148.3	24.9
Chemicals.....	30	3,174	1.4	12,800,000	1.9	7,818,000	2.5	42.6	69.7	68.7	76.8
Food preparations.....	40	1,303	0.6	11,492,000	1.7	6,742,000	2.1	70.2	267.0	49.9	270.5
Bread and other bakery products.....	816	2,637	1.1	11,082,000	1.6	4,411,000	1.4	55.7	73.0	35.2	70.9
Best sugar.....	11	1,460	0.6	10,477,000	1.5	4,240,000	1.3	64.8	235.7	162.8	228.7
Carrriages and wagons and materials.....	212	4,034	1.7	10,169,000	1.5	4,897,000	1.6	-31.8	15.5	-24.1	20.8
Liquors, malt.....	79	4,627	0.7	9,840,000	1.4	7,419,000	2.3	40.6	32.1	30.8	40.1
Agricultural implements.....	32	2,359	1.0	9,273,000	1.4	6,383,000	2.0	6.3	37.5	22.2	36.4
Stoves and furnaces, including gas and oil stoves.....	33	4,452	1.9	9,123,000	1.3	6,307,000	2.0	13.7	.....	19.2	.....
Paint and varnish.....	20	1,024	0.4	7,410,000	1.1	3,384,000	1.1	24.5	75.9	33.0	70.3
Cars and general shop construction and repairs by steam-railroad companies.....	32	5,401	2.3	6,838,000	1.0	3,922,000	1.2	27.4	23.0	41.6	25.2
Gas, illuminating and heating.....	55	1,771	0.8	6,748,000	1.0	4,019,000	1.5	74.5	102.5	68.2	138.7
Clothing, men's, including shirts.....	40	3,580	1.5	6,532,000	1.0	3,143,000	1.0	55.4	2.0	87.4	-2.7
Iron and steel, blast furnaces.....	11	1,016	0.4	5,824,000	0.8	1,600,000	0.5	25.4	99.0	3.9	67.0
Wirework, including wire rope and cable.....	37	900	0.4	5,285,000	0.8	1,839,000	0.6	52.8	137.7	25.2	107.5
Boots and shoes, including outstock and findings.....	23	2,455	1.1	5,250,000	0.8	1,909,000	0.6	48.9	84.4	26.0	101.7
Shipbuilding, including boat building.....	61	2,344	1.0	5,034,000	0.7	2,544,000	0.8	60.3	-32.9	34.3	-16.2
Canning and preserving.....	104	2,073	0.9	4,071,000	0.7	1,807,000	0.6	30.2	43.7	31.5	72.6
Copper, tin, and sheet-iron products.....	152	2,386	1.0	4,029,000	0.7	2,384,000	0.8	70.6	177.0	50.7	234.0
Corsets.....	14	2,401	1.1	4,368,000	0.6	2,491,000	0.8	121.2	10.0	95.4	27.9
Musical instruments, pianos and organs and materials.....	17	1,779	0.8	4,226,000	0.6	2,217,000	0.7	113.0	68.1	70.7	74.8
Hosiery and knit goods.....	35	2,545	1.1	4,029,000	0.6	1,982,000	0.6	11.2	29.8	11.3	33.6
Cooperage and wooden goods, not elsewhere specified.....	101	2,642	1.1	3,989,000	0.6	1,985,000	0.6	2.5	95.7	-5.4	105.0
Salt.....	27	1,703	0.6	3,053,000	0.5	2,010,000	0.6	51.0	-2.3	65.0	-11.1
Clothing, women's.....	52	2,194	0.9	3,837,000	0.5	1,877,000	0.6	-1.2	65.4	-1.1	94.7
Paper goods, not elsewhere specified.....	18	1,181	0.5	3,551,000	0.5	1,508,000	0.5	167.2	.....	211.5	.....
Confectionery.....	56	1,052	0.5	2,944,000	0.4	1,147,000	0.4	78.3	25.4	72.2	18.9
Cement.....	13	1,306	0.6	2,015,000	0.4	1,512,000	0.5	13.9	.....	-8.4	.....
Iron and steel, steel works and rolling mills.....	8	1,183	0.5	2,670,000	0.4	1,072,000	0.3	-1.5	-24.1	17.5	-24.0
Boxes, fancy and paper.....	10	1,226	0.6	2,653,000	0.4	1,035,000	0.3	190.6	155.0	114.7	128.1
Leather goods.....	57	834	0.4	2,500,000	0.4	1,102,000	0.4	84.3	-4.3	75.2	-2.8
Wood distillation, not including turpentine and rosin.....	12	806	0.3	2,399,000	0.4	1,244,000	0.4	225.1	.....	221.4	.....
Electrical machinery, apparatus, and supplies.....	40	1,218	0.5	2,327,000	0.3	1,207,000	0.4	231.5	60.3	217.9	59.4
Fur goods.....	31	619	0.3	2,284,000	0.3	1,300,000	0.4	29.0	2.5	70.9	26.1
Brick and tile.....	124	1,505	0.7	2,047,000	0.3	1,472,000	0.5	24.0	45.3	20.1	36.7
Show cases.....	11	823	0.4	1,800,000	0.3	1,070,000	0.3	60.2	769.4	61.4	670.9
Wood, turned and carved.....	58	1,137	0.5	1,708,000	0.3	1,074,000	0.3	9.0	69.6	9.8	53.5
Woolen, worsted, and felt goods, and wool hats.....	15	554	0.2	1,571,000	0.2	708,000	0.2	.....	.....	.....	.....
Gas and electric fixtures and lamps and reflectors.....	20	395	0.2	1,546,000	0.2	904,000	0.3	.....	.....	.....	.....
Marble and stone work.....	113	551	0.2	1,504,000	0.2	912,000	0.3	38.2	10.6	32.0	26.5
Wall plaster.....	19	740	0.3	1,421,000	0.2	1,000,000	0.3	69.8	.....	118.4	.....
Springs, steel, car and carriage.....	5	838	0.3	1,308,000	0.2	750,000	0.2	141.8	-7.4	180.0	-4.8
Cars and general shop construction and repairs by street-railroad companies.....	15	574	0.2	1,301,000	0.2	352,000	0.1	121.3	96.7	28.0	95.0
Window shades and fixtures.....	7	636	0.3	1,286,000	0.2	480,000	0.2	155.1	.....	230.4	.....
Cutlery and tools, not elsewhere specified.....	37	668	0.3	1,124,000	0.2	740,000	0.2	54.0	58.7	58.1	56.5
Coffins, burial cases, and undertakers' goods.....	18	439	0.2	1,085,000	0.2	592,000	0.2	-11.4	54.0	-15.4	63.6
Artificial stone.....	101	514	0.2	908,000	0.1	550,000	0.2	603.0	.....	636.5	.....
Mattresses and spring beds.....	14	306	0.1	689,000	0.1	282,000	0.1	34.0	-1.3	54.1	-8.0
Fancy articles, not elsewhere specified.....	11	1,147	0.5	593,000	0.1	394,000	0.1	.....	.....	.....	.....
Scales and balances.....	4	223	0.1	524,000	0.1	295,000	0.1	103.1	226.6	52.8	273.4
Oil, essential.....	23	54	(*)	430,000	0.1	71,000	(*)	102.5	29.0	-4.1	12.1
All other industries.....	946	21,562	9.3	87,874,000	12.8	34,532,000	10.9	.....	.....	.....	.....

<sup>1</sup> Percentages are based on figures in Table I; a minus sign (-) denotes decrease. Where the percentages are omitted, comparable figures can not be given.  
<sup>2</sup> Less than one-tenth of 1 per cent.

A number of the foundries and machine shops were engaged incidentally in the manufacture of automobile parts and accessories, and rubber automobile tires form a very important item in the manufacture of "Rubber goods, not elsewhere specified." Many electric attachments and motors are also made in establishments engaged in the general manufacture of electrical machinery, apparatus, and supplies, and the brass mountings and fixtures used on automobiles are made to a considerable extent in establishments primarily engaged in the manufacture of brass and bronze products.

*Lumber and timber products.*—This classification includes logging plants whose chief products are logs and bolts; sawmills, shingle mills, and planing mills producing rough lumber, shingles, lath, cooperage materials, sash, doors, blinds, interior finish, and other millwork; and wooden packing-box factories. The statistics for those mills engaged exclusively in custom sawing for local consumption are not included here, but are shown separately on page 569. Until the rise of the automobile industry, this was the most important industry in the state as measured by value of products, and it still continues to lead all others in number of establishments, average number of wage earners, and amount paid in wages. The supply of timber in the state has been declining steadily, and the value of products showed a decrease both from 1889 to 1899 and from 1899 to 1904. Since 1904, however, the industry has shown a slight increase in this respect. In 1909 the total value of products reported for this industry was \$61,514,000 and it gave employment to an average of 35,627 wage earners during the year.

*Foundry and machine-shop products.*—In addition to the general class of foundries and machine shops, this industry also includes establishments which manufacture bells, gas machines and meters, hardware, plumbers' supplies, steam fittings, and structural ironwork. The industry was really of greater importance in the state than is indicated by the statistics, as some machine shops manufactured a distinctive product and were assigned to other classifications. A number of the most important establishments were engaged in the manufacture of cast-iron radiators and boilers for steam and hot-water heating, gas engines and automobile motors, and cranes and pile drivers. The gross value of products increased from \$25,430,000 in 1899 to \$45,399,000 in 1909, or 78.5 per cent for the decade.

*Food and kindred products.*—This group of industries in Michigan includes seven industries, namely, flour mills and gristmills; the butter, cheese, and condensed-milk industry; slaughtering and meat packing; the manufacture of food preparations; bakeries; the beet-sugar industry; and canning and preserving. The figures for the mills which do custom grinding only

are not included in the general tables but are shown in a separate statement on page 569. Under the slaughtering and meat-packing classification are included wholesale establishments which do slaughtering, prepare or pack meat, and manufacture sausage. The classification "Food preparations" includes the statistics for the factories which manufacture fancy cereals, mincemeat, canned soups, and similar preparations as chief products. The canning and preserving industry embraces all establishments in which fruit, vegetables, and fish are canned or preserved, as well as those which prepare pickles, preserves, and sauces. In 1909 there were 1,980 establishments reported for these seven industries, which employed 10,978 wage earners and manufactured products valued at \$100,605,000, adding \$26,480,000 to the cost of materials by the process of manufacture. This group of industries, however, is of much less importance relatively when measured by value added by manufacture or average number of wage earners than when measured by value of products, owing principally to the comparatively simple processes involved in the manufacture of flour-mill and gristmill products, and butter, cheese, and condensed milk, and in slaughtering and meat packing. Each of these seven industries showed a noteworthy increase in value of products during the decade, the largest percentage of gain being that of 554 in the beet-sugar industry, and the smallest that of 61.1 in the flour-mill and gristmill industry.

*Furniture and refrigerators.*—Michigan was the second state in the Union in the manufacture of furniture and refrigerators in 1909, and first in the manufacture of refrigerators alone. Of the 202 establishments included in this classification in 1909, only 10 were primarily engaged in the manufacture of refrigerators, the value of the output of these establishments constituting about one-twelfth of the total value of products reported for the industry. The importance of the industry in the state is no doubt due largely to the abundant available supply of pine and hardwood suitable for these purposes. While the supply of such woods in the state has diminished in late years, the quantity of high-grade lumber imported has increased largely, and the industry in the state has maintained the impetus afforded by its early natural advantages and continued to prosper, as is indicated by the fact that the average number of wage earners employed increased from 12,833 to 16,610, or 29.4 per cent, and the value of products from \$16,040,000 to \$28,642,000, or 78.6 per cent, during the decade. During this period, however, the proportion which the value of the products of the furniture and refrigerator industry in Michigan formed of the total reported for the industry in the United States has decreased, being 11.9 per cent in 1909 and 12.3 per cent in 1899.

*Printing and publishing.*—This industry includes establishments engaged in printing and publishing newspapers and periodicals, books, or music; job printing offices; establishments engaged in bookbinding and blank-book making; and those that make a specialty of lithographing and of steel or copper-plate engraving. This is the second industry in the state in number of establishments, reporting in 1909 about one-ninth of all manufacturing establishments, although it employed only 3.1 per cent of the wage earners and contributed only 2.5 per cent of the value of products. The industry experienced a decided growth during the last decade, the number of wage earners increasing 2,177, or 43.2 per cent, and the value of products \$9,142,000, or 111.4 per cent.

*Tobacco manufactures.*—This industry covers the manufacture of cigars, cigarettes, chewing and smoking tobacco, and snuff. Of the 729 establishments included in the industry, all but 14 were engaged primarily in the manufacture of cigars and cigarettes, but the value of the output formed only about three-fifths of the total shown for the entire industry. Detroit is the center of the industry, as it reported over three-fourths of the total value of the tobacco products for the state in 1909. The total value of products increased from \$9,245,000 in 1899 to \$11,864,000 in 1904 and \$16,179,000 in 1909, making a gain of \$6,934,000, or 75 per cent, for the decade.

*Leather, tanned, curried, and finished.*—This industry includes not only establishments which are engaged primarily in the tanning, currying, and finishing of leather for themselves but also those which treat hides or skins for others. The cost of materials and the value of products, however, do not include the cost or value of the hides or skins treated under contract. In 1849 Michigan reported 61 establishments, which employed only 283 wage earners and turned out products valued at only \$402,000, whereas in 1909, 24 plants were reported, which engaged 2,291 wage earners, and the value of whose products amounted to \$15,331,000. The real development of the industry, however, has taken place since 1889, when the value of products was only \$1,744,000. During the following 10 years the value of the output of the tanneries in the state increased over 240 per cent, while during the next decade the increase was over 150 per cent.

*Paper and wood pulp.*—Of the 32 establishments included in this classification, there were 8 which manufactured both pulp and paper and 24 which produced paper only. All but 5 of the last-named mills used wood pulp to some extent. The development of the industry in Michigan has been due to the more extensive use of wood pulp in the manufacture of paper. In 1889 there were 31 establishments reported for the

state, which employed an average of 1,219 wage earners and manufactured products valued at \$2,919,000. The growth during the decade 1899–1909 was particularly noteworthy, as the value of products increased from \$4,218,000 to \$13,922,000, a gain of \$9,704,000, or 230.1 per cent.

*Brass and bronze products.*—In 1909 this industry in Michigan included 60 establishments, of which 45 were primarily engaged in the manufacture of brass castings and brass goods, such as oiling devices, brass spigots, and automobile and motor specialties; 12, in the manufacture of brass ware, such as ornaments for furniture, stair rods, and automobile parts; 2, in the production of rolled brass and copper; and 1, in the manufacture of brass. The remarkable development of this industry in the state during recent years has been due mainly to the increased demand for brass specialties in the manufacture of automobiles. The total value of products increased from \$2,148,000 in 1899 to \$13,890,000 in 1909. Michigan ranked third among the states of the Union in this industry, as measured by value of products.

*Patent medicines and compounds and druggists' preparations.*—Of the 159 establishments reported in 1909, 116 were primarily engaged in the manufacture of patent medicines and compounds, but the total value of products for these establishments represented only about one-eighth of the total shown for the industry. The 18 establishments engaged in the manufacture of druggists' preparations contributed about four-fifths of the total value of products. This industry also included 25 establishments manufacturing perfumes and cosmetics in 1909. Michigan is second among the states of the Union in the industry as a whole and first in the manufacture of druggists' preparations. In 1909 the total value of products was \$13,475,000, as compared with \$7,284,000 in 1899.

*Chemicals.*—Although this industry did not rank among the first in the state, Michigan held fourth place among the states of the Union in the value of chemical products manufactured. The large supply of brine from the salt wells of the state has made the manufacture of alkali products of great importance. The value of sodas forms about five-eighths of the total value of products for this industry in 1909. A comparatively large number of small establishments were engaged in the manufacture of potash, principally from wood ashes. The growth of the industry has been rapid, the value of products being \$12,890,000 in 1909, an increase over 1899 of 142.1 per cent.

*Carriages and wagons and materials.*—This classification includes those establishments which made five or more horse-drawn vehicles during the year, as well as those engaged in the manufacture of carriage or

wagon bodies, tops, or other parts. In contrast to the great increase noted in the automobile industry from 1904 to 1909 has been the decline in the manufacture of carriages and wagons during the same period. While the value of products of this industry increased from \$12,887,000 in 1899 to \$14,889,000 in 1904, it decreased to \$10,159,000 in 1909, a loss of 31.8 per cent in the last five years.

Other industries which are of less importance in the state but in which Michigan holds high rank among the states are the manufacture of stoves and furnaces and of corsets, the salt industry, wood distillation, and the manufacture of fur goods, show cases, and wall plaster.

Several industries are not fully represented by the statistics given in the preceding table, because to a large extent they are interwoven with one or more other industries. Important among these are the manufacture of steel springs for cars and carriages, the making of window shades and fixtures, the production of wire-work, including wire rope and cable, and the turning and carving of wood.

The rank of the industries when measured by value added by manufacture differs considerably from their rank based on value of products. Of all the industries presented separately in this table, only six hold the same position when ranked according to value added by manufacture. Noticeable changes in rank are found in the case of slaughtering and meat packing, which drops from thirteenth place in gross value to thirty-sixth place in added value; the butter, cheese, and condensed-milk industry, which falls from ninth to thirty-first place; the leather industry, which drops from eighth to twenty-second; and the flour-mill and gristmill industry, which falls from fourth to thirteenth place. On the other hand, the malt-liquor industry advances from nineteenth to ninth place; the manufacture of salt from thirty-sixth to twenty-eighth; the manufacture of agricultural implements from twentieth to eleventh; and the manufacture of stoves and furnaces from twenty-first to twelfth.

This table shows also the percentages of increase or decrease for each industry in respect to value of products and value added by manufacture in all cases where comparable statistics can be presented. Exceptionally large increases are shown for several of the industries for each of the five-year periods, while others show marked decreases. From 1904 to 1909 the largest increases in both items are shown for the manufacture of automobiles, artificial stone, and electrical machinery, apparatus, and supplies, and for wood distillation, not including turpentine and rosin. In these four industries the percentages of increase in value of products ranged from 1,108.6 to 225.1. From 1899 to 1904 the largest gains in both items are shown for the manufacture of show cases, food preparations, beet sugar, and scales and balances. In value of products

four industries show a decrease from 1904 to 1909 and seven a decrease from 1899 to 1904, while in value added by manufacture decreases from 1904 to 1909 were reported for six industries and from 1899 to 1904 for nine industries. The largest relative decrease in value of products from 1904 to 1909 (31.8 per cent) was in the carriage and wagon industry.

**Persons engaged in manufacturing industries.**—The following table shows, for 1909, the distribution of the number of persons engaged in manufactures, the average number of wage earners being distributed by sex and age. It should be borne in mind, however, that the sex and age classification of the average number of wage earners in this and other tables is an estimate obtained by the method described in the Introduction.

CLASS.	PERSONS ENGAGED IN MANUFACTURES.		
	Total.	Male.	Female.
All classes.....	271,071	231,915	39,156
Proprietors and officials.....	16,906	16,434	562
Proprietors and firm members.....	8,965	8,564	401
Salaried officers of corporations.....	3,089	3,028	63
Superintendents and managers.....	4,942	4,844	98
Clerks.....	22,576	16,183	6,393
Wage earners (average number).....	231,499	199,298	32,201
16 years of age and over.....	228,982	197,777	31,205
Under 16 years of age.....	2,517	1,521	996

The average number of persons engaged in manufactures during 1909 was 271,071, of whom 231,499 were wage earners. Of the remainder, 16,996 were proprietors and officials, and 22,576 were clerks. Corresponding figures for individual industries will be found in Table II, page 578.

The next table shows, for 1909, the percentages of proprietors and officials, clerks, and wage earners, respectively, among the total number of persons employed in manufactures. It covers all industries combined and 29 important industries individually.

Of the total number of persons engaged in all manufacturing industries, 6.3 per cent were proprietors and officials, 8.3 per cent clerks, and 85.4 per cent wage earners. The highest percentages of proprietors and officials shown for any of the individual industries were for the flour mills and gristmills, the butter, cheese, and condensed-milk factories, and the bakeries, in which industries they constituted 31.8, 30.9, and 24.7 per cent, respectively, of the total number of persons engaged. In these industries the majority of the establishments are comparatively small, and the work is to a large extent done by the proprietors or their immediate representatives, so that the proportion of persons engaged in these industries falling into the class of proprietors and officials is very much higher than for most other industries or for all industries combined.

On account of the large average number of wage earners in the establishments engaged in the manufacture of automobiles, of boots and shoes, and of paper and wood pulp, and in the steam-railroad repair shops, these industries show the smallest proportions of proprietors and officials.

of children under 16 years of age in the total number of wage earners was larger in the boot and shoe industry than in any other industry in the state, the largest actual number of such wage earners was reported for the tobacco-manufactures industry, in which 534 children were employed, representing 6.3 per cent of the total number of wage earners engaged in the industry.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number)
All industries.....	271,071	6.3	8.3	85.4
Agricultural implements.....	3,041	5.3	17.1	77.6
Automobiles, including bodies and parts.....	28,098	1.9	7.5	90.6
Beet sugar.....	1,755	3.2	13.0	83.2
Boots and shoes, including out stock and findings.....	2,703	2.1	7.0	90.8
Brass and bronze products.....	5,211	3.2	5.3	91.0
Bread and other bakery products.....	3,934	24.7	9.1	60.2
Butter, cheese, and condensed milk.....	1,740	30.9	7.5	61.7
Carrriages and wagons and materials.....	4,707	7.7	6.6	85.7
Cars and general shop construction and repairs by steam-railroad companies.....	5,706	2.2	3.1	94.7
Chemicals.....	3,512	3.2	6.4	90.4
Clothing, men's, including shirts.....	3,944	2.9	6.4	90.8
Flour-mill and gristmill products.....	2,023	31.8	0.9	63.3
Food preparations.....	1,672	5.6	16.4	77.9
Foundry and machine-shop products.....	25,334	5.9	8.7	85.5
Furniture and refrigerators.....	18,299	3.2	6.1	90.8
Gas, illuminating and heating.....	2,435	6.3	20.9	72.7
Iron and steel, blast furnaces.....	1,101	3.3	4.4	92.3
Leather, tanned, curried, and finished.....	2,440	2.7	3.4	93.0
Liquors, malt.....	2,001	10.6	13.1	76.3
Lumber and timber products.....	39,011	5.8	2.8	91.3
Paint and varnish.....	1,657	4.2	34.0	61.8
Paper and wood pulp.....	4,681	2.2	3.4	94.6
Patent medicines and compounds and druggists' preparations.....	5,124	6.3	30.2	63.4
Printing and publishing.....	11,048	13.9	20.7	65.3
Shipbuilding, including boat building.....	2,758	5.4	9.0	85.0
Slaughtering and meat packing.....	1,114	7.6	11.4	81.0
Stoves and furnaces, including gas and oil stoves.....	5,027	2.8	8.0	80.2
Tobacco manufactures.....	9,242	10.2	4.5	85.2
Wirework, including wire rope and cable.....	1,261	6.5	21.4	72.1
All other industries.....	69,942	6.6	8.4	85.0

The next table shows, for 1909, in percentages, for all industries combined, the distribution of the average number of wage earners by age periods, and for those 16 years of age and over by sex, calculated in the manner described in the Introduction. It also shows, for some of the important industries separately, a similar distribution of wage earners as reported for December 15, or the nearest representative day. As a means of judging the importance of the several industries, the average number employed for the year is also given in each case.

For all industries combined, 85.4 per cent of the average number of wage earners were males 16 years of age and over, 13.5 per cent females 16 years of age and over, and only 1.1 per cent children under the age of 16. Women 16 years of age and over constituted 87.5 per cent of all wage earners in the men's clothing industry; 65.4 per cent of the total in the tobacco-manufactures industry; and 47.9 per cent of the total in the manufacture of patent medicines and compounds and druggists' preparations. A large number of women were also employed in making food preparations, in boot and shoe factories, and in printing and publishing establishments. Although the proportion

INDUSTRY.	Average number. <sup>1</sup>	WAGE EARNERS.		
		Per cent of total.		
		16 years of age and over.		Under 16 years of age.
		Male.	Female.	
All industries.....	231,499	85.4	13.5	1.1
Agricultural implements.....	2,359	99.4	0.1	0.4
Automobiles, including bodies and parts.....	25,444	98.9	1.1	( <sup>2</sup> )
Beet sugar.....	1,460	99.7	0.3	.....
Boots and shoes, including out stock and findings.....	2,455	58.5	85.1	6.4
Brass and bronze products.....	4,771	93.7	3.1	3.2
Bread and other bakery products.....	2,637	30.0	18.2	1.8
Butter, cheese, and condensed milk.....	1,073	90.7	9.1	0.2
Carrriages and wagons and materials.....	4,034	98.2	1.7	0.1
Cars and general shop construction and repairs by steam-railroad companies.....	5,401	99.3	0.1	0.2
Chemicals.....	3,174	99.0	0.8	0.3
Clothing, men's, including shirts.....	3,580	12.5	87.5	.....
Flour-mill and gristmill products.....	1,530	98.3	0.9	0.3
Food preparations.....	1,303	92.3	37.2	.....
Foundry and machine-shop products.....	21,049	98.0	1.4	0.5
Furniture and refrigerators.....	16,610	95.6	2.7	1.7
Gas, illuminating and heating.....	1,771	99.7	0.2	0.1
Iron and steel, blast furnaces.....	1,016	99.0	0.1	.....
Leather, tanned, curried, and finished.....	2,291	98.3	0.3	0.8
Liquors, malt.....	1,527	99.1	0.9	.....
Lumber and timber products.....	35,627	99.1	0.5	0.4
Paint and varnish.....	1,024	88.5	10.3	1.3
Paper and wood pulp.....	4,327	82.3	17.7	.....
Patent medicines and compounds and druggists' preparations.....	3,249	50.7	47.9	1.4
Printing and publishing.....	7,219	73.5	26.1	1.4
Shipbuilding, including boat building.....	2,344	99.7	0.3	.....
Slaughtering and meat packing.....	902	95.3	3.0	0.7
Stoves and furnaces, including gas and oil stoves.....	4,482	98.1	0.1	1.8
Tobacco manufactures.....	7,876	28.3	65.4	6.3
Wirework, including wire rope and cable.....	909	89.3	9.0	1.7
All other industries.....	59,455	73.2	25.4	1.4

<sup>1</sup> For method of estimating the distribution, by sex and age periods, of the average number in all industries combined, see Introduction.  
<sup>2</sup> Less than one-tenth of 1 per cent.

In order to compare the distribution of persons engaged in manufactures in 1909 with that shown at the census of 1904 it is necessary to use the classification employed at the earlier census. (See Introduction.) The following table makes this comparison according to occupational status:

CLASS.	PERSONS ENGAGED IN MANUFACTURES.				Per cent of Increase, 1904-1909.
	1909		1904		
	Number.	Percent distribution.	Number.	Percent distribution.	
Total.....	271,071	100.0	209,196	100.0	35.4
Proprietors and firm members.....	8,905	3.3	7,732	3.9	15.9
Salaried employees.....	30,607	11.3	17,235	8.6	77.6
Wage earners (average number).....	231,499	85.4	175,229	87.5	32.1

Comparable figures are not obtainable for 1899. The table shows a greater percentage of increase in the salaried employees than in the other two classes.

The next table shows the average number of wage earners, distributed according to age periods, and in the case of those 16 years of age and over according to sex, for 1909, 1904, and 1899. The averages for 1909 are estimated on the basis of the actual number reported for a single representative day. (See Introduction.)

CLASS.	AVERAGE NUMBER OF WAGE EARNERS.					
	1909		1904		1899	
	Number.	Percent distribution.	Number.	Percent distribution.	Number.	Percent distribution.
Total.....	231,493	100.0	175,229	100.0	155,800	100.0
16 years of age and over.....	228,982	98.9	171,046	98.1	153,279	98.4
Male.....	197,777	85.4	147,676	84.3	134,265	86.2
Female.....	31,205	13.5	24,270	13.8	19,014	12.2
Under 16 years of age.....	2,517	1.1	3,283	1.9	2,521	1.6

This table indicates that for all industries combined there has not been much change in the proportions of male and female wage earners 16 years of age and over. In 1909 males 16 years of age and over formed 85.4 per cent of all wage earners, as compared with 84.3 per cent in 1904 and 86.2 per cent in 1899. The number of children employed in 1909 was practically the same as in 1899, but shows a decrease of 766 since 1904, while the proportion of such wage earners was somewhat less in 1909 than at either of the other two censuses.

**Wage earners employed, by months.**—The following table gives the number of wage earners employed on the 15th of each month during the year 1909 for all industries combined, for the beet-sugar industry, and for all other industries combined; it gives also the percentage which the number reported for each month is of the greatest number reported for any month.

MONTH.	WAGE EARNERS.					
	All industries.		Beet sugar.		All other industries.	
	Number.	Percent of maximum.	Number.	Percent of maximum.	Number.	Percent of maximum.
January.....	211,679	84.6	925	21.2	210,754	85.6
February.....	218,230	87.3	290	6.6	217,940	88.5
March.....	222,087	89.2	292	6.7	222,795	90.5
April.....	222,273	88.9	403	9.2	221,870	90.1
May.....	226,811	90.7	536	12.3	226,275	91.9
June.....	229,058	91.6	576	13.2	228,482	92.8
July.....	232,023	92.8	675	15.4	231,348	93.9
August.....	235,804	94.3	755	17.3	235,049	95.4
September.....	240,310	96.1	873	20.1	239,432	97.2
October.....	241,912	96.7	4,050	92.6	237,882	96.6
November.....	246,729	98.7	4,372	100.0	242,357	98.4
December.....	250,078	100.0	3,773	86.3	246,305	100.0

In Table II, page 578, are shown, for practically all of the important industries in the state, the largest number and also the smallest number of wage earners re-

ported for any month. The figures are for the 15th day, or the nearest representative day, of the month.

The manufacture of beet sugar was the only seasonal industry of importance in the state. In this industry there was a variation in the number of wage earners employed from a minimum of 290 in February to a maximum of 4,372 in November, but the number employed was so small that the fluctuations in the industry affect but slightly the totals for all industries combined. It will be observed that, except for a slight decrease in April, the number of wage earners in all industries combined increased steadily throughout the year from January, the month of least activity, to December, the month of greatest activity.

**Prevailing hours of labor.**—In the next table wage earners have been classified according to the hours of labor prevailing in the establishments in which they are employed. In making this classification the average number of wage earners employed during the year is used, and the number employed in each establishment is classified as a total according to the hours prevailing in that establishment, even though a few employees work a greater or less number of hours.

It is evident from the figures that for nearly one-half of the wage earners employed in the manufacturing industries of Michigan the hours of labor were 60 a week. Of the remainder, the majority worked either 54 hours a week or between 54 and 60 hours a week. Only 7.7 per cent of the total worked in establishments where the prevailing number of hours of labor was less than 54 a week, and only 4.3 per cent in establishments where it was more than 60 a week.

Of the wage earners employed in the lumber industry, 32,413, or 91 per cent, were in establishments where the prevailing hours were 60 a week; in the furniture and refrigerator industry, 12,109, or 72.9 per cent, were in such establishments; and in the automobile industry, 13,564, or 53.3 per cent. More than one-half of the 113,762 wage earners in this class of establishments were therefore employed in these three industries. In the foundries and machine shops the hours usually ranged from 54 to 60 a week. In the distillation of wood and in the chemical and the gas industries, more than half the wage earners worked over 60 hours per week, while in the beet-sugar, blast-furnace, and cement industries all or the greater part of the wage earners worked 72 hours per week or more. On the other hand, in the manufacture of men's clothing, more than half the wage earners worked 48 hours per week or less, and the same hours prevailed for about one-third of the wage earners in marble and stone work, in the breweries, in printing and publishing establishments, and in the tobacco-manufactures industry.



INDUSTRY.	AVERAGE NUMBER OF WAGE EARNERS IN ESTABLISHMENTS GROUPED ACCORDING TO PREVALING HOURS OF WORK PER WEEK.								
	Total.	48 and under.	Between 48 and 54.	54.	Between 54 and 60.	60.	Between 60 and 72.	72.	Over 72.
All industries .....	231,499	11,174	6,612	38,449	51,552	113,762	2,748	1,284	5,918
Agricultural implements .....	2,359			1,119	787	453			
Artificial stone .....	514	3		159	25	327			
Automobiles, including bodies and parts .....	25,444	2	17	4,775	7,086	13,564			1,460
Beet sugar .....	1,460								
Boots and shoes, including out stock and findings .....	2,455	6	11	1,674	572	192			
Boxes, fancy and paper .....	1,326		12	490	470	345			
Brass and bronze products .....	4,771		35	102	2,332	2,302			
Bread and other bakery products .....	2,037	128	120	702	195	1,211	201	52	28
Brick and tile .....	1,505	378	66	130					
Butter, cheese, and condensed milk .....	1,073	145	13	27	44	750	68	25	1
Canning and preserving .....	2,073	6		58	373	1,559	15	27	5
Carriages and wagons and materials .....	4,034	55		53	2,105	1,821			
Cars and general shop construction and repairs by steam-railroad companies .....	5,401		642	1,460	1,905	1,376	113		
Cars and general shop construction and repairs by street-railroad companies .....	574			360	19	190	2		3
Cement .....	1,300					38	204		974
Chemicals .....	3,174			2	1,426	35	174	96	1,441
Clothing, men's, including shirts .....	3,580	2,224	79	809	420	30			
Clothing, women's .....	2,104	114	823	1,161	48	48			
Coffins, burial cases, and undertakers' goods .....	439	2		56	151	230			
Confectionery .....	1,052	30	2	462	225	318	4	2	
Cooperage and wooden goods, not elsewhere specified .....	2,642	252		27	17	2,346			
Copper, tin, and sheet-iron products .....	2,386	81	54	907	620	723	1		
Corsets .....	2,461	7	42	1,990	269	123			
Cutlery and tools, not elsewhere specified .....	668			4	259	405			
Electrical machinery, apparatus, and supplies .....	1,218	4	20	236	310	642			
Fancy articles, not elsewhere specified .....	1,147	3	0	104	1,031	3			
Flour-mill and gristmill products .....	1,530	115	33	11	10	1,219	35	57	
Food preparations .....	1,303	5	17	34	127	834		279	7
Foundry and machine-shop products .....	21,649	100	108	3,036	9,335	8,096	14		
Fur goods .....	619		37	383	133	66			
Furniture and refrigerators .....	10,610	53	44	1,249	3,155	12,109			
Gas and electric fixtures and lamps and reflectors .....	395		21	28	156	190			
Gas, illuminating and heating .....	1,771	1		22	49	779	353	46	521
Hosiery and knit goods .....	2,545	8	308	807	750	666			
Iron and steel, blast furnaces .....	1,010						55		961
Iron and steel, steel works and rolling mills .....	1,183				317	866			
Leather goods .....	834			43	276	515			
Leather, tanned, curried, and finished .....	2,201				519	1,772			
Liquors, malt .....	1,527	605	8	378		423		113	
Lumber and timber products .....	35,627	341	203	721	1,762	32,418	124	3	
Marble and stone work .....	551	228	1	172	15	135			
Mattresses and spring beds .....	306			16	273	17			
Musical instruments, pianos and organs and materials .....	1,779		1	51	1,106	621			
Oil, essential .....	54				5	48	1		
Paint and varnish .....	1,024		25	634	69	296			
Paper and wood pulp .....	4,327				225	2,534	1,084	484	
Paper goods, not elsewhere specified .....	1,181	3	15	410	592	161			
Patent medicines and compounds and druggists' preparations .....	3,249	71	580	2,161	357	79	1		
Printing and publishing .....	7,210	2,718	833	2,334	833	500	1		
Salt .....	1,363	15		99	9	1,173	9	4	54
Scales and balances .....	228								
Shipbuilding, including boat building .....	2,344	2	3	85	1,093	1,161			
Show cases .....	823			72	130	621			
Slaughtering and meat packing .....	902	14		35	3	849	1		
Springs, steel, car and carriage .....	588				200	388			
Stoves and furnaces, including gas and oil stoves .....	4,482	255	671	60	1,180	2,316			
Tobacco manufactures .....	7,876	2,569	1,173	1,854	1,981	350	3		
Wall plaster .....	740			38	1	648		59	
Window shades and fixtures .....	686	24		68	281	263			
Wirework, including wire rope and cable .....	900		21	232	250	397			
Wood distillation, not including turpentine and rosin .....	806				6	345	88		367
Wood, turned and carved .....	1,137	10	18	20	39	1,053			
Woolen, worsted, and felt goods, and wool hats .....	554			25	51	478			
All other industries .....	21,502	588	484	5,595	5,294	9,416	52	37	98

Location of establishments.—The next table shows the extent to which the manufactures of Michigan are centralized in cities of 10,000 population or over. (See Introduction.) The comparison is confined here, as in other states, to the years 1899 and 1909, in the absence of a Federal census of population by which the grouping of cities in 1904 could be determined.

In 1909 the proportion of the total value of manufactured products reported from cities having over 10,000 inhabitants was 68.5 per cent, as compared with 55.7 per cent in 1899. It is natural that such

cities should show an increase in relative industrial importance in a state where the lumber industry is declining and where the chief growth in manufacturing is in such industries as the manufacture of automobiles, foundries and machine shops, the manufacture of furniture, and other industries generally conducted in large factories located in or near the centers of population.

The cities having a population of over 100,000 contributed 43.1 per cent of the total value of products in 1909, as compared with only 27.6 per cent in 1899. A part of this increase is occasioned by an addition to

the group. In 1899 Detroit was the only city in the state having over 100,000 inhabitants, but during the succeeding decade the population of Grand Rapids, which is an important manufacturing center, passed this figure, so that for 1909 its statistics are included with those of Detroit.

For 1909 the group comprising the cities having between 25,000 and 100,000 inhabitants, which reported 17.8 per cent of the total value of the manufactured products of the state in that year, includes

Saginaw, Bay City, Kalamazoo, Flint, Jackson, Lansing, and Battle Creek. In 1900, however, Kalamazoo, Flint, Lansing, and Battle Creek all had less than 25,000 inhabitants, so that for 1899 their statistics are included with those for the cities having between 10,000 and 25,000 inhabitants. The transfer of these four cities, therefore, largely accounts for the increased proportions of the totals for the various items shown for the cities having between 25,000 and 100,000 inhabitants.

ITEM.	Year.	Aggregate.	CITIES HAVING A POPULATION OF 10,000 AND OVER.								DISTRICTS OUTSIDE OF CITIES HAVING A POPULATION OF 10,000 AND OVER.	
			Total.		10,000 to 25,000.		25,000 to 100,000.		100,000 and over.		Number or amount.	Percent of total.
			Number or amount.	Percent of total.	Number or amount.	Percent of total.	Number or amount.	Percent of total.	Number or amount.	Percent of total.		
Population.....	1910	2,810,173	1,043,746	37.1	203,817	7.3	261,592	9.3	578,337	20.6	1,766,427	62.9
	1900	2,420,982	681,312	28.1	199,771	8.2	195,837	8.1	285,704	11.8	1,739,670	71.9
Number of establishments.....	1909	9,159	4,509	49.1	815	8.9	1,125	12.3	2,560	27.9	4,059	50.9
	1899	7,810	2,892	39.6	773	10.0	860	11.8	1,250	17.2	4,418	60.4
Average number of wage earners	1909	231,499	157,325	68.0	20,380	8.8	38,344	16.0	98,601	42.6	74,174	32.0
	1899	155,800	84,805	54.4	21,274	13.7	25,158	16.1	38,373	24.6	70,995	45.6
Value of products.....	1909	\$685,109,169	\$409,603,103	68.5	\$52,485,164	7.6	\$121,895,141	17.8	\$295,222,798	43.1	\$215,506,066	31.5
	1899	319,691,856	178,124,393	55.7	43,156,684	13.5	46,601,785	14.6	88,365,924	27.6	141,507,463	44.3
Value added by manufacture...	1909	316,497,147	227,482,140	71.9	23,887,037	7.6	58,325,512	18.4	145,269,541	45.9	89,015,007	28.1
	1899	143,725,728	85,008,397	59.1	22,296,278	15.5	21,353,692	14.8	41,358,427	28.8	58,717,331	40.9

The group of cities having a population of between 10,000 and 25,000 was augmented in 1909 by the addition of Pontiac, Escanaba, Ironwood, Traverse City, Adrian, and Holland, all of which had less than 10,000 inhabitants in 1900. In spite of these additions, however, the group, owing to the loss of the four cities above mentioned, shows a smaller proportion in 1909 as compared with 1899 of the total for each item covered by the table.

The population in 1910 and 1900 of the 24 cities which had 10,000 inhabitants or over in 1910 is given in the following tabular statement:

CITY.	1910	1900	CITY.	1910	1900
Detroit.....	465,766	285,704	Pontiac.....	14,532	9,769
Grand Rapids....	112,571	87,505	Escanaba.....	13,194	9,549
Saginaw.....	50,510	42,345	Ironwood.....	12,821	9,705
Bay City.....	45,166	40,747	Alpena.....	12,706	11,802
Kalamazoo.....	39,437	24,404	Sault Ste. Marie.	12,615	10,538
Flint.....	35,550	13,103	Ishpeming.....	12,443	13,255
Jackson.....	31,433	25,180	Manistee.....	12,331	14,260
Lansing.....	25,267	16,485	Traverse City....	12,115	9,407
Battle Creek....	24,002	20,818	Marquette.....	11,503	10,055
Muskegon.....	18,863	19,158	Adrian.....	10,763	9,654
Port Huron.....	14,817	14,509	Menominee.....	10,507	12,818
Ann Arbor.....			Holland.....	10,490	7,790

<sup>1</sup> Includes population of West Bay City, annexed to Bay City in 1905.

The relative importance in manufactures of each of these 24 cities is shown in the next table, in which the value of products and average number of wage earners reported for each are shown separately for 1909, 1904, and 1899, so far as comparative figures are available.

Every city for which comparative figures are available, except Port Huron, Marquette, Escanaba, and Ishpeming, shows an increase in value of products from 1904 to 1909, and all except Bay City, Menominee,

and Manistee show increases from 1899 to 1904. Many of the cities enumerated in the list, however, are not important as manufacturing centers.

CITY.	AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS.		
	1909	1904	1899	1909	1904	1899
Detroit.....	81,011	48,493	38,373	\$252,992,123	\$128,246,650	\$88,365,924
Grand Rapids....	17,500	15,514	12,920	42,230,675	30,689,967	22,228,487
Flint.....	7,088	2,161	1,060	24,118,007	6,177,170	4,719,044
Battle Creek....	4,175	3,389	2,051	20,174,016	12,208,244	6,501,044
Saginaw.....	5,990	4,445	4,205	18,833,047	10,078,508	9,559,378
Kalamazoo.....	6,272	5,666	3,870	17,903,560	13,141,767	7,189,368
Lansing.....	5,255	2,082	1,425	16,567,093	6,887,415	7,949,306
Jackson.....	4,797	3,967	3,715	14,005,671	8,348,125	6,706,995
Bay City.....	4,737	4,456	4,309	10,293,747	8,808,559	9,010,325
Muskegon.....	4,522	3,078	3,078	9,647,823	6,819,441	4,527,467
Adrian.....	1,059	1,502	1,030	6,085,126	4,897,420	2,124,923
Pontiac.....	1,739	1,296	1,092	5,893,961	3,047,422	2,470,887
Holland.....	1,940	(*)	(*)	4,622,265	(*)	(*)
Sault Ste. Marie.	1,005	895	817	4,618,715	2,412,481	728,169
Alpena.....	1,432	1,245	1,202	3,963,823	2,905,363	2,273,343
Menominee.....	1,700	1,489	1,703	3,727,596	2,973,335	4,076,825
Port Huron.....	1,580	2,136	2,026	3,538,272	3,714,859	3,626,810
Manistee.....	2,125	2,084	2,103	3,344,087	3,256,601	3,625,317
Traverse City....	1,220	1,108	909	2,889,150	2,176,903	1,201,318
Ann Arbor.....	573	549	623	1,865,894	1,885,731	1,377,278
Marquette.....	493	738	836	1,254,553	2,364,081	1,686,083
Escanaba.....	720	949	520	1,074,109	1,332,979	609,822
Ironwood.....	201	87	90	377,416	201,783	145,122
Ishpeming.....	66	73	80	132,374	246,862	194,668

<sup>1</sup> Figures do not agree with those published in 1904, because it was necessary to revise the totals in order to include data only for those establishments located within the corporate limits of the city.

<sup>2</sup> In 1904 and 1899 the statistics for West Bay City, which was annexed to Bay City in 1905, are included.

<sup>3</sup> Figures not available.

The value of the manufactured products of Detroit increased from \$88,365,924 in 1899 to \$252,992,123 in 1909, or 186.3 per cent, and the number of wage earners from 38,373 to 81,011, or 111.1 per cent. In 1909 Detroit contributed 36.9 per cent of the total value of the manufactured products of the state, as compared with 29.9 per cent in 1904 and 27.6 per cent in 1899, while its industries gave employment to

35 per cent of the total number of wage earners in the manufacturing industries of the state in 1909, as compared with 27.7 per cent in 1904 and 24.6 per cent in 1899. Ranked by value of manufactured products the city held fifteenth place among the cities of the United States in 1899, fourteenth in 1904, and sixth in 1909.

The manufacture of automobiles has become by far the most important industry of Detroit, accounting for 23.5 per cent of the total value of the city's manufactures in 1909, as compared with 4.9 per cent in 1904. The value of the automobile output of the city in 1904 was \$6,240,000, or 78 per cent of the state total for this industry, and in 1909 it was \$59,536,000, or 61.6 per cent of the state total. Foundries and machine shops, with \$18,296,000; slaughtering and meat packing, with \$12,850,000; tobacco manufactures, with \$12,773,000; the brass and bronze products industry, with \$12,297,000; and the patent medicine and compound industry, with \$11,558,000, are the other leading industries of the city, as measured by value of products.

In the case of 13 industries shown separately in Table I, both for the state and for Detroit, the city contributed more than half of the total value of products, as follows: Slaughtering and meat packing, 95.6 per cent; brass and bronze products, 88.5 per cent; steel works and rolling mills, 86 per cent; patent medicines, 85.8 per cent; tobacco manufactures, 78.9 per cent; fur goods, 76.1 per cent; men's clothing, 72.9 per cent; copper, tin, and sheet-iron products, 71.7 per cent; stoves and furnaces, 62.2 per cent; automobiles, 61.6 per cent; leather goods, 54.5 per cent; boots and shoes, 52.2 per cent; and malt liquors, 50.2 per cent.

In addition to the 45 industries presented separately for Detroit in Table I, page 572, there are 113 others which, for various reasons, are included in the group of "All other industries." Some of these industries are among the most important in the city, 10 of them having products in 1909 valued at more than \$1,000,000.<sup>1</sup>

Grand Rapids, the second manufacturing city in the state, shows an increase in value of products from \$22,228,487 in 1899 to \$42,230,675 in 1909. By far the most important industry of the city is the manufacture of furniture, Grand Rapids being in fact the recognized center of the furniture industry in the United States. This industry, with products valued at \$12,630,000, contributed 29.9 per cent of the total value of the manufactured products of the city in 1909, and gave employment to 7,250, or 41.2 per cent of the total number of wage earners reported for all manufacturing industries of the city. The value of

products of the industry in the city represented 44.1 per cent and the number of wage earners employed 43.6 per cent of the corresponding totals for the industry in the state. Other important industries are the manufacture of flour-mill and gristmill and of foundry and machine-shop products, printing and publishing, and the lumber and timber products and bakery industries.

Flint, the third city in the state in value of manufactured products in 1909, owes its rapid advance from tenth place in 1904 to the development of the automobile industry, which, with the manufacture of carriages and wagons, accounts for over three-fourths of the total value of products of the city. The value of the city's manufactures increased 290.4 per cent from 1904 to 1909, an increase greater than that for any other city of 10,000 population or over in the state.

Battle Creek, which ranked seventh in value of products in 1899, was fourth both in 1904 and in 1909. During the past 10 years the value of the city's manufactures has more than trebled. This gain was due principally to the increase in the manufacture of food preparations, the total output of which was valued at \$9,717,000 in 1909, or 84.6 per cent of the total for the industry in the state. Battle Creek outranks all other cities in the United States in this branch of manufacturing. The manufacture of agricultural implements and of foundry and machine-shop products are other important industries.

Saginaw, although reporting an increase in value of manufactured products from \$8,652,978 in 1899 to \$18,833,047 in 1909, dropped from third place in importance in this respect in 1899 to fifth place in 1904 and 1909. The principal industries of the city are the manufacture of beet sugar, lumber and timber products, foundry and machine-shop products, cooperage and wooden goods, and furniture.

Kalamazoo dropped from third place among the cities of the state in value of manufactured products in 1904 to sixth place in 1909, in spite of an increase in this respect from \$13,141,767 to \$17,903,560. The leading industries of the city are the manufacture of paper and wood pulp, corsets, and foundry and machine-shop products, printing and publishing, and the manufacture of carriages and wagons.

Of the \$16,567,093 reported as the total value of products manufactured in Lansing in 1909, about one-half was contributed by the automobile industry, and mainly on account of the decided increase in this industry the city advanced from thirteenth place among the cities of the state in respect to value of manufactures in 1899 to seventh place in 1909. Foundries and machine shops are also important.

Jackson is another city which owes its rapid industrial growth largely to the manufacture of automobiles, the output of which represented about one-third of the total value of all manufactured products of the

<sup>1</sup>These industries were, as follows:

Cars and general shop construction and repairs by street-railroad companies.	Iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills.
Cars, steam-railroad, not including operations of railroad companies.	Leather, tanned, curried, and finished.
Cash registers and calculating machines.	Matches.
Chemicals.	Paint and varnish.
Gas, illuminating and heating.	Rubber goods, not elsewhere specified.

city. The manufacture of carriages and wagons and of foundry and machine-shop products are also important industries.

The manufactured products of Bay City increased only 14.2 per cent in value during the decade, while those of Muskegon more than doubled. In the former, the lumber industry predominates, followed by foundries and machine shops; in Muskegon, the industries are more diversified and include the manufacture of billiard tables, foundry and machine-shop products, furniture, hosiery and knit goods, and paper and wood pulp. Muskegon was at one time a lumber town exclusively, and affords an illustration of the successful development of other manufacturing industries to supplant the disappearing sawmills. In Adrian the wirework industry accounts for more than half of the total value of manufactured products reported, and in Pontiac the manufacture of automobiles is the predominating industry.

Several of the less important cities show industrial development, the increase in the value of manufac-

tured products for Sault Ste. Marie being particularly noticeable (534.5 per cent in 10 years). The leading industry in each of the remaining cities mentioned in the table was as follows: Holland, the furniture industry; Sault Ste. Marie and Alpena, the tanning, currying, and finishing of leather; Menominee, Manistee, Traverse City, and Ironwood, the lumber industry; Port Huron, Marquette, and Escanaba, steam-railroad repair shops; Ann Arbor, flour mills and gristmills; and Ishpeming, bakeries.

Character of ownership.—The table that follows has for its purpose the presentation of conditions in respect to the character of ownership, or legal organization, of manufacturing enterprises. For all industries combined comparative figures are given covering the censuses of 1909 and 1904. Comparative data for 1899 are not available. Figures for 1909 only are presented for several important industries individually. In order to avoid disclosing the operations of individual concerns it is necessary to omit several important industries from this table and the one following.

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>					<b>Butter, cheese, and condensed milk, 1909</b>				
1909.....	9,159	231,499	\$685,109,169	\$316,497,147	Individual.....	435	1,073	\$14,287,499	\$1,910,697
1904.....	7,446	175,229	429,120,080	199,039,129	Firm.....	131	189	2,926,902	374,495
Individual:					Firm.....	84	157	2,512,295	335,324
1909.....	4,567	20,564	57,652,930	25,700,157	Corporation.....	113	518	5,531,195	838,520
1904.....	3,602	20,527	47,121,641	22,032,918	Other.....	102	209	3,257,107	312,358
Firm:					Per cent of total.....	100.0	100.0		100.0
1909.....	1,809	17,252	51,758,822	22,763,304	Individual.....	30.1	17.6		19.0
1904.....	1,724	22,539	52,523,806	23,557,908	Firm.....	19.3	14.6		17.5
Corporation:					Corporation.....	27.1	48.3		45.5
1909.....	2,038	193,139	571,102,107	267,060,506	Other.....	23.4	19.5		16.8
1904.....	2,044	131,894	328,185,756	153,159,910	<b>Carriages and wagons and materials, 1909</b>				
Other:					Individual.....	212	4,034	\$10,158,888	\$4,896,627
1909.....	145	544	4,595,310	973,180	Firm.....	124	348	714,140	437,434
1904.....	76	219	1,288,857	288,393	Firm.....	52	514	936,297	546,982
Per cent of total:					Corporation.....	36	3,172	8,509,476	3,912,211
1909.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0	Individual.....	58.5	8.8		8.9
Individual:					Firm.....	24.5	12.7		11.2
1909.....	49.9	8.9	8.4	8.1	Corporation.....	17.0	78.6		79.9
1904.....	48.4	11.7	11.0	11.1	<b>Chemicals, 1909</b>				
Firm:					Individual.....	36	3,174	\$12,890,206	\$7,817,825
1909.....	19.8	7.5	7.6	7.2	Individual.....	19	20	46,873	35,420
1904.....	23.2	12.9	12.2	11.8	Firm.....	3	5	6,456	4,004
Corporation:					Corporation.....	14	3,149	12,836,877	7,778,341
1909.....	28.8	83.4	83.4	84.4	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	27.4	75.3	76.5	76.9	Individual.....	52.8	0.6		0.5
Other:					Firm.....	8.3	0.2	( <sup>1</sup> )	0.1
1909.....	1.6	0.2	0.7	0.3	Corporation.....	38.9	99.2		99.6
1904.....	1.0	0.1	0.3	0.1	<b>Clothing, men's, including shirts, 1909</b>				
<b>Agricultural implements, 1909.</b>	32	2,359	\$9,272,787	\$6,382,634	Individual.....	40	3,580	\$6,532,331	\$3,143,805
Individual.....	8	45	172,670	78,372	Individual.....	11	290	381,319	221,088
Firm.....	6	21	52,704	32,206	Firm.....	14	459	1,113,636	495,157
Corporation.....	18	2,293	9,047,413	6,271,556	Corporation.....	15	2,831	5,037,376	2,427,582
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	25.0	1.9	1.9	1.2	Individual.....	27.5	8.1		5.8
Firm.....	18.8	0.9	0.6	0.5	Firm.....	35.0	12.8		15.7
Corporation.....	56.2	97.2	97.6	98.3	Corporation.....	37.5	79.1		77.2
<b>Automobiles, including bodies and parts, 1909.</b>	113	25,444	\$96,651,451	\$42,769,030	<b>Flour-mill and gristmill products, 1909.</b>				
Individual.....	10	71	172,570	92,321	Individual.....	520	1,530	\$34,860,803	\$5,501,392
Firm.....	9	515	1,701,035	887,940	Individual.....	250	454	10,277,037	1,664,004
Corporation.....	94	24,858	94,777,846	41,788,769	Firm.....	178	348	7,736,684	1,857,486
Per cent of total.....	100.0	100.0	100.0	100.0	Corporation.....	92	728	16,847,182	2,470,902
Individual.....	8.8	0.3	0.2	0.2	Per cent of total.....	100.0	100.0	100.0	100.0
Firm.....	8.0	2.0	1.8	2.1	Individual.....	48.1	29.7		30.2
Corporation.....	83.2	97.7	98.1	97.7	Firm.....	34.2	22.7		24.7
<b>Bread and other bakery products, 1909.</b>	816	2,637	\$11,082,213	\$4,411,614	Corporation.....	17.7	47.0		45.1
Individual.....	686	1,398	5,800,674	2,289,262	<b>Foundry and machine-shop products, 1909.</b>				
Firm.....	106	343	1,596,963	607,763	Individual.....	654	21,649	\$45,399,023	\$26,688,471
Corporation.....	24	896	3,684,576	1,514,594	Individual.....	200	1,501	3,000,602	1,749,351
Per cent of total.....	100.0	100.0	100.0	100.0	Firm.....	128	1,270	2,831,102	1,744,315
Individual.....	84.1	52.0	52.4	51.9	Corporation.....	326	18,878	39,567,319	23,194,805
Firm.....	13.0	13.0	14.4	13.8	Per cent of total.....	100.0	100.0	100.0	100.0
Corporation.....	2.9	34.0	33.2	34.3	Individual.....	30.6	6.9		6.6
					Firm.....	19.6	5.0		6.2
					Corporation.....	49.8	87.2		86.9

<sup>1</sup> Less than one-tenth of 1 per cent.

<sup>2</sup> Includes the groups "Other," to avoid disclosure of individual operations.

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>Furniture and refrigerators, 1909.</b>					<b>Shipbuilding, including boat building, 1909.</b>				
Individual.....	202	16,610	\$28,641,684	\$16,923,456	Individual.....	91	2,344	\$5,033,836	\$2,544,064
Firm.....	36	637	928,794	561,947	Firm.....	59	422	446,136	251,150
Corporation.....	27	593	997,004	556,950	Corporation.....	19	100	360,539	210,642
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	18.8	3.2	3.2	3.3	Individual.....	04.8	18.0	8.9	10.3
Firm.....	13.4	3.6	3.5	3.3	Firm.....	20.9	7.1	7.2	8.3
Corporation.....	67.8	93.2	93.3	93.4	Corporation.....	14.3	74.9	84.0	81.6
<b>Liquors, malt, 1909.</b>					<b>Slaughtering and meat packing, 1909.</b>				
Individual.....	79	1,527	\$9,840,108	\$7,419,069	Individual.....	45	902	\$13,435,114	\$1,769,289
Firm.....	12	55	317,071	226,728	Firm.....	26	103	1,199,986	242,016
Corporation.....	13	151	1,212,617	947,068	Corporation.....	12	72	1,171,697	195,940
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	15.2	3.6	3.2	3.1	Individual.....	67.8	11.4	8.9	13.7
Firm.....	16.5	9.9	12.3	12.8	Firm.....	26.7	8.0	8.7	11.2
Corporation.....	68.4	86.5	84.4	84.1	Corporation.....	15.6	80.6	82.3	75.1
<b>Lumber and timber products, 1909.</b>					<b>Stoves and furnaces, including gas and oil stoves, 1909.</b>				
Individual.....	1,180	35,627	\$61,513,560	\$32,471,918	Individual.....	33	4,482	\$9,122,873	\$6,306,633
Firm.....	680	5,570	9,868,776	5,103,708	Corporation.....	5	21	41,163	26,018
Corporation.....	311	5,682	9,696,787	5,145,065	Per cent of total.....	100.0	100.0	100.0	100.0
Per cent of total.....	100.0	100.0	100.0	100.0	Individual.....	15.2	0.5	0.5	0.4
Individual.....	49.2	15.6	16.0	15.7	Corporation.....	84.8	99.5	99.5	99.6
Firm.....	26.4	15.9	15.8	15.8	<b>Tobacco manufactures, 1909.</b>				
Corporation.....	24.5	68.4	68.2	68.4	Individual.....	729	7,876	\$18,178,533	\$8,970,598
<b>Printing and publishing, 1909.</b>					Firm.....	605	1,025	3,338,052	2,087,042
Individual.....	1,045	7,219	\$17,348,341	\$12,413,815	Corporation.....	91	794	1,502,697	814,684
Firm.....	598	1,805	3,198,094	2,405,930	Per cent of total.....	100.0	100.0	100.0	100.0
Corporation.....	177	734	1,407,300	885,308	Individual.....	83.0	24.4	20.6	23.3
Other.....	233	4,608	12,469,990	8,786,143	Firm.....	12.5	10.1	9.3	9.1
Per cent of total.....	100.0	100.0	100.0	100.0	Corporation.....	4.5	65.6	70.1	67.6
Individual.....	57.2	25.0	18.4	19.4					
Firm.....	16.9	10.2	8.1	7.9					
Corporation.....	22.3	63.8	71.9	70.8					
Other.....	3.5	1.0	1.6	1.9					

1 Includes the group "Firm," to avoid disclosure of individual operations.

The most important distinction shown is that between corporate and all other forms of ownership. Of the total number of establishments in all industries combined, 28.8 per cent were under corporate ownership in 1909, as against 71.2 per cent under all other forms. The corresponding figures for 1904 were 27.4 per cent and 72.6 per cent, respectively. In respect to value of products the difference was even more pronounced, but in the opposite direction, for in 1909 the establishments operated by corporations reported 83.4 per cent of the total, as against 16.6 per cent for establishments under all other forms of ownership, while in 1904 the corresponding figures were 76.5 per cent and 23.5 per cent, respectively. The establishments operated by firms and those operated by individuals both show decreases between 1904 and 1909 in their proportions of the totals for wage earners and value of products, the decreases being slightly greater in the case of firms.

In 5 of the 17 industries shown separately in the table the majority of the establishments were under the corporate form of ownership, while in all but 3 the establishments under this form of ownership contributed the major part of the total value of products. The 102 establishments in the butter, cheese, and condensed-milk industry which are classified in the table as under "Other" forms of ownership are for the most part cooperative creameries, established and operated by the farmers for the purpose of securing a better and steadier market for their milk and cream.

**Size of establishment.**—The tendency for manufacturing to become concentrated in large establishments, or the reverse, is a matter of interest from the standpoint of industrial organization. In order to throw some light upon it, the next table groups the establishments according to the value of their products. The table also shows the average size of establishments for all industries combined and for certain important industries separately, as measured by number of wage earners, value of products, and value added by manufacture. The totals for all industries are shown for the last two censuses, while for the individual industries figures are given for 1909 only.

This table shows that in 1909, of the 9,159 manufacturing establishments in the state only 88, or 1 per cent, had a value of products exceeding \$1,000,000 each. These establishments, however, had an average of 56,226 wage earners, or 24.3 per cent of the total number in all establishments, and reported 37.7 per cent of the total value of products and 34.2 per cent of the total value added by manufacture.

On the other hand, the very small establishments—that is, those having a value of products of less than \$5,000—constituted a considerable proportion (36.8 per cent) of the total number of establishments, but the value of their products amounted to only 1.1 per cent of the total. The establishments whose output was valued at \$100,000 but less than \$1,000,000 reported 44 per cent of the total value of products.

INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>									
1909.....	9,159	231,499	\$685,109,199	\$316,497,147	<b>Carriages and wagons and materials, 1909.....</b>	212	4,034	\$10,158,883	\$4,896,627
1904.....	7,446	175,223	429,120,060	139,039,129	Less than \$5,000.....	106	122	257,940	158,562
Less than \$5,000:					\$5,000 and less than \$20,000.....	65	310	611,977	394,561
1909.....	3,372	3,906	7,821,328	4,014,568	\$20,000 and less than \$100,000.....	19	415	931,216	445,362
1904.....	2,634	3,791	6,522,567	4,054,535	\$100,000 and less than \$1,000,000 <sup>2</sup> .....	22	3,187	8,367,750	3,888,142
\$5,000 and less than \$20,000:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	2,665	12,382	27,383,330	14,559,126	Less than \$5,000.....	50.0	3.0	2.5	3.4
1904.....	2,281	12,681	24,062,938	12,787,421	\$5,000 and less than \$20,000.....	30.7	7.7	6.0	8.1
\$20,000 and less than \$100,000:					\$20,000 and less than \$100,000.....	9.0	10.3	9.2	9.1
1909.....	1,999	35,706	90,330,115	41,918,104	\$100,000 and less than \$1,000,000 <sup>2</sup> .....	10.4	79.0	82.3	79.4
1904.....	1,683	37,031	75,963,984	37,856,618	Average per establishment.....		19	\$47,919	\$23,097
\$100,000 and less than \$1,000,000:					<b>Chemicals, 1909.....</b>	36	3,174	\$12,890,208	\$7,817,825
1909.....	1,035	123,270	301,233,306	146,842,090	Less than \$5,000.....	20	16	36,830	26,100
1904.....	807	100,354	222,432,102	106,962,893	\$5,000 and less than \$20,000.....	5	10	30,876	18,111
\$1,000,000 and over:					\$20,000 and less than \$100,000.....	8	652	2,460,303	1,428,901
1909.....	88	56,226	258,341,090	108,293,253	\$100,000 and over.....	3	2,496	10,362,197	6,347,633
1904.....	41	21,472	100,138,469	37,377,662	Per cent of total.....	100.0	100.0	100.0	100.0
Per cent of total:					Less than \$5,000.....	55.6	0.5	0.3	0.3
1909.....	100.0	100.0	100.0	100.0	\$5,000 and less than \$20,000.....	13.9	0.3	0.2	0.2
1904.....	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000 <sup>2</sup> .....	22.2	20.5	19.1	18.2
Less than \$5,000:					\$1,000,000 and over.....	8.3	78.0	80.4	81.2
1909.....	36.8	1.7	1.1	1.6	Average per establishment.....		88	\$358,061	\$217,162
1904.....	35.4	2.2	1.5	2.0	<b>Clothing, men's, including shirts, 1909.....</b>	40	3,580	\$6,532,331	\$3,143,805
\$5,000 and less than \$20,000:					\$5,000 and less than \$20,000 <sup>4</sup> .....	10	72	97,877	53,858
1909.....	29.1	5.3	4.0	4.6	\$20,000 and less than \$100,000.....	17	418	858,922	421,480
1904.....	30.6	7.2	5.6	6.4	\$100,000 and less than \$1,000,000 <sup>2</sup> .....	13	3,090	5,575,532	2,668,467
\$20,000 and less than \$100,000:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	21.8	15.4	13.2	13.2	\$5,000 and less than \$20,000 <sup>4</sup> .....	25.0	2.0	1.5	1.7
1904.....	22.0	21.1	17.7	19.0	\$20,000 and less than \$100,000.....	42.5	11.7	13.1	13.4
\$100,000 and less than \$1,000,000:					\$100,000 and less than \$1,000,000 <sup>2</sup> .....	32.5	80.3	86.4	84.9
1909.....	11.3	52.3	44.0	46.4	Average per establishment.....		90	\$163,308	\$78,595
1904.....	10.8	57.3	51.8	53.7	<b>Flour-mill and gristmill products, 1909.....</b>	529	1,530	\$34,860,803	\$5,501,322
\$1,000,000 and over:					Less than \$5,000.....	39	20	109,662	17,068
1909.....	1.0	24.3	37.7	34.2	\$5,000 and less than \$20,000.....	163	161	1,984,811	859,602
1904.....	0.6	12.3	23.3	18.8	\$20,000 and less than \$100,000.....	257	552	11,369,606	1,941,702
Average per establishment:					\$100,000 and less than \$1,000,000.....	56	502	12,321,120	1,806,701
1909.....		25	\$74,802	\$34,556	\$1,000,000 and over.....	5	275	9,075,604	1,310,319
1904.....		24	57,631	26,731	Per cent of total.....	100.0	100.0	100.0	100.0
<b>Agricultural implements, 1909.....</b>	32	2,359	\$9,272,787	\$6,382,634	Less than \$5,000.....	7.5	1.3	0.3	0.3
Less than \$5,000.....	6	5	14,397	9,519	\$5,000 and less than \$20,000.....	31.3	9.9	6.7	6.5
\$5,000 and less than \$20,000.....	10	59	104,443	62,118	\$20,000 and less than \$100,000.....	49.4	88.0	32.6	35.3
\$20,000 and less than \$100,000.....	6	171	369,672	209,509	\$100,000 and less than \$1,000,000.....	19.8	32.8	35.3	33.9
\$100,000 and less than \$1,000,000.....	7	1,113	2,511,628	1,529,746	\$1,000,000 and over.....	1.0	18.0	28.0	23.9
\$1,000,000 and over.....	3	1,011	6,272,647	4,571,742	Average per establishment.....		3	\$67,040	\$10,550
Per cent of total.....	100.0	100.0	100.0	100.0	<b>Foundry and machine-shop products, 1909.....</b>	654	21,649	\$45,399,023	\$26,688,471
Less than \$5,000.....	18.8	0.2	0.2	0.1	Less than \$5,000.....	161	195	382,955	269,894
\$5,000 and less than \$20,000.....	31.2	2.5	1.1	1.0	\$5,000 and less than \$20,000.....	188	1,072	2,027,684	1,344,689
\$20,000 and less than \$100,000.....	18.8	7.2	4.0	3.3	\$20,000 and less than \$100,000.....	194	4,599	5,254,081	5,473,522
\$100,000 and less than \$1,000,000.....	21.9	47.2	27.1	24.0	\$100,000 and less than \$1,000,000.....	106	13,084	27,717,048	15,853,890
\$1,000,000 and over.....	9.4	42.9	67.6	71.6	\$1,000,000 and over.....	5	2,809	6,017,256	3,746,576
Average per establishment.....		74	\$289,775	\$199,457	Per cent of total.....	100.0	100.0	100.0	100.0
<b>Automobiles, including bodies and parts, 1909.....</b>	113	25,444	\$96,651,451	\$42,769,030	Less than \$5,000.....	24.6	0.9	0.8	1.0
Less than \$5,000.....	7	14	20,062	13,543	\$5,000 and less than \$20,000.....	28.7	5.0	4.5	5.0
\$5,000 and less than \$20,000.....	14	78	149,312	51,043	\$20,000 and less than \$100,000.....	29.7	21.0	20.4	20.5
\$20,000 and less than \$100,000.....	35	777	1,543,355	786,166	\$100,000 and less than \$1,000,000.....	18.2	60.2	61.1	59.4
\$100,000 and less than \$1,000,000.....	41	6,005	16,527,352	8,492,259	\$1,000,000 and over.....	0.8	13.0	13.3	14.0
\$1,000,000 and over.....	16	18,570	78,411,370	33,426,019	Average per establishment.....		33	\$69,417	\$40,898
Per cent of total.....	100.0	100.0	100.0	100.0	<b>Furniture and refrigerators, 1909.....</b>	202	16,610	\$28,641,684	\$16,923,456
Less than \$5,000.....	6.2	0.1	( <sup>1</sup> )	( <sup>1</sup> )	Less than \$5,000.....	24	40	66,623	42,592
\$5,000 and less than \$20,000.....	12.4	0.3	0.2	0.1	\$5,000 and less than \$20,000.....	31	217	342,083	200,509
\$20,000 and less than \$100,000.....	31.0	3.1	1.6	1.8	\$20,000 and less than \$100,000.....	67	2,659	3,900,245	2,303,083
\$100,000 and less than \$1,000,000.....	36.3	23.6	17.1	19.9	\$100,000 and less than \$1,000,000 <sup>2</sup> .....	80	13,694	24,272,733	14,368,272
\$1,000,000 and over.....	14.2	73.0	81.1	78.2	Per cent of total.....	100.0	100.0	100.0	100.0
Average per establishment.....		225	\$855,23	\$378,437	Less than \$5,000.....	11.0	0.2	0.2	0.3
<b>Bread and other bakery products, 1909.....</b>	816	2,637	\$11,082,213	\$4,411,614	\$5,000 and less than \$20,000.....	15.3	1.3	1.2	1.2
Less than \$5,000.....	363	106	985,510	411,949	\$20,000 and less than \$100,000.....	33.2	16.0	13.8	13.6
\$5,000 and less than \$20,000.....	359	811	3,356,822	1,340,055	\$100,000 and less than \$1,000,000 <sup>2</sup> .....	39.6	82.4	84.7	84.9
\$20,000 and less than \$100,000.....	81	918	3,243,868	1,226,672	Average per establishment.....		82	\$141,791	\$83,779
\$100,000 and less than \$1,000,000.....	13	712	3,496,013	1,432,938	<b>Liquors, malt, 1909.....</b>	79	1,527	\$9,840,108	\$7,419,669
Per cent of total.....	100.0	100.0	100.0	100.0	Less than \$5,000.....	4	5	7,168	4,010
Less than \$5,000.....	44.5	7.4	8.9	9.3	\$5,000 and less than \$20,000.....	12	36	146,490	101,424
\$5,000 and less than \$20,000.....	44.0	30.8	30.3	30.4	\$20,000 and less than \$100,000.....	31	306	1,664,652	1,137,889
\$20,000 and less than \$100,000.....	9.9	34.8	29.3	27.8	\$100,000 and less than \$1,000,000 <sup>2</sup> .....	32	1,180	8,121,798	6,176,766
\$100,000 and less than \$1,000,000.....	1.6	27.0	31.5	32.5	Per cent of total.....	100.0	100.0	100.0	100.0
Average per establishment.....		3	\$13,581	\$5,406	Less than \$5,000.....	5.1	0.3	0.1	0.1
<b>Butter, cheese, and condensed milk, 1909.....</b>	435	1,073	\$14,287,499	\$1,910,697	\$5,000 and less than \$20,000.....	15.2	2.4	1.5	1.4
Less than \$5,000.....	31	14	102,343	16,527	\$20,000 and less than \$100,000.....	39.2	20.0	15.9	16.3
\$5,000 and less than \$20,000.....	166	162	2,054,246	293,219	\$100,000 and less than \$1,000,000 <sup>2</sup> .....	40.5	77.3	82.5	83.2
\$20,000 and less than \$100,000.....	218	584	8,590,081	1,063,711	Average per establishment.....		19	\$124,558	\$93,912
\$100,000 and less than \$1,000,000.....	17	313	3,540,829	534,240	<b>Per cent of total.....</b>				
Per cent of total.....	100.0	100.0	100.0	100.0	Less than \$5,000.....	5.1	0.3	0.1	0.1
Less than \$5,000.....	7.8	1.3	0.7	0.9	\$5,000 and less than \$20,000.....	15.2	2.4	1.5	1.4
\$5,000 and less than \$20,000.....	38.2	15.1	14.4	15.5	\$20,000 and less than \$100,000.....	39.2	20.0	15.9	16.3
\$20,000 and less than \$100,000.....	50.1	54.4	60.1	55.7	\$100,000 and less than \$1,000,000 <sup>2</sup> .....	40.5	77.3	82.5	83.2
\$100,000 and less than \$1,000,000.....	3.9	29.2	24.8	28.0	Average per establishment.....		19	\$124,558	\$93,912
Average per establishment.....		2	\$32,845	\$4,392					

<sup>1</sup> Less than one-tenth of 1 per cent.  
<sup>2</sup> Includes the group "\$1,000,000 and over."

<sup>3</sup> Includes the group "\$20,000 and less than \$100,000."  
<sup>4</sup> Includes the group "Less than \$5,000."



MANUFACTURES—MICHIGAN.

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INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>Lumber and timber products, 1909</b>	<b>1,180</b>	<b>35,627</b>	<b>\$61,513,500</b>	<b>\$32,471,918</b>	<b>Slaughtering and meat packing, 1909</b>	<b>45</b>	<b>902</b>	<b>\$13,435,114</b>	<b>\$1,769,289</b>
Less than \$5,000	429	812	957,731	639,110	Less than \$5,000	7	5	19,185	6,915
\$5,000 and less than \$20,000	332	2,554	3,515,240	2,114,914	\$5,000 and less than \$20,000	10	20	102,927	33,695
\$20,000 and less than \$100,000	249	7,328	11,689,500	6,632,352	\$20,000 and less than \$100,000	18	94	862,649	153,145
\$100,000 and less than \$1,000,000	167	23,351	41,210,000	21,381,365	\$100,000 and less than \$1,000,000	7	130	2,810,020	894,833
\$1,000,000 and over	3	1,582	4,131,024	1,724,177	\$1,000,000 and over	3	644	9,589,445	1,140,701
Per cent of total	100.0	100.0	100.0	100.0	Less than \$5,000	15.6	0.6	0.1	0.4
Less than \$5,000	36.4	2.3	1.6	2.0	\$5,000 and less than \$20,000	22.2	2.2	0.8	1.0
\$5,000 and less than \$20,000	28.1	7.2	5.7	6.5	\$20,000 and less than \$100,000	40.0	10.4	6.4	10.9
\$20,000 and less than \$100,000	21.1	20.6	19.0	20.4	\$100,000 and less than \$1,000,000	15.6	15.4	21.3	22.3
\$100,000 and less than \$1,000,000	14.2	65.8	67.0	65.8	\$1,000,000 and over	6.7	71.4	71.4	64.6
\$1,000,000 and over	0.3	4.4	6.7	5.3	Average per establishment		20	\$208,558	\$39,318
Average per establishment		30	\$52,130	\$27,519	<b>Stoves and furnaces, including gas and oil stoves, 1909</b>	<b>33</b>	<b>4,482</b>	<b>\$9,122,873</b>	<b>\$6,308,633</b>
<b>Printing and publishing, 1909</b>	<b>1,045</b>	<b>7,219</b>	<b>\$17,348,341</b>	<b>\$12,413,815</b>	Less than \$5,000	5	15	16,182	10,208
Less than \$5,000	579	803	1,380,472	1,039,979	\$5,000 and less than \$20,000	8	29	97,841	53,308
\$5,000 and less than \$20,000	316	1,877	2,808,592	2,189,911	\$20,000 and less than \$100,000	7	165	315,227	191,403
\$20,000 and less than \$100,000	122	2,361	5,574,727	3,965,107	\$100,000 and less than \$1,000,000	9	1,020	2,334,121	1,523,221
\$100,000 and less than \$1,000,000	28	2,478	7,494,550	5,188,818	\$1,000,000 and over	4	3,247	6,359,502	4,525,308
Per cent of total	100.0	100.0	100.0	100.0	Less than \$5,000	15.2	0.3	0.2	0.2
Less than \$5,000	55.4	11.1	8.0	8.0	\$5,000 and less than \$20,000	24.2	0.0	1.1	0.8
\$5,000 and less than \$20,000	30.2	21.8	16.7	17.6	\$20,000 and less than \$100,000	21.2	3.7	3.5	3.0
\$20,000 and less than \$100,000	11.7	32.7	32.1	31.9	\$100,000 and less than \$1,000,000	27.3	22.0	25.0	24.2
\$100,000 and less than \$1,000,000	2.7	34.3	43.2	41.8	\$1,000,000 and over	12.1	72.4	69.7	71.8
Average per establishment		7	\$16,601	\$11,870	Average per establishment		136	\$270,451	\$191,110
<b>Shipbuilding, including boat building, 1909</b>	<b>91</b>	<b>2,344</b>	<b>\$5,033,836</b>	<b>\$2,544,084</b>	<b>Tobacco manufactures, 1909</b>	<b>729</b>	<b>7,876</b>	<b>\$16,178,533</b>	<b>\$8,970,598</b>
Less than \$5,000	52	88	102,145	44,735	Less than \$5,000	503	405	1,022,291	644,046
\$5,000 and less than \$20,000	21	101	107,068	117,093	\$5,000 and less than \$20,000	107	635	1,545,615	985,201
\$20,000 and less than \$100,000	9	386	373,870	239,320	\$20,000 and less than \$100,000	40	802	1,427,137	830,372
\$100,000 and less than \$1,000,000	9	1,820	4,380,154	2,128,916	\$100,000 and less than \$1,000,000	16	3,246	5,430,039	2,992,432
Per cent of total	100.0	100.0	100.0	100.0	\$1,000,000 and over	3	2,398	6,743,502	3,517,497
Less than \$5,000	57.1	1.6	2.0	2.5	Less than \$5,000	60.0	5.1	6.3	7.2
\$5,000 and less than \$20,000	23.1	4.3	3.9	4.6	\$5,000 and less than \$20,000	22.9	11.9	9.6	11.0
\$20,000 and less than \$100,000	9.9	16.4	7.4	9.2	\$20,000 and less than \$100,000	5.5	11.3	8.8	9.3
\$100,000 and less than \$1,000,000	9.9	77.6	86.6	83.7	\$100,000 and less than \$1,000,000	2.2	41.2	33.6	33.4
Average per establishment		26	\$55,317	\$27,957	\$1,000,000 and over	0.4	30.4	41.7	39.2
					Average per establishment		11	\$22,193	\$12,305

<sup>1</sup> Includes the group "1,000,000 and over."

It will be seen from the above table that during the five years from 1904 to 1909 there was a considerable increase, in the relative importance as measured by number of wage earners, value of products, and value added by manufacture, of the largest establishments—those reporting products valued at not less than \$1,000,000—and a decrease in that of all other classes.

The fact that between 1904 and 1909 the average value of products per establishment increased from \$57,631 to \$74,802, and the average value added by manufacture from \$26,731 to \$34,556 can not be taken as in itself indicating a tendency toward concentration. The increased values shown may be, and probably are, due in part to the increase that has taken place in the prices of commodities. The average number of wage earners per establishment increased from 24 to 25.

The 88 establishments reporting products valued at \$1,000,000 or over included 16 in the automobile industry, 5 flour mills, 5 foundries and machine shops, 4 establishments engaged in the manufacture of stoves and furnaces, and 3 each in the agricultural-implement, chemical, lumber, slaughtering and meat-packing, and tobacco-manufactures industries. The average value of output per establishment was \$855,323 in the automobile industry, \$358,061 in the chemical industry, \$298,558 in the slaughtering and meat-packing industry, \$289,775 in the agricultural-implement industry, and \$276,451 in the stove and furnace industry.

In some respects, and especially from the standpoint of conditions under which persons engaged in manufactures work, the best classification of establishments to bring out the feature of size is a classification according to the number of wage earners employed. The next table shows, for 1909, such a classification for all industries combined and for 29 important industries individually, and gives not only the number of establishments falling into each group, but also the average number of wage earners employed.

Of the 9,159 establishments reported for all industries, 13.1 per cent employed no wage earners; 51.3 per cent, from 1 to 5; 17.5 per cent, from 6 to 20; 7.9 per cent, from 21 to 50; and 10.2 per cent, 51 and over. The most numerous single group consists of the 4,697 establishments employing from 1 to 5 wage earners, and the next of the 1,600 establishments employing from 6 to 20 wage earners. There were 173 establishments that employed over 250 wage earners; 15 of these establishments, of which 5 were automobile factories, employed over 1,000 wage earners each.

Of the total number of wage earners, 41.5 per cent were in establishments employing over 250 wage earners. The single group having the largest number of wage earners was the group comprising the establishments employing from 101 to 250 wage earners each. This group employed 52,775 wage earners, or 22.8 per cent of the total. Practically one-half of the wage earners in the automobile industry were em-

ployed in the five plants employing over 1,000 each, and 68.3 per cent of those in the chemical industry were in the two plants employing over 1,000 each, while in the manufacture of patent medicines the one establishment in this group reported 55.1 per cent of the

total number of wage earners for the industry. In the steam-railroad repair shops and in the men's clothing, paint and varnish, and stove and furnace industries, more than one-half of the wage earners worked in plants employing more than 500 wage earners each.

INDUSTRY.	ESTABLISHMENTS EMPLOYING—									
	Total.	No wage earners.	1 to 5 wage earners.	6 to 20 wage earners.	21 to 50 wage earners.	51 to 100 wage earners.	101 to 250 wage earners.	251 to 500 wage earners.	501 to 1,000 wage earners.	Over 1,000 wage earners.
NUMBER OF ESTABLISHMENTS.										
All industries.....	9,159	1,200	4,697	1,600	726	428	335	112	46	15
Agricultural implements.....	32	2	12	4	6	2	1	5		
Automobiles, including bodies and parts.....	113		19	21	19	14	23	5	7	5
Beet sugar.....	11			3	2	3	4	1	1	
Boots and shoes, including out stock and findings.....	23		6	11	2	6	4	1	1	
Brass and bronze products.....	60	1	17	11	8	9	10	3		1
Bread and other bakery products.....	816	217	515	62	15	5	2			
Butter, cheese, and condensed milk.....	435	27	378	25	3	2				
Carriages and wagons and materials.....	212	31	116	36	9	12	4	4	1	
Cars and general shop construction and repairs by steam-railroad companies.....	32		8	5	3	4	3	4	5	
Chemicals.....	36	7	18	3	1	1	3	1		2
Clothing, men's, including shirts.....	40	1	4	13	7	7	5		3	
Flour-mill and gristmill products.....	520	62	415	34	7	2				
Food preparations.....	49	2	28	6	9	2	1		1	
Foundry and machine-shop products.....	654	45	236	169	93	59	39	8	6	
Furniture and refrigerators.....	202	5	33	29	43	43	32	15	2	
Gas, illuminating and heating.....	55		17	22	9	5	1		1	
Iron and steel, blast furnaces.....	11			2	6	2		1		
Leather, tanned, curried, and finished.....	24	1		3	7	4	8	1		
Liquors, malt.....	79		22	37	15	3	2			
Lumber and timber products.....	1,180	41	533	283	154	84	60	20	5	
Paint and varnish.....	20	1	7	8	1		2		1	
Paper and wood pulp.....	32			5	7	4	14	1	1	
Patent medicines and compounds and druggists' preparations.....	159	53	77	14	11		2	1		1
Printing and publishing.....	1,045	214	589	175	45	12	9	1		
Shipbuilding, including boat building.....	91	23	45	11	2	4	4	1	1	
Slaughtering and meat packing.....	45	5	26	6	5		2			
Stoves and furnaces, including gas and oil stoves.....	33		11	6	3	6	2	1	3	1
Tobacco manufactures.....	729	237	368	85	20	5	7	4	2	1
Wirework, including wire rope and cable.....	37	2	13	9	8	2	3			
All other industries.....	2,384	223	1,185	515	209	122	86	34	6	4
AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	231,499		10,156	17,898	23,745	30,771	52,775	38,668	31,173	26,313
Agricultural implements.....	2,359		31	67	207	146	170	1,738		
Automobiles, including bodies and parts.....	25,444		61	241	604	1,044	3,637	2,025	5,212	12,620
Beet sugar.....	1,460				105	156	577		622	
Boots and shoes, including out stock and findings.....	2,455		20	25	67	459	611	276	997	
Brass and bronze products.....	4,771		40	119	234	608	1,678	1,086		1,040
Bread and other bakery products.....	2,637		1,004	627	402	355	249			
Butter, cheese, and condensed milk.....	1,073		607	267	90	109				
Carriages and wagons and materials.....	4,034		247	343	288	825	582	1,245	504	
Cars and general shop construction and repairs by steam-railroad companies.....	5,401		28	64	117	289	541	1,517	2,845	
Chemicals.....	3,174		26	38	24	96	495	328		2,167
Clothing, men's, including shirts.....	3,580		15	167	255	390	813		1,940	
Flour-mill and gristmill products.....	1,530		798	326	269	137				
Food preparations.....	1,303		60	63	272	155	243		510	
Foundry and machine-shop products.....	21,649		587	1,953	2,913	4,204	9,260	2,744	2,988	
Furniture and refrigerators.....	10,610		76	323	1,491	3,093	5,100	5,294	1,238	
Gas, illuminating and heating.....	1,771		61	243	330	888	235		514	
Iron and steel, blast furnaces.....	1,016				75	304	284	293		
Leather, tanned, curried, and finished.....	2,291			53	288	389	1,311	300		
Liquors, malt.....	1,527		66	487	510	219	245			
Lumber and timber products.....	35,637		1,278	3,161	5,191	6,167	9,404	6,937	3,579	
Paint and varnish.....	1,024		17	79	89		258		631	
Paper and wood pulp.....	4,327			58	240	264	2,654	347	764	
Patent medicines and compounds and druggists' preparations.....	3,249		154	175	384		266	481		1,789
Printing and publishing.....	7,210		1,420	1,891	1,454	837	1,363	254		
Shipbuilding, including boat building.....	2,344		95	118	65	312	774	314	666	
Slaughtering and meat packing.....	902		53	56	149		347	297		
Stoves and furnaces, including gas and oil stoves.....	4,482		30	68	112	410	361	255	2,243	1,063
Tobacco manufactures.....	7,876		777	877	571	382	1,273	1,415	1,473	1,108
Wirework, including wire rope and cable.....	909		43	100	245	156	365			
All other industries.....	59,455		2,562	5,909	6,844	8,777	12,779	11,552	4,452	6,680

INDUSTRY.	Total.	ESTABLISHMENTS EMPLOYING—								
		No wage earners.	1 to 5 wage earners.	6 to 20 wage earners.	21 to 50 wage earners.	51 to 100 wage earners.	101 to 250 wage earners.	251 to 500 wage earners.	501 to 1,000 wage earners.	Over 1,000 wage earners.
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All Industries.....	100.0	4.4	7.7	10.3	13.3	22.8	16.7	13.5	11.4	
Agricultural implements.....	100.0	1.3	2.8	8.8	6.2	7.2	73.7			
Automobiles, including bodies and parts.....	100.0	0.2	0.9	2.4	4.1	14.3	8.0	20.5	40.0	
Beet sugar.....	100.0			7.2	10.7	30.5		42.6		
Boots and shoes, including out stock and findings.....	100.0	0.8	1.0	2.7	18.7	24.9	11.2	40.6		
Brass and bronze products.....	100.0	0.8	2.5	4.0	14.0	33.1	22.8		21.0	
Bread and other bakery products.....	100.0	38.1	23.8	15.2	13.5	0.4				
Butter, cheese, and condensed milk.....	100.0	50.0	24.0	8.4	10.2					
Carriages and wagons and materials.....	100.0	0.1	8.5	7.1	20.5	14.4	30.0	12.5		
Cars and general shop construction and repairs by steam-railroad companies.....	100.0	0.5	1.2	2.2	5.4	10.0	28.1	52.7		
Chemicals.....	100.0	0.8	1.2	0.8	3.0	15.0	10.3		08.3	
Clothing, men's, including shirts.....	100.0	0.4	4.7	7.1	10.9	22.7		54.2		
Flour-mill and gristmill products.....	100.0	52.2	21.3	17.0	9.0					
Food preparations.....	100.0	4.0	4.8	20.9	11.9	18.0		39.1		
Foundry and machine-shop products.....	100.0	2.7	9.0	13.5	19.4	28.9	12.7	13.8		
Furniture and refrigerators.....	100.0	0.5	1.9	9.0	18.0	30.7	31.9	7.4		
Gas, illuminating and heating.....	100.0	3.4	13.7	18.0	21.9	13.3		20.0		
Iron and steel, blast furnaces.....	100.0			7.4	38.8	28.0	25.9			
Leather, tanned, curried, and finished.....	100.0		2.3	12.0	14.8	57.2	13.1			
Liquors, malt.....	100.0	4.3	31.0	33.4	14.3	16.0				
Lumber and timber products.....	100.0	3.0	8.9	14.3	17.3	26.4	19.5	10.0		
Paint and varnish.....	100.0	1.7	7.7	3.8		25.2		01.0		
Paper and wood pulp.....	100.0		1.3	5.5	6.1	01.3	8.0	17.7		
Patent medicines and compounds and druggists' preparations.....	100.0	4.7	5.4	11.8		8.2	14.8		55.1	
Printing and publishing.....	100.0	19.7	26.2	20.1	11.0	18.0	3.5			
Shipbuilding, including boat building.....	100.0	4.1	5.0	2.8	13.3	33.0	13.4	28.4		
Slaughtering and meat packing.....	100.0	5.9	0.2	10.5		38.5	32.9			
Stoves and furnaces, including gas and oil stoves.....	100.0	0.7	1.5	2.5	9.1	8.1	5.7	50.0	22.4	
Tobacco manufactures.....	100.0	0.9	11.1	7.2	4.8	16.2	18.0	18.7	14.1	
Wirework, including wire rope and cable.....	100.0	4.7	11.0	27.0	17.2	40.2				
All other industries.....	100.0	4.3	9.9	11.5	14.8	21.5	19.4	7.5	11.1	

Expenses.—As stated in the Introduction, the census does not purport to furnish figures that can be used for determining the cost of manufacture and profits. Facts of interest can, however, be brought out concerning the relative importance of the different classes of expenses which make up the total.

The table in the preceding column shows, for 1909, in percentages, the distribution of expenses among the classes indicated for all industries combined and for certain important industries separately. The figures on which the percentages are based appear in Table II, page 578.

The table shows that, for all industries combined, 62.3 per cent of the total expenses were incurred for materials, 26 per cent for services—that is, salaries and wages—and but 11.6 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries.

Engines and power.—The next table shows, for all industries combined, the number of engines or other motors, according to their character, employed in generating power (including electric motors operated by purchased current), and their total horsepower at the censuses of 1909, 1904, and 1899. It also shows separately the number and horsepower of electric motors, including those operated by current generated in the manufacturing establishments.

The table indicates that the total primary horsepower increased 72,393, or 19.6 per cent, from 1899 to 1904 and 157,398, or 35.7 per cent, from 1904 to 1909. The greater part of the increase was in owned steam and in rented electric power. In 1909, as in 1904 and 1899, steam power formed the major part of the total primary power reported, but notwithstanding an increase of 57,255 horsepower during the earlier five-year period and of 89,430 horsepower during the later period, the proportion which this kind of power formed of the

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
All Industries.....	5.9	20.1	62.3	11.6
Agricultural implements.....	10.3	16.9	38.7	34.1
Automobiles, including bodies and parts.....	3.3	20.1	69.8	6.8
Beet sugar.....	4.0	10.7	73.0	11.7
Boots and shoes, including out stock and findings.....	5.0	18.9	67.0	8.5
Brass and bronze products.....	4.5	19.4	71.0	5.1
Bread and other bakery products.....	4.0	15.8	72.9	7.3
Butter, cheese, and condensed milk.....	1.4	4.1	91.1	3.4
Carriages and wagons and materials.....	5.9	24.8	58.2	11.1
Cars and general shop construction and repairs by steam-railroad companies.....	4.5	51.2	42.0	1.6
Chemicals.....	0.5	23.4	59.0	11.0
Clothing, men's, including shirts.....	0.9	21.5	59.0	12.0
Flour-mill and gristmill products.....	1.2	2.5	92.9	3.3
Food preparations.....	4.0	7.7	50.4	37.4
Foundry and machine-shop products.....	8.4	31.0	47.1	13.5
Furniture and refrigerators.....	8.3	32.0	40.0	15.1
Gas, illuminating and heating.....	12.1	24.5	47.0	16.8
Iron and steel, blast furnaces.....	2.8	11.0	79.4	5.9
Leather, tanned, curried, and finished.....	1.0	8.0	86.0	4.4
Liquors, malt.....	7.0	14.0	32.0	44.0
Lumber and timber products.....	4.3	30.0	53.4	12.3
Paint and varnish.....	13.5	8.5	01.3	16.7
Paper and wood pulp.....	3.4	17.2	72.7	6.7
Patent medicines and compounds and druggists' preparations.....	18.7	13.2	48.4	24.7
Printing and publishing.....	18.0	28.2	34.7	19.1
Shipbuilding, including boat building.....	0.5	29.2	52.7	11.0
Slaughtering and meat packing.....	1.2	3.3	92.3	2.6
Stoves and furnaces, including gas and oil stoves.....	0.6	35.7	35.5	19.3
Tobacco manufactures.....	4.9	20.9	43.9	25.3
Wirework, including wire rope and cable.....	0.8	8.9	71.8	12.5
All other industries.....	6.6	19.2	63.2	11.0

total primary power decreased from 86.5 per cent in 1899 to 85.3 per cent in 1904 and 77.8 per cent in 1909. The more general use of gas engines in recent years is shown, 1,167 such engines, with an indicated capacity of 13,988 horsepower, being reported in 1909, as against 954 engines, with 10,534 horsepower, in 1904, and 586 engines, with 5,603 horsepower, in 1899. The figures also show that the practice of renting electric power is increasing rapidly, 74,270 horsepower, or 12.4 per cent of the total primary power, being of this character in 1909, as compared with 12,411 horsepower, or 2.8 per cent, in 1904 and 4,264 horsepower, or 1.2 per cent, in 1899. The use of electric motors for the purpose of applying the power generated within the establishments is rapidly becoming more common, the horsepower of such motors increasing from 7,824 in 1899 to 27,559 in 1904 and 58,794 in 1909.

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899 <sup>1</sup>	1909	1904	1899 <sup>1</sup>	1909	1904	1899
<b>Primary power, total</b> .....	15,527	6,616	6,536	593,283	440,890	368,497	100.0	100.0	100.0
Owned.....	6,967	6,616	6,536	521,543	426,074	362,112	87.2	96.0	98.3
Steam.....	5,066	4,978	5,220	465,520	376,090	318,335	77.8	85.3	86.5
Gas.....	1,167	954	586	13,988	10,534	5,003	2.3	2.4	1.5
Water wheels.....	700	684	730	41,442	39,342	36,529	6.9	8.9	9.9
Water motors.....	34	( <sup>2</sup> )	( <sup>2</sup> )	577	( <sup>2</sup> )	( <sup>2</sup> )	0.1	( <sup>2</sup> )	( <sup>2</sup> )
Other.....	16	( <sup>2</sup> )	( <sup>2</sup> )	108	1,145	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	0.3
Rented.....	8,560	( <sup>2</sup> )	( <sup>2</sup> )	76,745	14,816	6,385	12.8	3.4	1.7
Electric.....	8,560	( <sup>2</sup> )	( <sup>2</sup> )	74,270	12,411	4,264	12.4	2.8	1.2
Other.....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	2,475	2,405	2,121	0.4	0.5	0.6
Electric motors.....	12,917	1,826	288	133,064	39,970	12,088	100.0	100.0	100.0
Run by current generated by establishment.....	4,357	1,826	288	58,794	27,559	7,824	44.2	68.0	64.7
Run by rented power.....	8,560	( <sup>2</sup> )	( <sup>2</sup> )	74,270	12,411	4,264	55.8	31.1	35.3

<sup>1</sup> Includes the neighborhood industries and hand trades, omitted in 1904 and 1909.  
<sup>2</sup> Not reported.      <sup>3</sup> Less than one-tenth of 1 per cent.

Fuel.—Closely related to the question of kind of power employed is that of the fuel consumed in generating this power, or otherwise used as material in the manufacturing processes.

The following table shows the quantity of each kind of fuel used in 1909 for all industries combined and for certain selected industries:

INDUSTRY.	Anthracite coal (tons).	Bituminous coal (tons).	Coke (tons).	Wood (cords).	Oil, including gasoline (barrels).	Gas (1,000 feet).
<b>All industries</b> .....	61,448	4,524,009	270,284	709,434	384,140	316,102
Agricultural implements.....	45	23,895	3,543	221	10,466	.....
Automobiles, including bodies and parts.....	1,451	98,900	5,178	1,810	34,939	90,610
Beet sugar.....	8,981	140,131	8,585	0	0	.....
Boots and shoes, including cut stock and findings.....	5	3,766	15	35	.....	238
Brass and bronze products.....	2,684	55,381	16,106	201	15,333	8,491
Bread and other bakery products.....	5,038	11,509	9,683	18,186	215	29,766
Butter, cheese, and condensed milk.....	462	41,585	513	5,003	230	.....
Carriages and wagons and materials.....	126	35,477	633	1,610	765	76
Cars and general shop construction and repairs by steam-railroad companies.....	722	79,292	795	1,153	10,171	799
Chemicals.....	11,065	382	320	2,194	2,440	.....
Clothing, men's, including shirts.....	18	3,561	7	8	26	2,455
Flour-mill and gristmill products.....	1,035	77,069	5	7,258	2,396	877
Food preparations.....	2,330	47,641	3,827	.....	35	38,968
Foundry and machine-shop products.....	2,251	157,085	44,141	3,857	19,119	21,814
Furniture and refrigerators.....	5,430	100,371	1,480	1,526	205	3,206
Gas, illuminating and heating.....	2,423	426,703	3,192	.....	111,857	.....
Iron and steel, blast furnaces.....	.....	9,167	123,174	172,224	.....	.....
Leather, tanned, curried, and finished.....	1,500	66,554	.....	52	1	.....
Liquors, malt.....	198	78,890	650	9,768	37	310
Lumber and timber products.....	1,251	70,242	20	7,656	1,799	1,777
Paint and varnish.....	31	17,827	2,040	.....	50	631
Paper and wood pulp.....	.....	385,344	.....	11,298	47	.....
Patent medicines and compounds and druggists' preparations.....	313	25,196	23	28	63	2,681
Printing and publishing.....	1,557	12,807	297	1,838	1,470	23,063
Shipbuilding, including boat building.....	13	26,933	636	279	2,346	14
Slaughtering and meat packing.....	45	19,044	.....	1,283	36	281
Smelting and refining, copper.....	5,862	63,426	3,097	320	15	.....
Stoves and furnaces, including gas and oil stoves.....	98	20,658	12,482	685	499	3,782
Tobacco manufactures.....	865	9,800	150	617	1	689
Wirework, including wire rope and cable.....	9	4,929	140	.....	160	722
All other industries.....	16,704	1,338,258	29,532	460,309	169,376	84,825

NOTE.—In addition, there were 179,890 tons of other varieties of fuel reported.

SUPPLEMENTARY DATA REGARDING IMPORTANT INDUSTRIES.

(With statistics for laundries and custom sawmills and gristmills.)

For certain industries the Census Bureau collects, by means of special schedules, details regarding the quantity and cost of materials and the quantity and value of products and other information for securing which no provision is made on the general schedule. Data for 10 important industries in Michigan are here presented.

Automobiles, including bodies and parts.—The number and value of the different classes of machines manufactured, as reported at the censuses of 1909 and 1904, are shown in the next table.

There were 64,800 machines of all kinds, valued at \$70,359,749, turned out in 1909, as compared with 9,125 machines, valued at \$6,552,804, in 1904. The increase in value was much greater relatively than that in number, so that the average value per machine in 1909, \$1,086, was higher than in 1904, when it was \$718. The value of all other products reported, which, for the

most part, represents the value of automobile bodies and parts turned out by establishments engaged primarily in that branch of manufacture, increased even more rapidly than that of the complete machines, being more than eighteen times as great in 1909 as in 1904; the fact that the value of "All other products" in 1909 was \$26,291,702 indicates the importance of that branch of the industry.

While comparative figures in respect to the horsepower of the machines manufactured are not available for previous censuses, it is of interest to know that of the 64,800 machines reported for 1909, 4,328 were of less than 10 horsepower; 13,814, of 10 horsepower but less than 20; 17,938, of 20 horsepower but less than 30; 28,103, of 30 horsepower but less than 50; and 617, of 50 horsepower but less than 90.

In 1909 all the automobiles manufactured were gasoline, except 538 which were electric; in 1904 only

11 electric automobiles were reported. Of the total number of cars reported for 1909, 64,025, or 98.8 per cent, were passenger vehicles, and 775, or 1.2 per cent, were business vehicles. In 1904 only 102 of the last named vehicles were reported, forming about the same proportion of the total number manufactured as in 1909. In 1909, 68.5 per cent of the passenger vehicles were touring cars, and 28.9 per cent runabouts.

PRODUCT.	1909		1904	
	Number.	Value.	Number.	Value.
Total value.....		\$96,651,461		\$7,996,534
Automobiles.....	64,800	70,359,749	9,125	0,552,804
Gasoline.....	64,262	69,130,223	9,114	0,637,404
Electric.....	538	1,229,626	11	16,400
Passenger vehicles.....	64,025	69,038,067	9,023	0,481,164
Buggies, runabouts, and touring cars.....	62,319	64,040,793	9,023	0,481,164
Limousines, cabs, etc.....	1,660	3,825,066	(1)	
Omnibuses, ambulances, fire-department patrol, sight-seeing wagons, etc.....	146	273,108	(1)	
Business vehicles (merchandise).....	775	1,320,782	102	71,640
Delivery wagons.....	401	319,071	51	35,250
Trucks and all other.....	374	1,001,711	51	36,390
All other products, including bodies and parts and repair work.....		20,291,702		1,443,730

<sup>1</sup> Not reported.

Lumber and timber products.—This industry in Michigan dates from 1834, when the first steam sawmill was built in the Saginaw Valley. Its growth thereafter was very rapid, for in 1849 there were 558 establishments reported, which employed an average of 2,730 wage earners and turned out products valued at \$2,464,000. The industry was at first concentrated along the valleys of the Grand, Saginaw, and Muskegon Rivers and their tributaries, and at such lake ports as Alpena, Manistee, Ludington, Cheboygan, and Grand Haven.

The following statement of the production of rough lumber, lath, and shingles in 1909 and 1899 indicates the decline which has taken place in the sawmill branch of the lumber industry during the last decade:

PRODUCT.	1909	1899
Rough lumber..... M feet b. m. . . . .	1,889,724	3,018,338
Lath..... thousands..	218,308	259,917
Shingles..... thousands..	891,649	1,920,110

In 1899 Michigan was the second state in the Union in the production of rough lumber, with a total output of 3,018,338 M feet board measure, but in 1909 it had dropped to tenth place in this respect, with a production of only 1,889,724 M feet, a decrease of 37.4 per cent in 10 years. The output of lath fell off 16 per cent and that of shingles 53.7 per cent during the same period.

Until recently the cut consisted very largely of white pine, but the depletion of the great white-pine forests, which made Michigan at one time the foremost lumber state, has necessitated the utilization of other

woods, of which the state has a considerable supply. In 1909 the combined output of softwood formed only a little over one-half of the total cut. Hemlock contributed nearly two-thirds and white pine only about one-fourth of the softwood, while small quantities of spruce, cedar, tamarack, and balsam fir were also reported. Maple was by far the most important of the hardwoods, while beech, basswood, birch, elm, and oak constituted most of the remainder. The state ranked first in 1909 in the cut of maple and beech.

Flour-mill and gristmill products.—The following tabular statement gives the quantity and value of products for the last three census years:

PRODUCT.	1909	1904	1899
Total value.....	\$34,860,803	\$26,512,027	\$21,643,547
Wheat flour:			
White—			
Barrels.....	3,409,122	3,860,809	
Value.....	\$18,659,601	\$16,987,310	4,050,329
Graham—			
Barrels.....	38,678	40,410	\$14,340,001
Value.....	\$178,990	\$167,780	
Corn meal and corn flour:			
Barrels.....	177,180	210,116	537,630
Value.....	\$606,706	\$500,615	\$1,026,986
Rye flour:			
Barrels.....	61,963	61,842	44,200
Value.....	\$266,698	\$219,597	\$128,567
Buckwheat flour:			
Pounds.....	20,161,026	21,030,856	13,626,893
Value.....	\$547,024	\$624,429	\$282,728
Barley meal:			
Pounds.....	33,600	205,770	546,550
Value.....	\$499	\$2,411	\$9,793
Hominy and grits:			
Pounds.....	38,010	43,802	2,669,950
Value.....	\$1,098	\$1,075	\$19,972
Feed:			
Tons.....	354,591	212,575	209,535
Value.....	\$10,203,552	\$4,635,938	\$3,626,210
Offal:			
Tons.....	166,219	191,829	154,011
Value.....	\$3,796,934	\$3,314,293	\$1,900,207
All other products.....	\$629,701	\$252,579	\$239,507

The output of wheat flour in 1909 was 453,419 barrels less than in 1904, and 602,529 barrels less than in 1899, representing a decrease of 11.6 per cent for the five-year period, and 14.9 per cent for the decade. Owing, however, to the higher price of flour prevailing in 1909, an increase of \$1,683,501, or 9.8 per cent, is shown in its value from 1904 to 1909, and of \$4,488,990, or 31.3 per cent, from 1899 to 1909. The increase during the more recent five-year period in the total value of products for the industry was due mainly to the decided advance in the value of feed reported, the output of which increased 66.8 per cent in quantity, and 124.9 per cent in value, during the five years. The value of corn meal and corn flour combined increased 19.8 per cent, but the output of these products decreased 15.7 per cent. Rye flour was the only product besides feed showing increases in both quantity and value, the increases being two-tenths of 1 per cent and 21.5 per cent, respectively.

Of the total value of products reported in 1909, the value of white flour formed 53.5 per cent; that of feed, which is made principally from corn and oats, 29.3 per cent; and that of offal, which consists chiefly

of bran and middlings, the by-products of the manufacture of wheat flour, 10.8 per cent. The corresponding proportions for 1904 were 64.1 per cent, 17.1 per cent, and 12.5 per cent, respectively.

The equipment of the flour mills and gristmills of the state in 1909 included 3,833 pairs of rolls and 336 runs of stone and steel burrs, as compared with 3,823 pairs of rolls and 406 runs of stone and steel burrs in 1904. Nineteen mills manufactured barrels in 1909 and two manufactured sacks.

**Printing and publishing.**—Although this industry as a whole in Michigan shows decided development during the decade 1899–1909, as measured by the financial statistics, the increase was due more to the extensive development of the book and job printing branch than to the growth in the publication of newspapers and periodicals. The following table gives the number and aggregate circulation of the newspapers and periodicals published in 1909, 1904, and 1899, classified according to frequency of issue:

PERIOD OF ISSUE.	NUMBER OF PUBLICATIONS.			AGGREGATE CIRCULATION PER ISSUE.		
	1909	1904	1899	1909	1904	1899
<b>Total</b> .....	747	787	706	2,766,282	3,074,297	2,374,403
Daily.....	87	86	70	681,919	544,282	370,848
Sunday.....	15	12	8	256,583	172,087	(*)
Semiweekly and tri-weekly.....	34	30	28	82,640	99,339	200,073
Weekly.....	526	570	522	750,288	774,758	752,032
Monthly.....	73	74	65	927,601	1,372,510	984,025
All other classes.....	12	15	13	67,241	110,712	67,425

\* Included in circulation of dailies.

Although both the total number of publications and their aggregate circulation were smaller in 1909 than in 1904, both were greater than in 1899. The circulation of all classes of publications except daily and Sunday newspapers decreased from 1904 to 1909, but the greatest decrease was in the circulation of monthlies, which fell off 444,918 during the five-year period. The combined circulation of the daily and Sunday editions was 938,502 in 1909, as compared with 370,848 in 1899, a gain of 153.1 per cent for the decade. The number of dailies increased from 70 in 1899 to 87 in 1909, while the number of Sunday editions increased from 8 to 15 during the same period.

The circulation of the weeklies increased somewhat between 1899 and 1904, but as a result of a decrease during the next five years it was slightly less in 1909 than at the beginning of the decade. The circulation of the semiweeklies and triweeklies fell off more than one-half, and that of the monthlies 5.7 per cent, during the decade, although there was a considerable increase in the latter class of publications from 1899 to 1904.

Of the 747 publications reported in 1909, 50, having a combined circulation of 144,082, were printed in foreign languages. Of these, 18 were printed in German, 10 each in Dutch and Finnish, 4 in Polish, 3 in Swedish, and 1 each in Croatian, French, Italian,

Italian and English, and Slovenian. Five of the 50 publications were dailies and 30 were weeklies.

**Leather, tanned, curried, and finished.**—The quantity and cost of the materials used in the industry and the quantity and value of its products for 1909, 1904, and 1899 are shown in the following statement:

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost</b> .....	\$12,120,971	\$7,271,023	\$4,697,367
Hides (all kinds):			
Number.....	1,480,885	1,126,466	751,035
Cost.....	\$8,022,645	\$5,202,740	\$3,582,896
Skins:			
Calf and kip—			
Number.....	918,666	812,951	620,507
Cost.....	\$881,805	\$287,889	\$329,831
All other—			
Number.....	856,386	594,014	
Cost.....	\$173,383	\$224,774	
All other materials.....	\$3,043,138	\$1,465,620	\$784,640
<b>Products, total value</b> .....	\$15,331,104	\$9,340,349	\$6,015,590
Leather:			
Sole—			
Sides.....	1,603,512	1,353,293	914,654
Value.....	\$7,326,270	\$4,954,749	\$3,090,684
Upper—			
Sides.....	716,396	406,235	281,559
Splis.....	760,801	532,757	100,000
Value.....	\$3,087,868	\$1,420,455	\$817,888
Harness—			
Sides.....	214,879	195,695	212,386
Value.....	\$1,210,132	\$854,690	\$689,832
Trunk, bag, and pocketbook.....	\$476,802	\$788,535	\$107,763
All other.....	\$2,840,322	\$1,010,006	\$585,108
All other products.....	\$225,619	\$153,650	\$291,102
Amount received for work on materials for others.....	\$164,025	\$162,264	\$133,213

The number of hides used increased 90.3 per cent and their cost 123.9 per cent from 1899 to 1909, while the number of skins used showed an even greater increase—186.1 per cent.

Hides were converted chiefly into sole, upper, and harness leather. Sole leather, practically all of which was hemlock, was the principal product, the output having increased 75.3 per cent during the decade. The quantity and value of upper leather increased substantially during the same time. The production of harness leathers shows a falling off in both quantity and value from 1899 to 1904, but more than made up these losses during the succeeding five years. Trunk, bag, and pocketbook leathers show a large increase in value in 1909 as compared with 1899, but a considerable loss as compared with 1904.

**Butter, cheese, and condensed milk.**—The increasing practice of separating the cream from the milk on the farm instead of sending the whole milk to the factories is indicated by the fact that in 1909, in spite of a considerable growth in the industry as a whole, only 270 cream separators were used in the various factories of the state, as compared with 379 in 1904. The quantity of milk used in the industry decreased from 670,230,324 pounds in 1904 to 478,008,911 pounds in 1909, whereas the quantity of cream made the remarkable increase from 7,714,987 pounds in 1904 to 83,241,827 pounds in 1909. The home separation of milk, together with the fact that in some sections of the state it is coming to be more profitable to sell the milk to retail dealers and to the creameries than to



cheese factories, account in a measure for the decrease in the production of cheese during the period from 1904 to 1909. During this period the number of establishments engaged primarily in the manufacture of butter increased from 203 to 299, while the number of cheese factories decreased from 162 to 128. Eight condensed-milk factories were reported in 1909 as compared with 6 in 1904.

The quantity and value of products for 1909, 1904, and 1899 are presented in the following table:

PRODUCT.	1909	1904	1899
Total value.....	\$14,287,499	\$8,208,706	\$3,918,995
Butter:			
Packed solid—			
Pounds.....	30,328,760	19,273,730	7,553,059
Value.....	\$3,680,270	\$4,027,770	\$1,472,072
Prints or rolls—			
Pounds.....	5,183,000	1,740,270	207,653
Value.....	\$1,456,807	\$383,426	\$53,199
Cream sold—			
Pounds.....	2,572,764	3,139,609	1,040,312
Value.....	\$240,270	\$234,640	\$60,032
All other butter-factory products <sup>1</sup> .....	\$98,862	\$136,700	\$75,782
Cheese:			
Full cream—			
Pounds.....	13,028,317	16,452,577	9,995,703
Value.....	\$1,800,870	\$1,076,280	\$932,770
Part cream—			
Pounds.....	76,220	.....	.....
Value.....	\$10,984	.....	.....
Other kinds <sup>2</sup> —			
Pounds.....	277,623	362,279	426,816
Value.....	\$40,012	\$41,793	\$40,783
All other cheese-factory products <sup>3</sup> .....	\$0,516	\$20,212	\$11,934
Condensed milk:			
Sweetened—			
Pounds.....	27,695,800	27,269,506	18,378,800
Value.....	\$1,693,630	\$1,630,730	\$1,202,817
Unsweetened—			
Pounds.....	4,709,078	415,102	.....
Value.....	\$231,591	\$13,547	.....
All other products.....	\$53,212	\$37,705	.....

<sup>1</sup> Includes skimmed milk sold and casing.   <sup>2</sup> Includes skimmed-milk cheese.  
<sup>3</sup> Includes whey.

The increase in this industry was due principally to the greater production of butter, which in 1909 was more than four times as great in quantity and more than six times as great in value as in 1899. The greater part of the butter produced was packed solid, though an increasing proportion was put up in prints or rolls, 14.6 per cent of the total output being in this form in 1909, as compared with only 3.4 per cent in 1899. The amount of cheese manufactured was less in 1909 than in 1904, but greater than in 1899, although its value showed an increase at each census. The output of condensed milk increased steadily from census to census.

Paper and wood pulp.—Michigan ranked eighth among the states in the manufacture of paper and wood pulp in 1909. A total of 132,846 cords of wood was used, of which hemlock formed 43.8 per cent; spruce, domestic and imported, 22.5 per cent; slab wood and other mill waste, 18.2 per cent; and balsam fir, 9.9 per cent. The quantity and cost of the principal materials used in the manufacture of paper and wood pulp, the quantity and value of the principal products, and the equipment reported in 1909, 1904, and 1899 are shown in the next table.

MATERIAL, PRODUCT, OR MACHINE.	1909	1904	1899
Materials used, total cost.....	\$9,024,595	\$4,581,471	\$2,707,827
Pulp wood.....	\$858,230	\$486,748	\$161,314
Wood pulp, purchased:			
Tons.....	60,750	35,879	20,097
Cost.....	\$2,405,975	\$1,269,198	\$732,948
Ground—			
Tons.....	15,320	9,712	4,054
Cost.....	\$384,459	\$101,713	\$81,207
Sulphite fiber—			
Tons.....	29,070	15,197	14,476
Cost.....	\$1,329,972	\$630,761	\$385,682
Other chemical fiber—			
Tons.....	16,360	10,970	7,567
Cost.....	\$691,514	\$446,724	\$315,990
Rags, including cotton and flax waste and sweepings:			
Tons.....	11,939	8,102	4,902
Cost.....	\$383,886	\$199,937	\$137,772
Old and waste paper:			
Tons.....	114,407	60,417	32,836
Cost.....	\$2,193,302	\$1,058,014	\$700,270
All other materials.....	\$3,183,202	\$1,567,574	\$975,523
Products, total value.....	\$13,922,124	\$7,340,631	\$4,217,869
Book, cover, plate, and coated paper:			
Tons.....	85,048	52,048	48,206
Value.....	\$9,409,865	\$3,628,907	\$2,350,790
Wrapping paper:			
Tons.....	50,328	32,654	20,370
Value.....	\$2,799,583	\$1,565,881	\$811,750
Boards:			
Tons.....	56,342	26,382	14,051
Value.....	\$1,800,456	\$812,781	\$348,947
Building, roofing, and sheathing paper—			
Tons.....	5,539	3,303	1,337
Value.....	\$169,218	\$100,604	\$34,439
Wood pulp made for sale or for consumption in mills other than where produced:			
Tons.....	8,190	11,158	8,184
Value.....	\$300,948	\$407,286	\$340,516
All other products.....	\$2,280,074	\$825,132	\$325,427
Wood pulp:			
Quantity produced (including that used in mills where manufactured), tons...	65,331	38,612	20,707
Ground.....	12,273	14,079	6,676
Soda fiber.....	.....	.....	1,033
Sulphite fiber.....	53,058	24,533	12,998
Equipment:			
Paper machines:			
Total number.....	63	55	46
Capacity, yearly, tons.....	301,345	181,108	111,669
Fourdriner—			
Number.....	43	34	23
Capacity per 24 hours, tons.....	573	444	( <sup>1</sup> )
Cylinder—			
Number.....	25	21	23
Capacity per 24 hours, tons.....	321	185	( <sup>1</sup> )
Pulp:			
Grinders, number.....	17	20	26
Digesters, number.....	27	24	18
Capacity, yearly, tons of pulp, total.....	74,932	46,410	20,558
Mechanical.....	18,303	25,810	( <sup>2</sup> )
Chemical.....	56,629	20,600	( <sup>2</sup> )

<sup>1</sup> Not reported.

<sup>2</sup> Not reported separately.

The total cost of materials used increased 97 per cent from 1904 to 1909. During the same period the total cost of pulp wood consumed increased 76.3 per cent, and that of wood pulp purchased 89.6 per cent. Out of a total of 60,750 tons of purchased wood pulp in 1909, 47.9 per cent was produced by the sulphite process, 26.9 per cent by other chemical processes, and the remainder by the mechanical process.

The principal product was book paper, the value of which represented nearly one-half of the total value of products in 1909. During the decade the quantity of this paper manufactured increased 78.5 per cent and the value 176.5 per cent. Wrapping paper and boards also show large increases. The total amount of wood pulp produced, including that used in the mills where it was manufactured, increased from 38,612 tons in 1904 to 65,331 tons in 1909. Of this total for 1909, 81.2 per cent was sulphite fiber and the remaining

18.8 per cent ground wood. The value of the "Wood pulp made for sale or for consumption in mills other than where produced" fairly represents the amount of duplication in the combined paper and wood pulp industry, because this product of the pulp mills of Michigan is used largely as material in the paper mills of the same state.

The number of paper machines increased 13 and the yearly capacity 120,237 tons from 1904 to 1909, while the corresponding increases from 1899 to 1904 were 9 and 69,439, respectively. The number of Four-drainer paper machines increased from 23 in 1899 to 43 in 1909, and the cylinder machines from 23 to 25. The number of digesters increased during the decade from 18 to 27, with a much greater relative increase in the output of sulphite fiber. There was a decrease from 1904 to 1909, however, in the number of grinders, accompanied by a decrease in the amount of ground wood produced, though more than twice as much ground wood was made in 1904, when 20 grinders were reported, as in 1899, when 26 grinders were reported.

**Slaughtering and meat packing.**—The following table gives the quantity and value of the various products reported for 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
Total value.....	\$13,435,114	\$6,355,650	\$5,401,523
Beef, fresh:			
Pounds.....	24,099,494	12,149,200	16,487,625
Value.....	\$1,931,128	\$850,668	\$1,184,398
Veal, fresh:			
Pounds.....	2,603,074	992,370	674,400
Value.....	\$309,568	\$83,703	\$60,815
Mutton, fresh:			
Pounds.....	3,509,894	2,350,000	1,925,618
Value.....	\$303,474	\$109,644	\$159,952
Pork, fresh:			
Pounds.....	16,479,507	9,909,375	12,036,427
Value.....	\$2,014,770	\$839,370	\$821,545
Pork, salted or cured:			
Pounds.....	36,145,040	30,277,890	35,954,909
Value.....	\$4,707,180	\$3,003,527	\$2,470,251
Sausage, fresh or cured	\$1,397,633	\$381,580	\$277,091
Lard:			
Pounds.....	13,351,255	8,146,572	2,284,883
Value.....	\$1,859,703	\$624,370	\$161,885
Hides:			
Number.....	57,635	26,455	40,243
Pounds.....	2,982,942	1,619,500	1,897,918
Value.....	\$365,080	\$181,688	\$168,857
Pelts:			
Number.....	88,285	44,510	( <sup>1</sup> )
Value.....	\$94,602	\$39,056	( <sup>1</sup> )
All other products.....	\$391,816	\$202,046	\$99,729

<sup>1</sup> Figures not available.

The slaughtering and meat-packing industry has made large gains in Michigan during the past few years, the total value of products in 1909 being more than double that in 1904. The combined value of fresh and cured pork represented a little more than one-half the total for the industry in 1909. Both fresh and cured pork showed large actual gains in 1909 as compared with 1904, though not so great relatively as some of the other products. The most notable increases during this period were in the value of fresh beef, lard, and sausage, the value of the first being over twice as great, that of the second nearly three times as great, and that of the third over three and one-half times as great in 1909

as in 1904. All the other products enumerated, but more especially fresh veal, show considerable gains in both quantity and value for this five-year period. As a result of the increase in prices, however, the reported increase in value was in all cases greater than that in quantity.

**Beet sugar.**—The importance of the state in this industry and the increasing proportion that beet sugar constitutes of the total sugar production of the country make the supplemental data for this industry of particular interest.

The following table shows the quantity of beets used and the quantity and value of the different sugar-beet products reported for 1909, 1904, and 1899:

MATERIAL OR PRODUCT.	1909	1904	1899
Beets used, tons.....	816,609	535,508	205,925
Products, total value.....	\$10,476,876	\$5,378,004	\$1,602,266
Sugar:			
Granulated—			
Tons.....	103,864	59,966	16,369
Value.....	\$9,756,587	\$5,184,081	\$1,561,100
Raw—			
Tons.....	551	2,016	488
Value.....	\$41,404	\$120,109	\$39,184
Molasses and sirup:			
Gallons.....	5,016,748	1,081,181	321,100
Value.....	\$337,200	\$21,741	\$1,225
Pulp.....	\$339,025	\$45,414	\$241
All other products.....	\$2,660	\$6,709	\$516

The quantity of beets used increased from 205,925 tons in 1899 to 816,609 tons in 1909, and the quantity of granulated sugar manufactured from 16,369 tons to 103,864 tons during the same period. The value of granulated sugar constituted 93.1 per cent of the total value of products in 1909, molasses and sirup and pulp accounting for most of the remainder.

**Carriages and wagons and materials.**—The decline which has taken place in this industry during recent years is brought out in the following table, which shows the number and value of the different kinds of vehicles manufactured in 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
Total value.....	\$10,158,883	\$14,889,457	\$12,887,134
Carriages (family and pleasure):			
Number.....	91,558	174,889	193,254
Value.....	\$4,453,090	\$7,784,444	\$7,425,754
Wagons:			
Number.....	28,720	52,273	49,903
Value.....	\$1,533,172	\$2,352,958	\$2,049,460
Business:			
Number.....	17,600	20,283	( <sup>1</sup> )
Value.....	\$985,699	( <sup>1</sup> )	( <sup>1</sup> )
Farm—			
Number.....	10,937	30,521	( <sup>1</sup> )
Value.....	\$523,803	( <sup>1</sup> )	( <sup>1</sup> )
Government, municipal, etc.—			
Number.....	183	1,469	( <sup>1</sup> )
Value.....	\$76,770	( <sup>1</sup> )	( <sup>1</sup> )
Public conveyances (cabs, hacks, hansom, hotel coaches, omnibuses, etc.):			
Number.....	201	120	.....
Value.....	\$118,490	\$116,026	.....
Sleighs and sleds:			
Number.....	32,751	58,180	51,149
Value.....	\$570,207	\$977,822	\$846,765
Automobiles:			
Number.....	143	.....	.....
Value.....	\$179,819	.....	.....
All other products, including parts and repair work.....	\$3,251,105	\$3,658,207	\$2,568,155

<sup>1</sup> Not reported separately.

During the past few years there has been, in Michigan, a considerable shifting of capital from the manufacture of carriages and wagons to the manufacture of automobiles. As a result of the increasing displacement of carriages and wagons by motor vehicles not only has the automobile industry attracted new capital into the state, but many factories which were formerly engaged in the manufacture of carriages and wagons have found it more profitable to use their plants for making automobiles or automobile bodies or parts.

Less than half as many pleasure carriages were manufactured in the state in 1909 as in 1899, and in the number of wagons the loss was nearly as great. The decreases took place mainly during the five years from 1904 to 1909.

**Laundries.**—Statistics for steam laundries are not included in the general tables, or in the totals for manufacturing industries. There were 219 such establishments in Michigan, 35 of which were in Detroit, 8 in Lansing, 5 each in Grand Rapids, Ann Arbor, and Battle Creek, and 4 each in Adrian, Jackson, Port Huron, and Saginaw.

The following statement summarizes the statistics:

Number of establishments.....	219
Persons engaged in the industry.....	4,328
Proprietors and firm members.....	249
Salaried employees.....	350
Wage earners (average number).....	3,729
Primary horsepower.....	4,071
Capital.....	\$2,009,251
Expenses.....	2,594,945
Services.....	1,602,951
Materials.....	621,786
Miscellaneous.....	370,208
Amount received for work done.....	3,261,841

The most common form of ownership was the individual, with 137 establishments. The firm and corporate forms of ownership were represented by 49 and 33 establishments, respectively. Ninety-six establishments had receipts for the year's business of less than \$5,000; 77, receipts of \$5,000 but less than \$20,000; 41, receipts of \$20,000 but less than \$100,000; and 5, receipts of \$100,000 but less than \$1,000,000.

The number of wage earners employed each month and the per cent which this number represents of the greatest number employed in any month were as shown in the next table.

MONTH.	WAGE EARNERS.		MONTH.	WAGE EARNERS.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	3,434	83.8	July.....	4,066	99.3
February.....	3,423	83.6	August.....	4,026	100.0
March.....	3,463	84.5	September.....	3,987	97.3
April.....	3,567	87.1	October.....	3,795	92.7
May.....	3,630	88.8	November.....	3,723	91.0
June.....	3,821	93.3	December.....	3,732	91.1

The different kinds of primary power, the number of engines or motors, and the horsepower used in 1909 are shown in the following tabular statement:

KIND.	Number of engines or motors.	Horsepower.
Primary power, total.....		4,071
Owued:		
Steam.....	163	3,537
Gas.....	25	100
Water motors.....	1	1
Rented:		
Electric.....	90	430
Other.....		3

The kind and amount of fuel used are shown in the following statement:

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	854
Bituminous coal.....	Tons.....	43,090
Coke.....	Tons.....	361
Wood.....	Cords.....	2,041
Oil.....	Barrels.....	640
Gas.....	1,000 feet.....	14,081

**Custom sawmills and gristmills.**—Statistics for custom sawmills and gristmills are not included in the general tables or in the totals for manufacturing industries, but are presented in the following table:

	Custom sawmills.	Custom gristmills.
Number of establishments.....	197	208
Persons engaged in the industry.....	580	357
Proprietors and firm members.....	271	256
Salaried employees.....	3	8
Wage earners (average number).....	300	93
Primary horsepower.....	4,594	7,172
Capital.....	\$322,255	\$722,877
Expenses.....	125,039	1,851,926
Services.....	103,029	39,798
Materials.....	4,051	11,792,317
Miscellaneous.....	18,559	19,811
Value of products.....	236,209	12,140,461

<sup>1</sup> Includes estimate of all grain ground. A similar estimate for value of lumber sawed by custom sawmills is impracticable.

## MANUFACTURES—MICHIGAN.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899.  
THE STATE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
<b>STATE—All industries</b> .....	1909	9,159	271,071	8,965	30,607	231,499	598,288	\$583,947	\$34,870	\$118,968	\$368,612	\$685,109	\$316,497
	1904	7,446	200,196	7,732	17,235	178,229	440,880	337,894	17,470	81,279	230,081	429,120	190,039
	1899	7,310			13,350	155,800	368,497	246,997	12,336	62,532	175,966	319,692	143,723
Agricultural implements.....	1909	32	3,041	22	680	2,359	5,195	15,649	770	1,261	2,890	9,273	6,383
	1904	42	3,903	26	713	3,184	5,956	14,342	678	1,686	3,497	8,720	5,223
	1899	59	2,624	60	620	1,944	3,721	8,932	549	953	2,482	6,340	3,858
Artificial stone.....	1909	101	791	228	49	514	634	926	40	255	349	908	559
	1904	27	111	30	14	67	38	118	7	35	43	119	70
	1899												
Automobiles, including bodies and parts.	1909	113	25,098	29	2,625	25,444	25,938	52,926	2,570	15,491	53,882	96,651	42,799
	1904	33	2,953	17	201	2,735	1,800	4,347	236	1,268	3,443	7,997	4,554
	1899												
Beet sugar.....	1909	11	1,755		295	1,460	8,854	21,378	395	910	6,228	10,477	4,249
	1904	19	1,480		280	1,211	8,766	12,990	294	581	3,761	5,373	1,917
	1899	9	591		118	473		4,014	102	217	1,110	1,602	492
Boots and shoes, including cut stock and findings.	1909	23	2,703	9	239	2,455	786	2,886	246	936	3,347	5,256	1,909
	1904	* 23	1,918	17	178	1,723	649	1,702	190	681	2,016	3,631	1,515
	1899	* 13	1,213	19	77	1,117		1,136	70	386	1,164	1,915	761
Boxes, fancy and paper.....	1909	19	1,427	14	87	1,326	1,564	1,896	118	447	1,018	2,653	1,035
	1904	22	897	13	48	836	568	671	54	230	431	913	482
	1899	12	599	7	24	568		266	22	107	142	358	216
Brass and bronze products.....	1909	60	5,211	35	405	4,771	11,622	8,647	571	2,450	8,993	13,890	4,897
	1904	* 36	2,226	32	165	2,029	2,036	2,495	214	936	1,703	3,095	1,992
	1899	* 29	1,298	28	95	1,175		1,436	117	471	1,119	2,148	1,029
Bread and other bakery products.....	1909	816	3,984	917	430	2,637	1,053	5,750	365	1,444	6,671	11,082	4,411
	1904	614	3,178	721	263	2,194	1,201	2,829	214	1,032	3,863	7,116	3,263
	1899	455	2,022	493	200	1,329		1,921	138	685	2,263	4,098	1,846
Brick and tile.....	1909	124	1,806	140	101	1,565	8,346	3,017	97	803	575	2,047	1,472
	1904	169	1,731	206	89	1,436	8,147	2,132	73	651	425	1,651	1,226
	1899	177	1,715	220	52	1,443	5,649	1,497	30	480	239	1,136	887
Butter, cheese, and condensed milk....	1909	435	1,740	350	317	1,073	4,776	3,434	187	554	12,377	14,287	1,910
	1904	371	1,301	259	167	875	3,794	1,888	65	432	7,027	8,209	1,182
	1899	286	798	203	92	503	2,371	1,251	25	222	3,274	3,919	645
Canning and preserving.....	1909	104	2,387	88	226	2,073	3,374	4,495	226	665	3,074	4,971	1,697
	1904	134	2,319	122	175	2,022	2,636	2,281	150	521	2,374	3,817	1,443
	1899	117	1,650	140	110	1,400		1,098	93	310	1,821	2,957	836
Carrriages and wagons and materials....	1909	212	4,707	240	433	4,034	6,362	10,189	532	2,240	5,262	10,150	4,897
	1904	218	7,231	233	598	6,400	8,411	11,302	583	3,053	8,440	14,889	6,449
	1899	271			450	6,111		8,916	399	2,614	7,550	12,887	5,337
Cars and general shop construction and repairs by steam-railroad companies.	1909	32	5,708	2	303	5,401	5,742	3,571	311	3,500	2,916	6,838	3,922
	1904	34	4,638		201	4,435	4,153	2,463	191	2,497	2,599	5,369	2,770
	1899	42	4,120		182	3,938		2,627	147	2,026	2,120	4,333	2,213
Cars and general shop construction and repairs by street-railroad companies.	1909	15	602		28	574	1,704	1,345	26	318	949	1,301	352
	1904	4	438		14	424	225	527	19	246	313	588	275
	1899	6	235		8	227		167	10	114	158	299	141
Cement.....	1909	13	1,465	1	163	1,306	21,773	14,679	212	326	1,403	2,915	1,512
	1904	13	1,171		142	1,029	18,593	10,633	175	669	909	2,560	1,651
	1899												
Chemicals.....	1909	36	3,512	25	313	3,174	26,594	20,015	560	2,012	5,072	12,890	7,818
	1904	14	3,657	2	322	3,333	22,860	14,797	388	1,848	4,403	9,037	4,634
	1899	25			143	2,863		7,482	216	1,164	2,689	5,325	2,636
Clothing, men's, including shirts.....	1909	40	3,944	42	322	3,580	1,151	3,551	395	1,221	3,389	6,532	3,143
	1904	43	2,520	44	156	2,320	931	1,894	164	717	2,526	4,203	1,677
	1899	49			189	2,457		2,012	167	648	2,372	4,095	1,723
Clothing, women's.....	1909	52	2,521	42	285	2,194	581	1,890	277	745	1,710	3,587	1,877
	1904	44	2,312	50	219	2,048	922	1,307	187	658	1,731	3,629	1,898
	1899	31	1,703	43	120	1,540	461	599	122	392	1,219	2,194	975
Coffins, burial cases, and undertakers' goods.	1909	18	553	8	106	439	711	753	114	208	403	1,085	592
	1904	16	702	11	61	630	982	770	66	301	525	1,225	700
	1899	18	455	18	57	380		673	55	166	363	791	428
Confectionery.....	1909	56	1,335	66	217	1,062	812	1,770	221	361	1,797	2,944	1,147
	1904	44	949	59	107	783	616	767	99	232	1,033	1,699	666
	1899	38			115	613		588	74	170	795	1,355	560
Cooperage and wooden goods, not elsewhere specified.	1909	101	2,916	106	168	2,642	8,509	3,918	237	1,016	2,004	3,689	1,985
	1904	98	2,815	99	102	2,614	7,205	2,510	130	958	1,794	3,693	2,099
	1899	120	1,848	123	50	1,075		1,380	46	613	955	1,989	1,024
Copper, tin, and sheet-iron products....	1909	152	2,801	165	250	2,386	1,875	4,758	248	1,122	2,645	4,929	1,122
	1904	67	1,771	83	118	1,570	1,445	1,567	114	687	1,396	2,889	1,493
	1899	44			49	549		665	66	205	595	1,043	447
Corsets.....	1909	14	2,875	6	408	2,461	734	3,038	629	835	1,877	4,368	2,491
	1904	11	1,545	6	161	1,378	316	1,449	143	469	700	1,975	1,275
	1899	14	1,847	10	143	1,459		1,261	151	376	706	1,703	997

<sup>1</sup> Not reported separately.

<sup>2</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.

<sup>3</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.

MANUFACTURES—MICHIGAN.

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TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

THE STATE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
STATE—Continued.													
Cutlery and tools, not elsewhere specified.	1909	37	850	41	141	668	1,379	\$1,369	\$106	\$307	\$384	\$1,124	\$740
	1904	30	519	38	48	433	802	602	47	103	202	730	468
	1899	26	373	27	20	317	.....	297	32	120	161	400	290
Electrical machinery, apparatus, and supplies.	1909	40	1,496	26	252	1,218	1,355	2,244	257	494	1,030	2,327	1,297
	1904	14	597	8	30	529	379	414	59	177	264	702	408
	1899	12	222	9	20	184	309	547	29	88	182	488	256
Fancy articles, not elsewhere specified.	1909	11	1,218	7	64	1,147	87	523	77	153	109	593	394
	1904	7	196	2	26	168	50	124	21	50	115	262	147
	1899	10	110	3	3	104	.....	10	1	13	5	29	24
Flour-mill and gristmill products.	1909	520	2,623	600	433	1,530	38,991	11,147	305	806	20,369	34,861	5,502
	1904	405	2,353	568	277	1,508	34,755	7,654	233	767	23,414	26,512	3,098
	1899	395	.....	.....	200	1,329	32,464	6,919	152	675	18,406	21,644	3,238
Food preparations.	1909	49	1,072	28	341	1,303	8,983	5,629	431	724	4,750	11,492	6,742
	1904	55	1,411	54	316	1,041	5,499	3,446	335	400	2,256	6,754	4,498
	1899	25	494	22	99	.....	.....	707	55	143	678	1,892	1,214
Foundry and machine-shop products.	1909	654	25,334	505	3,180	21,040	34,152	48,065	3,347	12,344	18,711	45,399	26,683
	1904	452	18,604	441	1,767	16,306	21,278	23,107	1,875	8,657	14,085	31,434	17,348
	1899	417	18,221	388	1,435	10,331	.....	23,380	1,493	7,775	10,551	25,480	14,879
Fur goods.	1909	31	824	38	107	619	232	1,527	155	267	984	2,284	1,300
	1904	20	707	23	49	635	350	1,040	45	242	1,036	1,771	735
	1899	18	.....	.....	03	541	.....	588	07	209	1,144	1,727	583
Furniture and refrigerators.	1909	202	18,299	120	1,509	16,010	27,485	28,222	2,102	8,300	11,718	28,642	16,924
	1904	142	15,602	90	941	14,565	19,812	17,768	1,139	6,468	8,040	20,502	11,862
	1899	133	13,716	91	702	12,833	.....	15,509	870	4,885	7,443	16,040	8,697
Gas and electric fixtures and lamps and reflectors.	1909	20	486	12	79	395	386	923	98	219	642	1,546	904
	1904	13	92	1	15	70	45	229	18	37	243	496	253
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gas, illuminating and heating.	1909	55	2,435	2	62	1,771	6,055	33,259	540	1,099	2,129	6,748	4,019
	1904	40	1,670	3	380	1,287	2,379	19,712	260	675	1,120	3,866	2,746
	1899	38	885	.....	227	568	.....	16,295	142	294	208	1,473	1,175
Hosiery and knit goods.	1909	35	2,818	19	254	2,545	3,291	3,735	325	769	2,047	4,029	1,982
	1904	38	3,274	14	175	3,085	2,501	3,284	175	709	1,844	3,624	1,780
	1899	32	2,714	4	201	2,509	1,456	2,130	188	580	1,459	2,791	1,332
Iron and steel, blast furnaces.	1909	11	1,101	.....	85	1,016	17,493	8,291	148	632	4,224	5,824	1,600
	1904	11	1,230	.....	97	1,139	7,491	4,253	110	588	3,104	4,644	1,540
	1899	7	657	.....	44	513	2,704	2,030	64	216	1,405	2,327	922
Iron and steel, steel works and rolling mills.	1909	8	1,273	.....	90	1,183	4,290	2,326	129	661	1,598	2,670	1,072
	1904	5	1,056	.....	38	1,018	4,630	1,693	46	527	1,800	2,712	912
	1899	3	1,487	.....	28	1,459	7,000	1,829	31	725	2,395	3,575	1,210
Leather goods.	1909	57	1,036	48	154	834	760	1,653	171	434	1,453	2,560	1,102
	1904	45	761	45	80	630	342	792	69	339	760	1,389	629
	1899	41	.....	.....	71	716	.....	602	52	307	805	1,452	647
Leather, tanned, curried, and finished.	1909	24	2,440	5	144	2,291	6,719	12,012	232	1,133	12,121	15,331	3,210
	1904	25	1,852	13	92	1,747	4,391	6,891	147	806	7,271	9,340	2,069
	1899	27	1,618	19	72	1,427	3,334	5,214	96	550	4,697	6,010	1,319
Liquors, malt.	1909	79	2,001	40	423	1,527	9,210	12,384	558	1,073	2,421	9,840	7,419
	1904	86	1,588	51	266	1,271	7,518	8,951	391	804	1,694	6,999	5,305
	1899	77	1,271	49	242	980	4,813	6,235	297	599	1,188	5,297	4,109
Lumber and timber products.	1909	1,180	39,011	1,310	2,074	35,927	133,739	57,290	2,337	16,298	29,042	61,514	32,472
	1904	1,058	37,124	1,315	1,016	34,193	119,485	48,771	1,713	15,995	24,729	57,217	32,488
	1899	1,024	.....	1,004	46,163	.....	143,554	53,630	1,815	18,478	32,067	68,673	36,606
Marble and stone work.	1909	113	795	145	99	551	1,570	1,071	82	393	592	1,504	912
	1904	73	583	102	45	436	872	654	36	237	400	1,085	688
	1899	74	.....	.....	33	410	.....	544	20	200	440	984	544
Mattresses and spring beds.	1909	14	357	14	37	305	508	489	41	140	407	689	282
	1904	12	227	11	22	194	377	306	30	93	331	514	183
	1899	13	.....	.....	32	218	.....	203	26	80	322	521	199
Musical instruments, pianos and organs and materials.	1909	17	1,963	8	170	1,779	2,690	5,384	299	1,075	2,009	4,226	2,217
	1904	13	1,167	14	84	1,069	1,310	2,304	113	537	750	1,984	1,234
	1899	11	827	4	63	700	812	1,212	69	378	474	1,180	706
Oil, essential.	1909	23	89	27	8	54	365	306	13	17	415	486	71
	1904	0	30	13	5	13	11	174	9	5	160	249	74
	1899	0	.....	.....	10	70	.....	210	9	24	120	189	66
Paint and varnish.	1909	20	1,657	11	622	1,024	2,362	7,113	888	557	4,032	7,410	3,384
	1904	17	958	10	306	648	1,413	4,521	303	394	3,414	5,953	2,544
	1899	17	752	14	243	490	1,004	2,494	286	179	1,909	3,388	1,419
Paper and wood pulp.	1909	32	4,581	5	249	4,327	48,700	15,754	423	2,142	9,025	13,922	4,897
	1904	30	3,221	6	133	3,052	31,857	8,598	218	1,306	4,581	7,341	2,760
	1899	27	2,130	9	107	2,014	22,856	4,500	143	701	2,708	4,218	1,510

<sup>1</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.

<sup>2</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.

<sup>3</sup> Figures can not be shown without disclosing individual operations.

MANUFACTURES—MICHIGAN.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.  
THE STATE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>STATE—Continued.</b>													
Paper goods, not elsewhere specified...	1909	18	1,311	6	124	1,181	2,580	\$2,776	\$161	\$483	\$1,953	\$3,551	\$1,598
	1904	16	378	—	37	341	975	1,068	45	146	816	1,329	513
	1899	* 3	155	—	18	136	—	161	16	36	60	202	142
Patent medicines and compounds and druggists' preparations.	1909	159	5,124	133	1,742	3,249	2,270	11,452	2,134	1,509	4,941	13,475	8,584
	1904	93	3,651	76	1,039	2,536	2,301	8,467	1,003	952	3,793	10,470	6,672
	1899	75	—	—	940	2,283	—	4,071	845	705	2,885	7,284	4,399
Printing and publishing.....	1909	1,045	11,048	991	2,838	7,219	7,651	13,725	2,561	4,000	4,935	17,348	12,413
	1904	† 937	8,640	1,009	1,632	5,999	5,292	9,079	1,419	2,981	3,424	12,050	8,626
	1899	829	—	—	1,399	5,042	—	7,380	965	2,108	1,946	8,206	6,260
Salt.....	1909	27	1,567	12	102	1,363	6,628	5,167	197	745	1,043	3,653	2,010
	1904	41	1,490	22	80	1,388	6,001	3,538	92	626	1,191	2,405	1,214
	1899	53	1,569	29	91	1,449	—	4,760	87	619	1,096	2,461	1,365
Scales and balances.....	1909	4	247	—	19	228	310	334	24	137	229	524	285
	1904	7	181	—	17	164	140	373	25	58	65	238	193
	1899	3	51	3	15	33	—	103	5	16	28	79	51
Shipbuilding, including boat building..	1909	91	2,758	103	311	2,344	6,485	6,972	308	1,380	2,490	5,034	2,544
	1904	57	2,207	59	150	1,998	4,104	3,912	135	1,068	1,070	2,673	1,884
	1899	54	3,042	53	73	2,916	3,457	3,893	76	1,344	2,198	4,432	2,234
Show cases.....	1909	11	951	31	97	823	1,403	1,660	134	459	796	1,866	1,070
	1904	10	691	8	66	617	942	728	84	314	502	1,165	638
	1899	4	68	0	4	58	—	42	4	33	48	134	86
Slaughtering and meat packing.....	1909	45	1,114	55	157	902	3,404	3,584	152	481	11,606	13,435	1,769
	1904	26	590	23	63	499	959	1,378	65	265	5,629	6,356	727
	1899	32	—	—	72	469	—	1,450	67	236	4,820	5,402	632
Springs, steel, car and carriage.....	1909	5	633	—	45	588	908	1,209	77	309	558	1,308	750
	1904	6	348	1	24	323	572	372	29	128	282	541	269
	1899	5	367	—	16	351	—	308	16	150	312	584	272
Stoves and furnaces, including gas and oil stoves.	1909	33	5,027	9	536	4,482	5,910	9,522	758	2,532	2,816	9,123	6,307
	1904	27	4,937	24	441	4,472	4,589	6,092	570	2,491	2,737	8,026	5,289
	1899	—	—	—	—	—	—	—	—	—	—	—	—
Tobacco manufactures.....	1909	729	9,242	813	553	7,876	937	6,837	716	3,076	7,208	16,179	8,971
	1904	706	7,619	786	405	6,428	1,156	4,147	375	2,467	4,847	11,894	7,017
	1899	607	—	—	362	5,282	853	2,826	398	1,760	3,131	9,245	6,114
Wall plaster.....	1909	16	840	10	84	746	3,029	1,775	123	276	412	1,421	1,009
	1904	8	393	5	45	343	2,125	1,036	42	157	380	842	462
	1899	—	—	—	—	—	—	—	—	—	—	—	—
Window shades and fixtures.....	1909	7	663	2	25	636	1,236	1,192	33	261	807	1,296	489
	1904	3	241	—	16	225	342	170	21	85	300	508	149
	1899	—	—	—	—	—	—	—	—	—	—	—	—
Wirework, including wire rope and cable.	1909	37	1,261	23	329	909	1,900	4,407	326	428	3,446	5,285	1,839
	1904	30	1,221	21	216	984	1,355	2,426	200	392	1,000	3,450	1,469
	1899	30	—	—	129	484	—	961	92	197	584	1,292	708
Wood distillation, not including turpentine and resin.	1909	12	859	1	52	806	5,012	2,830	64	504	1,155	2,399	1,244
	1904	9	327	4	32	291	366	1,334	32	156	351	738	387
	1899	—	—	—	—	—	—	—	—	—	—	—	—
Wood, turned and carved.....	1909	58	1,278	68	73	1,137	4,095	1,287	82	548	634	1,708	1,074
	1904	74	1,397	79	92	1,226	3,897	1,636	82	528	589	1,567	878
	1899	56	1,023	59	46	918	—	787	50	306	287	924	637
Woolen, worsted, and felt goods, and wool hats.	1909	15	610	18	38	554	1,900	1,421	53	235	863	1,571	708
	1904	† 15	629	20	27	482	1,186	707	24	170	595	977	352
	1899	† 16	376	16	23	337	1,076	776	18	108	407	627	220
All other industries.....	1909	946	26,299	1,078	3,659	21,562	41,723	56,600	4,476	11,651	53,342	87,874	34,532
	1904	699	18,768	710	1,437	16,561	35,115	30,367	1,449	7,798	44,194	64,411	20,217
	1899	699	—	—	1,251	13,854	—	25,751	1,131	5,345	36,140	48,892	12,752

CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES.

DETROIT—All industries.....	1909	2,038	95,841	1,804	13,026	81,011	114,190	\$190,125	\$15,260	\$43,007	\$130,218	\$252,992	\$122,774
	1904	1,362	55,718	1,312	5,923	48,483	—	91,038	6,126	22,558	66,551	128,247	61,666
	1899	1,269	—	—	4,947	38,373	—	87,224	4,726	15,317	47,007	88,366	41,359
Automobiles, including bodies and parts.	1909	68	17,437	—	1,762	15,675	14,660	28,928	1,781	9,621	31,363	59,536	28,173
	1904	19	2,191	12	145	2,034	—	3,447	168	959	2,631	6,240	3,609
	1899	—	—	—	—	—	—	—	—	—	—	—	—
Baskets, and rattan and willow ware...	1909	7	22	6	—	16	26	15	—	5	11	27	16
	1904	7	17	7	1	9	—	8	(6)	4	5	15	10
	1899	10	35	10	2	23	—	26	(4)	9	6	23	17
Blacking and cleansing and polishing preparations.	1909	8	21	7	8	0	85	16	8	3	15	30	15
	1904	3	25	5	9	11	—	38	6	5	29	47	27
	1899	* 3	12	6	1	5	—	3	(6)	3	6	18	12

1 Excluding statistics for two establishments, to avoid disclosure of individual operations.  
 2 Excluding statistics for one establishment, to avoid disclosure of individual operations.  
 3 Not reported separately.  
 4 Figures can not be shown without disclosing individual operations.  
 5 Figures do not agree with those published in 1904, because it was necessary to revise the totals in order to include data only for those establishments located within the corporate limits of the city.  
 6 Less than \$500.



MANUFACTURES—MICHIGAN.

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TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employ-ees.	Wage earners (average number).							
Expressed in thousands.													
<b>DETROIT—Continued.</b>													
Boots and shoes, including out stock and findings.	1909	8	1,453	6	120	1,327	302	\$1,582	\$160	\$491	\$1,702	\$2,744	\$1,042
	1904	18	1,037	6	105	926	-----	1,074	134	400	1,117	2,039	922
	1899	16	690	12	33	645	-----	741	33	235	702	1,213	511
Boxes, cigar.....	1909	4	260	4	7	249	104	140	7	76	111	238	127
	1904	4	214	4	8	202	-----	102	7	62	80	184	98
	1899	3	160	4	4	152	-----	90	4	34	50	119	69
Boxes, fancy and paper.....	1909	7	400	6	28	366	142	357	35	115	148	382	234
	1904	8	438	6	17	415	-----	205	26	97	115	313	198
	1899	5	399	4	14	381	-----	101	15	70	85	230	145
Brass and bronze products.....	1909	37	4,374	16	326	4,032	10,651	7,306	461	2,049	8,273	12,297	4,024
	1904	23	2,199	20	147	2,032	-----	3,430	210	987	3,429	5,682	2,253
	1899	17	883	18	62	803	-----	1,039	85	333	920	1,033	713
Bread and other bakery products.....	1909	265	1,600	272	226	1,108	1,112	2,003	220	638	2,897	4,826	1,926
	1904	159	1,165	104	127	874	-----	1,063	90	424	1,566	2,932	1,366
	1899	160	866	108	95	603	-----	806	85	274	1,004	1,877	873
Brick and tile.....	1909	10	205	13	9	183	564	207	8	109	84	286	202
	1904	3	27	3	4	20	-----	68	2	12	10	33	23
	1899	3	39	3	1	35	-----	104	(*)	14	5	25	20
Canning and preserving.....	1909	9	496	6	82	408	549	1,270	99	157	855	1,568	713
	1904	8	670	8	53	609	-----	731	71	174	1,144	1,788	644
	1899	15	212	2	32	178	-----	109	41	48	555	708	153
Carpets, rag.....	1909	7	27	8	19	19	26	14	-----	9	3	20	17
	1904	4	40	5	4	31	-----	10	2	8	3	22	19
	1899	3	-----	-----	2	17	-----	17	1	6	1	10	9
Carriages and wagons and materials.....	1909	34	321	44	14	263	188	655	27	164	189	507	318
	1904	25	956	31	41	884	-----	822	52	403	704	1,515	721
	1899	10	-----	-----	23	315	-----	553	31	149	360	660	316
Clothing, men's, including shirts.....	1909	22	3,008	27	195	2,786	951	2,473	250	963	2,352	4,761	2,409
	1904	128	1,696	33	193	1,500	-----	1,276	96	472	1,791	2,937	1,166
	1899	120	1,414	35	74	1,307	-----	617	60	205	1,050	1,829	779
Clothing, women's.....	1909	27	1,041	29	91	921	154	825	82	357	661	1,494	833
	1904	15	789	24	57	708	-----	317	44	233	664	1,198	474
	1899	10	684	16	31	637	-----	178	27	128	401	692	291
Coffins, burial cases, and undertakers' goods.	1909	5	117	6	16	95	148	156	21	56	117	268	151
	1904	5	147	3	15	129	-----	199	22	69	138	285	147
	1899	7	145	8	20	117	-----	212	27	47	71	233	162
Confectionery.....	1909	23	501	30	84	387	341	374	69	139	629	1,136	507
	1904	16	464	17	60	387	-----	303	55	115	517	845	328
	1899	13	-----	-----	78	300	-----	281	43	94	433	740	307
Cooperage and wooden goods, not elsewhere specified.	1909	9	144	13	5	126	155	141	8	56	131	241	110
	1904	8	127	10	4	113	-----	101	3	51	203	300	97
	1899	11	140	12	4	124	-----	131	2	56	142	242	100
Copper, tin, and sheet-iron products....	1909	72	2,152	74	146	1,932	1,453	3,890	158	851	1,932	3,534	1,602
	1904	28	1,374	24	64	1,256	-----	1,274	95	508	1,117	2,258	1,141
	1899	18	-----	-----	25	358	-----	294	30	125	383	655	272
Cutlery and tools, not elsewhere specified.	1909	19	373	11	103	250	719	514	56	139	154	466	312
	1904	15	88	1	15	72	-----	112	17	32	61	146	85
	1899	15	49	3	4	42	-----	66	7	21	9	56	47
Electrical machinery, apparatus, and supplies.	1909	23	685	15	129	541	575	1,060	145	220	493	1,148	655
	1904	8	125	6	20	80	-----	177	27	35	65	191	126
	1899	9	150	8	20	122	-----	433	22	60	154	363	200
Electroplating.....	1909	8	121	6	11	104	160	67	9	66	60	109	109
	1904	4	70	3	9	58	-----	13	7	24	0	51	45
	1899	4	55	4	7	44	-----	13	0	17	5	37	32
Emery and other abrasive wheels.....	1909	4	122	2	18	102	155	108	17	61	155	284	129
	1904	3	73	3	11	50	-----	104	16	37	31	135	104
	1899	3	70	1	13	56	-----	85	9	34	72	138	66
Flags, banners, regalia, society badges, and emblems.	1909	5	51	3	8	40	28	46	6	14	30	69	39
	1904	14	100	3	17	80	-----	92	18	66	62	163	101
	1899	13	95	4	8	83	-----	30	7	27	67	135	68
Flour-mill and gristmill products.....	1909	5	220	5	46	169	1,150	1,432	65	78	4,422	5,089	667
	1904	7	156	8	25	123	-----	491	25	69	2,804	3,034	230
	1899	3	-----	-----	12	55	-----	258	8	28	1,254	1,455	201
Foundry and machine-shop products....	1909	215	10,212	125	1,393	8,694	10,336	20,434	1,413	4,823	7,614	18,296	10,682
	1904	1125	7,194	92	761	6,341	-----	9,093	795	3,396	6,188	13,647	7,461
	1899	100	-----	-----	728	8,125	-----	12,223	803	3,921	5,140	12,714	7,574
Fur goods.....	1909	19	519	24	124	371	24	894	112	181	707	1,738	1,031
	1904	10	311	14	29	263	-----	451	28	130	677	1,121	444
	1899	11	-----	-----	84	351	-----	320	53	143	860	1,302	442

1 Excluding statistics for one establishment, to avoid disclosure of individual operations.  
 2 Excluding statistics for two establishments, to avoid disclosure of individual operations.  
 3 Less than \$500.

## MANUFACTURES—MICHIGAN.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.  
CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>DETROIT—Continued.</b>													
Furniture and refrigerators.....	1909	33	2,528	28	210	2,290	3,722	\$3,203	\$257	\$1,186	\$1,302	\$3,762	\$2,460
	1904	21	2,119	19	151	1,949	.....	2,496	189	811	1,038	2,624	1,586
	1899	22	1,564	25	135	1,404	.....	1,420	137	542	796	1,865	1,069
Hand stamps and stencils and brands..	1909	7	24	7	2	15	5	14	1	6	8	39	31
	1904	4	27	6	.....	21	.....	12	.....	9	8	29	23
	1899	6	26	7	4	15	.....	15	2	5	7	22	15
Hosiery and knit goods.....	1909	9	367	7	26	334	214	424	25	91	326	559	233
	1904	12	553	8	48	497	.....	624	44	129	372	720	348
	1899	8	442	2	14	426	.....	241	15	85	224	442	218
Iron and steel, steel works and rolling mills.	1909	5	1,064	.....	75	989	3,430	1,969	114	559	1,317	2,297	980
	1904	4	862	.....	30	832	.....	1,447	87	431	1,604	2,362	753
	1899	4	1,146	.....	25	1,121	.....	1,704	28	595	2,150	3,189	1,040
Leather goods.....	1909	22	516	18	95	403	530	821	85	211	819	1,396	577
	1904	10	352	6	42	304	.....	225	30	168	349	632	283
	1899	6	.....	.....	19	201	.....	142	18	91	199	383	134
Liquors, malt.....	1909	18	838	13	179	646	3,886	5,208	250	495	1,185	4,942	3,757
	1904	19	618	10	115	493	.....	3,977	173	368	795	3,272	2,477
	1899	20	539	12	115	412	.....	2,800	133	257	547	2,503	2,046
Lumber and timber products.....	1909	59	2,322	52	224	2,046	4,620	4,608	241	1,013	3,759	6,110	2,351
	1904	30	1,166	26	101	1,039	.....	1,435	107	554	1,196	2,107	971
	1899	43	.....	.....	71	1,252	.....	1,444	63	481	1,280	2,204	924
Marble and stone work.....	1909	19	236	25	17	194	560	330	14	131	172	413	241
	1904	12	201	21	6	174	.....	236	5	112	109	312	203
	1899	16	.....	.....	3	169	.....	233	2	117	170	394	218
Models and patterns, not including paper patterns.	1909	17	222	18	16	188	95	106	15	125	24	238	214
	1904	7	76	7	1	68	.....	18	1	36	4	50	46
	1899	7	103	10	1	92	.....	17	1	40	4	68	64
Optical goods.....	1909	6	241	3	50	188	79	283	52	75	97	358	261
	1904	3	147	1	12	134	.....	117	15	35	29	108	79
	1899	3	.....	.....	28	163	.....	196	24	40	106	209	103
Patent medicines and compounds and druggists' preparations.	1909	74	4,289	54	1,417	2,818	1,819	10,179	1,853	1,828	4,304	11,558	7,254
	1904	42	3,189	34	875	2,280	.....	7,912	802	859	3,509	9,423	5,814
	1899	34	.....	.....	814	2,022	.....	3,693	720	654	2,450	6,170	3,725
Photo-engraving.....	1909	7	213	5	55	153	116	171	63	116	60	351	291
	1904	6	222	8	54	160	.....	213	39	126	49	289	239
	1899	6	87	6	13	63	.....	47	10	34	11	89	78
Printing and publishing.....	1909	224	4,053	212	1,327	2,519	2,002	4,168	1,166	1,570	2,044	7,291	5,247
	1904	155	2,836	160	766	1,920	.....	2,873	698	1,114	1,410	4,855	3,445
	1899	140	.....	.....	918	1,576	.....	2,115	641	794	816	3,499	2,683
Shipbuilding, including boat building..	1909	17	607	22	100	485	1,079	1,611	77	309	512	1,102	590
	1904	7	127	7	9	111	.....	159	8	64	63	187	134
	1899	10	109	10	8	91	.....	75	6	48	36	124	88
Show cases.....	1909	6	117	3	20	94	435	161	23	55	109	240	131
	1904	5	209	6	22	181	.....	175	27	98	142	319	177
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Slaughtering and meat packing.....	1909	29	983	33	139	811	3,092	3,340	138	433	11,221	12,850	1,629
	1904	11	486	10	56	420	.....	1,251	57	222	4,753	5,350	697
	1899	16	417	18	61	338	.....	1,185	60	178	3,628	4,048	420
Stoves and furnaces, including gas and oil stoves.	1909	8	3,130	.....	322	2,808	2,741	6,239	481	1,809	1,570	5,676	4,106
	1904	6	3,431	1	303	3,122	.....	4,038	414	1,814	1,751	5,565	3,814
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tobacco manufactures.....	1909	193	6,544	202	459	5,883	925	5,486	638	2,177	5,869	12,773	6,904
	1904	225	4,517	235	280	4,002	.....	2,984	287	1,341	3,301	7,727	4,425
	1899	192	4,037	198	297	3,542	.....	1,930	357	1,003	2,074	6,536	4,402
Umbrellas and canes.....	1909	3	17	4	4	9	3	26	2	2	22	41	19
	1904	5	82	6	12	64	.....	89	12	22	164	240	76
	1899	4	86	4	8	74	.....	36	6	16	138	181	43
All other industries.....	1909	355	21,637	340	3,333	17,959	39,344	66,789	4,548	9,864	30,390	59,842	29,452
	1904	233	12,805	229	1,155	11,421	.....	35,795	1,105	5,479	20,675	34,895	14,220
	1899	262	.....	.....	1,036	10,464	.....	30,821	1,096	4,154	18,631	29,221	10,590

<sup>1</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.

<sup>2</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.

<sup>3</sup> Figures can not be shown without disclosing individual operations.

<sup>4</sup> Not reported separately.

MANUFACTURES—MICHIGAN.

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TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>GRAND RAPIDS—All industries.</b>	1909	524	20,327	447	2,200	17,590	27,076	\$38,783	\$2,948	\$9,217	\$19,736	\$42,231	\$22,495
	1904	338	17,366	386	1,466	15,514		25,431	1,671	7,318	14,422	30,690	16,268
	1899	362			1,148	12,929		22,602	1,137	5,298	11,121	22,228	11,107
Bread and other bakery products.....	1909	66	477	74	42	361	185	2,075	48	185	872	1,476	604
	1904	30	395	34	51	310		746	46	137	613	1,178	595
	1899	40	205	40	56	169		510	35	86	442	752	310
Brass and bronze products.....	1909	5	445	7	33	405	401	561	47	209	243	680	437
	1904	3	382	6	20	350		277	28	136	138	399	261
	1899												
Brick and tile.....	1909	3	67		9	58	135	207	7	32	29	89	60
	1904	3	69	7	9	53		185	7	25	16	69	53
	1899												
Carpets, rag.....	1909	3	8	3	2	3	7	10	2	2	1	11	10
	1904	3	16	7	1	8		4	1	3	1	8	7
	1899	4				2		2		(*)	1	3	2
Carriages and wagons and materials.....	1909	8	102	7	8	87	173	131	11	48	70	194	124
	1904	11	210	9	17	184		938	18	65	231	495	204
	1899	10	319	9	21	289		906	21	124	389	683	294
Clothing, men's, including shirts.....	1909	6	295	6	50	239	70	842	47	84	220	513	293
	1904	6	326	5	38	283		297	44	86	245	450	205
	1899	9	308	8	37	263		163	26	88	160	365	195
Copper, tin, and sheet-iron products....	1909	11	128	11	16	101	39	128	14	53	102	231	129
	1904	5	72	11	5	50		57	3	30	43	101	53
	1899	4		5	40	40		104	3	19	37	81	44
Cutlery and tools, not elsewhere specified.	1909	7	83	11	2	20	70	36	2	12	9	38	29
	1904	3	21	5	2	14		18	1	3	4	20	16
	1899	4	8	2	1	5		6	(*)	2	2	7	5
Flour-mill and gristmill products.....	1909	8	184	6	60	118	1,510	1,153	66	72	3,045	3,781	739
	1904	6	147	8	33	106		900	40	64	2,166	2,371	205
	1899	6			22	92		650	20	45	1,009	1,375	266
Foundry and machine-shop products...	1909	49	1,815	40	243	1,532	2,107	2,815	280	825	1,134	2,740	1,008
	1904	33	1,121	28	120	964		1,313	142	473	682	1,698	980
	1899	32			123	911		1,420	57	309	557	1,302	805
Furniture and refrigerators.....	1909	54	7,854	33	571	7,250	10,305	18,322	927	3,903	4,937	12,630	7,063
	1904	33	7,071	20	397	6,654		8,005	558	3,240	3,583	9,400	5,326
	1899	34	6,570	11	323	6,230		8,302	418	2,552	3,345	7,495	4,160
Leather goods.....	1909	6	64	5	8	51	26	137	10	30	113	179	66
	1904	5	63	11	9	43		115	6	21	59	106	47
	1899	3		3	30	30		31	3	13	61	92	31
Leather, tanned, curried, and finished.	1909	3	108		10	98	437	570	14	56	545	705	160
	1904												
	1899	3	110	1	8	101		478	11	46	563	698	135
Lumber and timber products.....	1909	20	709	17	98	594	2,504	1,434	108	343	907	1,697	790
	1904	9	410	12	37	361		552	43	133	607	967	300
	1899	14	639	11	47	581		1,200	45	276	861	1,479	613
Marble and stone work.....	1909	6	62	7	14	41	77	121	13	34	39	108	69
	1904	4	43	5	2	30		45	2	27	49	102	53
	1899	4			6	14		20	3	10	11	33	22
Patent medicines and compounds and druggists' preparations.	1909	18	126	19	49	58	33	150	32	24	117	285	168
	1904	8	37	7	10	20		26	8	3	20	83	63
	1899	9	127	7	33	37		406	34	34	165	425	200
Printing and publishing.....	1909	68	1,143	53	263	832	781	1,629	297	489	587	2,057	1,470
	1904	48	801	38	165	697		744	170	315	367	1,262	955
	1899	40	626	41	100	485		1,339	76	233	181	725	544
Tobacco manufactures.....	1909	36	523	36	28	458	5	236	26	185	302	725	423
	1904	34	362	35	24	303		127	17	133	159	575	416
	1899	36	278	36	16	226		113	9	79	136	305	169
Wall plaster.....	1909	5	351		61	300	2,408	1,033	39	135	226	866	640
	1904	4	333	1	42	295		801	39	139	274	713	439
	1899												
All other industries.....	1909	142	5,819	112	723	4,684	6,403	12,637	903	2,493	6,238	13,226	6,988
	1904	135	5,482	137	474	4,871		10,231	493	2,192	5,175	10,684	5,509
	1899	130			347	3,398		6,992	347	1,202	2,601	5,888	3,257

<sup>1</sup> Figures do not agree with those published in 1904, because it was necessary to revise the totals in order to include data only for those establishments located within the corporate limits of the city.

<sup>2</sup> Figures can not be shown without disclosing individual operations.

<sup>3</sup> Less than \$500.

<sup>4</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.

<sup>5</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.

<sup>6</sup> Not reported separately.

## MANUFACTURES—MICHIGAN.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.  
CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
SAGINAW—All industries.....	1909	203	7,090	232	868	5,990	14,412	\$26,703	\$926	\$3,184	\$10,409	\$18,833	\$3,424
	1904	179	5,205	191	569	4,445	.....	7,273	502	1,981	5,367	10,079	4,712
	1899	184	.....	.....	.....	357	4,205	.....	7,041	355	1,672	5,084	8,663
Bread and other bakery products.....	1909	9	112	12	17	83	76	134	13	42	223	328	105
	1904	9	68	10	5	53	.....	59	2	27	75	131	56
	1899	15	47	15	1	31	.....	41	(?)	13	42	74	32
Carriages and wagons and materials.....	1909	5	30	6	.....	24	20	57	.....	13	9	31	22
	1904	<sup>3</sup> 6	42	8	3	31	.....	61	1	18	21	48	27
	1899	11	83	10	15	58	.....	114	9	27	49	141	92
Cooperage and wooden goods, not elsewhere specified.	1909	9	690	14	34	642	1,648	983	48	207	690	1,206	507
	1904	9	543	12	29	502	.....	464	44	174	454	918	464
	1899	<sup>3</sup> 7	217	8	5	204	.....	217	5	69	121	224	103
Flour-mill and gristmill products.....	1909	4	101	3	40	58	457	551	30	32	558	731	173
	1904	4	82	5	22	55	.....	280	17	24	551	652	101
	1899	3	.....	.....	11	34	.....	192	9	19	341	407	66
Foundry and machine-shop products...	1909	23	871	25	148	698	1,674	2,064	219	492	788	1,838	1,050
	1904	14	886	11	115	760	.....	1,299	122	420	918	1,884	966
	1899	10	652	7	70	575	.....	1,094	89	286	721	1,256	535
Furniture and refrigerators.....	1909	12	484	8	59	417	896	1,090	43	199	326	881	555
	1904	5	194	4	16	174	.....	152	11	80	92	212	120
	1899	4	103	5	6	92	.....	92	6	36	59	131	72
Liquors, malt.....	1909	5	92	4	14	74	170	526	24	58	110	393	283
	1904	6	82	5	19	58	.....	418	25	39	90	297	207
	1899	5	60	4	11	45	.....	271	14	27	42	206	164
Lumber and timber products.....	1909	12	783	21	66	696	2,682	1,804	61	335	1,629	2,404	775
	1904	<sup>4</sup> 12	760	23	65	672	.....	1,044	55	290	1,314	1,908	594
	1899	17	.....	.....	87	1,107	.....	2,339	85	431	1,809	2,619	810
Marble and stone work.....	1909	4	27	7	3	17	80	26	2	12	22	50	28
	1904	3	33	5	2	26	.....	20	1	20	21	68	47
	1899	3	.....	.....	2	27	.....	24	1	18	17	57	40
Printing and publishing.....	1909	22	266	21	81	164	411	422	70	100	127	428	301
	1904	<sup>4</sup> 23	225	23	51	146	.....	186	33	85	81	317	236
	1899	22	185	24	29	132	.....	182	23	66	48	227	179
Salt.....	1909	3	15	3	2	10	30	29	2	6	20	44	24
	1904	4	14	5	.....	9	.....	31	.....	4	13	27	14
	1899	10	82	6	8	68	.....	182	6	32	70	147	77
Tobacco manufactures.....	1909	27	163	30	6	127	.....	89	4	56	82	203	121
	1904	20	183	21	15	147	.....	57	7	68	73	214	141
	1899	19	140	20	3	117	.....	57	2	50	60	178	118
All other industries.....	1909	68	3,456	78	398	2,980	6,268	18,928	410	1,692	5,816	10,296	4,480
	1904	63	2,093	54	227	1,812	.....	8,202	184	762	1,664	3,403	1,739
	1899	58	.....	.....	109	1,715	.....	2,236	102	598	1,705	2,986	1,281

<sup>1</sup> Figures do not agree with those published in 1904, because it was necessary to revise the totals in order to include data only for those establishments located within the corporate limits of the city.

<sup>2</sup> Less than \$500.

<sup>3</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.

<sup>4</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.

MANUFACTURES—MICHIGAN.

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TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

CITIES OF 10,000 TO 50,000 INHABITANTS—ALL INDUSTRIES COMBINED.

CITY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
Adrian.....	1909	80	1,466	66	341	1,059	3,211	\$5,096	\$327	\$540	\$4,150	\$6,085	\$1,035
	1904	65	1,530	43	280	1,502		3,258	251	625	2,829	4,597	2,038
	1899	63			195	1,030		1,631	129	454	898	2,125	1,227
Alpena.....	1909	57	1,614	57	125	1,432	10,670	5,798	151	711	2,801	3,964	1,663
	1904	58	1,309	60	64	1,245		2,682	68	534	1,684	2,905	1,221
	1899	46			54	1,202		2,356	46	466	1,276	2,273	997
Ann Arbor.....	1909	63	783	67	143	573	1,458	1,760	125	287	1,010	1,866	856
	1904	65	690	61	80	549		1,095	62	244	774	1,388	612
	1899	71			67	623		1,055	49	234	785	1,377	562
Battle Creek.....	1909	105	5,281	95	1,011	4,175	14,923	10,176	1,256	2,354	7,088	20,174	13,106
	1904	120	4,290	131	770	3,389		13,039	372	1,880	3,984	12,298	8,314
	1899	75			432	2,051		7,212	402	979	2,100	6,301	4,201
Bay City <sup>1</sup> .....	1909	182	5,357	178	442	4,737	17,872	10,239	467	2,118	5,647	10,294	4,647
	1904	173	4,899	161	282	4,456		5,343	272	2,001	4,048	8,509	3,861
	1899	177			262	4,309		6,343	243	1,801	5,235	9,010	3,775
Escanaba.....	1909	39	804	36	48	720	1,416	1,024	62	405	364	1,074	710
	1904	34	1,053	28	70	949		1,019	77	452	404	1,338	629
	1899	26			25	520		431	31	238	250	610	390
Flint.....	1909	104	7,840	117	635	7,088	8,240	18,085	535	4,429	13,971	24,118	10,147
	1904	70	2,494	84	240	2,161		4,210	228	1,041	3,769	6,177	2,466
	1899	63			87	1,900		2,507	73	802	2,754	4,713	1,559
Holland.....	1909	59	2,183	45	198	1,940	2,956	4,524	262	936	2,585	4,622	2,037
	1904												
	1899												
Ironwood.....	1909	14	229	16	12	201	521	304	14	88	201	377	176
	1904	13	108	14	7	87		168	5	47	78	202	124
	1899	14			3	60		88	3	46	55	145	60
Ishpeming.....	1909	19	92	10	7	66	78	88	7	37	52	132	80
	1904	15	92	11	8	73		169	11	42	142	247	105
	1899	14			5	80		132	7	44	95	195	100
Jackson.....	1909	169	5,624	135	602	4,797	6,300	9,078	719	2,492	8,168	14,066	5,838
	1904	147	4,575	132	476	3,967		5,346	427	1,838	4,272	8,348	4,076
	1899	117			374	3,715		4,371	356	1,437	3,808	6,710	2,902
Kalamazoo.....	1909	193	7,527	152	1,103	6,272	14,449	15,295	1,236	3,149	9,505	17,904	8,399
	1904	157	6,467	133	668	5,656		9,618	601	2,562	6,896	13,142	6,240
	1899	129			485	3,870		5,571	432	1,428	3,898	7,186	3,293
Lansing.....	1909	169	6,152	142	725	5,285	8,720	13,131	808	2,707	8,802	16,567	7,765
	1904	98	3,405	88	340	2,982		5,969	352	1,389	3,473	6,887	3,414
	1899	74			163	1,425		2,047	135	677	1,632	2,942	1,310
Manistee.....	1909	64	2,365	78	162	2,125	6,811	3,248	133	1,019	1,289	3,344	2,055
	1904	47	2,238	33	121	2,084		2,332	106	909	1,274	3,257	1,933
	1899	56			113	2,103		3,606	111	964	1,376	3,625	2,249
Marquette.....	1909	34	601	29	74	493	1,500	1,392	82	305	556	1,255	699
	1904	31	814	23	53	738		1,663	67	436	1,362	2,364	972
	1899	29			64	836		1,177	70	355	813	1,585	772
Menominee.....	1909	52	1,930	41	189	1,700	4,770	5,213	205	718	1,657	3,728	2,071
	1904	45	1,630	35	106	1,489		3,340	120	705	1,373	2,974	1,601
	1899	38			88	1,703		3,788	120	769	1,837	4,076	2,239
Muskegon.....	1909	101	5,098	89	487	4,522	10,436	8,337	445	2,107	4,938	9,648	4,710
	1904	70	3,371	70	223	3,078		4,790	257	1,211	3,526	6,319	2,793
	1899	67			164	3,078		3,637	154	1,125	2,269	4,527	2,258
Pontiac.....	1909	42	2,009	27	243	1,739	2,854	3,326	221	1,087	3,241	5,894	2,653
	1904	47	1,474	37	141	1,296		2,067	134	588	1,735	3,047	1,312
	1899	47			109	1,092		1,265	79	422	1,602	2,471	869
Port Huron.....	1909	82	1,862	75	207	1,580	3,130	3,889	201	701	1,950	3,688	1,638
	1904	74	2,356	69	151	2,136		3,205	155	1,107	1,747	3,715	1,963
	1899	78			216	2,028		3,149	138	933	1,752	3,627	1,876
Sault Ste. Marie.....	1909	47	1,125	37	83	1,005	3,239	4,663	117	542	3,123	4,619	1,496
	1904	33	997	32	70	895		1,634	89	402	1,427	2,412	985
	1899	38			24	817		813	18	153	279	728	449
Traverse City.....	1909	61	1,403	54	129	1,220	4,231	1,958	139	444	1,183	2,289	1,106
	1904	46	1,217	43	66	1,103		1,034	83	434	1,098	2,177	1,079
	1899	36			53	909		870	44	302	515	1,201	686

<sup>1</sup> In 1904 and 1899 the statistics for West Bay City, which was annexed in 1905, are included.  
<sup>2</sup> Figures not available.  
<sup>3</sup> Figures do not agree with those published in 1904, because it was necessary to revise the totals in order to include data only for those establishments located within the corporate limits of the city.

TABLE II.—DETAIL STATEMENT FOR

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, supts. and managers.	Clerks.		Wage earners.			Total.	16 and over.		Under 16.				
					Male.	Female.	Average number.	Number.			Male.	Female.	Male.	Female.			
								Maximum month.	Minimum month.								
1 All industries.....	9,159	271,071	8,965	8,031	16,183	6,393	231,499	De 250,078	Ja 211,679	(1)	(1)	(1)	(1)	(1)	598,288		
2 Agricultural implements.....	32	3,041	22	140	418	102	2,359	De 2,593	Se 2,028	2,570	2,558	3	11	.....	5,185		
3 Artificial stone.....	191	791	228	24	17	8	514	Au 773	Ja 2	651	650	1	.....	.....	634		
4 Automobiles, including bodies and parts.	113	28,098	29	518	1,028	479	25,444	Au 29,006	Ja 20,464	33,884	33,496	370	12	.....	25,938		
5 Baking powders and yeast.....	7	46	20	2	3	1	20	Oc 25	Jy 15	26	14	12	.....	.....	58		
6 Baskets, and rattan and willow ware..	18	419	21	13	9	3	373	Jy 503	Ja 116	427	347	78	.....	2	900		
7 Beet sugar.....	11	1,755	.....	56	209	30	1,460	No 4,372	Fe 290	4,098	4,085	13	.....	.....	8,854		
8 Blacking and cleansing and polishing preparations.	17	273	21	14	101	49	88	Jy 98	De 74	74	58	16	.....	.....	249		
9 Boots and shoes, including out stock and findings.	23	2,703	9	49	127	63	2,455	De 2,547	My 2,395	2,547	1,490	893	99	65	786		
10 Boxes, cigar.....	12	392	9	12	8	1	362	Fe 403	Ap 330	420	171	231	8	10	255		
11 Boxes, fancy and paper.....	19	1,427	14	46	19	2	1,326	No 1,490	Ja 1,217	1,442	655	708	13	66	1,564		
12 Brass and bronze products.....	60	5,211	35	131	172	102	4,771	De 5,388	Je 4,472	5,660	5,300	174	175	5	11,622		
13 Bread and other bakery products.....	816	3,984	917	67	206	157	2,637	Au 2,782	Fe 2,468	2,700	2,207	504	28	21	1,953		
14 Brick and tile.....	124	1,806	140	69	22	10	1,565	Jy 2,467	Fe 586	2,130	2,122	8	.....	.....	8,346		
15 Brooms.....	29	153	34	.....	1	.....	118	My 126	Oc 95	124	83	31	9	1	84		
16 Brushes.....	14	260	23	4	6	4	223	Fe 240	Jy 200	229	127	96	3	3	222		
17 Butter, cheese, and condensed milk..	435	1,740	350	187	63	67	1,073	Jy 1,170	Fe 949	1,155	1,047	106	2	.....	4,776		
18 Canning and preserving.....	104	2,887	88	86	110	30	2,073	Se 4,172	Ja 654	3,603	1,696	1,841	40	26	3,374		
19 Carpets, rag.....	30	117	34	2	3	2	76	Se 95	Ja 43	85	38	26	.....	1	107		
20 Carriages and wagons and materials..	212	4,707	240	121	209	103	4,034	Ap 4,347	Au 3,512	4,340	4,270	75	4	.....	6,362		
21 Cars and general shop construction and repairs by steam-railroad companies.	32	5,706	2	126	169	8	5,401	Oc 5,736	Je 4,868	5,738	5,725	3	10	.....	5,742		
22 Cars and general shop construction and repairs by street-railroad companies.	15	602	.....	15	11	2	574	De 626	Ja 517	626	626	.....	.....	.....	1,704		
23 Cement.....	13	1,465	1	40	106	12	1,306	My 1,594	Fe 774	1,280	1,285	4	.....	.....	21,773		
24 Chemicals.....	36	3,612	25	89	199	25	3,174	De 3,405	Ap 2,889	3,406	3,372	26	8	.....	28,594		
25 Clothing, men's, including shirts.....	40	3,944	42	71	171	80	3,580	De 3,878	Je 3,810	3,807	485	3,412	.....	.....	1,151		
26 Clothing, women's.....	52	2,521	42	86	97	102	2,194	Mh 2,493	Oc 1,844	2,590	1,851	2,394	5	16	681		
27 Coffins, burial cases, and undertakers' goods.	18	653	8	30	61	15	439	De 478	Au 307	478	412	66	.....	.....	711		
28 Confectionery.....	56	1,335	66	38	93	86	1,052	No 1,317	Ja 877	1,248	492	728	3	25	812		
29 Cooperage and wooden goods, not elsewhere specified.	101	2,916	106	72	68	28	2,642	Oc 2,907	No 2,252	3,000	2,605	362	28	5	8,500		
30 Copper, tin, and sheet-iron products..	152	2,801	165	74	115	61	2,386	No 2,521	Ja 1,984	2,528	2,102	273	112	41	1,875		
31 Corsets.....	14	2,875	6	47	204	157	2,461	Oc 2,536	Ja 2,258	2,519	463	2,007	2	47	784		
32 Cutlery and tools, not elsewhere specified.	37	850	41	31	88	22	668	De 809	My 599	812	667	145	.....	.....	1,379		
33 Dairymen's, poulterers', and apia-rist's supplies.	6	15	6	.....	1	8	.....	Ap 11	Au 4	11	11	.....	.....	.....	20		
34 Electrical machinery, apparatus, and supplies.	40	1,496	26	85	102	65	1,218	My 1,345	Au 1,051	1,302	975	327	.....	.....	1,355		
35 Electroplating.....	14	152	13	7	.....	4	128	Ap 138	De 120	121	119	2	.....	.....	237		
36 Emery and other abrasive wheels.....	4	122	2	7	6	5	102	De 121	Ja 92	121	93	28	.....	.....	155		
37 Fancy articles, not elsewhere specified	11	1,218	7	18	32	14	1,147	Jy 1,725	Fe 637	1,054	726	293	15	20	87		
38 Flour-mill and gristmill products.....	520	2,623	660	173	165	95	1,530	Oc 1,645	Je 1,407	1,630	1,610	15	5	.....	38,991		
39 Food preparations.....	49	1,672	28	66	175	100	1,303	Se 1,534	Ja 1,044	1,618	1,018	602	.....	.....	8,083		
40 Foundry and machine-shop products.	654	25,334	505	978	1,580	622	21,649	De 26,246	Ja 18,733	27,162	26,633	384	128	17	34,152		
41 Fur goods.....	31	824	38	23	74	70	619	Oc 763	Fe 486	702	268	423	7	4	232		
42 Furnishing goods, men's.....	24	522	30	9	24	17	442	Oc 467	Mh 422	478	46	419	6	7	174		
43 Furniture and refrigerators.....	202	18,299	120	458	751	360	16,610	No 17,732	Je 15,683	17,943	17,152	488	270	33	27,485		
44 Gas and electric fixtures and lamps and reflectors.	20	486	12	29	32	18	395	De 561	Fe 293	561	504	57	.....	.....	360		
45 Gas, illuminating and heating.....	55	2,435	2	152	318	192	1,771	De 1,974	Mh 1,514	1,974	1,969	4	1	.....	6,055		
46 Gloves and mittens, leather.....	9	209	9	5	7	6	182	Mh 236	Au 134	248	87	140	2	10	107		
47 Hand stamps and stencils and brands.	10	108	11	1	.....	4	92	Ap 118	Au 31	91	59	29	2	1	56		
48 Hats and caps, other than felt, straw, and wool.	7	159	13	9	16	7	114	De 158	Ap 87	158	105	53	.....	.....	17		
49 Hosiery and knit goods.....	35	2,818	19	78	100	76	2,545	No 2,671	Ja 2,237	2,675	560	2,044	21	50	3,291		
50 Ice, manufactured.....	5	113	2	10	11	3	87	Se 142	Ja 53	67	67	.....	.....	.....	1,959		
51 Iron and steel, blast furnaces.....	11	1,101	.....	36	44	5	1,016	Au 1,235	Ja 699	1,227	1,226	1	.....	.....	17,403		
52 Iron and steel, steel works and rolling mills.	8	1,273	.....	24	61	15	1,183	No 1,886	Jy 1,050	1,832	1,331	1	.....	.....	4,290		
53 Iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills.	4	731	1	14	22	8	686	De 781	Ja 602	781	774	5	2	.....	813		
54 Jewelry.....	10	118	6	5	9	5	93	Mh 99	Jy 73	99	94	.....	5	.....	30		
55 Leather goods.....	57	1,030	48	41	81	32	834	De 884	Fe 782	888	727	140	19	2	760		
56 Leather, tanned, curried, and finished.	24	2,440	5	60	63	21	2,291	De 2,392	Ap 2,190	2,392	2,364	8	20	.....	6,719		
57 Lime.....	11	181	10	9	5	.....	157	Jy 195	Ja 104	161	161	.....	.....	.....	265		
58 Liquors, malt.....	79	2,001	46	166	239	23	1,527	Jy 1,670	Ja 1,434	1,523	1,509	14	.....	.....	9,219		
59 Liquors, vinous.....	3	19	4	1	2	1	11	Se 21	Ja 6	21	16	5	.....	.....	.....		
60 Lumber and timber products.....	1,180	39,011	1,310	962	844	268	35,627	De 37,468	Ap 33,004	43,689	43,300	217	167	5	133,739		
61 Marble and stone work.....	113	795	145	19	63	17	551	Fe 632	Fe 378	580	580	.....	.....	.....	1,670		
62 Mattresses and spring beds.....	14	357	14	17	11	.....	306	Se 350	Ja 249	278	220	58	.....	.....	608		

1 No figures given for reasons explained in the Introduction.



MANUFACTURES—MICHIGAN.

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THE STATE, BY INDUSTRIES: 1909.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$583,946,965	\$591,290,389	\$15,732,797	\$19,137,417	\$118,987,830	\$16,824,150	\$351,787,872	\$1,671,665	\$10,085,772	\$3,397,011	\$53,691,875	\$685,109,169	\$316,497,147
2 15,649,248	7,471,899	267,056	503,251	1,260,815	104,887	2,785,206	2,549	94,030	80	2,453,965	9,272,787	6,882,634
3 926,338	723,702	28,644	11,226	255,247	5,840	343,143	9,170	3,228	3,731	63,473	908,101	559,113
4 52,926,297	77,168,738	1,130,784	1,439,111	15,400,755	531,063	53,351,368	99,328	185,038	78,061	4,863,240	96,051,451	42,769,030
5 30,721	79,302	1,400	2,713	10,599	852	54,285	904	273	.....	8,216	88,678	33,541
6 520,881	429,676	13,560	11,098	159,206	4,785	103,804	2,932	3,942	150	64,539	450,482	306,833
7 21,378,000	8,530,689	210,073	185,027	910,165	375,697	5,851,901	362	98,410	1,591	897,463	10,476,876	4,249,278
8 371,746	890,121	31,990	160,751	38,093	3,943	427,014	1,560	1,546	.....	225,254	1,014,322	583,365
9 2,885,564	4,051,650	79,551	106,858	935,935	27,236	3,320,075	27,240	16,439	10,402	367,905	5,255,906	1,908,655
10 262,584	326,943	10,078	4,971	110,755	4,551	170,120	5,628	3,190	168	17,484	371,167	198,488
11 1,895,567	2,408,504	86,756	31,504	447,423	50,880	1,507,259	17,494	10,692	28	190,899	2,663,416	1,035,788
12 8,647,238	12,057,691	370,737	200,382	2,450,112	246,329	8,746,801	17,288	56,928	366	568,768	13,890,220	4,897,090
13 5,749,756	9,150,761	110,876	245,352	1,443,823	204,355	6,460,244	127,105	34,372	1,625	507,939	11,082,213	4,411,614
14 3,017,098	1,827,356	77,412	19,846	803,396	404,462	170,778	6,851	19,530	.....	124,781	2,047,211	1,471,971
15 115,128	262,911	.....	520	61,687	1,025	188,579	1,194	743	.....	8,203	304,099	113,595
16 329,694	314,405	8,020	9,376	94,062	4,068	164,646	1,730	3,454	.....	28,990	351,095	182,361
17 3,433,729	13,580,217	118,683	71,799	554,406	139,134	12,237,038	10,358	21,566	10,271	418,082	14,287,499	1,910,697
18 4,494,967	4,234,110	118,611	107,110	664,685	63,211	3,010,709	6,210	22,762	94	240,712	4,970,611	1,899,991
19 65,105	63,025	2,850	1,010	35,036	2,250	11,590	2,250	495	1,700	5,835	68,752	84,963
20 10,188,595	9,037,296	268,812	263,898	2,230,979	102,417	5,159,839	20,507	60,374	4,722	911,248	10,158,883	4,896,627
21 3,571,062	6,838,436	170,432	134,254	3,409,645	183,129	2,727,645	100	13,577	619	93,085	6,838,436	3,022,664
22 1,845,198	1,301,438	17,512	8,286	318,359	10,963	937,648	.....	3,209	.....	5,461	1,301,444	352,833
23 14,678,603	2,759,991	108,807	108,301	825,046	745,297	657,785	24,656	52,450	5,040	239,049	2,914,953	1,511,871
24 20,015,346	5,592,007	322,015	237,725	2,012,122	2,487,233	2,585,008	1,215	93,476	.....	853,073	12,890,206	7,817,825
25 3,550,624	5,956,694	176,088	219,058	1,221,065	26,860	9,361,660	31,341	24,365	33,500	593,051	6,522,331	3,143,905
26 1,859,820	3,150,756	115,612	161,821	744,598	21,564	1,088,778	20,636	10,093	8,846	374,802	3,586,856	1,876,514
27 755,092	914,092	44,976	69,034	207,884	9,613	483,762	3,082	9,423	3,650	83,208	1,084,627	591,152
28 1,769,809	2,657,630	79,102	141,907	361,097	32,820	1,704,602	49,670	9,728	23,201	195,293	2,943,761	1,146,333
29 3,918,175	3,606,426	135,859	90,890	1,016,422	14,007	1,989,693	5,701	40,321	30,313	233,160	3,939,394	1,985,624
30 4,757,834	4,213,649	114,758	133,141	1,121,640	35,635	2,506,304	27,554	22,716	4,602	244,209	4,928,822	2,333,793
31 3,038,470	3,932,441	237,102	361,074	835,256	20,089	1,856,495	9,343	20,800	34,128	527,104	4,367,516	2,490,932
32 1,388,591	915,906	59,706	40,110	306,938	22,412	361,445	7,911	9,402	4,935	90,997	1,123,922	740,005
33 25,519	14,412	.....	149	3,708	172	9,505	246	93	.....	539	21,324	11,647
34 2,244,049	2,057,924	151,941	104,747	494,325	42,026	937,562	13,988	10,402	8,085	243,888	2,326,999	1,266,511
35 79,749	169,142	7,182	1,412	81,030	8,284	60,208	4,022	487	.....	5,317	107,778	120,286
36 198,276	244,985	10,124	6,597	61,414	0,185	149,293	1,200	5,922	.....	4,245	234,455	128,974
37 523,440	497,744	20,840	50,510	153,335	4,355	194,704	5,106	2,748	.....	60,146	502,893	393,802
38 11,147,135	31,617,233	223,537	106,039	805,899	248,762	20,110,649	38,500	87,720	925	930,106	34,860,803	5,501,362
39 5,629,074	9,431,415	222,287	200,033	723,505	253,159	4,497,118	12,641	31,118	200	3,482,389	11,461,060	6,741,388
40 48,065,184	39,704,248	1,726,260	1,020,357	12,344,403	838,796	17,871,756	144,737	209,743	293,311	4,624,885	45,399,023	26,088,471
41 1,527,408	1,654,411	48,784	106,604	266,502	14,080	908,699	27,942	6,760	1,550	212,500	2,283,576	1,296,897
42 196,747	508,004	13,580	28,040	139,934	3,574	274,295	5,046	1,168	96	41,671	617,109	339,240
43 23,222,203	25,448,589	1,052,256	1,049,734	8,360,170	311,339	11,406,889	46,504	224,436	115,302	2,941,890	28,641,684	16,923,456
44 922,548	1,135,425	57,771	40,460	218,848	11,945	630,217	7,680	4,990	8,074	154,844	1,545,896	903,734
45 33,258,917	4,472,212	244,829	294,656	1,090,124	1,448,684	689,433	840	308,202	7,584	390,830	6,748,070	4,618,953
46 137,643	357,730	19,956	6,645	58,542	1,945	236,226	294	2,040	.....	39	386,004	147,893
47 134,920	93,889	5,200	1,907	43,659	1,497	30,203	2,358	688	800	7,577	135,950	104,250
48 174,947	323,974	14,382	20,012	75,297	1,878	166,610	6,401	780	.....	33,605	354,451	185,963
49 3,734,393	3,483,550	133,387	191,632	768,956	51,910	1,994,696	13,122	29,874	101,303	198,670	4,029,105	1,682,499
50 676,553	153,786	10,200	9,720	77,174	20,440	.....	.....	3,015	.....	199,105	158,643	14,948
51 8,290,548	5,317,635	96,434	52,031	632,096	1,865,917	2,357,594	3,000	48,511	12,340	249,706	5,824,396	1,600,885
52 2,326,255	2,572,193	69,373	59,336	661,435	168,013	1,429,217	4,342	11,038	.....	167,639	2,609,872	1,071,742
53 1,289,206	1,130,611	37,977	31,899	421,574	18,354	515,819	.....	11,841	.....	92,647	1,279,786	745,113
54 85,031	140,333	7,670	8,061	68,102	821	43,010	5,461	566	.....	6,642	205,630	161,769
55 1,653,043	2,220,044	50,595	111,518	433,647	13,615	1,444,335	33,236	9,065	50	114,983	2,559,755	1,101,805
56 12,012,403	14,102,199	146,013	86,130	1,133,181	194,423	11,926,548	3,160	71,495	.....	541,334	15,331,104	3,210,133
57 331,896	268,990	14,650	3,730	85,195	94,929	68,672	375	5,609	2,400	23,530	327,079	193,478
58 12,333,746	7,851,986	370,843	187,510	1,072,696	240,459	2,180,580	5,085	1,635,211	4,630	1,654,972	9,840,108	7,419,069
59 43,075	16,164	900	1,664	6,040	173	5,553	.....	884	.....	950	20,074	14,948
60 57,290,374	64,863,745	1,510,379	827,020	16,298,314	262,174	23,779,463	65,295	982,615	1,616,994	4,021,486	61,513,500	32,471,813
61 1,070,977	1,193,540	20,048	61,681	393,149	25,348	567,047	10,649	7,391	15,342	92,885	1,504,315	911,920
62 489,179	634,763	19,720	21,142	139,505	6,102	400,851	4,900	5,666	.....	30,877	689,079	282,126

\* Same number reported for one or more other months.

TABLE II.—DETAIL STATEMENT FOR THE

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.				Primary horse-power.	
		Total.	Proprietors and firm members.	Salaried officers, supts. and managers.	Clerks.		Average number.	Wage earners.				Total.	16 and over.		Under 16.		
					Male.	Female.		Number.					Male.	Female.	Male.		Female.
								Maximum month.	Minimum month.	Maximum month.	Minimum month.						
1 Millinery and lace goods.....	5	40	7			2	31	Ja <sup>1</sup>	45	De	18	35	18	17			
2 Mirrors.....	8	262	3	12	8	7	232	Se	244	Ja	224	234	234				1
3 Models and patterns, not including paper patterns.	32	271	37	9	3	6	216	De	269	Je	173	270	267	1	2		308
4 Musical instruments and materials, not specified.	9	211	9	18	12	13	159	Ap <sup>1</sup>	163	Au	154	158	150	8			189
5 Musical instruments, pianos and organs and materials.	17	1,963	8	54	97	25	1,779	De	1,956	Ja	1,641	1,957	1,892	55	10		161
6 Oil, essential.....	23	89	27	3	4	1	54	Au	111	Ja <sup>1</sup>	15	104	100	4			2,680
7 Oilcloth and linoleum.....	3	59		8	10	2	39	Au	42	My <sup>1</sup>	37	41	41				365
8 Optical goods.....	11	254	6	12	22	19	195	Se	203	Ja	184	193	102	73	12	6	210
9 Paint and varnish.....	20	1,657	11	59	444	119	1,024	My	1,065	Ja	915	1,056	934	108	11	8	88
10 Paper and wood pulp.....	32	4,581	5	95	120	34	4,327	Je	4,480	Mh	4,168	4,395	3,618	777			2,362
11 Paper goods, not elsewhere specified.	18	1,311	6	41	55	28	1,181	De	1,286	Ja	1,088	1,288	681	602	1	4	2,580
12 Patent medicines and compounds and druggists' preparations.	159	5,124	133	192	934	616	3,249	De	3,425	Jy	3,059	3,449	1,749	1,052	22	26	2,270
13 Photo-engraving.....	11	293	5	26	32	12	218	De	236	Ja	191	235	218	15	2		145
14 Pottery, terra-cotta, and fire-clay products.	7	230	7	10	5	2	206	My	225	No	190	197	190	1			426
15 Printing and publishing.....	1,045	11,048	991	547	1,620	671	7,219	De	7,576	Ap	7,070	7,532	5,539	1,890	94	9	7,661
16 Pumps, not including steam pumps..	6	46	5	1	4	1	35	Je	41	Ja	29	39	39				72
17 Salt.....	27	1,567	12	57	98	37	1,363	Je	1,463	Ja	1,200	1,288	1,204	84			6,622
18 Saws.....	11	109	11	8	14	6	160	Ap	184	Au	149	157	130	27			538
19 Scales and balances.....	4	247		8	6	5	228	Se	242	Ja	204	223	218		5		310
20 Shipbuilding, including boat building	91	2,758	103	46	193	72	2,344	My	3,492	No	1,536	2,206	2,200	6			6,435
21 Show cases.....	11	951	31	24	48	25	823	De	871	Ja	763	871	855	6	10		1,403
22 Slaughtering and meat packing.....	45	1,114	55	30	107	20	902	De	962	My	804	923	889	28	6		3,404
23 Springs, steel, car and carriage.....	5	633		22	17	6	588	No	672	Fe	518	690	675	5	10		908
24 Steam packing.....	4	38	3	4	6	1	24	No	30	My	20	30	30				10
25 Stereotyping and electrotyping.....	3	37	3	1	4	2	27	Ja <sup>2</sup>	27	Jy <sup>2</sup>	27	27	26		1		60
26 Stoves and furnaces, including gas and oil stoves.	33	5,027	9	132	340	64	4,482	Oc	4,898	Ja	2,758	4,712	4,623	5	84		5,910
27 Surgical appliances and artificial limbs	9	43	10		3	14	16	Ja <sup>1</sup>	17	Mh <sup>1</sup>	16	18	12	6			6
28 Tobacco manufactures.....	729	9,242	813	134	303	56	7,876	No	8,349	Ap	7,429	8,469	2,395	5,540	48	486	937
29 Type founding and printing materials.	5	77	5	5	6	1	60	Ja	106	Ja <sup>1</sup>	6	90	90	6			125
30 Umbrellas and canes.....	4	23	5	1		3	14	My <sup>1</sup>	15	Jn <sup>1</sup>	13	14	2	12			4
31 Wall plaster.....	16	840	10	18	56	10	746	Ap	819	De	647	651	620	31			3,424
32 Window shades and fixtures.....	7	663	2	8	14	3	636	De	726	Jy	427	712	572	137	3		1,236
33 Wirework, including wire rope and cable.	37	1,261	23	59	212	58	909	De	996	Jy	833	978	874	88	16		1,900
34 Wood distillation, not including turpentine and rosin.	12	859	1	28	21	3	806	De	955	Jy	737	946	946				5,012
35 Wood, turned and carved.....	58	1,278	68	42	22	9	1,137	Fe	1,287	Au	979	1,203	1,174	26		3	4,095
36 Woolen, worsted, and felt goods, and wool hats.	15	610	18	26	9	3	554	De	606	Jy	515	607	344	261		2	1,900
37 All other industries <sup>3</sup> .....	584	20,107	693	577	1,728	541	16,568										33,673

<sup>1</sup> Same number reported for one or more other months  
<sup>2</sup> Same number reported throughout the year.  
<sup>3</sup> All other industries embrace—

Artificial flowers and feathers and plumes.....	5	Cash registers and calculating machines.....	5	Explosives.....	3
Artists' materials.....	2	Charcoal.....	5	Fertilizers.....	3
Awnings, tents, and sails.....	17	China decorating.....	3	Files.....	1
Axle grease.....	1	Clocks and watches, including cases and materials..	4	Firearms and ammunition.....	2
Babbitt metal and solder.....	5	Clothing, sponging and refinishing.....	2	Flags, banners, regalia, society badges, and emblems.....	7
Bags, other than paper.....	2	Clothing, horse.....	1	Flavoring extracts.....	11
Bags, paper.....	1	Clothing, men's, buttonholes.....	1	Flax and hemp, dressed.....	1
Belting and hose, leather.....	6	Coffee and spice, roasting and grinding.....	12	Foundry supplies.....	1
Belting and hose, woven and rubber.....	1	Cordage and twine and jute and linen goods.....	1	Fuel, manufactured.....	1
Billiard tables and materials.....	1	Cordials and sirups.....	1	Furs, dressed.....	5
Bluing.....	2	Crochets.....	2	Galvanizing.....	2
Butter, reworking.....	2	Dentists' materials.....	2	Glass.....	15
Buttons.....	2	Dyeing and finishing textiles.....	1	Glass, cutting, staining, and ornamenting.....	2
Calcium lights.....	1	Dyestuffs and extracts.....	2	Glucose and starch.....	1
Card cutting and designing.....	2	Enameling and japanning.....	2	Glue.....	1
Carriages and sleds, children's.....	9	Engravers' materials.....	1	Gold and silver, reducing and refining, not from the ore.....	1
Cars, steam-railroad, not including operations of railroad companies.....	2	Engraving and diesinking.....	4		
		Engraving, wood.....	2		

MANUFACTURES—MICHIGAN.

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STATE, BY INDUSTRIES: 1909—Continued.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.	
	Total.	Services.			Materials.			Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.			
1	\$10,037	\$39,062		\$608	\$11,948	\$272	\$21,671	\$2,200	\$14		\$2,853	\$54,553	\$32,610
2	396,062	560,230	\$23,040	10,394	127,670	7,018	367,807	4,170	2,418		16,822	659,000	284,241
3	139,928	211,197	11,386	4,699	140,965	3,037	29,353	6,957	553	\$513	12,834	290,055	266,765
4	179,151	103,123	22,566	12,768	83,960	3,212	37,246	1,781	1,310		30,280	223,071	182,613
5	5,384,400	3,821,211	143,279	156,089	1,075,304	38,009	1,970,866	8,530	22,419		406,115	4,226,266	2,216,791
6	305,895	453,857	9,200	3,900	16,571	2,443	412,639		1,004		7,200	486,159	71,077
7	137,418	227,289	14,400	6,255	26,133	4,720	156,025	1,800	1,100		16,856	256,159	95,414
8	297,215	291,822	15,704	37,483	78,913	3,981	109,418	5,290	1,990		39,043	339,210	275,311
9	7,113,027	6,573,599	210,998	677,233	550,984	52,170	3,980,170	4,340	31,570	1,729	1,058,399	7,415,914	3,339,568
10	15,764,419	12,417,132	284,879	137,803	2,141,844	958,147	8,060,448		113,847	46,253	667,911	13,922,124	4,897,529
11	2,775,887	3,126,327	91,340	70,021	482,708	33,580	1,919,727	3,315	100,437	200	424,999	3,550,959	1,597,652
12	11,451,918	11,396,391	565,371	1,508,396	1,509,365	68,820	4,872,597	34,825	111,761	9,318	2,055,958	13,475,450	8,534,039
13	213,895	353,934	30,666	37,184	158,138	7,583	69,417	13,115		4,579	23,377	437,688	360,688
14	325,427	195,452	10,613	3,722	88,620	35,469	33,540		1,013		17,079	245,677	171,872
15	13,725,083	14,206,556	947,686	1,613,036	3,999,521	198,278	4,736,248	265,437	87,487	520,944	1,837,919	17,348,341	12,413,815
16	86,081	60,075	1,000	2,835	19,700	2,282	28,820	270	312		4,700	74,068	42,096
17	5,166,679	3,058,708	92,050	105,414	745,401	555,244	1,088,106		38,277	32,899	401,317	3,662,096	2,000,646
18	345,096	244,146	15,226	17,610	85,504	7,569	78,414	2,032	1,378		36,473	277,824	191,901
19	334,327	477,712	17,634	6,193	136,652	6,037	223,159	3,340	1,905		82,792	523,687	294,401
20	6,971,910	4,725,309	128,729	179,767	1,380,081	84,807	2,404,965	12,836	40,359	1,049	492,716	5,033,836	2,544,064
21	1,060,139	1,082,238	56,650	77,669	458,733	19,354	776,643	2,610	8,879	2,000	279,760	1,865,847	1,069,850
22	3,684,247	12,632,575	56,818	95,400	481,245	59,329	11,690,496	2,872	18,930		311,785	13,435,114	1,799,289
23	1,208,730	1,085,884	52,268	24,783	308,725	40,173	512,050		7,370		134,539	1,307,747	749,513
24	17,179	32,741	4,950	6,625	11,152	65	9,208	600	30		1,021	38,525	20,222
25	59,545	61,433	1,560	3,804	21,639	1,790	17,848	1,808	168		12,510	75,443	55,805
26	9,521,706	7,936,922	361,783	396,108	2,831,581	124,742	2,091,498	4,236	63,056	2,606	1,461,313	9,122,873	6,306,633
27	14,030	67,541		8,364	10,416	264	15,485	1,083	16		31,313	101,074	85,325
28	6,836,927	14,729,529	294,865	420,740	3,075,833	48,927	7,159,003	103,162	2,219,268		1,407,720	10,178,533	8,970,598
29	159,907	76,727	3,685	1,974	28,551	2,399	26,804	1,690			11,316	80,538	82,276
30	36,425	45,039	900	1,137	3,526	245	31,450	5,220	141		2,420	59,112	27,417
31	1,774,963	1,125,976	43,976	79,138	275,613	75,128	330,643	325	9,485		305,668	1,429,674	1,068,903
32	1,191,688	1,233,775	19,530	13,373	201,234	7,309	799,259	6,240	6,951		119,879	1,255,654	489,336
33	4,406,719	4,801,238	93,989	231,897	428,476	32,273	3,413,947	6,018	24,038	83,092	489,858	5,234,870	1,838,650
34	2,829,750	1,956,220	39,918	23,848	504,151	969,106	186,243		23,220	12,336	197,392	2,368,927	1,243,578
35	1,286,946	1,409,714	61,191	21,062	548,042	16,528	617,495	7,490	9,172	11,059	117,675	1,708,258	1,074,235
36	1,421,040	1,248,053	41,650	11,807	234,657	34,899	827,040	4,140	11,603		81,362	1,571,364	708,525
37	49,074,657	69,317,310	1,102,612	2,520,766	9,122,844	1,287,167	48,021,006	134,759	2,350,331	221,922	4,540,903	77,873,625	28,565,452

\*All other industries embrace—Continued.

Graphite and graphite refining.....	1	Looking-glass and picture frames.....	16	Silverware and plated ware.....	1
Grass and tallow.....	13	Malt.....	4	Smelting and refining, copper.....	4
Grindstones.....	2	Matches.....	2	Smelting and refining, not from the ore.....	4
Hair work.....	5	Mineral and soda waters.....	97	Soap.....	8
Hats, fur-felt.....	1	Mucilage and paste.....	3	Sporting and athletic goods.....	12
Hats, straw.....	1	Needles, pins, and hooks and eyes.....	2	Statuary and art goods.....	3
Hones and whetstones.....	1	Oil, not elsewhere specified.....	4	Sulphuric, nitric, and mixed acids.....	1
Horseshoes, not made in steel works or rolling mills.....	2	Paving materials.....	1	Toys and games.....	8
House-furnishing goods, not elsewhere specified.....	7	Photographs and graphophones.....	1	Typewriters and supplies.....	2
Ink, printing.....	2	Photographic apparatus and materials.....	2	Upholstering materials.....	7
Ink, writing.....	3	Pipes, tobacco.....	1	Vinegar and cider.....	140
Instruments, professional and scientific.....	6	Roofing materials.....	5	Washing machines and clothes wringers.....	6
Iron and steel forgings.....	4	Rubber goods, not elsewhere specified.....	2	Waste.....	4
Kaolin and ground earths.....	1	Rules, ivory and wood.....	1	Wheelbarrows.....	2
Labels and tags.....	1	Safes and vaults.....	1	Windmills.....	1
Lests.....	6	Screws, machine.....	3	Wire.....	1
Lead, bar, pipe, and sheet.....	2	Signs and advertising novelties.....	1		
Liquors, distilled.....	2	Silk and silk goods, including throwsters.....	2		

TABLE III.—DETAIL STATEMENT FOR CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES, CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES. DETROIT.

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Pri- mary horse- power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).			Total.	16 and over.		Under 16.				
					Male.	Female.	Total.	Male.	Female.		Under 16.	Male.	Female.	Male.	Female.		
																Male.	
1 All industries.....	2,036	95,841	1,804	2,807	7,567	2,852	81,011	64,138	15,061	1,812	95,037	76,405	16,552	1,062	928	114,180	
2 Automobiles, including bodies and parts...	68	17,437	.....	336	1,101	325	15,675	15,551	118	6	21,370	21,201	161	8	.....	14,666	
3 Baskets, and rattan and willow ware.....	7	22	6	.....	.....	.....	16	11	5	.....	15	10	5	.....	26		
4 Blacking and cleansing and polishing preparations.	8	21	7	4	2	2	6	4	2	.....	6	4	2	.....	85		
5 Boots and shoes, including cut stock and findings.	8	1,453	6	25	66	29	1,327	768	429	180	1,336	774	431	80	51	362	
6 Boxes, cigar.....	4	260	4	4	3	.....	249	91	141	17	267	98	151	8	10	164	
7 Boxes, fancy and paper.....	7	400	6	14	8	6	366	67	252	47	418	76	288	7	47	142	
8 Brass and bronze products.....	37	4,374	16	102	140	84	4,032	3,830	57	145	4,823	4,583	68	170	2	10,651	
9 Bread and other bakery products.....	285	1,606	272	40	111	75	1,108	923	153	32	1,104	970	160	15	19	1,112	
10 Brick and tile.....	10	205	13	5	2	2	183	183	.....	.....	205	205	.....	.....	.....	504	
11 Canning and preserving.....	9	493	6	14	59	9	408	204	188	16	526	293	243	5	15	549	
12 Carpets, rag.....	7	27	8	.....	.....	.....	19	15	4	.....	10	8	2	.....	26		
13 Carriages and wagons and materials.....	34	321	44	3	8	3	263	262	1	.....	264	263	1	.....	188		
14 Clothing, men's, including shirts.....	22	3,093	27	44	103	48	2,786	326	2,400	.....	3,040	356	2,684	.....	951		
15 Clothing, women's.....	27	1,041	29	45	30	18	921	84	821	16	1,107	101	986	4	16	154	
16 Coffins, burial cases, and undertakers' goods.	5	117	6	5	9	2	95	84	11	.....	96	85	11	.....	148		
17 Confectionery.....	23	501	30	15	23	46	387	176	190	21	437	199	215	1	22	341	
18 Cooperage and wooden goods, not elsewhere specified.	9	144	13	2	1	2	126	115	11	.....	117	107	10	.....	155		
19 Copper, tin, and sheet-iron products.....	72	2,152	74	39	71	36	1,932	1,522	261	149	1,980	1,566	268	111	41	1,453	
20 Cutlery and tools, not elsewhere specified..	19	373	11	18	71	14	259	256	3	.....	311	308	3	.....	719		
21 Electrical machinery, apparatus, and supplies.	23	685	15	61	46	32	541	379	162	.....	652	457	195	.....	676		
22 Electroplating.....	8	121	6	7	.....	4	104	102	2	.....	100	98	2	.....	160		
23 Emery and other abrasive wheels.....	4	122	2	7	6	5	102	78	24	.....	121	93	28	.....	155		
24 Flags, banners, regalia, society badges, and emblems.	5	51	3	4	1	3	40	13	27	.....	32	10	22	.....	28		
25 Flour-mill and gristmill products.....	5	220	5	8	28	10	169	162	3	4	164	157	3	4	.....	1,150	
26 Foundry and machine-shop products.....	215	10,212	125	388	716	289	8,694	8,488	101	105	11,233	10,907	130	119	17	10,336	
27 Fur goods.....	19	519	24	13	49	62	371	95	267	9	446	114	321	7	4	24	
28 Furniture and refrigerators.....	33	2,528	28	51	98	61	2,290	2,008	145	137	2,531	2,220	160	124	27	3,722	
29 Hand stamps and stencils and brands.....	7	24	7	.....	.....	.....	15	12	2	1	16	13	2	1	.....	5	
30 Hosiery and knit goods.....	9	367	7	8	11	7	334	33	273	28	314	31	257	.....	26	214	
31 Iron and steel, steel works and rolling mills.	5	1,064	.....	18	45	12	989	989	.....	.....	1,118	1,118	.....	.....	.....	3,430	
32 Leather goods.....	22	516	18	10	56	20	403	327	67	9	425	345	71	9	.....	530	
33 Liquors, malt.....	18	838	13	50	117	12	646	634	12	.....	665	653	12	.....	3,886		
34 Lumber and timber products.....	59	2,322	52	95	95	34	2,046	2,022	.....	24	2,175	2,150	.....	25	.....	4,629	
35 Marble and stone work.....	19	230	25	5	8	4	194	194	.....	.....	187	187	.....	.....	500		
36 Models and patterns, not including paper patterns.	17	222	18	8	3	5	188	186	1	1	239	236	1	2	.....	95	
37 Optical goods.....	6	241	3	9	22	19	188	97	74	17	185	95	73	11	6	79	
38 Patent medicines and compounds and druggists' preparations.	74	4,289	54	134	766	517	2,818	1,457	1,320	41	2,988	1,545	1,400	17	26	1,819	
39 Photo-engraving.....	7	213	5	18	27	10	153	146	5	2	158	151	5	2	.....	116	
40 Printing and publishing.....	224	4,058	212	183	862	282	2,519	1,982	487	50	2,612	2,055	505	50	2	2,602	
41 Shipbuilding, including boat building.....	17	607	22	17	47	36	485	451	4	.....	649	643	6	.....	1,079		
42 Show cases.....	6	117	3	11	4	5	94	90	1	3	106	101	1	4	.....	435	
43 Slaughtering and meat packing.....	29	983	33	25	99	16	811	805	.....	6	813	807	.....	6	.....	3,062	
44 Stoves and furnaces, including gas and oil stoves.	8	3,130	.....	74	221	27	2,808	2,726	1	81	2,911	2,826	1	84	.....	2,741	
45 Tobacco manufactures.....	198	6,544	202	87	326	46	5,883	1,007	4,400	476	6,354	1,088	4,752	29	485	925	
46 Umbrellas and canes.....	3	17	4	1	.....	.....	9	9	.....	.....	9	9	.....	.....	3		
47 All other industries <sup>1</sup> .....	355	21,637	340	603	2,106	629	17,959	15,153	2,567	239	20,336	17,158	2,907	159	112	39,344	

<sup>1</sup> All other industries embrace: Agricultural implements, 3; artificial flowers and feathers and plumes, 5; artificial stone, 13; artists' materials, 1; awnings, tents, and sails, 7; babbitt metal and solder, 3; bags, other than paper, 1; baking powders and yeast, 2; belting and hose, leather, 2; bluing, 1; brooms, 5; brushes, 8; butter, cheese, and condensed milk, 3; buttons, 2; calcium lights, 1; card cutting and designing, 1; carriages and sleds, children's, 4; cars and general shop construction and repairs by steam-railroad companies, 1; cars and general shop construction and repairs by street-railroad companies, 1; cars, steam-railroad, not including operations of railroad companies, 1; cash registers and calculating machines, 5; chemicals, 5; cloth, sponging and refinishing, 2; clothing, men's, buttonholes, 1; coffee and spice, roasting and grinding, 6; cordials and sirups, 1; corsets, 2; crucibles, 1; dentists' materials, 1; dyeing and finishing textiles, 1; dyestuffs and extracts, 1; enameling and japanning, 1; engraving and die-sinking, 3; engraving, wood, 1; fancy articles, not elsewhere specified, 2; fertilizers, 1; files, 1; flavoring extracts, 4; food preparations, 11; foundry supplies, 1; fuel, manufactured, 1; furnishing goods, men's, 8; furs, dressed, 2; gas and electric fixtures and lamps and reflectors, 11; glass, illuminating and heating, 2; glass, cutting, staining, and ornamenting, 1; furnishing goods, men's, leather, 1; glue, 1; grease and tallow, 2; hair work, 5; hats and caps, other than felt, straw, and wool, 6; hats, straw, 1; hones and whetstones, 1; horseshoes, not made in steel works or rolling mills, 1; house-furnishing goods, not elsewhere specified, 3; ice, manufactured, 2; ink, printing, 1; ink, writing, 2; instruments, professional

GRAND RAPIDS.

1 All industries.....	524	20,327	447	617	1,121	552	17,590	15,157	2,320	113	18,836	16,297	2,420	99	20	27,676
2 Bread and other bakery products.....	66	477	74	2	29	11	361	242	114	5	372	249	118	3	2	185
3 Brass and bronze products.....	5	445	7	10	16	7	405	325	73	7	441	353	80	5	3	401
4 Brick and tile.....	3	67	.....	6	1	2	58	58	.....	.....	98	98	.....	.....	.....	135
5 Carpets, rag.....	3	8	3	1	1	3	3	3	.....	.....	4	4	.....	.....	.....	7
6 Carriages and wagons and materials.....	8	102	7	3	4	1	87	87	.....	.....	87	87	.....	.....	.....	173
7 Clothing, men's, including shirts.....	6	205	6	9	21	20	239	24	215	.....	247	25	222	.....	.....	70
8 Copper, tin, and sheet-iron products.....	11	128	11	7	4	5	101	99	1	1	128	126	1	1	.....	39
9 Cutlery and tools, not elsewhere specified..	7	33	11	2	.....	.....	20	20	.....	.....	18	18	.....	.....	.....	70
10 Flour-mill and gristmill products.....	8	184	.....	12	34	14	118	118	.....	.....	126	126	.....	.....	.....	1,510
11 Foundry and machine-shop products.....	49	1,815	40	79	112	52	1,532	1,404	68	.....	1,763	1,675	78	.....	.....	2,107

# MANUFACTURES—MICHIGAN.

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AND TOTALS FOR ALL INDUSTRIES IN CITIES OF 10,000 BUT LESS THAN 50,000 INHABITANTS: 1909.

CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES.

DETROIT.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$190,124,928	\$215,227,611	\$5,904,263	\$9,355,507	\$43,006,902	\$4,175,632	\$126,041,909	\$890,380	\$3,898,558	\$888,273	\$21,066,187	\$252,992,123	\$122,774,582
2 23,927,610	46,795,918	766,528	1,014,561	9,620,790	347,714	31,015,102	71,285	105,348	24,827	3,829,752	59,586,154	28,173,338
3 14,585	18,300	.....	.....	5,806	430	10,516	852	100	.....	1,096	26,605	15,659
4 15,952	28,427	4,450	3,900	3,224	1,615	13,748	1,200	75	.....	315	30,300	15,037
5 1,581,618	2,544,568	46,838	113,040	490,659	14,257	1,687,721	23,193	10,346	.....	158,509	2,743,913	1,041,935
6 139,683	208,518	4,008	2,709	76,028	2,403	108,152	4,478	1,544	51	9,085	238,079	127,464
7 856,743	342,719	25,151	10,346	115,384	3,035	144,422	9,780	3,460	28	30,578	381,833	233,776
8 7,368,220	11,930,081	308,843	152,046	2,048,087	221,466	8,051,146	14,661	47,412	.....	485,500	12,297,331	4,024,719
9 2,003,183	4,073,951	79,269	140,414	637,617	89,950	2,897,231	53,718	15,537	1,196	253,721	4,826,485	1,929,304
10 206,902	215,192	6,100	1,962	108,085	54,484	20,080	2,250	1,991	.....	10,390	285,740	202,196
11 1,276,792	1,180,406	37,800	61,500	156,023	8,350	846,016	1,700	5,294	.....	62,184	1,568,254	713,288
12 14,800	12,909	.....	.....	9,227	434	2,120	620	130	.....	360	19,910	17,356
13 654,849	402,597	8,000	18,030	164,230	6,219	182,807	6,780	3,192	967	11,802	506,848	317,622
14 2,472,538	4,104,361	123,484	126,539	963,231	19,003	2,332,198	24,133	19,008	.....	466,625	4,769,846	2,409,045
15 825,433	1,242,012	46,190	35,731	357,317	8,805	652,334	19,423	3,149	3,736	115,167	1,493,831	832,632
16 155,850	214,222	10,250	11,200	56,156	1,668	115,822	2,392	1,670	3,500	11,563	268,034	150,543
17 374,491	982,653	23,320	45,493	138,886	13,001	615,476	33,676	2,705	23,201	85,095	1,139,465	507,088
18 141,056	208,132	6,200	1,970	55,987	2,384	123,243	1,420	1,485	.....	8,443	240,804	110,177
19 3,890,125	3,182,957	71,218	87,106	850,697	24,311	1,007,815	15,093	19,175	4,002	182,380	3,534,423	1,602,200
20 513,844	418,341	36,930	18,724	139,341	11,981	142,193	4,899	4,653	.....	66,450	400,273	312,009
21 1,056,892	1,056,892	95,574	48,955	225,745	17,330	475,891	11,800	6,171	7,735	167,625	1,147,922	654,701
22 67,422	143,114	7,182	1,412	66,228	6,639	53,143	3,086	478	.....	4,346	168,541	108,759
23 198,276	244,985	10,124	6,597	61,414	6,185	149,208	1,200	5,922	.....	4,245	284,455	128,972
24 46,084	53,588	3,700	2,552	13,333	742	20,000	1,687	783	340	833	69,214	39,406
25 1,431,775	4,821,097	35,400	20,480	78,060	18,806	4,403,218	4,773	8,496	.....	242,864	5,089,114	667,090
26 20,434,102	16,404,609	694,888	717,708	4,827,966	300,252	7,313,815	90,305	125,986	306,359	2,027,320	18,299,033	10,681,066
27 884,029	1,186,530	29,024	82,547	180,850	9,843	697,003	23,662	3,756	1,550	167,395	1,737,783	1,030,937
28 3,203,273	3,355,460	123,056	133,038	1,186,168	40,298	1,291,512	10,501	32,614	80	507,629	3,761,834	1,490,024
29 13,613	19,020	.....	970	6,388	155	7,636	2,208	43	800	820	39,110	31,319
30 423,975	467,963	11,080	14,340	91,249	7,055	318,732	10,155	2,138	.....	13,205	559,398	333,611
31 1,969,480	2,158,716	59,948	54,368	558,871	138,109	1,178,543	3,436	10,174	.....	155,297	2,297,048	980,396
32 821,356	1,200,592	26,828	57,704	210,576	7,369	811,139	28,030	3,102	.....	55,844	1,396,320	577,812
33 5,208,290	3,701,809	150,050	99,902	494,702	95,777	1,039,113	2,000	837,692	.....	932,573	4,942,213	3,757,323
34 4,607,683	5,293,921	168,720	71,917	1,012,810	39,817	3,710,254	17,992	33,218	200	220,987	6,109,074	2,350,693
35 330,134	339,844	5,052	9,285	131,377	5,422	166,216	3,452	1,833	.....	17,172	413,047	241,409
36 108,489	180,909	10,396	4,258	124,752	2,740	21,470	5,503	448	100	11,176	237,688	213,472
37 282,671	263,161	14,744	37,483	74,865	3,776	92,754	4,246	1,786	.....	38,507	357,947	261,417
38 10,179,080	9,852,432	484,392	1,390,075	1,328,477	57,300	4,246,428	26,078	103,633	1,135	2,235,914	11,558,419	7,254,691
39 170,642	270,800	20,022	33,553	115,830	6,331	53,505	10,244	604	4,529	16,232	350,670	290,834
40 4,167,839	6,094,021	365,339	800,524	1,599,575	59,464	1,984,160	100,649	28,510	330,790	836,960	7,201,090	5,247,466
41 1,611,177	1,042,362	41,500	36,673	303,720	19,233	492,676	10,291	11,975	425	121,863	1,101,635	559,726
42 160,761	211,812	10,300	6,784	54,891	3,366	106,046	2,220	1,773	.....	20,433	239,812	130,400
43 3,340,183	12,093,853	62,722	85,400	432,999	51,815	11,108,900	674	17,189	.....	289,197	12,849,574	1,628,859
44 6,238,684	4,809,296	236,733	244,090	1,809,363	65,651	1,504,625	1,965	39,292	.....	907,577	5,676,418	4,106,142
45 5,486,171	11,857,654	249,531	388,035	2,176,860	37,962	5,831,382	62,777	1,922,616	.....	1,187,841	12,773,127	6,903,783
46 26,225	31,630	900	1,137	1,824	154	21,460	4,020	101	.....	2,094	40,412	19,003
47 60,788,780	50,819,688	1,374,435	3,172,664	9,863,186	2,340,431	28,062,185	145,595	451,917	161,922	4,951,313	59,841,495	29,448,879

MANUFACTURES—MICHIGAN.

TABLE III.—DETAIL STATEMENT FOR CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES, AND CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES—Continued.  
GRAND RAPIDS—Continued.

INDUSTRY AND CITY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horsepower.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).			Total.	16 and over.		Under 16.				
					Male.	Female.	Total.	16 and over.			Under 16.	Male.	Female.	Male.	Female.		
								Male.	Female.								
12 Furniture and refrigerators.....	54	7,854	33	141	306	124	7,250	7,091	94	65	7,796	7,626	104	66	10,305		
13 Leather goods.....	6	64	5	4	3	1	51	49	2	.....	50	48	2	.....	26		
14 Leather, tanned, curried, and finished.....	3	108	.....	6	2	2	98	98	.....	.....	111	111	.....	.....	437		
15 Lumber and timber products.....	20	709	17	37	42	19	594	591	3	.....	700	697	.....	3	2,504		
16 Marble and stone work.....	6	62	7	1	11	2	41	41	.....	.....	45	45	.....	.....	77		
17 Patent medicines and compounds and druggists' preparations.....	18	126	19	9	12	28	58	19	38	1	57	19	37	1	33		
18 Printing and publishing.....	68	1,148	53	57	146	60	832	627	195	10	841	634	197	5	781		
19 Tobacco manufactures.....	36	522	36	17	9	2	458	121	336	1	474	125	348	1	5		
20 Wall plaster.....	5	361	.....	9	45	7	300	262	38	.....	248	217	31	.....	2,408		
21 All other industries <sup>1</sup> .....	142	5,819	112	205	324	194	4,984	3,818	1,143	23	5,240	4,014	1,202	14	6,403		

<sup>1</sup> All other industries embrace: Artificial stone, 10; automobiles, including bodies and parts, 3; awnings, tents, and sails, 1; babbitt metal and solder, 1; baking powders and yeast, 1; belting and hose, leather, 2; blacking and cleansing and polishing preparations, 2; boots and shoes, including cut stock and findings, 2; boxes, cigar, 1; boxes, fancy and paper, 3; brooms, 3; brushes, 2; butter, cheese, and condensed milk, 4; butter, roworking, 1; canning and preserving, 2; card cutting and designing, 1; cars and general shop construction and repairs by steam-railroad companies, 1; cars and general shop construction and repairs by street-railroad companies, 1; clothing, women's, 2; coffee and spice, roasting and grinding, 2; coffins, burial cases, and undertakers' goods, 2; confectionery, 6; cooperage and wooden goods, not elsewhere specified, 3; electrical machinery, apparatus, and supplies, 1; electroplating, 1; engravers' materials, 1; engraving and diesinking, 1; fancy articles, not elsewhere specified, 4; flavoring extracts, 2; food preparations, 1; fur goods, 2; furnishing goods, men's, 2; gas, illuminating and heating, 1; glass, cutting, staining, and ornamenting, 4; greas

SAGINAW.

1 All industries.....	203	7,090	232	222	445	201	5,990	5,229	729	32	7,546	6,522	889	27	8	14,412
2 Bread and other bakery products.....	9	112	12	1	7	9	83	58	25	.....	83	58	25	.....	76	
3 Carriages and wagons and materials.....	5	30	6	.....	.....	.....	24	24	.....	.....	24	24	.....	.....	20	
4 Cooperage and wooden goods, not elsewhere specified.....	9	690	14	11	20	3	642	596	87	19	632	528	85	14	5	1,648
5 Flour-mill and gristmill products.....	4	101	3	5	27	8	58	58	.....	.....	66	66	.....	.....	457	
6 Foundry and machine-shop products.....	23	871	25	41	72	35	698	693	5	.....	790	784	6	.....	1,674	
7 Furniture and refrigerators.....	12	484	8	15	17	27	417	408	6	3	454	444	7	3	896	
8 Liquors, malt.....	5	92	4	7	5	2	74	74	.....	.....	70	70	.....	.....	170	
9 Lumber and timber products.....	12	783	21	18	34	14	696	695	.....	1	698	697	.....	1	2,682	
10 Marble and stone work.....	4	27	7	.....	1	2	17	17	.....	.....	21	21	.....	.....	80	
11 Printing and publishing.....	22	266	21	14	49	18	164	135	27	2	168	138	28	2	411	
12 Salt.....	3	15	3	1	.....	1	10	10	.....	.....	11	11	.....	.....	30	
13 Tobacco manufactures.....	27	163	30	3	.....	.....	127	89	37	1	133	93	39	1	.....	
14 All other industries <sup>1</sup> .....	68	3,456	78	106	210	82	2,980	2,432	542	6	4,396	3,588	799	6	3	6,268

<sup>1</sup> All other industries embrace: Agricultural implements, 1; artificial stone, 1; automobiles, including bodies and parts, 3; awnings, tents, and sails, 1; beet sugar, 1; belting and hose, leather, 1; blacking and cleansing and polishing preparations, 1; boxes, cigar, 1; boxes, fancy and paper, 1; brass and bronze products, 1; brick and tile, 1; canning and preserving, 1; carpets, rag, 1; cars and general shop construction and repairs by steam-railroad companies, 1; cars and general shop construction and repairs by street-railroad companies, 1; clothing, women's, 3; coffee and spice, roasting and grinding, 1; confectionery, 2; copper, tin, and sheet-iron products, 3; corsats, 1; cutlery and tools, not elsewhere specified, 3; electrical machinery, apparatus, and supplies, 3; electroplating, 2; food preparations, 2; gas, illuminating and heating, 1; graphite and

CITIES OF 10,000 TO 50,000 INHABITANTS—ALL INDUSTRIES COMBINED.

1 ADRIAN.....	80	1,466	66	70	217	54	1,059	924	118	17	1,265	1,104	141	18	2	3,211
2 ALPENA.....	58	1,614	57	66	40	19	1,432	1,403	27	2	1,537	1,506	20	2	.....	10,670
3 ANN ARBOR.....	63	783	67	38	76	29	573	535	38	.....	658	615	43	.....	.....	1,458
4 BATTLE CREEK.....	105	5,281	95	238	586	187	4,175	3,415	752	8	4,519	3,695	813	11	.....	14,923
5 BAY CITY.....	182	5,357	178	146	222	74	4,737	4,263	441	33	5,356	4,821	496	39	.....	17,872
6 ESCANABA.....	39	804	36	23	20	5	720	595	122	3	791	654	134	3	.....	1,416
7 FLINT.....	104	7,840	117	90	402	143	7,088	6,775	312	1	8,895	8,502	391	1	1	8,240
8 HOLLAND.....	59	2,183	45	57	96	45	1,940	1,729	186	25	2,149	1,915	206	24	4	2,956
9 IRONWOOD.....	14	229	16	4	8	.....	201	197	4	.....	224	220	4	.....	621	
10 ISHPEMING.....	10	92	19	4	1	2	66	59	6	1	68	61	6	1	.....	73
11 JACKSON.....	169	5,624	135	212	340	140	4,797	3,766	1,022	9	5,619	4,408	1,198	7	6	6,360
12 KALAMAZOO.....	103	7,627	152	254	516	333	6,272	4,390	1,844	38	6,625	4,636	1,951	30	8	14,449
13 LANSING.....	169	6,152	142	190	383	152	5,255	5,043	239	3	6,439	6,144	291	4	.....	8,720
14 MANISTEE.....	64	2,365	78	68	66	28	2,125	1,806	306	13	2,146	1,823	310	4	9	6,811
15 MARQUETTE.....	34	601	29	13	43	8	498	489	9	.....	504	495	9	.....	1,500	
16 MENOMINEE.....	52	1,930	41	61	93	30	1,700	1,530	148	22	1,904	1,714	165	22	3	4,770
17 MUSKEGON.....	101	5,098	89	117	228	142	4,522	3,871	615	36	4,987	4,270	675	25	17	10,438
18 PONTIAC.....	42	2,009	27	88	93	62	1,739	1,629	106	4	2,164	2,028	131	5	.....	2,854
19 PORT HURON.....	82	1,862	75	71	88	48	1,580	1,435	142	3	1,813	1,647	163	3	.....	3,130
20 SAULT STE. MARIE.....	47	1,125	37	35	37	11	1,005	955	50	.....	1,136	1,079	57	.....	.....	3,239
21 TRAVERSE CITY.....	61	1,403	54	59	45	25	1,220	1,102	117	1	1,611	1,455	154	2	.....	4,231



MANUFACTURES—MICHIGAN.

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TOTALS FOR ALL INDUSTRIES IN CITIES OF 10,000 BUT LESS THAN 50,000 INHABITANTS: 1909—Continued.

CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES—Continued.

GRAND RAPIDS—Continued.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
12 \$18,321,905	\$10,984,543	\$459,284	\$407,481	\$3,002,780	\$113,406	\$4,823,245	\$28,870	\$104,711	\$12,106	\$1,072,570	\$12,629,524	\$7,692,783
13 136,865	160,410	6,500	3,988	30,314	909	111,622	710	1,130	.....	5,237	178,618	60,087
14 569,820	638,122	11,569	2,074	55,687	11,384	534,068	100	4,109	.....	18,534	704,534	150,082
15 1,484,230	1,493,289	87,780	40,512	342,581	15,073	891,435	3,531	10,808	22,522	98,447	1,696,676	789,568
16 121,008	95,797	700	12,247	33,960	1,798	37,261	.....	885	.....	8,466	107,884	68,835
17 155,620	212,937	11,179	21,135	24,485	1,202	115,953	3,138	547	1,192	34,049	285,185	167,970
18 1,629,397	1,685,003	127,183	169,784	488,658	20,803	566,212	32,013	11,352	59,904	209,634	2,057,475	1,470,460
19 236,350	684,584	17,208	9,090	187,801	743	301,346	4,291	70,050	.....	74,049	725,044	422,955
20 1,032,900	739,425	22,100	66,615	135,165	30,465	195,452	.....	4,993	.....	284,035	865,827	639,910
21 12,638,122	11,411,199	467,035	433,774	2,492,079	382,549	5,855,904	54,127	259,065	131,268	1,334,508	13,226,505	6,988,052

and tallow, 1; hats and caps, other than felt, straw, and wool, 1; hosiery and knit goods, 4; house-furnishing goods, not elsewhere specified, 2; ink, writing, 1; liquors, malt, 3; mattresses and spring beds, 2; mineral and soda waters, 2; mirrors, 2; models and patterns, not including paper patterns, 3; mucilage and paste, 1; musical instruments and materials, not specified, 1; musical instruments, pianos and organs and materials, 2; needles, pins, and hooks and eyes, 1; optical goods, 1; paint and varnish, 1; paper goods, not elsewhere specified, 4; photo-engraving, 3; roofing materials, 2; saws, 2; shipbuilding, including boat building, 2; show cases, 3; slaughtering and meat packing, 1; soap, 1; statuary and art goods, 1; steam packing, 1; stereotyping and electrotyping, 1; stoves and furnaces, including gas and oil stoves, 2; typewriters and supplies, 1; upholstering materials, 2; vinegar and cider, 1; washing machines and clothes wringers, 1; wirework, including wire rope and cable, 2; wood, turned and carved, 8.

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1 \$26,703,084	\$16,347,777	\$457,153	\$468,645	\$3,184,359	\$373,819	\$10,034,699	\$39,210	\$212,023	\$53,943	\$1,523,926	\$18,833,047	\$8,424,529
2 133,958	301,047	1,500	11,522	41,980	5,442	217,244	3,740	1,213	.....	18,406	327,751	105,065
3 57,300	25,447	.....	.....	13,363	818	8,603	664	640	200	1,259	30,970	21,549
4 982,906	1,048,207	21,580	26,590	207,491	1,110	698,092	958	6,239	.....	80,144	1,205,774	506,672
5 550,607	684,241	6,110	24,084	32,332	5,346	553,057	2,500	1,778	.....	59,034	730,942	172,539
6 2,064,281	1,616,560	93,345	125,425	432,458	29,804	758,459	3,016	15,523	11,430	147,100	1,837,832	1,049,569
7 1,089,660	674,392	25,012	18,377	198,583	7,530	318,640	1,148	5,745	.....	99,348	880,777	554,598
8 526,246	336,609	13,600	10,175	57,792	10,272	99,937	2,230	67,476	.....	75,078	393,002	282,743
9 1,803,565	2,161,472	27,026	34,138	335,226	7,975	1,621,182	800	16,411	40,278	78,436	2,404,187	775,030
10 26,150	36,779	.....	1,756	11,880	1,253	20,281	132	304	.....	1,164	50,403	28,039
11 421,569	363,162	22,520	47,401	99,537	7,598	119,038	9,327	2,769	960	44,022	428,023	301,337
12 23,130	28,239	1,000	600	5,876	3,514	16,874	.....	367	.....	68	43,648	23,260
13 89,372	178,122	2,020	1,900	65,970	321	81,227	2,040	19,107	.....	15,531	202,553	121,065
14 18,928,340	8,908,380	243,380	100,671	1,691,892	262,836	5,522,006	12,749	74,465	1,085	808,336	10,297,125	4,482,383

graphite refining, 1; hand stamps and stencils and brands, 1; hosiery and knit goods, 1; leather goods, 2; leather, tanned, curried, and finished, 1; Hme, 1; malt, 1; matches, 1; mineral and soda waters, 2; mirrors, 1; musical instruments and materials, not specified, 1; musical instruments, pianos and organs and materials, 1; optical goods, 1; roofing materials, 1; rubber goods, not elsewhere specified, 1; saws, 1; shipbuilding, including boat building, 1; show cases, 1; slaughtering and meat packing, 3; soap, 1; umbrellas and canes, 1; vinegar and cider, 1; wheelbarrows, 1; window shades and fixtures, 1; wood, turned and carved, 2.

CITIES OF 10,000 TO 50,000 INHABITANTS—ALL INDUSTRIES COMBINED.

1 \$5,086,155	\$5,652,009	\$98,410	\$228,338	\$539,924	\$65,009	\$4,083,073	\$8,302	\$38,432	\$81,247	\$507,474	\$9,065,120	\$1,935,244
2 5,797,827	3,553,759	103,811	46,850	711,474	197,029	2,103,850	5,053	64,667	60,122	200,867	3,963,823	1,062,044
3 1,759,595	1,661,697	54,953	69,940	287,203	69,330	940,074	7,472	17,733	10,027	143,365	1,865,894	1,855,890
4 19,176,203	16,363,571	502,789	693,407	2,353,832	391,068	6,677,228	22,894	137,929	30,584	5,493,840	20,174,016	13,105,720
5 10,239,062	8,878,339	203,310	203,633	2,118,282	107,784	5,478,888	22,225	164,788	20,195	433,334	10,293,747	4,647,075
6 1,024,483	979,861	40,550	20,966	404,707	23,997	340,337	5,123	30,742	805	112,634	1,074,109	709,775
7 18,085,144	19,645,212	219,173	316,183	4,429,435	205,352	13,705,748	20,691	108,890	6,537	573,153	24,118,007	10,146,907
8 4,624,480	4,188,949	100,841	155,143	935,505	73,908	2,510,608	3,614	32,566	1,024	369,740	4,622,265	2,037,749
9 393,884	347,318	7,020	6,285	87,807	4,377	196,147	1,172	11,860	10,938	21,112	377,416	179,892
10 87,999	166,792	4,920	1,800	37,155	2,315	50,097	2,470	1,667	.....	4,416	132,374	79,062
11 9,677,528	12,589,571	348,052	370,688	2,492,246	231,199	7,937,276	61,011	68,376	49,746	1,027,977	14,005,671	5,837,196
12 15,394,653	15,900,333	528,440	707,866	3,148,638	456,792	9,048,236	38,572	197,932	907	1,772,950	17,903,500	8,398,532
13 13,130,827	13,405,117	348,423	400,007	2,706,742	224,280	8,577,200	32,003	89,056	17,590	1,009,696	16,597,693	7,785,553
14 3,248,036	2,940,509	120,780	56,061	1,019,168	125,813	1,163,156	3,163	107,835	22,811	315,122	3,344,087	2,055,118
15 1,392,153	1,112,067	40,172	42,288	305,131	22,095	533,426	5,332	35,220	44,539	85,214	1,254,553	698,432
16 5,212,988	3,124,053	124,808	80,423	718,105	82,174	1,574,612	5,018	128,762	101,347	308,774	3,727,596	2,070,810
17 3,336,619	3,367,663	236,604	208,041	2,106,637	215,325	4,722,792	29,711	111,743	7,000	719,510	9,647,823	4,709,706
18 3,826,009	4,923,817	127,341	93,233	1,087,489	64,831	3,175,678	6,236	29,866	4,734	334,409	5,898,961	2,653,452
19 3,888,538	3,293,851	111,447	89,857	790,894	198,666	1,750,841	11,652	64,225	27,134	188,935	3,588,272	1,938,705
20 4,663,273	4,148,305	80,446	30,085	541,914	111,496	3,011,272	5,733	32,500	8,111	320,748	4,618,715	1,495,947
21 1,957,733	1,969,451	92,339	40,648	443,678	23,366	1,169,363	6,340	36,224	10,144	142,329	2,289,150	1,106,401

# MINNESOTA.

## INDUSTRIES IN GENERAL.

**General character of the state.**—Minnesota, with a gross area of 84,682 square miles, of which 3,824 represent water surface, and a population in 1910 of 2,075,708, ranks eleventh in area and nineteenth in population among the 49 states and territories of continental United States. The total population was 1,751,394 in 1900 and 1,310,283 in 1890. In 1910 the density of population for the entire state was 25.7 per square mile, the corresponding figures for 1900 being 21.7 and for 1890, 16.2. Forty-one per cent of the entire population of the state resided in incorporated cities and villages having 2,500 inhabitants or over, as against 34.1 per cent in 1900.

The state had eight cities having a population of over 10,000 inhabitants in 1910. Of these, Minneapolis, with a population of 301,408; St. Paul, with 214,744; and Duluth, with 78,466, were the only cities having over 50,000 inhabitants. Winona had a population of 18,583, while the population of St. Cloud, Virginia, Mankato, and Stillwater was but slightly in excess of 10,000. Only 9.4 per cent of the population resided in incorporated places having from 2,500 to 10,000 inhabitants.

Minnesota has a great diversity of valuable natural resources. Its iron-ore deposits are the richest in the country; it ranked third in 1909 among the states in the production of wheat; and its timber lands are extensive. The iron mines do not contribute directly to the state's manufactures, because the ore is shipped to eastern blast furnaces. The wheat fields and the forests, however, furnish the raw materials for the two most important industries in the state. The transportation facilities, both rail and water, are ex-

cellent. St. Paul and Minneapolis form one of the most important centers for transcontinental railway traffic, while Duluth, at the western end of Lake Superior, reports larger shipments by water than any other city on the Great Lakes and ranks as one of the important ports of the United States.

**Importance and growth of manufactures.**—Although Minnesota is not essentially a manufacturing state, the proportion which the value of its manufactures represented of the total value of manufactured products in the United States increased steadily, from less than two-tenths of 1 per cent in 1859 to 2 per cent in 1889, the proportion remaining unchanged in 1899 and 1909. In 1859 the total value of the manufactures of the state, including the products of the neighborhood and hand industries, amounted to only \$3,373,172, while in 1909, exclusive of the value of the products of the neighborhood and hand industries, it reached \$409,419,621. The latter amount was over one hundred and twenty-one times as large as the former, whereas the population of the state was only a little more than twelve times as large in 1910 as in 1860. The value of manufactured products per capita of the total population of the state increased from \$20 to \$197 during the 50 years. Minnesota ranked thirty-second in 1859 among the states and territories in respect to gross value of products, but advanced to thirteenth place in 1899, which position was retained in 1904 and in 1909.

The following table gives the most important figures relative to all classes of manufactures combined for 1909, 1904, and 1899, together with the percentages of increase from census to census:

	NUMBER OR AMOUNT.			PER CENT OF INCREASE.	
	1909	1904	1899	1904-1909	1899-1904
Number of establishments.....	5,561	4,756	4,096	16.9	16.1
Persons engaged in manufactures.....	104,406	83,301	( <sup>1</sup> )	25.3	-----
Proprietors and firm members.....	5,376	4,524	( <sup>1</sup> )	18.8	-----
Salaried employees.....	14,263	9,141	6,625	56.0	38.0
Wage earners (average number).....	84,767	69,636	64,557	21.7	7.9
Primary horsepower.....	297,670	220,934	180,124	34.7	22.7
Capital.....	\$275,416,000	\$184,908,000	\$133,077,000	49.0	38.9
Expenses.....	376,062,000	279,924,000	198,135,000	34.3	41.3
Services.....	62,923,000	44,876,000	35,093,000	40.2	27.9
Salaries.....	15,452,000	9,033,000	6,064,000	71.1	49.0
Wages.....	47,471,000	35,843,000	29,029,000	32.4	23.5
Materials.....	281,622,000	210,554,000	150,299,000	33.8	40.1
Miscellaneous.....	31,517,000	24,494,000	12,743,000	28.7	92.2
Value of products.....	409,420,000	307,858,000	223,693,000	33.0	37.6
Value added by manufacture (value of products less cost of materials).....	127,798,000	97,304,000	73,394,000	31.8	32.6

<sup>1</sup> Figures not available.

In 1909 the state of Minnesota had 5,561 manufacturing establishments, which gave employment to an average of 104,406 persons during the year and paid out \$62,923,000 in salaries and wages. Of the

persons employed, 84,767 were wage earners. These establishments turned out products to the value of \$409,420,000, to produce which materials costing \$281,622,000 were utilized. The value added by manufacture was thus \$127,798,000, which figure, as explained in the Introduction, best represents the net wealth created by manufacturing operations during the year.

In general, this table brings out the fact that the manufacturing industries of Minnesota as a whole have developed rapidly during the decade, the actual increase being greater for the five-year period 1904-1909 than for the five-year period 1899-1904. During the more recent period the number of establish-

ments increased 16.9 per cent, the average number of wage earners 21.7 per cent, the value of products 33 per cent, and the value added by manufacture 31.3 per cent. The increase in value of products for the decade 1899-1909 was 83 per cent. As pointed out in the Introduction, it would be improper to infer that manufactures increased in volume to the full extent indicated by these figures regarding values, since the increase shown is certainly due, in part, to the increase that has taken place in the price of commodities.

The relative importance and growth of the leading manufacturing industries of the state are shown in the following table:

INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		PER CENT OF INCREASE. <sup>1</sup>			
		Average number.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.	Value of products.		Value added by manufacture.	
								1904-1909	1899-1904	1904-1909	1899-1904
All industries.....	5,561	84,767	100.0	\$409,420,000	100.0	\$127,798,000	100.0	33.0	37.6	31.3	32.6
Flour-mill and gristmill products.....	222	4,345	5.1	139,136,000	34.0	14,919,000	11.7	14.0	47.1	14.8	41.8
Lumber and timber products.....	525	20,704	24.4	42,353,000	10.3	21,488,000	16.8	0.8	-10.7	-11.8	4.2
Slaughtering and meat packing.....	30	1,921	2.3	25,754,000	6.3	3,598,000	2.8	46.4	125.2	44.8	151.5
Butter, cheese, and condensed milk.....	784	1,184	1.4	25,287,000	6.2	2,580,000	2.0	96.5	51.8	49.0	34.1
Printing and publishing.....	950	5,641	6.7	15,982,000	3.9	11,886,000	9.3	38.2	41.1	35.4	38.9
Foundry and machine-shop products.....	247	6,002	7.1	15,606,000	3.8	8,424,000	6.6	64.1	27.8	65.4	26.8
Cars, and general shop construction and repairs by steam-railroad companies.....	28	3,232	9.7	12,631,000	3.1	6,137,000	4.8	71.2	16.8	67.5	24.6
Oil, linseed.....	6	374	0.4	11,037,000	2.7	1,352,000	1.1	57.3	114.4	45.5	188.5
Liquors, malt.....	65	1,653	2.0	10,568,000	2.6	8,225,000	6.4	71.1	38.6	85.3	23.7
Boots and shoes, including cut stock and findings.....	18	2,664	3.1	7,568,000	1.8	2,633,000	2.1	81.5	15.3	71.2	24.2
Bread and other bakery products.....	408	1,696	2.0	6,785,000	1.7	2,981,000	2.3	46.9	67.4	51.9	59.8
Clothing, men's, including shirts.....	41	2,156	2.5	4,459,000	1.1	1,645,000	1.3	67.9	10.1	55.8	12.2
Patent medicines and compounds and druggists' preparations.....	101	475	0.6	4,412,000	1.1	2,722,000	2.1	40.7	236.5	51.0	195.9
Malt.....	9	138	0.2	4,315,000	1.1	784,000	0.6	260.2	395.0	193.5	331.3
Food preparations.....	30	405	0.5	4,207,000	1.0	1,883,000	1.1	164.4	127.0	107.7	212.7
Fur goods.....	42	1,056	1.2	3,776,000	0.9	1,563,000	1.2	11.7	70.8	14.3	60.3
Furniture and refrigerators.....	57	1,095	2.0	3,759,000	0.9	1,359,000	1.5	46.7	24.2	20.9	44.7
Tobacco manufactures.....	339	1,613	1.9	3,365,000	0.8	2,109,000	1.6	5.0	29.7	0.1	38.8
Agricultural implements.....	17	1,014	1.2	3,014,000	0.7	1,924,000	1.5	4.5	63.5	7.2	71.8
Coffee and spice, roasting and grinding.....	12	342	0.4	2,997,000	0.7	644,000	0.5	65.0	45.3	45.4	16.0
Marble and stone work.....	112	1,738	2.1	2,965,000	0.7	1,920,000	1.5	138.2	13.0	112.4	7.1
Gas, illuminating and heating.....	42	848	1.0	2,874,000	0.7	2,054,000	1.6	41.4	88.9	45.8	82.5
Leather goods.....	42	870	1.0	2,821,000	0.7	1,135,000	0.9	44.6	37.8	35.8	62.6
Copper, tin, and sheet-iron products.....	114	1,081	1.3	2,765,000	0.7	1,418,000	1.1	49.4	14.5	41.5	18.2
Paper and wood pulp.....	9	607	0.7	2,385,000	0.6	947,000	0.7	108.1	.....	101.9	.....
Confectionery.....	39	715	0.8	2,346,000	0.6	976,000	0.8	40.1	67.2	29.3	75.2
Hosiery and knit goods.....	10	1,052	1.2	2,243,000	0.5	1,157,000	0.9	86.4	193.4	100.5	170.0
Coppers and wooden goods, not elsewhere specified.....	32	850	1.0	2,187,000	0.5	764,000	0.6	14.3	11.4	7.6	12.0
Carriages and wagons and materials.....	134	868	1.0	2,175,000	0.5	1,192,000	0.9	18.4	-11.4	19.1	-12.5
Mattresses and spring beds.....	15	453	0.5	1,508,000	0.4	693,000	0.6	159.6	16.7	145.8	24.6
Paint and varnish.....	14	164	0.2	1,489,000	0.4	600,000	0.5	.....	.....	.....	.....
Brick and tile.....	32	1,038	1.2	1,442,000	0.4	1,064,000	0.8	17.5	58.9	13.6	59.6
Canning and preserving.....	32	415	0.5	1,343,000	0.3	448,000	0.4	72.6	133.6	30.6	133.5
Artificial stone.....	123	653	0.8	1,030,000	0.3	711,000	0.6	183.9	.....	187.9	.....
Boxes, fancy and paper.....	11	595	0.7	1,023,000	0.2	542,000	0.4	124.3	132.7	132.6	82.0
Woolen, worsted, and felt goods, and wool hats.....	16	277	0.3	699,000	0.2	270,000	0.2	-11.6	59.2	-17.7	45.8
Stoves and furnaces, including gas and oil stoves.....	10	185	0.2	606,000	0.1	355,000	0.3	97.4	.....	75.7	.....
Electrical machinery, apparatus, and supplies.....	13	187	0.2	526,000	0.1	306,000	0.2	24.1	86.0	29.1	123.6
Fancy articles, not elsewhere specified.....	4	231	0.3	357,000	0.1	236,000	0.2	-11.8	357.3	-12.9	421.2
Shipbuilding, including boat building.....	33	299	0.3	377,000	0.1	219,000	0.2	10.2	52.7	-8.8	72.7
Photo-engraving.....	9	168	0.2	350,000	0.1	311,000	0.2	141.4	107.1	154.9	103.3
Bicycles, motorcycles, and parts.....	6	54	0.1	328,000	0.1	111,000	0.1	858.8	-49.3	455.0	-44.4
Lime.....	8	203	0.2	311,000	0.1	168,000	0.1	7.6	.....	4.3	.....
Clothing, women's.....	11	203	0.2	305,000	0.1	195,000	0.2	-3.8	-28.8	10.8	-27.0
Musical instruments, pianos and organs and materials.....	5	143	0.2	294,000	0.1	168,000	0.1	.....	.....	.....	.....
Gas and electric fixtures and lamps and reflectors.....	14	86	0.1	284,000	0.1	140,000	0.1	184.0	19.0	145.6	.....
Jewelry.....	17	119	0.1	255,000	0.1	168,000	0.1	68.9	420.7	71.4	716.7
Paper goods, not elsewhere specified.....	8	87	0.1	252,000	0.1	109,000	0.1	.....	.....	.....	.....
Show cases.....	7	104	0.1	241,000	0.1	120,000	0.1	15.3	596.7	44.9	535.7
Surgical appliances and artificial limbs.....	11	52	0.1	201,000	(?)	168,000	0.1	39.6	34.6	40.0	41.2
All other industries.....	552	7,202	8.5	26,342,000	6.4	10,263,000	8.0	.....	.....	.....	.....

<sup>1</sup> Percentages of increase are based on figures in Table I; a minus sign (-) denotes decrease. Where the percentages are omitted, comparable figures can not be given.

<sup>2</sup> Less than one-tenth of 1 per cent.

It should be borne in mind, in considering this table, that the value of products in some of the industries involves a certain amount of duplication due to the use of the product of one establishment in the industry as material for another establishment.

In addition to the 38 industries presented separately in the preceding table which reported products valued at more than \$500,000, there are 12 others each of which had a value of products in excess of that amount in 1909. They are included under the head of "All other industries" in the table, because in some cases the operations of individual establishments would be disclosed if they were shown separately; in others, because the returns do not properly present the true condition of the industry, for the reason that it is more or less interwoven with one or more other industries; and in still others, because comparable statistics for the different census years can not be presented on account of changes in classification. The most important of these industries is the manufacture of bags, other than paper. The other industries not shown separately are as follows: Belting and hose, leather; cars and general shop construction and repairs by street-railroad companies; iron and steel, blast furnaces; mats and matting; millinery and lace goods; mineral and soda waters; pottery, terra-cotta, and fire-clay products; roofing materials; stationery goods, not elsewhere specified; steam packing; and wood preserving. The 1909 statistics for the manufacture of millinery and lace goods are, however, given in Table II, page 608.

Although a few industries predominate in importance, it will be seen from Table II that there is on the whole considerable diversity in the manufacturing activities of the state. The most important industries listed in the table, in which they are arranged in the order of the value of products, call for brief consideration.

*Flour-mill and gristmill products.*—This industry includes statistics for all mills grinding wheat, corn, rye, and other cereals, as well as those making hominy and grits, but it does not include statistics for factories manufacturing fancy cereals or other food preparations as chief products. The figures for mills doing custom grinding only are excluded, but they are shown separately on page 601. Measured by value of products, Minnesota is the leading state of the Union in this industry, contributing 15.7 per cent of the total reported in 1909 for the entire industry in the United States, as compared with 17.1 per cent in 1904 and 16.6 per cent in 1899. In 1909 the value of the output, \$139,136,000, represented over one-third of the total value of the products for all manufacturing industries in the state. The increase in this industry for the decade was \$56,148,000, or 67.7 per cent; this gain, however, was due more to the higher prices prevailing in 1909 than to an increase in output.

*Lumber and timber products.*—In addition to the logging plants, this classification includes sawmills, planing mills, and wooden packing-box factories. It does not include statistics of mills engaged exclusively in custom sawing for local consumption, the figures for which are shown separately on page 601. The first manufacturing establishment in the state was a sawmill located at Fort Snelling, which began operation in 1821. Two years later, however, it was also equipped for grinding flour.<sup>1</sup> Of the 525 establishments reported for this industry in 1909, 401 were logging plants and sawmills, 93 were planing mills, and 31 were wooden packing-box factories. The total value of products, \$42,353,000, shown for 1909, which represented 10.3 per cent of the total reported for all manufacturing industries in the state, was practically the same as that shown for 1904 but less than that for 1899. More wage earners were engaged in this class of manufactures than in any other three industries in the state combined. In capital invested, in amount paid in wages, and in value added by manufacture, this industry also leads all others in the state.

*Slaughtering and meat packing.*—This industry includes the wholesale slaughtering and meat-packing establishments and those engaged in the manufacture of sausage only, but does not include the numerous retail butcher shops which slaughter a large number of animals. The value of products reported for the industry in 1909 was \$25,754,000, or more than three times the value of its output in 1899, the industry becoming of more importance in this respect than the butter and cheese industry and printing and publishing, both of which outranked it in 1899.

*Butter, cheese, and condensed milk.*—The establishments included in this classification for Minnesota are engaged almost wholly in the manufacture of butter, as very little cheese was manufactured in 1909 and no condensed milk. The industry has undergone a rapid development during the past 10 years, the value of its output having increased from \$8,480,000 in 1899 to \$25,287,000 in 1909, a gain of \$16,807,000, or 197.9 per cent, during the decade. Minnesota has advanced from sixth place among the states of the Union in this industry, as measured by value of products, in 1899, to fifth in 1904 and to fourth in 1909.

*Printing and publishing.*—This industry comprises mainly the publication of books, newspapers and periodicals, and job printing, but it also includes book-binding, steel engraving, lithographing, and the publishing of music. The value of products nearly doubled during the decade, increasing from \$8,197,000 in 1899 to \$15,982,000 in 1909.

*Foundry and machine-shop products.*—Not only foundries and machine shops, but also such allied industries as the manufacture of gas meters, hardware,

<sup>1</sup> Minnesota Bureau of Labor Statistics, 1891-1894, p. 165.

steam fittings, and structural ironwork are included in this classification. The industry in the state was really of greater importance than the statistics indicate, as some of the establishments were assigned to other classifications because they manufactured distinctive products, such as electrical machinery. The number of establishments increased from 199 in 1899 to 247 in 1909, and the value of products advanced from \$7,438,000 to \$15,609,000, or more than doubled during the 10 years. A number of the most important establishments are engaged in the manufacture of structural steel, ornamental and architectural ironwork, car wheels, and various classes of engines and castings.

*Cars and general shop construction and repairs by steam-railroad companies.*—The industry represents the work done in the steam-railroad repair shops, but does not include the minor repairs made in round-houses. The operations consist almost exclusively of repairs to the rolling stock and equipment. The railroad repair shops gave employment in 1909 to more wage earners, 8,232, and distributed a greater amount for wages, \$5,586,000, than any other industry in the state, with the exception of the lumber industry.

*Oil, linseed.*—Flax, one of the principal agricultural products of Minnesota and the Dakotas, furnishes the raw material for the manufacture of linseed oil. The recent radical changes in the methods of agriculture and the rotation of flax with other crops have made it more profitable to raise flax, thereby stimulating the manufacture of linseed oil. The growth of this industry has been remarkable, for in 1889 there were only three establishments located in the state, which reported products valued at \$1,548,000. During the decade following the value of the output increased \$1,725,000, or 111.4 per cent, while from 1899 to 1909 it advanced from \$3,273,000 to \$11,037,000, a gain of \$7,764,000, or 237.2 per cent. Part of this increase, however, is to be attributed to the marked advance in the price of the product.

The rank of some of the industries shown separately in the table changes to a marked degree when determined by value added by manufacture instead of by value of products. The lumber and the flour-mill and gristmill industries exchange places, while the printing and publishing and the foundry and machine-shop industries become third and fourth in importance, thereby displacing the slaughtering and meat-packing and the butter and cheese industries, which drop to seventh and eleventh places, respectively. The malt-liquor industry advanced from ninth to fifth place, and steam-railroad repair shops from seventh to sixth place. The most pronounced change is in the linseed-oil industry, which dropped from eighth place in value of products to twenty-first in value added by manufacture.

This table shows also the percentages of increase for these leading industries in respect to value of products

and value added by manufacture where comparable figures can be given. All but three of the 50 industries presented separately in the table show an increase from 1904 to 1909 in value of products, and all but four an increase in value added by manufacture. During the preceding five-year period all but four industries show an increase in the value of products, and all but three an increase in value added by manufacture. From 1904 to 1909 the largest increases in both items are shown for bicycles, motorcycles, and parts. As this industry is among the least important presented in the table, the percentages which are shown for the manufacture of malt, food preparations, butter and cheese, and boots and shoes, though smaller, are decidedly more significant.

*Persons engaged in manufacturing industries.*—The following table shows, for 1909, the distribution of the number of persons engaged in manufactures, the average number of wage earners being distributed by sex and age. It should be borne in mind, however, that the sex and age classification of the average number of wage earners in this and other tables is an estimate obtained by the method described in the Introduction.

CLASS.	PERSONS ENGAGED IN MANUFACTURES.		
	Total.	Male.	Female.
All classes.....	104,406	90,058	14,348
Proprietors and officials.....	9,142	8,908	234
Proprietors and firm members.....	5,276	5,206	170
Salaries officers of corporations.....	1,596	1,560	36
Superintendents and managers.....	2,170	2,142	28
Clerks.....	10,497	7,891	2,606
Wage earners (average number).....	84,767	73,259	11,508
16 years of age and over.....	84,461	73,038	11,423
Under 16 years of age.....	306	221	85

The average number of persons engaged in manufactures during 1909 was 104,406, of whom 84,767 were wage earners. Of the remainder, 9,142 were proprietors and officials and 10,497 were clerks. Corresponding figures for individual industries will be found in Table II, page 608.

The next table shows, for 1909, the percentage of proprietors and officials, clerks, and wage earners, respectively, among the total number of persons employed in manufactures. It covers all industries combined and 17 important industries individually.

Of the total number of persons engaged in all manufacturing industries, 8.8 per cent were proprietors and officials, 10.1 per cent clerks, and 81.2 per cent wage earners. The highest percentage of proprietors and officials shown for any individual industry, 33.1, is for the establishments manufacturing butter and cheese; this is due to the fact that many of the establishments in this industry are carried on by cooperative associations, and from the information contained

in the reports it often was impossible to distinguish such associations from partnerships. It is probable, therefore, that members of some of these cooperative associations have been counted as partners. In the bakery, tobacco manufactures, and the printing and publishing industries the proportion of persons in this class is also much higher than for most other industries or for all industries combined, and may be accounted for by the fact that many of the establishments in these industries are small and the work is done to a large extent by the proprietors or their immediate representatives.

On account of the large average number of wage earners to an individual establishment in the boot and shoe factories and in the steam-railroad repair shops, these industries show the smallest proportions of proprietors and officials.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	104,406	8.8	10.1	81.2
Agricultural implements.....	1,293	3.9	17.7	78.4
Boots and shoes, including cut stock and findings.....	2,949	1.8	7.9	90.3
Bread and other bakery products.....	2,435	10.5	10.8	69.6
Butter, cheese, and condensed milk.....	1,071	33.1	6.8	00.1
Cars and general shop construction and repairs by steam-railroad companies.....	8,681	2.4	2.7	94.8
Clothing, men's, including shirts.....	2,432	3.7	7.7	88.7
Flour-mill and gristmill products.....	6,890	11.0	25.1	63.1
Foundry and machine-shop products.....	7,273	7.2	10.2	82.5
Fur goods.....	1,300	0.2	12.5	81.2
Furniture and refrigerators.....	1,932	0.2	6.1	87.7
Liquors, malt.....	2,238	8.6	17.5	73.9
Lumber and timber products.....	22,304	4.6	2.6	92.8
Oil, linsed.....	433	4.2	9.5	86.4
Patent medicines and compounds and druggists' preparations.....	1,083	13.9	42.2	43.9
Printing and publishing.....	9,078	16.2	21.7	62.1
Slaughtering and meat packing.....	2,452	2.3	18.9	78.3
Tobacco manufactures.....	2,130	19.3	5.0	75.7
All other industries.....	27,532	9.9	8.9	81.1

The next table shows, in percentages, for 1909, for all industries combined, the distribution of the average number of wage earners by age periods, and for those 16 years of age and over by sex, calculated in the manner described in the Introduction. It also shows, for some of the important industries separately, a similar distribution of wage earners as reported for December 15, or the nearest representative day. As a means of judging the importance of the several industries the average number employed for the year is also given in each case.

For all industries combined, 86.2 per cent of the average number of wage earners were males 16 years of age and over, 13.5 per cent females 16 years of age and over, and less than 1 per cent children under 16 years of age. In the manufacture of men's clothing nearly nine-tenths of the wage earners were women 16 years of age and over, in the fur-goods industry the proportion was nearly three-fifths, and in the patent-medicine industry it was over two-fifths. Women were also employed to a considerable extent in the boot and

shoe, bakery, printing and publishing industries, and in tobacco manufactures.

The number of children employed in the manufacturing industries of Minnesota is very small; in only one industry shown separately in the foregoing table—tobacco manufactures—do they constitute as much as 1 per cent of the total number of wage earners in the industry. The average number of children was largest in printing and publishing, where 53 were employed, but they formed only nine-tenths of 1 per cent of all wage earners engaged in the industry.

INDUSTRY.	WAGE EARNERS.			
	Average number. <sup>1</sup>	Per cent of total.		
		16 years of age and over.		Under 16 years of age.
Male.	Female.			
All industries.....	84,767	86.2	13.5	0.4
Agricultural implements.....	1,014	99.8	.....	0.2
Boots and shoes, including cut stock and findings.....	2,604	63.8	35.7	0.5
Bread and other bakery products.....	1,696	70.8	28.3	0.9
Butter, cheese, and condensed milk.....	1,184	99.0	0.7	0.3
Cars and general shop construction and repairs by steam-railroad companies.....	8,232	99.9	0.1	.....
Clothing, men's, including shirts.....	2,156	10.6	89.4	.....
Flour-mill and gristmill products.....	4,345	98.3	1.7	( <sup>2</sup> )
Foundry and machine-shop products.....	6,662	99.5	0.4	0.1
Fur goods.....	1,050	42.7	57.2	0.1
Furniture and refrigerators.....	1,695	98.4	0.9	0.7
Liquors, malt.....	1,653	97.1	2.3	0.1
Lumber and timber products.....	20,704	99.7	0.2	0.1
Oil, linsed.....	374	100.0	.....	.....
Patent medicines and compounds and druggists' preparations.....	475	50.0	43.4	0.6
Printing and publishing.....	5,641	73.8	25.3	0.9
Slaughtering and meat packing.....	1,921	97.5	2.2	0.3
Tobacco manufactures.....	1,613	72.6	26.5	1.0
All other industries.....	22,342	70.0	23.3	0.6

<sup>1</sup> For method of estimating the distribution, by sex and age periods, of the average number in all industries combined, see Introduction.  
<sup>2</sup> Less than one-tenth of 1 per cent.

In order to compare the distribution of persons engaged in manufactures in 1909 with that shown at the census of 1904 it is necessary to use the classification employed at the earlier census. (See Introduction.) The following table makes this comparison according to occupational status:

CLASS.	PERSONS ENGAGED IN MANUFACTURES.				
	1909		1904		Per cent of increase, 1904-1909.
	Number.	Per cent distribution.	Number.	Per cent distribution.	
Total.....	104,406	100.0	83,301	100.0	25.3
Proprietors and firm members.....	5,379	5.1	4,624	5.4	18.8
Salaried employees.....	14,263	13.7	9,141	11.0	56.0
Wage earners (average number)....	84,767	81.2	69,636	83.6	21.7

Comparable figures are not obtainable for 1899. The table shows that the greatest percentage of increase was in the salaried employees.

The following table shows the average number of wage earners, distributed according to age periods, and in the case of those 16 years of age and over according to sex, for 1909, 1904, and 1899. The averages for 1909 are estimated on the basis of the actual



number reported for a single representative day. (See Introduction.)

CLASS.	AVERAGE NUMBER OF WAGE EARNERS.					
	1909		1904		1899	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
Total.....	84,787	100.0	69,636	100.0	64,557	100.0
16 years of age and over..	84,461	99.6	69,316	99.5	63,859	98.9
Male.....	73,038	86.2	60,886	87.4	57,123	88.5
Female.....	11,423	13.5	8,430	12.1	6,736	10.4
Under 16 years of age....	306	0.4	320	0.5	698	1.1

This table shows that the number of females 16 years of age and over increased from 6,736 in 1899 to 11,423 in 1909, the proportion of such wage earners forming 13.5 per cent of the total in the latter year, as compared with 10.4 per cent in the former year. On the other hand, the actual number of children employed in 1909 was less than half as great as in 1899, and their proportion of the total decreased from 1.1 per

cent in 1899 to three-tenths of 1 per cent in 1909. On account of the increase in the number of females 16 years of age and over, the proportion of males 16 years of age and over was slightly less in 1909 than in 1899, although the actual number increased from 57,123 to 73,038.

**Wage earners employed, by months.**—The following table gives the number of wage earners employed on the 15th of each month during the year 1909 for all industries combined, for the brick and tile and the lumber industries, and for all other industries combined; it gives also the percentage which the number reported for each month is of the greatest number reported for any month. In Table II, page 608, are shown, for practically all of the important industries in the state, the largest number and the smallest number of wage earners reported for any month. The figures are for the 15th day, or the nearest representative day, of the month. The wage earners for the lumber industry are divided in the table so as to show separately the number engaged in the mills and the number in the logging operations.

MONTH.	WAGE EARNERS.											
	All industries.		Brick and tile.		Lumber and timber products.					All other industries.		
	Number.	Per cent of maximum.	Number.	Per cent of maximum.	Total.		In mills.		In logging operations.		Number.	Per cent of maximum.
					Number.	Per cent of maximum.	Number.	Per cent of maximum.	Number.	Per cent of maximum.		
January.....	79,918	88.2	246	12.2	20,732	89.7	9,422	55.4	11,310	91.8	58,940	88.7
February.....	80,909	89.3	246	12.2	20,383	88.2	10,122	59.5	10,261	83.3	60,280	90.8
March.....	82,081	90.6	286	14.2	20,641	89.3	10,676	62.8	9,965	80.9	61,154	92.1
April.....	81,134	89.5	661	32.8	19,177	83.0	14,689	86.3	4,488	36.4	61,296	92.3
May.....	82,952	91.5	1,593	79.1	19,649	85.0	16,436	96.6	3,213	26.1	61,710	92.9
June.....	85,038	93.8	1,880	98.3	20,136	87.1	17,012	100.0	3,124	25.4	62,922	94.7
July.....	84,667	93.4	2,014	100.0	19,644	85.0	16,727	98.3	2,917	23.7	63,009	94.9
August.....	85,847	94.7	1,775	88.1	19,807	85.7	16,516	97.1	3,291	26.7	64,265	96.8
September.....	87,643	96.7	1,450	72.0	20,244	87.6	15,852	93.2	4,392	35.7	65,949	99.3
October.....	90,620	100.0	1,082	53.7	23,116	100.0	14,831	87.2	8,285	67.3	66,422	100.0
November.....	89,503	98.8	701	34.8	22,781	98.6	12,485	73.4	10,296	83.6	65,021	99.4
December.....	80,896	95.9	414	20.6	22,135	95.8	9,818	57.7	12,317	100.0	64,347	96.9

In all industries combined, the maximum number of wage earners were employed in October and the minimum in January, only 88.2 per cent as many being employed in the latter month as in the former. In the lumber industry, which employs about one-fourth of all the wage earners in the state, the maximum occurred in October, which was the month of greatest employment for all industries combined, and the minimum in April. In logging operations there was an extreme fluctuation from 12,317 in December to 2,917 in July, this latter number being 23.7 per cent of the number in December. The figures for the brick and tile industry, although comparatively small, show considerable seasonal variation, with a maximum of 2,014 in July, and a minimum of 246 in January and February.

**Prevailing hours of labor.**—In the next table wage earners have been classified according to the hours of labor prevailing in the establishments in which they are employed. In making this classification the average number of wage earners employed during the

year is used, and the number employed in each establishment is classified as a total, according to the hours prevailing in that establishment, even though a few employees work a greater or less number of hours.

It is evident from the figures that for the great majority of wage earners employed in the manufacturing industries of Minnesota the usual hours of labor range from 54 to 60 a week, only 16.7 per cent of the total being employed in establishments where the hours are less than 54, and only 4.1 per cent in establishments where they exceed 60 a week.

The lumber and the slaughtering and meat-packing industries and the manufacture of agricultural implements are mainly on a 60-hour-a-week basis; in the flour mills and gristmills a 54-hour week is the most common, although in many establishments from 54 to 60 hours a week prevail; and in the steam-railroad repair shops nearly half of the employees work 54 hours a week. The majority of the tobacco factories operate 48 hours or less a week, while in the gas plants and paper mills long hours prevail.

INDUSTRY.	AVERAGE NUMBER OF WAGE EARNERS IN ESTABLISHMENTS GROUPED ACCORDING TO PREVALING HOURS OF WORK PER WEEK.								
	Total.	48 and under.	Between 48 and 54.	54.	Between 54 and 60.	60.	Between 60 and 72.	72.	Over 72.
All industries.....	84,767	7,745	6,452	12,754	14,206	40,103	1,680	1,269	558
Agricultural implements.....	1,014	1	.....	6	39	968	.....	.....	.....
Artificial stone.....	653	41	.....	171	105	336	.....	.....	.....
Bicycles, motorcycles, and parts.....	54	2	.....	34	18	.....	.....	.....	.....
Boots and shoes, including cut stock and findings.....	2,604	.....	4	8	1,732	920	.....	.....	.....
Boxes, fancy and paper.....	595	5	41	166	325	58	.....	.....	.....
Bread and other bakery products.....	1,696	121	4	202	26	1,255	76	10	2
Brick and tile.....	1,038	182	.....	40	17	798	1	.....	.....
Butter, cheese, and condensed milk.....	1,184	245	4	114	40	692	43	42	4
Canning and preserving.....	415	3	.....	105	97	170	.....	19	12
Carriages and wagons and materials.....	893	3	25	36	182	622	.....	.....	.....
Cars and general shop construction and repairs by steam-railroad companies.....	8,232	336	1,484	4,014	.....	2,159	230	.....	.....
Clothing, men's, including shirts.....	2,156	149	272	642	1,040	53	.....	.....	.....
Clothing, women's.....	203	.....	139	51	8	5	.....	.....	.....
Coffee and spice, roasting and grinding.....	342	15	7	16	207	37	.....	.....	.....
Confectionery.....	715	4	4	47	169	501	.....	.....	.....
Copperage and wooden goods, not elsewhere specified.....	850	157	4	82	140	467	.....	.....	.....
Copper, tin, and sheet-iron products.....	1,081	493	118	143	208	89	.....	.....	.....
Electrical machinery, apparatus, and supplies.....	187	34	3	24	101	25	.....	.....	.....
Fancy articles, not elsewhere specified.....	231	61	.....	169	.....	1	.....	.....	.....
Flour-mill and gristmill products.....	4,345	353	3	1,300	907	1,207	343	232	.....
Food preparations.....	405	18	.....	90	227	69	1	.....	.....
Foundry and machine-shop products.....	6,062	32	57	856	3,398	1,659	.....	.....	.....
Fur goods.....	1,066	146	610	254	2	44	.....	.....	.....
Furniture and refrigerators.....	1,695	10	16	350	77	1,236	.....	.....	.....
Gas and electric fixtures and lamps and reflectors.....	86	33	23	18	0	.....	.....	.....	.....
Gas, illuminating and heating.....	848	15	.....	4	.....	9	7	813	.....
Hosiery and knit goods.....	1,052	.....	.....	48	866	138	.....	.....	.....
Jewelry.....	119	8	79	32	.....	.....	.....	.....	.....
Leather goods.....	870	40	516	8	240	66	.....	.....	.....
Lime.....	203	.....	.....	.....	.....	203	.....	.....	.....
Liquors, malt.....	1,053	617	.....	438	206	392	.....	.....	.....
Lumber and timber products.....	20,704	133	.....	226	442	19,574	324	5	.....
Malt.....	138	18	.....	22	82	16	.....	.....	.....
Marble and stone work.....	1,738	714	.....	149	326	549	.....	.....	.....
Mattresses and spring beds.....	453	0	15	8	90	334	.....	.....	.....
Musical instruments, pianos and organs and materials.....	143	.....	.....	45	74	24	.....	.....	.....
Oil, linseed.....	374	.....	.....	.....	.....	144	.....	88	142
Paint and varnish.....	104	5	.....	23	89	47	.....	.....	.....
Paper and wood pulp.....	607	.....	.....	.....	.....	77	448	50	20
Paper goods, not elsewhere specified.....	87	7	34	.....	43	3	.....	.....	.....
Patent medicines and compounds and druggists' preparations.....	475	54	100	80	142	24	.....	.....	.....
Photo-engraving.....	168	168	.....	.....	.....	.....	.....	.....	.....
Printing and publishing.....	5,641	1,905	2,100	863	395	210	162	.....	.....
Shipbuilding, including boat building.....	209	2	88	24	22	123	.....	.....	.....
Show cases.....	104	.....	.....	.....	21	83	.....	.....	.....
Slaughtering and meat packing.....	1,921	1	13	22	2	1,881	2	.....	.....
Stoves and furnaces, including gas and oil stoves.....	185	25	1	39	80	81	.....	.....	.....
Surgical appliances and artificial limbs.....	52	2	25	22	.....	3	.....	.....	.....
Tobacco manufactures.....	1,613	1,173	200	39	34	77	.....	.....	.....
Woolen, worsted, and felt goods, and wool hats.....	277	2	.....	.....	180	95	.....	.....	.....
All other industries.....	7,292	436	348	1,799	1,679	2,636	18	4	372

Location of establishments.—The next table shows the extent to which the manufactures of Minnesota are centralized in cities of 10,000 population or over. (See Introduction.)

The comparison is confined here, as in other states, to the years 1899 and 1909, in the absence of a Federal census of population by which the grouping of cities in 1904 could be determined.

ITEM.	Year.	Aggregate.	CITIES HAVING A POPULATION OF 10,000 AND OVER.								DISTRICTS OUTSIDE OF CITIES HAVING A POPULATION OF 10,000 AND OVER.	
			Total.		10,000 to 25,000.		25,000 to 100,000.		100,000 and over.		Number or amount.	Percent of total.
			Number or amount.	Per cent of total.	Number or amount.	Per cent of total.	Number or amount.	Per cent of total.	Number or amount.	Per cent of total.		
Population.....	1910	2,076,708	654,837	31.5	60,219	2.9	78,466	3.8	516,152	24.9	1,420,871	68.5
	1909	1,751,394	461,383	26.3	42,631	2.4	52,960	3.0	365,783	20.9	1,290,011	73.7
Number of establishments....	1909	5,561	2,305	41.4	290	5.2	194	3.5	1,821	32.7	3,256	58.6
	1899	4,096	1,608	39.1	151	3.7	126	3.1	1,326	32.4	2,493	60.9
Average number of wage earners.	1909	84,767	66,725	66.9	4,341	5.1	6,083	7.2	46,801	54.6	28,042	33.1
	1899	64,557	39,011	61.4	3,314	5.1	3,658	5.7	32,639	50.0	24,946	38.6
Value of products.....	1909	\$409,419,621	\$202,000,908	64.0	\$20,426,140	5.0	\$17,180,063	4.2	\$224,394,705	54.8	\$147,418,713	36.0
	1899	223,692,922	141,976,434	63.5	9,701,844	4.3	7,810,737	3.5	124,463,853	55.6	81,716,488	36.5
Value added by manufacture.	1909	127,797,334	89,663,460	70.2	7,215,361	5.6	8,339,133	6.5	74,101,936	58.0	38,143,874	29.8
	1899	73,393,645	47,089,324	64.2	3,295,974	4.5	4,151,749	5.7	39,641,601	54.0	26,304,321	35.8

In 1909 cities having 10,000 inhabitants or over reported 64 per cent of the total value of manufactured products and 66.9 per cent of the average number of wage earners in manufacturing industries for the state. The figures indicate that during the past 10 years the industries located in this class of cities gained somewhat in relative importance on those located outside such cities.

The increase in the population of different cities has, to some extent, affected the grouping in the table. In 1900 St. Cloud and Virginia each had less than 10,000 inhabitants and so for 1899 are not included in the group of cities whose statistics are presented separately. This accounts in part for the increases shown for the group of cities having from 10,000 to 25,000 inhabitants.

Each of the three groups of cities shows a large absolute increase in the value of its manufactured products, but the two groups comprising cities having between 10,000 and 100,000 inhabitants have slightly increased their proportions of the total value of the manufactured products of the state, whereas the proportion contributed by the cities of more than 100,000 inhabitants has decreased somewhat. In 1909 the five cities having between 10,000 and 25,000 inhabitants contributed 5 per cent of the total value of products for the state; Duluth, the only city having between 25,000 and 100,000 inhabitants, contributed 4.2 per cent; and Minneapolis and St. Paul, each of more than 100,000 inhabitants, 54.8 per cent.

The population in 1910 and in 1900, of the eight cities which had 10,000 inhabitants or over in 1910, is given in the following tabular statement:

CITY.	1910	1900
Minneapolis .....	301,408	202,718
St. Paul .....	214,744	163,065
Duluth .....	78,400	52,909
Winona .....	18,583	19,714
Mankato .....	10,355	10,593
St. Cloud .....	10,600	8,083
Virginia .....	10,473	2,962
Stillwater .....	10,198	12,318

The relative importance in manufactures of each of these eight cities is shown in the following table, in which the value of products and the average number of wage earners are shown separately for 1909, 1904, and 1899:

CITY.	AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS.		
	1909	1904	1899	1909	1904	1899
Minneapolis <sup>1</sup> .....	26,962	21,671	19,620	\$165,404,680	\$121,162,416	\$94,407,774
St. Paul .....	19,339	14,363	13,019	58,990,025	38,318,704	30,056,079
Duluth .....	6,083	3,987	3,658	17,180,063	10,139,009	7,810,737
Winona .....	2,032	1,953	1,965	11,199,622	7,850,236	6,013,517
Mankato .....	807	724	520	3,722,736	3,422,117	1,887,315
Stillwater .....	688	955	829	2,685,723	2,784,113	1,801,012
St. Cloud <sup>1</sup> .....	626	414	507	2,299,063	1,799,785	1,560,782
Virginia .....	188	( <sup>2</sup> )	( <sup>2</sup> )	518,996	( <sup>2</sup> )	( <sup>2</sup> )

<sup>1</sup> Figures do not agree with those published in 1904, because it was necessary to revise the totals in order to include data only for those establishments located within the corporate limits of the city.

<sup>2</sup> Figures not available.

Each city for which comparative statistics are available, except Stillwater, shows an increase in value of products from 1904 to 1909, and all show an increase from 1899 to 1904. The percentages of increase, however, were generally greater from 1904 to 1909; the greatest relative gain, 69.4 per cent, was made by Duluth.

Minneapolis, the largest city in the state, is also its most important industrial center. The value of its manufactures increased from \$94,407,774 in 1899 to \$165,404,680 in 1909, a gain of \$70,996,906, or 75.2 per cent. The value of products reported for this city in 1909 represented 40.4 per cent of the total for the state. Ranked by value of products, it was fourteenth among the cities of the United States in 1899 and in 1909, but fifteenth in 1904. The value of the output of the flour mills and gristmills located in Minneapolis constituted 56.5 per cent of the total for the industry in the state, and nearly half of the total value of all manufactured products reported for the city. Of the total value of the flour-mill and gristmill products of continental United States in 1909 and of the total output of wheat flour, this city contributed 8.9 per cent and 12.8 per cent, respectively. Other important industries of Minneapolis, in the order of their importance as measured by value of products, are the lumber and the linseed-oil industries, foundries and machine shops, printing and publishing, and the manufacture of bags, other than paper. More than nine-tenths of the linseed oil produced in the state, as measured by value, is manufactured in Minneapolis. The extensive milling operations of the city account for the large production of bags.

St. Paul, the second city in the state in both population and manufactures, shows an increase in value of products for the decade of \$28,933,946, or 96.3 per cent. The chief industries are printing and publishing, and foundries and machine shops, although the breweries, the manufacture of boots and shoes, steam-railroad repair shops, and the manufacture of fur goods are also important.

The leading industry of Duluth is the lumber industry, the value of its output constituting about one-third of the total value of manufactured products reported for the city. Other important industries are foundries and machine shops, breweries, and blast furnaces.

Flour milling and gristmilling and the manufacture of patent medicines and compounds and druggists' preparations constitute the most important industries of Winona, although the manufacture of malt and slaughtering and meat packing are worthy of note. In Mankato and St. Cloud the flour mills and gristmills contributed about one-half of the total value of all manufactured products, while in Stillwater nearly half of the value of its manufactures consisted of the output of the boot and shoe factories. The leading industry in Virginia was the manufacture of malt liquors.

Character of ownership.—The table that follows has for its purpose the presentation of conditions in respect to the character of ownership, or legal organization, of manufacturing enterprises. For all industries combined comparative figures are given covering the censuses of 1909 and 1904. Comparative data for

1899 are not available. Figures for 1909 only are presented for several important industries individually.

In order to avoid disclosing the operations of individual concerns it is necessary to omit the figures for several important industries from this table and the one following.

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>					<b>Flour-mill and gristmill products, 1909—Continued.</b>				
1909.....	5,561	84,767	\$409,419,621	\$127,797,334	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	4,756	69,636	307,856,073	97,304,124	Individual.....	39.4	9.0	7.5	8.8
Individual:					Firm.....	22.4	5.7	5.4	5.4
1909.....	2,654	0,123	37,022,048	14,157,595	Corporation <sup>1</sup> .....	38.2	85.3	87.2	85.9
1904.....	2,325	9,589	35,226,503	13,629,774	<b>Foundry and machine-shop products, 1909.....</b>	247	6,002	\$15,608,716	\$8,423,791
Firm:					Individual.....	72	456	1,153,588	577,814
1909.....	964	7,201	25,163,188	9,807,125	Firm.....	53	770	1,904,080	1,080,890
1904.....	953	9,233	29,187,081	11,400,160	Corporation.....	122	4,776	12,550,448	6,759,078
Corporation:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	1,326	67,475	330,924,507	102,083,135	Individual.....	29.1	7.6	7.4	6.9
1904.....	922	49,899	234,013,704	70,856,447	Firm.....	21.5	12.8	12.2	12.9
Other:					Corporation.....	49.4	79.6	80.4	80.2
1909.....	617	968	16,309,818	1,749,479	<b>Liquors, malt, 1909.....</b>	65	1,953	\$10,568,452	\$5,225,745
1904.....	556	925	9,430,635	1,417,743	Individual.....	21	75	290,799	200,322
Per cent of total:					Firm.....	10	52	207,071	141,340
1909.....	100.0	100.0	100.0	100.0	Corporation.....	34	1,526	10,069,982	7,884,074
1904.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Individual:					Individual.....	32.3	4.5	2.8	2.4
1909.....	47.7	10.8	0.0	11.1	Firm.....	15.4	3.1	2.0	1.7
1904.....	48.0	13.8	11.4	14.0	Corporation.....	52.3	92.3	95.3	95.8
Firm:					<b>Lumber and timber products, 1909.....</b>	525	20,704	\$42,352,507	\$21,487,278
1909.....	17.3	8.5	6.1	7.7	Individual.....	265	1,431	2,306,899	1,313,033
1904.....	20.0	13.3	9.5	11.7	Firm.....	132	1,053	1,792,401	998,578
Corporation:					Corporation <sup>1</sup> .....	128	18,220	38,163,207	19,175,667
1909.....	23.8	79.6	80.8	70.0	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	19.4	71.6	76.0	72.8	Individual.....	50.5	6.9	5.7	6.1
Other:					Firm.....	25.1	5.1	4.2	4.6
1909.....	11.1	1.1	4.0	1.4	Corporation <sup>1</sup> .....	24.4	88.0	90.1	89.2
1904.....	11.7	1.3	3.1	1.5	<b>Printing and publishing, 1909.....</b>	950	5,641	\$15,982,212	\$11,886,107
<b>Bread and other bakery products, 1909.....</b>	403	1,696	\$6,785,083	\$2,981,083	Individual.....	584	1,297	2,852,132	2,114,132
Individual.....	331	687	2,706,373	1,205,775	Firm.....	159	545	1,300,754	987,307
Firm.....	53	203	828,023	303,207	Corporation.....	175	3,742	11,646,607	8,640,615
Corporation.....	19	801	3,189,787	1,382,011	Other.....	32	67	182,719	144,053
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	82.1	40.5	40.8	40.4	Individual.....	61.5	23.0	17.8	17.8
Firm.....	13.2	12.3	12.2	13.2	Firm.....	16.7	9.7	8.1	8.3
Corporation.....	4.7	47.2	47.0	46.4	Corporation.....	18.4	66.3	72.9	72.7
<b>Butter, cheese, and condensed milk, 1909.....</b>	784	1,184	\$25,287,462	\$2,579,989	Other.....	3.4	1.0	1.1	1.2
Individual.....	150	192	4,592,276	527,638	<b>Slaughtering and meat packing, 1909.....</b>	30	1,921	\$25,753,697	\$3,597,414
Firm.....	33	34	940,236	99,111	Individual.....	12	37	431,504	80,339
Corporation.....	46	165	3,957,931	446,190	Firm.....	7	60	641,363	116,859
Other.....	555	793	15,791,019	1,507,050	Corporation.....	11	1,824	24,080,830	3,401,216
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	19.1	16.2	18.2	20.5	Individual.....	40.0	1.9	1.7	2.2
Firm.....	4.2	2.9	3.7	3.8	Firm.....	23.3	3.1	2.5	3.2
Corporation.....	5.9	13.9	15.7	17.3	Corporation.....	36.7	95.0	95.8	94.5
Other.....	70.8	67.0	62.4	58.4	<b>Flour-mill and gristmill products, 1909.....</b>	322	4,345	\$139,136,129	\$14,918,812
<b>Flour-mill and gristmill products, 1909.....</b>	322	4,345	\$139,136,129	\$14,918,812	Individual.....	127	392	10,384,044	1,306,408
Individual.....	127	392	10,384,044	1,306,408	Firm.....	72	246	7,465,180	803,916
Firm.....	72	246	7,465,180	803,916	Corporation <sup>1</sup> .....	123	3,707	121,296,305	12,808,428
Corporation <sup>1</sup> .....	123	3,707	121,296,305	12,808,428					

<sup>1</sup> Includes the group "Other," to avoid disclosure of individual operations.

The most important distinction shown is that between corporate and all other forms of ownership. Of the total number of establishments in all industries combined, 23.8 per cent were under corporate ownership in 1909, as against 19.4 per cent in 1904. Of the total value of products, however, this class of establishments reported 80.8 per cent in 1909, as compared with 76 per cent in 1904. Establishments under firm ownership show the greatest decrease in relative importance both numerically and as measured by value of products. The class of "Other" establishments is of special interest in Minnesota, because it includes the numerous creameries operated by cooperative asso-

ciations, which contributed 62.4 per cent of the total value of products of the butter and cheese factories in the state. In all other industries shown in the table, establishments under corporate ownership predominate in respect to value of products.

Size of establishment.—The tendency for manufacturing to become concentrated in large establishments, or the reverse, is a matter of interest from the standpoint of industrial organization. In order to throw some light upon it the following table groups the establishments according to the value of their products. The table also shows the average size of establishments for all industries combined and for certain

important industries separately as measured by number of wage earners, value of products, and value added by manufacture.

The totals for all industries are shown for the last two censuses, while for the eight industries presented separately figures are given for 1909 only.

INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>					<b>Flour-mill and gristmill products, 1909—Continued.</b>				
1909.....	5,561	84,767	\$409,419,621	\$127,797,334	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	4,756	69,636	307,858,073	97,304,124	Less than \$5,000.....	1.2	0.1	(?)	(?)
Less than \$5,000:					\$5,000 and less than \$20,000.....	18.6	1.2	0.5	0.8
1909.....	1,969	2,194	4,663,743	3,080,907	\$20,000 and less than \$100,000.....	53.4	9.4	5.8	8.2
1904.....	1,715	1,968	4,189,970	2,766,313	\$100,000 and less than \$1,000,000.....	19.3	16.7	15.5	15.6
\$5,000 and less than \$20,000:					\$1,000,000 and over.....	7.5	72.6	78.1	74.4
1909.....	1,743	6,767	18,742,099	9,419,792	Average per establishment.....		13	\$432,100	\$40,332
1904.....	1,646	6,397	17,401,291	8,251,465	<b>Foundry and machine-shop products, 1909.</b>				
\$20,000 and less than \$100,000:					247	6,002	\$15,608,716	\$8,423,791	
1909.....	1,347	14,180	56,703,495	20,748,523	Less than \$5,000.....	55	66	140,567	60,116
1904.....	992	13,258	42,029,326	17,299,268	\$5,000 and less than \$20,000.....	87	439	921,380	595,587
\$100,000 and less than \$1,000,000:					\$20,000 and less than \$100,000.....	74	1,296	3,304,431	1,905,577
1909.....	437	37,726	130,802,555	51,618,500	\$100,000 and less than \$1,000,000 <sup>1</sup> .....	31	4,201	11,242,338	5,822,011
1904.....	364	34,455	111,690,067	45,194,100	Per cent of total.....	100.0	100.0	100.0	100.0
\$1,000,000 and over:					Less than \$5,000.....	22.3	1.1	0.9	1.1
1909.....	65	23,900	198,507,729	42,920,522	\$5,000 and less than \$20,000.....	35.2	7.3	5.9	7.1
1904.....	39	13,558	132,541,419	23,802,978	\$20,000 and less than \$100,000.....	30.0	21.6	21.2	22.7
Per cent of total:					\$100,000 and less than \$1,000,000 <sup>1</sup> .....	12.6	70.0	72.0	69.1
1909.....	100.0	100.0	100.0	100.0	Average per establishment.....		24	\$63,193	\$34,104
1904.....	100.0	100.0	100.0	100.0	<b>Liquors, malt, 1909.</b>				
Less than \$5,000:					65	1,653	\$10,568,452	\$8,225,745	
1909.....	35.4	2.6	1.1	2.4	Less than \$5,000.....	7	8	25,144	10,680
1904.....	38.1	2.8	1.4	2.8	\$5,000 and less than \$20,000.....	19	60	233,570	154,011
\$5,000 and less than \$20,000:					\$20,000 and less than \$100,000.....	23	203	1,055,214	748,298
1909.....	31.3	8.0	4.6	7.4	\$100,000 and less than \$1,000,000.....	13	440	3,284,760	2,602,325
1904.....	34.6	9.2	5.7	8.5	\$1,000,000 and over.....	3	936	5,969,764	4,704,430
\$20,000 and less than \$100,000:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	24.2	16.7	13.8	16.2	Less than \$5,000.....	10.8	0.5	0.2	0.2
1904.....	20.9	19.0	13.6	17.8	\$5,000 and less than \$20,000.....	29.2	3.6	2.2	3.3
\$100,000 and less than \$1,000,000:					\$20,000 and less than \$100,000.....	35.4	12.3	10.0	6.1
1909.....	7.9	44.5	31.9	40.4	\$100,000 and less than \$1,000,000.....	20.0	27.0	31.1	31.6
1904.....	7.7	49.5	36.3	46.4	\$1,000,000 and over.....	4.6	56.6	55.5	57.2
\$1,000,000 and over:					Average per establishment.....		25	\$162,592	\$126,550
1909.....	1.2	28.2	48.5	33.6	<b>Lumber and timber products, 1909.</b>				
1904.....	.8	19.5	43.1	24.5	525	20,704	\$42,352,507	\$21,487,278	
Average per establishment:					Less than \$5,000.....	284	411	549,971	379,399
1909.....		15	\$73,623	\$22,981	\$5,000 and less than \$20,000.....	117	663	1,178,289	702,675
1904.....		15	64,730	20,459	\$20,000 and less than \$100,000.....	54	1,464	2,541,944	1,343,788
<b>Bread and other bakery products, 1909.</b>					\$100,000 and less than \$1,000,000.....	62	11,059	22,724,540	11,787,086
403	1,696	\$6,785,083	\$2,981,083		\$1,000,000 and over.....	8	7,107	16,537,757	7,274,322
Less than \$5,000.....	188	122	493,617	232,135	Per cent of total.....	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000.....	166	383	1,546,967	692,205	Less than \$5,000.....	54.1	2.0	1.3	1.8
\$20,000 and less than \$100,000.....	39	341	1,844,947	566,481	\$5,000 and less than \$20,000.....	22.3	3.2	2.8	3.3
\$100,000 and less than \$1,000,000.....	10	845	3,394,552	1,490,262	\$20,000 and less than \$100,000.....	10.3	7.1	6.0	6.2
Per cent of total.....	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000.....	11.8	53.4	53.7	54.9
Less than \$5,000.....	46.6	7.2	7.3	7.8	\$1,000,000 and over.....	1.5	34.3	36.3	33.0
\$5,000 and less than \$20,000.....	41.2	22.9	22.8	23.2	Average per establishment.....		39	\$80,671	\$40,928
\$20,000 and less than \$100,000.....	9.7	20.1	19.8	19.0	<b>Printing and publishing, 1909.</b>				
\$100,000 and less than \$1,000,000.....	2.5	49.8	50.0	50.0	950	5,641	\$15,982,212	\$11,866,107	
Average per establishment.....		4	\$16,336	\$7,337	579	710	1,400,279	1,119,358	
<b>Butter, cheese, and condensed milk, 1909.</b>					\$5,000 and less than \$20,000.....	249	1,127	2,361,608	1,850,231
784	1,184	\$25,287,462	\$2,579,989		\$20,000 and less than \$100,000.....	96	1,406	3,933,600	2,790,021
Less than \$5,000.....	41	20	135,307	22,668	\$100,000 and less than \$1,000,000 <sup>1</sup> .....	26	2,308	8,286,825	6,117,497
\$5,000 and less than \$20,000.....	285	255	3,754,943	455,207	Per cent of total.....	100.0	100.0	100.0	100.0
\$20,000 and less than \$100,000.....	438	752	16,301,849	1,541,188	Less than \$5,000.....	60.9	12.6	8.8	9.4
\$100,000 and less than \$1,000,000 <sup>1</sup> .....	20	157	5,095,363	560,926	\$5,000 and less than \$20,000.....	26.2	20.0	14.8	15.6
Per cent of total.....	100.0	100.0	100.0	100.0	\$20,000 and less than \$100,000.....	10.1	26.5	24.6	23.5
Less than \$5,000.....	5.2	1.7	0.5	0.9	\$100,000 and less than \$1,000,000 <sup>1</sup> .....	2.7	40.9	51.8	51.5
\$5,000 and less than \$20,000.....	36.4	21.5	14.8	17.6	Average per establishment.....		6	\$16,823	\$12,512
\$20,000 and less than \$100,000.....	55.9	63.5	64.5	59.7	<b>Slaughtering and meat packing, 1909.</b>				
\$100,000 and less than \$1,000,000 <sup>1</sup> .....	2.6	13.3	20.1	21.7	30	1,921	\$25,753,697	\$3,597,414	
Average per establishment.....		2	\$32,254	\$3,291	\$5,000 and less than \$20,000.....	9	17	88,380	30,752
<b>Flour-mill and gristmill products, 1909.</b>					\$20,000 and less than \$100,000.....	10	47	462,864	98,940
322	4,345	\$139,136,129	\$14,918,812		\$100,000 and less than \$1,000,000 <sup>1</sup> .....	11	1,857	25,202,453	3,467,722
Less than \$5,000.....	4	3	8,486	2,991	Per cent of total.....	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000.....	60	53	732,336	119,487	Less than \$5,000.....	30.0	0.9	0.3	0.9
\$20,000 and less than \$100,000.....	172	409	8,114,747	1,230,390	\$20,000 and less than \$100,000.....	33.3	2.4	1.8	2.8
\$100,000 and less than \$1,000,000.....	62	727	21,811,152	2,471,175	\$100,000 and less than \$1,000,000 <sup>1</sup> .....	36.7	96.7	97.9	96.4
\$1,000,000 and over.....	24	3,153	108,669,408	11,094,789	Average per establishment.....		64	\$858,457	\$110,914

<sup>1</sup> Includes the group "\$1,000,000 and over."

<sup>2</sup> Less than one-tenth of 1 per cent.

<sup>3</sup> Includes the group "Less than \$5,000."

This table shows that of the 5,561 establishments reported in 1909 only 65, or 1.2 per cent, had a value of products exceeding \$1,000,000. These establishments, however, employed an average of 23,900 wage earners, or 28.2 per cent of the total number in all establishments, and reported 48.5 per cent of the total value of products and 33.6 per cent of the total value added by manufacture.

On the other hand, the very small establishments—that is, those having a value of products of less than \$5,000—constituted a considerable proportion (35.4

per cent) of the total number of establishments, but the value of their products amounted to only 1.1 per cent of the total. The great bulk of the manufacturing was reported by establishments having products valued at not less than \$100,000. Of the 65 establishments which turned out over \$1,000,000 worth of products, 24 were flour mills and 8 were lumber mills.

It will be seen from the above table that during the five years from 1904 to 1909 there was a considerable increase, as measured by value of products, in the

relative importance of the largest establishments—those reporting products of not less than \$1,000,000 in value—and a decrease in that of all other classes except a very slight gain in the class reporting products valued at \$20,000 and less than \$100,000.

The fact that between 1904 and 1909 the average value of products per establishment increased from \$64,730 to \$73,623 and the average value added by manufacture from \$20,459 to \$22,981 can not be taken as an indication of a tendency toward concentration. The increased values shown are undoubtedly due, in part, to the increase that has taken place in the prices of commodities. The average number of wage earners per establishment, 15, has remained unchanged.

The table shows further that all of the industries shown separately in the table, except the manufacture of butter and cheese, are conducted chiefly in establishments having a value of products of \$100,000 or over.

In some respects, and especially from the standpoint of conditions under which persons engaged in manufactures work, the best classification of establishments to bring out the feature of size is a classification according to the number of wage earners employed. The next table shows, for 1909, such a classification for all industries combined and for 17 important industries individually, and gives not only the number of establishments falling into each group but also the average number of wage earners employed.

INDUSTRY.	Total.	ESTABLISHMENTS EMPLOYING—								
		No wage earners.	1 to 5 wage earners.	6 to 20 wage earners.	21 to 50 wage earners.	51 to 100 wage earners.	101 to 250 wage earners.	251 to 500 wage earners.	501 to 1,000 wage earners.	Over 1,000 wage earners.
NUMBER OF ESTABLISHMENTS.										
All industries.....	5,561	603	3,458	894	303	145	99	32	21	6
Agricultural implements.....	17	1	3	8	2	3	2	2	1	
Boots and shoes, including cut stock and findings.....	18	3	3	2	2	5	2	3	1	
Bread and other bakery products.....	403	74	279	41	4	2	2	1		
Butter, cheese, and condensed milk.....	784	41	728	13	2					
Cars and general shop construction and repairs by steam-railroad companies.....	28		2	1	4	5	4	7	4	1
Clothing, men's, including shirts.....	41		4	18	9	5	3	2		
Flour-mill and gristmill products.....	322	22	223	46	18	7	3	1	2	
Foundry and machine-shop products.....	247	11	114	67	20	14	8	2	2	
Fur goods.....	42		18	10	6		2	1		
Furniture and refrigerators.....	47	3	14	15	17	4	4			
Liquors, malt.....	65	1	29	24	5	3	2		1	
Lumber and timber products.....	525	8	352	64	28	29	20	7	7	4
Oil, linseed.....	6		2	1	1		3			
Patent medicines and compounds and druggists' preparations.....	101	33	52	12	2	1	1			
Printing and publishing.....	950	195	584	119	35	11	5		1	
Slaughtering and meat packing.....	30	2	16	4	5			1		1
Tobacco manufactures.....	339	86	203	34	13	1	2			
All other industries.....	1,580	126	834	408	124	53	33	5	3	
AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	84,787	6,967	9,681	9,623	10,473	15,132	11,408	13,883	7,550	
Agricultural implements.....	1,014	7	94	1	219		694			
Boots and shoes, including cut stock and findings.....	2,664	10	15	78	402	230	1,295	625		
Bread and other bakery products.....	1,090	486	381	160	116	302	251			
Butter, cheese, and condensed milk.....	1,184	1,017	111	56						
Cars and general shop construction and repairs by steam-railroad companies.....	8,232	8	18	162	388	587	2,701	3,091	1,277	
Clothing, men's, including shirts.....	2,150	15	235	231	367	498	760			
Flour-mill and gristmill products.....	4,345	491	510	522	469	395	482	1,476		
Foundry and machine-shop products.....	6,002	285	703	824	1,037	1,284	581	1,188		
Fur goods.....	1,050	27	144	171		285	428			
Furniture and refrigerators.....	1,695	47	211	568	309	550				
Liquors, malt.....	1,683	83	274	126	234	400				
Lumber and timber products.....	20,704	675	639	930	2,137	4,134	2,420	4,776	4,976	
Oil, linseed.....	374		33	37	55	249				
Patent medicines and compounds and druggists' preparations.....	475	99	104	60	94					
Printing and publishing.....	5,641	1,268	1,194	1,166	775	718		520		
Slaughtering and meat packing.....	1,921	52	45	105	59		303		1,297	
Tobacco manufactures.....	1,013	424	330	384	75	400				
All other industries.....	22,342	1,973	4,560	3,924	3,737	5,012	1,474	1,072		
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	100.0	8.2	11.4	11.4	12.4	17.9	13.5	16.4	8.9	
Agricultural implements.....	100.0	0.7	9.3		21.6		68.4			
Boots and shoes, including cut stock and findings.....	100.0	0.4	0.0	2.9	15.1	9.0	48.6	23.5		
Bread and other bakery products.....	100.0	28.7	22.5	9.4	6.8	17.8	14.8			
Butter, cheese, and condensed milk.....	100.0	85.0	9.4	4.7						
Cars and general shop construction and repairs by steam-railroad companies.....	100.0	0.1	0.2	2.0	4.7	7.1	32.8	37.5	15.5	
Clothing, men's, including shirts.....	100.0	0.7	10.9	13.0	17.0	23.1	35.2			
Flour-mill and gristmill products.....	100.0	11.3	11.7	12.0	10.8	9.1	11.1	34.0		
Foundry and machine-shop products.....	100.0	4.7	13.2	13.7	17.3	21.4	9.8	19.8		
Fur goods.....	100.0	2.6	13.6	16.2		27.1	40.5			
Furniture and refrigerators.....	100.0	2.8	12.4	33.5	18.2	33.0				
Liquors, malt.....	100.0	5.0	16.6	7.6	14.2	24.2			32.4	
Lumber and timber products.....	100.0	3.3	3.1	4.5	10.3	20.0	11.7	23.1	24.0	
Oil, linseed.....	100.0		8.8	9.9	14.7	66.6				
Patent medicines and compounds and druggists' preparations.....	100.0	20.8	21.9	12.6	19.8	24.8				
Printing and publishing.....	100.0	22.5	21.2	20.7	13.7	12.7		9.2		
Slaughtering and meat packing.....	100.0	2.7	2.3	8.6	3.1		15.8		67.5	
Tobacco manufactures.....	100.0	26.3	20.5	23.8	4.6	24.8				
All other industries.....	100.0	8.8	20.4	17.6	16.7	22.4	6.6	7.5		



Of the 5,561 establishments reported for all industries, 10.8 per cent employed no wage earners; 62.3 per cent, from 1 to 5; 16 per cent, from 6 to 20; and 5.5 per cent, from 21 to 50. The most numerous single group consists of the 3,458 establishments employing from 1 to 5 wage earners each, and the next of the 894 employing from 6 to 20 wage earners. Fifty-nine establishments employed over 250 wage earners; of these, 6 employed over 1,000, of which 4 were sawmills.

Of the total number of wage earners, 38.8 per cent were in establishments employing over 250 wage earners. The single group having the largest number of wage earners was the group comprising the establishments employing from 101 to 250 wage earners. This group employed 15,182 wage earners, or 17.9 per cent of the total. The individual industries listed in this table but not in the preceding one are mainly industries in which comparatively large establishments do most of the business.

**Expenses.**—As stated in the Introduction, the census does not purport to furnish figures that can be used for determining the cost of manufacture and profits. Facts of interest can, however, be brought out concerning the relative importance of the different classes of expenses which make up the total.

The following table shows, for 1909, in percentages, the distribution of expenses among the classes indicated for all industries combined and for certain important industries separately. The figures on which the percentages are based appear in Table II, page 608.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
All industries.....	4.1	12.6	74.9	8.4
Agricultural implements.....	11.2	22.8	89.3	26.7
Boots and shoes, including cut stock and findings.....	5.0	17.8	68.0	8.7
Bread and other bakery products.....	4.7	17.1	60.9	11.3
Butter, cheese, and condensed milk.....	0.6	3.4	93.0	2.5
Cars and general shop construction and repairs by steam-railroad companies.....	3.0	44.2	51.4	0.7
Clothing, men's, including shirts.....	6.3	18.0	70.0	5.8
Flour-mill and gristmill products.....	1.6	2.1	92.4	3.9
Foundry and machine-shop products.....	3.6	27.8	51.1	12.5
Fur goods.....	6.7	16.0	65.6	11.1
Furniture and refrigerators.....	6.8	27.1	55.4	10.8
Liquors, malt.....	9.3	11.8	28.9	50.0
Lumber and timber products.....	3.3	28.4	54.3	13.5
Oil, linseed.....	1.0	2.4	93.2	3.4
Patent medicines and compounds and druggists' preparations.....	10.4	6.1	54.0	23.7
Printing and publishing.....	17.5	27.2	31.7	23.7
Slaughtering and meat packing.....	2.1	4.6	91.1	2.2
Tobacco manufactures.....	7.3	29.2	44.0	19.5
All other industries.....	6.5	17.9	65.8	9.7

The proportions of the total expenses vary greatly in the different industries. In the butter and cheese, flour-mill and gristmill, linseed-oil, and slaughtering and meat-packing industries, over 90 per cent of the total expenses were incurred for materials, while wages constituted less than 5 per cent.

**Engines and power.**—The next table shows, for all industries combined, the number of engines or other motors, according to their character, employed in generating power (including electric motors operated by purchased current), and their total horsepower.

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899 <sup>1</sup>	1909	1904	1899 <sup>1</sup>	1909	1904	1899
Primary power, total.....	8,679	3,265	3,254	297,670	220,934	180,124	100.0	100.0	100.0
Owned.....	3,792	3,265	3,254	266,546	211,070	175,352	89.5	95.5	97.4
Steam.....	2,544	2,378	2,473	199,777	167,103	146,578	67.1	75.0	81.4
Gas.....	377	629	521	7,174	4,710	3,624	2.4	2.1	2.0
Water wheels.....	308	242	260	56,631	38,196	24,932	19.0	17.3	13.8
Water motors.....	63	10	( <sup>2</sup> )	2,939	49	( <sup>2</sup> )	1.0	( <sup>2</sup> )	( <sup>2</sup> )
Other.....				25	1,012	248	0.0	0.6	0.1
Rented.....	4,887	( <sup>2</sup> )	( <sup>2</sup> )	31,124	9,864	4,742	10.5	4.5	2.6
Electric.....	4,887	( <sup>2</sup> )	( <sup>2</sup> )	30,297	8,594	3,769	10.2	3.9	2.1
Other.....				827	1,270	973	0.3	0.6	0.5
Electric motors.....	6,791	635	132	52,212	14,427	6,300	100.0	100.0	100.0
Run by current generated by establishment.....	1,904	635	132	21,915	5,833	2,531	42.0	40.4	40.2
Run by rented power.....	4,887	( <sup>2</sup> )	( <sup>2</sup> )	30,297	8,594	3,769	58.0	59.6	59.8

<sup>1</sup> Includes the neighborhood industries and hand trades, omitted in 1904 and 1909.  
<sup>2</sup> Not reported.      <sup>3</sup> Less than one-tenth of 1 per cent.

The total primary horsepower increased from 180,124 in 1899 to 297,670 in 1909, a gain of 117,546, or 65.3 per cent. In spite of the large increase in the power generated by steam engines—53,199 horsepower—the proportion which such power represented of the total primary power was only 67.1 per cent in 1909 as compared with 81.4 per cent in 1899. This was due to the increase in the amount of power developed by the use of water wheels, from 24,932 horsepower in 1899 to 56,631 horsepower in 1909, and to the increase in rented electric power, from 3,769 horsepower, constituting 2.1 per cent of the total primary power, in 1899, to 30,297 horsepower, constituting 10.2 per cent, in 1909. The use of electric motors for the purpose of applying power generated within the establishments is also increasing, the horsepower of such motors having increased from 2,531 in 1899 to 5,833 in 1904 and 21,915 in 1909.

**Fuel.**—The following table shows the quantity of each kind of fuel used in 1909 for all industries combined and for certain selected industries:

INDUSTRY.	An-thracite coal (tons).	Bitumi-nous coal (tons).	Coke (tons).	Wood (cords).	Oil, includ-ing gas-oline (bar-rels).	Gas (1,000 feet).
All industries.....	39,752	1,148,357	108,384	152,787	210,247	59,915
Agricultural implements.....	22	10,443	1,485	2,170	1,145	.....
Boots and shoes, including cut stock and findings.....	1,075	3,615	.....	17	.....	1,179
Bread and other bakery products.....	3,763	4,708	2,492	10,535	62	4,642
Brick and tile.....	65	58,613	155	44,839	177	.....
Butter, cheese, and condensed milk.....	412	38,871	5	22,520	556	100
Cars and general shop construction and repairs by steam-railroad companies.....	142	132,504	689	274	2,966	.....
Clothing, men's, including shirts.....	38	587	.....	43	54	279
Coke.....	.....	117,431	543	.....	.....	160
Flour-mill and gristmill products.....	4,572	249,807	60	17,338	1,796	.....
Foundry and machine-shop products.....	7,387	32,842	20,133	6,383	4,683	4,057
Fur goods.....	29	627	30	13	13	333
Furniture and refrigerators.....	308	10,065	17	2,441	215	25
Gas, illuminating and heating.....	44	97,988	1,200	200	190,502	5,188
Liquors, malt.....	1,731	57,841	10	11,571	145	412
Lumber and timber products.....	466	22,359	.....	2,221	664	36
Oil, linseed.....	.....	25,724	.....	.....	.....	.....
Patent medicines and compounds and druggists' preparations.....	191	3,072	28	93	6	215
Printing and publishing.....	1,874	8,879	56	1,774	1,147	17,053
Slaughtering and meat packing.....	980	68,005	.....	362	.....	.....
Tobacco manufactures.....	471	555	25	364	.....	169
All other industries.....	16,152	203,321	81,390	20,300	6,116	26,024

NOTE.—In addition, there were 2,159 tons of other varieties of fuel reported.

SUPPLEMENTARY DATA REGARDING IMPORTANT INDUSTRIES.

(With statistics for laundries and custom sawmills and gristmills.)

For certain industries the Census Bureau collects, by means of special schedules, details regarding the quantity and value of materials and products and other information for securing which no provision is made on the general schedule. Data of this character for six important industries in Minnesota are here presented.

**Flour-mill and gristmill products.**—The importance of Minnesota in this industry is due to its large production of wheat, to its advantageous geographic location, particularly with respect to the adjoining grain-growing states, and to the excellent and modern facilities afforded in the state for handling grain both by rail and by water. In both 1909 and 1904 Minnesota ranked first in the quantity and value of its wheat-flour products milled, third in respect to its barley and oat products, and fourth in respect to its rye products.

The following table gives the quantity and value of the various products of the industry for 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
Total value.....	\$139,136,129	\$122,059,123	\$82,988,054
Wheat flour:			
White—			
Barrels.....	22,712,534	23,839,717	22,041,833
Value.....	\$114,070,231	\$103,254,953	\$72,170,064
Graham—			
Barrels.....	24,870	31,510	(1)
Value.....	\$115,120	\$140,489	(1)
Corn meal and corn flour:			
Barrels.....	66,705	66,018	153,553
Value.....	\$204,863	\$154,243	\$232,422
Rye flour:			
Barrels.....	229,051	132,071	74,718
Value.....	\$936,066	\$543,505	\$193,038
Buckwheat flour:			
Pounds.....	990,887	2,247,420	1,764,929
Value.....	\$33,047	\$62,513	\$46,732
Barley meal:			
Pounds.....	432,000	100,000	3,026,450
Value.....	\$5,496	\$3,200	\$36,094
Feed:			
Tons.....	258,078	108,217	248,586
Value.....	\$6,357,996	\$3,721,948	\$9,422,326
Offal:			
Tons.....	822,755	938,525	608,193
Value.....	\$10,754,817	\$13,937,200	\$6,753,070
All other products.....	\$658,493	\$205,067	\$133,708

<sup>1</sup> Not reported separately.

Minnesota produced 22,712,534 barrels of white flour in 1909, or more than one-fifth of the total output of this cereal product in the United States. The quantity produced in 1909 was somewhat greater than in 1899 but smaller than in 1904; its value, however, showed a substantial increase at each census. Although the total output of wheat flour increased but four-tenths of 1 per cent in the decade, its value increased 58.2 per cent during the same period. Of the 270 mills which produced wheat flour in 1909, 21 made less than 1,000 barrels, 97 made 1,000 barrels but less than 5,000, 87 made 5,000 barrels but less than 20,000, 33 made 20,000 barrels but less than 100,000, and 32 made 100,000 barrels or over.

The value of both feed and offal increased greatly during the decade. The quantity of feed produced was larger in 1909 than in either of the two previous

census years, but the quantity of offal was largest in 1904. Corn meal and corn flour, which are comparatively unimportant cereal products in the state, show increases in both quantity and value from 1904 to 1909, but the figures for 1909 are lower than those for 1899. Rye flour is the only product showing increases in both quantity and value for each five-year period.

Of the total value of products reported in 1909, white flour contributed \$114,070,231, or 82 per cent, and offal, the principal part of which consists of the by-products of the manufacture of wheat flour, \$16,754,817, or 12 per cent. The value of feed reported was \$6,357,996, or 4.6 per cent of the total. Thus the value of all other cereal products constituted but 1.4 per cent of the total value of products for the industry.

The 322 mills reported for Minnesota in 1909 were equipped with 6,704 pairs of rolls and 168 runs of stone; 13 mills made their own barrels.

**Lumber and timber products.**—The following is a statement of the quantities of rough lumber, lath, and shingles reported for 1909 and 1899:

PRODUCT.	QUANTITY.	
	1909	1899
Rough lumber..... M feet b. m. . . . .	1,561,508	2,342,338
Lath..... thousands.....	478,008	387,064
Shingles..... thousands.....	74,818	498,860

Minnesota dropped from third to twelfth place among the states of the Union in the production of rough lumber, the output decreasing from 2,342,338 M feet board measure in 1899 to 1,561,508 M feet in 1909, or 33.3 per cent. There was an increase, however, of 23.5 per cent in the production of lath, but a decrease of 85 per cent in the output of shingles during the same period. Of the total output of lumber, about five-sixths (83.8 per cent) was white pine, Minnesota supplying slightly more than one-third of the total quantity of white-pine lumber produced in continental United States in 1909. Of the other varieties of lumber cut, the most important were spruce, tamarack, and hemlock. Minnesota was also the leading state in the production of lath, with 12.9 per cent of the total for the United States.

**Slaughtering and meat packing.**—The next table gives in detail the quantities and values of the products of this industry for 1909, 1904, and 1899.

Pork was the leading product in both quantity and value, and in 1909 contributed over half the total value of all products for the industry. The output of salted or cured pork in 1909 was 82,480,987 pounds, or more than double that in 1899, and its value, \$9,253,591, or over three times the corresponding figure for 1899. Fresh pork shows a large increase from 1899 to 1904,

and a much smaller increase during the subsequent five-year period. Though the quantity of fresh beef increased but slightly from 1904 to 1909, it more than doubled during the decade. The output of veal was nearly nine times as great in 1909 as in 1899, and that of mutton, in spite of a decline since 1904, shows an increase for the decade as a whole. The production of lard more than trebled from 1899 to 1904, but declined from 26,435,556 pounds in 1904 to 21,429,517 pounds in 1909.

PRODUCT.	1909	1904	1899 <sup>1</sup>
<b>Total value</b> .....	\$25,753,897	\$17,588,707	\$7,810,555
<b>Beef, fresh:</b>			
Pounds.....	59,276,609	55,358,469	26,659,666
Value.....	\$3,187,527	\$2,850,777	\$1,082,902
<b>Beef, salted or cured:</b>			
Pounds.....	1,978,492	826,980	807,115
Value.....	\$145,869	\$42,817	\$50,449
<b>Veal, fresh:</b>			
Pounds.....	5,765,536	2,120,934	640,910
Value.....	\$386,210	\$132,450	\$55,439
<b>Mutton, fresh:</b>			
Pounds.....	5,655,124	8,283,313	4,585,842
Value.....	\$480,143	\$520,449	\$359,455
<b>Pork, fresh:</b>			
Pounds.....	45,709,115	43,542,306	17,354,988
Value.....	\$4,336,448	\$3,204,733	\$1,047,107
<b>Pork, salted or cured:</b>			
Pounds.....	82,480,987	71,741,762	37,453,065
Value.....	\$9,253,591	\$6,159,220	\$2,601,446
<b>Sausage, fresh or cured.....</b>	\$840,780	\$758,695	\$275,740
<b>Lard:</b>			
Pounds.....	21,429,517	26,435,556	8,248,174
Value.....	\$2,581,501	\$1,933,587	\$507,922
<b>Fertilizers and fertilizer materials:</b>			
Tons.....	12,075	7,543	1,465
Value.....	\$314,600	\$154,867	\$21,305
<b>Hides:</b>			
Number.....	160,948	125,784	59,269
Pounds.....	7,240,972	6,657,904	3,051,526
Value.....	\$887,185	\$654,461	\$294,752
<b>Pelts:</b>			
Number.....	132,574	188,791	( <sup>2</sup> )
Value.....	\$146,473	\$187,802	( <sup>2</sup> )
<b>All other products.....</b>	\$3,193,310	\$982,849	\$908,038

<sup>1</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.

<sup>2</sup> Figures not available.

**Butter, cheese, and condensed milk.**—The following table gives the production of butter and cheese in 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
<b>Total value</b> .....	\$25,287,462	\$12,871,129	\$8,479,896
<b>Butter:</b>			
Packed solid—			
Pounds.....	81,104,848	58,542,838	39,145,380
Value.....	\$22,359,427	\$11,549,845	\$7,320,401
Prints or rolls—			
Pounds.....	7,737,998	3,579,716	2,029,089
Value.....	\$2,221,631	\$747,324	\$414,944
<b>Cream sold:</b>			
Pounds.....	1,338,833	1,345,769	2,967,192
Value.....	\$146,867	\$93,703	\$195,102
<b>All other butter-factory products<sup>1</sup>.....</b>	\$54,443	\$126,636	\$302,686
<b>Cheese:</b>			
Full cream—			
Pounds.....	2,665,883	2,965,984	3,033,693
Value.....	\$371,516	\$294,339	\$217,647
Part cream—			
Pounds.....	40,000		
Value.....	\$8,200		
Other kind <sup>2</sup> —			
Pounds.....		124,071	251,326
Value.....		\$12,778	\$28,307
<b>All other cheese-factory products<sup>3</sup>.....</b>	\$810	\$7,376	\$809
<b>All other products.....</b>	\$129,568	\$39,128	

<sup>1</sup> Includes skimmed milk sold and casein.

<sup>2</sup> Includes skimmed cheese.

<sup>3</sup> Includes whey.

<sup>4</sup> Includes condensed milk made in butter factories.

The output of butter increased from 41,174,469 pounds, valued at \$7,735,345, in 1899, to 88,842,846 pounds, valued at \$24,581,058, in 1909, a gain of 115.5 per cent in quantity and 217.7 per cent in value. Of the total quantity of butter manufactured in 1909, 91.3 per cent was packed solid and 8.7 per cent was put up in prints or rolls.

The quantity of cheese produced in 1909 was only 2,735,883 pounds, a decrease of 16.7 per cent since 1899.

No condensed-milk factories were reported for the state in 1909, but in 1904 a small quantity of condensed milk was made in butter factories.

**Printing and publishing.**—The following is a statement of the number and aggregate circulation per issue of the various classes of publications in 1909, 1904, and 1899:

PERIOD OF ISSUE.	NUMBER OF PUBLICATIONS.			AGGREGATE CIRCULATION PER ISSUE.		
	1909	1904	1899	1909	1904	1899
<b>Total</b> .....	758	798	631	3,176,700	3,106,399	1,949,630
Daily.....	42	51	44	476,252	460,811	300,266
Sunday.....	7	10	9	237,205	190,304	( <sup>1</sup> )
Semiweekly.....	8	7	2 10	37,062	69,896	100,000
Weekly.....	614	634	493	1,230,856	1,153,145	908,478
Monthly.....	68	71	60	824,955	956,696	452,829
All other classes.....	19	25	15	331,370	284,047	187,897

<sup>1</sup> Included in circulation of dailies.

<sup>2</sup> Includes one triweekly publication.

For the five-year period from 1904 to 1909 the total number of publications decreased, but the aggregate circulation per issue increased 2.3 per cent. For the decade as a whole the percentages of increase in the total number of publications and aggregate circulation per issue were 20.1 and 62.9, respectively.

With the exception of the semiweeklies, the number of each class of publications was less in 1909 than in 1904. Although the number of dailies in 1909 was slightly less than in 1899, the circulation increased substantially, especially from 1899 to 1904. The circulation of the weeklies, 1,269,856, constituted 40 per cent of the aggregate circulation of all publications in 1909. Monthlies show an increase in number and circulation during the decade as a whole, notwithstanding a decline in both respects between 1904 and 1909.

Of the 758 publications issued in 1909, 73 were printed in foreign languages. Of these, 48 were in Scandinavian, 20 in German, 2 in Finnish, and 1 each in French, Polish, and Norwegian and English. Scandinavian publications led in foreign circulation with 311,211 in 1909, the German coming next with 196,078. The total circulation of newspapers and periodicals printed in foreign languages was 540,989 in 1909, as compared with 547,763 in 1904.

Boots and shoes.<sup>1</sup>—The following table gives the number of pairs of the different kinds of boots and shoes manufactured in 1909, 1904, and 1899:

PRODUCT.	NUMBER OF PAIRS.		
	1909	1904	1899
Boots and shoes, total.....	3,195,530	2,373,222	2,328,411
Men's.....	2,025,723	1,162,677	1,336,793
Boys' and youths'.....	115,529	387,408	339,375
Women's.....	700,301	419,591	423,276
Misses' and children's.....	287,977	403,546	228,967
Slippers, total.....	(1)	42,000	69,063
All other, total.....	(1)	224,338	59,408

<sup>1</sup> Not reported.

The total number of pairs of boots and shoes increased 37.2 per cent during the decade. The production of men's shoes increased from 1,336,793 pairs in 1899 to 2,025,723 pairs in 1909, or 51.5 per cent, but that of boys' and youths' shoes decreased. The output of women's boots and shoes was about the same in 1904 as in 1899, but increased rapidly from 1904 to 1909; misses' and children's shoes show an increase for the decade as a whole, but a marked falling off from 1904 to 1909.

Laundries.—Statistics for steam laundries are not included in the general tables or in the totals for manufacturing industries. There were 158 such establishments in Minnesota, 43 of which were in Minneapolis, 22 in St. Paul, 10 in Duluth, 3 in Winona, 2 in Mankato, 2 in Stillwater, 1 in St. Cloud, and 1 in Virginia. The following statement summarizes the statistics:

Number of establishments.....	158
Persons engaged in the industry.....	3,338
Proprietors and firm members.....	187
Salaried employees.....	235
Wage earners (average number).....	2,916
Primary horsepower.....	2,919
Capital.....	\$1,821,191
Expenses.....	2,223,019
Services.....	1,343,174
Materials.....	514,354
Miscellaneous.....	365,491
Amount received for work done.....	2,855,738

The most common form of ownership was the individual, with 99 establishments. The firm, corporate, and cooperative forms of ownership were represented by 35, 23, and 1 establishments, respectively. Forty-four establishments had receipts for the year's business of less than \$5,000; 73, receipts of \$5,000 but less than \$20,000; 39, \$20,000 but less than \$100,000; and 2, receipts of \$100,000 but less than \$1,000,000.

<sup>1</sup> The title of this industry in the tables, being uniform for all states, is "Boots and shoes, including cut stock and findings," but in Minnesota there were no establishments whose chief products were cut stock or findings.

The number of wage earners employed each month and the percentage which this number represented of the greatest number employed in any month were as follows:

MONTH.	WAGE EARNERS.		MONTH.	WAGE EARNERS.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	2,715	87.3	July.....	3,101	99.7
February.....	2,725	87.6	August.....	3,111	100.0
March.....	2,729	87.7	September.....	3,055	99.2
April.....	2,816	90.5	October.....	2,956	95.0
May.....	2,896	93.1	November.....	2,925	94.0
June.....	2,996	96.3	December.....	2,939	94.5

The different kinds of primary power, the number of engines or motors, and the horsepower used in 1909 are shown in the following tabular statement:

KIND.	Number of engines or motors.	Horsepower.
Primary power, total.....		2,919
Owned:		
Steam.....	115	2,530
Gas.....	13	80
Rented:		
Electric.....	70	304
Other.....		5

The kind and amount of fuel used are shown in the following statement:

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	2,287
Bituminous coal.....	Tons.....	28,181
Coke.....	Tons.....	232
Wood.....	Cords.....	4,243
Oil.....	Barrels.....	424
Gas.....	1,000 feet.....	10,832

Custom sawmills and gristmills.—Statistics for custom sawmills and gristmills are not included in the general tables or in the totals for manufacturing industries, but are presented in the following summary:

	Custom sawmills.	Custom gristmills.
Number of establishments.....	137	278
Persons engaged in the industry.....	367	577
Proprietors and firm members.....	244	459
Salaried employees.....		9
Wage earners (average number).....	123	109
Primary horsepower.....	3,060	6,516
Capital.....	\$203,105	\$792,685
Expenses.....	58,658	3,264,130
Services.....	45,250	46,705
Materials.....	2,001	13,190,150
Miscellaneous.....	11,407	27,275
Value of products.....	132,283	13,660,055

<sup>1</sup> Includes estimate of all grain ground. A similar estimate for value of lumber sawed by custom sawmills is impracticable.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899.  
THE STATE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).							
Expressed in thousands.													
<b>STATE—All industries.....</b>	1909	5,561	104,408	5,376	14,263	84,767	297,670	\$275,416	\$15,452	\$47,471	\$281,622	\$408,420	\$127,793
	1904	4,756	83,301	4,524	9,141	69,836	220,934	184,903	9,033	35,843	210,554	307,858	97,594
	1899	4,096			6,625	64,557	180,124	133,077	6,064	29,029	150,299	223,693	73,394
Agricultural implements.....	1909	17	1,293	7	272	1,014	1,468	6,074	312	632	1,090	3,014	1,924
	1904	21	1,435	10	249	1,176	2,527	7,793	319	637	1,090	2,885	1,795
	1899	18	1,120	10	182	928	1,018	3,730	190	423	719	1,704	1,045
Artificial stone.....	1909	123	867	157	57	653	596	830	37	380	379	1,000	711
	1904	32	329	42	22	265	77	200	18	151	137	384	241
	1899												
Bicycles, motorcycles, and parts.....	1909	6	71	4	13	54	40	224	13	32	215	326	111
	1904	8	20	7	2	11	11	18	1	6	14	34	20
	1899	4	53	4	2	47		38	2	8	31	67	36
Boots and shoes, including cut stock and findings.	1909	18	2,949	4	281	2,664	1,411	5,729	406	1,290	4,935	7,568	2,633
	1904	*17	1,937	5	215	1,714	833	2,432	178	719	2,632	4,170	1,638
	1899	*16	2,134	13	140	2,025	808	2,238	155	719	2,378	3,616	1,238
Boxes, fancy and paper.....	1909	11	666	5	66	595	453	928	89	236	481	1,023	542
	1904	6	345	3	22	320	87	342	32	119	223	456	233
	1899	4	255	5	10	234		159	14	61	68	196	128
Bread and other bakery products.....	1909	403	2,435	446	293	1,696	955	4,976	270	972	3,804	6,785	2,981
	1904	272	1,895	309	242	1,347	762	2,509	181	670	2,658	4,620	1,962
	1899	179	1,378	199	207	972		1,560	113	393	1,532	2,760	1,238
Brick and tile.....	1909	82	1,200	70	83	1,038	5,867	2,590	87	538	378	1,442	1,064
	1904	101	1,177	132	52	993	4,129	1,688	43	466	290	1,227	937
	1899	104	1,008	125	34	849	2,484	1,041	23	329	185	772	587
Butter, cheese, and condensed milk.....	1909	784	1,971	425	362	1,184	11,874	4,752	187	829	22,707	25,287	2,680
	1904	771	1,503	286	256	1,041	11,511	3,305	63	634	11,140	12,871	1,731
	1899	596	1,291	210	341	740	8,025	2,265	59	398	7,189	8,480	1,291
Canning and preserving.....	1909	32	525	18	92	415	692	993	82	135	895	1,343	448
	1904	*31	352	20	69	263	540	641	65	89	435	778	343
	1899	9			33	122		226	31	33	212	333	121
Carriages and wagons and materials.....	1909	134	1,108	154	86	868	1,657	2,331	102	529	983	2,175	1,192
	1904	141	1,130	175	82	923	1,825	2,224	83	454	867	1,868	1,001
	1899	181			54	1,167		1,924	59	487	964	2,108	1,144
Cars and general shop construction and repairs by steam-railroad companies.	1909	28	8,681		449	8,232	10,680	13,183	457	5,586	6,494	12,631	6,137
	1904	24	6,139		372	5,767	4,597	6,961	340	3,300	3,716	7,880	3,664
	1899	39	4,964		264	4,700	3,796	4,934	243	2,599	3,380	6,320	2,940
Clothing, men's, including shirts.....	1909	41	2,432	43	233	2,156	421	2,368	253	722	2,814	4,459	1,645
	1904	30	1,662	51	115	1,496	315	1,995	117	469	1,599	2,655	1,056
	1899	36			141	1,882		1,253	150	571	1,471	2,412	941
Clothing, women's.....	1909	11	233	19	11	203	26	108	11	110	110	305	195
	1904	10	390	14	33	343	83	131	21	95	141	317	176
	1899	8	550	17	17	516		86	13	129	186	427	241
Coffee and spice, roasting and grinding.....	1909	12	434	9	83	342	550	1,057	113	123	2,363	2,997	644
	1904	13	261	17	56	188	557	784	52	66	1,373	1,816	443
	1899	10	800	10	95	695		401	91	53	868	1,250	382
Confectionery.....	1909	39	973	37	221	715	505	1,177	245	241	1,370	2,346	976
	1904	27	825	28	151	646	417	825	180	202	919	1,674	755
	1899	16			123	893		297	88	98	570	1,001	431
Cooperage and wooden goods, not elsewhere specified.	1909	32	934	20	64	850	1,755	1,418	69	444	1,423	2,187	764
	1904	32	810	26	45	739	932	910	53	374	1,204	1,914	710
	1899	36			39	721		641	30	347	1,084	1,718	634
Copper, tin, and sheet-iron products.....	1909	114	1,368	116	171	1,081	507	2,925	169	649	1,847	2,765	1,418
	1904	72	1,061	84	97	830	473	2,033	103	446	849	1,851	1,002
	1899	43			50	752		628	61	301	763	1,516	848
Electrical machinery, apparatus, and supplies.	1909	13	232	3	42	187	205	427	54	101	220	526	306
	1904	15	213	11	32	170	140	389	36	103	187	424	237
	1899	12	110	11	13	86		80	8	45	122	228	106
Fancy articles, not elsewhere specified.....	1909	4	282		51	231	56	244	69	72	151	387	236
	1904	4	291	6	44	241	45	216	66	74	168	439	271
	1899	4	100	6	12	82		55	15	22	44	96	62
Flour-mill and gristmill products.....	1909	322	6,890	466	2,079	4,345	93,849	38,595	2,185	2,782	124,217	139,136	14,919
	1904	363	5,733	416	836	4,481	86,093	34,857	906	2,651	109,061	122,059	12,998
	1899	336			605	4,036	64,804	23,716	731	2,360	73,822	82,988	9,166
Food preparations.....	1909	30	555	27	126	405	1,272	1,586	230	205	2,324	4,207	1,383
	1904	16	322	10	41	271	337	556	123	109	925	1,591	666
	1899	19	247	17	32	198		222	30	44	488	701	213
Foundry and machine-shop products.....	1909	247	7,273	193	1,078	6,002	9,966	16,873	1,208	3,904	7,185	15,609	8,424
	1904	188	4,799	181	596	4,022	5,735	8,578	607	2,416	4,415	9,509	5,094
	1899	*193	4,357	238	351	3,748		5,340	357	1,833	3,406	7,438	4,032
Fur goods.....	1909	42	1,300	44	200	1,056	288	2,251	226	560	2,213	3,776	1,563
	1904	35	1,425	47	142	1,236	165	2,543	167	497	2,012	3,379	1,307
	1899	19			144	756		1,134	119	289	1,125	1,978	853

\* Not reported separately.

\* Excluding statistics for one establishment, to avoid disclosure of individual operations.

MANUFACTURES—MINNESOTA.

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TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.  
THE STATE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).							
Expressed in thousands.													
STATE—Continued.													
Furniture and refrigerators.....	1909	57	1,932	43	194	1,695	2,732	\$4,022	\$232	\$930	\$1,900	\$3,759	\$1,869
	1904	<sup>1</sup> 51	1,687	45	167	1,475	2,316	2,251	163	691	1,024	2,562	1,538
	1899	36	1,399	35	126	1,238	.....	1,857	127	483	1,000	2,063	1,063
Gas and electric fixtures and lamps and reflectors.....	1909	14	124	14	24	86	02	202	19	52	144	284	140
	1904	<sup>2</sup> 7	04	8	8	48	25	61	8	29	43	100	57
	1899	7	.....	11	38	.....	.....	30	7	21	27	84	57
Gas, illuminating and heating.....	1909	42	1,018	1	169	848	3,538	13,821	171	202	820	2,874	2,054
	1904	16	666	5	86	575	1,238	11,390	79	268	624	2,033	1,409
	1899	11	433	.....	58	375	.....	8,900	48	169	304	1,076	772
Hosiery and knit goods.....	1909	10	1,200	7	141	1,052	853	1,979	187	348	1,086	2,243	1,157
	1904	10	671	5	51	615	810	968	72	190	626	1,203	577
	1899	<sup>2</sup> 8	315	1	21	203	304	484	27	78	167	410	213
Jewelry.....	1909	17	165	23	23	119	46	69	19	82	87	255	168
	1904	9	95	10	10	75	21	64	7	47	53	151	98
	1899	3	.....	4	21	.....	.....	12	1	6	17	20	12
Leather goods.....	1909	42	1,080	32	178	870	418	1,828	184	448	1,686	2,821	1,135
	1904	35	833	30	131	672	327	1,914	146	344	1,115	1,951	836
	1899	23	.....	71	517	.....	.....	786	70	220	902	1,416	514
Lime.....	1909	8	234	10	21	203	319	427	16	101	143	311	168
	1904	8	147	14	5	128	120	211	3	76	128	289	161
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Liquors, malt.....	1909	65	2,238	42	543	1,653	6,912	20,733	759	954	2,343	10,598	8,225
	1904	76	1,368	75	258	1,035	6,079	13,552	371	670	1,739	6,178	4,439
	1899	78	1,095	85	154	856	2,889	8,540	214	418	868	4,457	3,589
Lumber and timber products.....	1909	525	22,304	645	955	20,704	67,839	49,128	1,460	10,918	20,805	42,353	21,488
	1904	332	21,878	365	1,042	20,471	57,575	34,384	1,249	10,309	17,798	42,033	24,235
	1899	301	.....	846	22,395	59,184	.....	35,062	960	10,232	23,823	47,030	23,257
Malt.....	1909	9	175	.....	37	138	3,567	3,120	65	110	3,531	4,315	784
	1904	7	95	.....	26	60	1,100	1,310	47	51	897	1,198	361
	1899	5	39	2	9	28	.....	314	11	14	107	242	75
Marble and stone work.....	1909	112	2,097	165	164	1,738	5,422	2,789	169	1,029	1,045	2,965	1,920
	1904	53	900	78	65	827	1,743	964	47	609	341	1,245	904
	1899	46	.....	54	1,231	.....	.....	792	57	584	258	1,102	844
Mattresses and spring beds.....	1909	15	541	13	75	453	1,192	1,266	98	248	810	1,598	698
	1904	8	245	9	44	192	192	430	41	93	207	531	284
	1899	11	.....	23	210	.....	.....	333	18	83	270	498	228
Musical instruments, pianos and organs and materials.....	1909	5	172	3	26	143	153	619	20	100	126	294	168
	1904	<sup>4</sup> 2	27	3	1	23	20	28	1	16	28	55	27
	1899	<sup>3</sup> 3	42	3	4	35	.....	68	3	12	20	53	27
Oil, linseed.....	1909	6	433	.....	59	374	3,821	4,764	107	250	9,685	11,037	1,352
	1904	5	387	.....	34	353	2,075	3,201	66	204	6,039	7,018	929
	1899	5	200	.....	45	156	.....	1,093	71	82	2,951	3,273	322
Paint and varnish.....	1909	14	264	8	122	164	420	1,387	133	101	880	1,489	600
	1904	<sup>2</sup> 5	125	2	45	78	222	672	56	37	454	709	255
	1899	<sup>2</sup> 6	86	5	29	52	.....	325	28	20	209	388	140
Paper and wood pulp.....	1909	9	640	.....	33	607	23,440	3,235	64	361	1,438	2,335	947
	1904	4	418	.....	22	396	7,153	1,491	31	234	677	1,140	469
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Paper goods, not elsewhere specified.....	1909	8	126	11	28	87	47	150	21	27	143	252	109
	1904	<sup>4</sup> 4	19	3	4	12	4	6	(*)	5	3	13	10
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Patent medicines and compounds and druggists' preparations.....	1909	101	1,083	32	526	475	741	4,154	320	188	1,690	4,412	2,722
	1904	77	795	67	384	344	545	1,837	234	136	1,340	3,136	1,796
	1899	43	.....	178	188	.....	.....	1,039	115	63	325	932	607
Photo-engraving.....	1909	9	236	11	57	108	45	143	60	157	39	350	311
	1904	7	129	8	19	52	25	57	14	66	23	145	122
	1899	10	68	12	3	103	.....	29	1	29	10	70	60
Printing and publishing.....	1909	950	9,078	1,036	2,401	5,041	5,705	13,905	2,257	3,507	4,096	15,932	11,886
	1904	919	7,410	934	1,313	4,613	3,958	8,307	1,442	2,633	2,787	11,564	8,777
	1899	<sup>2</sup> 731	6,170	815	1,232	4,123	.....	7,784	966	1,967	1,878	8,197	6,319
Shipbuilding, including boat building.....	1909	33	257	36	12	209	419	380	8	139	158	377	219
	1904	28	270	30	16	224	302	319	15	133	102	342	240
	1899	25	172	28	7	137	176	162	8	74	85	224	139
Show cases.....	1909	7	120	5	11	104	215	166	12	77	112	241	129
	1904	6	124	6	0	112	128	72	4	71	120	209	89
	1899	3	17	3	.....	14	.....	14	.....	7	16	30	14

<sup>1</sup> Excluding statistics for three establishments, to avoid disclosure of individual operations.  
<sup>2</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.  
<sup>3</sup> Not reported separately.  
<sup>4</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.  
<sup>5</sup> Figures can not be shown without disclosing individual operations.  
<sup>6</sup> Less than \$500.



## MANUFACTURES—MINNESOTA.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

THE STATE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaries employed.	Wage earners (average number).							
Expressed in thousands.													
<b>STATE—Continued.</b>													
Slaughtering and meat packing.....	1909	30	2,452	28	503	1,921	4,579	\$7,881	\$510	\$1,129	\$22,156	\$25,754	\$3,508
	1904	29	1,091	34	281	1,376	1,069	3,437	254	788	15,104	17,589	2,488
	1899	120	820	27	125	668	960	1,355	103	304	6,823	7,811	988
Stoves and furnaces, including gas and oil stoves.	1909	10	213	8	20	185	113	413	20	121	245	600	355
	1904	10	157	7	41	109	98	298	41	59	102	304	202
	1899												
Surgical appliances and artificial limbs.....	1909	11	98	12	34	52	32	145	34	40	33	201	168
	1904	11	79	8	32	39	29	72	31	24	24	144	120
	1899	12	58	12	15	31		28	14	17	22	107	85
Tobacco manufactures.....	1909	339	2,130	369	148	1,613	37	1,718	208	832	1,256	3,305	2,109
	1904	352	2,288	393	115	1,780	20	1,489	120	837	1,008	3,205	2,107
	1899	308	1,999	345	92	1,562	23	1,225	84	662	954	2,472	1,618
Woolen, worsted, and felt goods, and wool hats.	1909	16	306	13	10	277	642	957	26	123	429	699	270
	1904	16	355	15	28	343	941	684	34	129	403	791	328
	1899	19	326	6	20	300	941	763	23	91	272	497	225
All other industries.....	1909	552	9,015	483	1,330	7,292	10,158	24,392	1,484	3,785	16,079	26,342	10,263
	1904	489	6,120	437	686	5,017	10,386	12,573	718	2,447	11,400	17,063	6,263
	1899	435		507		4,383		8,629	526	1,851	8,283	12,943	4,660

## CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES.

DULUTH—All industries.....	1909	194	6,916	155	678	6,083	17,561	\$17,709	\$910	\$3,593	\$8,844	\$17,180	\$8,338
	1904	163	4,645	155	503	3,987		9,538	504	2,186	4,634	10,139	5,505
	1899	126			220	3,658		5,967	212	1,779	3,659	7,811	4,152
Bread and other bakery products.....	1909	13	105	14	32	59	21	124	17	34	189	312	123
	1904	12	77	14	7	56		79	3	35	105	184	79
	1899	5			9	41		17	5	22	73	121	48
Clothing, men's, including shirts.....	1909	4	193	2	25	166	43	254	26	59	268	450	182
	1904	4	84	5	5	74		60	4	18	99	186	37
	1899	3				38		11		8	32	52	20
Copper, tin, and sheet-iron products.....	1909	6	69	7	8	54	5	94	9	42	58	144	86
	1904	4	77	6	10	61		86	8	36	60	139	79
	1899												
Foundry and machine-shop products.....	1909	13	580	6	95	479	1,390	1,802	125	338	609	1,375	766
	1904	8	357	4	51	302		580	55	186	349	703	354
	1899	8			37	303		273	30	195	194	476	232
Leather goods.....	1909	6	180	6	34	140	70	344	33	82	440	640	191
	1904	4	116	2	13	101		189	13	61	124	221	97
	1899	4			3	36		10	2	18	45	85	40
Lumber and timber products.....	1909	14	3,166	3	89	3,074	7,350	5,614	171	1,692	2,636	5,562	2,925
	1904	17	2,172	18	101	2,053		2,795	139	1,051	1,389	3,806	2,417
	1899	15			03	2,266		3,684	68	1,039	1,379	3,965	2,586
Printing and publishing.....	1909	35	519	28	114	377	439	811	120	281	256	983	727
	1904	30	380	32	146	208		427	103	120	139	593	454
	1899	420			17	197		191	20	119	63	317	234
Tobacco manufactures.....	1909	15	108	18	6	54		63	5	51	68	180	112
	1904	15	166	16	23	127		161	19	98	98	319	221
	1899	13			4	64		31	4	37	50	123	73
All other industries.....	1909	88	1,996	71	275	1,650	8,234	8,603	404	1,014	4,311	7,534	3,223
	1904	69	1,210	53	147	1,005		5,155	160	581	2,271	4,038	1,767
	1899	58			87	713		1,741	83	341	1,323	2,072	849
MINNEAPOLIS—All industries.....	1909	1,102	33,923	1,012	5,949	26,962	89,247	\$90,382	\$6,277	\$15,638	\$119,993	\$165,405	\$45,412
	1904	876	26,045	847	3,527	21,671		66,135	3,536	11,418	68,882	121,162	32,280
	1899	789			2,158	19,620		50,177	2,113	9,383	65,910	94,408	25,498
Artificial stone.....	1909	28	226	33	17	176	141	219	12	103	83	261	178
	1904	9	135	13	17	105		65	15	53	46	119	73
	1899												
Bread and other bakery products.....	1909	100	1,156	108	151	897	560	3,644	182	481	2,036	3,605	1,599
	1904	70	945	81	132	732		1,370	114	349	1,466	2,513	1,047
	1899	62			94	481		802	63	190	732	1,287	555
Brick and tile.....	1909	9	148	8	7	133	993	400	6	58	36	157	121
	1904	8	121	8	7	108		238	7	59	36	147	111
	1899	8			4	88		173	2	36	22	79	57
Butter, cheese, and condensed milk.....	1909	7	49	5	17	27	324	210	15	17	612	675	63
	1904	12	43	16	5	22		236	9	15	110	150	40
	1899	15			7	26		42	3	13	166	212	46

<sup>1</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.

<sup>2</sup> Not reported separately.

<sup>3</sup> Figures can not be shown without disclosing individual operations.

<sup>4</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.

<sup>5</sup> Figures do not agree with those published in 1904, because it was necessary to revise the totals in order to include data only for those establishments located within the corporate limits of the city.

MANUFACTURES—MINNESOTA.

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TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manuf-acture.
			Total.	Proprietors and firm members.	Salari- ed em- ploy- ees.	Wage earn- ers (aver- age num- ber).							
Expressed in thousands.													
<b>MINNEAPOLIS—Continued.</b>													
Carriages and wagons and materials.....	1909	23	204	21	32	211	257	\$437	\$39	\$142	\$236	\$566	\$330
	1904	<sup>1</sup> 23	211	29	11	171	.....	239	13	94	143	322	179
	1899	23	.....	.....	10	192	.....	173	11	73	161	332	171
Cars and general shop construction and repairs by steam-railroad companies.	1909	3	2,083	.....	107	2,576	1,674	2,359	108	1,863	2,338	4,309	1,071
	1904	4	1,725	.....	91	1,634	.....	1,400	78	953	982	2,027	1,045
	1899	4	.....	.....	71	1,268	.....	1,334	65	657	776	1,551	775
Clothing, men's, including shirts.....	1909	17	924	20	98	806	127	851	91	257	985	1,611	626
	1904	<sup>1</sup> 10	439	14	43	377	.....	547	39	125	616	890	274
	1899	19	.....	.....	44	577	.....	293	36	190	226	619	393
Confectionery.....	1909	12	452	15	109	328	162	520	125	112	651	1,072	421
	1904	8	342	6	76	260	.....	376	77	82	390	737	341
	1899	4	.....	.....	46	122	.....	94	22	35	212	335	123
Coopage and wooden goods, not elsewhere specified.	1909	16	584	12	36	536	796	766	40	295	1,030	1,532	502
	1904	15	591	9	32	550	.....	603	38	290	873	1,415	542
	1899	14	.....	.....	29	555	.....	436	23	279	632	1,454	522
Copper, tin, and sheet-iron products.....	1909	47	472	45	62	365	162	543	56	243	401	939	538
	1904	31	399	34	42	323	.....	350	37	193	283	703	420
	1899	22	.....	.....	10	158	.....	103	6	83	156	342	186
Electrical machinery, apparatus, and supplies.	1909	8	149	2	29	118	144	333	40	64	166	391	225
	1904	7	131	6	13	107	.....	222	22	60	122	250	128
	1899	7	.....	.....	11	70	.....	69	7	38	110	100	80
Flour-mill and gristmill products.....	1909	13	3,594	6	1,309	2,279	50,598	19,869	1,295	1,530	70,953	78,670	7,717
	1904	12	2,526	2	297	2,227	.....	19,489	401	1,404	56,358	62,754	6,396
	1899	11	.....	.....	239	2,066	.....	14,305	327	1,322	45,215	49,670	4,455
Foundry and machine-shop products.....	1909	95	3,254	59	599	2,596	3,405	7,394	669	1,754	3,339	7,241	3,852
	1904	<sup>1</sup> 70	2,328	55	304	1,969	.....	4,423	313	1,210	2,470	5,034	2,564
	1899	<sup>2</sup> 75	.....	.....	212	1,743	.....	2,462	180	799	1,691	3,778	2,087
Fur goods.....	1909	17	195	16	51	128	30	484	23	73	283	511	228
	1904	13	222	14	34	174	.....	223	36	75	390	462	232
	1899	9	.....	.....	4	122	.....	120	3	43	158	238	80
Furniture and refrigerators.....	1909	23	908	16	83	809	1,073	1,278	88	447	818	1,651	833
	1904	19	808	17	81	710	.....	1,042	78	326	491	1,238	747
	1899	12	.....	.....	63	536	.....	750	54	213	385	827	442
Gas and electric fixtures and lamps and reflectors.	1909	7	39	10	2	27	22	87	3	16	30	75	45
	1904	4	24	4	3	17	.....	21	3	6	17	34	17
	1899	4	.....	.....	8	31	.....	26	7	17	21	68	41
Hats and caps, other than felt, straw, and wool.	1909	4	47	5	12	30	3	41	5	15	23	55	32
	1904	3	26	5	1	20	.....	16	1	9	11	27	16
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jewelry.....	1909	8	104	13	15	76	31	40	14	48	55	156	101
	1904	5	94	5	10	49	.....	50	7	29	85	97	62
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Leather goods.....	1909	14	331	10	61	260	98	637	76	147	503	923	420
	1904	<sup>1</sup> 12	225	11	45	169	.....	571	41	92	296	498	202
	1899	17	.....	.....	20	146	.....	234	19	72	248	395	147
Liquors, malt.....	1909	4	428	1	105	322	1,426	2,655	86	128	514	2,171	1,657
	1904	5	310	1	63	251	.....	3,716	100	163	427	1,186	769
	1899	4	.....	.....	44	194	.....	4,195	67	125	252	1,508	1,256
Lumber and timber products.....	1909	34	5,202	19	248	4,995	11,824	11,599	424	2,338	5,027	11,508	5,531
	1904	30	4,881	30	244	4,607	.....	9,339	344	2,327	5,360	10,888	5,033
	1899	29	.....	.....	196	5,331	.....	10,743	278	2,676	7,759	14,647	6,383
Marble and stone work.....	1909	10	318	10	29	279	352	461	31	209	273	555	282
	1904	15	71	8	6	63	.....	44	.....	52	66	130	64
	1899	13	.....	.....	6	107	.....	105	4	80	74	208	134
Models and patterns, not including paper patterns.	1909	5	35	6	1	28	30	13	2	19	8	42	34
	1904	7	37	9	.....	28	.....	13	.....	16	8	40	32
	1899	6	.....	.....	9	9	.....	7	.....	5	2	21	19
Paper goods, not elsewhere specified.....	1909	5	105	6	28	71	30	107	21	19	110	204	85
	1904	3	22	2	.....	20	.....	15	.....	6	13	29	16
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Patent medicines and compounds and druggists' preparations.	1909	52	583	39	349	195	259	1,780	167	77	463	1,391	938
	1904	<sup>1</sup> 28	463	20	305	138	.....	645	147	61	783	1,724	941
	1899	<sup>2</sup> 15	.....	.....	90	48	.....	350	53	20	100	244	244
Photo-engraving.....	1909	5	139	.....	35	104	22	87	37	93	25	204	179
	1904	4	92	5	16	71	.....	38	13	52	11	105	94
	1899	6	.....	.....	3	41	.....	19	1	23	8	51	43
Printing and publishing.....	1909	216	3,160	273	1,132	1,755	2,130	4,416	1,061	1,162	1,693	6,478	4,785
	1904	185	2,597	175	921	1,501	.....	3,203	723	902	1,117	4,760	3,643
	1899	165	.....	.....	448	1,338	.....	2,364	368	696	615	2,318	2,203

<sup>1</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.  
<sup>2</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.  
<sup>3</sup> Figures can not be shown without disclosing individual operations.

## MANUFACTURES—MINNESOTA.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaries employees.	Wage earners (average number).							
Expressed in thousands.													
<b>MINNEAPOLIS—Continued.</b>													
Shipbuilding, including boat building.....	1909	3	7	3	4	10	\$8		\$2	\$2	\$6	\$4	
	1904	3	4	2	2		6		1	2	7	5	
	1899	3			1		1		1	1	2	1	
Slaughtering and meat packing.....	1909	4	18	4	2	22	23	\$2	10	113	138	25	
	1904	3	12	4	1	7	17	1	4	33	44	11	
	1899												
Stereotyping and electrotyping.....	1909	3	40		10	30	72	5	21	13	52	39	
	1904	3	64	1	14	49	166	15	29	20	130	110	
	1899												
Surgical appliances and artificial limbs.....	1909	6	76	8	30	38	108	32	31	21	162	141	
	1904	23	54		30	24	51	29	15	16	107	91	
	1899	24			13	15	18	13	9	12	60	64	
Tobacco manufactures.....	1909	45	414	49	51	314	371	73	168	254	666	412	
	1904	48	466	55	84	377	253	38	134	224	646	422	
	1899	42		28	35		206	22	152	173	532	359	
All other industries.....	1909	259	7,759	190	1,132	6,437	28,565	1,449	3,191	20,000	37,428	11,428	
	1904	208	5,667	206	650	4,811	16,698	792	2,176	15,821	22,449	6,628	
	1899	206		468	4,020		10,728	479	1,531	8,703	12,834	4,131	
<b>ST. PAUL—All industries.....</b>													
	1909	719	23,530	649	3,542	19,339	\$60,467	\$4,048	\$10,952	\$30,300	\$58,990	\$28,659	
	1904	614	17,037	566	2,108	14,363	36,401	2,202	7,211	19,488	38,319	18,831	
	1899	537			2,079	13,019	25,659	1,875	5,324	16,913	30,056	14,143	
Artificial stone.....	1909	20	238	28	16	194	156	11	121	86	288	202	
	1904	6	115	6	3	106	68	2	67	52	166	114	
	1899												
Boots and shoes, including cut stock and findings.	1909	5	1,777	1	159	1,617	3,064	224	830	2,676	4,265	1,589	
	1904	4	1,086		45	1,041	1,392	54	456	1,277	2,187	910	
	1899	4	1,104	5	80	1,019	1,294	91	377	1,003	1,640	643	
Boxes, cigar.....	1909	3	38	5	1	32	38	1	11	24	52	28	
	1904	3	40	3		37	19		12	24	50	26	
	1899	3	38	3	2	33	18	2	11	30	52	22	
Bread and other bakery products.....	1909	69	507	77	63	367	495	48	253	743	1,368	625	
	1904	41	399	47	58	294	620	42	157	610	1,019	409	
	1899	40	394	43	78	263	474	31	123	480	876	396	
Butter, cheese, and condensed milk.....	1909	6	102	5	47	50	170	27	39	1,918	2,120	292	
	1904	4	61	3	9	49	107	8	31	471	502	91	
	1899	5	66	6	14	46	175	12	20	433	518	85	
Carpets, rag.....	1909	4	16	5	2	9	8	2	5	1	18	17	
	1904	4	22	5	2	15	5	1	11	8	32	24	
	1899	4	18	6		12	3		4	2	11	9	
Carriages and wagons and materials.....	1909	11	165	12	19	134	272	18	80	96	250	154	
	1904	19	197	23	13	161	327	12	80	132	304	172	
	1899	13		11	172		270	11	80	110	318	208	
Cars and general shop construction and repairs by steam-railroad companies.	1909	7	2,568		162	2,406	5,923	167	1,577	1,846	3,640	1,794	
	1904	3	1,949		124	1,825	3,270	108	1,004	1,231	2,345	1,114	
	1899	7	1,469		68	1,401	1,596	64	817	1,192	2,087	895	
Clothing, men's, including shirts.....	1909	13	982	17	81	884	933	104	311	1,270	1,917	647	
	1904	8	962	19	49	804	1,183	64	278	768	1,306	603	
	1899	12	1,360	23	94	1,243	911	111	366	1,187	1,684	497	
Confectionery.....	1909	9	219	5	44	170	286	50	59	334	537	203	
	1904	10	256	6	45	205	186	46	65	221	446	225	
	1899	8			53	195	131	43	45	231	403	232	
Cooperage and wooden goods, not elsewhere specified.	1909	3	72	2	5	65	142	9	32	98	168	70	
	1904	5	58	4	3	51	109	4	22	78	128	48	
	1899	7			6	76	121	5	37	72	128	56	
Copper, tin, and sheet-iron products.....	1909	31	649	26	74	549	2,022	83	298	674	1,282	608	
	1904	24	309	30	35	244	326	35	124	268	573	305	
	1899	18			40	582	512	55	208	596	1,242	647	
Electrical machinery, apparatus, and supplies.	1909	5	83	1	13	69	94	14	37	54	135	81	
	1904	8	82	5	14	63	167	14	43	64	173	109	
	1899	4	17	5		12	10		6	11	32	21	
Foundry and machine-shop products.....	1909	45	2,425	34	273	2,118	5,681	316	1,284	2,352	5,033	2,681	
	1904	30	1,421	25	182	1,214	2,442	192	726	1,171	2,729	1,558	
	1899	32			98	1,143	1,745	114	580	1,105	2,257	1,152	
Fur goods.....	1909	14	1,024	18	139	867	1,638	196	409	1,840	3,110	1,270	
	1904	13		23	106	1,003	2,219	129	401	1,711	2,791	1,080	
	1899	9			139	608	979	116	240	948	1,702	754	

<sup>1</sup> Figures can not be shown without disclosing individual operations.

<sup>2</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.

<sup>3</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.

<sup>4</sup> Not reported separately.

MANUFACTURES—MINNESOTA.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899—Continued.

CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES—Continued.

INDUSTRY AND CITY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaries employees.	Wage earners (average number).							
ST. PAUL—Continued.													
Furniture and refrigerators.....	1909	19	543	19	60	455	804	\$1,588	\$93	\$288	\$695	\$1,289	\$594
	1904	17	413	15	41	354	.....	545	43	213	316	727	411
	1899	11	303	12	35	256	.....	302	35	105	277	556	279
Leather goods.....	1909	9	330	5	53	272	214	460	49	141	502	797	205
	1904	9	354	8	44	302	.....	970	62	160	616	1,052	436
	1899	7	.....	.....	48	316	.....	474	48	120	578	876	298
Liquors, malt.....	1909	3	1,017	.....	269	748	1,964	10,720	345	500	940	4,910	3,970
	1904	4	429	1	74	354	.....	5,529	123	242	664	2,599	1,932
	1899	7	325	5	44	276	.....	2,355	71	116	235	1,335	1,100
Lumber and timber products.....	1909	17	728	11	63	654	2,304	1,637	82	352	1,034	1,679	645
	1904	13	788	9	62	717	.....	924	64	332	945	1,582	637
	1899	20	428	6	38	384	.....	697	28	145	657	930	273
Marble and stone work.....	1909	10	250	7	27	216	519	459	30	178	287	619	332
	1904	5	106	6	7	93	.....	145	4	72	106	226	120
	1899	5	137	6	9	122	.....	145	11	68	109	196	87
Mattresses and spring beds.....	1909	7	122	5	22	95	113	205	23	69	251	417	166
	1904	3	75	.....	25	50	.....	90	19	27	51	158	107
	1899	3	63	3	14	46	.....	76	10	16	77	116	39
Paint and varnish.....	1909	6	99	2	49	48	243	498	66	24	371	607	236
	1904	3	71	.....	25	46	.....	385	29	23	204	347	143
	1899	3	.....	.....	19	44	.....	298	23	19	175	299	124
Patent medicines and compounds and druggists' preparations.	1909	25	216	23	94	99	158	350	69	45	212	728	516
	1904	24	144	23	36	85	.....	217	36	32	122	508	336
	1899	15	.....	.....	33	44	.....	47	27	14	40	205	165
Printing and publishing.....	1909	113	3,098	101	912	2,085	1,783	5,518	873	1,347	1,522	5,821	4,290
	1904	114	2,210	83	610	1,523	.....	2,683	498	988	1,044	3,868	2,824
	1899	98	2,206	89	707	1,410	.....	3,440	536	715	843	3,440	2,597
Tobacco manufactures.....	1909	64	728	65	73	590	11	637	116	312	468	1,336	868
	1904	63	749	68	51	632	.....	507	57	275	375	1,168	733
	1899	60	681	67	52	562	.....	513	52	240	355	806	531
All other industries.....	1909	201	5,534	175	813	4,540	7,738	17,414	1,032	2,300	10,006	16,604	6,598
	1904	177	3,003	156	442	3,005	.....	11,906	556	1,370	6,964	11,228	4,264
	1899	152	.....	.....	397	2,754	.....	9,067	379	862	5,188	8,221	3,633

CITIES OF 10,000 TO 50,000 INHABITANTS—ALL INDUSTRIES COMBINED.

Mankato.....	1909	63	1,033	69	157	807	3,654	\$2,217	\$162	\$346	\$2,728	\$3,723	\$995
	1904	54	906	67	115	724	.....	2,223	102	303	2,529	3,422	893
	1899	47	.....	.....	81	520	.....	1,077	71	176	1,355	1,887	532
St. Cloud.....	1909	60	812	102	84	620	3,302	1,607	98	355	1,342	2,290	957
	1904	39	495	55	23	414	.....	855	30	240	1,217	1,800	583
	1899	30	.....	.....	50	507	.....	609	38	266	1,077	1,561	484
Stillwater.....	1909	38	940	83	169	688	1,952	3,277	222	359	1,648	2,680	1,088
	1904	36	1,196	88	203	965	.....	2,828	176	454	1,485	2,784	1,299
	1899	32	.....	.....	76	829	.....	2,172	85	358	1,050	1,801	751
Winona.....	1909	99	2,489	85	372	2,032	8,628	7,878	413	1,024	7,330	11,200	3,870
	1904	80	2,281	77	251	1,953	.....	6,087	282	894	5,274	7,850	2,576
	1899	72	.....	.....	186	1,905	.....	5,813	183	828	4,001	6,014	2,013
Virginia.....	1909	21	229	19	22	188	365	765	45	131	102	519	357
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

1 Excluding statistics for one establishment, to avoid disclosure of individual operations.  
 2 Excluding statistics for two establishments, to avoid disclosure of individual operations.  
 3 Figures do not agree with those published in 1904, because it was necessary to revise the totals in order to include data only for those establishments located within the corporate limits of the city.  
 4 Figures not available.

TABLE II.—DETAIL STATEMENT FOR

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners.			Total.	16 and over.		Under 16.				
					Male.	Female.	Average number.	Number.			Male.	Female.	Male.	Female.			
								Maximum month.	Minimum month.								
1 All industries.....	5,561	104,406	5,376	3,766	7,891	2,608	84,787	Oc 90,620	Ja 79,918	(1)	(1)	(1)	(1)	(1)	297,670		
2 Agricultural implements.....	17	1,293	7	43	213	16	1,014	De 1,169	Se 910	1,184	1,182		2		1,488		
3 Artificial stone.....	123	867	157	39	12	6	653	Jy 867	Ja 344	833	833				596		
4 Automobiles, including bodies and parts.....	11	175	7	13	21	4	130	Jy 151	Ja 94	143	136	7			331		
5 Baskets, and rattan and willow ware.....	4	11	7				4	My <sup>2</sup> 6	Ja <sup>2</sup> 3	6	4		2		11		
6 Bicycles, motorcycles, and parts.....	6	71	4	7	1	5	54	Jy 67	Ja 38	50	50				40		
7 Boots and shoes, including outstock and findings.....	18	2,949	4	48	188	45	2,664	De 2,854	My 2,437	2,862	1,820	1,021	6	9	1,411		
8 Boxes, cigar.....	6	63	8	1	1		53	My <sup>2</sup> 53	Ja <sup>2</sup> 52	52	20	32			27		
9 Boxes, fancy and paper.....	11	666	5	28	23	15	595	De 639	Ja 568	654	290	368	4	2	453		
10 Brass and bronze products.....	7	46	6	3	2	2	33	De 41	My 28	42	31	11			37		
11 Bread and other bakery products.....	403	2,435	446	29	160	104	1,690	No 1,753	Ja 1,609	1,765	1,249	499	12	5	865		
12 Brick and tile.....	82	1,200	79	53	20	10	1,038	Jy 2,014	Ja <sup>2</sup> 246	1,632	1,613	1	18		5,807		
13 Brooms.....	19	118	21	4	2		91	Fe 99	Jy <sup>2</sup> 85	92	91		1		43		
14 Butter, cheese, and condensed milk.....	784	1,071	425	227	89	46	1,184	Jy 1,372	Ja 1,025	1,191	1,179	8	4		11,874		
15 Buttons.....	4	27	6				21	Ap 38	Se 9	12	4				16		
16 Canning and preserving.....	32	525	18	37	45	10	415	Se 1,438	Fe 198	1,157	594	456	61	46	692		
17 Carpets, rag.....	15	103	17	3	3	1	79	My 94	Fe 48	88	67	20		1	141		
18 Carriages and wagons and materials.....	134	1,108	154	42	29	15	868	My 918	Ja 818	893	888	5			1,657		
19 Cars and general shop construction and repairs by steam-railroad companies.....	28	8,681		211	213	25	8,232	Oc 8,469	Jy 7,997	8,214	8,207	7			10,680		
20 Clothing, men's, including shirts.....	41	2,432	43	46	161	26	2,156	No 2,297	Ja 2,050	2,411	255	2,150			421		
21 Clothing, women's.....	11	233	19	5	2	4	203	Se 241	Ja 165	183	56	127			26		
22 Coffee and spice, roasting and grinding.....	12	434	9	20	43	20	342	Oc 374	Ja 316	329	135	191		3	550		
23 Confectionery.....	39	973	37	33	151	37	715	No 898	Jy 634	839	301	533		5	505		
24 Cooperage and wooden goods, not elsewhere specified.....	32	934	20	42	15	7	850	No 931	Ja 800	980	963	14	3		1,755		
25 Copper, tin, and sheet-iron products.....	114	1,368	116	65	77	29	1,081	Oc 1,200	Ja 846	1,084	1,023	61			507		
26 Cutlery and tools, not elsewhere specified.....	6	56	7	3	1	1	44	Je 62	Ja 32	37	35	1	1		47		
27 Dairymen's, poulterers', and apiarists' supplies.....	3	58	1	5	3	3	46	Mh 58	De 34	54	54				80		
28 Dentists' materials.....	4	10	2		1	1	6	Ja <sup>3</sup> 6	Jy <sup>3</sup> 6	6	5			1	8		
29 Electrical machinery, apparatus, and supplies.....	13	232	3	20	14	8	187	Oc 198	Fe 175	201	194	4	3		205		
30 Electroplating.....	9	80	9	3		1	67	No 75	Ja 56	71	71				126		
31 Fancy articles, not elsewhere specified.....	4	282	14	20	17		231	My 253	No 196	207	45	162			56		
32 Flour-mill and gristmill products.....	322	6,890	466	352	1,400	327	4,345	Fe 4,585	Au 3,990	4,490	4,415	74	1		93,849		
33 Food preparations.....	30	558	27	34	62	30	405	Oc 482	Ja 305	453	227	225	1		1,272		
34 Foundry and machine-shop products.....	247	7,273	193	334	601	143	6,002	Oc 6,709	Fe 5,137	6,784	6,751	27	6		9,966		
35 Fur goods.....	42	1,300	44	37	138	25	1,056	No 1,222	Ja 915	1,193	510	682	1		288		
36 Furnishing goods, men's.....	10	224	12	9	13	8	182	Mh <sup>2</sup> 196	Ja 165	189	8	180	1		54		
37 Furniture and refrigerators.....	57	1,932	43	77	84	33	1,695	No 1,851	Jy 1,575	1,790	1,761	16	13		2,782		
38 Gas and electric fixtures and lamps and reflectors.....	14	124	14	7	13	4	86	Se 97	Ja 72	91	83	8			62		
39 Gas, illuminating and heating.....	42	1,018	1	32	114	23	848	Je 963	Mh 756	805	805				3,538		
40 Gloves and mittens, leather.....	6	53	8	4	4		37	Mh 48	Jy 30	39	10	29			5		
41 Glucose and starch.....	13	33		11	1		21	Oc 111	Fe <sup>4</sup> 0	131	131				825		
42 Hand stamps and stencils and brands.....	6	64	5	4	6	5	44	Jy <sup>2</sup> 45	Fe 42	44	43	1			25		
43 Hats and caps, other than felt, straw, and wool.....	7	81	9	1	9	4	58	Se <sup>2</sup> 62	Ja <sup>2</sup> 53	61	37	23		1	8		
44 Hosiery and knit goods.....	10	1,200	7	28	66	47	1,052	Oc 1,173	Ja 835	949	148	776	2	23	863		
45 Jewelry.....	17	165	23	9	3	11	119	De 129	Mh <sup>2</sup> 116	129	127	2			46		
46 Leather goods.....	42	1,080	32	53	98	27	870	De 931	Ja 822	953	790	163			418		
47 Lime.....	8	234	10	8	8	5	203	Ap 274	Ja 104	172	172				319		
48 Liquors, malt.....	65	2,238	42	151	358	34	1,653	Jy 1,902	Fe 1,471	1,605	1,555	46	1		6,912		
49 Lumber and timber products.....	525	22,304	645	333	500	72	20,704	Oc 23,116	Ap 19,177	26,453	26,367	47	39		67,839		
50 Malt.....	9	175		21	14	2	138	Oc 160	Je 121	156	155	1			3,667		
51 Marble and stone work.....	112	2,067	165	56	93	15	1,738	Je 2,024	Ja 1,242	1,749	1,747	2			5,422		
52 Mattresses and spring beds.....	15	541	13	28	31	16	463	Oc 518	Ja 382	445	382	63			1,192		
53 Millinery and lace goods.....	8	555	2	9	40	6	498	Mh 865	De 192	470	11	459			12		
54 Models and patterns, not including paper pattern.....	11	53	14	1			38	De 42	Je 35	42	41		1		48		
55 Musical instruments and materials, not specified.....	3	5	3				2	Ja <sup>3</sup> 2	Jy <sup>3</sup> 2	2	2				10		
56 Musical instruments, pianos and organs and materials.....	5	172	3	9	9	8	143	De 167	Jy 131	167	166	1			163		
57 Oil, linseed.....	6	433		18	20	12	374	Oc 510	Jy 256	450	450				3,821		
58 Optical goods.....	6	45	3	7	4	6	25	Ja <sup>3</sup> 25	Jy <sup>3</sup> 25	25	23	1	1		8		
59 Paint and varnish.....	14	294	8	26	67	29	164	Je 185	Oc 147	162	143	19			420		
60 Paper and wood pulp.....	9	640		20	11	2	607	Je 638	Ja 541	618	608	10			23,440		
61 Paper goods, not elsewhere specified.....	8	126	11	7	13	8	87	De 99	Je <sup>2</sup> 80	99	38	61			47		
62 Patent medicines and compounds and druggists' preparations.....	101	1,083	82	69	162	295	475	Oc 518	Ja 406	529	296	230	3		741		
63 Photo-engraving.....	9	236	11	13	29	15	168	Mh <sup>2</sup> 175	Oc 161	166	157	9			45		

<sup>1</sup> No figures given for reasons explained in the Introduction.

<sup>2</sup> Same number reported for one or more other months.

MANUFACTURES—MINNESOTA.

609

THE STATE, BY INDUSTRIES: 1909.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$275,416,029	\$376,061,941	\$6,979,729	\$8,471,771	\$47,470,803	\$6,190,588	\$275,481,699	\$1,419,140	\$3,560,403	\$2,483,017	\$24,054,791	\$409,410,621	\$127,797,334
2 0,074,278	2,775,879	101,685	210,405	631,775	58,606	1,031,840	723	22,081	100	718,624	3,013,595	1,023,149
3 829,882	865,887	28,628	8,057	379,558	12,473	366,625	2,001	5,074	6,724	56,747	1,089,893	710,795
4 239,408	409,786	20,840	12,224	75,220	3,075	250,218	12,829	603	.....	34,718	429,286	175,993
5 5,455	6,004	.....	.....	3,234	123	2,230	120	44	.....	223	9,131	6,748
6 224,113	284,735	9,982	2,560	31,701	1,298	213,781	3,271	73	10,050	11,373	325,520	110,491
7 5,729,038	7,200,058	120,233	286,077	1,290,216	40,087	4,893,910	66,905	23,541	47,858	490,631	7,507,582	2,632,085
8 57,881	75,441	1,000	780	20,988	1,211	46,202	2,400	523	.....	2,387	96,091	48,678
9 928,055	904,276	62,723	20,285	230,154	13,738	497,695	15,715	4,303	.....	77,633	1,023,015	541,582
10 66,273	129,315	4,200	2,050	21,906	2,702	83,849	1,452	289	.....	7,797	138,561	47,510
11 4,976,214	5,688,023	66,505	203,590	972,042	127,840	3,070,154	90,594	23,305	.....	527,987	6,765,083	2,981,983
12 2,589,632	1,165,897	61,541	25,700	537,540	321,010	50,066	2,300	11,593	11,091	137,790	1,442,149	1,063,873
13 108,523	216,617	2,796	1,710	60,466	1,025	137,412	402	.....	.....	11,781	269,839	130,802
14 4,752,689	24,272,895	82,421	54,096	829,306	255,093	22,451,780	19,222	21,004	4,046	555,327	25,279,482	2,679,989
15 7,701	21,418	.....	.....	8,572	319	5,891	1,155	27	.....	6,954	29,336	24,226
16 992,892	1,207,872	38,880	43,401	134,592	11,153	889,642	9,482	3,011	173	82,848	1,343,621	448,226
17 66,566	84,818	3,300	3,725	43,371	2,601	19,633	2,735	428	1,901	7,104	111,376	89,242
18 2,331,060	1,752,539	65,737	36,001	520,317	32,177	950,821	20,274	15,205	745	101,572	2,174,705	1,101,707
19 13,183,110	12,630,654	230,790	170,637	5,585,797	334,966	6,158,800	.....	45	.....	93,619	12,630,653	6,136,887
20 2,363,392	4,020,771	90,126	163,111	722,010	18,065	2,795,612	45,103	12,650	2,525	171,569	4,458,910	1,645,242
21 168,337	260,793	6,125	5,000	109,585	2,890	107,942	6,855	743	.....	22,223	304,871	194,069
22 1,050,835	2,778,432	48,950	64,166	122,535	20,481	2,332,615	32,445	5,138	210	151,093	2,997,075	644,079
23 1,176,832	2,115,724	61,650	192,853	240,520	25,404	1,344,602	47,097	6,619	225	206,748	2,345,739	975,733
24 1,417,575	2,025,686	51,949	17,090	444,144	14,481	1,408,029	3,963	9,818	151	76,061	2,187,441	764,931
25 2,924,847	2,392,564	95,146	73,869	648,614	20,447	1,326,610	26,343	10,100	400	191,235	2,705,012	1,418,155
26 64,178	72,911	4,400	1,014	24,857	3,852	31,666	1,815	614	.....	4,693	85,840	50,322
27 143,177	91,952	7,050	2,180	22,400	950	46,563	1,500	770	.....	9,921	117,162	69,640
28 5,030	26,472	.....	888	2,390	297	20,425	936	38	.....	1,498	34,100	13,378
29 427,208	435,797	36,050	17,491	100,751	7,132	213,051	4,423	1,877	.....	54,417	526,101	305,913
30 47,143	83,093	3,240	255	53,163	4,063	14,068	3,115	160	39	3,394	100,004	80,373
31 234,281	362,002	23,884	44,725	72,473	3,117	148,109	5,481	609	.....	63,634	389,721	235,435
32 38,894,701	134,377,740	765,873	1,368,062	2,781,834	1,170,702	123,037,615	143,904	221,693	351,425	4,526,967	139,136,129	14,918,812
33 1,686,087	3,676,339	147,928	81,790	205,311	41,246	2,782,612	18,354	9,463	50,326	330,809	4,207,252	1,388,394
34 16,872,857	14,048,289	607,838	600,169	3,004,029	348,689	6,836,236	71,131	83,718	130,304	1,406,175	15,068,716	8,423,701
35 2,250,809	3,376,890	78,380	147,751	500,325	8,403	2,204,569	56,010	12,558	95,025	212,779	3,775,970	1,562,098
36 183,290	353,908	8,774	12,775	49,069	1,916	248,633	4,748	666	2,134	25,283	429,291	109,742
37 4,021,516	3,431,179	138,181	93,635	929,801	49,502	1,850,923	22,794	20,368	800	325,175	3,759,304	1,858,879
38 201,995	230,619	9,833	8,956	51,761	2,492	141,599	8,437	401	.....	7,230	284,373	140,372
39 13,820,881	1,755,256	57,012	113,962	292,212	787,471	32,361	.....	156,869	1,000	314,309	2,874,281	2,054,449
40 55,029	57,196	3,020	2,800	12,870	608	34,006	1,802	604	.....	686	60,992	26,378
41 222,783	124,318	1,401	500	11,492	5,320	94,410	1,473	1,473	.....	9,722	121,373	21,643
42 40,010	78,204	5,216	5,929	26,418	2,192	21,797	5,900	245	.....	10,507	93,800	69,871
43 66,529	92,187	936	5,028	29,774	766	49,890	2,470	220	.....	3,097	112,933	62,277
44 1,978,729	1,791,799	56,221	130,318	348,310	17,517	1,068,583	2,450	7,121	.....	161,300	2,242,694	1,156,624
45 63,233	202,899	9,420	9,585	81,601	2,112	84,890	8,673	391	.....	6,267	254,902	167,600
46 1,828,262	2,533,804	81,825	101,930	448,113	15,116	1,070,404	36,904	6,227	650	172,695	2,821,455	1,135,935
47 427,230	285,184	6,960	8,772	101,047	50,331	92,801	350	4,111	.....	20,812	310,929	167,797
48 20,333,066	8,113,714	427,704	330,878	953,603	243,618	2,099,089	324	1,622,714	500	2,435,264	10,568,452	8,225,745
49 49,127,615	38,441,046	889,856	570,282	10,917,945	110,975	20,754,254	39,536	626,283	1,180,492	3,345,423	42,352,507	21,487,278
50 3,120,214	3,860,006	52,153	12,440	110,326	125,561	3,405,563	967	20,464	600	131,926	4,314,805	733,081
51 2,782,613	2,436,152	91,547	77,007	1,028,523	83,008	961,078	8,180	14,783	16,086	155,340	2,964,883	1,920,197
52 1,265,272	1,315,857	43,581	54,534	247,699	15,447	794,793	3,970	5,738	.....	150,095	1,508,417	698,177
53 322,850	899,820	23,932	52,520	151,924	2,055	596,364	11,080	1,193	.....	60,143	930,783	332,364
54 21,440	47,020	.....	.....	27,084	1,281	11,286	3,237	159	.....	1,573	64,716	52,149
55 2,294	2,700	.....	.....	1,677	117	517	396	23	.....	130	4,405	3,771
56 618,547	288,427	13,514	6,978	99,540	6,380	120,059	495	1,226	.....	40,229	294,452	168,013
57 4,764,442	10,396,675	99,578	37,233	250,354	84,276	9,600,400	.....	17,908	.....	336,926	11,036,916	1,352,240
58 36,758	80,371	14,340	8,645	14,868	630	20,022	6,960	337	.....	14,579	81,679	61,018
59 1,366,751	1,323,480	63,277	84,944	100,550	10,210	879,007	11,425	7,685	200	171,182	1,488,692	509,475
60 3,234,935	2,028,156	48,983	15,300	360,986	162,937	1,274,839	.....	20,807	.....	144,679	2,385,026	947,250
61 149,710	207,281	5,880	15,205	27,100	1,539	141,166	3,589	523	.....	5,000	252,067	107,362
62 4,154,220	3,079,782	141,158	178,560	187,729	21,308	1,068,353	27,088	28,610	4,630	822,306	4,411,905	2,722,304
63 147,960	321,819	28,422	31,709	157,493	4,967	33,606	10,556	392	.....	54,614	340,566	310,933

\* Same number reported throughout the year.

\* None reported for one or more other months.



TABLE II.—DETAIL STATEMENT FOR THE

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.				Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Average number.	Wage earners.		Total.	16 and over.		Under 16.			
					Male.	Female.		Number.			Male.	Female.	Male.	Female.		
								Maximum month.	Minimum month.							
1 Printing and publishing.....	950	9,078	1,036	434	1,289	678	5,641	De 5,905	Jy 5,513	6,270	4,626	1,585	57	2	5,765	
2 Shipbuilding, including boat building..	35	257	36	5	4	3	209	Ap 259	Oc 183	191	191				419	
3 Show cases.....	7	120	5	7	10		104	Fe <sup>1</sup> 109	Se 95	105	105				215	
4 Signs and advertising novelties.....	22	163	18	15	4		116	Au 131	Ja 98	122	116	6			25	
5 Slaughtering and meat packing.....	30	2,452	28	40	427	36	1,921	Ja 2,313	Aug 1,623	1,852	1,806	40	6		4,579	
6 Stereotyping and electrotyping.....	7	81	4	6	9	2	60	My 63	Jy 58	62	61	1			111	
7 Stoves and furnaces, including gas and oil stoves.	10	213	8	9	4	7	185	No 204	Ja 170	196	186	10			113	
8 Surgical appliances and artificial limbs.	11	98	12	6	17	11	52	Jy <sup>1</sup> 54	Ja <sup>1</sup> 49	52	45	7			32	
9 Tobacco manufactures.....	339	2,130	369	42	94	12	1,613	De 1,670	My 1,530	1,706	1,237	452	15	2	37	
10 Type founding and printing materials..	7	48	2	6	1	3	36	De 41	Jy 31	40	37	2	1		149	
11 Woolen, worsted, and felt goods, and wool hats.	16	306	13	8	7	1	277	Oc 306	Ja 224	293	156	135	2		642	
12 All other industries <sup>2</sup> .....	358	6,863	312	326	535	179	5,511								17,011	

<sup>1</sup> Same number reported for one or more other months.

<sup>2</sup> All other industries embrace—

Awnings, tents, and sails.....	16	Cement.....	1	Flavoring extracts.....	6
Babbitt metal and solder.....	1	Chemicals.....	4	Flax and hemp, dressed.....	1
Bags, other than paper.....	2	Clocks and watches, including cases and materials.	1	Furs, dressed.....	8
Baking powders and yeast.....	4	Coffins, burial cases, and undertakers' goods.....	6	Glass, cutting, staining, and ornamenting.....	10
Beet sugar.....	1	Coke.....	1	Gold and silver, reducing and refining, not from the ore.....	1
Belting and hose, leather.....	3	Cordage and twine and jute and linen goods.....	1	Grease and tallow.....	3
Blackening and cleansing and polishing preparations.	2	Cordials and sirups.....	1	Hats, fur-felt.....	3
Bluing.....	2	Corsets.....	2	Hats, straw.....	1
Brushes.....	2	Drug grinding.....	2	Horseshoes, not made in steel works or rolling mills.	3
Butter, reworking.....	2	Enameling and japanning.....	2	House-furnishing goods, not elsewhere specified...	3
Carriages and sleds, children's.....	4	Engraving, wood.....	1	Ink, printing.....	2
Cars and general shop construction and repairs by street-railroad companies.	4	Fertilizers.....	1	Ink, writing.....	2
Cars, steam-railroad, not including operations of railroad companies.....	1	Fire extinguishers, chemical.....	1	Instruments, professional and scientific.....	2
		Flags, banners, regalia, society badges, and emblems.....	2	Iron and steel, blast furnaces.....	1

MANUFACTURES—MINNESOTA.

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STATE, BY INDUSTRIES: 1909—Continued.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$13,905,165	\$12,918,098	\$859,228	\$1,398,108	\$3,507,200	\$184,588	\$3,911,517	\$279,965	\$71,099	\$538,219	\$2,108,084	\$15,982,212	\$11,880,107
2 380,011	322,923	4,450	3,432	139,049	5,146	152,449	1,221	1,624	.....	15,552	377,423	219,828
3 105,829	213,499	8,733	3,440	76,787	5,677	100,070	6,200	931	130	4,931	240,985	128,638
4 135,905	246,328	21,670	8,399	86,277	1,423	94,575	10,087	295	70	23,532	312,698	216,700
5 7,881,017	24,328,914	92,804	417,404	1,128,869	190,034	21,966,240	7,157	44,569	450	481,318	25,753,697	3,597,414
6 123,192	113,410	6,480	4,197	45,562	4,792	38,912	4,824	315	.....	8,328	135,075	91,371
7 412,605	441,447	14,160	5,452	121,206	8,538	230,734	4,727	1,381	250	48,969	600,053	354,781
8 144,736	153,594	21,036	12,952	39,566	1,437	32,061	5,335	637	.....	40,570	201,442	167,944
9 1,718,309	2,851,870	82,587	125,656	832,277	10,836	1,245,114	38,820	261,863	6	254,711	3,364,792	2,108,842
10 98,487	136,753	4,609	2,938	26,070	3,794	37,784	3,323	370	.....	8,078	149,475	57,897
11 866,714	621,754	18,900	6,760	123,308	13,424	415,304	1,500	5,532	1,200	35,769	698,576	269,848
12 22,270,783	20,031,968	562,536	653,146	2,917,098	1,029,045	13,042,194	112,930	94,874	2,222	1,617,323	22,432,534	8,361,295

\* All other industries embrace—Continued.

Iron and steel, steel works and rolling mills.....	1	Pens, fountain, stylographic, and gold.....	1	Sugar and molasses.....	2
Iron and steel, doors and shutters.....	2	Photographic apparatus and materials.....	2	Toys and games.....	2
Iron and steel forgings.....	1	Pottery, terra-cotta, and fire-clay products.....	4	Upholstering materials.....	3
Labels and tags.....	1	Pulp goods.....	1	Vinegar and cider.....	3
Lead, bar, pipe, and sheet.....	1	Roofing materials.....	4	Wall plaster.....	2
Leather, tanned, curried, and finished.....	5	Rubber goods, not elsewhere specified.....	2	Washing machines and clothes wringers.....	2
Looking-glass and picture frames.....	17	Safes and vaults.....	2	Wheelbarrows.....	1
Matches.....	1	Sand and emery paper and cloth.....	1	Windmills.....	1
Mats and matting.....	1	Smelting and refining, not from the ore.....	1	Window shades and fixtures.....	2
Mineral and soda waters.....	114	Soap.....	6	Wirework, including wire rope and cable.....	12
Mirrors.....	1	Soda-water apparatus.....	2	Wood carpet.....	1
Mucilage and paste.....	4	Sporting and athletic goods.....	3	Wood preserving.....	3
Needles, pins, and hooks and eyes.....	2	Stationery goods, not elsewhere specified.....	2	Wood, turned and carved.....	3
Oil, not elsewhere specified.....	3	Statuary and art goods.....	5	Wool pulling.....	1
Oilcloth and linoleum.....	1	Steam packing.....	4		

TABLE III.—DETAIL STATEMENT FOR CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES, CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES, DULUTH.

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.									WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.				Primary horse-power.	
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).			Total.	16 and over.		Under 16.			
					Male.	Female.	Total.	16 and over.			Under 16.	Male.	Female.	Male.		Female.
								Male.	Female.							
1 All industries.....	194	6,916	155	196	390	92	6,083	5,615	444	24	7,080	6,537	518	12	13	17,561
2 Bread and other bakery products.....	13	105	14	1	19	12	59	51	7	1	60	52	7	1		21
3 Clothing, men's, including shirts.....	4	193	2	8	13	4	166	23	143		194	27	167			43
4 Copper, tin, and sheet-iron products.....	6	69	7	2	4	2	54	54			56	56				5
5 Foundry and machine-shop products.....	13	580	6	32	57	6	479	479			543	543				1,399
6 Leather goods.....	6	180	6	10	21	3	140	137	3		155	152	3			70
7 Lumber and timber products.....	14	3,166	3	38	48	3	3,074	3,074			3,840	3,840				7,850
8 Printing and publishing.....	35	519	28	32	62	20	377	330	41	6	424	371	46	6	1	489
9 Tobacco manufactures.....	15	108	18	1	4	1	84	65	19		83	64	19			
10 All other industries <sup>1</sup> .....	88	1,996	71	72	162	41	1,650	1,370	264	16	1,725	1,432	278	5	12	8,284

<sup>1</sup> All other industries embrace: Artificial stone, 3; awnings, tents, and sails, 2; baking powders and yeast, 1; bluing, 1; boots and shoes, including cut stock and findings, 1; boxes, cigar, 1; boxes, fancy and paper, 1; brass and bronze products, 1; brooms, 1; butter, cheese, and condensed milk, 1; butter, reworking, 1; buttons, 1; carpets, rag, 1; carriages and wagons and materials, 4; cars and general shop construction and repairs by steam-railroad companies, 1; cars and general shop construction and repairs by street-railroad companies, 1; chemicals, 1; coffee and spice, roasting and grinding, 1; coke, 1; confectionery, 8; cooperage and wooden goods, not elsewhere specified, 1; flavoring extracts, 1; flour-mill and gristmill products, 1; food preparations, 3; fur goods, 4; furniture and refrigerators, 2; gas and electric fixtures and lamps and reflectors, 2; glass, cutting, staining, and ornamenting, 1; grease and tallow, 1; hats, fur-felt, 1; horsehoes, not made in steel works or rolling mills, 1; hosiery

MINNEAPOLIS.

1 All industries.....	1,102	33,923	1,012	1,259	3,388	1,302	26,962	22,822	4,074	66	28,528	24,086	4,405	43	24	89,247
2 Artificial stone.....	28	226	33	12	4	1	176	176			183	183				141
3 Bread and other bakery products.....	100	1,156	108	19	103	29	897	567	322	8	942	595	338	5	4	593
4 Brick and tile.....	9	148	8	6		1	133	133			216	216				324
5 Butter, cheese, and condensed milk.....	7	49	5	5	8	4	27	26	1		28	27	1			324
6 Carriages and wagons and materials.....	23	264	21	18	8	6	211	208	3		209	206	3			257
7 Cars and general shop construction and repairs by steam-railroad companies.....	3	2,683		53	44	10	2,576	2,568	8		2,324	2,317	7			1,674
8 Clothing, men's, including shirts.....	17	924	20	16	77	5	806	89	717		807	89	718			127
9 Confectionery.....	12	452	15	9	79	21	328	130	198		413	163	250			162
10 Cooperage and wooden goods, not elsewhere specified.....	16	584	12	24	8	4	536	523	13		594	580	14			796
11 Copper, tin, and sheet-iron products.....	47	472	45	31	19	12	365	365			384	384				162
12 Electrical machinery, apparatus, and supplies.....	8	149	2	11	11	7	118	111	4	3	128	121	4	3		144
13 Flour-mill and gristmill products.....	13	3,594	6	184	955	210	2,279	2,208	71		2,231	2,161	70			50,598
14 Foundry and machine-shop products.....	95	3,254	59	157	350	92	2,596	2,575	19	2	2,924	2,901	21	2		3,405
15 Fur goods.....	17	195	16	9	35	7	128	46	82		197	71	126			30
16 Furniture and refrigerators.....	23	908	16	38	28	17	809	799	10		822	812	10			1,073
17 Gas and electric fixtures and lamps and reflectors.....	7	39	10	1		1	27	27			28	28				22
18 Hats and caps, other than felt, straw, and wool.....	4	47	5	1	9	2	30	14	15	1	31	14	16		1	3
19 Jewelry.....	8	104	13	6	3	6	76	74	2		84	82	2			31
20 Leather goods.....	14	331	10	17	35	9	260	227	33		320	280	40			98
21 Liquors, malt.....	4	428	1	19	77	9	322	311	11		336	324	12			1,426
22 Lumber and timber products.....	34	5,262	19	90	140	18	4,995	4,954	38	3	5,369	5,325	41	3		11,824
23 Marble and stone work.....	10	318	10	11	16	2	279	277	2		282	280	2			352
24 Models and patterns, not including paper patterns.....	5	35	6	1			28	27		1	31	30		1		30
25 Paper goods, not elsewhere specified.....	5	105	6	7	13	8	71	25	46		83	29	54			30
26 Patent medicines and compounds and druggists' preparations.....	52	583	39	29	85	235	195	121	72	2	239	149	88	2		259
27 Photo-engraving.....	5	139		10	14	11	104	100	4		100	96	4			22
28 Printing and publishing.....	216	3,160	273	179	636	317	1,755	1,378	367	10	1,894	1,491	397	11		2,180
29 Shipbuilding, including boat building.....	3	7	3				4	4			16	16				10
30 Slaughtering and meat packing.....	4	18	4		2		12	12			13	13				22
31 Stereotyping and electrotyping.....	3	40		5	4	1	30	30			31	31				56
32 Surgical appliances and artificial limbs.....	6	76	8	5	17	8	38	34	4		39	35	4			30
33 Tobacco manufactures.....	45	414	49	19	30	2	314	208	105	1	367	243	123	1		16
34 All other industries <sup>1</sup> .....	259	7,759	190	317	598	247	6,437	4,474	1,931	32	6,858	4,704	2,060	15	19	12,390

<sup>1</sup> All other industries embrace: Agricultural implements, 7; automobiles, including bodies and parts, 8; awnings, tents, and sails, 5; babbitt metal and solder, 1; bags, other than paper, 2; baking powders and yeast, 2; baskets, and ratan and willow ware, 2; belting and hose, leather, 3; bicycles, motorcycles, and parts, 2; blacking and cleansing and polishing preparations, 2; bluing, 1; boots and shoes, including cut stock and findings, 4; boxes, cigar, 2; boxes, fancy and paper, 4; brass and bronze products, 4; brooms, 5; brushes, 1; buttons, 2; canning and preserving, 8; carpets, rag, 6; carriages and sleds, children's, 2; cars, steam-railroad, not including operations of railroad companies, 1; chemicals, 2; clothing, women's, 1; coffee and spice, roasting and grinding, 4; coffins, burial cases, and undertakers' goods, 2; cordials and sirups, 1; cutlery and tools, not elsewhere specified, 4; dairyman's, poultryers', and apiarists' supplies, 1; dentists' materials, 1; drug grinding, 1; electroplating, 4; enameling and japanning, 1; fancy articles, not elsewhere specified, 2; fire extinguishers, chemical, 1; flags, banners, regalia, society badges, and emblems, 1; flavoring extracts, 4; food preparations, 16; furnishing goods, men's, 2; furs, dressed, 3; gas, illuminating and heating, 1; glass, cutting, staining, and ornamenting, 6; gloves and mittens, leather, 1;

MANUFACTURES—MINNESOTA.

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AND TOTALS FOR ALL INDUSTRIES IN CITIES OF 10,000 BUT LESS THAN 50,000 INHABITANTS: 1909.

CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES.

DULUTH.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$17,709,319	\$15,564,634	\$495,501	\$413,995	\$3,592,852	\$811,878	\$8,032,052	\$107,441	\$343,402	\$91,965	\$1,675,456	\$17,180,003	\$8,336,133
2 123,965	269,769	900	16,483	33,598	4,905	184,118	7,230	837	.....	21,698	312,384	123,361
3 253,946	384,851	10,500	15,654	58,942	1,800	266,329	6,300	1,500	.....	24,000	449,930	181,801
4 94,291	120,950	4,500	4,562	42,308	847	57,081	2,040	439	.....	8,579	143,801	85,873
5 1,802,420	1,271,448	62,636	62,093	337,980	32,436	570,183	3,235	7,567	.....	189,328	1,375,359	766,740
6 343,763	608,578	12,976	19,722	81,608	2,430	446,506	9,546	692	.....	35,098	639,681	190,745
7 5,613,558	5,234,872	123,540	47,708	1,092,029	10,223	2,616,448	6,620	98,947	70,322	560,030	5,561,953	2,926,277
8 810,594	812,368	52,256	67,878	281,434	7,137	248,633	20,198	3,580	21,218	110,034	983,451	727,681
9 62,623	149,032	1,080	4,256	50,565	278	67,548	2,711	10,624	.....	11,970	179,845	112,019
10 8,604,249	6,712,760	227,203	175,039	1,014,688	742,817	3,569,200	48,001	219,226	425	714,656	7,533,659	3,221,636

and knit goods, 2; iron and steel, blast furnaces, 1; jewelry, 3; lime, 1; liquors, malt, 3; looking-glass and picture frames, 1; marble and stone work, 1; matches, 1; mattresses and spring beds, 1; millinery and lace goods, 1; mineral and soda waters, 3; models and patterns, not including paper patterns, 1; optical goods, 1; paint and varnish, 2; patent medicines and compounds and druggists' preparations, 2; roofing materials, 1; sand and emery paper and cloth, 1; shipbuilding, including boat building, 3; show cases, 1; signs and advertising novelties, 2; slaughtering and meat packing, 2; smelting and refining, not from the ore, 1; stereotyping and electrotyping, 1; surgical appliances and artificial limbs, 1.

MINNEAPOLIS.

1 \$90,382,225	\$153,760,750	\$2,729,613	\$3,547,608	\$15,038,114	\$1,752,543	\$118,240,592	\$640,394	\$1,058,432	\$941,993	\$9,205,461	\$165,404,680	\$45,411,545
2 219,117	220,001	10,743	1,400	103,085	2,482	80,254	517	1,268	2,353	17,890	260,867	178,131
3 3,649,661	3,126,835	47,270	134,472	481,135	54,143	1,982,220	20,191	12,846	.....	3,405,852	3,405,859	1,668,729
4 400,025	118,429	5,116	520	57,530	6,802	28,969	.....	2,422	9,201	7,660	156,940	121,109
5 209,731	654,435	7,810	6,775	16,987	5,802	606,384	2,156	503	.....	7,958	674,578	62,332
6 436,805	458,211	23,817	10,033	142,451	8,107	227,407	11,788	3,294	.....	26,344	565,932	339,418
7 2,358,740	4,308,772	66,305	41,494	1,863,408	74,351	2,263,214	.....	.....	.....	.....	4,308,772	1,971,207
8 851,286	1,440,143	26,063	63,995	257,091	8,057	977,098	22,356	5,435	2,525	70,803	1,611,154	625,999
9 520,350	1,016,120	24,800	100,410	111,810	11,240	639,604	17,132	3,278	.....	107,845	1,072,214	421,370
10 705,749	1,432,896	30,440	9,548	295,329	11,346	1,018,977	3,479	6,118	.....	58,659	1,532,135	501,812
11 548,186	777,864	41,844	13,728	247,578	6,366	394,457	15,402	3,511	400	54,578	639,217	538,394
12 333,405	324,174	24,450	15,631	64,180	5,661	160,164	3,240	1,162	.....	49,680	391,255	225,430
13 19,869,105	77,227,404	396,061	899,290	1,530,425	522,292	70,430,434	125,627	136,067	350,242	2,836,096	78,669,808	7,717,112
14 7,393,637	6,038,721	308,932	300,165	1,753,911	99,957	3,289,327	41,367	38,110	124,455	622,407	7,240,652	3,851,368
15 484,400	439,949	11,013	11,107	72,516	2,043	281,080	13,888	1,614	.....	46,028	510,010	227,487
16 1,277,613	1,499,102	56,151	37,837	446,793	19,146	785,705	12,363	3,340	300	125,497	1,650,961	833,116
17 87,360	53,745	1,900	900	10,391	846	20,070	3,108	194	.....	1,336	74,522	44,606
18 40,650	45,842	936	4,403	15,040	406	22,408	1,090	150	.....	1,230	55,125	32,132
19 39,700	126,168	6,470	7,272	47,920	1,447	53,481	5,013	219	.....	4,346	155,796	100,868
20 637,093	805,330	34,713	41,020	147,410	3,086	499,221	13,384	2,140	.....	63,447	923,376	420,169
21 2,654,545	1,519,261	52,219	33,900	127,778	47,858	466,543	324	464,025	.....	326,548	2,171,417	1,057,016
22 11,598,544	10,061,867	250,592	164,861	2,838,042	20,440	5,998,854	23,790	109,861	114,088	623,460	11,508,057	5,580,763
23 460,732	530,499	16,711	14,065	208,857	6,715	296,539	645	2,604	.....	14,223	554,575	281,271
24 13,074	33,112	1,800	.....	19,184	870	7,610	2,496	116	.....	1,036	42,437	33,957
25 166,670	171,692	5,880	15,265	19,307	1,134	117,734	2,269	429	5,000	4,674	204,305	85,437
26 1,779,745	1,169,321	48,023	119,321	76,815	12,253	391,081	11,426	16,607	1,880	492,005	1,391,382	688,048
27 89,788	139,223	20,512	16,012	93,498	3,025	21,714	6,820	240	.....	27,402	203,662	179,253
28 4,416,363	5,199,102	402,413	658,645	1,162,478	65,978	1,627,081	107,851	27,150	264,294	883,212	6,478,202	4,785,143
29 8,200	4,590	.....	.....	2,315	125	2,090	85	30	.....	.....	5,800	3,675
30 22,827	127,984	.....	1,650	9,559	1,083	111,750	1,200	47	450	2,185	137,590	24,787
31 72,105	42,324	4,400	914	20,910	2,115	10,421	936	106	.....	2,522	51,838	39,302
32 107,936	126,817	20,100	12,070	30,542	1,297	19,254	4,239	570	.....	38,745	161,520	140,969
33 370,573	599,001	41,675	31,129	167,069	1,846	252,614	7,232	40,324	.....	50,512	666,301	411,841
34 28,597,570	33,271,816	731,284	719,740	3,190,150	721,038	25,278,884	155,940	163,682	65,815	2,245,283	37,428,291	11,428,339

band stamps and stencils and brands, 2; hats, straw, 1; hosiery and knit goods, 4; house-furnishing goods, not elsewhere specified, 2; ink, writing, 1; instruments, professional and scientific, 2; iron and steel, steel works and rolling mills, 1; iron and steel, doors and shutters, 2; iron and steel forgings, 1; looking-glass and picture frames, 10; malt, 2; mattresses and spring beds, 6; mineral and soda waters, 11; mirrors, 1; muclage and paste, 3; musical instruments and materials, not specified, 3; musical instruments, pianos and organs and materials, 1; needles, pins, and hooks and eyes, 2; oil, lincseed, 4; oil, not elsewhere specified, 2; optical goods, 4; paint and varnish, 6; paper and wood pulp, 1; photographic apparatus and materials, 1; pulp goods, 1; roofing materials, 1; rubber goods, not elsewhere specified, 1; safes and vaults, 1; show cases, 5; signs and advertising novelties, 12; soap, 2; soda-water apparatus, 2; sporting and athletic goods, 3; statuary and art goods, 2; steam packing, 1; stoves and furnaces, including gas and oil stoves, 3; type founding and printing materials, 4; wall plaster, 1; wheelbarrows, 1; window shades and fixtures, 2; wirework, including wire rope and cable, 6; wood carpet, 1; wood preserving, 2; wool pulling, 1; woolen, worsted, and felt goods, and wool hats, 1.

MANUFACTURES—MINNESOTA.

TABLE III.—DETAIL STATEMENT FOR CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES, AND CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES—Continued.

S. T. PAUL.

INDUSTRY AND CITY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).					Total.	16 and over.		Under 16.		
					Male.	Female.	Total.	16 and over.		Under 16.	Male.		Female.	Male.	Female.		
								Male.	Female.								
1 All industries.....	719	23,530	649	851	1,966	725	19,339	14,553	4,742	44	20,536	15,399	5,091	31	15	26,204	
2 Artificial stone.....	20	238	28	10	3	3	194	194			237	237				64	
3 Boots and shoes, including out stock and findings.....	5	1,777	1	20	111	28	1,617	1,035	569	13	1,719	1,100	606	5	8	667	
4 Boxes, cigar.....	3	38	5		1		32	11			32	11	21			15	
5 Bread and other bakery products.....	69	507	77	4	27	32	397	297	98	2	387	297	68	2		240	
6 Butter, cheese, and condensed milk.....	6	102	5	6	15	20	50	48			50	48	2			535	
7 Carpets, rag.....	4	16	5	2			9				8	6	2			28	
8 Carriages and wagons and materials.....	11	165	12	12	2	5	134	134			144	144				170	
9 Cars, and general shop construction and repairs, by steam-railroad companies.....	7	2,568	79	78	5	2,406	2,406				2,525	2,525				3,521	
10 Clothing, men's, including shirts.....	13	982	17	16	54	11	834	91	793		1,050	108	942			204	
11 Confectionery.....	9	219	5	10	31	3	170	58	112		180	62	118			157	
12 Cooperage and wooden goods, not elsewhere specified.....	3	72	2	3		2	65	65			72	72				185	
13 Copper, tin, and sheet-iron products.....	31	649	26	22	39	13	549	484	65		514	453	61			282	
14 Electrical machinery, apparatus, and supplies.....	5	83	1	9	3	1	69	69			73	73				61	
15 Foundry and machine-shop products.....	45	2,425	34	84	155	34	2,112	2,112	2	4	2,380	2,374	2	4		3,474	
16 Fur goods.....	14	1,024	18	26	98	15	867	400	466	1	913	422	490	1		242	
17 Furniture and refrigerators.....	19	543	19	20	38	11	455	451	4		514	509	5			804	
18 Leather goods.....	9	330	5	19	30	4	272	248	24		288	268	25			214	
19 Liquors, malt.....	3	1,017		60	189	20	748	711	37		632	648	34			1,064	
20 Lumber and timber products.....	17	728	11	32	26	6	654	652		2	670	668		2		2,804	
21 Marble and stone work.....	10	250	7	8	15	4	216	216			217	217				519	
22 Mattresses and spring beds.....	7	122	5	8	10	4	95	80	15		106	89	17			113	
23 Paint and varnish.....	6	99	2	12	30	7	48	38	10		44	35	9			243	
24 Patent medicines and compounds and druggists' preparations.....	25	216	23	19	44	31	99	49	50		105	62	53			158	
25 Printing and publishing.....	113	3,098	101	113	514	285	2,085	1,435	640	10	2,465	1,696	757	12		1,783	
26 Tobacco manufactures.....	64	728	65	15	51	7	590	389	198	3	596	393	200	1	2	11	
27 All other industries.....	201	5,534	175	242	402	169	4,546	2,873	1,064	9	4,585	2,897	1,679	4	5	7,738	

<sup>1</sup> All other industries embrace: Agricultural implements, 3; awnings, tents, and sails, 7; baking powders and yeast, 1; baskets, and rattan and willow ware, 1; bicycles, motorcycles, and parts, 2; boxes, fancy and paper, 3; brass and bronze products, 2; brick and tile, 2; brooms, 2; brushes, 1; carriages and sleds, children's, 1; canning and preserving, 4; cars and general shop construction and repairs by street-railroad companies, 1; chemicals, 1; clothing, women's, 9; coffee and spice, roasting and grinding, 7; cordage and twine and jute and linen goods, 1; cutlery and tools, not elsewhere specified, 2; dentists' materials, 3; electroplating, 4; enameling and japanning, 1; engraving, wood, 1; fancy articles, not elsewhere specified, 2; flags, banners, regalia, society badges, and emblems, 1; flavoring extracts, 1; flax and hemp, dressed, 1; flour-mill and gristmill products, 2; food preparations, 9; furnishing goods, men's, 3; furs, dressed, 3; gas and electric fixtures and lamps and reflectors, 5; gas, illuminating and heating, 2; glass, cutting, staining, and ornamenting, 3; gloves and mittens, leather, 2; gold and silver, reducing and refining, not from the ore, 1; hand stamps and stenels and brands, 3; hats and caps, other than felt, straw, and wool, 3; hats, fur-felt, 1; hosiery and knit goods, 1; ink, printing, 2; jewelry, 5; labels and tags, 1; lead, bar, pipe and sheet, 1;

CITIES OF 10,000 TO 50,000 INHABITANTS—ALL INDUSTRIES COMBINED.

1 MANKATO.....	63	1,033	69	60	71	26	807	662	135	10	911	747	152	5	7	3,654
2 ST. CLOUD.....	69	812	102	39	38	7	626	595	30	1	647	615	31	1		3,362
3 STILLWATER.....	38	940	83	38	123	8	688	532	153	3	684	520	152	2	1	1,952
4 WINONA.....	99	2,489	85	118	182	72	2,032	1,630	396	6	2,060	1,652	402	1	5	8,628
5 VIRGINIA.....	21	229	19	9	11	2	188	187	1		205	204	1			365

MANUFACTURES—MINNESOTA.

TOTALS FOR ALL INDUSTRIES IN CITIES OF 10,000 BUT LESS THAN 50,000 INHABITANTS: 1909—Continued.

CITIES OF 50,000 INHABITANTS OR MORE, BY INDUSTRIES—Continued.

ST. PAUL.

Capital.	EXPENSES.										Value of products.	Value added by manu- facture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$60,466,777	\$52,772,885	\$1,664,510	\$2,383,665	\$10,951,605	\$1,033,056	\$29,265,978	\$465,665	\$1,014,088	\$360,097	\$5,633,621	\$58,990,025	\$28,690,391
2 166,207	233,714	6,875	3,940	121,426	2,531	83,390	617	1,365	.....	13,770	287,706	201,785
3 3,004,269	4,133,143	55,983	167,604	830,119	22,224	2,053,428	39,827	16,483	.....	352,469	4,264,620	1,588,968
4 37,706	38,132	.....	780	11,420	622	23,678	480	437	.....	715	51,797	27,497
5 495,374	1,143,030	13,695	34,035	252,906	27,803	715,310	26,435	4,237	.....	73,609	1,308,388	625,275
6 169,076	2,072,839	11,600	15,429	39,085	6,098	1,010,969	4,562	1,438	.....	83,068	2,120,023	202,356
7 8,090	10,116	2,400	.....	4,571	245	1,054	639	20	.....	1,181	18,175	16,876
8 271,833	215,624	13,640	4,640	79,093	3,744	92,022	4,048	1,736	.....	16,131	250,275	154,509
9 5,922,894	3,640,244	105,355	61,237	1,576,797	108,958	1,736,589	.....	.....	.....	51,308	3,640,244	1,794,697
10 932,501	1,761,067	39,352	64,555	310,801	6,470	1,263,087	12,734	4,638	.....	58,731	1,917,127	646,961
11 285,937	500,236	15,834	34,049	58,693	6,892	327,582	12,247	1,234	.....	43,765	537,142	202,698
12 142,296	149,736	7,100	2,220	31,716	1,756	96,716	394	718	.....	9,126	167,657	69,185
13 2,022,111	1,177,335	40,796	41,904	297,833	10,762	663,131	6,323	4,759	.....	111,827	1,281,712	607,819
14 93,893	111,623	12,200	1,800	36,571	1,471	52,887	1,188	715	.....	4,731	134,846	80,488
15 5,681,070	4,475,005	166,732	149,257	1,284,467	158,207	2,193,832	21,255	27,328	4,850	469,077	5,033,077	2,681,038
16 1,638,433	2,810,909	65,542	130,310	408,576	5,413	1,334,712	38,002	10,704	95,025	162,505	3,109,872	1,269,747
17 1,337,965	1,187,017	55,120	38,083	287,536	19,162	675,509	9,012	5,461	500	96,044	1,289,499	594,823
18 469,366	744,199	22,496	26,297	141,247	5,396	496,061	12,714	1,882	.....	37,516	796,050	294,903
19 10,719,719	3,812,230	136,740	208,511	499,931	78,772	861,313	.....	644,314	.....	1,332,799	4,000,860	3,969,775
20 1,636,508	1,557,838	59,320	23,176	351,891	8,070	1,026,241	1,920	10,700	.....	70,520	1,678,835	644,524
21 458,571	534,614	14,700	14,904	178,150	16,035	271,010	4,390	1,983	6,265	27,177	619,499	332,454
22 264,937	392,612	11,896	10,722	58,905	3,050	247,083	2,760	1,140	.....	56,160	410,804	195,771
23 498,069	569,374	24,497	41,811	23,896	4,210	367,056	6,631	2,401	200	98,672	607,154	235,888
24 359,221	560,893	42,129	27,093	45,267	3,206	208,327	9,960	7,424	2,405	215,032	727,744	516,211
25 5,517,883	5,110,032	278,267	600,037	1,347,403	56,803	1,405,326	91,186	21,897	240,242	1,013,871	5,820,679	4,298,550
26 687,087	1,142,271	32,544	83,412	312,255	2,298	406,116	13,740	110,343	.....	121,563	1,335,788	867,374
27 17,414,066	14,078,992	434,894	597,799	2,300,420	472,879	9,531,459	144,571	130,666	10,610	1,055,694	16,004,652	6,600,214

looking-glass and picture frames, 4; malt, 1; mats and matting, 1; millinery and lace goods, 7; mineral and soda waters, 4; models and patterns, not including paper patterns, 5; mucilage and paste, 1; musical instruments, pianos and organs and materials, 1; oil, linseed, 1; oil, not elsewhere specified, 1; oilcloth and linoleum, 1; paper and wood pulp, 1; paper goods, not elsewhere specified, 2; photo-engraving, 4; roofing materials, 1; rubber goods, not elsewhere specified, 1; shipbuilding, including boat building, 2; show cases, 1; signs and advertising novelties, 5; slaughtering and meat packing, 9; soap, 3; stationery goods, not elsewhere specified, 1; statuary and art goods, 3; steam packing, 1; stereotyping and electrotyping, 3; stoves and furnaces, including gas and oil stoves, 4; surgical appliances and artificial limbs, 4; toys and games, 1; type founding and printing materials, 3; vinegar and cider, 3; washing machines and clothes wringers, 2; windmills, 1; wirework, including wire rope and cable, 6; wood, turned and carved, 2.

CITIES OF 10,000 TO 50,000 INHABITANTS—ALL INDUSTRIES COMBINED.

1 \$2,210,561	\$3,372,163	\$83,256	\$79,084	\$346,343	\$108,078	\$2,019,264	\$5,793	\$24,494	\$1,151	\$104,110	\$3,722,736	\$994,704
2 1,606,733	1,014,571	57,949	39,994	354,585	53,889	1,288,578	3,926	25,088	1,691	87,991	2,299,063	956,596
3 3,277,051	2,622,983	81,269	141,045	369,080	31,070	1,616,975	5,559	24,611	173,774	139,700	2,685,723	1,037,669
4 7,878,358	9,422,260	225,475	187,849	1,024,225	215,599	7,114,299	20,378	34,499	1,422	543,014	11,199,622	3,869,724
5 765,247	410,640	31,495	13,636	131,306	16,069	146,319	1,398	28,124	.....	42,293	518,966	356,308