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MANUFACTURES : MARYLAND

STATISTICS OF MANUFACTURES FOR THE TERRITORY, CITIES, AND INDUSTRIES

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INTRODUCTION.

This advance bulletin gives the statistics of manufactures for the state of Maryland for the calendar year 1909 as shown by the Thirteenth Census. It will be reprinted without change as a part of the Compendium of the Census for Maryland, and in the final reports of the Thirteenth Census.

The text summarizes the general results of the census inquiry, presenting a series of special tables in which the main facts printed in the general tables are given in convenient form for the state as a whole and for important industries. It also presents tables in which the statistics for the industries of the state as a whole and for a few important industries are classified by character of ownership, size of establishments, number of wage earners, and prevailing hours of labor, information which could not be presented in general tables for each industry without disclosing the facts for individual establishments.

At the end of the bulletin are two general tables.

Table I gives for 1909, 1904, and 1899 the number of establishments and of persons engaged in the industries, primary power, capital, salaries and wages, cost of materials, value of products, and value added by manufacture reported for all industries combined and for certain important industries (1) for the state as a whole and (2) for the city of Baltimore. It also gives the same items for all industries combined for every city having in 1910 a population of over 10,000 but less than 50,000.

Table II gives statistics in greater detail for 1909 for the state and for a larger number of industries.

Scope of census: Factory industries.—Census statistics of manufactures are compiled primarily for the purpose of showing the absolute and relative magnitude of the different branches of industry covered and their growth or decline. Incidentally, the effort is made to present data throwing light upon character of organization, location of establishments, size of establishments, labor force, and similar subjects. When use is made of the data for these purposes, it is imperative that due attention should be given to the limitations of the figures. Particularly is this true when the attempt is made to derive from them figures purporting to show average wages, cost of production, or profits. These limitations will be fully discussed in the general report on manufactures for the United States as a whole. It is impossible to reproduce such discussion in the bulletins relative to the individual states.

The census of 1909, like that of 1904, was confined to manufacturing establishments conducted under the factory system, as distinguished from the neighborhood, hand, and building industries. Where statistics for 1899 are given they have been reduced to a comparable basis by eliminating the latter classes of industries. The census does not include establishments which were idle during the entire year, or had a value of products of less than $500, or the manufacturing done in educational, eleemosynary, and penal institutions, or in governmental establishments, except those of the Federal Government.

Period covered.—The returns cover the calendar year 1909, or the business year which corresponds most nearly to that calendar year. The statistics cover a year's operations, except for establishments which began or discontinued business during the year.

The establishment.—The term "establishment" comprises the factories, mills, or plants which are under a common ownership or control, and for which one set of books of account is kept.

If, however, the plants constituting an establishment as thus defined were not all located within the same city or state, separate reports were secured in order that the separate totals might be included in the statistics for each city or state. In some instances separate reports were secured for different industries carried on in the same establishment.

Classification by industries.—The establishments were assigned to the several classes of industries according to their products of chief value. The products reported for a given industry may thus, on the one hand, include minor products very different from those covered by the class designation, and, on the other hand, may not include the total product covered by this designation, because some part of this product may be made in establishments in which it is not the product of chief value.

Selected industries.—The general tables at the end of this bulletin give the principal facts separately for the industries of the state. A selection has been made of the leading industries of the state for more detailed consideration. Sometimes an industry of greater importance than some of those selected is omitted because it comprises so few establishments that these detailed presentations would reveal the operations of individual concerns.

Comparisons with previous censuses.—Owing to the changes in industrial conditions it is not always possible to classify establishments by industries in such a way as to permit accurate comparison with preceding censuses. Table I, giving comparable figures for 1909, 1904, and 1899, therefore, does not embrace all the industries shown for 1909 in Table II.

Influence of increased prices.—In considering changes in cost of materials, value of products, and value added by manufacture, account should be taken of the general increase in the prices of commodities during recent years. To the extent to which this factor has been influential the figures can not be taken as an exact measure of increase in the volume of business.

Persons engaged in industry.—At the censuses of 1909, 1904, and 1899 the following general classes of persons engaged in manufacturing industries have been distinguished: (1) Proprietors and firm members, (2) salaried officers of corporations, (3) superintendents and managers, (4) clerks, and (5) wage earners. In the censuses of 1904 and 1899 these five classes were shown according to the three main groups: (1) Proprietors and firm members, (2) salaried officials, clerks, etc., and (3) wage earners. The second group included the three classes of salaried officers of corporations, superintendents and

managers, and clerks. In the present census an entirely different grouping is employed: That into (1) proprietors and officials, (2) clerks, and (3) wage earners. The first group includes proprietors and firm members, salaried officers of corporations, and superintendents and managers.

At this census the number of persons engaged in the industries, segregated by sex, and, in the case of wage earners, also by age (whether under 16 or 16 and over), was reported for December 15, or the nearest representative day. The 15th of December was selected as representing for most industries normal conditions of employment, but where conditions were exceptional, and particularly in the case of certain seasonal industries, the December date could not be accepted as typical and an earlier date had to be chosen.

In the case of employees other than wage earners the number thus reported on December 15 or other representative day has been treated as equivalent to the average for the year, since the number of employees of this class does not vary much from month to month in a given industry. In the case of wage earners the average is obtained in the manner explained in the next paragraph.

Wage earners.—In addition to the report by sex and age of the number of wage earners on December 15, or other representative day, a report was obtained of the number employed on the 15th of each month, without distinction of sex or age. From these figures the average number of wage earners for the year has been calculated by dividing the sum of the numbers reported each month by 12. The average thus obtained represents the number of wage earners that would be required to perform the work done if all were constantly employed during the entire year. Accordingly, the importance of any industry as an employer of labor is believed to be more accurately measured by this average than by the number employed at any one time or on a given day.

The number of wage earners reported for the representative day, though given for each separate industry, is not totaled for all industries combined, because in view of the variations of date such a total is believed not to be significant. It would involve more or less duplication of persons working in different industries at different times, would not represent the total number employed in all industries at any one time, and would give an undue weight to seasonal industries as compared with industries in continual operation.

In particular, totals by sex and age for the wage earners reported for the representative day would be misleading because of the undue weight given to seasonal industries, in some of which, such as canning and preserving, the distribution of the wage earners by sex and age is materially different from that in most industries of more regular operation. In order to determine as nearly as possible the sex and age distribution of the average number of wage earners in the state as a whole, the following procedure has been adopted:

The percentage distribution by sex and age of the wage earners in each industry, for December 15, or the nearest representative day, has been calculated from the actual numbers reported for that date. This percentage has been applied to the average number of wage earners for the year in that industry, to determine the average number of men, women, and children employed. These calculated averages for the several industries have been added up to give the average distribution for the state as a whole.

In 1899 and 1904 the schedule called for the average number of wage earners of each sex 16 years and over, and the total number under 16 years of age, for each month, and these monthly statements were combined in an annual average. Comparatively few manufacturing concerns, however, keep their books in such way as to show readily the number of men, women, and children (under 16) employed each month. These monthly returns by sex and age were, in fact, largely estimates. It was believed that a more accurate and reliable sex and age distribution could be secured by taking as a basis of estimate the actual numbers employed on a single day.

Prevailing hours of labor.—The census made no attempt to ascertain the number of employees working a given number of hours per week. The inquiry called merely for the prevailing practice followed in each establishment. Occasional variations in hours in an establishment from one period to another are disregarded, and no attention is given to the fact that a limited number of employees may have hours differing from those of the majority In the tables all the wage earners of each establishment are counted in the class within which the establishment itself falls. In most establishments, however, all or practically all the employees work the same number of hours, so that these figures give a substantially correct picture of the hours of labor in manufacturing industries.

Capital.—For reasons stated in prior census reports, the statistics of capital secured by the census canvass are so defective as to be without value, except as indicating very general conditions. The instructions on the schedule for securing capital were as follows:

The answer should show the total amount of capital, both owned and borrowed, on the last day of the business year reported. All the items of fixed and live capital may be taken at the amounts carried on the books. If land or buildings are rented, that fact should be stated and no value given. If a part of the land or buildings is owned, the remainder being rented, that fact should be so stated and only the value of the owned property given. Do not include securities and loans representing investments in other enterprises.

Materials.—Cost of materials refers to the materials used during the year, which may be more or less than the materials purchased during the year. The term materials includes fuel, rent of power and heat, mill supplies, and containers, as well as materials forming a constituent part of the product. Fuel includes all fuel used, whether for heat, light, or power, or for the process of manufacture.

Expenses.—Under "Expenses" are included all items of expense incident to the year's business, except interest, whether on bonds or other forms of indebtedness, dividends on stock, and allowances for depreciation.

Value of products.—The value of products for any industry includes the total value of all products manufactured in establishments whose products of chief value fall under the industry designation. The amounts given represent the selling value at the factory of all products manufactured during the year, which may differ from the value of the products sold. Amounts received for work on materials furnished by others are included.

Value added by manufacture.—The value of products is not a satisfactory measure of either the absolute or the relative importance of a given industry, because only a part of this value is actually created by the manufacturing process carried on in the industry itself. Another part of it, and often by far the larger part, represents the value of the materials used, which have been produced by agriculture or mining or by other industrial establishments. For many purposes, therefore, the best measure of the importance of different classes of industry is the value created as the result of the manufacturing operations carried on within the industry. This value is obtained by deducting the cost of the materials consumed from the value of the product. The figure thus obtained is termed in the census reports "value added by manufacture."

There is a further statistical advantage which "value added" has over gross value of products. In combining the value of products for all industries the value of products produced by one establishment and used as materials in another is duplicated, and the total, therefore, gives a greatly exaggerated idea of the wealth created. No such duplication takes place in the total "value added by manufacture."

Cost of manufacture and profits.—Census data do not show the entire cost of manufacture, and consequently can not be used to show profits. No account has been taken of interest and depreciation. Even if the amount of profit could be determined by deducting the expenses from the value of the products the rate of profit on the investment could not properly be calculated, because of the very defective character of the returns regarding capital.

Primary power.—The figures given for this item show the total of the primary power used by the establishments. They do not cover the power developed by motors operated by such power, the inclusion of which would evidently result in duplication.

Location of establishments.—The Census Bureau has classified establishments by their location in cities or classes of cities. In interpreting these figures due consideration should be given to the fact that often establishments are located just outside the bounda-

ries of cities, and are necessarily so classified, though locally they are looked upon as constituting a part of the manufacturing interests of the cities.

Laundries.—The census of 1909 was the first to include statistics of laundries. The reports are confined to establishments using mechanical power. The data are presented separately and are not included in the general total for manufacturing industries, in order to avoid interference with comparisons with prior censuses.

Custom grist and saw mills.—In order to make the statistics for 1909 comparable with those for 1904 the data for these mills have been excluded from all the tables presenting general statistics, and are given in a separate table at the end of this report.

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 lives 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 1849–50 it ranked seventh among the states in gross value of manufactured products; in 1869–70 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 1849–50 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 1849–50 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 1899, together with the percentages of increase from census to census:

	NUMBER OR AMOUNT.			PER CENT OF INCREASE.[1]	
	1909	1904	1899	1904–1909	1899–1904
Number of establishments	4,837	3,852	3,886	25.6	−0.9
Persons engaged in manufactures	125,489	107,303	(2)	16.9	(2)
Proprietors and firm members	5,376	4,505	(2)	19.3	(2)
Salaried employees	12,192	8,624	6,741	41.4	27.9
Wage earners (average number)	107,921	94,174	94,170	14.6	(3)
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	39,259,000	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

[1] A minus sign (−) denotes decrease. [2] Figures not available. [3] Less than one-tenth of 1 per cent.

In 1909 the state of Maryland had 4,837 manufacturing establishments operating under the factory system, 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.[1]			
		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	4,837	107,021	100.0	$315,669,000	100.0	$116,620,000	100.0	29.7	15.3	24.9	14.2
Clothing, men's, including shirts	350	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	16,909,000	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	3,659,000	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	23.0	56.6
Printing and publishing	371	3,386	3.1	8,360,000	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	6,868,000	2.2	2,505,000	2.1	33.1	20.8	19.7	22.7
Liquors, malt	20	909	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	3,381,000	2.9	14.7	49.1	12.7	50.5
Cotton goods, including cotton small wares	10	3,966	3.7	5,522,000	1.7	1,516,000	1.3	5.3	–3.3	10.1	–42.4
Liquors, distilled	25	276	0.3	5,362,000	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	1,920,000	1.6	94.1	34.9	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	4,351,000	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	18.3
Furniture and refrigerators	48	1,850	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	10.7
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 canes	9	514	0.5	1,650,000	0.5	574,000	0.5	20.8	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	112.8
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
Carriages and wagons and materials	126	757	0.7	1,330,000	0.4	789,000	0.7	–10.4	49.8	0.3	–20.9
Belting 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	0.8
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	75.0	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	458,000	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	22.1	77.5
Stoves and furnaces, including gas and oil stoves	8	394	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	–17.2	8.3	–2.4
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	87.5	.....	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	.....
Lime	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	54.0	21.2	61.0
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	208,000	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	.....	.....	.....	.....

[1] Per cent of increase is based on figures in Table I and a minus sign (–) denotes decrease.

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 separately presented, 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 separately shown 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 table given above, 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 mostly due 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 1849–50, when six establishments, with a capital of $170,000 and products valued at $452,000, were reported, it has steadily increased 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 and grist mills, 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 1869–70 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 1879–80 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 and grist mill 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 above 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 largely due 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 show 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 and grist mills 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 offi-

cers 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	2.9	88.3
Cars and general shop construction and repairs by steam-railroad companies	5,926	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	7.9	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	25.6	64.6
Printing and publishing	4,942	12.0	19.5	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	6.6	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.[1]	Per cent of total. 16 years of age and over. Male.	16 years of age and over. Female.	Under 16 years of age.
All industries	**107,921**	**67.1**	**26.8**	**6.1**
Bread and other bakery products	1,962	86.7	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	99.6	0.3	0.1
Clothing, men's, including shirts	19,784	43.2	51.5	5.4
Clothing, women's	2,641	21.0	76.9	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	.....
Flour-mill and gristmill products	506	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	909	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	80.9	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	33,289	78.8	15.9	5.3

[1] 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, or 34 per cent of the total, under 16 years of age.

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 Number.	1909 Percent distribution.	1904 Number.	1904 Percent distribution.	Per cent of increase, 1904–1909.
Total	**125,489**	**100.0**	**107,303**	**100.0**	**16.9**
Proprietors and firm members	5,376	4.3	4,505	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 Number.	1909 Percent distribution.	1904 Number.	1904 Percent distribution.	1899 Number.	1899 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 24, 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.	NUMBER OF 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	98,922	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 hours 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 largely confined 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 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	**107,921**	**6,166**	**13,229**	**16,274**	**21,601**	**41,574**	**6,103**	**1,074**	**1,000**
Baking powders and yeast	146	93				53			
Baskets, and rattan and willow ware	526	12	9	3	430	66	6		
Belting and hose, woven and rubber	279				9	270			
Boots and shoes, including cut stock and findings	594	1	67	4	120	402			
Boxes, cigar	167			29	2	136			
Boxes, fancy and paper	684		49	248	238	170			
Brass and bronze products	219	20	46	25	25	97			
Bread and other bakery products	1,902	73	315	101	273	836	148	140	16
Brick and tile	1,226	89		26	91	1,020			
Butter, cheese, and condensed milk	69	17		1	1	28	20	2	
Canning and preserving	8,013	223	317	90	126	6,192	616	1,000	49
Carriages and wagons and materials	757	3	54	276	87	337			
Cars and general shop construction and repairs by steam-railroad companies	5,549	21			3,163	1,596	769		
Chemicals	285						131		154
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	53		1	
Copper, tin, and sheet-iron products	5,275	237	23	265	641	4,109			
Cotton goods, including cotton small wares	3,966					3,966			
Fertilizers	1,439		3	30		1,030	376		
Flour-mill and gristmill products	506	16	1	1	16	229	57	184	2
Foundry and machine-shop products	4,798	174	1,507	1,747	424	886			
Furniture and refrigerators	1,856	181	79	258	345	993			
Gas, illuminating and heating	476	1			6	16	8	4	441
Glass	1,052	181	482	389					
Hats and caps, other than felt, straw, and wool	122	25	72	2	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	466	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	7,003	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	35	28	80	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					83	1,103	63	
Patent medicines and compounds and druggists' preparations	1,193	211	732	39	110	92			
Pottery, terra-cotta, and fire-clay products	720	337		101	20	262			
Printing and publishing	3,386	1,170	1,082	679	240	215			
Shipbuilding, including boat building	1,793	74	32	464	1,056	167			
Silk and silk goods, including throwsters	655					655			
Silverware and plated ware	199			199					
Slaughtering and meat packing	1,034	22	4	21	7	973	1	6	
Stoves and furnaces, including gas and oil stoves	394			222		172			
Tobacco manufactures	3,476	359	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	1,295,346	607,242	688,104	46.9	53.1
	1900	1,188,044	539,676	648,368	45.4	54.6
Number of establishments.	1909	4,837	2,704	2,133	55.9	44.1
	1899	3,886	2,410	1,476	62.0	38.0
Average number of wage earners.	1909	107,021	76,124	31,797	70.5	29.5
	1899	94,170	69,729	24,441	74.0	26.0
Value of products.	1909	$315,669,150	$197,619,972	$118,049,178	62.6	37.4
	1899	211,076,143	139,828,392	71,247,751	66.2	33.8
Value added by manufacture.	1909	116,620,245	84,047,316	32,572,929	72.1	27.9
	1899	81,721,731	61,831,896	19,889,835	75.7	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	[1] 9,296

[1] Population less than 10,000 in 1900, therefore in the preceding table the statistics for 1899 are included with those for the districts outside of cities.

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 [1]	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	2,900,267
Hagerstown	1,718	2,210	1,515	3,197,242	3,026,901	1,820,499
Frederick	1,026	(2)	(2)	2,910,943	(2)	(2)

[1] 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.
[2] Population less than 10,000 in 1900.

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 6 of the 9 industries; individual concerns lead in value of products and value added by manufacture in bakeries and flour and grist mills, 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.
ALL INDUSTRIES:				
1909	4,837	107,921	$315,669,150	$116,620,245
1904	3,852	94,174	243,375,096	93,351,930
Individual:				
1909	2,917	16,826	41,522,912	17,034,662
1904	2,242	15,248	32,833,690	13,970,506
Firm:				
1909	1,038	31,418	66,984,823	27,489,514
1904	953	30,281	62,622,809	27,114,711
Corporation:				
1909	873	59,676	207,102,280	72,037,412
1904	650	48,597	147,744,248	52,207,725
Other:				
1909	9	1	59,126	58,717
1904	7	48	175,249	58,988
Per cent of total:				
1909	100.0	100.0	100.0	100.0
1904	100.0	100.0	100.0	100.0
Individual:				
1909	60.3	15.6	13.2	14.6
1904	58.2	16.2	13.5	15.0
Firm:				
1909	21.5	29.1	21.2	23.6
1904	24.7	32.2	25.7	29.0
Corporation:				
1909	18.0	55.3	65.6	61.8
1904	16.9	51.6	60.7	55.9
Other:				
1909	0.2	(1)	(1)	(1)
1904	0.2	(1)	0.1	0.1
Bread and other bakery products, 1909	516	1,962	$6,868,479	$2,505,380
Individual	473	1,069	4,069,129	1,503,549
Firm	32	141	591,923	231,706
Corporation	11	752	2,207,427	770,125
Per cent of total	100.0	100.0	100.0	100.0
Individual	91.7	54.5	59.2	60.0
Firm	6.2	7.2	8.6	9.2
Corporation	2.1	38.3	32.1	30.7
Canning and preserving, 1909	468	8,613	$13,709,449	$3,619,815
Individual	263	2,461	3,003,787	969,266
Firm	166	3,096	4,301,499	1,208,059
Corporation	39	3,056	5,804,163	1,441,890
Per cent of total	100.0	100.0	100.0	100.0
Individual	56.2	28.6	26.3	26.8
Firm	35.5	35.9	31.4	33.4
Corporation	8.3	35.5	42.3	39.8
Clothing, men's, including shirts, 1909	359	19,784	$36,921,204	$15,955,219
Individual	238	2,850	3,904,877	2,322,190
Firm	102	14,006	28,970,759	11,803,768
Corporation	19	2,928	4,045,668	1,829,265
Per cent of total	100.0	100.0	100.0	100.0
Individual	66.3	14.4	10.6	14.6
Firm	28.4	70.8	78.5	74.0
Corporation	5.3	14.8	11.0	11.5
Copper, tin, and sheet-iron products, 1909	81	5,275	$16,909,447	$6,101,208
Individual	32	330	902,988	319,540
Firm	19	224	732,897	250,058
Corporation	30	4,721	15,273,562	5,531,100
Per cent of total	100.0	100.0	100.0	100.0
Individual	39.5	6.3	5.3	5.2
Firm	23.5	4.2	4.3	4.1
Corporation	37.0	89.5	90.3	90.7
Flour-mill and gristmill products, 1909	295	506	$9,267,903	$1,264,930
Individual	211	252	4,535,663	621,574
Firm	58	87	1,634,992	220,108
Corporation	26	167	3,097,248	423,158
Per cent of total	100.0	100.0	100.0	100.0
Individual	71.5	49.8	48.9	49.1
Firm	19.7	17.2	17.6	17.4
Corporation	8.8	33.0	33.4	33.5
Foundry and machine-shop products, 1909	157	4,798	$11,977,794	$6,021,303
Individual	63	644	1,190,982	704,230
Firm	41	563	1,909,088	810,692
Corporation	53	3,591	8,877,724	4,506,381
Per cent of total	100.0	100.0	100.0	100.0
Individual	40.1	13.4	9.9	11.7
Firm	26.1	11.7	15.9	13.5
Corporation	33.8	74.8	74.1	74.8
Lumber and timber products, 1909	561	7,003	$12,134,202	$5,627,203
Individual	331	1,941	2,274,567	1,359,607
Firm	166	2,348	4,100,651	1,912,536
Corporation	64	2,714	5,758,984	2,355,060
Per cent of total	100.0	100.0	100.0	100.0
Individual	59.0	27.7	18.7	24.2
Firm	29.6	33.5	33.8	34.0
Corporation	11.4	38.8	47.5	41.9
Printing and publishing, 1909	371	3,386	$8,359,779	$5,895,391
Individual	209	824	1,529,883	1,134,455
Firm	62	728	2,023,281	1,320,550
Corporation	92	1,834	4,748,180	3,372,951
Other	8	.....	58,435	58,435
Per cent of total	100.0	100.0	100.0	100.0
Individual	56.3	24.3	18.3	19.2
Firm	16.7	21.5	24.2	22.6
Corporation	24.8	54.2	56.8	57.2
Other	2.2	.....	0.7	1.0
Slaughtering and meat packing, 1909	54	1,034	$13,682,951	$2,180,336
Individual	36	319	4,740,752	935,885
Firm	10	124	1,660,420	205,330
Corporation	8	591	7,281,779	1,039,120
Per cent of total	100.0	100.0	100.0	100.0
Individual	66.7	30.9	34.6	42.9
Firm	18.5	12.0	12.1	9.4
Corporation	14.8	57.2	53.2	47.7

(1) 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 establishments 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.
ALL INDUSTRIES:				
1909	**4,837**	**107,921**	**$315,669,150**	**$116,620,245**
1904	**3,852**	**94,174**	**243,375,996**	**93,351,930**
Less than $5,000:				
1909	1,680	3,040	4,227,777	2,547,434
1904	1,249	2,250	3,165,660	1,800,851
$5,000 and less than $20,000:				
1909	1,707	11,346	17,825,972	8,809,931
1904	1,382	9,254	14,264,140	7,086,712
$20,000 and less than $100,000:				
1909	899	18,344	38,980,483	17,364,553
1904	821	18,627	36,907,882	17,035,164
$100,000 and less than $1,000,000:				
1909	441	46,859	130,048,877	53,355,069
1904	366	37,936	93,431,472	39,708,619
$1,000,000 and over:				
1909	41	28,332	124,586,041	34,453,258
1904	34	26,107	95,606,842	27,720,584
Per cent of total:				
1909	100.0	100.0	100.0	100.0
1904	100.0	100.0	100.0	100.0
Less than $5,000:				
1909	34.9	2.8	1.3	2.2
1904	32.4	2.4	1.3	1.9
$5,000 and less than $20,000:				
1909	36.5	10.5	5.6	7.6
1904	35.9	9.8	5.9	7.6
$20,000 and less than $100,000:				
1909	18.6	17.0	12.3	14.9
1904	21.3	19.8	15.2	18.2
$100,000 and less than $1,000,000:				
1909	9.1	43.4	41.2	45.8
1904	9.5	40.3	38.4	42.5
$1,000,000 and over:				
1909	0.8	26.3	39.5	29.5
1904	0.9	27.7	39.3	29.7
Average per establishment:				
1909	.....	22	$65,261	$24,110
1904	.....	24	63,182	24,235
Bread and other bakery products, 1909	**516**	**1,962**	**$6,868,479**	**$2,505,380**
Less than $5,000	182	100	533,880	209,615
$5,000 and less than $20,000	290	709	2,610,668	976,424
$20,000 and less than $100,000	35	339	1,228,172	432,536
$100,000 and less than $1,000,000	9	814	2,495,750	886,805
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	35.3	5.1	7.8	8.4
$5,000 and less than $20,000	56.2	36.1	38.0	39.0
$20,000 and less than $100,000	6.8	17.3	17.9	17.3
$100,000 and less than $1,000,000	1.7	41.5	36.3	35.4
Average per establishment	.....	4	$13,311	$4,855
Canning and preserving, 1909	**468**	**8,613**	**$13,709,449**	**$3,619,815**
Less than $5,000	108	337	299,657	92,457
$5,000 and less than $20,000	229	2,087	2,495,053	657,666
$20,000 and less than $100,000	108	2,572	4,095,044	1,090,008
$100,000 and less than $1,000,000	23	3,617	6,819,695	1,779,684
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	23.1	3.9	2.2	2.6
$5,000 and less than $20,000	48.9	24.2	18.2	18.2
$20,000 and less than $100,000	23.1	29.9	29.9	30.1
$100,000 and less than $1,000,000	4.9	42.0	49.7	49.2
Average per establishment	.....	18	$29,294	$7,735
Clothing, men's, including shirts, 1909	**359**	**19,784**	**$36,021,294**	**$15,955,219**
Less than $5,000	94	485	308,467	283,473
$5,000 and less than $20,000	156	2,387	1,522,271	1,280,547
$20,000 and less than $100,000	51	946	2,276,513	1,068,072
$100,000 and less than $1,000,000	51	5,879	15,488,342	5,958,680
$1,000,000 and over	7	10,087	17,325,701	7,364,447
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	26.2	2.5	0.8	1.8
$5,000 and less than $20,000	43.5	12.1	4.1	8.0
$20,000 and less than $100,000	14.2	4.8	6.2	6.7
$100,000 and less than $1,000,000	14.2	29.7	41.9	37.3
$1,000,000 and over	1.9	51.0	46.9	46.2
Average per establishment	.....	55	$102,845	$44,444
Copper, tin, and sheet-iron products, 1909	**81**	**5,275**	**$16,009,447**	**$6,101,298**
Less than $5,000	17	24	53,333	30,328
$5,000 and less than $20,000	21	108	223,938	119,167
$20,000 and less than $100,000	19	397	828,910	368,349
$100,000 and less than $1,000,000	18	1,421	4,642,049	1,357,134
$1,000,000 and over	6	3,325	11,161,217	4,226,320
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	21.0	0.5	0.3	0.5
$5,000 and less than $20,000	25.9	2.0	1.3	2.0
$20,000 and less than $100,000	23.5	7.5	4.9	6.0
$100,000 and less than $1,000,000	22.2	26.9	27.5	22.2
$1,000,000 and over	7.4	63.0	66.0	69.3
Average per establishment	.....	65	$208,759	$75,325
Flour-mill and gristmill products, 1909	**295**	**506**	**$9,267,903**	**$1,264,930**
Less than $5,000	62	13	166,649	31,442
$5,000 and less than $20,000	141	125	1,580,651	288,210
$20,000 and less than $100,000	80	204	3,218,307	459,866
$100,000 and less than $1,000,000 [1]	12	164	4,302,296	485,412
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	21.0	2.6	1.8	2.5
$5,000 and less than $20,000	47.8	24.7	17.1	22.8
$20,000 and less than $100,000	27.1	40.3	34.7	36.4
$100,000 and less than $1,000,000	4.1	32.4	46.4	38.4
Average per establishment	.....	2	$31,417	$4,288
Foundry and machine-shop products, 1909	**157**	**4,798**	**$11,977,794**	**$3,021,303**
Less than $5,000	36	66	96,241	64,648
$5,000 and less than $20,000	47	249	470,480	290,541
$20,000 and less than $100,000	51	1,177	2,372,800	1,399,875
$100,000 and less than $1,000,000 [1]	23	3,306	9,038,174	4,275,339
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	22.9	1.4	0.8	1.1
$5,000 and less than $20,000	29.9	5.2	3.9	4.8
$20,000 and less than $100,000	32.5	24.5	19.8	23.1
$100,000 and less than $1,000,000	14.6	68.9	75.5	71.0
Average per establishment	.....	31	$76,292	$38,352
Lumber and timber products, 1909	**561**	**7,003**	**$12,134,202**	**$5,627,203**
Less than $5,000	281	751	616,050	430,098
$5,000 and less than $20,000	181	1,743	1,728,309	1,122,411
$20,000 and less than $10,000	68	1,793	2,941,831	1,349,725
$100,000 and less than $1,000,000	31	2,716	6,848,012	2,724,969
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	50.1	10.7	5.1	7.6
$5,000 and less than $20,000	32.3	24.9	14.2	19.9
$20,000 and less than $100,000	12.1	25.6	24.2	24.0
$100,000 and less than $1,000,000	5.5	38.8	56.4	48.4
Average per establishment	.....	13	$21,630	$10,031
Printing and publishing, 1909	**371**	**3,386**	**$8,359,779**	**$5,895,891**
Less than $5,000	187	280	459,991	346,251
$5,000 and less than $20,000	120	696	1,206,519	870,178
$20,000 and less than $100,000	49	1,099	2,046,028	1,381,108
$100,000 and less than $1,000,000	15	1,310	4,647,241	3,297,854
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	50.4	8.5	5.5	5.9
$5,000 and less than $20,000	32.3	20.6	14.4	14.8
$20,000 and less than $100,000	13.2	32.2	24.5	23.4
$100,000 and less than $1,000,000	4.0	38.7	55.6	55.9
Average per establishment	.....	9	$22,533	$15,891
Slaughtering and meat packing, 1909	**54**	**1,034**	**$13,682,951**	**$2,180,335**
$5,000 and less than $20,000 [2]	13	19	167,909	35,750
$20,000 and less than $100,000	24	97	1,123,860	107,107
$100,000 and less than $1,000,000	12	317	5,151,358	942,846
$1,000,000 and over	5	601	7,239,824	1,094,632
Per cent of total	100.0	100.0	100.0	100.0
$5,000 and less than $20,000	24.1	1.8	1.2	1.6
$20,000 and less than $100,000	44.4	9.4	8.2	7.7
$100,000 and less than $1,000,000	22.2	30.7	37.6	43.2
$1,000,000 and over	9.3	58.1	52.9	47.5
Average per establishment	.....	19	$253,388	$40,377

[1] Includes the group "$1,000,000 and over."
[2] Includes the group "Less than $5,000."

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**	**23**	**8**
Bread and other bakery products	516	97	372	38	4	3	1	1	.....	.....
Canning and preserving	468	9	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	359	11	86	169	53	14	11	5	6	4
Clothing, women's	72	1	12	34	12	9	1	3	.....	.....
Confectionery	54	6	22	13	5	2	6	.....	.....	.....
Copper, tin, and sheet-iron products	81	1	33	15	19	3	3	4	3	.....
Cotton goods, including cotton small wares	16	.....	.....	3	2	1	5	3	1	1
Fertilizers	41	.....	21	7	4	5	3	1	.....	.....
Flour-mill and gristmill products	295	82	199	12	1	1	.....	.....	.....	.....
Foundry and machine-shop products	157	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	561	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	6	1	.....	.....	.....
Tobacco manufactures	203	85	128	33	7	3	3	2	2	.....
All other industries	1,307	105	658	312	150	72	48	15	5	2
AVERAGE NUMBER OF WAGE EARNERS.										
All industries	**107,921**	.....	**5,630**	**12,999**	**13,184**	**13,085**	**19,858**	**14,318**	**15,628**	**13,219**
Bread and other bakery products	1,062	.....	776	308	120	235	156	208	.....	.....
Canning and preserving	8,613	.....	594	2,326	1,483	1,024	1,700	1,396	.....	.....
Cars and general shop construction and repairs by steam-railroad companies	5,549	.....	11	59	.....	132	1,088	616	1,341	2,302
Clothing, men's, including shirts	19,784	.....	267	1,876	1,643	978	1,808	1,389	4,224	7,599
Clothing, women's	2,641	.....	38	419	397	609	125	1,053	.....	.....
Confectionery	1,573	.....	59	139	201	138	1,036	.....	.....	.....
Copper, tin, and sheet-iron products	5,275	.....	94	182	582	211	559	1,491	2,156	.....
Cotton goods, including cotton small wares	3,066	.....	.....	38	89	79	803	1,062	769	1,136
Fertilizers	1,439	.....	52	87	150	354	447	349	.....	.....
Flour-mill and gristmill products	506	.....	320	99	27	60	.....	.....	.....	.....
Foundry and machine-shop products	4,798	.....	153	476	838	1,028	777	656	871	.....
Liquors, distilled	276	.....	24	118	134	.....	.....	.....	.....	.....
Liquors, malt	900	.....	5	13	264	278	349	.....	.....	.....
Lumber and timber products	7,003	.....	773	2,045	1,017	1,464	1,704	.....	.....	.....
Paper and wood pulp	1,249	.....	8	34	134	.....	340	.....	733	.....
Patent medicines and compounds and druggists' preparations	1,193	.....	99	156	59	125	110	.....	644	.....
Printing and publishing	3,386	.....	496	791	849	530	720	.....	.....	.....
Slaughtering and meat packing	1,034	.....	72	113	141	470	238	.....	.....	.....
Tobacco manufactures	3,476	.....	226	353	256	197	478	710	1,256	.....
All other industries	33,289	.....	1,563	3,307	4,701	5,173	7,330	5,299	3,644	2,182
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All industries	**100.0**	.....	**5.2**	**12.0**	**12.2**	**12.1**	**18.4**	**13.3**	**14.5**	**12.2**
Bread and other bakery products	100.0	.....	39.6	18.8	6.6	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	38.4
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	65.9	.....	.....	.....
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	28.6
Fertilizers	100.0	.....	3.6	6.0	10.4	24.6	31.1	24.3	.....	.....
Flour-mill and gristmill products	100.0	.....	63.2	19.6	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	29.3	30.6	38.4	.....	.....	.....
Lumber and timber products	100.0	.....	11.0	29.2	14.5	20.9	24.3	.....	.....	.....
Paper and wood pulp	100.0	.....	0.6	2.7	10.7	.....	27.2	.....	58.7	.....
Patent medicines and compounds and druggists' preparations	100.0	.....	8.3	13.1	4.9	10.6	9.2	.....	54.0	.....
Printing and publishing	100.0	.....	14.6	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	36.1	.....
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	6.0	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	55.6	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	89.5	3.8
Tobacco manufactures	3.8	12.5	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 [1]	1909	1904	1899 [1]	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	129,669	91.7	97.2	98.2
Steam	2,693	2,121	2,153	181,326	142,096	115,590	83.1	85.9	87.5
Gas	504	308	332	5,736	4,377	3,139	2.6	2.6	2.4
Water wheels	309	205	323	11,953	10,610	10,415	5.5	6.4	7.9
Water motors	17	6	(2)	121	167	(2)	0.1	0.1	(2)
Other	.....	.....	.....	1,069	3,531	525	0.5	2.1	0.4
Rented	2,947	(2)	(2)	18,039	4,668	2,383	8.3	2.8	1.8
Electric	2,947	(2)	(2)	17,108	3,309	733	7.8	2.0	0.6
Other	.....	.....	.....	931	1,359	1,650	0.4	0.8	1.2
Electric motors	5,024	802	220	44,021	18,823	4,174	100.0	100.0	100.0
Run by current generated by establishment	2,077	802	220	27,813	15,514	3,441	61.9	82.4	82.4
Run by rented power	2,947	(2)	(2)	17,108	3,309	733	38.1	17.6	17.6

[1] Includes the neighborhood industries and hand trades, omitted in 1904 and 1909.
[2] 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 following table shows the quantity of each kind of fuel used in 1909, by totals for all industries and for certain selected industries.

INDUSTRY.	Anthracite coal (tons).	Bituminous coal (tons).	Coke (tons).	Wood (cds.).	Oil, including gasoline (barrels).	Gas (1,000 feet).
All industries[1]	**84,091**	**1,640,480**	**433,044**	**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	69	27,721	108	7,662	2,773	2,844
Cars and general shop construction and repairs by steam-railroad companies	11,279	63,978	2,429	.....	11,288	367
Clothing, men's, including shirts	1,016	14,412	.....	88	834	26,334
Clothing, women's	425	622	.....	5	79	5,908
Confectionery	281	15,869	2,109	42	8	2,200
Copper, tin, and sheet-iron products	853	26,854	489	4	9,086	23,286
Cotton goods, including cotton small wares	100	31,098	.....	78	.....	.....
Fertilizers	.....	25,183	10	10	61	150
Flour-mill and gristmill products	1,012	18,257	.....	4,859	804	871
Foundry and machine-shop products	495	34,315	20,282	1,105	603	19,091
Gas, illuminating and heating	32,307	16,874	3,464	17	179,632	11,540
Liquors, distilled	45	32,478	249	182	2	.....
Liquors, malt	.....	46,122	.....	25	7	717
Lumber and timber products	9	11,603	4	144	1,512	2,735
Paper and wood pulp	.....	132,467	.....	.....	.....	354,808
Patent medicines and compounds and druggists' preparations	215	4,396	.....	1	1	949
Printing and publishing	2,224	5,504	.....	33	223	16,267
Slaughtering and meat packing	30	40,705	.....	1,223	14	1,014
Tobacco manufactures	468	4,430	33	8	26	1,859
All other industries	27,317	1,079,349	403,260	12,057	44,026	795,166

[1] In addition there were 16,244 tons of other varieties of fuel reported.

SUPPLEMENTARY DATA REGARDING IMPORTANT INDUSTRIES.

(With statistics for laundries and custom saw and grist mills.)

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 1859–60 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 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**	[1] **$12,935,065**	**$14,533,000**
Canned vegetables, value	10,779,549	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	1,600,802	848,959
Value	$1,039,905	$2,021,627	$1,070,096
Peas—			
Cases—	381,894	622,263	565,642
Value	$619,981	$1,019,131	$957,436
Pumpkins—			
Cases	2,033	19,592	4,810
Value	$4,202	$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	$188,852	.....	.....
Tomatoes—			
Cases	5,747,477	3,638,363	2,599,454
Value	$7,674,960	$4,976,098	$3,659,137
Okra and tomatoes—			
Cases	36,629	.....	.....
Value	$53,572	.....	.....
All other canned vegetables—			
Cases	118,190	107,118	6,430
Value	$212,327	$335,541	$12,373
Canned fruits, value	$1,095,014	$1,765,824	$1,422,068
Apples—			
Cases	111,347	47,117	85,927
Value	$168,458	$70,980	$137,884
Blackberries—			
Cases	20,884	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	$77,087	.....	.....
Peaches—			
Cases	80,489	352,244	362,087
Value	$158,830	$753,003	$758,019
Pears—			
Cases	67,427	126,213	80,540
Value	$111,049	$199,802	$151,012
Pineapples—			
Cases	67,695	.....	.....
Value	$252,384	.....	.....
Raspberries—			
Cases	14,052	30,442	44,411
Value	$25,619	$47,349	$71,100
Strawberries—			
Cases	100,724	72,130	116,073
Value	$228,860	$129,324	$173,008
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	[2]	[2]
Oysters	$863,706	$548,646	$823,567
Canned, smoked and salt fish, clams and crabs	$227,633	[1]	$132,100
All other products	$74,148	$1,063,984	$5,803,674

[1] Does not include two establishments engaged in preparing fish, to avoid disclosures of individual operations.
[2] 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 1879–80, 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**	**$6,301,066**
Beef, fresh:			
Pounds	19,979,567	4,123,530	6,752,680
Value	$1,758,714	$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	$57,022	$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	$1,762,932	$1,538,427	$846,063
Pork, salted or cured:			
Pounds	28,231,007	30,676,342	31,730,703
Value	$3,648,005	$3,033,386	$2,666,284
Sausage, fresh or cured, value	$1,375,720	$791,478	$676,534
Lard:			
Pounds	9,577,942	10,380,572	11,359,953
Value	$1,102,407	$785,185	$720,124
Fertilizers and fertilizer materials:			
Tons	21,827	3,705	590
Value	$398,905	$100,166	$8,600
Hides:			
Number	58,891	18,650	29,917
Pounds	2,755,685	622,976	917,570
Value	$349,077	$54,408	$75,543
Pelts:			
Number	19,173	37,074	(1)
Value	$16,963	$11,034	(1)
All other products	$2,935,786	$71,778	$166,463

[1] Figures not available.

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

PRODUCT.		QUANTITY.	
		1909	[1] 1899
Rough lumber	M feet, b. m.	267,939	183,711
Shingles	thousands	12,352	22,824
Laths	thousands	17,583	5,369

[1] Does not include reports for establishments with a product less than $500.

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 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	**$9,672,786**	**$6,631,763**	**$5,481,905**
Superphosphates from minerals, bones, etc.:			
Tons	184,524	132,803	124,444
Value	$1,838,959	$1,309,620	$1,176,099
Ammoniated fertilizers:			
Tons	40,972	134,929	48,608
Value	$1,209,624	$1,861,567	$690,671
Concentrated phosphate:			
Tons	24,377	.....	.....
Value	$290,324	.....	.....
Complete fertilizers:			
Tons	268,570	154,665	183,705
Value	$4,754,519	$2,441,425	$2,977,015
Other fertilizers:			
Tons	81,256	78,402	27,017
Value	$838,839	$696,230	$330,572
Sulphuric acid:			
Tons	15,359	2,222	20,311
Value	$92,154	$13,332	$124,170
Other acids:			
Tons	.....	44,895	.....
Value	.....	$213,251	.....
Fish scrap:			
Tons	1,400	.....	.....
Value	$42,600	.....	.....
All other products	$554,767	$66,338	$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	.....	.....	**$9,267,903**	**$7,818,212**
Wheat flour:				
White.....barrels.	1,128,475	1,015,866	6,089,115	4,860,290
Graham.....barrels.	1,690	86	8,756	344
Corn meal.....barrels.	228,340	[1] 298,196	732,877	722,991
Corn flour.....barrels.	1,983	.....	8,198	.....
Rye flour.....barrels.	5,206	2,858	23,304	14,463
Buckwheat flour...pounds.	2,558,744	1,642,766	69,279	45,109
Hominy.....pounds.	997,417	[2] 3,011,460	18,223	41,861
Grits.....pounds.	1,292,200	.....	20,743	.....
Feed.....tons.	40,344	25,386	1,139,253	649,773
Offal.....tons.	41,469	45,537	1,035,007	947,858
All other products	.....	.....	123,148	35,523

[1] Includes corn flour. [2] 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**	**199**	**168**	**800,550**	**873,594**	**979,867**
Daily	18	20	18	310,870	296,878	247,552
Sunday	5	5	2	182,582	182,500	(1)
Semiweekly	[2] 3	2	2	18,075	16,175	17,360
Weekly	120	130	127	185,554	228,001	310,505
Monthly	13	22	15	100,069	123,150	93,250
All other classes	4	11	4	3,400	20,890	5,200

[1] Included with circulation for daily publications.
[2] 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 1850 there were 24 establishments reported, with products valued at $2,120,504. During the years from 1850 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	$3,293,937	$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	$76,769	$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	**$5,522,293**	**$5,244,742**	**$5,423,251**
Duck:			
Square yards	13,872,294	14,148,404	25,130,642
Value	$3,478,113	$3,622,713	$4,036,603
Other cloth:			
Square yards	7,556,494	8,652,972	8,770,940
Value	$958,335	$834,074	$607,185
Cotton yarns and twine for sale:			
Pounds	4,479,173	2,871,451	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 in the following statement:

	1909		1904		1899	
	Number.	Gross tonnage.	Number.	Gross tonnage.	Number.	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	20	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	1,257	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	1,295	98.5

The different kinds of primary power, the number of engines, and the amount of 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 following statement:

KIND.	Unit.	Quantity.
Anthracite coal	Tons	1,067
Bituminous coal	Tons	10,300
Wood	Cords	7
Oil	Barrels	29
Gas	1,000 feet	4,089

Custom saw and grist mills.—Statistics for custom saw and grist mills 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	126	114
Persons engaged in industry	435	148
Proprietors and firm members	158	129
Salaried employees	1	1
Wage earners (average number)	276	18
Total primary horsepower	2,492	2,123
Capital	$196,099	$181,625
Expenses	90,839	414,439
Services	69,779	5,722
Materials	2,157	[1] 399,939
Miscellaneous	18,903	8,778
Value of products	173,450	[1] 484,793

[1] Includes estimate of all grain ground.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
STATE—All industries	**1909**	**4,837**	**125,489**	**5,376**	**12,192**	**107,921**	**218,244**	**$251,227**	**$13,617**	**$45,436**	**$199,049**	**$315,669**	**$116,620**
	1904	**3,852**	**107,303**	**4,505**	**8,624**	**94,174**	**165,449**	**201,878**	**8,844**	**36,144**	**150,024**	**243,376**	**93,352**
	1899	**3,886**	.....	.....	**6,741**	**94,170**	**132,052**	**149,155**	**6,845**	**32,414**	**129,354**	**211,076**	**81,722**
Baking powders and yeast	1909	7	201	3	52	146	322	251	47	49	489	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	586	26	34	526	502	317	27	112	227	471	244
	1904	21	108	20	13	75	60	57	15	28	53	124	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	(1)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boots and shoes, including cut stock and findings.	1909	14	670	11	65	594	252	678	64	239	912	1,431	519
	1904	[2] 20	756	20	55	681	176	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	305	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	16	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	166	9	22	135	.....	156	24	47	192	360	168
Bread and other bakery products	1909	516	2,820	545	313	1,962	1,212	3,214	202	893	4,363	6,868	2,505
	1904	428	2,292	444	157	1,691	766	1,921	113	763	3,067	5,159	2,092
	1899	415	.....	.....	180	1,581	.....	1,870	117	588	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	76	1,464	4,353	5,337	78	534	227	1,097	870
	1899	45	1,008	50	57	1,501	2,613	3,903	52	453	156	844	688
Butter, cheese, and condensed milk	1909	44	137	54	14	69	522	257	10	39	524	654	130
	1904	55	156	71	5	80	576	176	2	20	399	519	120
	1899	77	.....	.....	16	102	800	200	6	31	504	627	123
Canning and preserving	1909	468	9,755	655	487	8,613	7,007	8,377	351	1,926	10,090	13,709	3,619
	1904	[2] 408	10,167	582	439	9,146	5,799	7,151	332	1,790	9,173	12,935	3,762
	1899	297	.....	.....	296	9,223	.....	5,308	287	1,772	10,627	14,533	3,906
Carriages and wagons and materials	1909	126	960	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	5,549	7,308	4,264	283	3,535	5,193	9,059	3,866
	1904	21	5,203	.....	226	4,977	4,245	2,303	205	2,837	2,610	5,752	3,142
	1899	19	3,754	.....	134	3,620	3,436	2,878	101	1,850	2,567	4,573	2,006
Chemicals	1909	3	316	.....	31	285	1,855	1,676	37	158	684	1,313	629
	1904	3	366	2	41	323	625	1,628	52	141	589	1,082	493
	1899	7	511	3	33	475	455	1,806	51	246	782	1,271	489
Clothing, men's, including shirts	1909	359	21,946	496	1,666	19,784	4,061	19,578	1,801	7,563	20,966	36,921	15,955
	1904	157	15,274	272	1,153	13,849	2,185	12,766	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	3,630	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	1,699	3,195	1,496
	1899	61	2,426	100	151	2,175	234	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	116	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	196	427	765	338
	1899	[3] 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	817	2,076	10,808	16,909	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	1,092	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	10,864	7,709	133	1,186	3,039	5,423	2,384
Fertilizers	1909	41	1,750	36	275	1,439	5,324	9,008	418	617	6,963	9,673	2,710
	1904	39	1,500	38	206	1,256	3,984	6,058	280	524	4,902	6,532	1,640
	1899	40	1,265	37	212	1,016	3,442	7,003	246	458	3,644	5,482	1,838
Flour-mill and gristmill products	1909	295	935	336	93	506	13,807	3,729	93	227	8,003	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	1,135

[1] Figures can not be shown without disclosing individual operations.
[2] Does not include statistics for two establishments, to avoid disclosure of individual operations.
[3] Does not include statistics for one establishment, to avoid disclosure of individual operations.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
STATE—Continued.													
Foundry and machine-shop products	1909	157	5,520	160	562	4,798	6,785	$10,324	$718	$2,751	$5,956	$11,978	$6,022
	1904	[1] 118	5,451	117	435	4,899	5,627	8,274	431	2,810	3,946	10,586	6,640
	1899	136	.....	.....	404	5,615	.....	8,033	442	2,729	4,080	9,940	5,860
Furniture and refrigerators	1909	48	2,133	68	209	1,856	2,870	2,507	199	835	1,601	3,350	1,749
	1904	[1] 51	2,525	63	182	2,280	2,859	2,291	198	959	1,624	3,445	1,821
	1899	[2] 42	2,065	55	141	1,869	1,851	1,585	118	823	1,212	2,976	1,764
Gas, illuminating and heating	1909	18	817	4	337	476	1,555	26,954	267	220	629	3,223	2,594
	1904	12	416	1	188	227	1,361	21,227	177	128	458	1,994	1,536
	1899	11	321	.....	81	237	469	18,554	85	137	481	1,797	1,316
Glass	1909	7	1,105	6	47	1,052	427	887	64	505	237	1,038	801
	1904	6	682	5	28	649	426	523	35	354	159	590	431
	1899	7	777	4	31	742	230	581	39	340	152	558	406
Hats and caps, other than felt, straw, and wool.	1909	17	155	24	9	122	53	69	4	60	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	930	2,607	296	688	1,783	3,347	1,564
	1904	6	1,226	6	81	1,139	507	1,452	136	460	1,051	2,036	985
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hosiery and knit goods	1909	11	1,062	10	30	1,022	460	930	29	234	697	1,172	475
	1904	[2] 4	919	4	39	876	405	639	29	196	531	952	421
	1899	[2] 4	712	2	28	682	160	312	15	119	347	514	167
Ice, manufactured	1909	42	466	31	80	355	7,192	2,552	83	230	300	1,022	722
	1904	27	318	15	50	253	4,280	1,688	46	126	180	730	550
	1899	18	163	6	19	138	2,140	650	15	75	84	359	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	439	48	65	326	182	682	55	150	607	1,043	436
	1904	[2] 34	552	39	70	437	212	998	55	168	505	1,012	507
	1899	[2] 40	.....	.....	144	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	982	2,019	37	218	1,483	1,911	428
	1899	22	501	28	18	455	1,008	1,089	17	156	1,411	1,754	343
Lime	1909	43	473	43	33	397	942	833	20	128	132	420	288
	1904	25	382	25	22	335	357	539	13	100	106	308	202
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Liquors, distilled	1909	25	387	10	101	276	2,605	4,863	215	142	1,149	5,362	4,213
	1904	27	412	21	87	304	2,894	3,719	152	201	1,399	2,567	1,168
	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	1,569	5,690	4,121
	1904	21	988	5	163	820	5,963	6,486	277	599	1,302	4,967	3,665
	1899	16	922	9	161	752	4,650	13,857	263	484	879	4,134	3,255
Lumber and timber products	1909	561	8,165	718	444	7,003	23,553	9,182	417	2,457	6,507	12,134	5,627
	1904	301	5,851	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	669	875	2,244	1,369
	1899	36	.....	.....	51	1,111	.....	708	66	322	530	1,442	912
Mattresses, and spring beds	1909	19	252	20	34	198	178	373	29	86	469	729	260
	1904	20	223	25	24	174	116	256	24	75	365	578	213
	1899	15	.....	.....	19	110	.....	173	14	42	138	258	120
Millinery and lace goods	1909	14	300	16	41	243	42	213	26	74	172	389	217
	1904	8	197	10	24	163	11	77	13	35	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	1,466	900
	1904	8	725	13	67	645	689	1,742	127	356	244	1,389	1,145
	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	[1] 11	253	16	55	182	509	444	51	74	411	681	270
	1899	16	181	24	35	122	380	339	33	51	300	507	207
Paper and wood pulp	1909	13	1,349	15	85	1,249	11,407	8,309	140	639	3,278	4,894	1,616
	1904	16	1,074	19	47	1,008	7,340	6,350	76	307	2,453	3,296	843
	1899	21	983	11	35	937	8,503	2,721	59	320	1,731	2,590	859
Patent medicines and compounds and druggists' preparations.	1909	83	1,846	62	591	1,193	683	4,114	749	429	2,167	5,548	3,381
	1904	74	1,319	75	273	971	779	3,223	373	286	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	16	997	14	58	925	1,484	1,148	55	389	138	852	714
	1899	18	1,144	15	47	1,082	663	1,081	44	385	196	835	639

[1] Does not include statistics for two establishments, to avoid disclosure of individual operations.
[2] Does not include statistics for one establishment, to avoid disclosure of individual operations.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
STATE—Continued.													
Printing and publishing	1909	371	4,942	365	1,191	3,386	3,694	$6,675	$1,264	$1,965	$2,464	$8,360	$5,896
	1904	[1] 330	4,261	351	936	2,971	2,434	5,008	855	1,511	1,732	6,317	4,585
	1899	[1] 333	4,328	384	596	3,348	.....	4,455	556	1,509	1,639	5,587	3,948
Shipbuilding, including boat building	1909	46	1,908	47	128	1,733	6,795	4,413	160	1,098	1,849	3,535	1,686
	1904	35	[2] 2,959	47	140	2,772	5,215	4,226	173	1,340	1,785	4,541	2,756
	1899	38	.....	.....	93	2,581	.....	4,424	104	1,503	1,787	4,116	2,329
Silk and silk goods, including throwsters	1909	4	681	2	24	655	915	488	32	100	237	512	275
	1904	3	188	.....	13	175	765	421	9	48	171	273	102
	1899	[3]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Silverware and plated ware	1909	10	215	5	11	199	201	322	15	121	115	355	240
	1904	[3] 6	237	9	20	208	166	307	25	111	110	308	198
	1899	[3] 5	142	11	15	116	.....	221	16	67	77	200	123
Slaughtering and meat packing	1909	54	1,324	61	229	1,034	3,024	3,808	265	604	11,503	13,683	2,180
	1904	44	983	61	60	562	1,204	1,322	58	329	5,888	6,848	960
	1899	50	.....	.....	43	465	.....	1,213	28	220	5,730	6,391	661
Stoves and furnaces, including gas and oil stoves.	1909	8	471	4	73	394	273	754	80	209	205	676	471
	1904	[3] 5	405	3	53	349	187	704	58	196	197	646	449
	1899	[4]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tobacco manufactures	1909	263	4,098	291	331	3,476	559	6,644	375	1,229	[5] 5,666	10,559	4,893
	1904	[2]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	386	.....	.....	275	4,310	.....	3,324	365	1,306	3,535	9,894	6,359
Umbrellas and canes	1909	9	640	15	111	514	95	827	144	168	1,076	1,650	574
	1904	9	450	14	65	371	83	468	40	94	800	1,271	471
	1899	11	508	23	84	401	.....	393	61	110	748	1,098	350
All other industries	1909	523	15,427	513	1,811	13,103	58,715	36,234	1,948	6,334	62,155	78,121	15,966
	1904	772	19,769	826	1,632	17,311	50,167	50,025	1,606	6,879	56,880	76,262	19,382
	1899	519	.....	.....	1,098	16,231	.....	22,017	1,247	5,728	44,706	59,915	15,149
CITIES OF 50,000 INHABITANTS OR MORE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES.													
BALTIMORE—All industries	1909	2,502	83,478	2,660	9,309	71,444	76,764	$164,437	$10,571	$31,171	$107,024	$186,978	$79,954
	1904	[5] 2,158	74,234	2,432	6,752	65,050	.....	146,961	6,997	25,507	80,555	150,171	69,616
	1899	2,274	.....	.....	5,501	66,571	.....	107,217	5,871	23,493	75,223	135,108	59,885
Belting and hose, woven and rubber	1909	4	315	1	35	279	305	826	49	87	995	1,318	324
	1904	4	255	1	31	223	.....	580	43	71	490	765	275
	1899	[3]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boots and shoes, including cut stock and findings.	1909	14	670	11	65	594	252	678	64	230	912	1,431	519
	1904	[3] 20	756	20	55	681	.....	445	44	247	546	1,040	494
	1899	28	.....	.....	44	870	.....	520	50	279	728	1,197	469
Bread and other bakery products	1909	375	2,323	396	295	1,632	976	2,666	198	750	3,629	5,716	2,087
	1904	341	1,958	353	146	1,459	.....	1,666	108	668	2,680	4,483	1,803
	1899	336	.....	.....	176	1,417	.....	[4] 669	116	536	2,099	3,647	1,548
Canning and preserving	1909	51	3,460	49	245	3,166	1,283	3,885	238	844	4,317	5,831	1,514
	1904	[3] 45	4,420	45	272	4,112	.....	3,728	254	979	4,365	6,226	1,861
	1899	45	.....	.....	207	5,631	.....	3,704	243	1,235	8,118	10,764	2,646
Carriages and wagons and materials	1909	40	496	46	37	413	406	641	37	235	278	732	454
	1904	57	638	78	20	540	.....	682	15	262	340	828	488
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cars and general shop construction and repairs by steam-railroad companies.	1909	8	4,481	.....	318	4,163	6,318	3,471	220	2,705	4,383	7,365	2,982
	1904	7	3,865	.....	153	3,712	.....	1,589	141	2,104	2,084	4,478	2,394
	1899	6	2,531	.....	93	2,438	.....	2,236	73	1,268	2,151	3,530	1,379
Clothing, men's, including shirts	1909	324	20,670	453	1,021	18,596	3,785	19,283	1,768	7,320	20,672	36,269	15,597
	1904	130	14,174	231	1,120	12,823	.....	12,436	983	3,924	14,667	25,276	10,609
	1899	155	.....	.....	883	12,044	.....	9,549	839	3,661	12,535	20,843	8,308
Clothing, women's	1909	69	2,953	99	282	2,572	348	1,686	270	878	2,279	4,333	2,054
	1904	51	1,963	76	145	1,742	.....	1,162	122	562	1,654	3,065	1,411
	1899	58	2,125	96	150	1,879	.....	820	128	505	1,261	2,507	1,246
Confectionery	1909	50	1,867	45	258	1,564	1,416	2,701	277	459	3,116	5,011	1,895
	1904	43	1,274	47	178	1,049	.....	1,125	166	292	1,569	2,598	1,029
	1899	42	.....	.....	134	858	.....	777	116	252	1,144	1,924	780
Copper, tin, and sheet-iron products	1909	53	4,734	55	507	4,172	4,297	20,655	662	1,675	8,172	12,833	4,661
	1904	50	2,792	50	230	2,512	.....	15,455	383	903	5,630	8,609	2,979
	1899	50	.....	.....	133	2,745	.....	3,690	120	806	4,047	5,933	1,886
Foundry and machine-shop products	1909	101	4,245	94	432	3,719	4,576	7,863	544	2,205	4,204	9,074	4,870
	1904	[3] 81	4,278	79	352	3,847	.....	6,740	354	2,295	2,836	8,396	5,560
	1899	[3] 94	.....	.....	320	4,265	.....	6,579	360	2,274	2,862	7,548	4,686

[1] Does not include statistics for one establishment, to avoid disclosure of individual operations.
[2] Figures can not be shown without disclosing individual operations.
[3] Does not include 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.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
BALTIMORE—Continued.													
Furniture, and refrigerators	1909	34	1,358	48	153	1,157	1,786	$1,825	$145	$548	$1,014	$2,197	$1,183
	1904	[1] 38	1,985	46	163	1,776	.....	1,901	186	709	1,297	2,854	1,557
	1899	[2] 36	1,804	48	129	1,627	.....	1,417	112	745	1,097	2,691	1,594
Hats, straw	1909	7	1,808	4	110	1,694	930	2,607	206	988	1,783	3,347	1,564
	1904	6	1,226	6	81	1,139	.....	1,452	136	460	1,051	2,036	985
	1899	[3]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ice, manufactured	1909	12	242	1	46	195	5,102	1,064	65	151	222	694	472
	1904	9	167	1	21	145	.....	1,324	31	85	143	575	432
	1899	5	69	2	4	63	.....	342	5	44	52	238	186
Leather goods	1909	35	410	40	64	306	181	610	55	143	500	903	403
	1904	[2] 30	529	36	76	417	.....	675	55	161	479	964	485
	1899	[2] 24	.....	.....	66	466	.....	661	50	150	588	954	366
Leather, tanned, curried, and finished	1909	7	85	11	6	68	156	145	5	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	92	636	1,372	69	42	331	1,602	1,271
	1904	7	129	.....	23	106	.....	1,540	38	70	523	954	431
	1899	7	109	2	24	83	.....	1,034	29	50	424	919	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	2,319
	1899	12	665	7	120	538	.....	9,689	187	351	622	2,934	2,312
Lumber and timber products	1909	48	2,258	49	193	2,016	5,609	2,853	206	894	3,022	4,805	1,783
	1904	[1] 34	1,765	35	158	1,572	.....	1,779	143	659	1,949	3,320	1,371
	1899	[2] 35	.....	.....	79	1,602	.....	2,324	68	629	2,050	3,320	1,270
Marble and stone work	1909	48	869	45	82	742	1,420	1,190	158	485	758	1,704	946
	1904	28	896	34	66	796	.....	1,087	176	487	775	1,841	1,066
	1899	27	.....	.....	36	727	.....	571	46	381	480	1,183	703
Patent medicines and compounds and druggists' 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	57	.....	.....	340	956	.....	1,438	442	279	1,238	3,196	1,958
Printing and publishing	1909	238	4,157	220	1,071	2,866	3,194	5,625	1,199	1,747	2,227	7,553	5,326
	1904	[2] 202	3,472	211	840	2,421	.....	4,251	796	1,330	1,578	5,608	4,030
	1899	[2] 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	[1] 12	515	16	30	469	.....	945	47	221	202	640	438
	1899	16	.....	.....	59	[4] 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	8,652	10,082	1,430
	1904	41	563	57	51	455	.....	907	51	250	4,740	5,552	803
	1899	46	.....	.....	36	305	.....	1,062	25	184	5,033	5,612	579
Tobacco manufactures	1909	212	3,849	236	319	3,294	559	6,442	360	1,167	5,530	10,270	4,740
	1904	[3]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	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	95	827	144	168	1,076	1,650	574
	1904	9	456	14	65	371	.....	468	40	94	800	1,271	471
	1899	10	499	18	83	398	.....	391	61	109	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	2,107	7,783	27,376	50,565	23,189
	1899	629	.....	.....	1,571	19,160	.....	40,950	1,844	6,370	21,053	37,974	16,021
CITIES OF 10,000 TO 50,000 INHABITANTS—ALL INDUSTRIES COMBINED.													
Cumberland	1909	71	2,200	53	211	1,936	5,119	$4,095	$185	$948	$2,676	$4,534	$1,858
	1904	72	2,512	55	181	2,276	.....	4,139	200	1,084	2,678	4,595	1,917
	1899	56	.....	.....	124	1,643	.....	2,352	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	[4]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	[4]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hagerstown	1909	76	1,938	79	141	1,718	2,068	2,970	116	583	1,798	3,197	1,399
	1904	67	2,457	65	182	2,210	.....	2,194	116	718	1,651	3,027	1,376
	1899	80	.....	.....	83	1,515	.....	1,121	48	390	1,100	1,820	720

[1] Does not include statistics for two establishments, to avoid disclosure of individual operations.
[2] Does not include statistics for one establishment, to avoid disclosure of individual operations.
[3] Figures can not be shown without disclosing individual operations.
[4] Population less than 10,000 in 1900.

TABLE II.—DETAIL STATEMENT FOR

	INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks. Male.	Clerks. Female.	Wage earners. Average number.	Wage earners. Number. Maximum month.	Wage earners. Number. Minimum month.	WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY. Total.	16 and over. Male.	16 and over. Female.	Under 16. Male.	Under 16. Female.	Primary horsepower.
1	**All industries**	**4,837**	**125,489**	**5,376**	**3,198**	**7,345**	**1,649**	**107,921**	**Se 133,268**	**Ja 95,070**	(1)	(1)	(1)	(1)	(1)	**218,244**
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	7	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	526	Fe 652	Oc 310	514	419	25	20	50	502
5	Belting and hose, woven and rubber	4	315	1	10	19	6	270	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 [2] 12	Je [2] 12	12	9	2	1	.....	17
7	Boots and shoes, including cut stock and findings	14	670	11	25	32	8	594	Ap [3] 613	Je 555	599	353	190	38	18	252
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	305
10	Brass and bronze products	17	267	11	20	14	3	219	Au 236	Ja 202	213	208	.....	5	.....	243
11	Bread and other bakery products	516	2,820	545	31	101	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	1	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 [3] 82	Ja [3] 56	81	70	.....	2	.....	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	730	.....	9	.....	870
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	3	316	.....	7	16	8	285	Oc [3] 321	Ja 231	315	313	2	.....	.....	1,855
20	Cloth, sponging and refinishing	4	71	5	3	4	.....	59	Ja [2] 59	Jy [2] 59	59	58	.....	1	.....	128
21	Clothing, men's, including shirts	359	21,946	496	260	1,442	274	19,784	De 20,420	Se 19,303	20,413	8,810	10,597	259	837	4,004
22	Clothing, women's	72	3,030	105	52	162	70	2,641	Ap 2,767	Au 2,510	2,757	570	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	1,494
24	Cooperage and wooden goods, not elsewhere specified	40	384	46	9	5	1	323	De 349	My 301	308	345	30	8	15	441
25	Copper, tin, and sheet-iron products	81	5,980	70	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	58	13	3,966	No 4,110	My 3,052	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 [3] 111	134	110	16	8	.....	266
29	Electroplating	10	67	13	.....	.....	1	53	Se [3] 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	.....	506	De 541	Ap 460	542	537	1	4	.....	13,807
33	Foundry and machine-shop products	157	5,520	160	200	312	5	4,708	De 5,231	Fe 4,430	5,319	5,178	96	45	.....	6,785
34	Fur goods	7	65	10	1	5	.....	49	No 79	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	1,856	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 335	415	415	.....	.....	.....	1,555
39	Glass	7	1,105	6	21	23	3	1,052	Ap 1,279	Au 417	1,348	1,152	99	97	9	127
40	Hand stamps, and stencils and brands	4	60	6	.....	4	2	48	Se [3] 54	Ap 42	55	42	8	3	.....	10
41	Hats and caps, other than felt, straw, and wool	17	155	24	1	7	1	122	Au [3] 133	Fe [3] 108	130	103	21	4	2	53
42	Hats, straw	7	1,808	4	31	56	23	1,694	De 1,971	Jy 503	1,976	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	192	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	90	No 96	Jy 85	95	86	3	4	2	46
46	Kaolin and ground earths	5	53	.....	9	1	1	42	My [3] 49	Ja [3] 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	15	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	.....	2,095
51	Liquors, malt	20	1,095	7	55	118	6	909	Jy 995	Ja 845	892	878	6	8	.....	6,187
52	Lumber and timber products	561	8,165	718	220	193	31	7,003	Mh 7,612	Au 6,152	8,401	7,670	317	339	75	23,556
53	Marble and stone work	89	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	18	14	243	De 289	Jy 200	285	56	221	3	5	42
56	Models and patterns, not including paper patterns	9	49	12	.....	1	.....	36	Se [3] 38	Jy 28	35	35	.....	.....	.....	50

[1] No figures given for reasons explained in the Introduction, page 2. See also discussion of wage earners on page 8.

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	$7,722,032	$45,495,829	$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	525,226	468,358	26,372	10,132	118,396	4,376	280,730	360	2,060	.....	25,803	532,761	247,646
3	250,918	712,306	14,196	32,858	49,381	14,062	474,336	14,448	2,302	.....	110,033	830,872	350,874
4	317,377	422,684	16,657	10,705	111,741	637	226,414	1,655	1,030	16,257	36,598	471,233	244,182
5	825,720	1,256,324	27,690	21,095	87,058	13,108	981,910	4,700	5,710	.....	109,053	1,317,501	322,483
6	36,676	86,262	3,902	10,128	4,830	799	21,255	2,965	278	5,000	37,105	70,413	54,359
7	677,706	1,362,474	32,368	32,116	239,242	8,093	904,079	12,835	3,381	48,618	81,742	1,431,017	518,845
8	117,001	169,837	5,000	3,120	45,113	2,491	107,031	1,635	814	.....	4,633	194,437	84,915
9	733,288	736,671	31,650	29,549	182,560	9,639	385,536	24,395	3,641	3,336	65,805	852,753	457,578
10	345,695	656,215	50,667	9,849	98,470	11,430	420,570	7,842	1,367	60	55,960	747,650	315,650
11	3,213,873	5,965,541	43,838	157,796	892,730	130,229	4,232,870	48,360	30,127	227	420,364	6,868,479	2,605,380
12	5,117,008	874,324	65,793	11,640	462,570	212,818	36,668	2,001	11,663	1,749	60,432	970,625	721,139
13	129,627	289,850	5,845	2,215	41,284	1,349	227,261	1,994	554	2,302	6,956	334,943	106,333
14	1,528,204	1,013,442	25,560	70,624	217,024	9,883	638,120	6,478	3,709	6,604	34,390	1,123,515	475,512
15	257,063	587,238	9,225	670	38,981	11,445	512,489	970	938	.....	12,520	653,702	129,768
16	8,376,049	12,937,109	199,848	151,642	1,925,962	125,292	9,964,342	56,452	34,743	6,014	472,814	13,709,449	3,619,815
17	1,101,906	1,032,974	36,784	8,546	372,416	15,048	526,130	19,434	7,661	3,382	43,573	1,330,068	788,890
18	4,203,067	9,050,574	82,470	200,543	3,534,842	99,321	5,093,890	.....	3,869	.....	44,639	9,059,256	3,866,045
19	1,675,000	943,885	18,400	18,391	158,346	60,006	623,982	.....	7,435	16,539	40,786	1,313,103	629,115
20	100,907	67,301	5,600	3,935	42,676	2,795	1,644	1,600	626	.....	8,525	106,534	102,095
21	19,578,476	34,214,120	392,324	1,408,612	7,563,126	149,801	20,816,274	410,014	63,417	2,043,741	1,366,811	36,921,294	15,955,219
22	1,694,363	3,937,613	77,867	192,652	888,268	26,115	2,250,108	67,057	5,757	95,771	325,018	4,351,263	2,060,040
23	2,752,928	4,341,437	122,547	162,605	463,434	54,537	3,107,205	35,998	16,190	.....	378,921	5,081,852	1,920.110
24	427,768	562,104	16,624	2,911	134,856	2,951	355,286	5,895	2,305	.....	41,276	616,687	258,450
25	24,718,688	14,980,879	415,364	401,908	2,675,764	142,046	10,666,103	65,905	53,447	20,413	1,139,839	16,908,447	6,101, 208
26	9,024,145	5,519,730	96,291	55,988	1,138,766	86,911	3,924,830	4,451	30,259	6,681	175,553	5,522,293	1,610,552
27	36,563	44,404	3,500	4,000	9,850	943	22,044	2,373	304	.....	1,390	58,516	35,529
28	210,225	129,023	15,833	5,339	40,725	2,857	50,758	1,434	974	1,895	9,208	147,098	93,483
29	28,540	44,039	.....	520	26,152	2,277	9,091	3,109	97	356	1,567	58,872	46,634
30	9,097,853	8,568,599	222,847	154,996	616,633	79,320	6,883,405	20,703	45,829	171	594,644	9,672,786	2,710,061
31	90,367	119,409	6,467	5,750	33,138	1,260	61,017	3,050	1,212	.....	7 806	147,154	84,877
32	3,729,202	8,577,040	51,393	41,681	226,993	74,888	7,928,085	22,778	17,292	1,235	212,695	9,267,903	1,264,930
33	10,324,262	10,708,038	451,064	264,222	2,750,481	215,900	5,749,501	78,157	54,325	86,422	1,063 870	11,977,794	6,021,303
34	106,758	111,940	2,500	3,506	21,373	566	71,003	5,608	380	100	6,904	150,438	87,869
35	308,432	774,729	4,840	62,360	154,632	2,499	491,428	13,878	613	680	43,799	894,912	400,285
36	2,507,077	2,887,696	71,099	127,324	835,147	30,592	1,570,692	43,709	14,719	8,742	184,982	3,350,360	1,749,085
37	199,219	137,931	10,700	3,664	31,264	1,793	76,863	2,956	350	.....	10,341	150,022	71,366
38	26,953,646	1,512,742	50,191	216,905	220,158	503,490	125,993	.....	207,021	.....	188,084	3,223,001	2,593,518
39	887,464	885,093	39,822	24,539	504,034	69,518	107,301	1,120	4,036	.....	73,223	1,038,308	801,549
40	34,536	76,448	.....	3,300	16,220	414	44,584	3,115	77	.....	8,678	94,759	49,761
41	68,549	173,026	600	3,604	66,056	1,772	88,572	3,618	300	896	7,599	208,209	117,865
42	2,607,208	3,061,417	149,264	146,371	687,648	17,431	1,705,783	44,037	8,112	.....	242,771	3,347,330	1,564,116
43	929,500	1,045,862	16,550	12,567	233,819	15,256	681,899	1,560	2,667	40,574	40,970	1,172,325	475,170
44	2,552,240	838,017	70,199	13,194	229,676	197,530	102,030	4,729	14,377	6,757	199,516	1,022,360	722,791
45	202,001	214,653	.....	9,205	57,016	2,453	120,580	4,562	865	314	10,049	250,997	124,955
46	150,143	64,077	12,106	1,300	25,365	5,970	11,848	850	1,029	855	4,754	67,280	49,462
47	682,060	901,894	10,660	44,718	150,363	4,359	602,902	17,431	5,853	7,056	57,952	1,042,909	435,648
48	2,208,388	2,486,828	59,760	20,069	210,649	15,518	2,098,516	2,996	4,648	.....	74,672	2,661,066	547,032
49	832,538	323,049	13,356	6,843	128,233	93,356	38,504	2,985	3,334	2,845	33,592	420,173	288,313
50	4,863,223	5,107,514	128,288	85,575	141,590	86,412	1,002,706	4,161	3,423,551	100	174,131	5,361,689	4,212,571
51	8,833,848	4,865,114	202,171	107,280	711,220	128,122	1,440,905	1,160	1,034,461	.....	1,179,795	5,689,651	4,120,624
52	9,182,100	10,321,505	265,781	151,430	2,457,402	38,417	6,468,582	49,137	54,723	347,772	488,261	12,134,202	5,027,203
53	2,164,270	2,147,351	145,452	52,878	702,528	47,855	909,381	15,696	9,913	11,305	162,343	2,427,476	1,470,200
54	372,788	641,279	13,705	14,785	86,355	6,229	462,536	17,438	2,046	.....	38,095	728,809	260,044
55	213,337	307,554	9,345	16,931	74,202	3,792	168,642	11,001	1,706	130	21,715	388,725	216,291
56	36,632	37,946	.....	1,040	21,824	1,101	9,028	1,904	216	28	1,905	54,010	42,981

[2] Same number reported for the entire year.

[3] Same number reported for one or more other months.

TABLE II.—DETAIL STATEMENT FOR

	INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks. Male.	Clerks. Female.	Wage earners. Average number.	Wage earners. Number. Maximum month.	Wage earners. Number. Minimum month.	WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY. Total.	16 and over. Male.	16 and over. Female.	Under 16. Male.	Under 16. Female.	Primary horsepower.
1	Musical instruments, pianos and organs and materials.	7	833	8	12	43	13	757	De 792	Ja 721	792	741	12	39	.....	613
2	Optical goods	4	50	3	3	9	7	28	De [1] 29	Je 27	29	27	.....	2	.....	11
3	Paint and varnish	12	190	20	7	24	12	127	No [1] 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	.....	11,497
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 3,205	3,547	2,870	472	155	50	3,694
9	Shipbuilding	46	1,968	47	77	43	8	1,793	Se 1,924	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 [1] 206	Jy [1] 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	.....	3,624
13	Stereotyping and electrotyping	5	56	2	3	4	6	41	No [1] 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 [1] 14	No [1] 12	13	10	2	1	.....	12
16	Tobacco manufactures	263	4,098	291	62	233	36	3,476	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 [1] 7	Fe [1] 6	7	7	.....	.....	.....	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 [2]	362	12,918	350	348	916	168	11,136	.....	.....	.....	.....	.....	.....	.....	56,549

[1] Same number reported for one or more other months.

[2] All other industries embrace—

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

THE STATE, BY INDUSTRIES: 1909—Continued.

	Capital.	EXPENSES.										Value of products.	Value added by manufacture.
		Total.	Service.			Materials.		Miscellaneous.					
			Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1	$2,301,096	$1,260,845	$37,875	$43,799	$463,631	$10,304	$556,140	$7,989	$16,214	$28	$130,894	$1,466,344	$899,930
2	58,448	74,478	7,525	9,679	13,980	1,569	35,385	3,740	534	.....	2,066	113,514	76,560
3	502,670	917,052	9,336	25,862	54,982	5,998	693,510	3,625	2,440	.....	121,293	1,000,938	301,424
4	8,398,655	4,253,865	63,250	77,076	630,057	236,571	3,041,851	.....	9,074	.....	186,086	4,894,401	1,615,979
5	4,114,258	4,287,630	289,218	459,621	429,394	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	89,342
7	973,443	665,352	43,070	27,579	316,110	71,429	134,683	3,118	8,570	1,596	57,197	756,705	550,683
8	6,675,108	7,133,217	446,123	818,119	1,065,077	79,607	2,384,781	173,159	34,361	365,580	866,410	8,359,770	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	459,727	22,815	9,396	159,043	11,210	225,419	.....	818	7,143	22,983	511,908	275,330
11	321,915	278,126	11,800	2,950	120,766	5,301	110,188	8,115	1,839	.....	17,167	354,768	230,279
12	3,807,576	12,853,466	98,278	166,916	603,512	131,355	11,371,261	13,730	10,396	.....	452,018	13,082,051	2,180,335
13	62,463	96,536	5,460	5,113	27,241	2,434	41,361	1,794	194	984	11,955	111,892	68,097
14	753,881	565,065	40,620	39,601	209,231	11,576	193,444	3,050	6,099	.....	62,344	676,103	471,173
15	23,458	18,066	2,400	500	7,844	504	2,882	3,868	46	264	658	20,404	17,018
16	6,643,922	9,841,832	124,852	249,983	1,228,840	34,426	5,631,773	43,415	1,554,222	84	974,228	10,558,807	4,802,608
17	10,190	13,220	1,700	800	3,044	163	4,806	1,310	75	.....	1,232	16,597	11,538
18	897,403	1,523,749	21,324	122,947	467,745	4,702	1,071,152	20,262	1,984	.....	113,633	1,649,810	573,956
19	32,382,219	69,024,539	684,710	900,138	5,434,061	3,488,673	56,501,436	194,787	133,014	38,134	1,648,077	73,747,441	13,757,332

[2] 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	Safes 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		

THIRTEENTH CENSUS OF THE UNITED STATES: 1910

DEPARTMENT OF COMMERCE AND LABOR

BULLETIN

BUREAU OF THE CENSUS
E. DANA DURAND, DIRECTOR

MANUFACTURES : MASSACHUSETTS

STATISTICS OF MANUFACTURES FOR THE STATE, CITIES, AND INDUSTRIES

Prepared under the supervision of W. M. STEUART, Chief Statistician for Manufactures

INTRODUCTION.

This advance bulletin gives the statistics of manufactures for the state of Massachusetts for the calendar year 1909 as shown by the Thirteenth Census. It will be reprinted without change as a part of the Compendium of the Census for Massachusetts, and in the final reports of the Thirteenth Census.

The text summarizes the general results of the census inquiry, presenting a series of special tables in which the main facts printed in the general tables are given in convenient form for the state as a whole and for important industries. It also presents tables in which the statistics for the industries of the state as a whole and for a few important industries are classified by character of ownership, size of establishments, number of wage earners, and prevailing hours of labor, information which could not be presented in general tables for each industry without disclosing the facts for individual establishments.

At the end of the bulletin are two general tables.

Table I gives for 1909, 1904, and 1899 the number of establishments and of persons engaged in the industries, primary power, capital, salaries and wages, cost of materials, value of products, and value added by manufacture reported for all industries combined and for certain important industries (1) for the state as a whole and (2) for the cities of Boston, Brockton, Cambridge, Fall River, Holyoke, Lawrence, Lowell, Lynn, New Bedford, Somerville, Springfield, and Worcester. It also gives the same items for all industries combined for every city and town having in 1910 a population of over 10,000 but less than 50,000.

Table II gives statistics in detail for 1909 for the state and for a larger number of industries.

Scope of census: Factory industries.—Census statistics of manufactures are compiled primarily for the purpose of showing the absolute and relative magnitude of the different branches of industry covered and their growth or decline. Incidentally, the effort is made to present data throwing light upon character of organization, location of establishments, size of establishments, labor force, and similar subjects. When use is made of the data for these purposes it is imperative that due attention should be given to the limitations of the figures. Particularly is this true when the attempt is made to derive from them figures purporting to show average wages, cost of production, or profits. These limitations will be fully discussed in the general report on manufactures for the United States as a whole. It is impossible to reproduce such discussion in the bulletins relative to the individual states.

The census of 1909, like that of 1904, was confined to manufacturing establishments conducted under the factory system, as distinguished from the neighborhood, hand, and building industries. Where statistics for 1899 are given they have been reduced to a comparable basis by eliminating the latter classes of industries. The census does not include establishments which were idle during the entire year, or had a value of products of less than $500, or the manufacturing done in educational, eleemosynary, and penal institutions, or in governmental establishments, except those of the Federal Government.

Period covered.—The returns cover the calendar year 1909, or the business year which corresponds most nearly to that calendar year. The statistics cover a year's operations, except for establishments which began or discontinued business during the year.

The establishment.—The term "establishment" comprises the factories, mills, or plants which are under a common ownership or control, and for which one set of books of account is kept.

If, however, the plants constituting an establishment as thus defined were not all located within the same city or state, separate reports were secured in order that the separate totals might be included in the statistics for each city or state. In some instances separate reports were secured for different industries carried on in the same establishment.

Classification by industries.—The establishments were assigned to the several classes of industries according to their products of chief value. The products reported for a given industry may thus, on the one hand, include minor products very different from those covered by the class designation, and, on the other hand, may not include the total product covered by this designation, because some part of this product may be made in establishments in which it is not the product of chief value.

Selected industries.—The general tables at the end of this bulletin give the principal facts separately for the industries of the state. A selection has been made of the leading industries of the state for more detailed consideration. Sometimes an industry of greater importance than some of those selected is omitted because it comprises so few establishments that these detailed presentations would reveal the operations of individual concerns.

Comparisons with previous censuses.—Owing to the changes in industrial conditions it is not always possible to classify establishments by industries in such a way as to permit accurate comparison with preceding censuses. Table I, giving comparable figures for 1909, 1904, and 1899, therefore, does not embrace all the industries shown for 1909 in Table II.

Influence of increased prices.—In considering changes in cost of materials, value of products, and value added by manufacture, account should be taken of the general increase in the prices of commodities during recent years. To the extent to which this factor has been influential the figures can not be taken as an exact measure of increase in the volume of business.

Persons engaged in industry.—At the censuses of 1909, 1904, and 1899, the following general classes of persons engaged in manufacturing industries have been distinguished: (1) Proprietors and firm members, (2) salaried officers of corporations, (3) superintendents and managers, (4) clerks, and (5) wage earners. In the censuses of 1904 and 1899 these five classes were shown according to the three main groups: (1) Proprietors and firm members, (2) salaried officials, clerks, etc., and (3) wage earners. The second group included the three classes of salaried officers of corporations, superintendents and mana-

gers, and clerks. In the present census an entirely different grouping is employed: That into (1) proprietors and officials, (2) clerks, and (3) wage earners. The first group includes proprietors and firm members, salaried officers of corporations, and superintendents and managers.

At this census the number of persons engaged in the industries, segregated by sex, and, in the case of wage earners, also by age (whether under 16 or 16 and over), was reported for December 15, or the nearest representative day. The 15th of December was selected as representing for most industries normal conditions of employment, but where conditions were exceptional, and particularly in the case of certain seasonal industries, such as canning, the December date could not be accepted as typical and an earlier date had to be chosen.

In the case of employees other than wage earners the number thus reported on December 15, or other representative day, has been treated as equivalent to the average for the year, since the number of employees of this class does not vary much from month to month in a given industry. In the case of wage earners the average is obtained in the manner explained in the next paragraph.

Wage earners.—In addition to the report by sex and age of the number of wage earners on December 15, or other representative day, a report was obtained of the number employed on the 15th of each month, without distinction of sex or age. From these figures the average number of wage earners for the year has been calculated by dividing the sum of the numbers reported each month by 12. The average thus obtained represents the number of wage earners that would be required to perform the work done if all were constantly employed during the entire year. Accordingly, the importance of any industry as an employer of labor is believed to be more accurately measured by this average than by the number employed at any one time or on a given day.

The number of wage earners reported for the representative day, though given for each separate industry, is not totaled for all industries combined, because in view of the variations of date such a total is believed not to be significant. It would involve more or less duplication of persons working in different industries at different times, would not represent the total number employed in all industries at any one time, and would give an undue weight to seasonal industries as compared with industries in continual operation.

In particular, totals by sex and age for the wage earners reported for the representative day would be misleading because of the undue weight given to seasonal industries, in some of which, such as canning and preserving, the distribution of the wage earners by sex and age is materially different from that in most industries of more regular operation. In order to determine as nearly as possible the sex and age distribution of the average number of wage earners in the state as a whole, the following procedure has been adopted:

The percentage distribution by sex and age of the wage earners in each industry, for December 15, or the nearest representative day, has been calculated from the actual numbers reported for that date. This percentage has been applied to the average number of wage earners for the year in that industry, to determine the average number of men, women, and children employed. These calculated averages for the several industries have been added up to give the average distribution for the state as a whole.

In 1899 and 1904 the schedule called for the average number of wage earners of each sex 16 years and over, and the total number under 16 years of age, for each month, and these monthly statements were combined in an annual average. Comparatively few manufacturing concerns, however, keep their books in such way as to show readily the number of men, women, and children (under 16) employed each month. These monthly returns by sex and age were, in fact, largely estimates. It was believed that a more accurate and reliable sex and age distribution could be secured by taking as a basis of estimate the actual numbers employed on a single day.

Prevailing hours of labor.—The census made no attempt to ascertain the number of employees working a given number of hours per week. The inquiry called merely for the prevailing practice followed in each establishment. Occasional variations in hours in an establishment from one period to another are disregarded, and no attention is given to the fact that a limited number of employees may have hours differing from those of the majority. In the tables all the wage earners of each establishment are counted in the class within which the establishment itself falls. In most establishments, however, all or practically all the employees work the same number of hours, so that these figures give a substantially correct picture of the hours of labor in manufacturing industries.

Capital.—For reasons stated in prior census reports, the statistics of capital secured by the census canvass are so defective as to be without value, except as indicating very general conditions. The instructions on the schedule for securing capital were as follows:

> The answer should show the total amount of capital, both owned and borrowed, on the last day of the business year reported. All the items of fixed and live capital may be taken at the amounts carried on the books. If land or buildings are rented, that fact should be stated and no value given. If a part of the land or buildings is owned, the remainder being rented, that fact should be so stated and only the value of the owned property given. Do not include securities and loans representing investments in other enterprises.

Materials.—Cost of materials refers to the materials used during the year, which may be more or less than the materials purchased during the year. The term materials includes fuel, rent of power and heat, mill supplies, and containers, as well as materials forming a constituent part of the product. Fuel includes all fuel used, whether for heat, light, or power, or for the process of manufacture.

Expenses.—Under "Expenses" are included all items of expense incident to the year's business, except interest, whether on bonds or other forms of indebtedness, and allowances for depreciation.

Value of products.—The value of products for any industry includes the total value of all products manufactured in establishments whose products of chief value fall under the industry designation. The amounts given represent the selling value at the factory of all products manufactured during the year, which may differ from the value of the products sold. Amounts received for work on materials furnished by others are included.

Value added by manufacture.—The value of products is not a satisfactory measure of either the absolute or the relative importance of a given industry, because only a part of this value is actually created by the manufacturing process carried on in the industry itself. Another part of it, and often by far the larger part, represents the value of the materials used, which have been produced by agriculture or mining or by other industrial establishments. For many purposes, therefore, the best measure of the importance of different classes of industry is the value created as the result of the manufacturing operations carried on within the industry. This value is obtained by deducting the cost of the materials consumed from the value of the product. The figure thus obtained is termed in the census reports "value added by manufacture."

There is a further statistical advantage which "value added" has over gross value of products. In combining the value of products for all industries the value of products produced by one establishment and used as materials in another is duplicated, and the total, therefore, gives a greatly exaggerated idea of the wealth created. No such duplication takes place in the total "value added by manufacture."

Cost of manufacture and profits.—Census data do not show the entire cost of manufacture, and consequently can not be used to show profits. No account has been taken of interest and depreciation. Even if the amount of profit could be determined by deducting the expenses from the value of the products the rate of profit on the investment could not properly be calculated, because of the very defective character of the returns regarding capital.

Primary power.—The figures given for this item show the total of the primary power used by the establishments. They do not

cover the power developed by motors operated by such power, the inclusion of which would evidently result in duplication.

Location of establishments.—The Census Bureau has classified establishments by their location in cities or classes of cities. In interpreting these figures due consideration should be given to the fact that often establishments are located just outside the boundaries of cities, and are necessarily so classified, though locally they are looked upon as constituting a part of the manufacturing interests of the cities.

Laundries.—The census of 1909 was the first to include statistics of laundries. The reports are confined to establishments using mechanical power. The data are presented separately and are not included in the general total for manufacturing industries, in order to avoid interference with comparisons with prior censuses.

Custom sawmills and gristmills.—In order to make the statistics for 1909 comparable with those for 1904 the data for these mills have been excluded from all the tables presenting general statistics, and are given in a separate table at the end of this report.

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 57,730; 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 p. 14.) 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 popuation 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,[1] 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.

[1] 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 in part due 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.[1]	
	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	(2)	21.0	(2)
Proprietors and firm members	11,194	11,258	(2)	−0.6	(2)
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	$1,279,687,000	$965,949,000	$781,868,000	32.5	23.5
Expenses	1,320,866,000	992,294,000	785,805,000	33.1	26.3
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

[1] A minus sign (−) denotes decrease.

[2] 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 5.

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.

That 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.[1]			
		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	81,305,000	12.3	43.4	17.0	63.3	−12.2
Woolen, worsted, and felt goods, and wool hats	183	53,873	9.2	141,967,000	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	44.6	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	8,076	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	8,082,000	1.2				
Clothing, men's, including shirts	254	7,335	1.3	18,314,000	1.2	8,558,000	1.3	22.8	23.9	25.2	16.0
Cordage and twine and jute and linen goods	31	6,690	1.1	16,632,000	1.1	5,434,000	0.8	7.1	26.7	39.3	−7.6
Confectionery	117	5,548	0.9	15,266,000	1.0	6,077,000	0.9	63.8	60.8	59.5	65.3
Jewelry	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	7,764,000	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	13,568,000	0.9	3,536,000	0.5	13.6	−10.9	−20.9	−14.8
Paper goods, not elsewhere specified	61	5,135	0.9	13,533,000	0.9	6,097,000	0.9				
Carpets and rugs, other than rag	11	5,954	1.0	12,812,000	0.9	5,311,000	0.8	31.9	30.4	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	246.3	320.6	201.9
Gas, illuminating and heating	64	2,292	0.4	11,074,000	0.7	7,204,000	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	4,957,000	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	3,551	0.6	7,888,000	0.5	4,967,000	0.8	19.9	24.2	21.6	20.6
Marble and stone work	330	5,015	0.9	7,804,000	0.5	5,012,000	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	1,449	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	38.9
Hats, straw	18	2,668	0.5	6,589,000	0.4	2,909,000	0.4	98.1	.....	120.0	.....
Silverware and plated ware	21	2,465	0.4	6,530,000	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	20.9	38.5	28.7
Brass and bronze products	85	1,701	0.3	6,042,000	0.4	2,370,000	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	99	3,838	0.7	5,758,000	0.4	3,030,000	0.5	58.4	−12.3	49.4	−12.4
Belting and hose, leather	16	955	0.2	5,647,000	0.4	1,981,000	0.3	409.7	−4.3	553.8	−22.9
Flour-mill and gristmill products	120	229	(2)	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	1,986,000	0.3	34.7	.....	28.4	.....
Millinery and lace goods	79	1,686	0.3	3,977,000	0.3	1,695,000	0.3	−17.1	163.7	−12.9	144.9
Corsets	10	1,989	0.3	3,752,000	0.3	2,145,000	0.3	93.4	20.9	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	1,394,000	0.2	34.8	2.7	47.7	4.9
Firearms and ammunition	8	2,327	0.4	3,408,000	0.2	2,056,000	0.4				
Carriages 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	2,460	0.4	3,058,000	0.2	1,895,000	0.3	34.0	27.1	40.2	35.5
Whips	29	1,005	0.2	2,774,000	0.2	1,702,000	0.3	43.3	17.3	45.1	25.9
Liquors, distilled	6	49	(2)	2,755,000	0.2	2,068,000	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	364.9	−78.6	353.2	−79.2
Mattresses and spring beds	52	667	0.1	2,227,000	0.2	930,000	0.1	2.2	36.1	8.6	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
Cooperage and wooden goods, not elsewhere specified	70	974	0.2	1,939,000	0.1	846,000	0.1	−8.5	37.4	−18.4	28.1
Lasts	27	675	0.1	1,909,000	0.1	1,298,000	0.2	58.2	41.3	57.1	31.5
Shoddy	27	442	0.1	1,766,000	0.1	573,000	0.1	−2.7	83.7	1.4	86.5
Sewing machines, cases, and attachments	6	869	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	663	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	(2)	1,359,000	0.1	256,000	(2)	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	8.6	−21.3
Buttons	12	659	0.1	978,000	0.1	569,000	0.1	21.6	18.1	−1.6	30.5
Fur goods	16	210	(2)	955,000	0.1	403,000	0.1	105.8	8.9	87.4	−9.3
Coffins, burial cases, and undertakers' goods	12	384	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	(2)	846,000	0.1	362,000	0.1	251.0	10.0	118.1	5.1
Electroplating	54	467	0.1	678,000	(2)	514,000	0.1	55.9	60.5	52.5	67.7
Butter, cheese, and condensed milk	24	56	(2)	664,000	(2)	116,000	(2)	−24.3	−26.8	18.4	−43.4
Hats and caps, other than felt, straw, and wool	30	274	(2)	659,000	(2)	324,000	(2)	−51.0	−69.3	−44.0	−72.3
Agricultural implements	5	346	0.1	647,000	(2)	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	(2)	465,000	0.1	−10.3	−0.7	−14.4	3.4
Models and patterns, not including paper patterns	62	342	0.1	625,000	(2)	506,000	0.1	33.0	22.4	34.2	18.9
Screws, machine	13	348	0.1	570,000	(2)	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				

[1] Percentages are based on figures in Table I; a minus sign (−) denotes decrease. Where the percentages are omitted, comparable figures can not be given.
[2] 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.[1] 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 46.

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 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.

[1] 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.

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, bookbinding 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 closely allied 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 5. 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 fall 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 46.

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	10,695	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	5,416	2.0	2.7	95.3
Clothing, men's, including shirts	8,208	5.2	5.4	89.4
Clothing, women's	6,686	5.0	8.0	86.9
Confectionery	6,398	3.3	10.0	86.7
Cordage and twine and jute and linen goods	7,903	1.2	3.2	95.5
Cotton goods, including cotton small wares	110,686	0.7	0.9	98.4
Cutlery and tools, not elsewhere specified	7,432	3.6	5.6	90.8
Electrical machinery, apparatus, and supplies	10,725	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	6.9	11.2	81.9
Hosiery and knit goods	10,287	1.4	1.0	96.6
Iron and steel, steel works and rolling mills	3,465	3.2	6.9	89.9
Jewelry	8,560	5.1	8.2	86.7
Leather, tanned, curried, and finished	11,006	3.3	3.6	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	9.6	86.8
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.	WAGE EARNERS.			
	Average number.[1]	Per cent of total.		
		16 years of age and over.		Under 16 years of age.
		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	38.7	2.5
Bread and other bakery products	6,697	78.3	19.0	2.7
Carpets and rugs, other than rag	5,054	51.8	42.2	6.0
Cars and general shop construction and repairs by steam-railroad companies	5,162	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	99.4	0.6	.....
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	(2)
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	(2)	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

[1] For method of estimating the distribution, by sex and age periods, of the average number in all industries combined, see Introduction.
[2] 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.[1]
	Number.	Per cent distribution.	Number.	Per cent distribution.	
Total	**644,399**	**100.0**	**532,481**	**100.0**	**21.0**
Proprietors and firm members	11,194	1.7	11,258	2.1	−0.6
Salaried 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

[1] 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.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent 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	425,909	97.2
Male	390,544	66.8	326,586	66.9	292,019	66.6
Female	173,280	29.6	147,044	30.1	133,890	30.6
Under 16 years of age	20,735	3.5	14,769	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 46, 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 46.) 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	573,462	93.6
February	572,618	93.5	August	581,008	94.8
March	579,519	94.6	September	594,686	97.1
April	576,618	94.1	October	601,533	98.2
May	576,379	94.1	November	604,466	98.7
June	576,055	94.0	December	612,615	100.0

Prevailing hours of labor.—In the table on page 12 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	2,645	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	109	41	309	11			
Boots and shoes, including cut stock and findings	83,063	212	4,258	33,007	44,563	1,023			
Boots and shoes, rubber	6,928			6,928					
Boxes, fancy and paper	3,838	28	594	938	2,278				
Brass and bronze products	1,791	40	55	492	664	540			
Bread and other bakery products	6,697	303	94	1,649	1,855	2,611	109	69	7
Brick and tile	991	32	46	107	207	567	13	19	
Butter, cheese, and condensed milk	56	12		9	3	28	4		
Buttons	650	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	3,689			54		
Chemicals	1,358	8	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	6,690	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	108,766	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	220	22	4	28	30	144	1		
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	394	5		
Gas and electric fixtures and lamps and reflectors	663	33	270	314	46				
Gas, illuminating and heating	2,292	23		735	314	12	105	14	999
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	2,608			14	2,331	323			
Hosiery and knit goods	9,941	12	245	86	9,598				
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	8,202	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	1,686	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	3,607	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	1,183	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	348			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	98			
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 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 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.	Number or amount.	Per cent of total.
Population	1910	3,366,416	2,606,380	77.4	450,898	13.4	1,008,483	30.0	1,146,999	34.1	760,036	22.6
	1900	2,805,346	2,050,862	73.1	413,698	14.7	852,988	30.4	784,176	28.0	754,484	26.9
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	1,494	13.7	3,133	28.7	3,583	32.8	2,719	24.9
Average number of wage earners	1909	584,559	477,766	81.7	88,052	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	$1,236,269,442	82.9	$209,652,301	14.1	$543,367,703	36.5	$483,249,438	32.4	$254,259,944	17.1
	1899	907,626,439	715,626,978	78.8	120,241,566	13.2	346,724,807	38.2	248,660,605	27.4	191,999,461	21.2
Value added by manufacture	1909	659,764,443	548,852,906	83.2	95,201,949	14.4	229,499,986	34.8	224,151,061	34.0	110,911,447	16.8
	1899	408,971,406	326,156,070	79.8	56,074,925	13.9	144,655,457	35.4	124,825,688	30.5	82,815,336	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 14.

The relative importance in manufactures of each of the these cities and towns is shown in the second tabular statement on page 14, 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	106,294	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	14,949	14,478
Brockton	56,878	40,063	Gardner	14,699	10,813
Malden	44,404	33,664	Marlborough	14,579	13,609
Haverhill	44,115	37,175	Clinton	13,075	13,667
Salem	43,697	35,956	Milford	13,055	11,376
Newton	39,806	33,587	Adams	13,026	11,134
Fitchburg	37,826	31,531	Framingham	12,948	11,302
Taunton	34,259	31,036	Weymouth	12,895	11,324
Everett	33,484	24,336	Watertown	12,875	9,706
Quincy	32,642	23,899	Southbridge	12,592	10,025
Chelsea	32,452	34,072	Plymouth	12,141	9,592
Pittsfield	32,121	21,766	Webster	11,509	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
Gloucester	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	69,637	59,160	52,853	$237,457,472	$184,351,163	$162,764,523
Lawrence	30,542	21,910	20,899	79,992,688	48,036,593	41,741,980
Worcester	28,221	22,796	22,593	77,147,884	52,144,965	46,793,372
Lynn	27,368	21,540	16,377	71,503,140	55,063,023	39,347,493
Fall River	37,139	26,836	30,646	64,145,726	43,473,105	39,102,710
Lowell	32,575	20,303	20,254	60,270,961	46,879,212	41,202,984
New Bedford	26,566	17,855	15,263	53,237,839	29,466,349	23,307,491
Brockton	14,737	13,889	10,206	45,972,388	37,790,982	24,855,362
Cambridge	15,260	14,586	11,070	44,227,305	42,407,064	29,092,103
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	25,860,250	18,155,071
Fitchburg	8,497	6,498	6,218	23,252,155	15,390,507	13,008,021
Chicopee	7,260	4,670	4,085	19,219,166	7,715,653	5,388,930
Chelsea	5,954	4,939	2,959	17,002,492	13,879,159	9,518,700
Peabody	4,850	3,053	2,661	15,548,732	10,236,669	6,943,736
Taunton	7,407	6,608	6,590	15,379,821	13,644,586	11,544,150
Pittsfield	6,353	4,455	3,198	15,215,202	8,577,358	5,753,546
Attleborough	6,429	5,044	4,811	15,160,359	10,050,384	8,751,427
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	15,524,675	5,330,026
Webster	3,409	3,107	2,377	11,296,271	5,807,760	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	7,468,849	4,498,385
North Adams	5,414	5,502	6,312	10,314,847	8,035,705	10,741,495
Everett	2,080	2,186	1,877	8,746,923	6,135,050	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	6,602,462
Clinton	4,123	3,482	3,836	7,844,543	5,457,865	5,042,549
Waltham	6,037	6,208	4,861	7,814,178	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	2,634	2,370	7,361,528	5,818,130	4,440,797
Hyde Park	4,320	3,991	2,483	7,336,084	6,739,307	4,383,959
Northampton	3,150	2,963	2,635	6,998,992	5,756,381	4,706,820
Newburyport	3,215	2,955	2,801	6,931,049	6,800,979	5,140,554
Framingham	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	4,921,955	5,388,531
Gardner	3,617	3,168	2,896	6,485,148	5,019,019	4,386,077
Adams	3,991	3,994	3,182	6,410,054	5,402,001	3,894,071
Newton	2,174	1,893	1,823	6,278,714	4,140,996	3,670,273
Southbridge	4,037	3,223	2,687	6,269,131	4,201,853	3,512,171
Wakefield	2,230	1,804	1,436	5,527,102	4,807,728	2,647,130
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	3,390,504	2,552,150
Methuen	1,572	(1)	(1)	3,475,702	(1)	(1)
Melrose	1,038	1,571	1,180	2,824,660	9,450,020	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	200	122	695,356	493,208	256,411
Brookline	340	495	324	532,303	732,845	485,359
Revere	101	125	87	407,336	355,060	155,813
Winthrop	7	(1)	(1)	42,168	(1)	(1)

1 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.[1] 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 bulletin 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.

[1] 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.
ALL INDUSTRIES:				
1909	11,684	584,559	$1,490,529,386	$659,764,443
1904	10,723	488,399	1,124,092,051	497,681,620
Individual:				
1909	6,015	55,318	137,804,430	65,831,571
1904	5,684	55,989	127,500,985	60,174,089
Firm:				
1909	2,084	58,684	162,323,389	68,901,641
1904	2,423	77,494	184,869,987	78,087,375
Corporation:				
1909	3,483	468,301	1,182,035,652	521,101,057
1904	2,555	354,711	810,543,002	358,944,586
Other:				
1909	102	2,256	7,465,909	3,029,574
1904	61	205	1,178,077	474,970
Per cent of total:				
1909	100.0	100.0	100.0	100.0
1904	100.0	100.0	100.0	100.0
Individual:				
1909	51.5	9.5	9.2	10.0
1904	53.0	11.5	11.3	12.1
Firm:				
1909	17.8	10.0	10.9	10.4
1904	22.6	15.9	16.4	15.7
Corporation:				
1909	29.8	80.1	79.4	79.0
1904	23.8	72.6	72.1	72.1
Other:				
1909	0.9	0.4	0.5	0.6
1904	0.6	(1)	0.1	0.1
Automobiles, including bodies and parts, 1909	62	4,138	$11,359,224	$5,867,746
Individual	20	370	1,044,768	563,066
Firm	8	126	346,727	176,869
Corporation	34	3,642	9,967,729	5,127,811
Per cent of total	100.0	100.0	100.0	100.0
Individual	32.3	8.9	9.2	9.6
Firm	12.9	3.0	3.1	3.0
Corporation	54.8	88.0	87.8	87.4
Boots and shoes, including cut stock and findings, 1909	860	83,063	$236,342,915	$83,352,983
Individual	399	10,663	30,483,211	11,107,991
Firm	225	16,956	55,361,516	18,529,205
Corporation [2]	236	55,444	150,498,188	53,715,787
Per cent of total	100.0	100.0	100.0	100.0
Individual	46.4	12.8	12.9	13.3
Firm	26.2	20.4	23.4	22.2
Corporation [2]	27.4	66.7	63.7	64.4
Bread and other bakery products, 1909	1,201	6,607	$26,146,044	$10,418,011
Individual	1,000	3,050	12,611,605	5,011,147
Firm	157	1,215	4,889,692	1,926,334
Corporation [2]	44	2,432	8,644,747	3,481,130
Per cent of total	100.0	100.0	100.0	100.0
Individual	83.3	45.5	48.2	48.1
Firm	13.1	18.1	18.7	18.5
Corporation [2]	3.7	36.3	33.1	33.4
Clothing, men's, including shirts, 1909	254	7,335	$18,313,783	$8,558,132
Individual	145	2,200	2,970,248	1,645,927
Firm	74	1,976	6,421,749	3,038,274
Corporation	35	3,159	8,921,786	3,873,931
Per cent of total	100.0	100.0	100.0	100.0
Individual	57.1	30.0	16.2	19.2
Firm	29.1	26.9	35.1	35.5
Corporation	13.8	43.1	48.7	45.3
Clothing, women's, 1909	174	5,813	$11,727,980	$5,216,648
Individual	81	1,727	3,750,580	1,629,331
Firm	54	1,772	3,640,312	1,702,890
Corporation	39	2,314	4,331,088	1,884,427
Per cent of total	100.0	100.0	100.0	100.0
Individual	46.6	29.7	32.0	31.2
Firm	31.0	30.5	31.0	32.6
Corporation	22.4	39.8	36.9	36.1
Confectionery, 1909	117	5,548	$15,266,453	$6,077,935
Individual	62	440	1,205,070	575,210
Firm	16	510	1,013,599	445,167
Corporation	39	4,598	12,957,784	5,057,558
Per cent of total	100.0	100.0	100.0	100.0
Individual	53.0	7.9	8.5	9.5
Firm	13.7	9.2	6.6	7.3
Corporation	33.3	82.9	84.9	83.2
Cordage and twine and jute and linen goods, 1909	31	6,690	$16,631,643	$5,433,937
Individual	7	69	171,684	50,606
Firm	5	201	273,280	136,507
Corporation	19	6,420	16,186,679	5,246,824
Per cent of total	100.0	100.0	100.0	100.0
Individual	22.6	1.0	1.0	.09
Firm	16.1	3.0	1.6	2.5
Corporation	61.3	96.0	97.3	96.6

[1] Less than one-tenth of 1 per cent.

[2] 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.
Cotton goods, including cotton small wares, 1909	**182**	**108,914**	**$186,462,313**	**$81,305,519**
Individual	12	643	1,181,169	380,666
Firm	13	1,593	2,321,164	1,012,783
Corporation	157	106,678	182,959,980	79,912,070
Per cent of total	100.0	100.0	100.0	100.0
Individual	6.6	0.6	0.6	0.5
Firm	7.1	1.5	1.2	1.2
Corporation	86.3	97.9	98.1	98.3
Cutlery and tools, not elsewhere specified, 1909	**135**	**6,747**	**$11,610,749**	**$8,126,350**
Individual	56	370	628,895	443,571
Firm	19	172	506,136	195,933
Corporation[1]	60	6,196	10,475,718	7,486,846
Per cent of total	100.0	100.0	100.0	100.0
Individual	41.5	5.6	5.4	5.5
Firm	14.1	2.5	4.4	2.4
Corporation[1]	44.4	91.8	90.2	92.1
Electrical machinery, apparatus, and supplies, 1909	**83**	**14,507**	**$28,142,889**	**$15,408,069**
Individual	16	203	464,517	245,905
Firm	8	233	441,672	237,304
Corporation	59	14,071	27,236,700	14,924,860
Per cent of total	100.0	100.0	100.0	100.0
Individual	19.3	1.4	1.7	1.6
Firm	9.6	1.6	1.6	1.5
Corporation	71.1	97.0	96.8	96.9
Foundry and machine-shop products, 1909	**857**	**44,179**	**$86,925,671**	**$55,743,781**
Individual	330	3,343	6,885,091	4,263,916
Firm	135	1,984	4,162,904	2,561,833
Corporation	392	38,852	75,877,676	48,918,032
Per cent of total	100.0	100.0	100.0	100.0
Individual	38.5	7.6	7.9	7.6
Firm	15.8	4.5	4.8	4.6
Corporation	45.7	87.9	87.3	87.8
Furniture and refrigerators, 1909	**155**	**7,277**	**$13,867,548**	**$8,050,640**
Individual	60	811	1,436,221	861,539
Firm	47	1,352	2,496,716	1,395,058
Corporation	48	5,114	9,934,611	5,803,043
Per cent of total	100.0	100.0	100.0	100.0
Individual	38.7	11.1	10.4	10.7
Firm	30.3	18.6	18.0	17.3
Corporation	31.0	70.3	71.6	72.0
Hosiery and knit goods, 1909	**65**	**9,941**	**$14,736,025**	**$7,764,419**
Individual	20	215	474,926	190,521
Firm	7	1,001	2,549,024	1,130,605
Corporation	38	8,725	11,712,075	6,443,293
Per cent of total	100.0	100.0	100.0	100.0
Individual	30.8	2.2	3.2	2.5
Firm	10.8	10.1	17.3	14.6
Corporation	58.5	87.8	79.5	83.0
Jewelry, 1909	**175**	**7,423**	**$15,210,738**	**$9,631,413**
Individual	62	1,183	2,372,099	1,461,464
Firm	53	2,460	5,201,421	3,465,319
Corporation	60	3,780	7,637,218	4,704,630
Per cent of total	100.0	100.0	100.0	100.0
Individual	35.4	15.9	15.6	15.2
Firm	30.3	33.1	34.2	36.0
Corporation	34.3	50.9	50.2	48.8
Leather, tanned, curried, and finished, 1909	**132**	**10,252**	**$40,002,079**	**$11,236,571**
Individual	42	1,039	2,413,413	1,131,280
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
Lumber and timber products, 1909	**708**	**8,976**	**$23,025,837**	**$10,541,712**
Individual	444	3,106	6,908,798	3,457,232
Firm	151	1,749	4,203,016	1,957,907
Corporation[1]	113	4,121	11,914,023	5,126,573
Per cent of total	100.0	100.0	100.0	100.0
Individual	62.7	34.6	30.0	32.8
Firm	21.3	19.5	18.3	18.6
Corporation[1]	16.0	45.9	51.7	48.6
Musical instruments, pianos and organs and materials, 1909	**50**	**4,245**	**$9,106,470**	**$4,957,214**
Individual	17	475	1,080,176	490,200
Firm	7	206	282,555	165,659
Corporation	35	3,564	7,743,739	4,301,355
Per cent of total	100.0	100.0	100.0	100.0
Individual	28.8	11.2	11.9	9.9
Firm	11.9	4.9	3.1	3.3
Corporation	59.3	84.0	85.0	86.8
Paper and wood pulp, 1909	**88**	**12,848**	**$40,096,713**	**$17,747,100**
Individual	4	786	2,955,881	2,163,091
Firm	8	710	2,304,008	1,234,008
Corporation[1]	76	11,352	34,836,824	14,350,001
Per cent of total	100.0	100.0	100.0	100.0
Individual	4.5	6.1	7.4	12.2
Firm	9.1	5.5	5.7	7.0
Corporation[1]	86.4	88.4	86.9	80.9
Paper goods, not elsewhere specified, 1909	**61**	**5,135**	**$13,532,976**	**$6,097,069**
Individual	10	79	110,526	76,315
Firm	6	83	259,185	117,225
Corporation	45	4,973	13,163,465	5,903,529
Per cent of total	100.0	100.0	100.0	100.0
Individual	16.4	1.5	0.8	1.3
Firm	9.8	1.6	1.9	1.9
Corporation	73.8	96.8	97.3	96.8
Printing and publishing, 1909	**1,279**	**17,532**	**$47,445,006**	**$34,564,455**
Individual	739	4,039	7,731,293	5,557,548
Firm	153	2,386	4,721,255	3,208,982
Corporation	318	10,877	33,313,993	24,543,900
Other	69	230	1,678,465	1,254,025
Per cent of total	100.0	100.0	100.0	100.0
Individual	57.8	23.0	16.3	16.1
Firm	12.0	13.6	10.0	9.3
Corporation	24.9	62.0	70.2	71.0
Other	5.4	1.3	3.5	3.6
Slaughtering and meat packing, 1909	**94**	**3,325**	**$44,402,972**	**$5,516,833**
Individual	57	238	1,948,761	492,049
Firm	14	117	1,904,899	244,628
Corporation	23	2,970	40,549,312	4,780,156
Per cent of total	100.0	100.0	100.0	100.0
Individual	60.6	7.2	4.4	8.9
Firm	14.9	3.5	4.3	4.4
Corporation	24.5	89.3	91.3	86.6
Woolen, worsted, and felt goods, and wool hats, 1909	**183**	**53,873**	**$141,966,882**	**$53,990,551**
Individual	26	2,262	5,822,008	2,001,336
Firm	27	4,810	11,885,145	4,658,985
Corporation	130	46,801	124,259,729	47,330,230
Per cent of total	100.0	100.0	100.0	100.0
Individual	14.2	4.2	4.1	3.7
Firm	14.8	8.9	8.4	8.6
Corporation	71.0	86.9	87.5	87.7

[1] 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.
ALL INDUSTRIES:				
1909	**11,684**	**584,559**	**$1,490,529,386**	**$659,764,443**
1904	**10,723**	**488,399**	**1,124,092,051**	**407,681,620**
Less than $5,000:				
1909	2,760	3,508	7,162,781	4,707,415
1904	2,633	3,834	6,898,333	4,517,340
$5,000 and less than $20,000:				
1909	3,826	10,912	40,731,897	24,009,431
1904	3,594	20,257	37,326,510	22,109,869
$20,000 and less than $100,000:				
1909	2,932	61,041	136,992,841	73,120,240
1904	2,673	60,075	120,969,162	63,758,232
$100,000 and less than $1,000,000:				
1909	1,873	222,890	585,830,505	261,501,513
1904	1,632	215,531	500,755,535	218,741,293
$1,000,000 and over:				
1909	293	277,208	719,811,362	296,305,838
1904	191	188,702	458,142,511	188,554,880
Per cent of total:				
1909	100.0	100.0	100.0	100.0
1904	100.0	100.0	100.0	100.0
Less than $5,000:				
1909	23.6	0.6	0.5	0.7
1904	24.6	0.8	0.6	0.9
$5,000 and less than $20,000:				
1909	32.7	3.4	2.7	3.6
1904	33.5	4.1	3.3	4.4
$20,000 and less than $100,000:				
1909	25.1	10.4	9.2	11.1
1904	24.9	12.3	10.8	12.8
$100,000 and less than $1,000,000:				
1909	16.0	38.1	39.3	39.6
1904	15.2	44.1	44.5	44.0
$1,000,000 and over:				
1909	2.5	47.4	48.3	44.9
1904	1.8	38.6	40.8	37.9
Average per establishment:				
1909	.....	50	$127,570	$56,467
1904	.....	46	104,830	46,413
Automobiles, including bodies and parts, 1909	**62**	**4,138**	**$11,359,224**	**$5,807,746**
Less than $5,000	6	3	11,850	7,720
$5,000 and less than $20,000	8	39	78,006	51,204
$20,000 and less than $100,000	27	533	1,364,483	802,975
$100,000 and less than $1,000,000 [1]	21	3,563	9,904,885	5,005,847
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	9.7	0.1	0.1	0.1
$5,000 and less than $20,000	12.9	0.9	0.7	0.9
$20,000 and less than $100,000	43.5	12.9	12.0	13.7
$100,000 and less than $1,000,000 [1]	33.9	86.1	87.2	85.3
Average per establishment	.....	67	$183,213	$94,641
Boots and shoes, including cut stock and findings, 1909	**860**	**83,063**	**$236,342,915**	**$83,352,963**
Less than $5,000	74	115	215,018	121,427
$5,000 and less than $20,000	195	1,507	2,196,375	1,232,688
$20,000 and less than $100,000	248	5,243	12,154,998	5,128,734
$100,000 and less than $1,000,000	279	36,269	104,620,992	36,792,782
$1,000,000 and over	64	39,929	117,155,532	40,077,332
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	8.6	0.1	0.1	0.1
$5,000 and less than $20,000	22.7	1.8	0.9	1.5
$20,000 and less than $100,000	28.8	6.3	5.1	6.2
$100,000 and less than $1,000,000	32.4	43.7	44.3	44.1
$1,000,000 and over	7.4	48.1	49.6	48.1
Average per establishment	.....	97	$274,817	$96,922
Bread and other bakery products, 1909	**1,201**	**6,697**	**$26,146,044**	**$10,418,611**
Less than $5,000	219	158	706,602	304,774
$5,000 and less than $20,000	764	1,932	7,848,841	3,204,356
$20,000 and less than $100,000	187	1,688	6,661,851	2,604,415
$100,000 and less than $1,000,000 [1]	31	2,919	10,928,750	4,305,066
Bread and other bakery products, 1909—Contd.				
Per cent of total	100.0	100.0	$100.0	$100.0
Less than $5,000	18.2	2.4	2.7	2.9
$5,000 and less than $20,000	63.6	28.8	30.0	30.8
$20,000 and less than $100,000	15.6	25.2	25.5	25.0
$100,000 and less than $1,000,000 [1]	2.6	43.6	41.8	41.3
Average per establishment	.....	6	$21,770	$8,675
Clothing, men's, including shirts, 1909	**254**	**7,335**	**$18,313,783**	**$8,558,132**
Less than $5,000	61	263	195,111	168,135
$5,000 and less than $20,000	91	1,334	1,001,078	828,782
$20,000 and less than $100,000	66	1,890	2,787,365	1,525,876
$100,000 and less than $1,000,000 [1]	36	3,848	14,330,229	6,035,339
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	24.0	3.6	1.1	2.0
$5,000 and less than $20,000	35.8	18.2	5.5	9.7
$20,000 and less than $100,000	26.0	25.8	15.2	17.8
$100,000 and less than $1,000,000 [1]	14.2	52.5	78.2	70.5
Average per establishment	.....	29	$72,102	$33,693
Clothing, women's, 1909	**174**	**5,813**	**$11,727,980**	**$5,216,648**
Less than $5,000	10	28	33,269	22,648
$5,000 and less than $20,000	35	322	422,306	242,334
$20,000 and less than $100,000	95	2,499	5,041,751	2,222,559
$100,000 and less than $1,000,000	34	2,964	6,230,564	2,729,107
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	5.7	0.5	0.3	0.4
$5,000 and less than $20,000	20.1	5.5	3.6	4.6
$20,000 and less than $100,000	54.6	43.0	43.0	42.6
$100,000 and less than $1,000,000	19.5	51.0	53.1	52.3
Average per establishment	.....	33	$67,402	$29,981
Confectionery, 1909	**117**	**5,548**	**$15,266,453**	**$6,077,935**
Less than $5,000	17	14	55,379	31,817
$5,000 and less than $20,000	38	161	429,881	212,487
$20,000 and less than $100,000	34	515	1,392,826	583,621
$100,000 and less than $1,000,000	25	3,120	7,713,840	3,038,636
$1,000,000 and over	3	1,738	5,674,527	2,211,374
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	14.5	0.3	0.4	0.5
$5,000 and less than $20,000	32.5	2.9	2.8	3.5
$20,000 and less than $100,000	29.1	9.3	9.1	9.6
$100,000 and less than $1,000,000	21.4	56.2	50.5	50.0
$1,000,000 and over	2.6	31.3	37.2	36.4
Average per establishment	.....	47	$130,482	$51,948
Cordage and twine and jute and linen goods, 1909	**31**	**6,690**	**$16,631,643**	**$5,433,937**
Less than $5,000	4	6	11,530	5,542
$5,000 and less than $20,000	3	9	31,384	6,746
$20,000 and less than $100,000	9	188	456,685	163,109
$100,000 and less than $1,000,000	12	2,445	4,909,231	1,777,534
$1,000,000 and over	3	4,042	11,222,813	3,481,006
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	12.9	0.1	0.1	0.1
$5,000 and less than $20,000	9.7	0.1	0.2	0.1
$20,000 and less than $100,000	29.0	2.8	2.7	3.0
$100,000 and less than $1,000,000	38.7	36.5	29.5	32.7
$1,000,000 and over	9.7	60.4	67.5	64.1
Average per establishment	.....	216	$530,505	$175,288
Cotton goods, including cotton small wares, 1909	**182**	**108,914**	**$186,462,313**	**$81,305,519**
$5,000 and less than $20,000 [2]	12	93	132,651	63,663
$20,000 and less than $100,000	23	755	1,252,642	520,586
$100,000 and less than $1,000,000	79	22,367	37,098,054	15,368,391
$1,000,000 and over	68	85,699	147,978,966	65,352,879
Per cent of total	100.0	100.0	100.0	100.0
$5,000 and less than $20,000 [2]	6.6	0.1	0.1	0.1
$20,000 and less than $100,000	12.6	0.7	0.7	0.6
$100,000 and less than $1,000,000	43.4	20.5	19.9	18.9
$1,000,000 and over	37.4	78.7	79.4	80.4
Average per establishment	.....	598	$1,024,518	$446,734

[1] Includes the group "$1,000,000 and over."

[2] 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.
Cutlery and tools, not elsewhere specified, 1909	**135**	**6,747**	**$11,610,749**	**$8,126,350**
Less than $5,000	34	42	93,364	67,945
$5,000 and less than $20,000	43	292	435,806	323,636
$20,000 and less than $100,000	35	1,141	1,737,694	1,233,439
$100,000 and less than $1,000,000 [1]	23	5,272	9,343,885	6,501,330
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	25.2	0.6	0.8	0.8
$5,000 and less than $20,000	31.9	4.3	3.8	4.0
$20,000 and less than $100,000	25.9	16.9	15.0	15.2
$100,000 and less than $1,000,000 [1]	17.0	78.1	80.5	80.0
Average per establishment		50	$86,000	$60,195
Electrical machinery, apparatus, and supplies, 1909	**83**	**14,507**	**$28,142,889**	**$15,408,069**
Less than $5,000	5	13	8,021	2,704
$5,000 and less than $20,000	19	97	236,803	141,428
$20,000 and less than $100,000	31	917	1,692,854	989,015
$100,000 and less than $1,000,000	25	3,202	6,896,291	4,290,921
$1,000,000 and over	3	10,188	19,308,010	9,974,001
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	0.0	0.1	[2]	[2]
$5,000 and less than $20,000	22.9	0.7	0.8	0.9
$20,000 and less than $100,000	37.3	6.3	6.0	6.5
$100,000 and less than $1,000,000	30.1	22.7	24.5	27.8
$1,000,000 and over	3.6	70.2	68.6	64.7
Average per establishment		175	$339,071	$185,639
Foundry and machine-shop products, 1909	**857**	**44,170**	**$86,925,071**	**$55,743,781**
Less than $5,000	152	216	406,446	274,148
$5,000 and less than $20,000	255	1,501	2,799,023	1,918,817
$20,000 and less than $100,000	287	7,207	14,149,812	8,567,392
$100,000 and less than $1,000,000	149	16,764	36,784,419	22,156,361
$1,000,000 and over	14	18,491	32,785,971	22,827,063
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	17.7	0.5	0.5	0.5
$5,000 and less than $20,000	29.8	3.4	3.2	3.4
$20,000 and less than $100,000	33.5	16.3	16.3	15.4
$100,000 and less than $1,000,000	17.4	37.9	42.3	39.7
$1,000,000 and over	1.6	41.6	37.7	40.9
Average per establishment		52	$101,430	$65,045
Furniture and refrigerators, 1909	**155**	**7,277**	**$13,867,548**	**$8,059,640**
Less than $5,000	22	37	64,089	43,681
$5,000 and less than $20,000	37	199	418,432	257,603
$20,000 and less than $100,000	66	1,632	3,056,414	1,719,582
$100,000 and less than $1,000,000 [1]	30	5,409	10,327,713	6,038,494
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	14.2	0.5	0.5	0.5
$5,000 and less than $20,000	23.9	2.7	3.0	3.2
$20,000 and less than $100,000	42.6	22.4	22.0	21.3
$100,000 and less than $1,000,000 [1]	19.4	74.3	74.5	74.9
Average per establishment		47	$89,468	$51,998
Hosiery and knit goods, 1909	**65**	**9,941**	**$14,736,025**	**$7,764,419**
Less than $5,000	12	11	23,506	13,069
$5,000 and less than $20,000	6	64	72,399	35,335
$20,000 and less than $100,000	24	672	1,391,835	619,378
$100,000 and less than $1,000,000	20	3,310	6,020,313	3,140,696
$1,000,000 and over	3	5,884	7,218,972	3,955,941
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	18.5	0.1	0.2	0.2
$5,000 and less than $20,000	9.2	0.6	0.5	0.5
$20,000 and less than $100,000	36.9	6.8	9.4	8.0
$100,000 and less than $1,000,000	30.8	33.3	40.9	40.4
$1,000,000 and over	4.6	59.2	49.0	50.9
Average per establishment		153	$226,708	$119,453
Jewelry, 1909	**175**	**7,423**	**$15,210,738**	**$9,631,413**
Less than $5,000	20	26	53,312	36,180
$5,000 and less than $20,000	35	219	389,166	263,465
$20,000 and less than $100,000	63	1,805	3,542,137	2,264,666
$100,000 and less than $1,000,000	57	5,372	11,226,123	7,067,102
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	11.4	0.4	0.4	0.4
$5,000 and less than $20,000	20.0	3.0	2.6	2.7
$20,000 and less than $100,000	36.0	24.3	23.3	23.5
$100,000 and less than $1,000,000	32.6	72.4	73.8	73.4
Average per establishment		42	$86,918	$55,037
Leather, tanned, curried, and finished, 1909	**132**	**10,252**	**$40,002,079**	**$11,236,571**
Less than $5,000	9	20	22,640	14,116
$5,000 and less than $20,000	19	104	216,426	140,380
$20,000 and less than $100,000	45	1,251	2,135,708	1,198,880
$100,000 and less than $1,000,000	52	4,226	19,349,210	5,109,076
$1,000,000 and over	7	4,591	18,278,035	4,774,110
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	6.8	0.2	0.1	0.1
$5,000 and less than $20,000	14.4	1.6	0.5	1.2
$20,000 and less than $100,000	34.1	12.2	5.3	10.7
$100,000 and less than $1,000,000	39.4	41.2	48.4	45.5
$1,000,000 and over	5.3	44.8	45.7	42.5
Average per establishment		77	$303,046	$85,126
Lumber and timber products, 1909	**708**	**8,976**	**$23,025,837**	**$10,541,712**
Less than $5,000	231	384	576,547	385,843
$5,000 and less than $20,000	243	1,467	2,585,747	1,577,574
$20,000 and less than $100,000	176	3,328	8,285,588	3,856,527
$100,000 and less than $1,000,000	58	3,797	11,577,955	4,721,768
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	32.6	4.3	2.5	3.7
$5,000 and less than $20,000	34.3	16.3	11.2	15.0
$20,000 and less than $100,000	24.9	37.1	36.0	36.6
$100,000 and less than $1,000,000	8.2	42.3	50.3	44.8
Average per establishment		13	$32,522	$14,889
Musical instruments, pianos and organs and materials, 1909	**59**	**4,245**	**$9,106,470**	**$4,957,214**
Less than $5,000	8	5	20,816	13,346
$5,000 and less than $20,000	12	58	123,919	74,149
$20,000 and less than $100,000	12	350	622,925	393,812
$100,000 and less than $1,000,000	27	3,832	8,338,810	4,475,907
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	13.6	0.1	0.2	0.3
$5,000 and less than $20,000	20.3	1.4	1.4	1.5
$20,000 and less than $100,000	20.3	8.2	6.8	7.9
$100,000 and less than $1,000,000	45.8	90.3	91.6	90.3
Average per establishment		72	$154,347	$84,024
Paper and wood pulp, 1909	**88**	**12,848**	**$40,096,713**	**$17,747,100**
$5,000 and less than $20,000	5	36	65,864	25,588
$20,000 and less than $100,000	14	271	649,022	292,577
$100,000 and less than $1,000,000	65	10,469	30,033,696	13,102,767
$1,000,000 and over	4	2,072	9,317,231	4,326,168
Per cent of total	100.0	100.0	100.0	100.0
$5,000 and less than $20,000	5.7	0.3	0.2	0.1
$20,000 and less than $100,000	15.9	2.1	1.6	1.6
$100,000 and less than $1,000,000	73.9	81.5	75.0	73.8
$1,000,000 and over	4.5	16.1	23.2	24.4
Average per establishment		146	$455,644	$201,672
Paper goods, not elsewhere specified, 1909	**61**	**5,135**	**$13,532,976**	**$6,097,069**
Less than $5,000	8	15	23,749	13,544
$5,000 and less than $20,000	14	104	173,585	100,021
$20,000 and less than $100,000	16	272	687,938	335,309
$100,000 and less than $1,000,000 [1]	23	4,744	12,647,704	5,648,192
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	13.1	0.3	0.2	0.2
$5,000 and less than $20,000	23.0	2.0	1.3	1.6
$20,000 and less than $100,000	26.2	5.3	5.1	5.5
$100,000 and less than $1,000,000 [1]	37.7	92.4	93.5	92.6
Average per establishment		84	$221,852	$99,952
Printing and publishing, 1909	**1,279**	**17,532**	**$47,445,006**	**$34,564,455**
Less than $5,000	491	594	1,223,106	965,746
$5,000 and less than $20,000	470	2,480	4,707,863	3,675,434
$20,000 and less than $100,000	230	4,426	9,863,248	7,388,352
$100,000 and less than $1,000,000	79	6,624	18,479,010	13,724,154
$1,000,000 and over	9	3,408	13,171,779	8,810,769
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	38.4	3.4	2.6	2.8
$5,000 and less than $20,000	36.7	14.1	9.9	10.6
$20,000 and less than $100,000	18.0	25.2	20.8	21.4
$100,000 and less than $1,000,000	6.2	37.8	38.9	39.7
$1,000,000 and over	0.7	19.4	27.8	25.5
Average per establishment		14	$37,095	$27,025
Slaughtering and meat packing, 1909	**94**	**3,325**	**$44,402,972**	**$5,516,833**
Less than $5,000	5	4	19,385	5,480
$5,000 and less than $20,000	25	53	201,957	87,579
$20,000 and less than $100,000	41	274	1,959,346	520,756
$100,000 and less than $1,000,000	18	303	6,027,941	676,174
$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
Less than $5,000	5.3	0.1	[2]	0.1
$5,000 and less than $20,000	26.6	1.6	0.7	1.6
$20,000 and less than $100,000	43.6	8.2	4.4	9.4
$100,000 and less than $1,000,000	19.1	9.1	13.6	12.3
$1,000,000 and over	5.3	80.9	81.3	76.6
Average per establishment		35	$472,372	$58,690
Woolen, worsted, and felt goods, and wool hats, 1909	**183**	**53,873**	**$141,966,882**	**$53,990,551**
Less than $5,000	4	8	13,475	9,578
$5,000 and less than $20,000	6	83	98,288	53,195
$20,000 and less than $100,000	33	1,340	2,035,947	895,843
$100,000 and less than $1,000,000	116	18,034	43,146,440	14,992,504
$1,000,000 and over	24	34,408	96,702,732	38,039,434
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	2.2	[2]	[2]	[2]
$5,000 and less than $20,000	3.3	0.2	[2]	0.1
$20,000 and less than $100,000	18.0	2.5	1.4	1.7
$100,000 and less than $1,000,000	63.4	33.5	30.4	27.8
$1,000,000 and over	13.1	63.9	68.1	70.5
Average per establishment		294	$775,775	$295,030

[1] Includes the group "$1,000,000 and over."

[2] 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 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.

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 cut stock and findings	800	20	191	219	154	78	96	72	22	8
Boots and shoes, rubber	8	.....	.....	1	.....	.....	1	2	1	3
Bread and other bakery products	1,201	123	808	176	20	6	5	2	1	.....
Carpets and rugs, other than rag	11	.....	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	2	1
Electrical machinery, apparatus, and supplies	83	2	14	22	10	11	10	3	.....	2
Foundry and machine-shop products	857	33	279	233	155	84	49	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	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	304	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	6	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	927	410	181	153	54	21	7

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.
	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	390	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	13,092
Boots and shoes, rubber	6,928	.....	.....	7	.....	.....	137	917	601	5,236
Bread and other bakery products	6,607	.....	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	5,102	.....	.....	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	1,609	.....
Cordage and twine and jute and linen goods	6,690	.....	21	68	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	865	1,993	648	1,189	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	3,100	4,089	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	8,976	.....	883	2,381	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	1,967	1,220	.....	.....
Paper and wood pulp	12,848	.....	9	158	390	897	6,370	3,602	1,383	.....
Paper goods, not elsewhere specified	5,135	.....	36	200	236	469	1,912	613	.....	1,669
Patent medicines and compounds and druggists' preparations	1,183	.....	140	161	406	252	224	.....	.....	.....
Printing and publishing	17,532	.....	1,371	3,019	2,800	2,279	2,089	2,426	2,558	.....
Silk and silk goods, including throwsters	4,109	.....	1	33	240	57	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	18,765	14,555	13,552
	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	6.8	18.4	31.6	17.6	15.8
Boots and shoes, rubber	100.0	.....	.....	0.1	.....	.....	2.0	13.7	8.7	75.6
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	1.3	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	46.3	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

[1] 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 46.

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 cut 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	16.6	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	6.3	23.6	62.8	7.2
Confectionery	8.0	13.6	67.2	11.3
Cordage and twine and jute and linen goods	3.2	16.6	72.5	7.6
Cotton goods, including cotton small wares	2.1	27.4	63.9	6.7
Cutlery and tools, not elsewhere specified	8.6	38.9	36.2	16.3
Electrical machinery, apparatus, and supplies	9.4	31.4	48.6	10.6
Foundry and machine-shop products	8.7	36.6	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	2.9	15.1	76.4	5.7
Jewelry	9.0	35.0	44.2	11.7
Leather, tanned, curried, and finished	2.5	14.5	76.8	6.1
Liquors, malt	7.2	14.7	35.6	42.6
Lumber and timber products	3.9	24.9	61.8	9.4
Marble and stone work	5.3	52.8	32.6	9.3
Musical instruments, pianos and organs and materials	7.2	32.1	49.9	10.7
Paper and wood pulp	4.9	18.9	64.5	11.8
Paper goods, not elsewhere specified	6.5	19.9	63.1	10.6
Patent medicines and compounds and druggists' preparations	10.2	8.9	42.9	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	36.6	42.6	16.4
Woolen, worsted, and felt goods, and wool hats	2.4	19.9	71.2	6.5
All other industries	6.2	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 [1]	1909	1904	1899 [1]	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	8,449	8,996	1,040,438	885,309	764,067	88.5	94.4	96.0
Steam	5,784	5,855	6,439	834,701	690,467	576,525	71.0	73.6	72.4
Gas	896	654	468	18,326	7,487	4,074	1.6	0.8	0.5
Water wheels	1,750	1,868	2,089	185,996	183,135	181,907	15.8	19.5	22.8
Water motors	55	72	[2]	520	292	[2]	[3]	[3]	[2]
Other	.....	.....	.....	895	3,988	1,561	0.1	0.4	0.2
Rented	10,794	[2]	[2]	134,633	52,638	31,994	11.5	5.6	4.0
Electric	10,794	[2]	[2]	109,996	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	63,939	19,419	72.7	70.3	59.2
Run by rented power	10,794	[2]	[2]	109,996	27,073	13,409	27.3	29.7	40.8

[1] Includes the neighborhood industries and hand trades, omitted in 1904 and 1909.
[2] Not reported.
[3] 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 63,939 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).
All industries	**901,158**	**5,872,727**	**207,953**	**126,958**	**811,658**	**774,436**
Automobiles, including bodies and parts	2,561	7,411	75	12	154	7,302
Boots and shoes, *including* cut stock and findings	4,134	96,144	1,895	364	622	5,309
Boots and shoes, rubber	5,055	31,719	.....	.....	468	.....
Bread and other bakery products	25,382	12,304	23,556	7,844	264	45,239
Carpets and rugs, other than rag	1,146	56,952	.....	.....	.....	727
Cars and general shop construction and repairs by steam-railroad companies	146	45,753	7,719	208	.....	.....
Clothing, men's, including shirts	452	7,692	.....	5	25	14,820
Clothing, women's	380	•1,122	5	6	42	8,600
Confectionery	4,567	13,807	987	61	17	12,777
Cordage and twine and jute and linen goods	2,633	40,425	.....	59	2,031	812
Cotton goods, including cotton small wares	166,788	918,635	924	530	4,823	31,855
Cutlery and tools, not elsewhere specified	5,924	22,993	943	517	23,160	2,610
Electrical machinery, apparatus, and supplies	7,946	103,916	4,154	40	27,066	241,011
Foundry and machine-shop products	38,588	164,829	64,674	3,751	36,168	94,106
Furniture and refrigerators	4,856	15,854	1,002	10,557	121	3,862
Gas, illuminating and heating	109,399	200,835	58,940	3	484,513	.....
Hosiery and knit goods	3,212	35,196	785	.....	22	1,040
Iron and steel, steel works and rolling mills	1,861	155,952	2,231	335	140,432	645
Jewelry	510	9,012	555	7	669	15,997
Leather, tanned, curried, and finished	17,226	114,138	236	261	304	472
Liquors, malt	11,750	63,729	752	200	18	154
Lumber and timber products	1,650	10,626	620	2,335	2,058	5,438
Marble and stone work	1,836	43,997	115	13	1,388	4,843
Musical instruments, pianos and organs and materials	1,652	17,852	678	515	64	779
Paper and wood pulp	69,131	465,347	.....	4,769	19	.....
Paper goods, not elsewhere specified	1,656	26,312	5,264	3	16	572
Patent medicines and compounds and druggists' preparations	841	2,587	15	82	81	2,031
Printing and publishing	9,408	22,959	131	125	221	86,614
Silk and silk goods, including throwsters	13	12,682	.....	100	.....	60
Slaughtering and meat packing	34,007	12,584	103	2,320	13	1,583
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	3,535
All other industries	321,834	1,658,671	31,327	90,578	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	130,060,000	111,125,000
Woolen, worsted, and felt goods, and wool hats	141,967,000	[1] 99,314,000	74,075,000
Cordage and twine and jute and linen goods	16,632,000	15,523,000	12,250,000
Hosiery and knit goods	14,736,000	10,065,000	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	5,058,000
Hats, fur-felt	3,746,000	2,316,000	2,034,000
Shoddy	1,766,000	1,815,000	988,000

[1] 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	1909	10,874,515	53,244	59,037	9,377,984	163,248	.....	90,699	1,121,303
	1904	9,596,637	42,464	43,052	8,411,249	124,580	.....	57,419	917,873
	1899	8,794,923	39,388	(1)	7,784,687	102,862	.....	68,088	790,898
Looms	1909	263,020	1,778	(2)	234,249	.....	.....	2,717	25,184
	1904	223,757	1,367	(2)	200,192	.....	.....	1,610	20,588
	1899	200,368	1,223	(2)	179,582	.....	.....	1,040	18,523
Knitting machines	1909	7,741	.....	.....	.....	7,741	.....	(2)	.....
	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	.....	1,528
Wool combing machines	1909	703	46	.....	.....	.....	.....	.....	657
	1904	497	47	.....	.....	.....	.....	.....	450
	1899	424	47	.....	.....	.....	.....	.....	377

[1] Figures not available. [2] 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.[1]

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.

[1] Introduction and Early Progress of the Cotton Manufacture in the United States, by Samuel Batchelder, 1863, page 70.

MATERIAL.	1909	1904	1899
Total cost	**$105,156,794**	**$80,267,952**	**$54,389,045**
Cotton:			
Pounds	622,368,027	489,989,585	500,984,204
Cost	$77,738,315	$62,232,818	$38,916,998
Domestic—			
Pounds	578,315,382	467,110,058	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	15,185,313	22,309,384
Cost	$1,100,785	$997,506	$689,250
Yarns, purchased:			
Cotton—			
Pounds	27,175,076	18,048,019	16,537,770
Cost	$8,279,605	$4,907,080	$3,562,765
Silk—			
Pounds	872,303	129,206	142,249
Cost	$2,854,181	$465,747	$676,210
Spun silk—			
Pounds	187,691	40,745	78,679
Cost	$802,763	$121,036	$306,273
All other—			
Pounds	844,271	1,279,340	1,241,702
Cost	$108,422	$509,794	$339,485
Starch	$471,045	$355,513	$106,020
Chemicals and dyestuffs	$1,609,908	$1,697,589	$2,358,277
Fuel and rent of heat and power	$4,041,092	$3,137,878	$2,190,914
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
Total value	**$186,462,313**	**$130,068,082**	**$111,125,175**
Plain cloths for printing or converting:			
Square yards	1,054,755,770	846,308,546	927,405,189
Value	$51,541,620	$37,264,695	$31,939,320
Brown or bleached sheetings and shirtings:			
Square yards	175,923,550	138,199,541	176,283,924
Value	$11,486,548	$8,186,188	$9,255,612
Twills and sateens:			
Square yards	150,658,540	136,315,041	86,668,240
Value	$14,889,807	$9,676,474	$5,859,028
Fancy woven fabrics:			
Square yards	197,402,265	130,960,271	137,064,111
Value	$22,378,381	$12,388,041	$10,995,987
Ginghams:			
Square yards	139,552,491	70,831,304	53,932,368
Value	$10,753,018	$5,708,934	$3,949,351
Duck:			
Square yards	20,169,491	14,486,473	17,903,957
Value	$5,988,828	$1,532,440	$1,677,230
Drills:			
Square yards	17,088,244	9,238,009	20,475,203
Value	$1,908,819	$697,279	$1,310,071
Ticks, denims, and stripes:			
Square yards	58,716,976	65,630,919	63,794,395
Value	$6,807,895	$6,460,557	$5,380,089
Napped fabrics:			
Square yards	123,982,755	144,456,009	137,190,384
Value	$9,470,477	$11,629,551	$9,328,653
Corduroy, cotton velvet, and plush:			
Square yards	6,109,238	4,149,019	1,687,597
Value	$1,707,507	$1,211,404	$349,343
Thread:			
Pounds	6,563,216	4,717,974	3,390,883
Value	$5,285,750	$3,909,470	$2,800,495
Cotton yarns, for sale:			
Pounds	108,030,860	83,399,133	87,656,177
Value	$31,725,674	$21,363,138	$18,205,806
Cotton waste, for sale:			
Pounds	115,907,265	82,270,060	114,597,274
Value	$4,650,374	$3,814,247	$2,613,066
All other products	$7,087,615	$6,325,664	$7,454,524

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,

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	$87,976,331	[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	28,839,585
Cost	$19,028,951	$10,286,318	$7,447,617
Domestic—			
Pounds	96,701,973	91,212,818	76,095,595
Cost	$25,774,777	$23,516,534	$17,212,901
Equivalent in scoured condition, pounds	99,133,605	74,265,049	57,347,362
Cotton:			
Pounds	6,869,651	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	$734,858	$1,057,870	$755,288
Egyptian and other foreign—			
Pounds	890,289	1,268,039	(2)
Cost	$151,423	$172,493	(2)
Buffalo, cow, mohair, and other animal hair:			
Pounds	3,612,888	4,004,693	3,631,611
Cost	$1,058,176	$1,124,049	$833,767
Shoddy:			
Pounds	3,687,530	8,398,940	9,808,403
Cost	$517,990	$1,030,090	$1,145,006
Waste and noils of wool, mohair, camel hair, etc., purchased:			
Pounds	9,501,027	8,518,733	4,181,175
Cost	$2,671,684	$2,239,602	$1,207,606
Tops, purchased:			
Pounds	5,045,561	2,999,927	1,576,891
Cost	$3,466,257	$1,605,067	$762,140
Yarns, purchased:			
Pounds	20,947,889	18,806,047	15,015,933
Cost	$20,937,624	$10,381,470	$8,285,677
Woolen—			
Pounds	53,324	1,120,010	1,427,161
Cost	$30,522	$537,560	$609,772
Worsted—			
Pounds	17,569,506	7,088,800	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	$2,018,113	$1,603,406
Silk—			
Pounds	30,529	57,979	1,454
Cost	$126,330	$250,677	$8,715
Spun silk—			
Pounds	74,332	88,694	10,321
Cost	$240,174	$295,374	$69,574
Jute, ramie, or other vegetable fiber—			
Pounds	70,806	17,095	10,263
Cost	$3,465	$2,293	$3,622
Hatters' fur, etc.:			
Pounds	62,040	.....	.....
Cost	$78,480	.....	.....
Chemicals and dyestuffs	$3,247,159	$2,044,687	$2,213,422
Fuel and rent of power	$2,360,970	$1,759,340	$1,088,339
All other materials	$7,917,982	$6,959,168	$4,178,473

[1] Excluding statistics for two establishments engaged in the manufacture of wool hats, to avoid disclosure of individual operations.
[2] 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	[1] $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	$53,601,910	$43,794,294
Woolen suitings for men's wear—			
Square yards	13,096,953	14,308,537	12,830,426
Value	$9,156,465	$9,887,659	$8,275,730
Worsted coatings and suitings—			
Square yards	56,772,066	20,514,811	22,055,157
Value	$48,051,832	$22,486,282	$18,086,753
Woolen overcoatings—			
Square yards	4,538,769	10,570,499	7,517,646
Value	$3,048,648	$7,328,883	$6,932,733
Woolen dress goods—			
Square yards	11,731,023	24,017,924	12,606,040
Value	$6,220,727	$7,944,505	$4,347,790
Worsted dress goods—			
Square yards	21,469,961	13,559,326	14,112,645
Value	$10,856,014	$4,977,318	$4,442,385
Flannels for underwear—			
Square yards	506,182	1,349,300	2,219,563
Value	$207,183	$439,405	$689,248
All other—			
Square yards	1,106,483	1,205,023	1,009,861
Value	$732,702	$537,708	$449,655
Union or cotton-mixed woven goods:			
Square yards	10,236,836	13,401,999	13,706,236
Value	$3,332,690	$5,193,788	$4,541,889
Unions, tweeds, etc.—			
Square yards	4,837,123	7,130,838	3,849,310
Value	$1,631,006	$2,888,540	$1,535,204
Overcoatings—			
Square yards	1,241,172	1,369,028	1,439,836
Value	$678,910	$853,993	$715,543
Sackings, tricots, etc.—			
Square yards	326,735	1,905,107	4,583,862
Value	$228,258	$803,693	$1,400,142
All other—			
Square yards	3,831,806	2,097,026	3,833,228
Value	$794,516	$557,562	$891,000
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	18,793,980	11,005,728	7,416,602
Value	$4,229,797	$3,060,593	$2,508,525
Worsted-filling cassimeres—			
Square yards	6,936,133	2,880,672	2,574,582
Value	$3,132,929	$1,038,335	$1,379,428
Wool-filling overcoatings and cloakings—			
Square yards	1,550,017	3,870,781	1,055,861
Value	$448,995	$917,453	$224,270
Satinets and linseys—			
Square yards	4,120,737	17,559,146	10,326,148
Value	$606,202	$3,213,469	$2,237,965
Worsted-filling dress goods—			
Square yards	51,588,003	34,683,350	21,794,250
Value	$10,140,751	$8,280,019	$4,128,159
Domett flannels and shirtings—			
Square yards	794,799	1,719,849	167,000
Value	$136,605	$426,274	$182,700
Blankets and carriage robes—			
Square yards	2,069,734	3,086,920	2,188,907
Value	$359,951	$853,219	$460,948
All other—			
Square yards	18,449,824	12,960,480	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	679,534
Value	$480,838	$1,062,421	$190,840
Boot and shoe linings—			
Square yards	1,444,978	2,645,811	1,001,137
Value	$409,015	$701,101	$509,738
All other	$1,500,746	$882,381	$681,563
Wool-felt hats:			
Dozens	148,457	.....	247,103
Value	$941,502	.....	$939,208
Yarns, for sale:			
Woolen, all wool—			
Pounds	929,184	1,333,033	1,110,332
Value	$383,327	$699,541	$483,861
Woolen or worsted, union or merino—			
Pounds	1,283,261	743,771	1,075,706
Value	$1,043,093	$498,056	$789,744
Worsted yarn and tops—			
Pounds	26,180,428	15,430,810	8,878,508
Value	$22,227,154	$10,119,400	$5,020,268
Mohair and other yarns—			
Pounds	651,296	808,437	445,616
Value	$484,856	$584,483	$302,899
Waste for sale:			
Pounds	6,476,439	4,802,626	1,576,293
Value	$711,529	$744,742	$244,792
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	$1,697,049	$1,466,168	$1,025,185
Work on materials for others	$1,445,454	$482,326	$891,703

[1] 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 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.[1] In 1859 there were 15 knitting mills in operation in 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.

[1] Statistics of Manufactures, Massachusetts Bureau of Statistics of Labor, 1898, p. 225.

MATERIAL.	1909	1904	1899
Total cost	$6,971,606	$5,020,770	$2,916,612
Cotton:			
Pounds	16,459,053	12,643,679	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	269,443	284,974	65,075
Cost	$34,382	$40,903	$9,797
Wool waste and noils:			
Pounds	271,388	301,545	204,756
Cost	$107,839	$99,908	$68,796
Yarns, purchased:			
Pounds	8,205,153	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	411,408
Cost	$638,014	$672,606	$380,425
Silk and spun silk—			
Pounds	124,715	53,679	30,684
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	$242,032	$155,419	$121,525
Fuel and rent of power	$174,846	$140,220	$71,836
All other materials	$1,140,082	$1,172,118	$666,086

[1] 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	$10,094,897	$6,640,936
Half hose and hose:			
Dozen pairs	4,506,960	2,700,860	2,363,872
Value	$4,780,351	$2,869,037	$1,952,320
Shirts and drawers:			
Dozens	1,667,482	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	$300,899	$116,756
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	44,878,920	40,004,809
Boys' and youths'	9,019,124	8,439,461	10,605,620
Women's	36,778,332	28,190,958	24,500,767
Misses' and children's	11,873,153	12,036,958	14,569,745
Slippers	10,155,324	12,069,160	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	3,649,576	(1)	(1)
All other kinds of footwear	1,411,378	1,644,449	990,490

[1] 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	45,155,939	27,994,422	384,108	8,106,707	2,950,357	5,720,345
Boys' and youths'	9,019,124	1,548,486	(1)	5,354,449	402,090	1,654,090
Women's	36,778,432	10,807,921	7,601,247	16,976,900	507,567	824,797
Misses' and children's	11,873,153	1,076,066	1,630,563	8,509,465	189,726	467,333
Slippers	10,155,324	565,673	5,276,409	4,185,149	19,531	131,068
Men's, boys', and youths'	3,369,808	427,464	1,540,632	1,286,219		
Women's, misses', and children's	6,785,516	138,209	3,736,377	2,898,930		
Infants' shoes and slippers	3,610,576	580,551	2,376,013	638,257		
All other kinds of footwear	1,411,378	435,097	830,216	139,314		

[1] 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	6,199,127
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	1,911,486	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	622,223	396,003	349,350

[1] Included with 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 of the Union, 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.	
		Number.	Aggregate circulation per issue.	Number.	Aggregate circulation per issue.	Number.	Aggregate circulation per issue.
Daily and Sunday	1909	101	2,887,739	96	2,871,539	5	16,200
	1904	105	2,379,704	102	2,368,472	3	11,232
Semiweekly and tri-weekly	1909	8	23,225	3	9,725	5	13,500
	1904	5	38,025	2	32,325	3	5,700
Weekly	1909	271	1,911,486	242	1,817,380	29	94,106
	1904	309	1,445,984	287	1,392,134	22	53,850
Monthly	1909	[1] 101	2,744,183	101	2,744,183	(2)	(2)
	1904	[1] 115	4,277,957	115	4,277,957	(2)	(2)
All other classes	1909	56	2,069,549	48	1,818,317	8	251,232
	1904	41	937,836	38	839,184	3	98,652

[1] Does not include monthly publications issued in foreign languages.
[2] 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, and 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
Total value	**$44,402,972**	**$38,012,208**	**$32,343,950**
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	2,294,690	1,116,500
Value	$605,657	$116,071	$62,000
Veal, fresh:			
Pounds	8,317,482	6,601,707	5,173,540
Value	$801,055	$585,081	$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	66,408,331	82,117,964	44,507,608
Value	$7,950,169	$7,314,614	$3,526,589
Pork, salted or cured:			
Pounds	122,089,181	167,090,994	207,246,776
Value	$15,044,381	$14,414,435	$16,613,348
Sausage, fresh or cured	$4,228,821	$2,340,245	$2,384,979
Lard:			
Pounds	60,840,711	84,617,813	69,843,633
Value	$7,159,116	$6,393,846	$4,280,098
Tallow, oleo stock, and stearin:			
Pounds	2,775,149	(1)	(1)
Value	$172,280	(1)	(1)
Fertilizers and fertilizer materials:			
Tons	8,441	3,684	5,099
Value	$229,019	$88,632	$88,810
Hides:			
Number	191,837	154,054	106,492
Pounds	4,672,435	6,149,456	2,609,300
Value	$686,312	$577,076	$237,662
Pelts:			
Number	341,956	423,080	(1)
Value	$190,214	$144,222	(1)
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

[1] 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
Total cost	**$22,349,613**	**$17,940,726**	**$11,918,802**
Pulp wood	$357,888	$338,044	$245,[illegible]
Wood pulp, purchased—			
Total tons	143,905	120,037	85,[illegible]
Total cost	$6,762,838	$5,048,371	$3,278,[illegible]
Ground—			
Tons	12,191	14,080	21,[illegible]
Cost	$277,421	$302,097	$469,[illegible]
Soda fiber—			
Tons	38,434	39,991	25,[illegible]
Cost	$1,731,456	$1,712,642	$1,[illegible]
Sulphite fiber—			
Tons	91,103	63,313	36,[illegible]
Cost	$4,654,074	$2,908,553	$1,[illegible]
Other chemical fiber—			
Tons	2,177	2,653	1,[illegible]
Cost	$99,887	$124,179	$[illegible]
Rags, including cotton and flax waste and sweepings:			
Tons	93,558	99,468	8[illegible]
Cost	$4,859,936	$4,837,815	$3,[illegible]
Old and waste paper:			
Tons	106,216	60,424	4[illegible]
Cost	$1,861,709	$1,009,927	$8[illegible]
Manila stock, including jute bagging, rope, waste, threads, etc.:			
Tons	17,515	14,339	10,[illegible]
Cost	$689,005	$437,761	$2[illegible]
Fuel and rent of power	$2,331,807	$1,815,681	$1,[illegible]
All other materials	$5,515,280	$4,459,127	$2,[illegible]

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	$40,096,713	$32,012,247	$22,141,461
Book, cover, plate, and coated paper:			
Tons	125,269	100,001	55,465
Value	$10,500,994	$8,079,720	$4,495,334
Writing and other fine paper:			
Tons	89,595	80,775	68,055
Value	$17,438,568	$14,971,411	$11,208,628
Wrapping paper:			
Tons	16,362	16,150	22,238
Value	$1,900,385	$1,417,915	$1,441,291
Boards:			
Tons	53,233	27,620	17,238
Value	$2,065,865	$1,338,346	$954,111
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:			
Fourdrinier, number	150	157	152
Capacity, tons, 24 hours	920	862	(1)
Cylinder, number	65	44	50
Capacity, tons, 24 hours	454	204	(1)
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	410,536	331,080	283,576

[1] 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	$28,765,508	$23,040,897	$19,793,757
Hides (all kinds):			
Number	[1] 1,251,036	1,126,634	1,029,535
Cost	$6,603,808	$4,789,002	$4,703,949
Skins:			
Calf and kip—			
Number	5,439,226	4,009,400	2,229,559
Cost	$7,910,409	$4,673,907	$2,705,877
Goat—			
Dozens	524,096	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	$2,290,309
All other—			
Number	[2] 223,752	56,890	47,946
Cost	$129,705	$36,032	$41,903
Purchased rough leather used:			
Whole sides—			
Number	343,701	301,589	338,991
Cost	$1,187,204	$951,620	$1,051,403
Grains—			
Sides	35,544	22,907	12,578
Cost	$79,344	$86,758	$31,704
Splits—			
Number	814,985	813,640	1,550,723
Cost	$504,223	$723,847	$1,056,670
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	$1,128,511	$2,621,411

[1] Cattle hides only. [2] 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 32, 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
Total value	$40,002,079	$33,352,999	$26,067,714
Leather:			
Sole leather—			
Sides	29,634	[1] 75,200	69,080
Value	$185,317	[1] $229,236	$267,500
Upper leather, other than calf, kip, or colt skins—			
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
Finished splits—			
Number	2,742,777	2,357,182	3,581,012
Value	$2,967,535	$2,667,982	$2,852,551
Patent and enameled shoe leather—			
Sides	1,490,165	506,450	18,650
Value	$4,003,000	$981,551	$61,054
Calf and kip skins, tanned and finished—			
Grain-finished—			
Number	4,516,129	3,705,070	2,241,919
Value	$9,703,257	$6,569,889	$4,009,829
All other—			
Number	941,642	336,260	6,335
Value	$1,173,905	$803,199	$7,395
Goatskins, tanned and finished—			
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	3,054,334
Value	$1,676,323	$1,355,656	$2,585,184
Sheepskins, tanned and finished—			
Number	8,162,771	6,892,980	8,590,563
Value	$4,254,219	$3,900,146	$3,636,839
Belting—			
Sides	58,719	230,870	226,443
Value	$370,605	$1,350,481	$945,723
Trunk, bag, and pocketbook	$645,264	$372,806	$316,646
Leather sold in rough	$442,439	$179,152	$293,434
All other	$870,580	$1,170,906	$1,229,146
All other products	$1,490,590	$2,851,199	$992,728
Work on materials for others	$4,769,157	$2,728,340	$1,081,183

[1] 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
Total estimated value of stock after treatment	$13,324,293	$10,091,036
Hides, tanned:		
Number	99,591	218,377
Estimated value	$647,084	$1,332,870
Skins tanned:		
Number	1,315,017	3,459,516
Estimated value	$761,784	$1,808,814
Curried or finished:		
Sides—		
Number	[1] 1,115,217	1,070,387
Estimated value	$4,312,216	$2,701,279
Splits—		
Number	740,889	336,988
Estimated value	$936,778	$304,666
Skins—		
Number	9,818,397	6,290,135
Estimated value	$6,666,431	$3,853,407

[1] 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	99.9
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 below.

KIND.	Number of engines or motors.	Horsepower.
Primary power, total		6,802
Owned:		
Steam	209	5,514
Gas	7	78
Water wheels	2	110
Rented:		
Electric	110	666
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	30,452

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	$78,085	$42,780
Expenses	29,614	88,574
Services	22,548	2,333
Materials	601	[1] 85,510
Miscellaneous	6,465	731
Value of products	47,754	[1] 99,381

[1] Includes estimate of all grain ground. A similar estimate of the value of the 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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
STATE—All industries	**1909**	**11,684**	**644,399**	**11,194**	**48,646**	**584,559**	**1,175,071**	**$1,270,087**	**$63,279**	**$301,173**	**$830,765**	**$1,490,529**	**$659,764**
	1904	**10,723**	**532,481**	**11,258**	**32,824**	**488,399**	**938,007**	**985,949**	**39,655**	**232,389**	**626,410**	**1,124,092**	**497,682**
	1899	**10,929**	.....	.....	**25,256**	**438,234**	**796,061**	**781,868**	**29,480**	**195,278**	**498,655**	**907,626**	**408,971**
Agricultural implements	1909	5	401	2	53	346	487	605	63	188	287	647	360
	1904	9	452	7	27	418	888	732	36	213	252	654	402
	1899	9	350	9	35	312	752	706	45	160	216	535	319
Automobiles, including bodies and parts	1909	62	4,624	38	448	4,138	2,896	7,458	497	2,793	5,491	11,350	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	769	462
Belting and hose, leather	1909	16	1,260	5	300	955	897	4,426	335	555	3,066	5,047	1,981
	1904	12	236	7	52	177	206	622	54	104	805	1,108	303
	1899	17	230	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	2,700	1,328
	1904	8	397	6	47	344	645	690	45	180	289	582	293
	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	1,396	2,524	1,128
	1899	64	570	80	148	342	.....	1,473	159	132	830	1,769	939
Boots and shoes, including cut stock 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	3,370	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	25,857
	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	205	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	3,630	2,034
	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	[1]75	1,780	68	153	1,559	1,248	2,418	177	863	1,702	3,362	1,660
	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	18,060	7,939
	1899	1,005	7,393	1,113	1,030	5,250	.....	6,316	658	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	496	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	20	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	659	898	1,044	83	301	400	978	578
	1904	12	858	12	30	816	554	740	54	318	226	804	578
	1899	13	803	12	19	772	463	626	31	270	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	1,759
	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	86	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	4,022	2,892
	1899	349	.....	.....	154	3,271	.....	5,965	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	6,349	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	3,018	5,016	2,868
	1904	14	909	3	106	800	3,281	2,652	188	504	1,514	3,509	1,995
	1899	17	722	8	92	622	2,169	1,877	133	339	1,081	2,011	930
Clothing, men's, including shirts	1909	254	8,208	319	554	7,335	1,753	8,242	682	3,398	9,756	18,314	8,558
	1904	187	6,175	283	620	5,263	1,354	6,325	613	2,311	8,076	14,913	6,837
	1899	217	.....	.....	373	5,195	.....	5,178	414	2,061	6,147	12,041	5,894
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	4,693	736	2,756	314	1,742	4,789	8,696	3,907
	1899	119	3,742	159	140	3,443	530	1,617	145	1,083	2,795	5,202	2,407
Coffins, burial cases, and undertakers' goods	1909	12	460	7	60	384	733	968	108	231	444	941	497
	1904	14	425	15	55	355	473	854	47	199	379	995	616
	1899	15	352	15	53	284	.....	716	64	160	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	466	4,107	2,085	3,747	425	1,302	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	1,939	845
	1904	74	1,320	83	72	1,165	4,498	1,598	61	547	1,084	2,120	1,036
	1899	49	.....	.....	40	998	.....	975	42	442	734	1,543	809

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

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								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	199	1,789	1,043	4,679	220	977	1,907	4,128	2,221
	1899	98	.....	.....	173	1,640	.....	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	5,061	13	156	4,892	11,140	12,698	264	1,667	11,423	15,523	3,900
	1899	33	5,292	20	152	5,120	.....	11,008	234	1,709	8,028	12,250	4,222
Corsets	1909	10	2,156	2	105	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	1,169
	1899	6	.....	.....	95	1,063	.....	928	145	321	534	1,604	1,070
Cotton goods, including cotton small wares.	1909	182	110,686	43	1,729	108,914	362,043	214,017	3,450	45,117	105,157	186,462	81,305
	1904	161	90,239	47	1,552	88,640	296,244	174,552	2,714	32,555	80,268	130,069	49,801
	1899	177	93,667	48	1,104	92,515	276,161	156,280	2,046	32,479	54,380	111,125	56,736
Cutlery and tools, not elsewhere specified.	1909	135	7,432	101	584	6,747	13,263	12,416	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	5,660
	1899	139	.....	.....	237	4,981	.....	7,012	322	2,086	1,948	6,256	4,308
Electrical machinery, apparatus, and supplies.	1909	83	16,725	34	2,184	14,507	14,835	32,961	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	15,882	8,558
	1899	54	5,801	34	565	5,202	3,068	8,260	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	228	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	429	564	1,082	1,418
	1904	10	495	2	85	408	666	1,105	99	241	311	1,001	690
	1899	9	322	4	47	271	.....	597	52	162	244	673	429
Fancy articles, not elsewhere specified	1909	78	3,867	61	248	3,558	2,382	2,925	299	1,630	3,514	6,618	3,104
	1904	68	2,640	74	137	2,429	1,583	1,614	128	1,011	1,984	3,824	1,840
	1899	67	1,853	83	87	1,683	.....	1,085	89	705	1,401	2,726	1,325
Firearms and ammunition	1909	8	2,483	5	151	2,327	3,059	4,313	224	1,458	752	3,408	2,656
	1904	[1] 8	2,926	10	117	2,799	12,848	3,431	106	1,692	858	4,011	3,153
	1899	[1] 10	1,691	10	78	1,603	.....	1,933	81	863	510	1,928	1,418
Flour-mill and gristmill products	1909	120	437	151	57	229	5,642	2,222	35	126	4,131	4,632	501
	1904	142	499	181	41	277	9,363	1,881	25	154	4,113	4,618	505
	1899	149	.....	.....	52	278	.....	1,689	32	152	4,497	5,303	806
Foundry and machine-shop products	1909	857	49,393	643	4,571	44,179	52,802	103,052	6,439	27,032	31,182	86,926	55,744
	1904	777	30,570	708	3,018	35,844	43,038	78,022	4,121	20,834	24,420	63,750	39,324
	1899	921	.....	.....	2,435	35,850	.....	66,528	3,203	19,870	24,734	63,514	38,780
Fur goods	1909	16	277	20	47	210	28	730	30	153	552	955	403
	1904	12	156	19	13	124	6	157	9	77	240	464	215
	1899	11	.....	.....	23	144	.....	99	21	102	189	426	237
Furniture and refrigerators	1909	155	7,940	165	498	7,277	12,203	16,813	677	3,980	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	6,199	.....	11,144	369	2,988	4,638	11,497	6,859
Gas and electric fixtures and lamps and reflectors.	1909	25	766	17	86	663	478	725	100	399	812	1,599	697
	1904	25	385	25	28	332	154	315	37	201	204	674	470
	1899	10	302	24	44	324	.....	343	37	186	197	556	359
Gas, illuminating and heating	1909	64	2,800	3	505	2,292	7,371	52,984	529	1,250	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	.....	434	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	9	13	78	88	500	21	57	1,103	1,359	256
	1904	6	32	8	4	20	136	143	4	13	279	344	65
	1899	4	15	7	1	7	.....	44	2	5	25	44	19
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	36	53	479	112	521	59	276	767	1,346	579
	1899	50	2,390	65	80	2,245	.....	1,798	109	1,039	2,290	4,383	2,093
Hats, fur-felt	1909	11	2,341	10	107	2,224	1,140	2,202	147	990	1,932	3,746	1,814
	1904	6	1,664	9	69	1,586	1,180	1,845	93	627	1,125	2,316	1,191
	1899	11	1,895	18	54	1,823	.....	1,408	56	791	1,390	2,631	1,241
Hats, straw	1909	18	2,811	19	124	2,668	1,009	2,573	306	1,448	3,680	6,589	2,909
	1904	15	1,815	17	76	1,722	629	1,544	91	826	2,004	3,326	1,322
	[2] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hosiery and knit goods	1909	65	10,287	37	309	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	6,679	6,691	6,306	213	2,097	2,917	6,641	3,724
Iron and steel, steel works and rolling mills.	1909	9	3,405	.....	350	3,115	24,500	14,194	375	1,977	10,032	13,568	3,536
	1904	5	4,939	.....	395	4,544	28,210	14,348	305	2,593	6,902	11,948	5,046
	1899	7	.....	.....	93	6,099	28,965	13,609	155	3,402	7,491	13,412	5,921
Jewelry	1909	175	8,560	202	935	7,423	4,018	13,806	1,140	4,422	5,579	15,211	9,632
	1904	131	6,322	187	509	5,626	2,305	8,705	596	2,820	3,733	10,074	6,341
	1899	132	.....	.....	350	5,690	.....	4,911	373	2,777	4,388	10,300	5,912

[1] Excluding statistics for two establishments, to avoid disclosure of individual operations.
[2] 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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
STATE—Continued.													
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	634	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	11,236
	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	100	355	7,010	11,543	15,318	406	3,380	19,794	26,068	6,274
Lime	1909	9	588	2	20	557	589	1,307	32	304	337	864	527
	1904	8	242	6	16	220	112	245	14	110	202	401	199
	[1] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Liquors, distilled	1909	6	72	5	18	49	366	840	26	30	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	1,328	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	16,204	7,558
Marble and stone work	1909	330	5,712	412	285	5,015	16,515	6,993	358	3,552	2,192	7,804	5,612
	1904	228	6,217	308	289	5,620	11,503	8,214	325	3,428	1,708	7,684	5,976
	1899	245	.....	.....	238	4,960	.....	6,059	238	2,764	1,433	6,178	4,745
Mattresses and spring beds	1909	52	826	49	110	667	592	909	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	269	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	200	300	27	239	119	625	506
	1904	65	356	90	16	250	1,220	220	14	168	93	470	377
	1899	75	361	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	9,100	4,957
	1904	55	4,500	37	292	4,171	3,381	8,306	429	2,488	3,114	8,279	5,165
	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	1,868	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	.....	1,659	147	208	1,607	2,507	900
Paper and wood pulp	1909	88	13,742	24	870	12,848	115,792	42,524	1,690	6,542	22,360	40,097	17,747
	1904	87	12,305	33	627	11,705	104,954	41,074	1,185	5,588	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	764	2,344	7,436	13,533	6,097
	[2] 1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	46	2,770	30	277	2,463	.....	5,402	350	1,020	3,940	6,455	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	3,206	8,035	4,709
	1899	121	.....	.....	352	1,427	.....	3,266	358	475	2,178	6,501	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	525
Printing and publishing	1909	1,270	24,410	1,089	5,789	17,532	47,629	33,478	6,048	11,684	12,881	47,445	34,564
	1904	1,144	20,933	1,097	4,724	15,112	11,785	28,205	4,954	9,004	10,918	39,274	28,356
	1899	1,147	19,592	1,177	3,516	14,899	.....	23,957	3,230	8,607	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	262	210	681	471
Sewing machines, cases, and attachments	1909	6	981	3	109	869	1,364	2,191	170	533	559	1,548	989
	1904	6	864	3	134	727	999	3,459	212	473	503	1,851	1,348
	1899	9	.....	.....	52	742	.....	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	3,397	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.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								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	$6,539	$3,811
	1904	26	2,152	20	190	1,942	1,766	4,660	288	1,150	2,115	4,897	2,782
	1899	[1] 17	1,308	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	3,396	12,983	402	1,505	33,881	38,012	4,131
	1899	43	3,148	48	226	2,874	.....	11,445	253	1,390	28,591	32,344	3,753
Stoves and furnaces, including gas and oil stoves.	1909	21	1,911	5	203	1,703	1,804	3,324	317	1,239	1,079	3,542	2,463
	1904	19	1,733	7	168	1,558	1,232	2,910	249	1,024	1,661	3,724	2,063
	[2] 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	19	71	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	3,729	304	2,506	2,921	7,888	4,967
	1904	[3] 348	4,131	302	164	3,575	28	2,342	200	2,331	2,492	6,578	4,086
	1899	[3] 331	3,255	370	133	2,752	25	2,359	154	1,750	1,911	5,298	3,387
Whips	1909	29	1,203	28	170	1,005	645	2,779	183	489	1,072	2,774	1,702
	1904	26	954	20	68	866	358	2,156	80	376	763	1,936	1,173
	1899	31	854	35	124	695	.....	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	117,110	133,955	2,994	24,503	87,070	141,067	53,991
	1904	[1] 190	45,264	141	1,073	44,050	88,896	104,257	1,759	18,137	62,778	99,314	36,536
	1899	187	.....	.....	977	37,580	76,279	80,728	1,583	14,338	45,130	74,075	28,945
All other industries	1909	1,815	70,401	1,648	7,437	61,316	117,084	181,769	10,379	32,457	115,348	199,658	84,310
	1904	1,758	63,811	1,781	4,878	57,152	102,076	142,495	6,448	27,268	85,632	149,459	63,827
	1899	1,783	.....	.....	3,648	37,630	.....	106,953	4,665	17,755	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	2,873	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	10,404	31,873	94,603	184,351	89,748
	1899	2,878	.....	.....	7,691	52,853	.....	130,143	8,180	28 209	82,295	102,765	80,470
Belting and hose, leather	1909	5	76	.....	30	46	43	412	37	35	513	698	185
	1904	5	68	5	21	42	.....	208	21	33	320	453	133
	1899	6	57	4	18	35	.....	171	22	23	180	318	132
Blacking and cleansing and polishing preparations.	1909	23	206	10	71	125	114	302	133	67	417	820	403
	1904	21	176	16	69	91	.....	370	82	52	519	877	358
	1899	21	343	24	84	235	.....	419	122	78	459	1,028	569
Boots and shoes, including cut 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	[1] 32	4,273	32	256	3,985	.....	4,449	204	1,601	8,049	11,414	3,365
	1899	40	3,011	47	213	2,751	.....	1,846	193	1,202	4,996	7,307	2,311
Boxes, fancy and paper	1909	21	1,049	18	67	964	414	488	92	362	558	1,213	655
	1904	22	882	15	48	819	.....	355	40	266	358	887	529
	1899	23	779	24	37	718	.....	292	34	232	250	687	437
Brass and bronze products	1909	33	407	32	42	333	244	348	50	224	363	806	443
	1904	33	484	35	45	404	.....	515	40	240	410	855	445
	1899	32	553	43	36	474	.....	586	34	249	306	821	455
Bread and other bakery products	1909	285	2,758	303	456	1,999	6,663	3,543	335	1,068	4,825	8,109	3,284
	1904	269	1,898	287	310	1,301	.....	1,764	133	805	2,081	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	[3] 20	361	22	76	263	.....	786	58	117	1,378	1,922	544
	1899	20	.....	.....	109	363	.....	677	92	152	1,481	2,071	590
Carriages and wagons and materials	1909	26	347	20	20	298	450	419	19	204	222	582	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	6	1,224	.....	52	1,172	201	761	47	768	652	1,536	884
	1904	7	997	.....	53	944	.....	1,101	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	4,479	1,086	6,172	544	2,286	7,756	14,535	6,779
	1904	134	3,985	209	499	3,277	.....	4,009	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	2,409	383	1,640	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	86	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	603	1,351	2,878	1,527
	1899	61	.....	.....	109	1,052	.....	1,242	109	571	909	1,305	396

[1] Excluding statistics for two establishments, to avoid disclosure of individual operations.
[2] Not reported separately.
[3] Excluding statistics for one establishment, to avoid disclosure of individual operations.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
BOSTON—Continued.													
Cutlery and tools, not elsewhere specified.	1909	14	1,428	13	102	1,313	1,060	$2,117	$160	$537	$940	$2,804	$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	106	259	393	1,127	734
	1899	23	689	16	92	581	.....	1,022	89	273	577	1,274	697
Foundry and machine-shop products...	1909	211	7,515	154	1,038	6,323	6,886	14,026	1,351	4,190	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	3,757	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	1,497
	1904	60	1,369	66	122	1,181	.....	1,100	131	703	1,012	2,404	1,392
	1899	50	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	18	19	211	.....	183	21	126	147	441	294
	1899	15	268	19	37	212	.....	274	32	131	144	424	280
Hosiery and knit goods.....	1909	8	701	2	30	729	168	543	66	253	583	1,026	443
	1904	6	250	1	12	237	.....	144	20	76	147	298	151
	1899	[1] 9	466	5	19	442	.....	135	17	110	107	284	177
Jewelry.....	1909	32	394	30	61	303	82	396	54	189	248	710	462
	1904	16	233	18	24	191	.....	279	28	106	175	456	281
	1899	16	232	20	10	196	.....	265	16	107	200	464	264
Leather goods.....	1909	45	711	49	104	558	152	654	112	280	797	1,434	637
	1904	[1] 27	352	33	49	270	.....	324	35	137	340	734	394
	1899	20	.....	.....	32	202	.....	515	40	139	262	590	328
Liquors, malt.....	1909	20	1,338	2	210	1,126	4,799	13,436	478	1,019	1,957	7,554	5,597
	1904	23	1,164	10	203	951	.....	14,400	409	844	1,827	6,715	4,888
	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	3,205	1,500	132	727	1,538	3,027	1,489
	1904	[2] 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	699
	1904	[1] 17	513	21	37	455	.....	1,116	39	301	414	1,025	611
	1899	[1] 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	902	1,545	643
	1899	17	445	18	67	360	.....	203	54	156	609	1,038	429
Millinery and lace goods.....	1909	65	1,724	68	202	1,454	311	1,254	217	580	1,031	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	716	347
Musical instruments, pianos and organs and materials.	1909	21	1,575	11	154	1,410	917	5,407	264	958	1,468	3,428	1,960
	1904	21	1,626	13	127	1,486	.....	4,234	220	999	1,055	3,722	2,667
	1899	21	1,454	18	105	1,331	.....	4,183	169	903	939	2,839	1,900
Paint and varnish.....	1909	12	249	4	103	142	484	750	130	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	69	924	44	266	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	.....	.....	164	317	.....	891	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	4,090	582
	1904	[1] 18	139	22	13	104	.....	243	17	67	1,996	2,300	304
	1899	[1] 12	69	17	6	46	.....	67	4	29	947	1,088	141
Tobacco manufactures.....	1909	145	2,046	148	180	2,318	70	2,696	242	1,780	2,046	5,506	3,460
	1904	106	2,688	120	104	2,464	.....	1,442	145	1,706	1,709	4,593	2,791
	1899	107	1,993	130	83	1,780	.....	1,305	104	1,207	1,224	3,505	2,281
All other industries.....	1909	772	18,666	736	2,959	14,971	23,293	60,156	3,844	8,500	42,046	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	.....	64,696	2,285	7,116	30,938	61,023	21,685
BROCKTON—All industries....	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	8,838	22,553	37,791	15,238
	1899	186	.....	.....	604	10,296	.....	9,635	639	5,775	15,333	24,855	9,522
Blacking and cleansing and polishing preparations.	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	20	75	45
Boots and shoes, including cut stock and findings.	1909	75	13,579	54	1,022	12,503	6,802	14,117	1,296	7,751	25,384	39,293	13,909
	1904	82	13,034	80	681	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
Boxes, fancy and paper.....	1909	5	233	5	14	214	148	209	20	89	140	320	180
	1904	5	247	7	17	223	.....	214	16	94	137	304	167
	1899	4	199	6	13	180	.....	137	11	76	113	266	153

[1] Excluding statistics for one establishment, to avoid disclosure of individual operations.
[2] Excluding statistics for two establishments, to avoid disclosure of individual operations.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
BROCKTON—Continued.													
Bread and other bakery products	1909	11	295	10	62	223	198	$388	$55	$120	$453	$892	$439
	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	95	78
	1899	11	76	14	4	58	.....	69	3	37	28	115	87
Foundry and machine-shop products	1909	9	196	10	24	162	278	345	20	110	116	301	275
	1904	[1] 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	139	4	11	124	.....	258	15	88	90	292	202
Lumber and timber products	1909	6	116	5	9	102	405	300	10	63	194	340	146
	1904	[1] 4	69	3	5	61	.....	117	4	34	106	165	59
	1899	5	.....	.....	4	59	.....	70	2	30	65	119	54
Printing and publishing	1909	16	345	14	51	280	321	359	45	211	102	670	478
	1904	15	260	18	30	212	.....	237	21	156	158	484	326
	1899	[2] 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	102	531	1,690	2,986	1,296
	1904	48	834	55	94	685	.....	1,941	100	382	753	1,691	938
	1899	43	.....	.....	106	498	.....	1,621	87	253	661	1,300	639
CAMBRIDGE—All industries	1909	275	17,475	223	1,992	15,260	21,372	$37,920	$2,404	$8,365	$23,566	$44,227	$20,661
	1904	262	16,343	279	1,478	14,586	.....	32,260	1,713	7,494	25,117	42,407	17,290
	1899	243	.....	.....	1,033	11,070	.....	24,591	1,221	5,451	16,773	29,092	12,319
Bread and other bakery products	1909	40	1,042	37	204	801	802	4,230	149	440	1,961	2,962	1,001
	1904	36	1,115	41	193	881	.....	2,040	163	385	1,238	2,593	1,355
	1899	33	.....	.....	141	857	.....	1,905	215	285	1,253	2,391	1,138
Carriages and wagons and materials	1909	4	71	4	10	57	40	67	9	34	39	105	66
	1904	12	140	15	4	121	.....	206	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	1,910	738
	1904	17	757	15	65	677	.....	617	73	197	943	1,634	691
	1899	11	.....	.....	56	418	.....	305	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	189
	1899	5	.....	.....	19	203	.....	571	20	110	308	507	199
Foundry and machine-shop products	1909	25	2,602	13	329	2,260	3,176	8,094	403	1,430	1,761	4,789	3,028
	1904	[2] 22	2,377	20	131	2,226	.....	5,008	200	1,395	2,204	4,044	2,650
	1899	23	.....	.....	110	1,902	.....	5,170	120	1,107	1,936	4,180	2,244
Furniture and refrigerators	1909	13	874	14	80	780	1,202	1,443	125	603	417	1,302	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	30	345	1,261	654	55	232	409	875	466
	1904	[1] 7	288	10	38	240	.....	424	36	170	307	715	318
	1899	[1] 6	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	[1] 9	385	14	19	352	.....	355	22	280	254	680	426
	1899	[1] 7	.....	.....	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	[2] 4	739	6	13	720	.....	632	16	208	308	848	450
	1899	[2] 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	191	1,185	1,280	3,368	2,088
	1904	38	2,155	54	240	1,861	.....	3,856	289	1,028	1,644	4,009	2,365
	1899	31	2,039	45	230	1,764	.....	3,210	212	942	1,530	3,609	2,079
All other industries	1909	99	7,510	70	858	6,582	10,503	16,423	1,057	3,181	15,007	25,253	10,246
	1904	96	.....	.....	603	6,048	.....	17,695	808	3,126	17,302	25,130	7,828
	1899	91	.....	.....	383	4,081	.....	10,897	469	1,861	10,005	14,619	4,614
FALL RIVER—All industries	1909	288	38,210	247	824	37,139	122,061	$82,086	$1,514	$15,339	$35,524	$64,140	$28,622
	1904	234	27,711	208	667	26,836	.....	69,375	1,142	10,099	26,096	43,473	17,377
	1899	240	.....	.....	512	30,646	.....	57,415	861	10,742	18,070	39,103	21,033
Bread and other bakery products	1909	74	318	74	27	217	19	184	13	127	479	796	317
	1904	55	226	58	6	162	.....	116	3	88	289	472	183
	1899	63	209	68	37	194	.....	127	19	97	313	555	242
Cordage and twine and jute and linen goods.	1909	5	71	5	1	65	150	336	[3]	19	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

[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.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
FALL RIVER—Continued.													
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	305	21,729	.....	51,346	650	7,966	20,616	32,530	11,923
	1899	46	26,722	11	246	26,465	.....	45,743	477	8,843	13,137	29,287	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	[1] 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	605	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	33	142	95	365	270
	1904	15	195	14	42	139	.....	243	30	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	7,060	16,051	508	2,408	6,383	12,108	5,725
	1904	75	4,256	75	190	3,991	.....	14,944	356	1,554	4,517	8,492	3,975
	1899	67	.....	.....	137	3,084	.....	9,622	264	1,293	3,928	7,349	3,421
HOLYOKE—All industries	**1909**	**187**	**17,776**	**153**	**1,110**	**16,513**	**60,269**	**$42,675**	**$1,677**	**$8,076**	**$22,301**	**$40,097**	**$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	20	.....	48	4	18	30	62	32
Bread and other bakery products	1909	27	181	33	40	108	24	150	20	76	275	464	189
	1904	27	143	36	19	88	.....	147	6	55	166	292	126
	1899	20	80	20	4	56	.....	48	1	29	92	183	91
Foundry and machine-shop products	1909	17	1,190	14	174	1,002	1,455	2,838	226	621	843	2,095	1,252
	1904	17	1,324	13	95	1,216	.....	2,878	114	703	781	2,162	1,381
	1899	[1] 18	1,014	15	53	946	.....	1,093	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	4,480	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	3,569	1	169	3,399	.....	10,089	271	1,307	4,525	8,109	3,584
Paper goods, not elsewhere specified	1909	4	457	.....	40	417	740	1,353	81	204	947	1,421	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	19	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	9,098	64	413	8,521	18,145	22,475	626	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	.....	11,006	292	2,637	5,503	10,582	5,079
LAWRENCE—All industries	**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**	**48,037**	**18,621**
	1899	**167**	.....	.....	**648**	**20,899**	.....	**48,827**	**997**	**8,197**	**24,842**	**41,742**	**16,900**
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	130	1,507	3,792	5,746	1,954
	1899	[1] 7	6,086	1	78	6,007	.....	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	1,004	27	80	897	.....	1,727	90	485	545	1,418	873
	1899	26	913	26	65	822	.....	1,048	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

[1] Excluding statistics for one establishment, to avoid disclosure of individual operations.
[2] Excluding statistics for two establishments, to avoid disclosure of individual operations.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
LAWRENCE—Continued.													
Printing and publishing	1909	18	176	21	29	126	166	$109	$33	$89	$66	$254	$188
	1904	[1] 19	174	24	25	125	.....	162	25	77	52	216	164
	1899	[1] 16	167	21	8	138	.....	147	7	74	48	186	138
Woolen, worsted, and felt goods, and wool hats.	1909	15	20,668	17	448	20,203	44,638	57,467	937	8,899	33,057	58,536	24,879
	1904	[2] 10	12,435	6	213	12,216	.....	40,498	370	4,672	19,386	30,927	11,541
	1899	12	11,786	6	325	11,455	.....	29,855	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	4,678	77	227	4,374	.....	10,025	334	1,972	5,131	8,850	3,719
	1899	68	.....	.....	147	2,190	.....	4,508	214	994	3,778	5,916	2,138
LOWELL—All industries	1909	320	34,108	316	1,217	32,575	72,012	$61,984	$1,082	$14,149	$32,831	$60,271	$27,440
	1904	256	30,544	277	964	29,303	.....	54,809	1,345	11,590	26,911	46,879	19,968
	1899	286	.....	.....	684	29,254	.....	45,510	920	10,853	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	562	1,082	2,050	968
	1904	6	850	4	27	819	.....	413	30	310	956	1,457	501
	1899	7	536	5	14	517	.....	387	16	201	684	974	290
Bread and other bakery products	1909	46	208	65	07	106	58	171	33	103	482	750	268
	1904	40	256	49	44	163	.....	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	41,055	24,270	331	5,653	13,043	24,744	10,801
	1904	11	13,173	4	204	12,965	.....	22,580	344	4,848	12,844	19,384	6,540
	1899	[1] 8	13,847	2	115	13,730	.....	21,355	243	4,785	8,774	17,039	8,265
Foundry and machine-shop products	1909	35	2,735	30	108	2,599	2,706	4,485	184	1,418	1,822	4,333	2,511
	1904	[1] 34	2,403	35	74	2,294	.....	6,431	120	1,108	1,509	3,439	1,930
	1899	[1] 47	3,088	52	98	2,938	.....	6,145	158	1,477	1,601	4,258	2,657
Lumber and timber products	1909	17	462	18	34	410	1,037	720	27	211	734	1,066	332
	1904	12	450	15	19	416	.....	626	17	183	646	938	292
	1899	[1] 11	379	16	15	348	.....	589	11	152	407	728	261
Patent medicines and compounds and druggists' preparations.	1909	7	257	4	70	183	406	1,059	82	95	349	1,130	781
	1904	[1] 6	309	3	87	279	.....	1,519	97	135	281	1,471	1,190
	1899	[1] 7	.....	.....	116	301	.....	824	120	141	403	1,780	1,377
Printing and publishing	1909	26	354	26	78	250	340	616	104	178	299	706	407
	1904	19	334	23	52	259	.....	318	64	161	150	525	375
	1899	[2] 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	1,022	2,783	4,558	1,775
	1899	8	2,551	4	51	2,496	.....	4,174	82	882	2,803	4,689	1,886
All other industries	1909	159	11,469	158	485	10,826	17,036	22,047	701	4,592	9,472	18,607	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	5,649
LYNN—All industries	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	1,706	21,540	.....	23,139	1,530	11,738	32,616	55,003	22,387
	1899	423	.....	.....	1,175	16,377	.....	16,037	954	7,971	24,471	39,347	14,876
Blacking and cleansing and polishing preparations.	1909	14	109	19	46	44	76	178	37	31	271	537	266
	1904	12	69	17	14	38	.....	83	11	24	110	245	135
	1899	12	51	18	17	16	.....	52	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	1,356	9,532	29,148	46,660	17,512
	1904	211	14,581	208	997	13,286	.....	12,155	882	7,035	22,173	35,431	13,258
	1899	207	10,966	309	597	10,060	.....	8,388	484	4,709	17,052	24,982	7,930
Boxes, fancy and paper	1909	6	378	1	29	348	265	238	39	109	404	730	326
	1904	3	94	2	27	65	.....	80	16	27	108	172	64
	1899	7	317	6	19	292	.....	233	16	119	213	417	204
Bread and other bakery products	1909	37	222	38	19	165	42	119	14	111	443	681	238
	1904	42	212	49	14	149	.....	110	7	89	271	480	209
	1899	28	146	29	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	.....	589	32	259	278	887	609
Lasts	1909	5	95	8	6	81	187	193	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	29	100	71
Leather, tanned, curried, and finished	1909	8	1,148	1	85	1,062	1,185	2,656	147	457	4,009	5,094	1,085
	1904	12	1,124	18	48	1,058	.....	1,963	51	499	3,475	4,570	1,095
	1899	12	706	17	51	638	.....	1,031	35	282	2,039	2,451	412
Lumber and timber products	1909	6	142	5	8	129	363	206	7	82	188	330	142
	1904	7	260	5	36	219	.....	233	25	100	236	426	190
	[3] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Patent medicines and compounds and druggists' preparations.	1909	7	93	5	14	74	41	1,051	36	30	200	948	748
	1904	6	85	5	11	69	.....	1,049	33	36	219	1,328	1,109
	1899	4	.....	.....	15	323	.....	739	18	44	272	1,338	1,066

[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 can not be shown without disclosing individual operations.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
LYNN—Continued.													
Printing and publishing	1909	26	331	27	76	228	177	$313	$77	$145	$162	$537	$375
	1904	25	202	28	46	188	.....	227	52	102	81	362	281
	1899	[1] 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	8,637
	1904	86	6,615	115	452	6,048	.....	6,577	300	3,559	5,757	11,275	5,518
	1899	99	.....	.....	405	4,270	.....	4,633	335	2,305	4,312	8,473	4,161
NEW BEDFORD—All industries	**1909**	**207**	**27,538**	**303**	**669**	**26,566**	**76,147**	**$58,970**	**$1,245**	**$12,598**	**$28,564**	**$53,238**	**$24,674**
	1904	**176**	**18,563**	**189**	**519**	**17,855**	.....	**40,410**	**781**	**7,251**	**16,091**	**29,469**	**13,378**
	1899	**171**	.....	.....	**425**	**15,263**	.....	**28,182**	**535**	**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	30	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	23,200	42,505	19,305
	1904	15	14,787	.....	242	14,545	.....	34,294	448	5,570	12,685	22,412	9,727
	1899	15	12,426	.....	140	12,286	.....	21,871	253	4,603	8,208	16,749	8,541
Foundry and machine-shop products	1909	16	313	13	24	276	1,019	325	19	176	102	454	352
	1904	19	315	24	30	261	.....	362	21	148	138	405	267
	1899	[2] 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	.....	116	4	38	160	243	83
	1899	[2] 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	483	354
	1904	[1] 16	209	17	26	166	.....	239	42	104	74	335	261
	1899	[2] 14	165	19	24	122	.....	148	35	74	49	254	205
All other industries	1909	94	3,090	89	243	3,358	5,871	7,140	379	1,846	4,137	8,256	4,119
	1904	77	2,913	85	209	2,619	.....	5,254	258	1,275	2,746	5,542	2,796
	1899	83	.....	.....	189	2,365	.....	5,338	196	1,162	2,084	5,289	2,205
SOMERVILLE—All industries	**1909**	**114**	**5,951**	**97**	**574**	**5,280**	**7,680**	**$17,282**	**$692**	**$2,870**	**$31,923**	**$38,687**	**$6,764**
	1904	**78**	**3,951**	**80**	**397**	**3,474**	.....	**10,264**	**431**	**1,753**	**19,176**	**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	146	272	126
	1899	14	116	21	35	60	.....	78	18	34	123	230	107
Foundry and machine-shop products	1909	6	108	7	7	94	72	208	7	46	95	197	102
	[3] 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	1,780	2	236	1,542	.....	7,225	243	815	17,186	18,959	1,773
	1899	5	.....	.....	45	1,445	.....	6,813	71	700	14,295	15,764	1,469
All other industries	1909	73	3,110	55	281	2,774	4,245	4,698	347	1,520	3,693	6,701	3,008
	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
SPRINGFIELD—All industries	**1909**	**346**	**14,455**	**288**	**2,312**	**11,855**	**17,744**	**$28,658**	**$2,362**	**$6,867**	**$14,363**	**$31,773**	**$17,410**
	1904	**296**	**11,957**	**246**	**1,188**	**10,523**	.....	**24,081**	**1,499**	**5,645**	**12,380**	**25,860**	**13,480**
	1899	**278**	.....	.....	**848**	**8,152**	.....	**16,071**	**982**	**3,975**	**8,892**	**18,155**	**9,263**
Brass and bronze products	1909	7	197	6	27	164	129	230	32	104	246	431	185
	1904	[2] 3	55	2	5	48	.....	85	4	34	78	142	64
	1899	[2] 3	193	2	10	181	.....	268	19	92	135	333	198
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	58	103	318	215
Cutlery and tools, not elsewhere specified.	1909	4	312	5	20	287	648	486	41	185	154	523	369
	1904	[2] 6	165	7	16	142	.....	287	22	83	59	233	174
	1899	[2] 4	123	3	14	106	.....	146	15	44	30	151	121
Electrical machinery, apparatus, and supplies.	1909	5	181	1	26	154	198	288	25	82	63	191	128
	1904	5	182	1	28	153	.....	352	33	72	104	370	266
	1899	3	140	1	18	127	.....	264	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	5	12	.....	25	3	4	8	21	13
	1899	3	15	2	.....	13	.....	17	.....	6	6	19	13

[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 can not be shown without disclosing individual operations.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
SPRINGFIELD—Continued.													
Foundry and machine-shop products	1909	30	1,779	21	204	1,554	3,488	$3,851	$342	$973	$1,027	$3,006	$1,979
	1904	28	1,455	13	128	1,314	.....	2,503	218	783	788	2,456	1,668
	1899	29	.....	.....	76	910	.....	2,046	91	505	652	1,751	1,099
Lumber and timber products	1909	10	380	7	39	334	1,436	657	41	211	580	945	365
	1904	8	291	8	31	252	.....	602	32	142	283	560	277
	1899	5	.....	.....	21	253	.....	409	21	134	251	489	238
Printing and publishing	1909	51	2,077	38	1,014	1,025	1,632	3,527	618	666	1,006	3,901	2,895
	1904	41	1,138	30	316	792	.....	2,009	364	515	708	2,402	1,694
	1899	43	1,226	26	321	879	.....	1,607	293	533	533	2,145	1,612
Slaughtering and meat packing	1909	3	136	4	23	109	125	278	34	76	1,033	1,251	218
	1904	3	317	2	53	262	.....	1,208	30	130	2,528	3,053	525
	1899	3	.....	.....	13	293	.....	652	13	116	2,254	2,545	291
Tobacco manufactures	1909	20	463	33	22	408	6	275	17	277	256	720	464
	1904	22	361	25	13	323	.....	202	14	207	172	534	362
	1899	19	294	22	6	266	.....	247	9	160	177	440	263
All other industries	1909	153	8,182	126	827	7,220	9,805	18,394	1,120	4,014	8,985	19,008	10,023
	1904	142	7,353	125	540	6,688	.....	16,130	707	3,436	6,866	14,726	7,860
	1899	133	.....	.....	334	4,785	.....	9,959	463	2,168	4,273	9,179	4,906
WORCESTER—All industries	**1909**	**580**	**32,154**	**750**	**3,183**	**28,221**	**53,405**	**$64,639**	**$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**	.....	.....	**1,326**	**22,593**	.....	**41,384**	**1,706**	**11,281**	**23,470**	**46,793**	**23,323**
Boots and shoes, including cut stock and findings.	1909	11	896	8	59	829	399	1,351	81	469	1,466	2,414	948
	1904	12	814	11	56	747	.....	870	48	381	1,097	1,756	659
	1899	[1] 14	899	16	31	852	.....	681	35	399	1,119	1,709	590
Bread and other bakery products	1909	67	846	329	104	413	160	442	67	207	877	1,472	595
	1904	30	230	35	34	161	.....	93	16	95	300	572	272
	1899	26	342	33	59	250	.....	334	34	117	378	700	322
Carriages and wagons and materials	1909	12	87	10	6	71	63	131	3	51	62	160	98
	1904	[2] 10	81	12	4	65	.....	103	3	46	31	109	78
	1899	[2] 8	.....	.....	3	56	.....	101	4	34	35	112	77
Clothing, men's, including shirts	1909	16	322	21	13	288	56	223	13	111	362	556	194
	1904	[2] 10	225	14	10	201	.....	115	10	79	317	462	145
	1899	[2] 4	131	5	.....	120	.....	97	.....	53	164	230	66
Clothing, women's	1909	18	1,252	29	163	1,060	219	902	107	371	1,081	1,942	861
	1904	19	1,108	27	37	1,044	.....	568	51	372	857	1,629	772
	1899	7	721	11	10	691	.....	466	30	194	447	853	406
Copper, tin, and sheet-iron products	1909	10	232	6	31	195	247	388	31	113	166	411	245
	1904	[1] 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.	1909	4	274	1	19	254	425	415	20	98	680	883	203
	1904	[2] 3	198	1	13	184	.....	466	18	70	514	737	223
	1899	[1] 3	138	.....	13	125	.....	318	12	49	296	417	121
Cutlery and tools, not elsewhere specified.	1909	11	448	7	32	409	1,104	641	51	241	214	569	355
	1904	13	425	12	19	394	.....	618	30	211	236	575	339
	1899	10	287	7	14	266	.....	300	24	120	103	366	263
Foundry and machine-shop products	1909	89	7,161	55	603	6,503	6,891	13,069	982	3,841	4,793	13,219	8,426
	1904	[2] 89	5,131	77	404	4,650	.....	10,702	618	2,706	3,198	8,389	5,191
	1899	97	.....	.....	258	4,989	.....	9,451	454	2,848	3,706	8,765	5,059
Lumber and timber products	1909	12	362	9	33	320	1,154	461	49	195	476	814	338
	1904	17	470	15	41	414	.....	722	49	247	535	968	433
	1899	[1] 3	170	1	17	152	.....	253	18	73	139	268	129
Marble and stone work	1909	10	253	10	16	227	862	388	20	218	93	383	290
	1904	9	461	10	30	421	.....	694	53	280	70	686	616
	1899	9	.....	.....	11	420	.....	598	28	265	51	458	407
Printing and publishing	1909	53	767	45	137	585	384	605	102	302	371	1,233	862
	1904	[2] 44	619	38	204	377	.....	584	100	248	219	966	747
	1899	40	.....	.....	125	481	.....	422	82	200	213	822	609
Tobacco manufactures	1909	20	94	25	4	65	2	54	3	37	42	117	75
	1904	17	91	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.	1909	15	1,802	8	72	1,722	3,990	3,530	105	689	3,200	4,460	1,260
	1904	14	1,041	8	57	1,576	.....	2,202	80	610	2,356	3,530	1,174
	1899	14	1,132	10	30	1,092	.....	1,557	47	406	1,212	2,018	806
All other industries	1909	232	17,358	187	1,891	15,280	37,449	42,039	2,397	8,202	28,718	48,515	19,797
	1904	174	13,657	130	1,113	12,414	.....	30,598	1,223	6,385	17,105	31,471	14,366
	1899	198	.....	.....	737	12,949	.....	26,623	920	6,346	15,516	29,821	14,305

[1] Excluding statistics for two establishments, to avoid disclosure of individual operations.
[2] Excluding statistics for one establishment, to avoid disclosure of individual operations.

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

CITIES OF 10,000 INHABITANTS—ALL INDUSTRIES COMBINED.

CITY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
Adams	1909	31	4,100	32	77	3,991	10,173	$8,019	$183	$1,719	$3,082	$6,410	$3,328
	1904	23	4,089	25	70	3,994	.....	6,945	151	1,509	2,688	5,492	2,804
	1899	26	.....	.....	51	3,182	.....	6,560	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	8,347
	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	3,796	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	1,008	2,323	4,101	1,778
	1899	73	.....	.....	96	2,275	.....	2,112	64	1,021	2,149	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	5,461	9,519	4,058
Chicopee	1909	58	7,776	45	471	7,260	18,738	14,803	468	3,696	10,952	19,219	8,267
	1904	40	4,899	41	188	4,670	.....	6,829	255	1,935	4,330	7,716	3,386
	1899	46	.....	.....	120	4,085	.....	5,976	148	1,588	2,700	5,389	2,689
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	3,836	.....	6,930	115	1,510	2,715	5,043	2,328
Everett	1909	62	3,096	56	360	2,080	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	168	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	6,498	.....	13,109	379	3,108	9,421	15,391	5,970
	1899	115	.....	.....	290	6,218	.....	12,586	364	2,802	7,480	13,008	5,528
Framingham	1909	27	3,307	19	219	3,069	4,486	7,770	326	1,446	3,411	6,017	3,506
	1904	36	2,609	36	89	2,484	.....	2,613	133	1,121	2,517	4,174	1,657
	1899	34	.....	.....	69	2,207	.....	2,821	66	857	1,692	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	.....	8,619	201	1,491	2,570	5,019	2,449
	1899	46	.....	.....	108	2,896	.....	5,888	125	1,199	2,284	4,386	2,102
Gloucester	1909	102	2,503	104	308	2,181	2,427	5,693	337	1,042	4,770	7,753	2,983
	1904	132	2,141	175	203	1,763	.....	4,321	197	811	4,682	6,921	2,239
	1899	137	.....	.....	183	2,307	.....	3,865	168	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
	[1] 1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	[1] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Haverhill	1909	346	12,791	407	695	11,689	7,930	14,786	707	6,658	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	3,581	6,739	3,158
	1899	33	.....	.....	98	2,483	.....	3,554	148	1,122	2,507	4,384	1,877
Leominster	1909	94	6,000	76	323	5,601	5,890	6,633	442	2,794	5,576	10,531	4,955
	1904	65	4,437	64	246	4,127	.....	4,573	268	1,946	3,964	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	6,602	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	560	1,123	1,596	115	331	1,250	2,045	795
	1904	37	572	37	51	484	.....	1,449	67	244	386	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	57	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
	[1] 1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	[1] 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.

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

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

CITY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horsepower.	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.					
Newburyport	1909	74	3,543	71	257	3,215	3,820	$4,900	$320	$1,642	$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	30	160	2,174	4,153	5,669	302	1,125	3,383	6,279	2,896
	1904	48	2,077	45	130	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	15,943	617	2,567	5,576	10,315	4,739
	1904	58	5,831	66	263	5,502	.....	18,168	373	2,333	4,011	8,036	4,025
	1899	68	.....	.....	248	6,312	.....	14,127	461	2,708	5,047	10,741	5,694
Northampton	1909	71	3,434	58	226	3,150	6,139	7,996	302	1,503	3,163	6,999	3,836
	1904	77	3,235	71	201	2,963	.....	4,380	211	1,217	3,042	5,756	2,714
	1899	66	.....	.....	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	2,638	10,192	15,549	5,357
	1904	76	4,227	74	200	3,953	.....	7,654	260	1,990	6,748	10,237	3,489
	1899	86	.....	.....	146	2,661	.....	4,339	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	202	4,455	.....	8,035	459	2,082	4,620	8,577	3,948
	1899	69	.....	.....	205	3,198	.....	5,557	243	1,271	3,078	5,754	2,676
Plymouth	1909	32	3,104	24	168	2,912	6,239	10,760	268	1,416	8,475	11,618	3,143
	1904	35	2,422	34	88	2,300	.....	7,910	141	964	8,568	11,116	2,548
	1899	27	.....	.....	81	1,511	.....	4,322	104	614	3,564	5,530	1,966
Quincy	1909	183	6,247	241	514	5,492	9,147	11,975	806	3,434	3,844	10,505	6,661
	1904	161	5,038	222	345	5,371	.....	9,221	440	3,060	3,704	8,982	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	151	12	14	125	.....	765	14	66	249	355	106
	1899	17	.....	.....	8	87	.....	388	8	46	51	156	105
Salem	1909	155	6,852	149	365	6,338	11,436	9,345	396	2,893	8,040	14,576	5,936
	1904	143	6,393	107	281	5,945	.....	9,670	269	2,506	7,021	12,202	4,281
	1899	162	.....	.....	214	5,625	.....	6,947	202	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	.....	3,795	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	7,945	110	428	7,407	10,141	16,504	701	3,834	7,775	15,380	7,605
	1904	127	7,020	118	294	6,608	.....	14,790	468	3,147	7,687	13,645	5,958
	1899	114	.....	.....	313	6,590	.....	11,267	418	3,043	5,540	11,544	6,004
Wakefield	1909	23	2,359	14	115	2,230	1,729	3,864	157	1,046	2,835	5,527	2,692
	1904	22	1,947	15	128	1,804	.....	2,841	164	828	2,838	4,808	1,970
	1899	25	.....	.....	70	1,436	.....	3,090	96	711	1,254	2,047	1,303
Waltham	1909	80	6,354	67	250	6,037	7,583	12,871	406	3,288	2,444	7,814	5,370
	1904	60	6,484	55	221	6,208	.....	10,003	370	3,240	2,067	7,150	5,083
	1899	74	.....	.....	179	4,861	.....	8,777	255	2,371	1,880	5,800	4,001
Watertown	1909	25	4,805	13	457	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	1,665	5,529	15,525	9,996
	1899	27	.....	.....	119	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	7,820	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	.....	3,688	51	812	2,462	4,008	1,546
Westfield	1909	91	3,500	86	354	3,060	3,731	7,500	462	1,695	2,868	7,362	4,494
	1904	86	2,945	78	233	2,634	.....	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	2,238	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	2,908	4,922	1,924
	1899	51	.....	.....	216	1,922	.....	4,333	286	878	3,178	5,389	2,211
Winthrop	1909	7	19	6	6	7	41	25	3	5	25	42	17
	[1] 1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	[1] 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	4,654	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. Total.	Proprietors and firm members.	Salaried officers, supts. and managers.	Clerks. Male.	Clerks. Female.	Wage earners. Average number.	Wage earners. Number. Maximum month.	Wage earners. Number. Minimum month.	WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY. Total.	16 and over. Male.	16 and over. Female.	Under 16. Male.	Under 16. Female.	Primary horsepower.
1	**All industries**	**11,684**	**644,399**	**11,194**	**12,791**	**22,914**	**12,941**	**584,559**	De 612,615	Ja 565,750	(1)	(1)	(1)	(1)	(1)	**1,175,071**
2	Agricultural implements	5	401	2	11	36	6	346	Ap 377	Au 318	353	353	.....	.....	.....	487
3	Artificial stone	35	234	47	11	14	4	158	Jy 196	Ja 83	172	172	.....	.....	.....	217
4	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	.....	2,896
5	Baskets, and rattan and willow ware	21	260	24	5	4	5	222	De 236	Fe 202	238	226	6	4	2	289
6	Belting and hose, leather	16	1,260	5	24	232	44	955	De 1,005	Jy 894	1,013	941	34	37	1	897
7	Bicycles, motorcycles, and parts	10	950	7	21	45	34	843	De 1,100	Ja 713	1,100	1,066	4	30	.....	899
8	Billiard tables and materials	7	42	8	4	1	1	28	My [2] 29	Jy 26	29	28	.....	1	.....	13
9	Blacking and cleansing and polishing preparations.	80	850	76	47	134	66	527	Ap 557	Ja 457	490	279	204	5	2	892
10	Boots and shoes, including cut stock and findings.	860	90,048	911	1,459	2,120	2,495	83,003	De 87,797	My 78,536	89,751	57,494	28,922	1,959	1,376	35,051
11	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
12	Boxes, cigar	5	161	2	11	13	5	130	De 142	Ap 109	142	66	71	3	2	120
13	Boxes, fancy and paper	99	4,209	76	130	70	95	3,838	No 4,222	Au 3,582	4,236	1,322	2,629	42	243	2,370
14	Brass and bronze products	85	2,036	71	80	60	34	1,701	De 1,951	Ja 1,681	1,979	1,937	36	5	1	6,407
15	Bread and other bakery products	1,201	9,755	1,700	107	730	521	6,697	Se 6,840	Ja 6,256	6,885	5,390	1,311	78	106	4,316
16	Brick and tile	52	1,104	53	38	18	4	991	Jy 1,808	Fe 160	1,127	1,125	1	1	.....	2,067
17	Brooms	24	155	29	2	3	3	118	Mh 132	Oc 104	115	106	6	3	.....	73
18	Brushes	30	1,810	29	44	74	34	1,629	De 1,773	Jy 1,449	1,774	679	1,051	19	25	580
19	Butter, cheese, and condensed milk	24	95	18	15	5	1	56	Je 58	Mh [2] 55	58	56	.....	.....	2	318
20	Buttons	12	728	9	9	33	18	659	Ja 752	No [2] 583	585	225	313	21	26	898
21	Canning and preserving	71	1,819	61	70	160	79	1,449	Oc 1,769	My 1,220	1,746	1,272	447	14	13	1,043
22	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	2,506	213	163	10,037
23	Carpets, rag	24	168	32	11	1	2	122	Jy [2] 138	Fe 97	115	93	12	10	.....	226
24	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
25	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	.....	.....	5,697
26	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
27	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
28	Cash registers and calculating machines	4	54	.....	7	1	4	42	De 61	Fe [2] 20	61	60	.....	1	.....	194
29	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
30	Cloth, sponging and refinishing	4	52	5	.....	.....	.....	47	Au 49	Ja [2] 45	47	47	.....	.....	.....	15
31	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	1,753
32	Clothing, women's	174	6,080	210	127	271	265	5,813	Ap 6,212	Au 5,200	6,021	1,299	4,602	13	47	1,024
33	Coffins, burial cases, and undertakers' goods.	12	400	7	16	41	12	384	My 394	Je 376	380	327	52	.....	1	733
34	Confectionery	117	6,398	95	117	432	206	5,548	Oc 6,723	Jy 4,796	6,465	1,703	4,140	45	577	4,278
35	Cooperage and wooden goods, not elsewhere specified.	70	1,008	76	25	11	12	974	Ap 1,005	Ja 940	1,024	975	6	43	.....	2,863
36	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	1,808
37	Cordage and twine 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	292	24,864
38	Corsets	10	2,156	2	43	92	30	1,989	Mh 2,062	Au 1,833	1,970	165	1,712	7	96	455
39	Cotton goods, including cotton small wares.	182	110,686	43	750	711	268	108,914	De 110,781	Ja 106,670	111,253	56,914	47,992	3,101	3,246	362,043
40	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	156	30	13,263
41	Dairymen's, poulterers', and apiarists' supplies.	5	18	5	2	1	1	9	No [2] 10	Je [2] 8	10	9	1	.....	.....	22
42	Electrical machinery, apparatus, and supplies.	83	16,725	34	544	1,149	491	14,507	De 16,026	Ja 12,239	17,020	13,414	3,451	114	41	14,835
43	Electroplating	54	584	73	14	12	18	467	Oc 519	Au 410	553	342	190	8	7	406
44	Emery and other abrasive wheels	13	744	7	22	88	12	615	De 706	Ja 523	705	677	14	14	.....	1,710
45	Enameling and japanning	16	147	16	6	3	3	119	De [2] 129	My 103	136	78	54	4	.....	132
46	Fancy articles, not elsewhere specified	78	3,867	61	114	63	71	3,558	Oc 4,011	My 3,119	3,921	2,771	1,002	90	58	2,382
47	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
48	Fireworks	4	217	.....	10	5	3	199	Ja 233	Jy 133	204	161	39	2	2	150
49	Flags, banners, regalia, society badges and emblems.	14	79	10	8	6	7	48	Jy 52	Fe 42	48	11	35	.....	2	8
50	Flour-mill and gristmill products	120	437	151	18	24	15	229	De 237	Au 223	243	240	3	.....	.....	5,042
51	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
52	Fur goods	16	277	20	1	37	9	210	No 295	Mh 130	275	124	150	.....	1	28
53	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
54	Furniture and refrigerators	155	7,940	165	182	212	104	7,277	De 7,790	Ja 6,870	7,829	7,034	610	144	32	12,203
55	Gas and electric fixtures and lamps and reflectors.	25	766	17	25	36	25	663	De 773	Jy 586	818	708	78	31	1	478
56	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
57	Gloves and mittens, leather	8	129	5	4	6	5	109	Ja 127	Jy [2] 89	120	35	84	.....	1	21
58	Gold and silver, leaf and foil	11	172	14	2	1	3	152	De 163	Au 106	163	86	74	3	.....	33
59	Gold and silver, reducing and refining, not from the ore.	8	100	9	8	.....	5	78	Ja 81	De [2] 75	76	76	.....	.....	.....	88
60	Hand stamps and stencils and brands	31	175	37	2	10	9	117	De 122	Au 112	122	99	13	9	1	32
61	Hats and caps, other than felt, straw, and wool.	30	355	44	4	17	16	274	Au [2] 287	De 250	294	208	82	3	1	52
62	Hats, fur-felt	11	2,341	10	35	43	29	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, page 2. See also discussion of wage earners on page 11.

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	$1,279,686,558	$1,320,866,282	$32,029,601	$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	605,284	592,553	20,200	36,637	188,055	5,939	280,702	10,550	6,577	.....	37,892	646,534	359,893
3	246,176	228,715	11,306	12,470	90,720	2,974	81,624	3,586	1,833	470	17,732	276,694	192,096
4	7,457,889	9,840,642	303,335	193,700	2,793,231	75,400	5,416,078	132,834	50,000	41,943	843,121	11,359,224	5,807,746
5	303,959	295,506	8,628	7,346	104,046	2,923	135,102	3,045	1,964	.....	32,452	326,245	188,220
6	4,425,960	5,040,989	57,370	277,990	554,562	29,125	3,036,962	17,766	31,613	2,920	432,681	5,647,360	1,981,273
7	2,076,835	2,302,324	54,059	98,079	579,565	24,011	1,352,665	2,000	8,111	115	181,919	2,706,258	1,328,682
8	63,115	74,192	8,000	1,200	21,925	1,079	30,749	4,444	446	100	6,249	111,088	79,260
9	1,735,434	2,939,741	135,357	196,015	256,696	15,158	1,864,283	42,974	10,072	1,000	418,186	3,713,071	1,833,630
10	90,242,915	218,269,055	2,956,365	3,692,281	45,990,138	652,487	152,337,465	989,920	365,254	1,225,419	10,059,726	236,342,915	83,352,963
11	15,692,273	15,328,125	226,236	281,132	3,375,505	135,633	10,504,071	300	159,794	.....	645,364	18,722,363	8,082,659
12	181,988	233,821	15,302	12,308	60,819	2,474	129,630	1,516	1,824	.....	9,939	255,335	123,222
13	2,939,285	5,086,078	231,746	119,141	1,556,931	55,488	2,663,959	97,109	27,523	6,041	328,140	5,757,611	3,038,164
14	4,351,102	5,430,475	156,913	86,398	1,114,802	133,991	3,520,019	46,561	36,062	14,536	312,193	6,042,216	2,379,206
15	12,751,629	22,945,254	182,771	735,759	3,814,002	445,911	15,281,522	409,990	90,980	8,049	1,975,070	26,146,044	10,418,611
16	1,476,337	1,030,100	50,304	16,912	509,302	295,175	34,723	9,062	16,553	.....	98,069	1,243,245	913,347
17	101,186	253,626	3,300	5,364	56,758	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	652,706	26,987	1,328,813	30,599	25,478	855	292,085	2,874,524	1,518,724
19	114,798	600,218	5,442	1,092	28,958	4,614	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	569,837
21	4,112,374	6,124,796	150,015	166,662	642,102	33,235	4,540,662	43,691	26,022	600	505,907	6,840,306	2,257,409
22	11,450,096	11,202,188	202,914	202,873	2,763,263	237,809	7,263,241	9,923	138,591	3,400	320,114	12,811,981	5,310,871
23	64,353	112,475	16,868	2,280	52,539	2,887	20,276	6,579	332	400	10,308	132,280	109,117
24	2,823,651	2,583,858	60,578	48,224	985,904	50,227	1,231,554	53,415	23,208	8,318	122,340	3,184,835	1,903,054
25	5,109,017	7,753,807	118,759	121,655	3,446,695	141,060	3,835,374	.....	33,260	.....	57,004	7,803,807	3,827,373
26	2,135,202	2,139,830	31,109	6,770	1,095,709	20,448	954,253	700	16,060	500	14,281	2,130,828	1,165,127
27	3,529,048	3,341,417	59,725	38,259	501,059	28,551	2,453,233	850	19,178	.....	240,562	3,487,811	1,006,027
28	157,055	72,603	10,340	2,198	28,056	2,098	15,667	1,191	1,123	.....	11,030	88,594	70,820
29	5,185,221	5,048,399	164,028	219,742	811,378	187,060	2,861,192	9,147	44,000	.....	750,043	5,916,451	2,808,199
30	16,550	41,188	.....	.....	33,096	2,100	306	4,060	34	.....	1,442	63,462	60,906
31	8,241,040	16,310,731	278,909	402,950	3,398,387	83,459	9,672,192	189,141	81,151	1,001,284	603,258	18,313,783	8,558,132
32	4,222,853	10,362,486	241,493	416,388	2,446,277	50,021	6,460,711	190,797	25,601	23,032	506,966	11,727,980	5,216,648
33	967,897	857,903	30,314	77,505	230,097	5,892	438,189	4,392	6,197	.....	64,477	941,158	497,077
34	7,371,337	13,682,418	368,302	721,824	1,860,336	120,580	9,067,938	274,249	61,990	1,236	1,205,963	15,266,453	6,077,035
35	1,402,490	1,730,538	39,773	19,380	451,088	14,608	1,079,032	12,966	15,564	1,258	96,200	1,930,106	845,406
36	6,307,624	5,401,380	256,943	179,617	1,481,450	54,273	2,878,909	101,104	30,650	2,644	415,700	6,185,328	3,252,146
37	17,510,244	15,436,123	236,759	261,534	2,560,324	157,481	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	735,465	10,257	1,506,942	16,366	14,800	.....	432,107	3,751,041	2,144,442
39	214,017,247	164,686,952	2,614,677	835,114	45,117,060	4,041,092	101,115,702	32,045	2,530,622	375,840	8,015,785	186,402,313	81,305,519
40	12,415,650	9,616,905	435,694	394,766	3,738,254	207,525	3,276,874	32,190	104,194	11,557	1,415,851	11,610,740	8,126,350
41	12,802	37,834	2,500	1,800	4,782	487	23,416	1,101	136	350	3,262	57,850	33,947
42	32,961,277	26,182,536	1,183,180	1,275,078	8,209,174	461,831	12,272,089	86,780	120,781	122,552	2,450,165	28,142,880	15,408,069
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	514,693
44	1,738,740	1,485,484	69,341	102,058	429,396	64,888	490,546	4,382	13,563	6,600	295,710	1,981,536	1,417,102
45	141,522	261,950	12,100	4,669	55,714	5,040	170,561	5,429	1,329	25	6,483	345,235	109,034
46	2,024,990	5,814,539	201,483	97,660	1,630,122	55,936	3,458,173	44,730	16,813	4,000	305,022	6,618,241	3,104,132
47	4,312,518	3,044,548	115,999	107,504	1,457,784	63,540	688,641	7,476	45,107	.....	558,497	3,407,838	2,055,657
48	140,870	234,221	22,180	10,274	84,601	3,173	90,286	1,600	802	.....	21,305	285,475	192,016
49	79,565	129,449	10,642	6,668	19,004	760	72,406	7,255	723	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	103,051,669	73,938,362	3,545,146	2,893,622	27,031,771	1,325,431	29,856,459	550,924	680,841	594,684	7,450,484	86,925,671	55,743,781
52	730,292	820,751	4,160	26,339	152,988	2,141	550,348	25,332	4,171	3,000	52,272	954,790	402,301
53	6,904,869	10,340,021	305,073	303,793	1,952,480	52,836	6,599,125	41,690	54,441	84,513	946,064	12,029,519	5,377,558
54	16,813,397	11,591,356	417,228	259,972	3,986,177	159,987	5,647,921	94,999	94,552	16,796	913,724	13,867,548	8,059,640
55	724,903	1,442,048	54,299	45,291	399,053	22,955	788,704	20,128	3,081	616	107,321	1,509,384	697,725
56	52,983,671	7,053,506	323,801	205,199	1,250,007	2,770,366	1,030,768	10	707,108	27,421	729,826	11,074,354	7,264,220
57	107,153	116,057	5,580	7,099	52,484	1,252	41,833	2,580	403	250	4,516	134,937	91,852
58	99,606	255,022	3,210	4,085	77,337	1,296	162,381	2,212	348	1,250	2,903	281,926	118,240
59	566,225	1,297,331	18,142	3,185	57,270	4,941	1,098,242	6,690	2,444	.....	106,417	1,359,102	255,910
60	140,646	181,943	2,962	11,227	69,064	2,525	64,870	15,501	620	1,410	13,758	239,954	172,552
61	179,017	559,889	5,333	18,459	161,274	3,784	331,447	17,714	643	.....	21,235	658,666	323,435
62	2,261,684	3,356,205	95,028	51,605	990,107	44,698	1,887,204	15,370	8,468	20,748	242,917	3,745,873	1,813,971

[2] 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 horsepower.
			Total.	Proprietors and firm members.	Salaried officers, supts. and managers.	Clerks.		Wage earners.			Total.	16 and over.		Under 16.		
						Male.	Female.	Average number.	Number. Maximum month.	Number. Minimum month.		Male.	Female.	Male.	Female.	
1	Hats, straw	18	2,811	19	37	65	22	2,668	Mh 3,890	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	64	5	2	.....	2	55	Jy[1] 75	Ja 13	54	54	.....	.....	.....	2,034
4	Iron and steel, steel works and rolling mills.	9	3,465	.....	110	187	53	3,115	De 3,544	Ap 2,820	3,544	3,427	116	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	.....	.....	.....	1,456
7	Lasts	27	803	27	38	47	16	675	De 714	Ap 633	727	712	1	14	.....	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	20	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	40	8	19,231
10	Lime	9	588	2	20	6	3	557	Jy 643	Ja 385	520	520	.....	.....	.....	589
11	Liquors, distilled	6	72	5	7	8	3	49	De[1] 52	Au[1] 42	52	52	.....	.....	.....	300
12	Liquors, malt	37	2,091	8	103	231	10	1,739	Jy 1,850	Ja 1,648	1,728	1,716	12	.....	.....	9,917
13	Lumber and timber products	708	10,478	793	299	231	179	8,976	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	.....	16,515
15	Mattresses and spring beds	52	826	49	34	50	26	667	Oc 741	Fe 575	660	492	157	9	2	592
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 126	Fe[1] 97	126	123	.....	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	.....	290
19	Musical instruments and materials, not specified.	18	193	17	7	5	10	154	No[1] 170	Ja 136	170	140	27	3	.....	213
20	Musical instruments, pianos and organs and materials.	59	4,681	33	137	195	71	4,245	De 4,512	Jy 4,037	4,553	4,185	257	32	79	4,454
21	Oil, essential	5	12	6	.....	.....	.....	6	De[1] 11	Jy 2	11	11	.....	.....	.....	12
22	Oilcloth and linoleum	3	239	.....	8	8	3	220	Au[1] 224	Ja 211	226	186	40	.....	.....	375
23	Optical goods	11	2,661	6	69	82	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	34	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	220	155	5,135	De 5,527	Jy 4,909	5,507	2,701	2,536	78	192	6,776
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	1,370
28	Pens, fountain, stylographic, and gold	3	39	7	.....	1	2	29	Au 33	De 22	28	25	2	1	.....	9
29	Photographic apparatus and materials	5	48	2	10	3	1	32	Je 40	Fe 28	31	26	5	.....	.....	50
30	Photo-engraving	24	636	21	36	63	33	483	De 504	Ja 445	510	458	46	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	.....	932
32	Printing and publishing	1,279	24,410	1,089	940	2,723	2,120	17,532	De 18,158	Au 16,746	18,317	12,837	4,968	404	108	47,629
33	Rubber goods, not elsewhere specified	29	3,924	9	97	244	150	3,418	De 3,958	Ja 3,069	3,937	3,095	745	56	41	10,123
34	Scales and balances	3	20	2	1	1	1	15	Se 18	Fe[1] 12	16	16	.....	.....	.....	16
35	Screws, machine	13	392	9	11	10	14	348	De 391	Ja 298	391	322	22	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[1] 460	Se 422	474	414	58	2	.....	4,688
38	Show cases	8	55	7	2	3	2	41	De 45	My 36	46	46	.....	.....	.....	30
39	Signs and advertising novelties	14	197	10	13	29	9	136	De 157	Fe 116	167	106	59	1	1	80
40	Silk and silk goods, including throwsters	19	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[1] 65	70	68	2	.....	.....	120
44	Stereotyping and electrotyping	11	292	11	13	19	10	239	Oc 244	Ja[1] 234	240	229	9	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	.....	1,804
46	Surgical appliances and artificial limbs	23	301	26	7	18	23	227	Se 235	Ja 205	230	151	78	1	.....	337
47	Tobacco manufactures	417	4,258	458	56	149	44	3,551	Se 8,906	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[1] 179	Au 157	177	118	57	2	.....	118
49	Whips	29	1,203	28	36	88	46	1,005	Je[1] 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	31,553	21,368	1,420	1,841	117,119
51	All other industries[2]	1,302	53,123	1,220	1,425	3,141	1,130	46,207	.....	.....	.....	.....	.....	.....	.....	94,203

[1] Same number reported for one or more other months.

[2] 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
Awnings, 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	1	Explosives	2	Instruments, professional and scientific	23
Card cutting and designing	6	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	2	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	14	Foundry supplies	1	Jewelry and instrument cases	10
Clothing, horse	2	Furs, dressed	1		
Clothing, men's, buttonholes	3	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	$2,572,977	$5,882,922	$210,110	$95,392	$1,448,058	$66,462	$3,613,393	$3,623	$17,801	.....	$428,083	$6,589,477	$2,000,622
2	12,477,388	12,287,791	309,396	206,677	3,854,828	174,846	6,796,760	28,717	95,280	$108,501	652,786	14,736,025	7,764,419
3	344,125	136,223	3,000	569	41,827	45,209	21,832	.....	3,780	.....	19,016	202,915	135,784
4	14,193,549	13,131,864	187,723	187,351	1,976,906	760,307	9,271,966	1,050	85,048	1,271	660,182	13,507,028	3,535,355
5	13,805,575	12,616,711	474,776	665,109	4,421,969	137,729	5,441,596	219,490	61,078	100,635	1,093,723	15,210,738	9,631,413
6	392,227	266,560	23,630	6,287	43,351	12,394	145,649	2,300	5,068	2,500	19,381	300,069	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	184,075	1,909,386	1,298,272
8	2,371,434	3,922,542	120,351	185,503	858,851	19,960	2,360,709	71,523	16,299	225	283,121	4,373,266	1,086,597
9	41,196,568	37,445,910	624,805	327,018	5,443,944	607,523	28,157,985	116,906	160,112	241,533	1,759,994	40,002,079	11,236,571
10	1,307,199	705,403	24,028	8,245	303,906	177,750	159,384	3,180	4,377	2,365	22,168	864,330	527,196
11	840,412	2,482,432	13,850	12,604	36,046	17,894	669,427	3,000	1,706,487	.....	23,124	2,755,323	2,068,002
12	20,288,248	10,104,802	431,724	202,596	1,480,638	208,593	3,294,807	100	2,108,049	33,124	2,075,231	12,723,730	9,130,330
13	17,551,637	20,208,965	491,891	303,339	5,030,561	117,346	12,366,779	178,726	169,526	413,593	1,137,204	23,025,837	10,541,712
14	6,993,409	6,726,901	220,835	137,426	3,551,794	225,409	1,966,983	56,326	55,829	191,777	320,522	7,804,387	5,611,995
15	909,220	1,985,448	72,322	59,527	336,216	17,208	1,280,224	62,994	6,865	.....	150,092	2,227,374	920,942
16	1,584,753	3,518,897	98,506	166,030	666,755	24,689	2,257,641	77,270	13,028	17,745	196,033	3,976,609	1,694,279
17	151,494	339,093	17,590	11,140	70,875	3,431	218,109	6,138	2,206	.....	9,604	404,877	183,337
18	300,017	444,905	16,475	10,070	238,881	8,101	111,277	23,675	1,269	722	34,435	624,510	505,132
19	108,359	214,205	10,265	7,002	80,872	2,810	81,956	10,182	592	3,702	16,824	259,781	175,015
20	11,632,136	8,309,051	337,738	262,015	2,667,970	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	29,598	12,816	117,764	12,573	1,197,947	2,700	4,942	.....	97,753	1,704,470	403,950
23	2,193,569	2,817,522	283,257	96,136	1,102,819	20,596	1,142,499	5,937	22,536	.....	143,742	3,058,018	1,804,023
24	2,195,084	3,028,327	133,439	152,962	250,962	47,837	2,026,827	31,283	21,145	.....	363,872	3,468,560	1,303,896
25	42,523,082	34,670,185	1,093,532	506,738	6,541,636	2,331,897	20,017,710	12,195	395,610	280,594	3,400,267	40,096,713	17,747,100
26	12,962,870	11,788,031	450,157	313,541	2,344,135	144,492	7,201,415	62,398	70,055	2,081	1,103,757	13,532,976	6,097,069
27	5,292,843	6,359,686	333,203	318,641	505,810	28,690	2,698,202	101,085	37,308	4,602	2,271,485	7,431,764	4,704,872
28	20,585	64,361	.....	1,800	17,024	602	30,107	1,230	45	.....	3,053	79,139	30,430
29	98,268	81,395	27,300	1,890	14,008	2,180	22,674	354	1,213	500	11,186	100,510	75,056
30	444,148	849,150	76,425	100,132	402,933	17,894	133,506	20,975	2,279	10,291	69,715	937,236	785,836
31	1,166,607	583,330	43,197	32,862	255,970	67,027	110,877	4,454	10,350	1,216	50,777	644,286	465,782
32	33,473,465	40,953,662	2,347,176	3,701,135	11,683,634	435,088	12,445,463	763,941	288,437	3,204,475	6,084,313	47,445,006	34,504,455
33	10,495,428	14,946,623	328,003	285,864	1,709,269	246,302	10,759,099	8,238	85,710	5,007	1,458,471	15,796,490	4,791,119
34	52,907	43,151	2,600	1,274	8,451	651	25,209	1,320	286	306	2,904	62,760	36,900
35	686,175	483,717	23,520	14,714	186,286	12,896	213,078	4,252	3,556	352	24,103	570,356	343,482
36	2,190,728	1,449,773	82,637	87,696	533,469	20,546	538,266	11,280	27,023	.....	148,856	1,548,271	980,459
37	1,518,773	1,608,530	64,031	24,665	202,252	51,814	1,141,587	4,436	12,597	669	106,479	1,765,609	572,208
38	41,583	117,870	2,124	1,848	32,833	1,121	61,816	2,860	268	1,500	13,500	133,138	70,201
39	185,545	320,537	16,661	29,057	85,992	2,920	147,586	7,634	794	9,695	20,198	375,070	225,164
40	7,800,736	8,337,701	106,004	94,705	1,840,247	82,802	5,346,989	17,330	42,362	504,326	302,936	8,942,246	3,512,395
41	6,818,066	5,515,765	154,015	228,300	1,725,234	39,090	2,688,603	13,590	40,444	114,540	511,943	6,538,736	3,811,043
42	15,547,180	42,124,655	144,337	343,683	1,837,166	231,950	38,654,189	56,095	106,718	.....	750,517	44,402,972	5,516,833
43	197,517	241,401	18,175	14,497	40,554	3,938	132,509	3,714	743	.....	27,271	281,502	145,115
44	244,447	374,941	18,400	20,788	182,628	14,766	88,478	16,226	2,431	.....	31,134	451,324	348,080
45	3,323,944	3,060,344	146,843	170,273	1,239,181	67,544	1,011,006	4,619	25,025	7,028	388,225	3,542,140	2,463,590
46	457,503	735,153	8,207	31,191	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	21,056	19,222	90,219	7,197	102,509	16,257	3,033	.....	20,343	308,232	198,526
49	2,778,730	2,000,125	70,898	112,061	488,977	11,320	1,060,555	23,909	13,889	8,932	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	137,133,023	4,017,019	4,075,810	24,434,356	4,230,178	84,809,614	649,571	1,065,142	957,399	12,833,934	154,642,157	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		

THIRTEENTH CENSUS OF THE UNITED STATES: 1910

DEPARTMENT OF COMMERCE AND LABOR

BULLETIN

BUREAU OF THE CENSUS
E. DANA DURAND, DIRECTOR

MANUFACTURES : MICHIGAN

STATISTICS OF MANUFACTURES FOR THE STATE, CITIES, AND INDUSTRIES

Prepared under the supervision of W. M. STEUART, Chief Statistician for Manufactures

INTRODUCTION.

This advance bulletin gives the statistics of manufactures for the state of Michigan for the calendar year 1909 as shown by the Thirteenth Census. It will be reprinted without change as a part of the Compendium of the Census for Michigan, and in the final reports of the Thirteenth Census.

The text summarizes the general results of the census inquiry, presenting a series of special tables in which the main facts printed in the general tables are given in convenient form for the state as a whole and for important industries. It also presents tables in which the statistics for the industries of the state as a whole and for a few important industries are classified by character of ownership, size of establishments, number of wage earners, and prevailing hours of labor, information which could not be presented in general tables for each industry without disclosing the facts for individual establishments.

At the end of the bulletin are two general tables.

Table I gives for 1909, 1904, and 1899 the number of establishments and of persons engaged in the industries, primary power, capital, salaries and wages, cost of materials, value of products, and value added by manufacture reported for all industries combined and for certain important industries (1) for the state as a whole and (2) for the cities of Detroit, Grand Rapids, and Saginaw. It also gives the same items for all industries combined for every city having in 1910 a population of over 10,000 but less than 50,000.

Table II gives statistics in detail for 1909 for the state and for a larger number of industries.

Scope of census: Factory industries.—Census statistics of manufactures are compiled primarily for the purpose of showing the absolute and relative magnitude of the different branches of industry covered and their growth or decline. Incidentally, the effort is made to present data throwing light upon character of organization, location of establishments, size of establishments, labor force, and similar subjects. When use is made of the data for these purposes, it is imperative that due attention should be given to the limitations of the figures. Particularly is this true when the attempt is made to derive from them figures purporting to show average wages, cost of production, or profits. These limitations will be fully discussed in the general report on manufactures for the United States as a whole. It is impossible to reproduce such discussion in the bulletins relative to the individual states.

The census of 1909, like that of 1904, was confined to manufacturing establishments conducted under the factory system, as distinguished from the neighborhood, hand, and building industries. Where statistics for 1899 are given they have been reduced to a comparable basis by eliminating the latter classes of industries. The census does not include establishments which were idle during the entire year, or had a value of products of less than $500, or the manufacturing done in educational, eleemosynary, and penal institutions, or in governmental establishments, except those of the Federal Government.

Period covered.—The returns cover the calendar year 1909, or the business year which corresponds most nearly to that calendar year. The statistics cover a year's operations, except for establishments which began or discontinued business during the year.

The establishment.—The term "establishment" comprises the factories, mills, or plants which are under a common ownership or control, and for which one set of books of account is kept.

If, however, the plants constituting an establishment as thus defined were not all located within the same city or state, separate reports were secured in order that the separate totals might be included in the statistics for each city or state. In some instances separate reports were secured for different industries carried on in the same establishment.

Classification by industries.—The establishments were assigned to the several classes of industries according to their products of chief value. The products reported for a given industry may thus, on the one hand, include minor products very different from those covered by the class designation, and, on the other hand, may not include the total product covered by this designation, because some part of this product may be made in establishments in which it is not the product of chief value.

Selected industries.—The general tables at the end of this bulletin give the principal facts separately for the industries of the state. A selection has been made of the leading industries of the state for more detailed consideration. Sometimes an industry of greater importance than some of those selected is omitted because it comprises so few establishments that these detailed presentations would reveal the operations of individual concerns.

Comparisons with previous censuses.—Owing to the changes in industrial conditions it is not always possible to classify establishments by industries in such a way as to permit accurate comparison with preceding censuses. Table I, giving comparable figures for 1909, 1904, and 1899, therefore, does not embrace all the industries shown for 1909 in Table II.

Influence of increased prices.—In considering changes in cost of materials, value of products, and value added by manufacture, account should be taken of the general increase in the prices of commodities during recent years. To the extent to which this factor has been influential the figures can not be taken as an exact measure of increase in the volume of business.

Persons engaged in industry.—At the censuses of 1909, 1904, and 1899 the following general classes of persons engaged in manufacturing industries have been distinguished: (1) Proprietors and firm members, (2) salaried officers of corporations, (3) superintendents and managers, (4) clerks, and (5) wage earners. In the censuses of 1904 and 1899 these five classes were shown according to the three main groups: (1) Proprietors and firm members, (2) salaried officials, clerks, etc., and (3) wage earners. The second group included the three classes of salaried officers of corporations, superintendents and managers, and clerks. In the present census an entirely different

grouping is employed: That into (1) proprietors and officials, (2) clerks, and (3) wage earners. The first group includes proprietors and firm members, salaried officers of corporations, and superintendents and managers.

At this census the number of persons engaged in the industries, segregated by sex, and, in the case of wage earners, also by age (whether under 16 or 16 and over), was reported for December 15, or the nearest representative day. The 15th of December was selected as representing for most industries normal conditions of employment, but where conditions were exceptional, and particularly in the case of certain seasonal industries, such as canning, the December date could not be accepted as typical and an earlier date had to be chosen.

In the case of employees other than wage earners the number thus reported on December 15, or other representative day, has been treated as equivalent to the average for the year, since the number of employees of this class does not vary much from month to month in a given industry. In the case of wage earners the average is obtained in the manner explained in the next paragraph.

Wage earners.—In addition to the report by sex and age of the number of wage earners on December 15, or other representative day, a report was obtained of the number employed on the 15th of each month, without distinction of sex or age. From these figures the average number of wage earners for the year has been calculated by dividing the sum of the numbers reported each month by 12. The average thus obtained represents the number of wage earners that would be required to perform the work done if all were constantly employed during the entire year. Accordingly, the importance of any industry as an employer of labor is believed to be more accurately measured by this average than by the number employed at any one time or on a given day.

The number of wage earners reported for the representative day, though given for each separate industry, is not totaled for all industries combined, because in view of the variations of date such a total is believed not to be significant. It would involve more or less duplication of persons working in different industries at different times, would not represent the total number employed in all industries at any one time, and would give an undue weight to seasonal industries as compared with industries in continual operation.

In particular, totals by sex and age for the wage earners reported for the representative day would be misleading because of the undue weight given to seasonal industries, in some of which, such as canning and preserving, the distribution of the wage earners by sex and age is materially different from that in most industries of more regular operation. In order to determine as nearly as possible the sex and age distribution of the average number of wage earners in the state as a whole, the following procedure has been adopted:

The percentage distribution by sex and age of the wage earners in each industry, for December 15, or the nearest representative day, has been calculated from the actual numbers reported for that date. This percentage has been applied to the average number of wage earners for the year in that industry, to determine the average number of men, women, and children employed. These calculated averages for the several industries have been added up to give the average distribution for the state as a whole.

In 1899 and 1904 the schedule called for the average number of wage earners of each sex 16 years and over, and the total number under 16 years of age, for each month, and these monthly statements were combined in an annual average. Comparatively few manufacturing concerns, however, keep their books in such way as to show readily the number of men, women, and children (under 16) employed each month. These monthly returns by sex and age were, in fact, largely estimates. It was believed that a more accurate and reliable sex and age distribution could be secured by taking as a basis of estimate the actual numbers employed on a single day.

Prevailing hours of labor.—The census made no attempt to ascertain the number of employees working a given number of hours per week. The inquiry called merely for the prevailing practice followed in each establishment. Occasional variations in hours in an establishment from one period to another are disregarded, and no attention is given to the fact that a limited number of employees may have hours differing from those of the majority. In the tables all the wage earners of each establishment are counted in the class within which the establishment itself falls. In most establishments, however, all or practically all the employees work the same number of hours, so that these figures give a substantially correct picture of the hours of labor in manufacturing industries.

Capital.—For reasons stated in prior census reports, the statistics of capital secured by the census canvass are so defective as to be without value, except as indicating very general conditions. The instructions on the schedule for securing capital were as follows:

The answer should show the total amount of capital, both owned and borrowed, on the last day of the business year reported. All the items of fixed and live capital may be taken at the amounts carried on the books. If land or buildings are rented, that fact should be stated and no value given. If a part of the land or buildings is owned, the remainder being rented, that fact should be so stated and only the value of the owned property given. Do not include securities and loans representing investments in other enterprises.

Materials.—Cost of materials refers to the materials used during the year, which may be more or less than the materials purchased during the year. The term materials includes fuel, rent of power and heat, mill supplies, and containers, as well as materials forming a constituent part of the product. Fuel includes all fuel used, whether for heat, light, or power, or for the process of manufacture.

Expenses.—Under "Expenses" are included all items of expense incident to the year's business, except interest, whether on bonds or other forms of indebtedness, and allowances for depreciation.

Value of products.—The value of products for any industry includes the total value of all products manufactured in establishments whose products of chief value fall under the industry designation. The amounts given represent the selling value at the factory of all products manufactured during the year, which may differ from the value of the products sold. Amounts received for work on materials furnished by others are included.

Value added by manufacture.—The value of products is not a satisfactory measure of either the absolute or the relative importance of a given industry, because only a part of this value is actually created by the manufacturing process carried on in the industry itself. Another part of it, and often by far the larger part, represents the value of the materials used, which have been produced by agriculture or mining or by other industrial establishments. For many purposes, therefore, the best measure of the importance of different classes of industry is the value created as the result of the manufacturing operations carried on within the industry. This value is obtained by deducting the cost of the materials consumed from the value of the product. The figure thus obtained is termed in the census reports "value added by manufacture."

There is a further statistical advantage which "value added" has over gross value of products. In combining the value of products for all industries the value of products produced by one establishment and used as materials in another is duplicated, and the total, therefore, gives a greatly exaggerated idea of the wealth created. No such duplication takes place in the total "value added by manufacture."

Cost of manufacture and profits.—Census data do not show the entire cost of manufacture, and consequently can not be used to show profits. No account has been taken of interest and depreciation. Even if the amount of profit could be determined by deducting the expenses from the value of the products, the rate of profit on the investment could not properly be calculated, because of the very defective character of the returns regarding capital.

Primary power.—The figures given for this item show the total of the primary power used by the establishments. They do not cover the power developed by motors operated by such power, the inclusion of which would evidently result in duplication.

Location of establishments.—The Census Bureau has classified establishments by their location in cities or classes of cities. In interpreting these figures due consideration should be given to the fact that often establishments are located just outside the bound-

aries of cities, and are necessarily so classified, though locally they are looked upon as constituting a part of the manufacturing interests of the cities.

Laundries.—The census of 1909 was the first to include statistics of laundries. The reports are confined to establishments using mechanical power. The data are presented separately and are not included in the general total for manufacturing industries, in order to avoid interference with comparisons with prior censuses.

Custom sawmills and gristmills.—In order to make the statistics for 1909 comparable with those for 1904, the data for these mills have been excluded from all the tables presenting general statistics, and are given in a separate table at the end of this report.

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 12.) 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.[1] 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

[1] Statistics of Railways in the United States, Interstate Commerce Commission, 1909.

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	(1)	35.4	(1)
Proprietors and firm members	8,965	7,732	(1)	15.9	(1)
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

[1] Figures not available.

The relative importance and growth of the leading manufacturing industries of the state are shown in the table on page 5.

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 34.

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.[1]			
		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	9,159	231,499	100.0	$685,109,000	100.0	$316,497,000	100.0	59.7	34.2	59.0	38.5
Automobiles, including bodies and parts	113	25,444	11.0	96,651,000	14.1	42,769,000	13.5	1,108.6	.....	839.2	.....
Lumber and timber products	1,180	35,627	15.4	61,514,000	9.0	32,472,000	10.3	7.5	—16.7	—(2)	—11.2
Foundry and machine-shop products	654	21,649	9.4	45,399,000	6.6	26,688,000	8.4	44.4	23.6	53.8	16.6
Flour-mill and gristmill products	520	1,530	0.7	34,861,000	5.1	5,502,000	1.7	31.5	22.5	77.6	—4.3
Furniture and refrigerators	202	16,610	7.2	28,642,000	4.2	16,924,000	5.4	39.7	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	43.9	37.8
Tobacco manufactures	720	7,876	3.4	16,170,000	2.4	8,971,000	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	56.9
Butter, cheese, and condensed milk	435	1,073	0.5	14,287,000	2.1	1,910,000	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	13,890,000	2.0	4,807,000	1.6	.....	.....	.....	.....
Patent medicines and compounds and druggists' preparations	159	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	143.3	24.0
Chemicals	30	3,174	1.4	12,890,000	1.9	7,818,000	2.5	42.6	69.7	68.7	75.8
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	73.6	35.2	76.9
Beet sugar	11	1,460	0.6	10,477,000	1.5	4,249,000	1.3	94.8	235.7	162.8	228.7
Carriages and wagons and materials	212	4,034	1.7	10,159,000	1.5	4,807,000	1.6	—31.8	15.5	—24.1	20.8
Liquors, malt	79	1,527	0.7	9,840,000	1.4	7,410,000	2.3	40.6	32.1	39.8	29.1
Agricultural implements	32	2,359	1.0	9,273,000	1.4	6,383,000	2.0	6.3	37.5	22.2	35.4
Stoves and furnaces, including gas and oil stoves	33	4,482	1.9	9,123,000	1.3	6,307,000	2.0	13.7	.....	10.2	.....
Paint and varnish	20	1,024	0.4	7,416,000	1.1	3,384,000	1.1	24.5	75.9	33.0	79.3
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	23.9	41.6	25.2
Gas, illuminating and heating	55	1,771	0.8	6,748,000	1.0	4,619,000	1.5	74.5	102.5	68.2	133.7
Clothing, men's, including shirts	40	3,580	1.5	6,532,000	1.0	3,143,000	1.0	55.4	2.6	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	1,830,000	0.6	52.8	107.7	25.2	107.5
Boots and shoes, including cut stock and findings	23	2,455	1.1	5,256,000	0.8	1,900,000	0.6	48.9	84.4	26.0	101.7
Shipbuilding, including boat building	91	2,344	1.0	5,034,000	0.7	2,544,000	0.8	60.3	—32.9	34.3	—15.2
Canning and preserving	104	2,073	0.9	4,971,000	0.7	1,897,000	0.6	30.2	43.7	31.5	72.6
Copper, tin, and sheet-iron products	152	2,386	1.0	4,929,000	0.7	2,384,000	0.8	70.6	177.0	59.7	234.0
Corsets	14	2,461	1.1	4,308,000	0.6	2,491,000	0.8	121.2	16.0	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	4,020,000	0.6	1,982,000	0.6	11.2	20.8	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	1,363	0.6	3,653,000	0.5	2,010,000	0.6	51.9	—2.3	65.6	—11.1
Clothing, women's	52	2,104	0.9	3,587,000	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	1,598,000	0.5	167.2	.....	211.5	.....
Confectionery	56	1,052	0.5	2,944,000	0.4	1,147,000	0.4	73.3	25.4	72.2	18.9
Cement	13	1,300	0.6	2,915,000	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	—24.6
Boxes, fancy and paper	19	1,320	0.6	2,653,000	0.4	1,035,000	0.3	100.6	155.0	114.7	123.1
Leather goods	57	834	0.4	2,560,000	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	76.9	26.1
Brick and tile	124	1,565	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	1,866,000	0.3	1,070,000	0.3	60.2	709.4	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	63.5
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	32.6	26.5
Wall plaster	16	746	0.3	1,421,000	0.2	1,009,000	0.3	68.8	.....	118.4	.....
Springs, steel, car and carriage	5	588	0.3	1,308,000	0.2	750,000	0.2	141.8	—7.4	189.6	—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	28.6	95.0
Window shades and fixtures	7	636	0.3	1,296,000	0.2	489,000	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	430	0.2	1,085,000	0.2	592,000	0.2	—11.4	54.9	—15.4	63.6
Artificial stone	191	514	0.2	908,000	0.1	559,000	0.2	663.0	.....	635.5	.....
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	228	0.1	524,000	0.1	295,000	0.1	103.1	226.6	52.8	278.4
Oil, essential	23	54	(2)	486,000	0.1	71,000	(2)	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	.....	.....	.....	.....

[1] Percentages are based on figures in Table I, and a minus sign (—) denotes decrease. Where the percentages are omitted, comparable figures can not be given.
[2] 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 25. 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 25. 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 largely increased, 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 above 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 i 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	16,996	16,434	562
Proprietors and firm members	8,965	8,564	401
Salaried officers of corporations	3,089	3,026	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 34.

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.

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	13.6	83.2
Boots and shoes, including cut stock and findings	2,703	2.1	7.0	90.8
Brass and bronze products	5,211	3.2	5.3	91.6
Bread and other bakery products	3,984	24.7	9.1	66.2
Butter, cheese, and condensed milk	1,740	30.9	7.5	61.7
Carriages 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	9.9	58.3
Food preparations	1,072	5.6	16.4	77.9
Foundry and machine-shop products	25,334	5.9	8.7	85.5
Furniture and refrigerators	18,209	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	93.9
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	4,581	2.2	3.4	94.5
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	9.6	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	89.2
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 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.	WAGE EARNERS.			
	Average number.[1]	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	[2]
Beet sugar	1,460	99.7	0.3	.....
Boots and shoes, including cut stock and findings	2,455	58.5	35.1	6.4
Brass and bronze products	4,771	93.7	3.1	3.2
Bread and other bakery products	2,637	80.0	18.2	1.8
Butter, cheese, and condensed milk	1,073	90.7	9.1	0.2
Carriages 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	99.8	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	98.8	0.9	0.3
Food preparations	1,303	62.8	37.2	.....
Foundry and machine-shop products	21,649	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	99.9	0.1	.....
Leather, tanned, curried, and finished	2,291	98.8	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	25.1	1.4
Shipbuilding, including boat building	2,344	99.7	0.3	.....
Slaughtering and meat packing	902	96.3	3.0	0.7
Stoves and furnaces, including gas and oil stoves	4,482	98.1	0.1	1.8
Tobacco manufactures	7,870	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

[1] For method of estimating the distribution, by sex and age periods, of the average number in all industries combined, see Introduction.
[2] 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	271,071	100.0	200,196	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	175,220	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 aver-

ages 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	231,499	100.0	175,229	100.0	155,800	100.0
16 years of age and over	228,982	98.9	171,946	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. In Table II, page 34, are 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.		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	223,087	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	878	20.1	239,432	97.2
October	241,912	96.7	4,050	92.6	237,862	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

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 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	**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	.....	.....	.....
Beet sugar	1,460	.....	.....	.....	.....	.....	.....	.....	1,460
Boots and shoes, including cut stock and findings	2,455	6	11	1,074	572	102	.....	.....	.....
Boxes, fancy and paper	1,326	.....	12	409	470	345	.....	.....	.....
Brass and bronze products	4,771	.....	35	102	2,332	2,302	.....	.....	.....
Bread and other bakery products	2,637	128	120	702	195	1,211	201	52	28
Brick and tile	1,565	378	66	130	2	989	.....	.....	.....
Butter, cheese, and condensed milk	1,073	145	13	27	44	750	68	25	1
Canning and preserving	2,073	6	.....	58	373	1,580	15	27	5
Carriages and wagons and materials	4,034	56	.....	53	2,105	1,821	.....	.....	.....
Cars and general shop construction and repairs by steam-railroad companies	5,401	.....	642	1,460	1,905	1,276	118	.....	.....
Cars and general shop construction and repairs by street-railroad companies	574	.....	.....	360	19	190	2	.....	3
Cement	1,306	.....	.....	.....	.....	38	294	.....	974
Chemicals	3,174	.....	.....	2	1,426	35	174	96	1,441
Clothing, men's, including shirts	3,580	2,224	79	809	429	39	.....	.....	.....
Clothing, women's	2,194	114	823	1,161	48	48	.....	.....	.....
Coffins, burial cases, and undertakers' goods	439	2	.....	56	151	230	.....	.....	.....
Confectionery	1,052	39	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	299	123	.....	.....	.....
Cutlery and tools, not elsewhere specified	608	.....	.....	4	259	405	.....	.....	.....
Electrical machinery, apparatus, and supplies	1,218	4	26	236	310	642	.....	.....	.....
Fancy articles, not elsewhere specified	1,147	3	6	104	1,031	3	.....	.....	.....
Flour-mill and gristmill products	1,530	115	33	11	10	1,219	85	57	.....
Food preparations	1,303	5	17	34	127	834	.....	279	7
Foundry and machine-shop products	21,040	160	108	3,930	9,335	8,096	14	.....	.....
Fur goods	619	.....	37	383	133	66	.....	.....	.....
Furniture and refrigerators	16,610	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	756	666	.....	.....	.....
Iron and steel, blast furnaces	1,016	.....	.....	.....	.....	.....	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	2,291	.....	.....	.....	519	1,772	.....	.....	.....
Liquors, malt	1,527	605	8	378	.....	423	.....	113	.....
Lumber and timber products	35,627	341	203	721	1,762	32,413	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	1,770	.....	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	7,219	2,718	833	2,334	833	500	1	.....	.....
Salt	1,303	15	.....	99	9	1,173	9	4	54
Scales and balances	228	.....	.....	.....	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	2,509	1,173	1,854	1,981	356	3	.....	.....
Wall plaster	746	.....	.....	38	1	648	.....	59	.....
Window shades and fixtures	636	24	.....	68	281	263	.....	.....	.....
Wirework, including wire rope and cable	909	.....	21	232	259	397	.....	.....	.....
Wood distillation, not including turpentine and rosin	806	.....	.....	.....	6	345	88	.....	367
Wood, turned and carved	1,137	10	18	20	36	1,053	.....	.....	.....
Woolen, worsted, and felt goods, and wool hats	554	.....	.....	25	51	478	.....	.....	.....
All other industries	21,562	588	484	5,595	5,294	9,416	52	37	96

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.	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.	Number or amount.	Per cent 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	4,500	49.1	815	8.9	1,125	12.3	2,560	27.9	4,659	50.9
	1899	7,310	2,892	39.6	773	10.6	860	11.8	1,259	17.2	4,418	60.4
Average number of wage earners	1909	231,499	157,325	68.0	20,380	8.8	38,344	16.6	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	$685,109,109	$469,603,103	68.5	$52,485,164	7.6	$121,895,141	17.8	$295,222,798	43.1	$215,506,006	31.5
	1899	319,601,856	178,124,393	55.7	43,156,684	13.5	46,601,785	14.6	88,365,924	27.6	141,537,463	44.3
Value added by manufacture	1909	316,497,147	227,482,140	71.9	23,887,087	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	87,565	Escanaba	13,194	9,549
Saginaw	50,510	42,345	Ironwood	12,821	9,705
Bay City	45,166	[1] 40,747	Alpena	12,706	11,802
Kalamazoo	39,437	24,404	Sault Ste. Marie	12,615	10,538
Flint	38,550	13,103	Ishpeming	12,448	13,255
Jackson	31,433	25,180	Manistee	12,381	14,260
Lansing	31,229	16,485	Traverse City	12,115	9,407
Battle Creek	25,267	18,563	Marquette	11,503	10,058
Muskegon	24,062	20,818	Adrian	10,763	9,654
Port Huron	18,863	19,158	Menominee	10,507	12,818
Ann Arbor	14,817	14,509	Holland	10,490	7,790

[1] 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 [1]	81,011	48,483	38,373	$252,992,123	$128,246,680	$88,365,924
Grand Rapids [1]	17,590	15,514	12,929	42,230,675	30,089,987	22,228,487
Flint	7,088	2,161	1,960	24,118,007	6,177,170	4,713,044
Battle Creek	4,175	3,380	2,051	20,174,016	12,298,244	6,301,000
Saginaw [1]	5,900	4,445	4,205	18,833,047	10,078,508	8,052,978
Kalamazoo	6,272	5,666	3,870	17,903,560	13,141,767	7,180,368
Lansing	5,285	2,982	1,425	16,567,093	6,887,415	2,942,306
Jackson	4,797	3,967	3,715	14,005,671	8,348,125	6,709,995
Bay City [2]	4,737	4,456	4,309	10,203,747	8,808,559	9,010,325
Muskegon	4,522	3,078	3,078	9,647,823	6,319,441	4,527,467
Adrian	1,059	1,502	1,030	6,085,126	4,807,426	2,124,023
Pontiac	1,730	1,206	1,092	5,803,961	3,047,422	2,470,887
Holland	1,940	[3]	[3]	4,022,265	[3]	[3]
Sault Ste. Marie	1,005	895	317	4,018,715	2,412,481	728,169
Alpena	1,432	1,245	1,202	3,903,823	2,905,303	2,273,343
Menominee	1,700	1,489	1,703	3,727,596	2,073,935	4,075,825
Port Huron [1]	1,580	2,136	2,026	3,588,272	3,714,859	3,626,816
Manistee	2,125	2,084	2,103	3,344,087	3,256,601	3,625,317
Traverse City	1,220	1,108	909	2,289,150	2,176,903	1,201,318
Ann Arbor	573	549	623	1,805,894	1,385,731	1,377,278
Marquette	498	738	836	1,254,553	2,364,081	1,585,083
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	104,668

[1] 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.
[2] In 1904 and 1899 the statistics for West Bay City, which was annexed to Bay City in 1905, are included.
[3] 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 26, 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.[1]

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

[1] These industries were as follows:

Cars and general shop construction and repairs by street-railroad companies.
Cars, steam-railroad, not including operations of railroad companies.
Cash registers and calculating machines.
Chemicals.
Gas, illuminating and heating.
Iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills.
Leather, tanned, curried, and finished.
Matches.
Paint and varnish.
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 manufactured 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.
ALL INDUSTRIES:				
1909	9,159	231,499	$685,109,169	$316,497,147
1904	7,446	175,229	429,120,060	190,039,129
Individual:				
1909	4,567	20,564	57,652,930	25,700,157
1904	3,602	20,527	47,121,641	22,032,918
Firm:				
1909	1,809	17,252	51,758,822	22,763,304
1904	1,724	22,589	52,523,806	23,557,908
Corporation:				
1909	2,638	193,139	571,102,107	267,060,506
1904	2,044	131,894	328,185,756	153,159,910
Other:				
1909	145	544	4,595,310	973,180
1904	76	219	1,288,857	288,393
Per cent of total:				
1909	100.0	100.0	100.0	100.0
1904	100.0	100.0	100.0	100.0
Individual:				
1909	49.9	8.9	8.4	8.1
1904	48.4	11.7	11.0	11.1
Firm:				
1909	19.8	7.5	7.6	7.2
1904	23.2	12.9	12.2	11.8
Corporation:				
1909	28.8	83.4	83.4	84.4
1904	27.4	75.3	76.5	76.9
Other:				
1909	1.6	0.2	0.7	0.3
1904	1.0	0.1	0.3	0.1
Agricultural implements, 1909	32	2,359	$9,272,787	$6,382,634
Individual	8	45	172,670	78,872
Firm	6	21	52,704	32,206
Corporation	18	2,293	9,047,413	6,271,556
Per cent of total	100.0	100.0	100.0	100.0
Individual	25.0	1.9	1.9	1.2
Firm	18.8	0.9	0.6	0.5
Corporation	56.2	97.2	97.6	98.3
Automobiles, including bodies and parts, 1909	113	25,444	$96,651,451	$42,769,039
Individual	10	71	172,570	92,321
Firm	9	515	1,701,035	887,940
Corporation	94	24,858	94,777,846	41,788,769
Per cent of total	100.0	100.0	100.0	100.0
Individual	8.8	0.3	0.2	0.2
Firm	8.0	2.0	1.8	2.1
Corporation	83.2	97.7	98.1	97.7
Bread and other bakery products, 1909	816	2,637	$11,082,213	$4,411,614
Individual	686	1,398	5,800,674	2,289,262
Firm	106	343	1,596,903	607,758
Corporation	24	896	3,684,576	1,514,594
Per cent of total	100.0	100.0	100.0	100.0
Individual	84.1	53.0	52.4	51.9
Firm	13.0	13.0	14.4	13.8
Corporation	2.9	34.0	33.2	34.3
Butter, cheese, and condensed milk, 1909	435	1,073	$14,287,499	$1,910,697
Individual	131	189	2,986,902	374,495
Firm	84	157	2,512,295	335,324
Corporation	118	518	5,531,195	888,520
Other	102	209	3,257,107	312,358
Per cent of total	100.0	100.0	100.0	100.0
Individual	30.1	17.6	20.9	19.6
Firm	19.3	14.6	17.6	17.5
Corporation	27.1	48.3	38.7	46.5
Other	23.4	19.5	22.8	16.3
Carriages and wagons and materials, 1909	212	4,034	$10,158,883	$4,896,627
Individual	124	348	714,140	437,434
Firm	52	514	635,267	546,982
Corporation	36	3,172	8,809,476	3,912,211
Per cent of total	100.0	100.0	100.0	100.0
Individual	58.5	8.6	7.0	8.9
Firm	24.5	12.7	9.2	11.2
Corporation	17.0	78.6	83.8	79.9
Chemicals, 1909	36	3,174	$12,890,206	$7,817,825
Individual	19	20	46,873	35,420
Firm	3	5	6,456	4,064
Corporation	14	3,149	12,836,877	7,778,341
Per cent of total	100.0	100.0	100.0	100.0
Individual	52.8	0.6	0.4	0.5
Firm	8.3	0.2	(1)	0.1
Corporation	38.9	99.2	99.6	99.5
Clothing, men's, including shirts, 1909	40	3,580	$6,532,331	$3,143,805
Individual	11	290	381,319	221,006
Firm	14	459	1,113,636	495,157
Corporation	15	2,831	5,037,376	2,427,582
Per cent of total	100.0	100.0	100.0	100.0
Individual	27.5	8.1	5.8	7.0
Firm	35.0	12.8	17.0	15.7
Corporation	37.5	79.1	77.1	77.2
Flour-mill and gristmill products, 1909	520	1,530	$34,860,803	$5,501,392
Individual	250	454	10,277,037	1,664,004
Firm	178	348	7,736,684	1,357,486
Corporation [2]	92	728	16,847,182	2,479,902
Per cent of total	100.0	100.0	100.0	100.0
Individual	48.1	29.7	29.5	30.2
Firm	34.2	22.7	22.2	24.7
Corporation [2]	17.7	47.6	48.3	45.1
Foundry and machine-shop products, 1909	654	21,649	$45,399,023	$26,088,471
Individual	200	1,501	3,000,602	1,749,351
Firm	128	1,270	2,831,102	1,744,315
Corporation	326	18,878	39,567,319	23,194,805
Per cent of total	100.0	100.0	100.0	100.0
Individual	30.6	6.9	6.6	6.6
Firm	19.6	5.9	6.2	6.5
Corporation	49.8	87.2	87.2	86.9

[1] Less than one-tenth of 1 per cent.

[2] 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.
Furniture and refrigerators, 1909	202	16,610	$28,641,684	$16,923,456
Individual	38	537	928,794	561,947
Firm	27	593	997,904	556,990
Corporation	137	15,480	26,714,986	15,804,559
Per cent of total	100.0	100.0	100.0	100.0
Individual	18.8	3.2	3.2	3.3
Firm	13.4	3.6	3.5	3.3
Corporation	67.8	93.2	93.3	93.4
Liquors, malt, 1909	79	1,527	$9,840,108	$7,419,069
Individual	12	55	317,671	229,728
Firm	13	151	1,212,617	947,968
Corporation	54	1,321	8,309,820	6,241,373
Per cent of total	100.0	100.0	100.0	100.0
Individual	15.2	3.6	3.2	3.1
Firm	16.5	9.9	12.3	12.8
Corporation	68.4	86.5	84.4	84.1
Lumber and timber products, 1909	1,180	35,627	$61,513,560	$32,471,018
Individual	580	5,570	9,868,776	5,103,708
Firm	311	5,682	9,696,787	5,145,065
Corporation	289	24,375	41,947,997	22,223,145
Per cent of total	100.0	100.0	100.0	100.0
Individual	49.2	15.6	16.0	15.7
Firm	26.4	15.9	15.8	15.8
Corporation	24.5	68.4	68.2	68.4
Printing and publishing, 1909	1,045	7,219	$17,348,341	$12,413,815
Individual	598	1,805	3,108,604	2,405,030
Firm	177	734	1,407,300	985,368
Corporation	233	4,608	12,469,990	8,786,143
Other	37	72	272,357	236,374
Per cent of total	100.0	100.0	100.0	100.0
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
Shipbuilding, including boat building, 1909	91	2,344	$5,033,836	$2,544,064
Individual	59	422	446,136	261,150
Firm	19	166	360,539	210,042
Corporation	13	1,756	4,227,161	2,072,872
Per cent of total	100.0	100.0	100.0	100.0
Individual	64.8	18.0	8.9	10.3
Firm	20.9	7.1	7.2	8.3
Corporation	14.3	74.9	84.0	81.5
Slaughtering and meat packing, 1909	45	902	$13,435,114	$1,769,289
Individual	26	103	1,199,986	242,016
Firm	12	72	1,171,597	198,940
Corporation	7	727	11,063,531	1,328,333
Per cent of total	100.0	100.0	100.0	100.0
Individual	57.8	11.4	8.9	13.7
Firm	26.7	8.0	8.7	11.2
Corporation	15.6	80.6	82.3	75.1
Stoves and furnaces, including gas and oil stoves, 1909	33	4,482	$9,122,873	$6,306,633
Individual	5	21	41,163	26,018
Corporation [1]	28	4,461	9,081,710	6,280,615
Per cent of total	100.0	100.0	100.0	100.0
Individual	15.2	0.5	0.5	0.4
Corporation [1]	84.8	99.5	99.5	99.6
Tobacco manufactures, 1909	729	7,876	$16,178,533	$8,970,598
Individual	605	1,925	3,338,052	2,087,942
Firm	91	794	1,502,697	814,584
Corporation	33	5,157	11,337,784	6,068,072
Per cent of total	100.0	100.0	100.0	100.0
Individual	83.0	24.4	20.6	23.3
Firm	12.5	10.1	9.3	9.1
Corporation	4.5	65.5	70.1	67.6

[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.
ALL INDUSTRIES:				
1909	9,159	231,499	$685,109,169	$316,497,147
1904	7,446	175,229	429,120,060	199,039,129
Less than $5,000:				
1909	3,372	3,906	7,821,328	4,914,568
1904	2,634	3,791	6,522,567	4,054,535
$5,000 and less than $20,000:				
1909	2,665	12,382	27,383,330	14,559,126
1904	2,281	12,581	24,062,938	12,787,421
$20,000 and less than $100,000:				
1909	1,999	35,706	90,330,115	41,918,104
1904	1,683	37,031	75,963,984	37,856,018
$100,000 and less than $1,000,000:				
1909	1,035	123,279	301,233,300	146,842,096
1904	807	100,354	222,432,102	106,962,893
$1,000,000 and over:				
1909	88	56,226	258,341,000	108,263,253
1904	41	21,472	100,138,469	37,377,662
Per cent of total:				
1909	100.0	100.0	100.0	100.0
1904	100.0	100.0	100.0	100.0
Less than $5,000:				
1909	36.8	1.7	1.1	1.6
1904	35.4	2.2	1.5	2.0
$5,000 and less than $20,000:				
1909	29.1	5.3	4.0	4.6
1904	30.6	7.2	5.6	6.4
$20,000 and less than $100,000:				
1909	21.8	15.4	13.2	13.2
1904	22.6	21.1	17.7	19.0
$100,000 and less than $1,000,000:				
1909	11.3	53.3	44.0	46.4
1904	10.8	57.3	51.8	53.7
$1,000,000 and over:				
1909	1.0	24.3	37.7	34.2
1904	0.6	12.3	23.3	18.8
Average per establishment:				
1909	.....	25	$74,802	$34,556
1904	.....	24	$57,631	$26,731
Agricultural implements, 1909	32	2,359	$9,272,787	$6,382,634
Less than $5,000	6	5	14,397	9,519
$5,000 and less than $20,000	10	59	104,443	62,118
$20,000 and less than $100,000	6	171	369,672	209,509
$100,000 and less than $1,000,000	7	1,113	2,511,628	1,529,746
$1,000,000 and over	3	1,011	6,272,647	4,571,742
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	18.8	0.2	0.2	0.1
$5,000 and less than $20,000	31.2	2.5	1.1	1.0
$20,000 and less than $100,000	18.8	7.2	4.0	3.3
$100,000 and less than $1,000,000	21.9	47.2	27.1	24.0
$1,000,000 and over	9.4	42.9	67.6	71.6
Average per establishment	.....	74	$289,775	$199,457
Automobiles, including bodies and parts, 1909	113	25,444	$96,651,451	$42,769,030
Less than $5,000	7	14	20,062	13,543
$5,000 and less than $20,000	14	78	149,312	51,043
$20,000 and less than $100,000	35	777	1,543,355	786,166
$100,000 and less than $1,000,000	41	6,005	16,527,352	8,492,259
$1,000,000 and over	16	18,570	78,411,370	33,426,019
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	6.2	0.1	(1)	(1)
$5,000 and less than $20,000	12.4	0.3	0.2	0.1
$20,000 and less than $100,000	31.0	3.1	1.6	1.8
$100,000 and less than $1,000,000	36.3	23.6	17.1	19.9
$1,000,000 and over	14.2	73.0	81.1	78.2
Average per establishment	.....	225	$855,23	$378,487
Bread and other bakery products, 1909	816	2,637	$11,082,213	$4,411,614
Less than $5,000	363	196	985,510	411,949
$5,000 and less than $20,000	359	811	3,356,822	1,340,055
$20,000 and less than $100,000	81	918	3,243,868	1,226,672
$100,000 and less than $1,000,000	13	712	3,496,013	1,432,938
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	44.5	7.4	8.9	9.3
$5,000 and less than $20,000	44.0	30.8	30.3	30.4
$20,000 and less than $100,000	9.9	34.8	29.3	27.8
$100,000 and less than $1,000,000	1.6	27.0	31.5	32.5
Average per establishment	.....	3	$13,581	$5,406
Butter, cheese, and condensed milk, 1909	435	1,073	$14,287,499	$1,910,697
Less than $5,000	34	14	102,343	16,527
$5,000 and less than $20,000	166	162	2,054,246	296,219
$20,000 and less than $100,000	218	584	8,590,081	1,063,711
$100,000 and less than $1,000,000	17	313	3,540,829	534,240
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	7.8	1.3	0.7	0.9
$5,000 and less than $20,000	38.2	15.1	14.4	15.5
$20,000 and less than $100,000	50.1	54.4	60.1	55.7
$100,000 and less than $1,000,000	3.9	29.2	24.8	28.0
Average per establishment	.....	2	$32,845	$4,392
Carriages and wagons and materials, 1909	212	4,034	$10,168,883	$4,896,627
Less than $5,000	106	122	257,940	168,562
$5,000 and less than $20,000	65	310	611,977	394,561
$20,000 and less than $100,000	19	415	931,216	445,362
$100,000 and less than $1,000,000 [2]	22	3,187	8,357,750	3,888,142
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	50.0	3.0	2.5	3.4
$5,000 and less than $20,000	30.7	7.7	6.0	8.1
$20,000 and less than $100,000	9.0	10.3	9.2	9.1
$100,000 and less than $1,000,000 [2]	10.4	79.0	82.3	79.4
Average per establishment	.....	19	$47,919	$23,097
Chemicals, 1909	36	3,174	$12,890,206	$7,817,825
Less than $5,000	20	16	30,830	26,160
$5,000 and less than $20,000	5	10	30,876	18,111
$100,000 and less than $1,000,000 [3]	8	652	2,460,303	1,425,901
$1,000,000 and over	3	2,496	10,362,197	6,347,653
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	55.6	0.5	0.3	0.3
$5,000 and less than $20,000	13.9	0.3	0.2	0.2
$100,000 and less than $1,000,000 [3]	22.2	20.5	19.1	18.2
$1,000,000 and over	8.3	78.6	80.4	81.2
Average per establishment	.....	88	$358,061	$217,162
Clothing, men's, including shirts, 1909	40	3,580	$6,532,331	$3,143,805
$5,000 and less than $20,000 [4]	10	72	97,877	53,858
$20,000 and less than $100,000	17	418	858,022	421,480
$100,000 and less than $1,000,000 [2]	13	3,090	5,575,532	2,668,467
Per cent of total	100.0	100.0	100.0	100.0
$5,000 and less than $20,000 [4]	25.0	2.0	1.5	1.7
$20,000 and less than $100,000	42.5	11.7	13.1	13.4
$100,000 and less than $1,000,000 [2]	32.5	86.3	85.4	84.9
Average per establishment	.....	90	$163,308	$78,595
Flour-mill and gristmill products, 1909	520	1,530	$34,860,803	$5,501,392
Less than $5,000	39	20	109,062	17,008
$5,000 and less than $20,000	103	151	1,084,811	359,102
$20,000 and less than $100,000	257	582	11,360,606	1,941,702
$100,000 and less than $1,000,000	56	502	12,321,120	1,868,704
$1,000,000 and over	5	275	9,975,604	1,316,310
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	7.5	1.3	0.3	0.3
$5,000 and less than $20,000	31.3	9.9	5.7	6.5
$20,000 and less than $100,000	49.4	38.0	32.6	35.3
$100,000 and less than $1,000,000	10.8	32.8	35.3	33.9
$1,000,000 and over	1.0	18.0	26.0	23.9
Average per establishment	.....	3	$67,040	$10,580
Foundry and machine-shop products, 1909	654	21,649	$45,399,023	$26,688,471
Less than $5,000	161	195	382,955	249,894
$5,000 and less than $20,000	188	1,072	2,027,684	1,344,589
$20,000 and less than $100,000	194	4,539	9,254,081	5,473,522
$100,000 and less than $1,000,000	106	13,034	27,717,048	15,853,890
$1,000,000 and over	5	2,809	6,017,255	3,746,576
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	24.6	0.9	0.8	1.0
$5,000 and less than $20,000	28.7	5.0	4.5	5.0
$20,000 and less than $100,000	29.7	21.0	20.4	20.5
$100,000 and less than $1,000,000	16.2	60.2	61.1	59.4
$1,000,000 and over	0.8	13.0	13.3	14.0
Average per establishment	.....	33	$69,417	$40,808
Furniture and refrigerators, 1909	202	16,610	$28,641,684	$16,923,456
Less than $5,000	24	40	66,023	42,502
$5,000 and less than $20,000	31	217	342,083	209,503
$20,000 and less than $100,000	67	2,659	3,960,245	2,303,083
$100,000 and less than $1,000,000 [2]	80	13,694	24,272,733	14,368,272
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	11.9	0.2	0.2	0.3
$5,000 and less than $20,000	15.3	1.3	1.2	1.2
$20,000 and less than $100,000	33.2	16.0	13.8	13.6
$100,000 and less than $1,000,000 [2]	39.6	82.4	84.7	84.9
Average per establishment	.....	82	$141,791	$83,779
Liquors, malt, 1909	79	1,527	$9,840,108	$7,419,069
Less than $5,000	4	5	7,108	4,010
$5,000 and less than $20,000	12	36	146,400	101,424
$20,000 and less than $100,000	31	306	1,564,052	1,137,869
$100,000 and less than $1,000,000 [2]	32	1,180	8,121,798	6,175,766
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	5.1	0.3	0.1	0.1
$5,000 and less than $20,000	15.2	2.4	1.5	1.4
$20,000 and less than $100,000	39.2	20.0	15.9	15.3
$100,000 and less than $1,000,000 [2]	40.5	77.3	82.5	83.2
Average per establishment	.....	19	$124,558	$93,912

[1] Less than one-tenth of 1 per cent.
[2] Includes the group "$1,000,000 and over."
[3] Includes the group "$20,000 and less than $100,000."
[4] 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.
Lumber and timber products, 1909	1,180	35,627	$61,513,560	$32,471,918
Less than $5,000	429	812	957,731	639,110
$5,000 and less than $20,000	332	2,554	3,515,249	2,114,914
$20,000 and less than $100,000	240	7,328	11,689,560	6,632,352
$100,000 and less than $1,000,000	167	23,351	41,219,996	21,361,365
$1,000,000 and over	3	1,582	4,131,024	1,724,177
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	36.4	2.3	1.6	2.0
$5,000 and less than $20,000	28.1	7.2	5.7	6.5
$20,000 and less than $100,000	21.1	20.6	19.0	20.4
$100,000 and less than $1,000,000	14.2	65.5	67.0	65.8
$1,000,000 and over	0.3	4.4	6.7	5.3
Average per establishment	.....	30	$52,130	$27,519
Printing and publishing, 1909	1,045	7,219	$17,348,341	$12,413,815
Less than $5,000	579	803	1,380,472	1,069,979
$5,000 and less than $20,000	316	1,577	2,898,592	2,189,911
$20,000 and less than $100,000	122	2,361	5,574,727	3,905,107
$100,000 and less than $1,000,000 [1]	28	2,478	7,494 550	5,188,818
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	55.4	11.1	8.0	8.6
$5,000 and less than $20,000	30.2	21.8	16.7	17.6
$20,000 and less than $100,000	11.7	32.7	32.1	31.9
$100,000 and less than $1,000,000 [1]	2.7	34.3	43.2	41.8
Average per establishment	.....	7	$16,601	$11,879
Shipbuilding, including boat building, 1909	91	2,344	$5,033,836	$2,544,004
Less than $5,000	52	38	102,145	64,735
$5,000 and less than $20,000	21	101	197,058	117,093
$20,000 and less than $100,000	9	385	373,579	233,320
$100,000 and less than $1,000,000 [1]	9	1,820	4,360,154	2,128,916
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	57.1	1.6	2.0	2.5
$5,000 and less than $20,000	23.1	4.3	3.9	4.6
$20,000 and less than $100,000	9.9	16.4	7.4	9.2
$100,000 and less than $1,000,000 [1]	9.9	77.6	86.6	83.7
Average per establishment	.....	26	$55,317	$27,957
Slaughtering and meat packing, 1909	45	902	$13,435,114	$1,769,289
Less than $5,000	7	5	19,165	6,915
$5,000 and less than $20,000	10	20	102,927	33,695
$20,000 and less than $100,000	18	94	862,649	153,145
$100,000 and less than $1,000,000	7	139	2,860,928	394,833
$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
$5,000 and less than $20,000	22.2	2.2	0.8	1.9
$20,000 and less than $100,000	40.0	10.4	6.4	10.9
$100,000 and less than $1,000,000	15.6	15.4	21.3	22.3
$1,000,000 and over	6.7	71.4	71.4	64.5
Average per establishment	.....	20	$298,558	$39,318
Stoves and furnaces, including gas and oil stoves, 1909	33	4,482	$9,122,873	$6,306,633
Less than $5,000	5	15	16,182	10,298
$5,000 and less than $20,000	8	29	97,841	53,308
$20,000 and less than $100,000	7	165	315,227	191,403
$100,000 and less than $1,000,000	9	1,026	2,334,121	1,526,226
$1,000,000 and over	4	3,247	6,359,502	4,525,398
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	15.2	0.3	0.2	0.2
$5,000 and less than $20,000	24.2	0.6	1.1	0.8
$20,000 and less than $100,000	21.2	3.7	3.5	3.0
$100,000 and less than $1,000,000	27.3	22.9	25.6	24.2
$1,000,000 and over	12.1	72.4	69.7	71.8
Average per establishment	.....	136	$276,451	$191,110
Tobacco manufactures, 1909	729	7,879	$16,178,533	$8,970,598
Less than $5,000	503	405	1,022,291	644,046
$5,000 and less than $20,000	167	935	1,545,615	985,201
$20,000 and less than $100,000	40	802	1,427,187	830,372
$100,000 and less than $1,000,000	16	3,240	5,439,038	2,993,482
$1,000,000 and over	3	2,308	6,743,502	3,517,497
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	69.0	5.1	6.3	7.2
$5,000 and less than $20,000	22.9	11.9	9.6	11.0
$20,000 and less than $100,000	5.5	11.3	8.8	9.3
$100,000 and less than $1,000,000	2.2	41.2	33.6	33.4
$1,000,000 and over	0.4	30.4	41.7	39.2
Average per establishment	.....	11	$22,193	$12,305

[1] 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.	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	**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	3	4	.....	1	.....
Boots and shoes, including cut stock and findings	23	.....	6	3	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	115	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	5	.....
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	1	.....	.....
Stoves and furnaces, including gas and oil stoves	33	.....	11	6	3	6	2	1	3	1
Tobacco manufactures	720	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 cut stock and findings	2,455	.....	20	25	67	459	611	276	997	.....
Brass and bronze products	4,771	.....	40	119	234	668	1,578	1,086	.....	1,046
Bread and other bakery products	2,637	.....	1,004	627	402	355	240	.....	.....	.....
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	6,260	2,744	2,988	.....
Furniture and refrigerators	16,610	.....	76	323	1,491	3,093	5,100	5,204	1,233	.....
Gas, illuminating and heating	1,771	.....	61	243	330	388	235	.....	514	.....
Iron and steel, blast furnaces	1,016	.....	.....	.....	75	304	284	263	.....	.....
Leather, tanned, curried, and finished	2,291	.....	.....	53	288	330	1,311	300	.....	.....
Liquors, malt	1,527	.....	66	487	510	219	245	.....	.....	.....
Lumber and timber products	35,627	.....	1,278	3,161	5,101	6,167	9,404	6,937	3,579	.....
Paint and varnish	1,024	.....	17	79	39	.....	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	7,219	.....	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	.....	58	56	149	.....	347	297	.....	.....
Stoves and furnaces, including gas and oil stoves	4,482	.....	30	68	112	410	361	255	2,243	1,003
Tobacco manufactures	7,870	.....	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	6,580

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	49.6
Beet sugar	100.0	.....	.....	.....	7.2	10.7	39.5	.....	42.6	.....
Boots and shoes, including cut 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	4.9	14.0	33.1	22.8	.....	21.9
Bread and other bakery products	100.0	.....	38.1	23.8	15.2	13.5	9.4	.....	.....	.....
Butter, cheese, and condensed milk	100.0	.....	56.6	24.9	8.4	10.2	.....	.....	.....	.....
Carriages and wagons and materials	100.0	.....	0.1	8.5	7.1	20.5	14.4	30.9	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	15.6	10.3	.....	68.3
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	17.6	9.0	.....	.....	.....	.....
Food preparations	100.0	.....	4.6	4.8	20.9	11.0	18.6	.....	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	18.6	30.7	31.9	7.4	.....
Gas, illuminating and heating	100.0	.....	3.4	13.7	18.6	21.9	13.3	.....	29.0	.....
Iron and steel, blast furnaces	100.0	.....	.....	.....	7.4	38.8	28.0	25.9	.....	.....
Leather, tanned, curried, and finished	100.0	.....	.....	2.3	12.6	14.8	57.2	13.1	.....	.....
Liquors, malt	100.0	.....	4.3	31.9	33.4	14.3	16.0	.....	.....	.....
Lumber and timber products	100.0	.....	3.6	8.9	14.3	17.2	26.4	19.5	10.0	.....
Paint and varnish	100.0	.....	1.7	7.7	3.8	.....	25.2	.....	61.6	.....
Paper and wood pulp	100.0	.....	.....	1.3	5.5	6.1	61.3	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	11.6	18.9	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	6.2	16.5	.....	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	.....	9.9	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.

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	4.6	10.7	73.0	11.7
Boots and shoes, including cut stock and findings	5.0	18.9	67.6	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	42.6	1.6
Chemicals	6.5	23.4	59.0	11.0
Clothing, men's, including shirts	6.9	21.5	59.6	12.0
Flour-mill and gristmill products	1.2	2.5	92.9	3.3
Food preparations	4.6	7.7	50.4	37.4
Foundry and machine-shop products	8.4	31.0	47.1	13.5
Furniture and refrigerators	8.3	32.6	46.0	13.1
Gas, illuminating and heating	12.1	24.5	47.6	15.8
Iron and steel, blast furnaces	2.8	11.9	79.4	5.9
Leather, tanned, curried, and finished	1.6	8.0	86.0	4.4
Liquors, malt	7.6	14.6	32.9	44.9
Lumber and timber products	4.3	30.0	53.4	12.3
Paint and varnish	13.5	8.5	61.3	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	43.4	24.7
Printing and publishing	18.0	28.2	34.7	19.1
Shipbuilding, including boat building	6.5	29.2	52.7	11.6
Slaughtering and meat packing	1.2	3.8	92.3	2.6
Stoves and furnaces, including gas and oil stoves	9.5	35.7	35.5	19.3
Tobacco manufactures	4.9	20.9	48.9	25.3
Wirework, including wire rope and cable	6.8	8.9	71.8	12.5
All other industries	6.6	19.2	63.2	11.0

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 34.

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

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[1]	1909	1904	1899[1]	1909	1904	1899
Primary power, total	15,527	6,616	6,536	598,288	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	96.6	98.3
Steam	5,066	4,978	5,220	465,520	376,090	318,835	77.8	85.3	86.5
Gas	1,167	954	586	13,988	10,534	5,603	2.3	2.4	1.5
Water wheels	700	684	730	41,442	39,342	36,520	6.9	8.9	9.9
Water motors	34	.....	[2]	577	.....	[2]	0.1	.....	[2]
Other	.....	.....	.....	16	108	1,145	[3]	[3]	0.3
Rented	8,560	[2]	[2]	76,745	14,816	6,385	12.8	3.4	1.7
Electric	8,560	[2]	[2]	74,270	12,411	4,264	12.4	2.8	1.2
Other	.....	.....	.....	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	68.9	64.7
Run by rented power	8,560	[2]	[2]	74,270	12,411	4,264	55.8	31.1	35.3

[1] Includes the neighborhood industries and hand trades, omitted in 1904 and 1909.
[2] Not reported.
[3] 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 and for certain selected industries:

INDUSTRY.	Anthracite coal (tons).	Bituminous coal (tons).	Coke (tons).	Wood (cords).	Oil, including gasoline (barrels).	Gas (1,000 feet).
All industries	61,448	4,524,009	270,204	709,434	384,140	316,102
Agricultural implements	45	23,895	3,543	221	10,456	.....
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	6	.....	.....
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	11,505	9,683	18,186	215	29,756
Butter, cheese, and condensed milk	462	41,585	513	5,003	239	.....
Carriages and wagons and materials	126	35,477	633	1,619	765	76
Cars and general shop construction and repairs by steam-railroad companies	722	79,292	795	1,153	10,171	799
Chemicals	1	1,065,882	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	867
Food preparations	2,330	47,641	3,827	.....	35	38,968
Foundry and machine-shop products	2,251	157,085	44,141	3,857	10,119	21,814
Furniture and refrigerators	5,430	100,371	1,480	1,526	295	3,206
Gas, illuminating and heating	2,423	426,703	3,102	.....	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	20,033	636	279	2,346	14
Slaughtering and meat packing	45	19,644	.....	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	26,658	12,482	685	499	3,782
Tobacco manufactures	865	9,890	150	617	1	689
Wirework, including wire rope and cable	9	4,029	140	.....	160	722
All other industries	16,704	1,338,258	29,532	466,309	169,376	84,825

NOTE.—In addition there were 179,800 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		**$96,051,451**		**$7,996,534**
Automobiles	64,800	70,359,749	9,125	6,552,804
Gasoline	64,262	69,130,223	9,114	6,537,404
Electric	538	1,229,526	11	15,400
Passenger vehicles	64,025	69,038,967	9,023	6,481,164
Buggies, runabouts, and touring cars	62,319	64,940,703	9,023	6,481,164
Limousines, cabs, etc.	1,560	3,825,066	(1)	
Omnibuses, ambulances, fire-department patrol, sight-seeing wagons, etc.	146	273,198	(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		26,291,702		1,443,730

[1] 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	259,017
Shingles	thousands	891,649	1,926,110

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 beach.

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	4,050,329
Value	$18,050,601	$16,087,310	$14,349,601
Graham—			
Barrels	38,078	40,410	
Value	$178,090	$167,780	
Corn meal and corn flour:			
Barrels	177,189	210,116	537,630
Value	$606,700	$506,615	$1,029,986
Rye flour:			
Barrels	61,963	61,842	44,260
Value	$266,698	$219,597	$128,567
Buckwheat flour:			
Pounds	20,161,026	21,930,856	13,026,863
Value	$547,024	$524,429	$282,728
Barley meal:			
Pounds	33,600	205,770	540,550
Value	$499	$2,411	$6,763
Hominy and grits:			
Pounds	38,610	43,802	2,069,950
Value	$1,098	$1,075	$19,972
Feed:			
Tons	354,591	212,575	209,535
Value	$10,203,552	$4,535,938	$3,626,216
Offal:			
Tons	166,219	191,829	154,011
Value	$3,766,934	$3,314,293	$1,960,207
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
Total	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	172,687	(1)
Semiweekly and triweekly	34	30	28	82,640	99,339	200,073
Weekly	526	570	522	750,298	774,758	752,032
Monthly	73	74	65	927,601	1,372,519	984,025
All other classes	12	15	13	67,241	110,712	67,425

[1] Included in circulation for daily.

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 statemen:

MATERIAL OR PRODUCT.	1909	1904	1899
Materials used, total cost	$12,120,971	$7,271,023	$4,697,367
Hides (all kinds):			
Number	1,430,885	1,126,456	751,935
Cost	$8,022,645	$5,202,740	$3,582,806
Skins:			
Calf and kip—			
Number	918,666	312,951	
Cost	$881,805	$287,889	620,507
All other—			$329,891
Number	856,386	594,014	
Cost	$173,383	$224,774	
All other materials	$3,043,138	$1,465,620	$784,040
Products, total value	$15,331,104	$9,340,349	$6,015,590
Leather:			
Sole—			
Sides	1,603,512	1,353,293	914,954
Value	$7,326,276	$4,954,749	$3,090,684
Upper—			
Sides	716,396	409,235	281,559
Splits	760,801	532,757	100,000
Value	$3,087,868	$1,426,455	$817,888
Harness—			
Sides	214,879	195,695	212,386
Value	$1,210,132	$854,690	$989,832
Trunk, bag, and pocketbook	$476,862	$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	$104,025	$152,264	$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	19,272,730	7,553,059
Value	$8,586,270	$4,027,770	$1,472,672
Prints or rolls—			
Pounds	5,183,000	1,740,270	267,653
Value	$1,456,867	$383,426	$53,199
Cream sold:			
Pounds	2,572,764	3,130,609	1,049,312
Value	$249,276	$234,540	$60,032
All other butter-factory products [1]	$98,862	$136,700	$75,782
Cheese:			
Full cream—			
Pounds	13,028,317	16,452,577	9,995,766
Value	$1,860,879	$1,676,280	$932,773
Part cream—			
Pounds	76,220	.....	.....
Value	$10,984	.....	.....
Other kinds [2]—			
Pounds	277,623	302,279	426,816
Value	$40,012	$41,796	$49,783
All other cheese-factory products [3]	$6,510	$26,212	$11,934
Condensed milk:			
Sweetened—			
Pounds	27,695,866	27,266,506	18,378,869
Value	$1,993,030	$1,630,730	$1,202,817
Unsweetened—			
Pounds	4,709,078	415,102	.....
Value	$231,501	$13,547	.....
All other products	$53,212	$37,705	.....

[1] Includes skimmed milk sold and casein. [2] Includes skimmed-milk cheese. [3] 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	26,097
Cost	$2,405,075	$1,269,198	$732,948
Ground—			
Tons	15,320	9,712	4,054
Cost	$384,489	$191,713	$81,207
Sulphite fiber—			
Tons	29,070	15,197	14,476
Cost	$1,329,972	$630,761	$335,682
Other chemical fiber—			
Tons	16,360	10,970	7,567
Cost	$691,514	$446,724	$315,999
Rags, including cotton and flax waste and sweepings:			
Tons	11,030	8,192	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	$6,499,805	$3,628,967	$2,350,790
Wrapping paper:			
Tons	50,328	32,654	20,370
Value	$2,799,583	$1,595,861	$811,750
Boards:			
Tons	56,342	26,382	14,051
Value	$1,866,436	$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	8,199	11,158	8,184
Value	$300,948	$407,286	$346,516
All other products	$2,286,074	$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	6,076
Soda fiber	.....	.....	1,033
Sulphite fiber	53,058	24,533	12,998
Equipment:			
Paper machines:			
Total number	68	55	46
Capacity, yearly, tons	301,345	181,108	111,669
Fourdrinier—			
Number	43	34	23
Capacity per 24 hours, tons	573	444	[1]
Cylinder—			
Number	25	21	23
Capacity per 24 hours, tons	321	185	[1]
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	[2]
Chemical	56,629	20,600	[2]

[1] Not reported. [2] 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 Fourdrinier 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	16,467,625
Value	$1,931,128	$850,668	$1,184,308
Veal, fresh:			
Pounds	2,603,074	992,370	674,400
Value	$300,568	$83,703	$60,815
Mutton, fresh:			
Pounds	3,509,894	2,350,900	1,925,618
Value	$363,474	$199,644	$159,952
Pork, fresh:			
Pounds	16,479,567	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	$1,397,533	$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	1,619,590	1,897,918
Value	$365,080	$131,686	$165,857
Pelts:			
Number	88,285	44,510	(1)
Value	$94,862	$30,056	(1)
All other products	$391,816	$202,046	$99,729

[1] 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 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	$5,184,031	$1,561,100
Raw—			
Tons	551	2,016	480
Value	$41,404	$120,109	$39,184
Molasses and sirup:			
Gallons	5,016,748	1,081,131	321,100
Value	$337,200	$21,741	$1,225
Pulp	$330,025	$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	49,003
Value	$1,586,172	$2,352,958	$2,049,460
Business—			
Number	17,600	20,283	(1)
Value	$985,599	(1)	(1)
Farm—			
Number	10,037	30,521	(1)
Value	$523,803	(1)	(1)
Government, municipal, etc.—			
Number	183	1,469	(1)
Value	$76,770	(1)	(1)
Public conveyances (cabs, hacks, hansoms, hotel coaches, omnibuses, etc.):			
Number	201	120	.....
Value	$118,490	$116,026	.....
Sleighs and sleds:			
Number	32,751	53,180	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	$2,565,155

[1] 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	4,099	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	3,726	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
Owned:		
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	43,000
Coke	Tons	361
Wood	Cords	2,041
Oil	Barrels	640
Gas	1,000 feet	14,981

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)	306	93
Primary horsepower	4,894	7,172
Capital	$322,255	$722,877
Expenses	125,630	1,851,926
Services	103,029	39,798
Materials	4,051	[1] 1,792,317
Miscellaneous	18,550	19,811
Value of products	236,209	[1] 2,140,461

[1] 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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
STATE—All industries	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	175,229	440,890	337,894	17,470	81,279	230,081	420,120	190,039
	1899	7,310	.....	.....	13,350	155,800	368,497	246,997	12,336	62,532	175,966	319,692	143,726
Agricultural implements	1909	32	3,041	22	660	2,359	5,195	15,649	770	1,261	2,890	9,273	6,383
	1904	42	3,903	26	713	3,164	5,986	14,342	678	1,686	3,497	8,720	5,223
	1899	59	2,624	60	620	1,944	.....	8,932	540	953	2,482	6,340	3,858
Artificial stone	1909	191	791	228	49	514	634	926	40	255	349	908	559
	1904	27	111	30	14	67	38	118	7	35	43	119	76
	[1] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Automobiles, including bodies and parts	1909	113	28,098	29	2,625	25,444	25,938	52,926	2,570	15,491	53,882	96,651	42,769
	1904	33	2,953	17	201	2,735	1,800	4,347	236	1,268	3,443	7,997	4,554
	[1] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Beet sugar	1909	11	1,755	.....	295	1,460	8,854	21,378	395	910	6,228	10,477	4,249
	1904	10	1,480	.....	269	1,211	8,766	12,990	294	581	3,701	5,378	1,677
	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	230	2,455	786	2,886	246	936	3,347	5,256	1,909
	1904	[2] 23	1,918	17	178	1,723	649	1,702	190	681	2,016	3,531	1,515
	1899	[3] 13	1,213	19	77	1,117	.....	1,136	70	386	1,164	1,915	751
Boxes, fancy and paper	1909	19	1,427	14	87	1,326	1,564	1,896	118	447	1,618	2,653	1,035
	1904	22	897	13	48	836	558	671	54	230	431	913	482
	1899	12	599	7	24	568	.....	286	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	[2] 36	2,226	32	165	2,029	2,036	2,495	214	936	1,703	3,695	1,992
	1899	[3] 20	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	1,953	5,750	365	1,444	6,671	11,082	4,411
	1904	614	3,178	721	263	2,194	1,202	2,829	169	1,032	3,853	7,116	3,263
	1899	455	2,022	493	200	1,329	.....	1,921	138	585	2,253	4,098	1,845
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	2,182	73	651	425	1,651	1,226
	1899	177	1,715	220	52	1,443	5,649	1,497	30	480	239	1,136	897
Butter, cheese, and condensed milk	1909	435	1,740	350	317	1,073	4,770	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	.....	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	1,897
	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	2,657	836
Carriages and wagons and materials	1909	212	4,707	240	433	4,034	6,362	10,189	532	2,240	5,262	10,159	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	2,514	7,550	12,887	5,337
Cars and general shop construction and repairs by steam-railroad companies	1909	32	5,706	2	303	5,401	5,742	3,571	311	3,500	2,916	6,838	3,922
	1904	34	4,636	.....	201	4,435	4,153	2,463	191	2,497	2,599	5,369	2,770
	1899	42	4,120	.....	182	3,938	.....	2,527	147	2,026	2,120	4,333	2,213
Cars and general shop construction and repairs by street-railroad companies	1909	15	902	.....	28	874	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	158	1,306	21,773	14,679	212	826	1,403	2,915	1,512
	1904	13	1,171	.....	142	1,029	18,593	10,633	175	669	909	2,560	1,651
	[1] 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	3,057	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	1,154	2,089	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	2,043	922	1,307	167	658	1,731	3,529	1,798
	1899	31	1,703	43	120	1,540	.....	599	122	392	1,219	2,194	975
Coffins, burial cases, and undertakers' goods	1909	18	553	8	106	439	711	753	114	208	493	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	1,052	812	1,770	221	361	1,707	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	8,500	3,918	227	1,016	2,004	3,989	1,985
	1904	98	2,815	99	102	2,614	7,205	2,510	136	958	1,704	3,803	2,099
	1899	120	1,848	123	50	1,675	.....	1,380	46	613	965	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	2,545	4,929	2,384
	1904	67	1,771	83	118	1,570	1,445	1,587	114	687	1,396	2,889	1,493
	1899	44	.....	.....	49	549	.....	665	46	205	596	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	101	1,378	316	1,449	143	469	700	1,975	1,275
	1899	14	1,647	10	148	1,489	.....	1,261	151	376	706	1,703	997

[1] Not reported separately.
[2] Excluding statistics for two establishments, to avoid disclosure of individual operations.
[3] Excluding statistics for one establishment, to avoid disclosure of individual operations.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
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	193	262	730	468
	1899	26	373	27	29	317	.....	297	32	120	161	460	299
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	60	529	370	414	59	177	294	702	408
	1899	12	222	9	20	184	309	547	29	86	182	438	256
Fancy articles, not elsewhere specified..	1909	11	1,218	7	64	1,147	87	523	77	153	199	593	394
	1904	[1] 7	196	2	26	168	56	124	21	50	115	262	147
	1899	[1] 6	110	3	3	104	.....	10	1	13	5	20	24
Flour-mill and gristmill products.....	1909	520	2,623	660	433	1,530	38,901	11,147	395	806	20,359	34,861	5,502
	1904	405	2,353	568	277	1,508	34,755	7,654	233	707	23,414	26,512	3,098
	1899	395	.....	.....	200	1,329	.....	6,919	152	675	18,406	21,044	3,238
Food preparations.....	1909	49	1,672	28	341	1,303	8,983	5,620	431	724	4,750	11,492	6,742
	1904	55	1,411	54	316	1,041	5,499	3,446	335	460	2,256	6,754	4,498
	1899	25	494	22	99	373	.....	797	55	143	678	1,892	1,214
Foundry and machine-shop products...	1909	654	25,334	505	3,180	21,649	34,152	48,005	3,347	12,344	18,711	45,399	26,688
	1904	[2] 452	18,604	441	1,767	16,396	21,278	23,167	1,875	8,057	14,080	31,434	17,348
	1899	[1] 417	18,221	388	1,485	16,331	.....	23,380	1,493	7,775	10,551	25,430	14,879
Fur goods.....	1909	31	824	38	167	619	232	1,527	155	207	984	2,284	1,300
	1904	20	707	23	49	635	350	1,040	45	242	1,036	1,771	735
	1899	18	.....	.....	93	541	.....	588	67	209	1,144	1,727	583
Furniture and refrigerators.....	1909	202	18,299	120	1,569	16,610	27,485	28,222	2,102	8,300	11,718	28,642	16,924
	1904	142	15,602	96	941	14,565	10,812	17,768	1,139	6,408	8,640	20,502	11,862
	1899	133	13,716	91	792	12,833	.....	15,509	870	4,885	7,443	16,040	8,597
Gas and electric fixtures and lamps and reflectors.	1909	20	486	12	79	395	386	923	98	219	642	1,546	904
	1904	[1] 3	92	1	15	76	45	229	18	37	243	496	253
	[3] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gas, illuminating and heating.....	1909	55	2,435	2	662	1,771	6,055	33,259	540	1,096	2,120	6,748	4,619
	1904	46	1,670	3	380	1,287	2,370	19,712	260	575	1,120	3,866	2,746
	1899	38	885	.....	227	658	.....	16,295	142	294	298	1,473	1,175
Hosiery and knit goods.....	1909	35	2,818	19	254	2,545	3,201	3,735	325	769	2,047	4,029	1,982
	1904	38	3,274	14	175	3,085	2,501	3,284	175	769	1,844	3,624	1,780
	1899	[1] 32	2,714	4	201	2,509	.....	2,136	188	580	1,450	2,701	1,332
Iron and steel, blast furnaces.....	1909	11	1,101	.....	85	1,016	17,403	8,291	148	632	4,224	5,824	1,600
	1904	11	1,236	.....	97	1,139	7,491	4,253	110	588	3,104	4,644	1,540
	1899	7	557	.....	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	4,200	2,326	129	661	1,598	2,670	1,072
	1904	5	1,056	.....	38	1,018	4,630	1,698	46	527	1,800	2,712	912
	1899	3	1,487	.....	28	1,459	7,600	1,829	31	725	2,365	3,575	1,210
Leather goods.....	1909	57	1,036	48	154	834	760	1,653	171	434	1,458	2,560	1,102
	1904	45	761	45	86	630	342	762	69	339	760	1,389	629
	1899	41	.....	.....	71	716	.....	662	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	4,301	6,861	147	866	7,271	9,340	2,069
	1899	27	1,518	19	72	1,427	.....	5,214	96	559	4,697	6,016	1,319
Liquors, malt.....	1909	79	2,001	46	428	1,527	9,219	12,384	558	1,073	2,421	9,840	7,419
	1904	86	1,588	51	266	1,271	7,518	8,951	391	864	1,694	6,999	5,305
	1899	77	1,271	49	242	980	.....	6,235	297	599	1,188	5,297	4,109
Lumber and timber products.....	1909	1,180	39,011	1,310	2,074	35,627	133,739	57,290	2,337	16,298	29,042	61,514	32,472
	1904	1,058	37,124	1,315	1,616	34,193	119,485	48,771	1,713	15,995	24,720	57,217	32,488
	1899	1,024	.....	.....	1,004	46,163	.....	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	287	400	1,088	688
	1899	74	.....	.....	33	416	.....	544	20	260	440	984	544
Mattresses and spring beds.....	1909	14	357	14	37	306	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	86	322	521	199
Musical instruments, pianos and organs and materials.	1909	17	1,963	8	176	1,779	2,690	5,384	299	1,075	2,069	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	760	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	6	36	18	5	13	11	174	0	8	166	240	74
	1899	6	.....	.....	10	79	.....	210	0	24	120	186	66
Paint and varnish.....	1909	20	1,657	11	622	1,024	2,362	7,113	888	557	4,032	7,416	3,384
	1904	17	958	10	300	648	1,413	4,521	308	304	3,414	5,958	2,544
	1899	17	752	14	248	490	.....	2,494	286	179	1,969	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	163	3,052	31,357	8,398	218	1,306	4,581	7,341	2,760
	1899	27	2,130	9	107	2,014	.....	4,506	143	701	2,708	4,218	1,510

[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 can not be shown without disclosing individual operations.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
STATE—Continued.													
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	[1] 6	378	.....	37	341	975	1,068	45	146	816	1,329	513
	1899	[2] 3	155	1	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	1,500	4,041	13,475	8,534
	1904	96	3,051	76	1,039	2,536	2,306	8,467	1,003	952	3,798	10,470	6,672
	1899	75	.....	.....	940	2,263	.....	4,671	845	765	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	8,650	1,019	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	2,198	1,946	8,206	6,260
Salt	1909	27	1,567	12	192	1,363	6,628	5,167	197	745	1,643	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	1,509	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	295
	1904	7	181	17	32	132	140	373	25	58	65	258	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	4,164	3,912	135	1,008	1,079	2,973	1,894
	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	663
	1899	4	68	6	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	11,666	13,435	1,769
	1904	26	590	28	63	499	959	1,378	65	265	5,629	6,356	727
	1899	32	.....	.....	72	469	.....	1,450	67	236	4,820	5,402	582
Springs, steel, car and carriage	1909	5	633	.....	45	588	908	1,200	77	309	558	1,308	750
	1904	6	348	1	24	323	572	372	20	128	282	541	259
	1899	5	367	.....	16	351	.....	368	16	159	312	584	272
Stoves and furnaces, including gas and oil stoves.	1909	33	5,027	9	536	4,482	5,910	9,522	758	2,832	2,816	9,123	6,307
	1904	27	4,937	24	441	4,472	4,589	6,092	576	2,491	2,737	8,026	5,289
	[3] 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	385	2,467	4,847	11,864	7,017
	1899	607	.....	.....	362	5,282	853	2,826	308	1,769	3,131	9,245	6,114
Wall plaster	1909	16	840	10	84	746	3,020	1,775	123	276	412	1,421	1,009
	1904	8	393	5	45	343	2,125	1,036	42	157	380	842	462
	[3] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Window shades and fixtures	1909	7	603	2	25	636	1,236	1,102	33	261	807	1,296	489
	1904	3	241	.....	16	225	342	170	21	85	360	508	148
	[4] 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	1,900	3,459	1,469
	1899	30	.....	.....	120	484	.....	961	92	197	584	1,292	708
Wood distillation, not including turpentine and rosin.	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
	[3] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wood, turned and carved	1909	58	1,278	68	73	1,137	4,695	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	978
	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	[2] 15	529	20	27	482	1,186	767	24	170	595	977	382
	1899	[2] 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	41,728	56,600	4,476	11,651	53,342	87,874	34,532
	1904	699	18,748	700	1,487	16,561	35,109	30,367	1,439	7,798	44,194	64,411	20,217
	1899	699	.....	.....	1,251	13,854	.....	25,751	1,181	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	2,036	95,841	1,804	13,026	81,011	114,190	$190,125	$15,260	$43,007	$130,218	$252,992	$122,774
	[5] 1904	1,362	55,718	1,312	5,923	48,483	.....	91,038	6,126	22,558	66,581	128,247	61,666
	1899	1,259	.....	.....	4,947	38,373	.....	67,224	4,726	15,317	47,007	88,366	41,359
Automobiles, including bodies and parts.	1909	68	17,437	.....	1,762	15,675	14,666	28,928	1,781	9,621	31,363	59,536	28,173
	1904	10	2,191	12	145	2,034	.....	3,447	168	959	2,631	6,240	3,609
	[3] 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	([6])	9	6	23	17
Blacking and cleansing and polishing preparations.	1909	8	21	7	8	6	85	16	8	3	15	30	15
	1904	3	25	5	9	11	.....	38	6	5	20	47	27
	1899	[2] 3	12	6	1	5	.....	3	([6])	3	6	13	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.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
DETROIT—Continued.													
Boots and shoes, including cut stock and findings.	1909	8	1,453	6	120	1,327	362	$1,582	$160	$491	$1,702	$2,744	$1,042
	1904	[1] 8	1,037	6	105	926	.....	1,074	134	400	1,117	2,039	922
	1899	[1] 6	690	12	33	645	.....	741	33	235	702	1,213	511
Boxes, cigar	1909	4	260	4	7	249	164	140	7	76	111	238	127
	1904	4	214	4	8	202	.....	102	7	62	86	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	.....	265	26	97	115	313	198
	1899	5	399	4	14	381	.....	191	15	70	85	230	145
Brass and bronze products	1909	37	4,374	16	326	4,032	10,051	7,306	461	2,049	8,273	12,207	4,024
	1904	23	2,190	20	147	2,032	.....	3,430	210	987	3,429	5,682	2,253
	1899	[2] 17	883	18	62	803	.....	1,030	85	333	920	1,633	713
Bread and other bakery products	1909	265	1,006	272	226	1,108	1,112	2,003	220	638	2,897	4,826	1,929
	1904	150	1,165	164	127	874	.....	1,063	90	424	1,566	2,932	1,366
	1899	100	806	108	95	603	.....	806	85	274	1,004	1,877	873
Brick and tile	1909	10	205	13	9	183	504	207	8	109	84	286	202
	1904	3	27	3	4	20	.....	68	2	12	10	33	23
	1899	3	30	3	1	35	.....	104	([3])	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	[1] 5	212	2	32	178	.....	109	41	48	555	708	153
Carpets, rag	1909	7	27	8	.....	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	794	1,515	721
	1899	[1] 16	.....	.....	23	315	.....	553	31	140	350	666	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	[1] 28	1,696	33	103	1,560	.....	1,276	96	472	1,701	2,957	1,166
	1899	[1] 26	1,414	33	74	1,307	.....	817	69	295	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	694	1,168	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	208	151
	1904	5	147	3	15	129	.....	190	22	63	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	360	.....	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	1,032	1,453	3,890	158	851	1,032	3,534	1,602
	1904	28	1,374	24	94	1,256	.....	1,274	95	508	1,117	2,258	1,141
	1899	[1] 18	.....	.....	25	358	.....	204	30	125	383	655	272
Cutlery and tools, not elsewhere specified.	1909	19	373	11	103	259	719	514	56	130	154	466	312
	1904	[1] 5	88	1	15	72	.....	112	17	32	61	146	85
	1899	[1] 5	49	3	4	42	.....	66	7	21	9	56	47
Electrical machinery, apparatus, and supplies.	1909	23	685	15	129	541	575	1,056	145	226	493	1,148	655
	1904	8	125	6	29	90	.....	177	27	35	65	191	126
	1899	9	150	8	20	122	.....	433	22	60	154	363	209
Electroplating	1909	8	121	6	11	104	160	67	9	66	60	169	109
	1904	4	70	3	9	58	.....	13	7	24	6	51	45
	1899	4	55	4	7	44	.....	13	6	17	5	37	32
Emery and other abrasive wheels	1909	4	122	2	18	102	155	198	17	61	155	284	129
	1904	3	73	3	11	59	.....	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	[1] 4	100	3	17	80	.....	92	18	66	62	163	101
	1899	[2] 3	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	4,828	7,614	18,296	10,682
	1904	[1] 125	7,194	92	761	6,341	.....	9,003	795	3,396	6,186	13,647	7,461
	1899	[1] 106	.....	.....	728	8,125	.....	12,223	803	3,921	5,140	12,714	7,574
Fur goods	1909	19	519	24	124	371	24	884	112	181	707	1,738	1,031
	1904	10	311	14	20	268	.....	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.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
DETROIT—Continued.													
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	[1] 24	2,110	19	151	1,949	.....	2,406	189	811	1,038	2,624	1,586
	1899	[2] 22	1,564	25	135	1,404	.....	1,420	137	542	796	1,805	1,009
Hand stamps and stencils and brands	1909	7	24	7	2	15	5	14	1	6	8	39	31
	1904	[2] 4	27	6	.....	21	.....	12	.....	9	6	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	120	372	720	348
	1899	[1] 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	550	1,317	2,297	980
	1904	4	862	.....	30	832	.....	1,447	37	431	1,004	2,362	758
	1899	4	1,146	.....	25	1,121	.....	1,794	28	595	2,159	3,199	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	108	349	632	283
	1899	[2] 6	.....	.....	19	201	.....	142	18	91	199	383	184
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	308	795	3,272	2,477
	1899	20	539	12	115	412	.....	2,800	133	257	547	2,593	2,046
Lumber and timber products	1909	59	2,322	52	224	2,046	4,629	4,608	241	1,013	3,759	6,110	2,351
	1904	[1] 30	1,166	26	101	1,039	.....	1,435	107	554	1,196	2,167	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	176	394	218
Models and patterns, not including paper patterns.	1909	17	222	18	16	188	95	100	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	46	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	108	.....	106	24	46	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	1,328	4,304	11,558	7,254
	1904	42	3,189	34	875	2,280	.....	7,912	862	859	3,509	9,423	5,914
	1899	34	.....	.....	814	2,022	.....	3,693	720	654	2,450	6,176	3,726
Photo-engraving	1909	7	213	5	55	153	116	171	63	116	60	351	291
	1904	6	222	8	54	160	.....	213	30	126	49	299	250
	1899	6	87	6	13	68	.....	47	10	34	11	89	78
Printing and publishing	1909	224	4,058	212	1,327	2,519	2,602	4,168	1,166	1,570	2,044	7,291	5,247
	1904	155	2,836	160	756	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	300	512	1,102	590
	1904	[2] 7	127	7	9	111	.....	159	8	64	53	187	134
	1899	[1] 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
	[3] 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	597
	1899	[1] 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	5,076	4,106
	1904	[2] 6	3,431	1	308	3,122	.....	4,038	414	1,814	1,751	5,565	3,814
	[4] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tobacco manufactures	1909	198	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	4,426
	1899	192	4,037	198	297	3,542	.....	1,930	357	1,003	2,074	6,536	4,462
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	104	240	76
	1899	4	86	4	8	74	.....	36	6	16	138	181	43
All other industries	1909	355	21,637	340	3,338	17,959	39,344	66,789	4,548	9,864	30,390	59,842	29,452
	1904	238	12,805	229	1,155	11,421	.....	35,795	1,105	5,479	20,675	34,895	14,220
	1899	262	.....	.....	1,030	10,464	.....	30,821	1,095	4,154	18,031	29,221	10,590

[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 can not be shown without disclosing individual operations.
[4] Not reported separately.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
GRAND RAPIDS—All industries.	1909	524	20,327	447	2,290	17,590	27,675	$38,783	$3,132	$9,217	$19,736	$42,231	$22,495
	[1] 1904	388	17,366	386	1,466	15,514	.....	25,431	1,671	7,318	14,422	30,690	16,268
	1899	382	.....	.....	1,148	12,920	.....	22,692	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	305	34	51	310	.....	746	46	137	613	1,178	565
	1899	40	265	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	356	.....	277	28	130	138	399	261
	[2] 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
	[2] 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	.....	[3]	1	3	2
Carriages and wagons and materials	1909	8	102	7	8	87	173	181	11	48	70	194	124
	1904	[4] 11	210	9	17	184	.....	938	18	95	231	495	264
	1899	[4] 10	319	9	21	289	.....	906	21	124	389	683	294
Clothing, men's, including shirts	1909	6	295	6	50	239	70	342	47	84	220	513	293
	1904	6	326	5	38	283	.....	297	44	86	245	450	205
	1899	9	308	8	37	263	.....	153	26	88	160	355	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	56	.....	57	3	30	43	101	58
	1899	[4] 4	.....	.....	5	40	.....	104	3	19	37	81	44
Cutlery and tools, not elsewhere specified	1909	7	33	11	2	20	70	36	2	12	9	38	29
	1904	[4] 3	21	5	2	14	.....	18	1	8	4	20	16
	1899	[4] 4	8	2	1	5	.....	6	[3]	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	736
	1904	6	147	8	33	106	.....	900	40	64	2,166	2,371	205
	1899	6	.....	.....	22	92	.....	650	20	45	1,609	1,875	266
Foundry and machine-shop products	1909	49	1,815	40	243	1,532	2,107	2,815	280	825	1,134	2,740	1,606
	1904	33	1,121	28	120	964	.....	1,313	142	473	682	1,668	986
	1899	32	.....	.....	123	911	.....	1,420	87	399	557	1,362	805
Furniture and refrigerators	1909	54	7,854	33	571	7,250	10,305	13,322	927	3,903	4,937	12,030	7,093
	1904	[5] 38	7,071	20	397	6,654	.....	8,005	558	3,240	3,583	9,409	5,826
	1899	[4] 34	6,570	11	323	6,236	.....	8,302	418	2,582	3,345	7,495	4,150
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	[5] 3	.....	.....	3	30	.....	31	3	13	61	92	31
Leather, tanned, curried, and finished	1909	3	108	.....	10	98	437	570	14	56	545	705	160
	[2] 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	[5] 9	410	12	37	361	.....	552	43	183	607	967	360
	1899	14	639	11	47	581	.....	1,200	45	276	801	1,470	618
Marble and stone work	1909	6	62	7	14	41	77	121	13	34	39	108	69
	1904	[4] 4	43	5	2	36	.....	45	2	27	49	102	53
	1899	[5] 4	.....	.....	9	14	.....	20	3	10	11	33	22
Patent medicines and compounds and druggists' preparations	1909	18	126	19	49	58	33	156	32	24	117	285	168
	1904	8	37	7	10	20	.....	26	8	8	20	83	63
	1899	[4] 9	127	7	33	87	.....	406	34	34	165	425	260
Printing and publishing	1909	68	1,148	53	263	832	781	1,629	207	489	587	2,057	1,470
	1904	[5] 48	801	38	166	597	.....	744	170	318	357	1,292	935
	1899	[5] 40	626	41	100	485	.....	1,339	75	233	181	725	544
Tobacco manufactures	1909	36	522	36	28	458	5	236	26	188	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	361	.....	61	300	2,408	1,033	224	135	226	866	640
	1904	4	338	1	42	295	.....	801	39	139	274	713	439
	[6] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
All other industries	1909	142	5,819	112	723	4,984	6,403	12,637	957	2,493	6,238	13,226	6,988
	1904	135	5,482	137	474	4,871	.....	10,281	498	2,192	5,175	10,684	5,509
	1899	130	.....	.....	347	3,898	.....	6,992	347	1,262	2,601	5,858	3,257

[1] 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.
[2] Figures can not be shown without disclosing individual operations.
[3] Less than $500.
[4] Excluding statistics for one establishment, to avoid disclosure of individual operations.
[5] Excluding statistics for two establishments, to avoid disclosure of individual operations.
[6] Not reported separately.

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 horsepower.	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.					
SAGINAW—All industries	1909	203	7,090	232	868	5,990	14,412	$26,703	$926	$3,184	$10,409	$18,833	$8,424
	[1]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	8,653	3,569
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	([2])	13	42	74	32
Carriages and wagons and materials	1909	5	30	6	.....	24	20	57	.....	13	9	31	22
	1904	[3]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	699	1,200	507
	1904	9	543	12	29	502	.....	464	44	174	454	918	464
	1899	[3]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	432	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	1,099	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	2,082	1,804	61	335	1,029	2,404	775
	1904	[4]13	760	23	65	672	.....	1,044	55	260	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	[4]23	225	28	51	146	.....	186	33	85	81	317	236
	1899	22	185	24	29	132	.....	182	28	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	5	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	1,602	5,816	10,206	4,480
	1904	63	2,093	54	227	1,812	.....	3,202	184	762	1,604	3,403	1,739
	1899	58	.....	.....	109	1,715	.....	2,236	102	598	1,705	2,986	1,281

[1] 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.
[2] Less than $500.
[3] Excluding statistics for one establishment, to avoid disclosure of individual operations.
[4] Excluding statistics for two establishments, to avoid disclosure of individual operations.

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 horsepower.	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.					
Adrian	1909	80	1,466	66	341	1,059	3,211	$5,080	$327	$540	$4,150	$6,085	$1,935
	1904	65	1,830	48	280	1,502	.....	3,258	251	625	2,829	4,897	2,068
	1899	63	.....	.....	195	1,030	.....	1,631	120	454	898	2,125	1,227
Alpena	1909	58	1,614	57	125	1,432	10,670	5,708	151	711	2,301	3,964	1,663
	1904	57	1,369	60	64	1,245	.....	2,082	68	534	1,084	2,905	1,221
	1899	46	.....	.....	54	1,202	.....	2,356	46	496	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	.....	1,005	62	244	774	1,386	612
	1899	71	.....	.....	67	623	.....	1,055	49	234	785	1,377	592
Battle Creek	1909	105	5,281	95	1,011	4,175	14,923	19,176	1,250	2,354	7,068	20,174	13,106
	1904	120	4,200	131	770	3,389	.....	13,039	872	1,886	3,984	12,298	8,314
	1899	75	.....	.....	432	2,051	.....	7,212	402	970	2,100	6,301	4,201
Bay City[1]	1909	182	5,357	178	442	4,737	17,872	10,289	467	2,118	5,647	10,294	4,647
	1904	173	4,899	161	282	4,456	.....	5,343	272	2,001	4,948	8,809	3,861
	1899	177	.....	.....	262	4,309	.....	6,843	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	76	949	.....	1,019	77	452	404	1,333	929
	1899	26	.....	.....	25	620	.....	431	31	238	250	610	360
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	249	2,161	.....	4,210	228	1,041	3,709	6,177	2,468
	1899	63	.....	.....	87	1,960	.....	2,507	73	802	2,754	4,713	1,959
Holland	1909	59	2,183	45	198	1,940	2,956	4,524	262	936	2,585	4,622	2,037
	[2] 1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	[2] 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	90	.....	88	3	46	55	145	90
Ishpeming	1909	19	92	10	7	66	73	88	7	37	52	132	80
	1904	15	92	11	8	73	.....	199	11	42	142	247	105
	1899	14	.....	.....	5	80	.....	132	7	44	95	195	100
Jackson	1909	169	5,624	135	692	4,797	6,300	9,078	719	2,402	8,168	14,006	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	15,395	1,230	3,149	9,505	17,904	8,399
	1904	157	6,467	133	668	5,666	.....	9,018	691	2,562	6,896	13,142	6,246
	1899	129	.....	.....	485	3,870	.....	5,571	432	1,428	3,893	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	83	340	2,982	.....	5,999	352	1,389	3,473	6,887	3,414
	1899	74	.....	.....	163	1,425	.....	2,047	135	577	1,632	2,942	1,310
Manistee	1909	64	2,365	78	162	2,125	6,811	3,248	183	1,019	1,289	3,344	2,055
	1904	47	2,238	33	121	2,084	.....	2,832	106	999	1,274	3,257	1,983
	1899	56	.....	.....	113	2,103	.....	3,606	111	964	1,376	3,625	2,249
Marquette	1909	34	691	20	74	498	1,500	1,392	82	305	556	1,255	699
	1904	31	814	23	53	738	.....	1,663	67	436	1,392	2,364	972
	1899	29	.....	.....	64	836	.....	1,177	76	355	813	1,585	772
Menominee	1909	52	1,030	41	189	1,700	4,770	5,213	205	718	1,657	3,728	2,071
	1904	45	1,030	35	106	1,489	.....	3,340	120	705	1,373	2,974	1,601
	1899	38	.....	.....	88	1,703	.....	3,788	129	709	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	6,310	2,793
	1899	67	.....	.....	104	3,078	.....	3,637	154	1,125	2,260	4,527	2,258
Pontiac	1909	42	2,009	27	243	1,739	2,854	3,826	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	.....	1,295	79	422	1,602	2,471	869
Port Huron	1909	82	1,862	75	207	1,580	3,130	3,889	201	791	1,950	3,588	1,638
	[3] 1904	74	2,356	69	151	2,136	.....	3,205	155	1,107	1,747	3,715	1,968
	1899	78	.....	.....	216	2,026	.....	3,149	138	933	1,752	3,627	1,875
Sault Ste. Marie	1909	47	1,125	37	83	1,005	3,230	4,603	117	542	3,123	4,619	1,496
	1904	38	997	32	70	895	.....	1,634	89	462	1,427	2,412	985
	1899	33	.....	.....	24	317	.....	313	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	1,108	.....	1,034	83	434	1,098	2,177	1,079
	1899	36	.....	.....	53	909	.....	870	44	392	515	1,201	686

[1] In 1904 and 1899 the statistics for West Bay City, which was annexed in 1905, are included.
[2] Figures not available.
[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.

TABLE II.—DETAIL STATEMENT FOR

	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, supts. and managers.	Clerks.		Wage earners.			Total.	16 and over.		Under 16.		
						Male.	Female.	Average number.	Number. Maximum month.	Number. Minimum month.		Male.	Female.	Male.	Female.	
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	2,556	3	11	.....	5,105
3	Artificial stone	191	791	228	24	17	8	514	Au 773	Ja [2] 196	651	650	1	.....	.....	634
4	Automobiles, including bodies and parts.	113	28,098	29	518	1,628	479	25,444	Au 29,006	Ja 20,464	33,884	33,496	376	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 [2] 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 [2] 98	De 74	74	58	16	.....	.....	249
9	Boots and shoes, including cut 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	302	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	22	1,326	No 1,490	Ja 1,217	1,442	655	708	13	66	1,504
12	Brass and bronze products	60	5,211	35	131	172	102	4,771	De 5,388	Je 4,472	5,660	5,306	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	2,760	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	20	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	137	63	67	1,073	Jy [2] 1,179	Fe 949	1,155	1,047	106	2	.....	4,770
18	Canning and preserving	104	2,387	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	Je 95	Ja 43	65	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 4,808	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	1,289	1,285	4	.....	.....	21,773
24	Chemicals	36	3,512	25	89	199	25	3,174	De 3,405	Ap 2,889	3,406	3,372	26	8	.....	26,594
25	Clothing, men's, including shirts	40	3,944	42	71	171	80	3,580	De 3,878	Je 3,310	3,897	485	3,412	.....	.....	1,151
26	Clothing, women's	52	2,521	42	86	97	102	2,194	Mh 2,493	Oc 1,844	2,596	181	2,394	5	16	581
27	Coffins, burial cases, and undertakers' goods.	18	553	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	8,509
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	734
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 apiarists' supplies.	6	15	6	.....	.....	1	8	Ap [2] 11	Au [2] 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	1,016	602	.....	.....	8,983
40	Foundry and machine-shop products	654	25,334	505	978	1,580	622	21,649	De 26,246	Ja 18,733	27,102	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	.....	.....	386
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 [2] 134	248	87	149	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	590	2,044	21	50	3,291
50	Ice, manufactured	5	113	2	10	11	3	87	Au 142	Ja 53	67	67	.....	.....	.....	1,959
51	Iron and steel, blast furnaces	11	1,101	.....	36	44	5	1,016	Se 1,235	Ja 699	1,227	1,226	1	.....	.....	17,403
52	Iron and steel, steel works and rolling mills.	8	1,273	.....	24	51	15	1,183	No 1,386	Jy 1,050	1,332	1,331	1	.....	.....	4,200
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 [2] 99	Jy 73	99	94	.....	5	.....	30
55	Leather goods	57	1,086	48	41	81	32	834	De 884	Fe 782	888	727	140	19	2	700
56	Leather, tanned, curried, and finished	24	2,440	5	60	63	21	2,291	De 2,392	Ap 2,190	2,302	2,304	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 [2] 21	Ja [2] 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	Je 632	Fe 378	580	580	.....	.....	.....	1,570
62	Mattresses and spring beds	14	357	14	9	17	11	306	Se 350	Ja 249	278	220	58	.....	.....	503

[1] No figures given for reasons explained in the Introduction, page 2. See also discussion of wage earners on page 10.

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	$591,296,389	$15,732,797	$19,137,417	$118,967,830	$16,824,150	$351,787,872	$1,071,665	$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	2,785,266	2,549	94,030	80	2,453,965	9,272,787	6,382,634
3	920,338	723,702	28,044	11,226	255,247	5,840	343,143	9,170	3,228	3,731	63,473	908,101	559,118
4	52,926,297	77,168,738	1,130,784	1,430,111	15,490,755	531,063	53,351,358	99,328	185,038	78,061	4,863,240	96,651,451	42,769,030
5	30,721	79,302	1,400	2,713	10,599	852	54,285	964	273	.....	8,216	88,678	33,541
6	520,881	429,076	13,560	11,698	159,206	4,785	108,864	2,932	3,942	150	64,539	480,482	306,833
7	21,378,000	8,530,089	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	38,063	3,943	427,014	1,560	1,545	.....	225,254	1,014,322	583,365
9	2,885,564	4,951,050	70,551	166,858	935,035	27,236	3,320,075	27,249	16,439	10,402	367,905	5,255,966	1,908,655
10	252,584	326,943	10,078	4,971	110,755	4,551	170,120	5,628	3,190	166	17,484	371,157	196,486
11	1,895,567	2,408,504	80,756	31,564	447,423	50,389	1,507,259	17,494	10,692	28	196,899	2,653,416	1,035,708
12	8,647,238	12,657,691	370,737	200,382	2,450,112	246,329	8,746,801	17,208	56,928	366	568,768	13,890,220	4,897,090
13	5,749,756	9,150,751	119,876	245,352	1,443,823	204,355	6,466,244	127,105	34,372	1,625	507,939	11,082,213	4,411,614
14	3,017,098	1,627,356	77,412	19,846	803,396	404,462	170,778	6,851	19,830	.....	124,781	2,047,211	1,471,971
15	115,128	202,911	.....	520	61,687	1,925	138,579	1,194	743	.....	8,263	304,099	113,595
16	329,694	314,405	8,020	9,376	94,092	4,088	104,646	1,730	3,454	.....	28,999	351,095	182,361
17	3,433,729	13,580,217	115,683	71,769	554,496	139,134	12,237,668	10,358	21,856	10,271	418,982	14,287,499	1,910,697
18	4,494,997	4,234,116	118,011	107,116	664,685	63,211	3,010,709	6,216	22,762	94	240,712	4,970,911	1,806,901
19	65,105	63,025	2,850	1,010	35,036	2,259	11,590	2,250	495	1,700	5,835	98,752	84,903
20	10,188,595	9,037,296	268,312	263,808	2,239,979	102,417	5,159,830	20,507	66,374	4,722	911,248	10,158,883	4,896,627
21	3,571,062	6,838,436	176,432	134,254	3,499,645	188,129	2,727,645	100	18,577	619	93,035	6,838,438	3,922,664
22	1,345,198	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	103,867	108,301	825,646	745,207	657,785	24,656	52,450	5,040	236,949	2,914,953	1,511,871
24	20,015,346	8,502,007	322,015	237,725	2,012,122	2,487,283	2,585,098	1,215	93,476	.....	853,073	12,890,206	7,817,825
25	3,550,624	5,686,594	175,088	219,658	1,221,065	26,866	3,361,660	31,341	24,365	33,500	593,051	6,532,331	3,143,805
26	1,889,520	3,150,750	115,612	161,821	744,508	21,564	1,088,778	29,036	10,093	3,846	374,802	3,586,856	1,876,514
27	753,002	914,692	44,976	69,034	207,884	9,613	483,762	3,082	9,423	3,650	83,268	1,084,527	591,152
28	1,769,809	2,657,530	79,102	141,907	361,097	32,826	1,704,602	49,079	9,728	23,201	195,298	2,943,761	1,146,333
29	3,918,175	3,606,426	135,859	90,890	1,016,422	14,067	1,989,693	5,701	40,321	30,313	283,160	3,989,384	1,985,624
30	4,757,834	4,213,649	114,758	133,141	1,121,040	35,635	2,509,394	27,554	22,716	4,602	244,209	4,928,822	2,383,793
31	3,038,479	3,932,441	237,192	391,974	835,256	20,089	1,856,495	9,343	20,860	34,128	527,104	4,367,516	2,490,932
32	1,368,591	915,966	59,706	46,110	300,988	22,412	361,445	7,911	9,402	4,935	96,997	1,123,922	740,065
33	25,519	14,412	.....	149	3,708	172	9,505	246	93	.....	530	21,324	11,647
34	2,244,049	2,057,924	151,041	104,747	494,325	42,926	987,562	13,988	10,402	8,085	243,888	2,326,999	1,296,511
35	79,749	169,142	7,182	1,412	81,030	8,284	60,208	4,622	487	.....	5,317	197,778	129,286
36	198,276	244,985	10,124	6,597	61,414	6,185	149,208	1,200	5,922	.....	4,245	284,455	128,972
37	523,446	497,744	26,840	50,510	153,335	4,355	194,704	5,166	2,748	.....	60,146	592,863	393,804
38	11,147,135	31,617,233	228,537	166,030	805,899	248,762	29,110,649	38,500	87,726	925	930,106	34,860,803	5,501,392
39	5,620,074	9,431,415	222,287	209,003	723,505	253,159	4,497,113	12,641	31,118	200	3,482,389	11,491,660	6,741,388
40	48,005,184	39,764,248	1,726,200	1,620,357	12,344,403	838,706	17,871,756	144,737	299,743	293,311	4,624,885	45,399,023	26,688,471
41	1,527,408	1,054,411	48,784	106,694	266,502	14,080	968,699	27,942	6,760	1,550	212,500	2,283,576	1,299,897
42	196,747	508,004	13,580	28,040	139,934	3,574	274,295	5,646	1,108	96	41,671	617,109	339,240
43	28,222,203	25,448,589	1,052,256	1,049,734	8,300,170	311,339	11,406,889	46,504	224,436	115,362	2,941,899	28,641,684	16,923,456
44	922,548	1,135,425	57,771	40,450	218,848	11,945	630,217	7,680	4,996	8,674	154,844	1,545,896	903,734
45	33,258,917	4,472,212	244,829	294,686	1,096,124	1,448,684	680,433	840	308,202	7,584	390,830	6,748,070	4,618,953
46	137,643	367,730	19,956	6,645	58,542	1,945	236,226	294	2,040	30	32,043	386,064	147,893
47	134,920	93,889	5,200	1,907	43,659	1,407	30,203	2,358	688	800	7,577	135,950	104,250
48	174,947	323,974	14,382	20,012	75,207	1,878	166,610	6,401	789	.....	38,605	354,451	185,963
49	3,734,803	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	1,982,499
50	676,553	153,786	10,260	9,720	77,174	20,022	20,440	.....	3,015	.....	12,255	199,105	158,643
51	8,290,548	5,317,635	96,434	52,031	632,096	1,866,917	2,357,594	3,000	48,511	12,346	249,706	5,824,396	1,600,885
52	2,326,255	2,572,193	69,373	59,336	661,435	168,913	1,429,217	4,342	11,938	.....	167,630	2,669,872	1,071,742
53	1,299,206	1,130,611	37,977	31,899	421,574	18,854	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	161,799
55	1,653,043	2,220,044	59,595	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	146,018	86,130	1,133,181	194,423	11,926,548	3,160	71,405	.....	541,334	15,331,104	3,210,133
57	381,896	268,990	14,050	3,730	85,195	64,929	68,672	375	5,500	2,400	23,530	327,079	193,478
58	12,383,746	7,351,986	370,843	187,510	1,072,696	240,459	2,180,580	5,085	1,635,211	4,630	1,054,972	9,840,108	7,419,069
59	43,075	16,164	900	1,604	6,040	173	5,553	.....	884	.....	950	20,674	14,948
60	57,290,374	54,363,745	1,510,379	827,020	16,298,314	262,174	28,779,468	65,295	982,615	1,616,994	4,021,486	61,513,560	32,471,918
61	1,070,977	1,193,540	20,048	61,081	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	.....	36,877	689,079	282,126

[1] Same number reported for one or more other months.

TABLE II.—DETAIL STATEMENT FOR THE

	INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried officers, supts. and managers.	Clerks. Male.	Clerks. Female.	Wage earners. Average number.	Wage earners. Number. Maximum month.	Wage earners. Number. Minimum month.	WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY. Total.	16 and over. Male.	16 and over. Female.	Under 16. Male.	Under 16. Female.	Primary horsepower.
1	Millinery and lace goods	5	40	7	.....	.....	2	31	Ja [1] 45	De 18	35	18	17	.....	.....	1
2	Mirrors	8	262	3	12	8	7	232	Se 244	Ja 224	234	234	.....	.....	.....	303
3	Models and patterns, not including paper patterns.	32	271	37	9	3	6	216	De 269	Je 173	270	267	1	2	.....	189
4	Musical instruments and materials, not specified.	9	211	9	18	12	13	159	Ap [1] 163	Au 154	158	150	8	.....	.....	161
5	Musical instruments, pianos and organs and materials.	17	1,903	8	54	97	25	1,779	De 1,956	Ja 1,041	1,957	1,892	55	10	.....	2,690
6	Oil, essential	23	89	27	3	4	1	54	Au 111	Ja [1] 15	104	100	4	.....	.....	365
7	Oilcloth and linoleum	3	59	.....	8	10	2	39	Au 42	My [1] 37	41	41	.....	.....	.....	210
8	Optical goods	11	254	6	12	22	19	195	Se 203	Ja 184	193	102	73	12	6	88
9	Paint and varnish	20	1,057	11	59	444	119	1,024	My 1,065	Ja 915	1,056	934	108	11	3	2,362
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	.....	.....	48,700
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	1,652	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	196	1	.....	.....	426
15	Printing and publishing	1,045	11,048	991	547	1,020	671	7,219	De 7,576	Ap 7,070	7,532	5,539	1,890	94	9	7,651
16	Pumps, not including steam pumps	6	46	5	1	4	1	35	Je 41	Ja 29	30	30	.....	.....	.....	72
17	Salt	27	1,567	12	57	98	37	1,303	Je 1,463	Ja 1,200	1,288	1,204	84	.....	.....	6,628
18	Saws	11	199	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	.....	.....	6,485
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 864	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 [2] 27	Jy [2] 27	27	26	.....	1	.....	69
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 [1] 17	Mh [1] 16	18	12	6	.....	.....	6
28	Tobacco manufactures	729	9,242	813	134	363	56	7,876	No 8,349	Ap 7,429	8,460	2,305	5,540	48	486	937
29	Type founding and printing materials.	5	77	5	5	6	1	60	Je 106	Ja [1] 6	96	90	6	.....	.....	125
30	Umbrellas and canes	4	23	5	1	.....	3	14	My [1] 15	Ja [1] 13	14	2	12	.....	.....	4
31	Wall plaster	16	840	10	18	56	16	746	Ap 819	De 647	651	620	31	.....	.....	3,020
32	Window shades and fixtures	7	663	2	8	14	3	636	De 726	Jy 427	712	572	137	3	.....	1,230
33	Wirework, including wire rope and cable.	37	1,261	23	59	212	58	909	De 996	Jy 833	978	874	88	16	.....	1,000
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	4,695
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 [3]	584	20,107	693	577	1,728	541	16,568	.....	.....	.....	.....	.....	.....	.....	33,673

[1] Same number reported for one or more other months.
[2] Same number reported throughout the year.
[3] 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	Cloth, 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	5	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 syrups	1	Furs, dressed	5
Bluing	2	Crucibles	1	Galvanizing	1
Butter, reworking	2	Dentists' materials	2	Glass	2
Buttons	2	Dyeing and finishing textiles	1	Glass, cutting, staining, and ornamenting	15
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		

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	$39,662	.....	$608	$11,948	$272	$21,671	$2,296	$14	.....	$2,853	$54,553	$32,610
2	396,062	560,239	$23,940	10,394	127,670	7,018	367,807	4,170	2,418	.....	16,822	650,066	284,241
3	139,028	211,197	11,386	4,699	140,965	3,937	29,353	6,957	553	$513	12,834	200,055	256,765
4	179,151	193,123	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	38,699	1,970,866	8,530	22,419	.....	406,115	4,226,266	2,216,791
6	305,895	453,857	9,200	3,900	10,571	2,443	412,639	.....	1,904	.....	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	250,159	95,414
8	297,215	291,822	15,704	37,483	78,013	3,981	109,418	5,200	1,990	.....	39,043	389,210	275,811
9	7,113,027	6,573,599	210,998	677,233	556,084	52,176	3,980,170	4,340	31,570	1,729	1,058,399	7,415,914	3,383,568
10	15,754,419	12,417,132	284,879	137,803	2,141,844	958,147	8,066,448	.....	113,847	46,253	667,911	13,022,124	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	1,597,052
12	11,451,918	11,396,391	565,371	1,568,396	1,509,355	68,820	4,872,597	34,825	111,751	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	875	4,579	23,377	437,688	360,688
14	325,427	195,452	10,613	3,722	88,620	35,459	38,346	.....	1,613	.....	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	205,437	87,487	520,044	1,837,019	17,348,341	12,413,815
16	86,981	60,075	1,000	2,835	19,790	2,282	28,820	276	312	.....	4,760	74,098	42,996
17	5,166,679	3,058,708	92,050	105,414	745,401	555,244	1,088,100	.....	38,277	32,899	401,317	3,052,996	2,009,646
18	345,096	244,146	15,226	17,010	85,504	7,509	78,414	2,032	1,378	.....	36,473	277,824	191,001
19	334,327	477,712	17,634	6,193	136,052	6,037	223,150	3,340	1,905	.....	82,702	523,087	294,491
20	6,971,919	4,725,309	128,729	179,767	1,380,081	84,807	2,404,065	12,836	40,359	1,049	492,716	5,033,836	2,544,064
21	1,660,139	1,682,238	56,050	77,609	458,733	19,354	776,643	2,610	8,879	2,000	270,760	1,895,847	1,069,850
22	3,584,247	12,632,575	56,818	95,400	481,245	59,329	11,606,490	2,872	18,630	.....	311,785	13,435,114	1,769,289
23	1,208,730	1,035,884	52,268	24,753	308,725	46,173	512,056	.....	7,370	.....	134,539	1,307,747	749,518
24	17,179	32,741	4,950	5,625	11,152	95	9,208	660	30	.....	1,021	38,525	29,222
25	56,545	61,433	1,500	3,804	21,639	1,790	17,848	1,808	168	.....	12,816	75,443	55,805
26	9,521,706	7,936,922	361,783	396,108	2,831,581	124,742	2,691,498	4,235	63,056	2,006	1,461,313	9,122,873	6,306,033
27	14,030	67,541	.....	8,364	10,416	264	15,485	1,683	16	.....	31,313	101,074	85,325
28	6,836,927	14,729,529	294,805	420,740	3,075,833	48,927	7,159,008	103,162	2,219,268	.....	1,407,720	10,178,533	8,970,598
29	150,907	76,727	3,685	1,974	28,551	2,399	25,864	1,690	1,248	.....	11,316	80,538	52,275
30	36,425	45,039	900	1,137	3,520	245	31,450	5,220	141	.....	2,420	59,112	27,417
31	1,774,903	1,125,976	43,976	79,138	275,613	75,128	336,043	325	9,485	.....	305,668	1,420,074	1,008,903
32	1,101,668	1,233,775	19,530	13,373	261,234	7,309	709,259	6,240	6,951	.....	110,879	1,295,954	489,386
33	4,406,719	4,801,238	93,989	231,897	428,476	32,273	3,413,947	6,018	24,688	83,092	486,858	5,284,870	1,838,650
34	2,820,750	1,956,220	39,918	23,848	504,151	969,106	186,243	.....	23,226	12,336	197,392	2,308,927	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	1,248,058	41,050	11,807	234,057	34,899	827,040	4,140	11,603	.....	81,362	1,571,364	708,525
37	49,074,957	69,317,310	1,102,612	2,529,766	9,122,844	1,287,167	48,021,006	134,759	2,350,331	221,922	4,546,903	77,873,025	28,565,452

[8] All other industries embrace—Continued.

Graphite and graphite refining	1
Grease and tallow	13
Grindstones	2
Hair work	5
Hats, fur-felt	1
Hats, straw	1
Hones and whetstones	2
Horseshoes, not made in steel works or rolling mills	1
House-furnishing goods, not elsewhere specified	7
Ink, printing	2
Ink, writing	3
Instruments, professional and scientific	6
Iron and steel forgings	4
Kaolin and ground earths	1
Labels and tags	6
Lasts	2
Lead, bar, pipe, and sheet	1
Liquors, distilled	2
Looking-glass and picture frames	16
Malt	4
Matches	2
Mineral and soda waters	97
Mucilage and paste	3
Needles, pins, and hooks and eyes	2
Oil, not elsewhere specified	4
Paving materials	1
Phonographs and graphophones	1
Photographic apparatus and materials	2
Pipes, tobacco	1
Roofing materials	5
Rubber goods, not elsewhere specified	2
Rules, ivory and wood	1
Safes and vaults	1
Screws, machine	1
Signs and advertising novelties	3
Silk and silk goods, including throwsters	2
Silverware and plated ware	1
Smelting and refining, copper	4
Smelting and refining, not from the ore	4
Soap	8
Sporting and athletic goods	12
Statuary and art goods	3
Sulphuric, nitric, and mixed acids	1
Toys and games	8
Typewriters and supplies	2
Upholstering materials	7
Vinegar and cider	146
Washing machines and clothes wringers	6
Waste	4
Wheelbarrows	2
Windmills	1
Wire	1

THIRTEENTH CENSUS OF THE UNITED STATES: 1910

DEPARTMENT OF COMMERCE AND LABOR

BULLETIN

BUREAU OF THE CENSUS
E. DANA DURAND, DIRECTOR

MANUFACTURES : MINNESOTA

STATISTICS OF MANUFACTURES FOR THE STATE, CITIES, AND INDUSTRIES

Prepared under the supervision of W. M. STEUART, Chief Statistician for Manufactures

INTRODUCTION.

This advance bulletin gives the statistics of manufactures for the state of Minnesota for the calendar year 1909 as shown by the Thirteenth Census. It will be reprinted without change as a part of the Compendium of the Census for Minnesota, and in the final reports of the Thirteenth Census.

The text summarizes the general results of the census inquiry, presenting a series of special tables in which the main facts printed in the general tables are given in convenient form for the state as a whole and for important industries. It also presents tables in which the statistics for the industries of the state as a whole and for a few important industries are classified by character of ownership, size of establishments, number of wage earners, and prevailing hours of labor, information which could not be presented in general tables for each industry without disclosing the facts for individual establishments.

At the end of the bulletin are two general tables.

Table I gives for 1909, 1904, and 1899 the number of establishments and of persons engaged in the industries, primary power, capital, salaries and wages, cost of materials, value of products, and value added by manufacture reported for all industries combined and for certain important industries (1) for the state as a whole and (2) for the cities of Minneapolis, St. Paul, and Duluth. It also gives the same items for all industries combined for every city having in 1910 a population of over 10,000 but less than 50,000.

Table II gives statistics in detail for 1909 for the state and for a larger number of industries.

Scope of census: Factory industries.—Census statistics of manufactures are compiled primarily for the purpose of showing the absolute and relative magnitude of the different branches of industry covered and their growth or decline. Incidentally, the effort is made to present data throwing light upon character of organization, location of establishments, size of establishments, labor force, and similar subjects. When use is made of the data for these purposes, it is imperative that due attention should be given to the limitations of the figures. Particularly is this true when the attempt is made to derive from them figures purporting to show average wages, cost of production, or profits. These limitations will be fully discussed in the general report on manufactures for the United States as a whole. It is impossible to reproduce such discussion in the bulletins relative to the individual states.

The census of 1909, like that of 1904, was confined to manufacturing establishments conducted under the factory system, as distinguished from the neighborhood, hand, and building industries. Where statistics for 1899 are given they have been reduced to a comparable basis by eliminating the latter classes of industries. The census does not include establishments which were idle during the entire year, or had a value of products of less than $500, or the manufacturing done in educational, eleemosynary, and penal institutions, or in governmental establishments, except those of the Federal Government.

Period covered.—The returns cover the calendar year 1909, or the business year which corresponds most nearly to that calendar year. The statistics cover a year's operations, except for establishments which began or discontinued business during the year.

The establishment.—The term "establishment" comprises the factories, mills, or plants which are under a common ownership or control, and for which one set of books of account is kept.

If, however, the plants constituting an establishment as thus defined were not all located within the same city or state, separate reports were secured in order that the separate totals might be included in the statistics for each city or state. In some instances separate reports were secured for different industries carried on in the same establishment.

Classification by industries.—The establishments were assigned to the several classes of industries according to their products of chief value. The products reported for a given industry may thus, on the one hand, include minor products very different from those covered by the class designation, and, on the other hand, may not include the total product covered by this designation, because some part of this product may be made in establishments in which it is not the product of chief value.

Selected industries.—The general tables at the end of this bulletin give the principal facts separately for the industries of the state. A selection has been made of the leading industries of the state for more detailed consideration. Sometimes an industry of greater importance than some of those selected is omitted because it comprises so few establishments that these detailed presentations would reveal the operations of individual concerns.

Comparisons with previous censuses.—Owing to the changes in industrial conditions it is not always possible to classify establishments by industries in such a way as to permit accurate comparison with preceding censuses. Table I, giving comparable figures for 1909, 1904, and 1899, therefore, does not embrace all the industries shown for 1909 in Table II.

Influence of increased prices.—In considering changes in cost of materials, value of products, and value added by manufacture, account should be taken of the general increase in the prices of commodities during recent years. To the extent to which this factor has been influential the figures can not be taken as an exact measure of increase in the volume of business.

Persons engaged in industry.—At the censuses of 1909, 1904, and 1899 the following general classes of persons engaged in manufacturing industries have been distinguished: (1) Proprietors and firm members, (2) salaried officers of corporations, (3) superintendents and managers, (4) clerks, and (5) wage earners. In the censuses of 1904 and 1899 these five classes were shown according to the three main groups: (1) Proprietors and firm members, (2) salaried officials, clerks, etc., and (3) wage earners. The second group included the three classes of salaried officers of corporations, superintendents and

managers, and clerks. In the present census an entirely different grouping is employed: That in to (1) proprietors and officials, (2) clerks, and (3) wage earners. The first group includes proprietors and firm members, salaried officers of corporations, and superintendents and managers.

At this census the number of persons engaged in the industries, segregated by sex, and, in the case of wage earners, also by age (whether under 16 or 16 and over), was reported for December 15, or the nearest representative day. The 15th of December was selected as representing for most industries normal conditions of employment, but where conditions were exceptional, and particularly in the case of certain seasonal industries, such as canning, the December date could not be accepted as typical, and an earlier date had to be chosen.

In the case of employees other than wage earners the number thus reported on December 15, or other representative day, has been treated as equivalent to the average for the year, since the number of employees of this class does not vary much from month to month in a given industry. In the case of wage earners the average is obtained in the manner explained in the next paragraph.

Wage earners.—In addition to the report by sex and age of the number of wage earners on December 15, or other representative day, a report was obtained of the number employed on the 15th of each month, without distinction of sex or age. From these figures the average number of wage earners for the year has been calculated by dividing the sum of the numbers reported each month by 12. The average thus obtained represents the number of wage earners that would be required to perform the work done if all were constantly employed during the entire year. Accordingly, the importance of any industry as an employer of labor is believed to be more accurately measured by this average than by the number employed at any one time or on a given day.

The number of wage earners reported for the representative day, though given for each separate industry, is not totaled for all industries combined, because in view of the variations of date such a total is believed not to be significant. It would involve more or less duplication of persons working in different industries at different times, would not represent the total number employed in all industries at any one time, and would give an undue weight to seasonal industries as compared with industries in continual operation.

In particular, totals by sex and age for the wage earners reported for the representative day would be misleading because of the undue weight given to seasonal industries, in some of which, such as canning and preserving, the distribution of the wage earners by sex and age is materially different from that in most industries of more regular operation. In order to determine as nearly as possible the sex and age distribution of the average number of wage earners in the state as a whole, the following procedure has been adopted:

The percentage distribution by sex and age of the wage earners in each industry, for December 15, or the nearest representative day, has been calculated from the actual numbers reported for that date. This percentage has been applied to the average number of wage earners for the year in that industry, to determine the average number of men, women, and children employed. These calculated averages for the several industries have been added up to give the average distribution for the state as a whole.

In 1899 and 1904 the schedule called for the average number of wage earners of each sex 16 years and over, and the total number under 16 years of age, for each month, and these monthly statements were combined in an annual average. Comparatively few manufacturing concerns, however, keep their books in such way as to show readily the number of men, women, and children (under 16) employed each month. These monthly returns by sex and age were, in fact, largely estimates. It was believed that a more accurate and reliable sex and age distribution could be secured by taking as a basis of estimate the actual numbers employed on a single day.

Prevailing hours of labor.—The census made no attempt to ascertain the number of employees working a given number of hours per week. The inquiry called merely for the prevailing practice followed in each establishment. Occasional variations in hours in an establishment from one period to another are disregarded, and no attention is given to the fact that a limited number of employees may have hours differing from those of the majority. In the tables all the wage earners of each establishment are counted in the class within which the establishment itself falls. In most establishments, however, all or practically all the employees work the same number of hours, so that these figures give a substantially correct picture of the hours of labor in manufacturing industries.

Capital.—For reasons stated in prior census reports, the statistics of capital secured by the census canvass are so defective as to be without value, except as indicating very general conditions. The instructions on the schedule for securing capital were as follows:

> The answer should show the total amount of capital, both owned and borrowed, on the last day of the business year reported. All the items of fixed and live capital may be taken at the amounts carried on the books. If land or buildings are rented, that fact should be stated and no value given. If a part of the land or buildings is owned, the remainder being rented, that fact should be so stated and only the value of the owned property given. Do not include securities and loans representing investments in other enterprises.

Materials.—Cost of materials refers to the materials used during the year, which may be more or less than the materials purchased during the year. The term materials includes fuel, rent of power and heat, mill supplies, and containers, as well as materials forming a constituent part of the product. Fuel includes all fuel used, whether for heat, light, or power, or for the process of manufacture.

Expenses.—Under "Expenses" are included all items of expense incident to the year's business, except interest, whether on bonds or other forms of indebtedness, and allowances for depreciation.

Value of products.—The value of products for any industry includes the total value of all products manufactured in establishments whose products of chief value fall under the industry designation. The amounts given represent the selling value at the factory of all products manufactured during the year, which may differ from the value of the products sold. Amounts received for work on materials furnished by others are included.

Value added by manufacture.—The value of products is not a satisfactory measure of either the absolute or the relative importance of a given industry, because only a part of this value is actually created by the manufacturing process carried on in the industry itself. Another part of it, and often by far the larger part, represents the value of the materials used, which have been produced by agriculture or mining or by other industrial establishments. For many purposes, therefore, the best measure of the importance of different classes of industry is the value created as the result of the manufacturing operations carried on within the industry. This value is obtained by deducting the cost of the materials consumed from the value of the product. The figure thus obtained is termed in the census reports "value added by manufacture."

There is a further statistical advantage which "value added" has over gross value of products. In combining the value of products for all industries the value of products produced by one establishment and used as materials in another is duplicated, and the total, therefore, gives a greatly exaggerated idea of the wealth created. No such duplication takes place in the total "value added by manufacture."

Cost of manufacture and profits.—Census data do not show the entire cost of manufacture, and consequently can not be used to show profits. No account has been taken of interest and depreciation. Even if the amount of profit could be determined by deducting the expenses from the value of the products, the rate of profit on the investment could not properly be calculated, because of the very defective character of the returns regarding capital.

Primary power.—The figures given for this item show the total of the primary power used by the establishments. They do not cover the power developed by motors operated by such power, the inclusion of which would evidently result in duplication.

Location of establishments.—The Census Bureau has classified establishments by their location in cities or classes of cities. In interpreting these figures due consideration should be given to the

fact that often establishments are located just outside the boundaries of cities, and are necessarily so classified, though locally they are looked upon as constituting a part of the manufacturing interests of the cities.

Laundries.—The census of 1909 was the first to include statistics of laundries. The reports are confined to establishments using mechanical power. The data are presented separately and are not included in the general total for manufacturing industries, in order to avoid interference with comparisons with prior censuses.

Custom sawmills and gristmills.—In order to make the statistics for 1909 comparable with those for 1904 the data for these mills have been excluded from all the tables presenting general statistics, and are given in a separate table at the end of this report.

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 excellent. 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	(1)	25.3	(1)
Proprietors and firm members	5,376	4,524	(1)	18.8	(1)
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	$184,903,000	$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	31.3	32.6

(1) 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 establishments 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.[1]			
		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	322	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	−11.3	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	15,609,000	3.8	8,424,000	6.6	64.1	27.8	65.4	26.3
Cars, and general shop construction and repairs by steam-railroad companies	28	8,232	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	403	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	230.5	51.6	195.9
Malt	9	138	0.2	4,315,000	1.1	784,000	0.6	200.2	395.0	160.5	301.3
Food preparations	30	405	0.5	4,207,000	1.0	1,383,000	1.1	164.4	127.0	197.7	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	1,695	2.0	3,759,000	0.9	1,859,000	1.5	38.4	31.7	15.5	51.4
Tobacco manufactures	339	1,613	1.9	3,305,000	0.8	2,109,000	1.6	5.0	20.7	0.1	38.8
Agricultural implements	17	1,014	1.2	3,014,000	0.7	1,024,000	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	10.0
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	20.3	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	170.9
Cooperage 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	808	1.0	2,175,000	0.5	1,192,000	0.9	16.4	−11.4	19.1	−12.5
Mattresses and spring beds	15	453	0.5	1,508,000	0.4	698,000	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	82	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	183.5
Artificial stone	123	653	0.8	1,099,000	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	600,000	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	387,000	0.1	236,000	0.2	−11.8	357.3	−12.9	421.2
Shipbuilding, including boat building	33	209	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	326,000	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	−25.8	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	129,000	0.1	15.3	596.7	44.9	535.7
Surgical appliances and artificial limbs	11	52	0.1	201,000	(2)	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	.....	.....	.....	.....

[1] Per cent of increase is based on figures in Table I, and a minus sign (−) denotes decrease. Where the percentages are omitted, comparable figures can not be given.
[2] 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 above 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 24.

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 above, 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 17. 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 17. 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.[1] 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, 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 bookbinding, 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,

[1] Minnesota Bureau of Labor Statistics, 1891–1894, page 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 roundhouses. 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	5,376	5,206	170
Salaried 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 24.

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	1,203	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	19.5	10.8	69.6
Butter, cheese, and condensed milk	1,971	33.1	6.8	60.1
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	11.9	25.1	63.1
Foundry and machine-shop products	7,273	7.2	10.2	82.5
Fur goods	1,300	6.2	12.5	81.2
Furniture and refrigerators	1,932	6.2	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, linseed	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	2.8	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.[1]	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	2,664	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	[2]
Foundry and machine-shop products	6,002	99.5	0.4	0.1
Fur goods	1,056	42.7	57.2	0.1
Furniture and refrigerators	1,605	98.4	0.9	0.7
Liquors, malt	1,653	97.1	2.8	0.1
Lumber and timber products	20,704	99.7	0.2	0.1
Oil, linseed	374	100.0	.....	.....
Patent medicines and compounds and druggists' preparations	475	56.0	43.4	0.6
Printing and publishing	5,041	73.8	25.3	0.9
Slaughtering and meat packing	1,021	97.5	2.2	0.3
Tobacco manufactures	1,613	72.5	26.5	1.0
All other industries	22,342	76.0	23.3	0.6

[1] For method of estimating the distribution, by sex and age periods, of the average number in all industries combined, see Introduction.
[2] 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	5,376	5.1	4,524	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	84,767	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 24, 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.	
					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.	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	58,040	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	82,981	90.6	286	14.2	20,041	89.3	10,676	62.8	9,905	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	19,049	85.0	16,436	96.6	3,213	26.1	61,710	92.9
June	85,038	93.8	1,980	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	19,044	85.0	16,727	98.3	2,917	23.7	63,609	94.0
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	66,021	99.4
December	86,896	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 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	**84,767**	**7,745**	**6,452**	**12,754**	**14,206**	**40,103**	**1,080**	**1,269**	**558**
Agricultural implements	1,014	1	.....	6	30	968	.....	.....	.....
Artificial stone	653	41	.....	171	105	336	.....	.....	.....
Bicycles, motorcycles, and parts	54	2	.....	34	18	.....	.....	.....	.....
Boots and shoes, including cut stock and findings	2,664	.....	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	179	.....	19	12
Carriages and wagons and materials	868	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	239	.....	.....
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	267	37	.....	.....	.....
Confectionery	715	4	4	47	159	501	.....	.....	.....
Cooperage and wooden goods, not elsewhere specified	850	157	4	82	140	467	.....	.....	.....
Copper, tin, and sheet-iron products	1,081	403	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	6,002	32	57	856	3,308	1,659	.....	.....	.....
Fur goods	1,056	146	610	254	2	44	.....	.....	.....
Furniture and refrigerators	1,695	10	16	356	77	1,236	.....	.....	.....
Gas and electric fixtures and lamps and reflectors	86	33	26	18	9	.....	.....	.....	.....
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	1,653	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	.....	140	326	549	.....	.....	.....
Mattresses and spring beds	453	6	15	8	90	334	.....	.....	.....
Musical instruments, pianos and organs and materials	143	.....	.....	45	74	24	.....	.....	.....
Oil, linseed	374	.....	.....	.....	.....	144	.....	88	142
Paint and varnish	164	5	.....	23	89	47	.....	.....	.....
Paper and wood pulp	607	.....	.....	.....	.....	77	448	56	26
Paper goods, not elsewhere specified	87	7	34	.....	43	3	.....	.....	.....
Patent medicines and compounds and druggists' preparations	475	54	166	89	142	24	.....	.....	.....
Photo-engraving	168	168	.....	.....	.....	.....	.....	.....	.....
Printing and publishing	5,641	1,905	2,106	803	395	210	162	.....	.....
Shipbuilding, including boat building	209	2	38	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	89	31	.....	.....	.....
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	7,202	436	348	1,709	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.	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.	Number or amount.	Percent of total.
Population	1910	2,075,708	654,837	31.5	60,219	2.9	78,466	3.8	516,152	24.9	1,420,871	68.5
	1900	1,751,394	461,383	26.3	42,631	2.4	52,969	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	1,603	39.1	151	3.7	126	3.1	1,326	32.4	2,493	60.9
Average number of wage earners.	1909	84,767	56,725	66.9	4,341	5.1	6,083	7.2	46,301	54.6	28,042	33.1
	1899	64,557	39,611	61.4	3,314	5.1	3,658	5.7	32,639	50.6	24,946	38.6
Value of products	1909	$409,419,621	$262,000,908	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	89,653,460	70.2	7,215,391	5.6	8,336,133	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	78,466	52,969
Winona	18,583	19,714
Mankato	10,365	10,599
St. Cloud	10,600	8,663
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 [1]	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 [1]	626	414	507	2,299,063	1,799,795	1,560,782
Virginia	188	(2)	(2)	518,996	(2)	(2)

[1] 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.
[2] 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.
ALL INDUSTRIES:				
1909	5,561	84,767	$409,419,621	$127,797,334
1904	4,756	69,636	307,858,073	97,304,124
Individual:				
1909	2,654	9,123	37,022,048	14,157,595
1904	2,325	9,580	35,226,563	13,629,774
Firm:				
1909	964	7,201	25,163,188	9,807,125
1904	953	9,233	29,187,081	11,400,160
Corporation:				
1909	1,326	67,475	330,924,567	102,083,135
1904	922	49,880	234,013,794	70,856,447
Other:				
1909	617	968	16,309,818	1,749,479
1904	556	925	9,430,635	1,417,743
Per cent of total:				
1909	100.0	100.0	100.0	100.0
1904	100.0	100.0	100.0	100.0
Individual:				
1909	47.7	10.8	9.0	11.1
1904	48.9	13.8	11.4	14.0
Firm:				
1909	17.3	8.5	6.1	7.7
1904	20.0	13.3	9.5	11.7
Corporation:				
1909	23.8	79.6	80.8	79.9
1904	19.4	71.6	76.0	72.8
Other:				
1909	11.1	1.1	4.0	1.4
1904	11.7	1.3	3.1	1.5
Bread and other bakery products, 1909	403	1,696	$6,785,083	$2,981,083
Individual	331	687	2,766,373	1,205,775
Firm	53	208	828,923	303,207
Corporation	19	801	3,189,787	1,382,011
Per cent of total	100.0	100.0	100.0	100.0
Individual	82.1	40.5	40.8	40.4
Firm	13.2	12.3	12.2	13.2
Corporation	4.7	47.2	47.0	46.4
Butter, cheese, and condensed milk, 1909	784	1,184	$25,287,462	$2,579,989
Individual	150	192	4,592,276	527,038
Firm	33	34	946,236	99,111
Corporation	46	165	3,957,931	446,190
Other	555	793	15,791,019	1,507,050
Per cent of total	100.0	100.0	100.0	100.0
Individual	19.1	16.2	18.2	20.5
Firm	4.2	2.9	3.7	3.8
Corporation	5.9	13.9	15.7	17.3
Other	70.8	67.0	62.4	58.4
Flour-mill and gristmill products, 1909	322	4,345	$139,136,129	$14,018,812
Individual	127	392	10,384,644	1,306,408
Firm	72	246	7,455,180	803,916
Corporation [1]	123	3,707	121,296,305	12,808,428
Flour-mill and gristmill products, 1909—Continued.				
Per cent of total	100.0	100.0	100.0	100.0
Individual	30.4	9.0	7.5	8.8
Firm	22.4	5.7	5.4	5.4
Corporation [1]	38.2	85.3	87.2	85.9
Foundry and machine-shop products, 1909	247	6,002	$15,008,716	$8,423,791
Individual	72	456	1,153,588	577,814
Firm	53	770	1,904,680	1,086,899
Corporation	122	4,776	12,550,448	6,759,078
Per cent of total	100.0	100.0	100.0	100.0
Individual	29.1	7.6	7.4	6.9
Firm	21.5	12.8	12.2	12.9
Corporation	49.4	79.6	80.4	80.2
Liquors, malt, 1909	65	1,053	$10,568,452	$8,225,745
Individual	21	75	290,709	200,322
Firm	10	52	207,671	141,349
Corporation	34	1,526	10,069,982	7,884,074
Per cent of total	100.0	100.0	100.0	100.0
Individual	32.3	4.5	2.8	2.4
Firm	15.4	3.1	2.0	1.7
Corporation	52.3	92.3	95.3	95.8
Lumber and timber products, 1909	525	20,704	$42,352,507	$21,487,278
Individual	265	1,431	2,396,800	1,313,033
Firm	132	1,053	1,702,401	998,578
Corporation [1]	128	18,220	38,163,207	19,175,667
Per cent of total	100.0	100.0	100.0	100.0
Individual	50.5	6.9	5.7	6.1
Firm	25.1	5.1	4.2	4.6
Corporation [1]	24.4	88.0	90.1	89.2
Printing and publishing, 1909	950	5,641	$15,982,212	$11,886,107
Individual	584	1,297	2,852,132	2,114,132
Firm	159	545	1,300,754	987,307
Corporation	175	3,742	11,646,607	8,640,615
Other	32	57	182,719	144,053
Per cent of total	100.0	100.0	100.0	100.0
Individual	61.5	23.0	17.8	17.8
Firm	16.7	9.7	8.1	8.3
Corporation	18.4	66.3	72.9	72.7
Other	3.4	1.0	1.1	1.2
Slaughtering and meat packing, 1909	30	1,921	$25,753,697	$3,597,414
Individual	12	37	431,504	80,339
Firm	7	60	641,363	115,859
Corporation	11	1,824	24,680,830	3,401,216
Per cent of total	100.0	100.0	100.0	100.0
Individual	40.0	1.9	1.7	2.2
Firm	23.3	3.1	2.5	3.2
Corporation	36.7	95.0	95.8	94.5

[1] 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 associations, 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.
ALL INDUSTRIES:				
1909	5,561	84,767	$409,419,621	$127,797,334
1904	4,756	69,036	307,858,073	97,304,124
Less than $5,000:				
1909	1,069	2,194	4,063,743	3,080,907
1904	1,715	1,968	4,189,970	2,756,313
$5,000 and less than $20,000:				
1909	1,743	6,767	18,742,699	9,419,792
1904	1,646	6,397	17,401,291	8,251,465
$20,000 and less than $100,000:				
1909	1,347	14,180	56,703,495	20,748,523
1904	992	13,258	42,029,326	17,299,268
$100,000 and less than $1,000,000:				
1909	437	37,726	130,802,555	51,618,590
1904	364	34,455	111,696,067	45,194,100
$1,000,000 and over:				
1909	65	23,900	198,507,729	42,929,522
1904	39	13,558	132,541,419	23,802,978
Per cent of total:				
1909	100.0	100.0	100.0	100.0
1904	100.0	100.0	100.0	100.0
Less than $5,000:				
1909	35.4	2.6	1.1	2.4
1904	36.1	2.8	1.4	2.8
$5,000 and less than $20,000:				
1909	31.3	8.0	4.6	7.4
1904	34.6	9.2	5.7	8.5
$20,000 and less than $100,000:				
1909	24.2	16.7	13.8	16.2
1904	20.9	19.0	13.6	17.8
$100,000 and less than $1,000,000:				
1909	7.9	44.5	31.9	40.4
1904	7.7	49.5	36.3	46.4
$1,000,000 and over:				
1909	1.2	28.2	48.5	33.6
1904	.8	19.5	43.1	24.5
Average per establishment:				
1909	.....	15	$73,623	$22,981
1904	.....	15	64,730	20,459
Bread and other bakery products, 1909	403	1,696	$6,785,083	$2,981,083
Less than $5,000	188	122	498,617	232,135
$5,000 and less than $20,000	166	388	1,546,967	692,205
$20,000 and less than $100,000	39	341	1,344,947	566,481
$100,000 and less than $1,000,000	10	845	3,394,552	1,490,262
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	46.6	7.2	7.3	7.8
$5,000 and less than $20,000	41.2	22.9	22.8	23.2
$20,000 and less than $100,000	9.7	20.1	19.8	19.0
$100,000 and less than $1,000,000	2.5	49.8	50.0	50.0
Average per establishment	.....	4	$16,836	$7,397
Butter, cheese, and condensed milk, 1909	784	1,184	$25,287,462	$2,579,989
Less than $5,000	41	20	135,307	22,668
$5,000 and less than $20,000	285	255	3,754,943	455,207
$20,000 and less than $100,000	438	752	16,301,849	1,541,188
$100,000 and less than $1,000,000 [1]	20	157	5,095,363	560,926
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	5.2	1.7	0.5	0.9
$5,000 and less than $20,000	36.4	21.5	14.8	17.6
$20,000 and less than $100,000	55.9	63.5	64.5	59.7
$100,000 and less than $1,000,000 [1]	2.6	13.3	20.1	21.7
Average per establishment	.....	2	$32,254	$3,291
Flour-mill and gristmill products, 1909	322	4,345	$139,136,129	$14,918,812
Less than $5,000	4	3	8,486	2,991
$5,000 and less than $20,000	60	53	732,336	119,467
$20,000 and less than $100,000	172	409	8,114,747	1,230,360
$100,000 and less than $1,000,000	62	727	21,611,152	2,471,175
$1,000,000 and over	24	3,153	108,669,408	11,094,789
Flour-mill and gristmill products, 1909—Continued.				
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	1.2	0.1	(2)	(2)
$5,000 and less than $20,000	18.6	1.2	0.5	0.8
$20,000 and less than $100,000	53.4	9.4	5.8	8.2
$100,000 and less than $1,000,000	19.3	16.7	15.5	16.6
$1,000,000 and over	7.5	72.6	78.1	74.4
Average per establishment	.....	13	$432,100	$46,332
Foundry and machine-shop products, 1909	247	6,002	$15,608,716	$8,423,791
Less than $5,000	55	66	140,567	96,116
$5,000 and less than $20,000	87	439	921,380	596,687
$20,000 and less than $100,000	74	1,296	3,304,431	1,908,377
$100,000 and less than $1,000,000 [1]	31	4,201	11,242,338	5,822,611
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	22.3	1.1	0.9	1.1
$5,000 and less than $20,000	35.2	7.3	5.9	7.1
$20,000 and less than $100,000	30.0	21.6	21.2	22.7
$100,000 and less than $1,000,000 [1]	12.6	70.0	72.0	69.1
Average per establishment	.....	24	$63,193	$34,104
Liquors, malt, 1909	65	1,653	$10,568,452	$8,225,745
Less than $5,000	7	8	25,144	16,080
$5,000 and less than $20,000	19	60	233,570	154,011
$20,000 and less than $100,000	23	203	1,055,214	748,299
$100,000 and less than $1,000,000	13	446	3,284,700	2,302,325
$1,000,000 and over	3	936	5,969,764	4,704,430
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	10.8	0.5	0.2	0.2
$5,000 and less than $20,000	29.2	3.6	2.2	1.9
$20,000 and less than $100,000	35.4	12.3	10.0	9.1
$100,000 and less than $1,000,000	20.0	27.0	31.1	31.6
$1,000,000 and over	4.6	56.6	56.5	57.2
Average per establishment	.....	25	$162,592	$126,550
Lumber and timber products, 1909	525	20,704	$42,352,507	$21,487,278
Less than $5,000	284	411	540,971	379,309
$5,000 and less than $20,000	117	663	1,178,289	702,675
$20,000 and less than $100,000	54	1,464	2,541,944	1,343,786
$100,000 and less than $1,000,000	62	11,059	22,724,546	11,787,096
$1,000,000 and over	8	7,107	15,357,757	7,274,322
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	54.1	2.0	1.3	1.8
$5,000 and less than $20,000	22.3	3.2	2.8	3.3
$20,000 and less than $100,000	10.3	7.1	6.0	6.2
$100,000 and less than $1,000,000	11.8	53.4	53.7	54.9
$1,000,000 and over	1.5	34.3	36.3	33.9
Average per establishment	.....	39	$80,671	$40,928
Printing and publishing, 1909	950	5,641	$15,982,212	$11,886,197
Less than $5,000	579	710	1,400,279	1,119,358
$5,000 and less than $20,000	249	1,127	2,361,608	1,850,231
$20,000 and less than $100,000	96	1,496	3,933,500	2,799,021
$100,000 and less than $1,000,000 [1]	26	2,308	8,286,825	6,117,497
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	60.9	12.6	8.8	9.4
$5,000 and less than $20,000	26.2	20.0	14.8	15.6
$20,000 and less than $100,000	10.1	26.5	24.6	23.5
$100,000 and less than $1,000,000 [1]	2.7	40.9	51.8	51.5
Average per establishment	.....	6	$16,823	$12,512
Slaughtering and meat packing, 1909	30	1,921	$25,753,697	$3,597,414
$5,000 and less than $20,000 [3]	9	17	88,380	30,752
$20,000 and less than $100,000	10	47	462,864	98,940
$100,000 and less than $1,000,000 [1]	11	1,857	25,202,453	3,467,722
Per cent of total	100.0	100.0	100.0	100.0
$5,000 and less than $20,000 [3]	30.0	0.9	0.3	0.9
$20,000 and less than $100,000	33.3	2.4	1.8	2.8
$100,000 and less than $1,000,000 [1]	36.7	96.7	97.9	96.4
Average per establishment	.....	64	$858,457	$119,914

[1] Includes the group "$1,000,000 and over." [2] Less than one-tenth of 1 per cent. [3] 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**	**804**	**303**	**145**	**99**	**32**	**21**	**6**
Agricultural implements	17	1	3	8	.....	3	.....	2	.....	.....
Boots and shoes, including cut stock and findings	18	.....	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	29	14	8	2	2	.....
Fur goods	42	.....	18	16	5	.....	2	1	.....	.....
Furniture and refrigerators	57	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	26	7	7	4
Oil, linseed	6	.....	.....	2	1	1	2	.....	.....	.....
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	.....	1
Tobacco manufactures	330	86	203	34	13	1	2	.....	.....	.....
All other industries	1,586	126	834	408	124	53	33	5	3	.....
	AVERAGE NUMBER OF WAGE EARNERS.									
All industries	**84,767**	.....	**6,967**	**9,681**	**9,623**	**10,473**	**15,182**	**11,408**	**13,883**	**7,550**
Agricultural implements	1,014	.....	7	94	.....	219	.....	694	.....	.....
Boots and shoes, including cut stock and findings	2,664	.....	10	15	78	402	239	1,295	625	.....
Bread and other bakery products	1,606	.....	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	102	388	587	2,701	3,091	1,277
Clothing, men's, including shirts	2,156	.....	15	235	281	307	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	591	1,188	.....
Fur goods	1,056	.....	27	144	171	.....	286	428	.....	.....
Furniture and refrigerators	1,695	.....	47	211	568	309	560	.....	.....	.....
Liquors, malt	1,653	.....	83	274	126	234	400	.....	536	.....
Lumber and timber products	20,704	.....	675	639	939	2,137	4,134	2,429	4,775	4,976
Oil, linseed	374	.....	.....	33	37	55	249	.....	.....	.....
Patent medicines and compounds and druggists' preparations	475	.....	99	104	60	94	118	.....	.....	.....
Printing and publishing	5,641	.....	1,268	1,194	1,166	775	718	.....	520	.....
Slaughtering and meat packing	1,921	.....	52	45	165	59	.....	303	.....	1,297
Tobacco manufactures	1,613	.....	424	330	384	75	400	.....	.....	.....
All other industries	22,342	.....	1,073	4,550	3,924	3,737	5,012	1,474	1,672	.....
	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	0.6	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	.....	85.9	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 24.

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	39.3	26.7
Boots and shoes, including cut stock and findings	5.6	17.8	68.0	8.7
Bread and other bakery products	4.7	17.1	66.9	11.3
Butter, cheese, and condensed milk	0.6	3.4	93.6	2.5
Cars and general shop construction and repairs by steam-railroad companies	3.6	44.2	51.4	0.7
Clothing, men's, including shirts	6.3	18.9	70.0	5.8
Flour-mill and gristmill products	1.6	2.1	92.4	3.9
Foundry and machine-shop products	8.6	27.8	51.1	12.5
Fur goods	6.7	16.6	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	3.8	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	54.9	28.7
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 [1]	1909	1904	1899 [1]	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	175,382	89.5	95.5	97.4
Steam	2,544	2,378	2,473	199,777	167,103	146,578	67.1	75.6	81.4
Gas	877	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	16	[2]	2,939	49	[2]	1.0	[3]	[2]
Other	.....	.....	.....	25	1,012	248	[2]	0.5	0.1
Rented	4,887	[2]	[2]	31,124	9,864	4,742	10.5	4.5	2.6
Electric	4,887	[2]	[2]	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	[2]	[2]	30,297	8,594	3,769	58.0	59.6	59.8

[1] Includes the neighborhood industries and hand trades, omitted in 1904 and 1909.
[2] Not reported. [3] 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.	Anthracite coal (tons).	Bituminous coal (tons).	Coke (tons).	Wood (cords).	Oil, including gasoline (barrels).	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	2,179	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	680	274	2,966	.....
Clothing, men's, including shirts	38	587	.....	43	54	279
Coke	.....	117,431	543	.....	.....	.....
Flour-mill and gristmill products	4,572	249,807	60	17,338	1,796	160
Foundry and machine-shop products	7,387	32,842	20,133	6,383	4,683	4,057
Fur goods	29	527	30	13	13	323
Furniture and refrigerators	308	10,065	17	2,441	215	25
Gas, illuminating and heating	44	97,088	1,266	200	190,502	5,188
Liquors, malt	1,731	57,341	10	11,571	145	412
Lumber and timber products	466	22,359	.....	2,221	664	36
Oil, linseed	.....	26,724	.....	.....	.....	.....
Patent medicines and compounds and druggists' preparations	101	3,072	28	93	6	215
Printing and publishing	1,874	6,879	56	1,774	1,147	17,053
Slaughtering and meat packing	980	68,005	.....	682	.....	.....
Tobacco manufactures	471	555	25	364	.....	194
All other industries	16,182	206,321	81,390	29,300	6,116	26,052

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**	**$122,050,123**	**$82,988,054**
Wheat flour:			
White—			
Barrels	22,712,534	23,839,717	22,641,833
Value	$114,070,231	$103,254,958	$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	229,651	132,671	74,718
Value	$936,066	$543,505	$193,038
Buckwheat flour:			
Pounds	990,387	2,247,420	1,764,929
Value	$33,047	$62,513	$46,732
Barley meal:			
Pounds	432,000	160,000	3,626,150
Value	$5,496	$3,200	$36,004
Feed:			
Tons	258,078	198,217	248,586
Value	$6,357,996	$3,721,948	$3,422,326
Offal:			
Tons	822,755	933,525	693,103
Value	$16,754,817	$13,967,200	$6,753,670
All other products	$658,493	$205,067	$133,708

[1] 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	498,800

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 [1]
Total value	$25,753,697	$17,588,707	$7,810,555
Beef, fresh:			
Pounds	59,276,609	55,358,469	26,659,666
Value	$3,187,527	$2,850,777	$1,082,902
Beef, salted or cured:			
Pounds	1,978,492	826,980	807,115
Value	$145,869	$42,817	$56,449
Veal, fresh:			
Pounds	5,765,536	2,120,934	640,910
Value	$386,210	$132,450	$55,439
Mutton, fresh:			
Pounds	5,655,124	8,283,313	4,585,842
Value	$480,143	$526,449	$359,455
Pork, fresh:			
Pounds	45,709,115	43,542,306	17,354,988
Value	$4,336,448	$3,204,733	$1,047,107
Pork, salted or cured:			
Pounds	82,480,987	71,741,762	37,453,695
Value	$9,253,591	$6,159,220	$2,601,446
Sausage, fresh or cured	$840,780	$758,695	$275,740
Lard:			
Pounds	21,429,517	26,435,556	8,248,174
Value	$2,581,501	$1,633,587	$507,922
Fertilizers and fertilizer materials:			
Tons	12,075	7,543	1,465
Value	$314,060	$154,867	$21,305
Hides:			
Number	160,048	125,784	59,269
Pounds	7,240,972	6,587,004	3,051,526
Value	$887,185	$654,461	$294,752
Pelts:			
Number	132,574	188,701	[2]
Value	$146,473	$187,802	[2]
All other products	$3,103,310	$982,849	$908,038

[1] Excluding statistics for one establishment, to avoid disclosure of individual operations.
[2] 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
Total value	$25,287,462	$12,871,129	$8,479,896
Butter:			
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	2,020,089
Value	$2,221,631	$747,324	$414,944
Cream sold:			
Pounds	1,338,833	1,345,769	2,067,102
Value	$140,867	$93,703	$195,102
All other butter factory products [1]	$54,443	$126,636	$302,686
Cheese:			
Full cream—			
Pounds	2,695,883	2,965,984	3,033,693
Value	$371,516	$294,339	$217,647
Part cream—			
Pounds	40,000	.....	.....
Value	$3,200	.....	.....
Other kind [2]—			
Pounds	.....	124,071	251,326
Value	.....	$12,778	$28,307
All other cheese factory products [3]	$810	$7,376	$809
All other products	$129,568	[4] $39,128	.....

[1] Includes skimmed milk sold and casein.
[2] Includes skimmed cheese.
[3] Includes whey.
[4] 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
Total	758	798	631	3,176,700	3,106,309	1,949,630
Daily	42	51	44	476,252	460,811	300,266
Sunday	7	10	9	237,205	100,304	[1]
Semiweekly	8	7	[2] 10	37,002	63,396	100,660
Weekly	614	634	493	1,269,856	1,151,145	908,478
Monthly	68	71	60	824,055	956,696	452,329
All other classes	19	25	15	331,370	284,047	187,897

[1] Included in circulation for daily.
[2] 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.[1]—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'	115,520	387,408	330,375
Women's	706,301	419,591	423,276
Misses' and children's	287,977	403,546	228,967
Slippers, total	(1)	42,000	60,003
All other, total	(1)	224,338	59,408

[1] 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.

[1] 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	3,085	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	76	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	28,131
Coke	Tons	252
Wood	Cords	4,248
Oil	Barrels	424
Gas	1,000 feet	16,832

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	3,066	6,516
Capital	$203,105	$792,085
Expenses	58,658	3,264,130
Services	45,250	46,705
Materials	2,001	[1] 3,190,150
Miscellaneous	11,407	27,275
Value of products	132,283	[1] 3,660,055

[1] 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 horsepower.	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	5,561	104,406	5,376	14,263	84,767	297,670	$275,416	$15,452	$47,471	$281,622	$409,420	$127,798
	1904	4,756	83,301	4,524	9,141	69,636	220,934	184,903	9,033	35,843	210,554	307,858	97,304
	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	7,703	319	637	1,090	2,885	1,795
	1899	18	1,120	10	182	928	1,018	3,730	190	423	719	1,764	1,045
Artificial stone	1909	123	867	157	57	653	596	830	37	380	379	1,090	711
	1904	32	329	42	22	265	77	200	18	151	137	384	247
	[1] 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	1,200	4,935	7,568	2,633
	1904	[2] 17	1,937	8	215	1,714	883	2,432	188	719	2,632	4,170	1,538
	1899	[2] 16	2,184	13	146	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	16	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	1,898	309	242	1,347	762	2,509	181	670	2,658	4,620	1,962
	1899	179	1,378	199	207	972	.....	1,569	113	393	1,532	2,760	1,228
Brick and tile	1909	82	1,200	79	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	137	829	22,707	25,287	2,580
	1904	771	1,563	286	236	1,041	11,511	3,305	63	634	11,140	12,871	1,731
	1899	596	1,201	210	341	740	8,025	2,265	59	398	7,180	8,480	1,291
Canning and preserving	1909	32	525	18	92	415	692	993	82	135	895	1,343	448
	1904	[2] 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	1,180	175	82	923	1,825	2,224	83	454	867	1,868	1,001
	1899	181	.....	.....	54	1,107	.....	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	6,061	340	3,300	3,716	7,380	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	2,363	253	722	2,814	4,459	1,645
	1904	30	1,662	51	115	1,496	315	1,996	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	2,353	2,907	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	150	202	919	1,674	755
	1899	16	.....	.....	123	393	.....	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	109	649	1,347	2,765	1,418
	1904	72	1,061	84	97	880	473	2,033	108	446	849	1,851	1,002
	1899	43	.....	.....	50	752	.....	628	61	301	768	1,616	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	234	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	52
Flour-mill and gristmill products	1909	322	6,890	466	2,079	4,345	93,840	38,595	2,135	2,782	124,217	139,136	14,919
	1904	303	5,733	416	836	4,481	86,093	34,857	906	2,651	109,061	122,059	12,998
	1899	336	.....	.....	605	4,036	.....	23,716	731	2,360	73,822	82,988	9,166
Food preparations	1909	30	558	27	126	405	1,272	1,586	230	205	2,824	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	[2] 198	4,357	228	381	3,748	.....	5,340	357	1,833	3,406	7,438	4,032

[1] Not reported separately.

[2] Excluding statistics for one establishment, to avoid disclosure of individual operations.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
STATE—Continued.													
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	1,367
	1899	19	.....	.....	144	756	.....	1,134	119	289	1,125	1,978	853
Furniture and refrigerators	1909	57	1,932	43	194	1,695	2,782	4,022	232	930	1,900	3,759	1,859
	1904	54	1,774	46	177	1,551	2,300	2,421	174	734	1,107	2,716	1,609
	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	62	202	19	52	144	284	140
	1904	[1] 7	64	8	8	48	25	61	8	29	43	100	57
	1899	7	.....	.....	11	38	.....	36	7	21	27	84	57
Gas, illuminating and heating	1909	42	1,018	1	169	848	3,538	13,821	171	292	820	2,874	2,054
	1904	16	666	5	86	575	1,238	11,300	79	268	624	2,033	1,409
	1899	11	433	.....	58	375	.....	8,909	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	316	908	72	190	626	1,203	577
	1899	[1] 8	315	1	21	293	.....	484	27	78	197	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	.....	.....	.....	21	.....	12	.....	6	17	29	12
Leather goods	1909	42	1,080	32	178	870	418	1,828	184	448	1,086	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	70	128	289	161
	[2] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Liquors, malt	1909	65	2,238	42	543	1,653	6,912	20,733	750	954	2,343	10,568	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	20,865	42,353	21,488
	1904	332	21,878	365	1,042	20,471	57,575	34,884	1,249	10,309	17,798	42,033	24,235
	1899	361	.....	.....	846	22,395	.....	35,662	960	10,232	23,823	47,080	23,257
Malt	1909	9	175	.....	37	138	3,507	3,120	65	110	3,531	4,315	784
	1904	7	95	.....	26	69	1,100	1,310	47	51	897	1,198	301
	1899	5	39	2	9	28	.....	314	11	14	167	242	75
Marble and stone work	1909	112	2,067	105	104	1,738	5,422	2,783	169	1,020	1,045	2,965	1,920
	1904	53	960	78	55	827	1,743	904	47	509	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	1,508	698
	1904	8	245	9	44	192	102	430	41	93	297	581	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	[3] 3	27	3	1	23	26	28	1	16	28	55	27
	1899	[1] 3	42	3	4	35	.....	68	3	12	26	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	6,089	7,018	929
	1899	5	200	.....	45	155	.....	1,963	71	82	2,951	3,273	322
Paint and varnish	1909	14	294	8	122	164	420	1,387	148	101	880	1,489	609
	1904	[1] 5	125	2	45	78	222	672	56	37	454	709	255
	1899	[1] 6	86	5	20	52	.....	325	28	20	209	358	149
Paper and wood pulp	1909	9	640	.....	33	607	23,440	3,235	64	361	1,438	2,385	947
	1904	4	418	.....	22	396	7,153	1,491	31	234	677	1,146	469
	[4] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Paper goods, not elsewhere specified	1909	8	120	11	28	87	47	150	21	27	143	252	109
	1904	4	15	3	.....	12	4	6	.....	5	3	13	10
	[4] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Patent medicines and compounds and druggists' preparations.	1909	101	1,083	82	526	475	741	4,154	320	188	1,690	4,412	2,722
	1904	77	705	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	168	45	148	60	157	39	350	311
	1904	7	129	8	19	102	25	57	14	66	23	145	122
	1899	10	68	12	3	53	.....	29	1	29	10	70	60
Printing and publishing	1909	950	9,078	1,036	2,401	5,641	5,765	13,905	2,257	3,507	4,696	15,982	11,886
	1904	919	7,410	984	1,813	4,613	3,958	8,807	1,442	2,033	2,787	11,564	8,777
	1899	[1] 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	.....	102	8	74	85	224	139
Show cases	1909	7	120	5	11	104	215	166	12	77	112	241	129
	1904	6	124	6	6	112	128	72	4	71	120	209	89
	1899	3	17	3	.....	14	.....	14	.....	7	10	30	14

[1] Excluding statistics for one establishment, to avoid disclosure of individual operations.
[2] Not reported separately.
[3] Excluding statistics for two establishments, to avoid disclosure of individual operations.
[4] Figures can not be shown without disclosing individual operations.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
STATE—Continued.													
Slaughtering and meat packing	1909	30	2,452	28	503	1,921	4,579	$7,881	$510	$1,129	$22,156	$25,754	$3,598
	1904	29	1,691	34	281	1,376	1,609	3,437	254	788	15,104	17,589	2,485
	1899	[1] 20	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
	[2] 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	3,365	2,109
	1904	352	2,288	393	115	1,780	20	1,469	120	837	1,098	3,205	2,107
	1899	308	1,099	345	92	1,562	23	1,225	84	662	954	2,472	1,518
Woolen, worsted, and felt goods, and wool hats.	1909	16	306	13	16	277	642	957	26	123	429	699	270
	1904	16	386	15	28	343	941	634	34	129	463	791	328
	1899	19	326	6	20	300	.....	763	23	91	272	497	225
All other industries	1909	552	9,015	483	1,330	7,202	19,158	24,302	1,484	3,735	16,079	26,342	10,263
	1904	436	6,037	436	660	4,941	10,306	12,403	707	2,404	11,317	17,509	6,192
	1899	435	.....	.....	571	4,388	.....	8,620	527	1,851	8,283	12,043	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	$8,336
	1904	163	4,045	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	[1] 4	84	5	5	74	.....	60	4	18	90	130	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
	[3] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Foundry and machine-shop products	1909	13	580	6	95	479	1,399	1,802	125	338	600	1,375	766
	1904	8	357	4	51	302	.....	586	55	186	349	703	354
	1899	8	.....	.....	37	303	.....	273	30	105	194	476	282
Leather goods	1909	6	180	6	34	140	70	344	33	82	449	640	191
	1904	[1] 4	116	2	13	101	.....	189	13	61	124	221	97
	1899	4	.....	.....	3	36	.....	19	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	2,926
	1904	17	2,172	18	101	2,053	.....	2,795	130	1,051	1,389	3,806	2,417
	1899	[4] 15	.....	.....	63	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	386	32	146	208	.....	427	103	120	139	593	454
	1899	[4] 20	.....	.....	17	197	.....	191	20	110	63	317	254
Tobacco manufactures	1909	15	198	18	6	84	.....	63	5	51	68	180	112
	1904	[1] 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	58	147	1,005	.....	5,155	160	581	2,271	4,038	1,767
	1899	58	.....	.....	87	713	.....	1,741	83	341	1,823	2,672	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
	[5] 1904	876	26,045	847	3,527	21,671	.....	66,135	3,536	11,418	88,882	121,162	32,280
	1899	789	.....	.....	2,158	19,620	.....	50,177	2,113	9,383	68,910	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
	[2] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bread and other bakery products	1909	100	1,156	108	151	897	560	3,644	182	481	2,036	3,605	1,569
	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	106	.....	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

[1] Excluding statistics for one establishment, to avoid disclosure of individual operations.
[2] Not reported separately.
[3] Figures can not be shown without disclosing individual operations.
[4] Excluding statistics for two establishments, to avoid disclosure of 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.

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 horsepower.	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.					
MINNEAPOLIS—Continued.													
Carriages and wagons and materials	1909	23	264	21	32	211	257	$437	$39	$142	$236	$566	$330
	1904	[1] 23	211	29	11	171	.....	239	13	94	143	322	179
	1899	23	.....	.....	10	102	.....	173	11	73	161	332	171
Cars and general shop construction and repairs by steam-railroad companies.	1909	3	2,683	.....	107	2,576	1,674	2,359	108	1,803	2,338	4,309	1,971
	1904	4	1,725	.....	91	1,634	.....	1,400	78	953	982	2,027	1,045
	1899	4	.....	.....	71	1,268	.....	1,334	65	857	776	1,551	775
Clothing, men's, including shirts	1909	17	924	20	98	806	127	851	91	257	985	1,611	626
	1904	[2] 10	439	14	48	377	.....	547	39	125	616	890	274
	1899	10	.....	.....	44	577	.....	298	36	100	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	396	737	341
	1899	4	.....	.....	40	122	.....	94	22	35	212	335	123
Cooperage 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	.....	608	38	296	873	1,415	542
	1899	14	.....	.....	29	555	.....	436	23	279	932	1,454	522
Copper, tin, and sheet-iron products	1909	47	472	45	62	365	162	548	56	248	401	939	538
	1904	31	399	34	42	323	.....	350	37	193	283	703	420
	1899	22	.....	.....	10	158	.....	108	6	83	156	342	186
Electrical machinery, apparatus, and supplies.	1909	8	149	2	20	118	144	333	40	64	166	391	225
	1904	7	131	6	18	107	.....	222	22	60	122	250	128
	1899	7	.....	.....	11	70	.....	69	7	38	110	190	80
Flour-mill and gristmill products	1909	13	3,594	6	1,309	2,279	50,598	19,869	1,295	1,530	70,053	78,070	7,717
	1904	12	2,526	2	297	2,227	.....	10,489	401	1,404	56,358	62,754	6,396
	1899	11	.....	.....	230	2,066	.....	14,306	327	1,322	45,215	49,670	4,455
Foundry and machine-shop products	1909	95	3,254	59	599	2,596	3,405	7,304	669	1,754	3,389	7,241	3,852
	1904	[1] 70	2,328	55	304	1,969	.....	4,423	313	1,210	2,470	5,034	2,564
	1899	[2] 75	.....	.....	212	1,743	.....	2,462	180	799	1,691	3,778	2,087
Fur goods	1909	17	105	16	51	128	30	484	23	73	283	511	228
	1904	13	222	14	34	174	.....	228	36	75	230	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	.....	.....	53	536	.....	750	54	218	385	827	442
Gas and electric fixtures and lamps and reflectors.	1909	7	30	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	47
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
	[3] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jewelry	1909	8	104	13	15	76	31	40	14	48	55	156	101
	1904	5	64	5	10	49	.....	50	7	29	35	97	62
	[3] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Leather goods	1909	14	331	10	61	260	98	637	76	147	503	923	420
	1904	[1] 12	225	11	45	169	.....	571	41	92	206	498	292
	1899	[1] 7	.....	.....	20	146	.....	234	10	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	58	251	.....	3,710	100	103	427	1,186	759
	1899	4	.....	.....	44	194	.....	4,195	67	125	252	1,508	1,256
Lumber and timber products	1909	34	5,262	19	248	4,995	11,824	11,509	424	2,838	5,927	11,508	5,581
	1904	36	4,881	30	244	4,607	.....	9,830	344	2,327	5,360	10,388	5,028
	1899	20	.....	.....	196	5,331	.....	10,748	278	2,676	7,759	14,647	6,888
Marble and stone work	1909	10	318	10	29	279	352	461	31	209	273	555	282
	1904	[1] 5	71	8	.....	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	.....	7	.....	5	2	21	19
Paper goods, not elsewhere specified	1909	5	105	6	28	71	30	107	21	19	119	204	85
	1904	3	22	2	.....	20	.....	15	.....	6	13	29	16
	[3] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Patent medicines and compounds and druggists' preparations.	1909	52	583	30	340	195	259	1,780	167	77	403	1,301	988
	1904	[1] 28	463	20	305	138	.....	945	147	61	783	1,724	941
	1899	[2] 15	.....	.....	90	48	.....	359	53	20	100	344	244
Photo-engraving	1909	5	130	.....	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	2,180	4,416	1,061	1,162	1,693	6,478	4,785
	1904	185	2,597	175	921	1,501	.....	3,203	728	902	1,117	4,700	3,043
	1899	165	.....	.....	448	1,338	.....	2,364	368	696	615	2,818	2,203

[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 can not be shown without disclosing individual operations.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
MINNEAPOLIS—Continued.													
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	12	22	23	$2	10	113	138	25
	1904	3	12	4	1	7	.....	17	1	4	33	44	11
	[1] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stereotyping and electrotyping	1909	3	40	.....	10	30	56	72	5	21	13	52	39
	1904	3	64	1	14	49	.....	166	15	29	20	130	110
	[1] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Surgical appliances and artificial limbs	1909	6	76	8	30	38	30	108	32	31	21	162	141
	1904	[2] 3	54	.....	[3] 30	24	.....	51	29	15	16	107	91
	1899	[2] 4	.....	.....	13	15	.....	18	13	9	12	66	54
Tobacco manufactures	1909	45	414	49	51	314	16	371	73	168	254	666	412
	1904	[3] 48	466	55	34	377	.....	293	38	184	224	646	422
	1899	[2] 42	.....	.....	28	335	.....	206	22	152	173	532	359
All other industries	1909	259	7,759	190	1,132	6,437	12,390	28,565	1,449	3,191	20,000	37,428	11,428
	1904	208	5,667	206	650	4,811	.....	16,598	702	2,176	15,821	22,449	6,628
	1899	200	.....	.....	468	4,020	.....	10,728	479	1,531	8,703	12,834	4,131
ST. PAUL—All industries	1909	719	23,530	649	3,542	19,339	26,204	$60,467	$4,048	$10,952	$30,300	$58,990	$28,690
	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	15,913	30,056	14,143
Artificial stone	1909	20	238	28	16	194	64	156	11	121	86	288	202
	1904	6	115	6	3	106	.....	68	2	67	52	166	114
	[4] 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boots and shoes, including cut stock and findings.	1909	5	1,777	1	159	1,617	697	3,004	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	1,646	643
Boxes, cigar	1909	3	38	5	1	32	15	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	240	495	48	253	743	1,368	625
	1904	41	399	47	58	294	.....	620	42	157	610	1,019	409
	1899	40	384	43	78	263	.....	474	31	123	480	876	396
Butter, cheese, and condensed milk	1909	6	102	5	47	50	535	170	27	39	1,018	2,120	202
	1904	[3] 4	61	3	9	49	.....	107	8	31	471	562	91
	1899	5	66	6	14	46	.....	175	12	20	433	518	85
Carpets, rag	1909	4	16	5	2	9	26	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	170	272	18	80	90	250	154
	1904	[2] 19	197	23	13	161	.....	327	12	80	132	304	172
	1899	[2] 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	3,521	5,923	167	1,577	1,840	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	.....	1,590	64	817	1,192	2,087	895
Clothing, men's, including shirts	1909	13	982	17	81	884	204	933	104	311	1,270	1,917	647
	1904	[2] 8	962	19	49	894	.....	1,183	64	278	763	1,366	603
	1899	12	1,360	23	94	1,243	.....	911	111	366	1,187	1,684	497
Confectionery	1909	9	219	5	44	170	157	286	50	59	334	537	203
	1904	10	256	6	45	205	.....	180	46	65	221	446	225
	1899	8	.....	.....	53	195	.....	131	43	45	231	463	232
Cooperage and wooden goods, not elsewhere specified.	1909	3	72	2	5	65	185	142	9	32	98	168	70
	1904	5	58	4	3	51	.....	109	4	22	78	126	48
	1899	7	.....	.....	6	76	.....	121	5	37	72	128	56
Copper, tin, and sheet-iron products	1909	31	649	26	74	549	262	2,022	83	208	674	1,282	608
	1904	[2] 24	309	30	35	244	.....	326	35	124	268	573	305
	1899	18	.....	.....	40	582	.....	512	55	208	595	1,242	647
Electrical machinery, apparatus, and supplies.	1909	5	83	1	13	69	61	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	3,474	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	242	1,638	196	469	1,840	3,110	1,270
	1904	13	1,132	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
Furniture and refrigerators	1909	19	543	19	69	455	804	1,588	93	288	695	1,289	594
	1904	17	413	15	44	354	.....	545	43	213	316	727	411
	1899	11	303	12	35	256	.....	302	35	105	277	556	279

[1] Figures can not be shown without disclosing individual operations.
[2] Excluding statistics for two establishments, to avoid disclosure of individual operations.
[3] Excluding statistics for one establishment, to avoid disclosure of individual operations.
[4] Not reported separately.

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. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
								Expressed in thousands.					
ST. PAUL—Continued.													
Leather goods	1909	9	330	5	53	272	214	$400	$49	$141	$502	$797	$295
	1904	9	354	8	44	302	.....	970	62	100	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	4,010	3,070
	1904	4	429	1	74	354	.....	5,529	123	242	664	2,596	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	2,804	1,637	82	352	1,034	1,679	645
	1904	[1] 13	788	9	62	717	.....	924	64	332	945	1,582	637
	1899	[2] 10	428	6	38	384	.....	607	28	145	657	930	273
Marble and stone work	1909	10	250	7	27	216	519	459	30	178	287	619	332
	1904	[2] 5	106	6	7	93	.....	145	4	72	106	226	120
	1899	5	137	6	9	122	.....	145	11	58	109	196	87
Mattresses and spring beds	1909	7	122	5	22	95	113	265	23	59	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	[1] 3	71	.....	25	46	.....	385	29	23	294	347	143
	1899	3	.....	.....	10	44	.....	208	23	10	175	299	124
Patent medicines and compounds and druggists' preparations	1909	25	216	23	94	99	158	359	69	45	212	728	516
	1904	24	144	23	36	85	.....	217	30	32	122	508	386
	1899	[1] 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	4,299
	1904	[1] 114	2,216	83	610	1,523	.....	2,683	498	988	1,044	3,868	2,824
	1899	[2] 98	2,206	89	707	1,410	.....	3,446	536	715	843	3,440	2,597
Tobacco manufactures	1909	64	728	65	73	590	11	687	110	312	408	1,336	868
	1904	[1] 63	749	60	51	632	.....	507	57	275	375	1,158	783
	1899	[1] 60	681	67	52	562	.....	513	52	240	335	866	531
All other industries	1909	201	5,534	175	813	4,546	7,738	17,414	1,032	2,300	10,006	16,604	6,598
	1904	177	3,603	156	442	3,005	.....	11,066	556	1,370	6,904	11,228	4,264
	1899	152	.....	.....	397	2,754	.....	9,007	379	862	5,188	8,221	3,033
CITIES OF 10,000 TO 50,000 INHABITANTS—ALL INDUSTRIES COMBINED.													
Mankato	1909	63	1,033	69	157	807	3,654	$2,217	$102	$346	$2,728	$3,723	$995
	1904	54	903	67	115	724	.....	2,223	102	303	2,520	3,422	903
	1899	47	.....	.....	81	520	.....	1,077	71	176	1,355	1,887	532
St. Cloud	1909	69	812	102	84	626	3,362	1,607	98	355	1,342	2,200	957
	[3] 1904	39	495	55	26	414	.....	855	30	240	1,217	1,800	583
	1899	30	.....	.....	50	507	.....	609	38	200	1,077	1,561	484
Stillwater	1909	38	940	83	169	688	1,952	3,277	222	359	1,648	2,686	1,038
	1904	36	1,100	38	203	955	.....	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	86	2,281	77	251	1,953	.....	6,087	282	894	5,274	7,850	2,576
	1899	72	.....	.....	186	1,905	.....	5,313	183	828	4,001	6,014	2,013
Virginia	1909	21	220	19	22	188	365	765	45	131	162	519	357
	[4] 1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	[4] 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 horsepower.
			Total	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners.			Total.	16 and over.		Under 16.		
						Male.	Female.	Average number.	Number. Maximum month.	Number. Minimum month.		Male.	Female.	Male.	Female.	
1	**All industries**	5,561	104,406	5,376	3,766	7,891	2,696	84,767	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	.....	1,468
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 [2] 6	Ja [2] 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 cut stock and findings.	18	2,949	4	48	188	45	2,664	De 2,854	My 2,437	2,862	1,826	1,021	6	9	1,411
8	Boxes, cigar	6	63	8	1	1	.....	53	My [2] 53	Ja [2] 52	52	20	32	.....	.....	27
9	Boxes, fancy and paper	11	666	5	28	23	15	595	De 639	Ja 568	654	290	358	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	1,696	No 1,753	Ja 1,600	1,765	1,249	499	12	5	955
12	Brick and tile	82	1,200	79	53	20	10	1,038	Jy 2,014	Ja [2] 246	1,632	1,613	1	18	.....	5,867
13	Brooms	10	118	21	4	2	.....	91	Fe 99	Jy [2] 85	92	91	.....	1	.....	43
14	Butter, cheese, and condensed milk	784	1,971	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	8	.....	.....	16
16	Canning and preserving	32	525	18	37	45	10	415	Se 1,438	Fe 198	1,157	594	456	61	46	602
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	808	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 2,207	Ja 2,050	2,411	255	2,156	.....	.....	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	320	135	181	.....	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 [3] 6	Jy [3] 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 [2] 196	Ja 165	180	8	180	1	.....	51
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 [4] 0	131	131	.....	.....	.....	825
42	Hand stamps and stencils and brands	6	64	5	4	6	5	44	Jy [2] 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 [2] 62	Ja [2] 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	853
45	Jewelry	17	165	23	9	3	11	119	De 129	Mh [2] 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	1,558	46	1	.....	6,912
49	Lumber and timber products	525	22,304	645	383	500	72	20,704	Oc 23,116	Ap 19,177	26,453	26,367	47	39	.....	67,830
50	Malt	9	175	.....	21	14	2	138	Oc 160	Je 121	156	155	1	.....	.....	3,567
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	453	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 [3] 2	Jy [3] 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	.....	.....	153
57	Oil, linseed	6	433	.....	18	29	12	374	Oc 510	Jy 256	450	450	.....	.....	.....	3,821
58	Optical goods	6	45	3	7	4	6	25	Ja [3] 25	Jy [3] 25	25	23	1	1	.....	8
59	Paint and varnish	14	204	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 [2] 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 [2] 175	Oc 161	166	157	9	.....	.....	45

[1] No figures given for reasons explained in the Introduction, page 2. See also discussion of wage earners on page 8.
[2] Same number reported for one or more other months.

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	$275,431,699	$1,419,140	$3,560,403	$2,483,017	$24,054,791	$409,419,621	$127,797,334
2	6,074,278	2,775,879	101,085	210,495	631,775	58,606	1,031,840	723	22,031	100	718,624	3,013,595	1,023,149
3	820,882	865,887	28,028	8,057	379,558	12,473	366,625	2,001	5,074	6,724	56,747	1,089,893	710,795
4	230,408	409,736	20,840	12,224	75,229	3,075	250,218	12,820	603	.....	34,718	420,286	175,993
5	5,455	6,004	.....	.....	3,234	123	2,200	120	44	.....	223	9,131	6,748
6	224,113	284,735	9,982	2,500	31,701	1,208	213,731	3,271	733	10,050	11,373	325,520	110,491
7	5,729,038	7,260,058	120,233	286,077	1,290,216	40,087	4,893,910	66,905	23,541	47,858	490,631	7,567,582	2,632,085
8	57,881	75,441	1,000	780	20,988	1,211	40,202	2,400	523	.....	2,337	90,091	48,678
9	928,065	904,276	62,723	26,285	236,184	13,738	467,695	15,715	4,303	.....	77,633	1,023,015	541,582
10	66,273	129,315	4,200	2,650	21,006	2,702	88,349	1,452	289	.....	7,767	138,561	47,510
11	4,976,214	5,688,023	66,505	203,590	972,042	127,846	3,676,154	90,594	23,305	.....	527,987	6,785,083	2,081,083
12	2,589,632	1,165,897	61,541	25,760	537,546	321,610	56,666	2,300	11,593	11,091	137,700	1,442,149	1,063,873
13	106,523	216,617	2,796	1,710	60,466	1,625	137,412	402	425	.....	11,781	269,839	130,802
14	4,752,089	24,272,895	82,421	54,096	829,306	255,693	22,451,780	19,222	21,004	4,046	555,327	25,287,462	2,579,989
15	7,701	21,418	.....	.....	8,572	319	5,391	1,155	27	.....	5,954	29,936	24,226
16	992,892	1,207,872	38,880	43,491	134,592	11,153	883,042	9,482	3,611	173	82,848	1,343,021	448,226
17	66,566	84,818	3,300	3,725	43,371	2,601	10,533	2,736	428	1,961	7,104	111,376	89,242
18	2,331,060	1,752,530	65,737	36,601	529,317	32,177	950,821	20,274	15,295	745	101,572	2,174,705	1,191,707
19	13,183,110	12,630,654	286,700	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	103,111	722,610	18,005	2,705,612	45,103	12,650	2,525	171,569	4,458,919	1,645,242
21	108,337	260,703	6,125	5,060	109,585	2,800	107,342	6,855	743	.....	22,223	304,871	194,069
22	1,056,835	2,778,432	48,050	64,165	122,535	20,481	2,332,515	32,445	5,138	210	151,993	2,997,075	644,079
23	1,176,832	2,115,724	61,656	182,853	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	51,940	17,090	444,144	14,481	1,408,029	3,903	9,818	151	76,061	2,187,441	764,931
25	2,924,847	2,392,564	95,146	73,809	648,614	20,447	1,326,410	20,343	10,100	400	191,235	2,765,012	1,418,155
26	64,178	72,911	4,400	1,014	24,857	3,852	31,066	1,815	614	.....	4,693	85,840	50,322
27	148,177	91,952	7,050	2,180	22,400	950	40,563	1,500	779	.....	9,921	117,162	69,649
28	5,030	26,472	.....	888	2,390	207	20,425	936	38	.....	1,498	34,100	13,378
29	427,208	435,707	36,050	17,491	100,751	7,132	213,051	4,428	1,877	.....	54,417	526,101	305,918
30	47,143	83,003	3,240	255	53,103	4,663	14,908	3,115	166	30	3,304	100,004	80,373
31	234,281	362,092	23,884	44,725	72,473	3,117	148,169	5,481	609	.....	63,634	386,721	235,435
32	38,594,701	134,377,740	765,878	1,368,962	2,781,534	1,179,702	123,037,615	143,904	221,093	351,425	4,526,967	130,136,120	14,918,812
33	1,585,087	3,676,839	147,928	81,700	205,311	41,246	2,782,612	18,354	9,463	59,326	330,809	4,207,252	1,383,394
34	16,872,857	14,048,289	607,838	600,169	3,904,029	348,689	6,836,236	71,131	83,718	130,304	1,466,175	15,608,716	8,423,791
35	2,250,802	3,375,800	78,380	147,751	500,325	8,403	2,204,569	55,010	12,558	95,025	212,779	3,775,970	1,562,998
36	183,290	353,098	8,774	12,775	49,069	1,916	248,633	4,748	696	2,134	25,283	420,291	169,742
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	2,402	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	314,369	2,874,281	2,054,449
40	55,029	57,196	3,920	2,800	12,870	608	34,006	1,802	504	.....	686	60,992	26,378
41	222,783	124,318	1,401	500	11,492	5,320	94,410	.....	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	93,860	69,871
43	66,529	92,187	936	5,028	29,774	766	49,800	2,470	226	.....	3,007	112,933	62,277
44	1,978,729	1,701,799	56,221	130,318	348,310	17,517	1,068,553	2,450	7,121	.....	161,309	2,242,694	1,156,624
45	69,238	202,890	9,420	9,585	81,501	2,112	84,800	8,073	391	.....	6,267	254,902	167,900
46	1,828,262	2,533,864	81,825	101,930	448,113	15,116	1,670,404	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	310,920	167,797
48	20,733,066	8,113,714	427,704	330,878	953,003	243,618	2,099,089	324	1,022,714	500	2,435,284	10,568,452	8,225,745
49	49,127,615	38,441,046	880,856	570,282	10,017,945	110,975	20,754,254	39,536	626,283	1,186,492	3,345,423	42,352,507	21,487,278
50	3,120,214	3,860,006	52,153	12,446	110,326	125,561	3,405,563	967	20,464	600	131,926	4,314,805	783,681
51	2,782,613	2,436,152	91,547	77,007	1,028,523	83,608	961,078	8,180	14,783	16,086	155,340	2,964,883	1,920,197
	1,266,272	1,315,857	43,581	54,534	247,699	15,447	794,793	3,970	5,738	.....	150,095	1,508,417	698,177
52	322,856	899,820	23,932	52,529	151,924	2,055	596,364	11,080	1,193	.....	60,143	930,783	332,364
53	21,440	47,020	1,800	.....	27,084	1,281	11,286	3,237	159	.....	1,573	64,716	52,149
54	2,294	2,760	.....	.....	1,577	117	517	396	23	.....	130	4,405	3,771
55	618,547	288,427	13,514	6,978	99,546	6,380	120,059	495	1,226	.....	40,229	294,452	168,013
56	4,764,442	10,396,675	69,578	37,233	250,354	84,276	9,600,400	.....	17,908	.....	336,926	11,036,916	1,352,240
57	36,758	80,371	14,340	8,645	14,858	630	20,022	6,960	337	.....	14,579	81,670	61,018
58													
59	1,386,751	1,328,480	63,277	84,944	100,550	10,210	879,007	11,425	7,685	200	171,182	1,488,692	599,475
60	3,234,935	2,028,591	48,983	15,360	360,986	102,937	1,274,830	.....	20,807	.....	144,679	2,385,026	947,250
61	149,719	207,281	5,880	15,265	27,109	1,539	141,106	3,589	526	5,000	7,207	252,067	109,362
62	4,154,220	3,079,732	141,158	178,550	187,729	21,308	1,668,353	27,088	28,610	4,630	822,306	4,411,965	2,722,304
63	147,960	321,819	28,422	31,709	157,493	4,967	33,666	10,556	392	.....	54,614	349,566	310,933

[3] Same number reported throughout the entire year.

[4] 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 horsepower.
			Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners.			Total.	16 and over.		Under 16.		
						Male.	Female.	Average number.	Number. Maximum month.	Number. Minimum month.		Male.	Female.	Male.	Female.	
1	Printing and publishing	950	9,078	1,036	434	1,289	678	5,641	De 5,905	Jy 5,513	6,270	4,620	1,585	57	2	5,765
2	Shipbuilding, including boat building	33	257	36	5	4	3	209	Ap 250	Oc 158	191	191	.....	.....	.....	429
3	Show cases	7	120	5	7	4	.....	104	Fe [1] 109	Se 95	105	105	.....	.....	.....	215
4	Signs and advertising novelties	22	163	18	15	10	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	Au 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 [1] 54	Ja [1] 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	396	13	8	7	1	277	Oc 306	Ja 224	293	156	135	2	.....	642
12	All other industries [2]	358	6,863	312	326	535	179	5,511	.....	.....	.....	.....	.....	.....	.....	17,011

[1] Same number reported for one or more other months.

[2] All other industries embrace—

Awnings, tents, and sails	16	Cement	1
Babbitt metal and solder	1	Chemicals	4
Bags, other than paper	2	Clocks and watches, including cases and materials	1
Baking powders and yeast	4	Coffins, burial cases, and undertakers' goods	6
Beet sugar	1	Coke	1
Belting and hose, leather	3	Cordage and twine and jute and linen goods	1
Blacking and cleansing and polishing preparations	2	Cordials and sirups	1
Bluing	2	Corsets	2
Brushes	2	Drug grinding	2
Butter, reworking	2	Enameling and japanning	2
Carriages and sleds, children's	4	Engraving, wood	1
Cars and general shop construction and repairs by street-railroad companies	4	Fertilizers	1
Cars, steam-railroad, not including operations of railroad companies	1	Fire extinguishers, chemical	1
		Flags, banners, regalia, society badges and emblems	2
		Flavoring extracts	6
		Flax and hemp, dressed	1
		Furs, dressed	8
		Glass, cutting, staining, and ornamenting	10
		Gold and silver, reducing and refining, not from the ore	1
		Grease and tallow	8
		Hats, fur-felt	3
		Hats, straw	1
		Horseshoes, not made in steel works or rolling mills	3
		House-furnishing goods, not elsewhere specified	3
		Ink, printing	2
		Ink, writing	1
		Instruments, professional and scientific	2
		Iron and steel, blast furnaces	1

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	$13,905,155	$12,918,098	$859,228	$1,398,108	$3,507,290	$184,588	$3,911,517	$279,965	$71,099	$538,219	$2,168,084	$15,082,212	$11,886,107
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	165,829	213,499	8,733	3,440	76,787	5,677	106,670	6,200	931	130	4,931	240,085	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	21,960,249	7,157	44,569	450	481,318	25,753,607	3,597,414
6	123,192	113,440	6,480	4,197	45,502	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	236,734	4,727	1,381	250	48,999	600,053	354,781
8	144,736	153,594	21,036	12,952	39,566	1,437	32,001	5,335	637	.....	40,570	201,442	107,944
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	98,457	136,753	4,660	2,068	26,070	3,794	87,784	3,323	376	.....	8,678	149,475	57,807
11	956,714	621,754	18,900	6,760	123,368	13,424	415,304	1,500	5,532	1,200	35,766	698,576	269,843
12	22,270,783	20,031,968	562,536	653,146	2,917,698	1,029,045	13,042,194	112,930	94,874	2,222	1,617,323	22,432,534	8,361,295

[2] 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	8
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	3
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	2
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		