

## MANUFACTURES : DELAWARE

## 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 Delaware for the calendar year 1909 as shown by the Thirteenth Census. It will be reprinted without change as a part of the state Compendium of the Census for Delaware, and in the final reports of the Thirteenth Census.

The text summarizes the general results of the enumeration, 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 industries of the state as a whole and a few important industries are classed 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 three general tables:

Table I gives the number of establishments, persons engaged in industry, the primary power, capital, salaries and wages, cost of materials, the value of product, and the value added by manufacture, for all industries at the enumerations of 1899, 1904, and 1909, and similar figures for the separate industries.

Table II gives greater detail for 1909 for the state and for separate industries.

Table III gives statistics for all industries and for separate industries in the city of Wilmington for 1899, 1904, and 1909.

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.

**Scope of census: Factory industries.**—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 product 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 in cases of establishments that 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 so as to be able to give separate totals for each state or city. 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. A given class thus, on the one hand, may include minor products quite different from those covered by its class designation, and, on the other hand, may not include the total product covered by such class 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 1899, 1904, and 1909, 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 product, 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.**—In all three censuses of 1909, 1904, and 1899, the following general classes of persons engaged in industry 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 census of 1909 an entirely different grouping is employed: that into (1) proprietors and officials, (2) clerks, and (3) wage earners. The group "officials" is made to include

proprietors and firm members, salaried officers of corporations, and superintendents and managers.

At this census the number of persons engaged in industry, 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 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. But 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 distribution of this average number by sex and age has been estimated or computed for each industry on the basis of the proportions shown in the age and sex distribution reported for the wage earners employed in that industry on December 15 or the nearest representative day. It is believed that the distribution thus obtained can be accepted as typical and as sufficiently accurate for statistical purposes.

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 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 1900 and 1904 the schedule called for the average number of wage earners classified by sex for all persons of 16 years and over, with the number of both sexes under 16 years of age for each month, and these monthly statements were combined in an annual average. The change in the present enumeration was made to secure more precise information, but the change of method may in some instances affect comparisons between the present and earlier censuses.

**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 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 "Expense" 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 sales. Amounts received for work on materials furnished by others are included.

**Value added by manufacture.**—The value of product 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 establishment. 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 by the census "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 product the rate of profit on 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 grist and saw mills.**—In order to make the statistics of 1909 comparable with those for 1905 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.—Delaware, with an area of 1,960 square miles, is, next to Rhode Island, the smallest state of the Union. Its population in 1910 was 202,322, as against 184,735 in 1900 and 168,493 in 1890. Its rank as regards population among the 50 states and territories was 47 in 1910 and 45 in 1900. Though, as will be seen, its manufacturing interests are important, the state still preserves to a considerable extent its agricultural characteristics. Of its total area about 82.7 per cent is returned as in farms, of which 68.7 per cent is reported as improved. Forty-eight per cent of the entire population of the state resides in cities and towns having a population of 2,500 inhabitants or over, as against 46.4 per cent in 1900.

The state has but one city having a population of over 10,000, Wilmington, with a population of 87,411. Eliminating this city, only 4.8 per cent of the population resides in towns of 2,500 inhabitants or over.

Its density of population is 103 per square mile, the corresponding figures for 1900 being 94. The transportation facilities are excellent, as no part of the state is remote from navigable water, and its location gives it direct railroad connection with the large railway systems of the Eastern states.

Importance and growth of manufactures.—Though, as stated, Delaware is not preeminently a manufacturing community, at each census from 1850 to 1904 the manufactures of the state have represented about the same proportion of the total value of the production. This proportion in 1899 was four-tenths of 1 per cent; the proportion for 1909 is not yet available.

The following table gives the more important figures relative to all classes of manufactures combined for the state as returned at each of the censuses of 1899, 1904, and 1909, together with percentages of increase from census to census.

	NUMBER OR AMOUNT.			PER CENT OF INCREASE.	
	1909	1904	1899	1904-1909	1899-1904
Number of establishments.....	726	631	633	15.1	<sup>1</sup> 0.3
Persons engaged in manufactures.....	23,984	20,567	( <sup>2</sup> )	16.6	( <sup>2</sup> )
Proprietors and firm members.....	722	641	( <sup>2</sup> )	12.6	( <sup>2</sup> )
Salaried employees.....	2,024	1,451	1,189	39.5	22.0
Wage earners (average number).....	21,238	18,475	20,562	15.0	<sup>1</sup> 10.1
Primary horsepower.....	52,779	49,490	40,134	6.6	23.3
Capital.....	\$60,906,000	\$50,926,000	\$38,791,000	19.6	31.3
Expenses.....	46,958,000	37,362,000	36,439,000	25.7	2.5
Services.....	12,618,000	9,787,000	9,794,000	23.9	<sup>1</sup> 0.1
Salaries.....	2,322,000	1,629,000	1,337,000	42.5	21.8
Wages.....	10,296,000	8,158,000	8,457,000	26.2	<sup>1</sup> 3.5
Materials.....	30,938,000	24,884,000	24,725,000	24.3	0.6
Miscellaneous.....	3,402,000	2,691,000	1,920,000	26.4	40.2
Value of products.....	52,840,000	41,160,000	41,321,000	28.4	<sup>1</sup> 0.4
Value added by manufacture (value of products less cost of materials).....	21,902,000	16,276,000	16,596,000	34.6	<sup>1</sup> 1.9

<sup>1</sup> Decrease.

<sup>2</sup> Comparable figures not available for 1899.

The table shows that in 1909 the state of Delaware had 726 manufacturing establishments operating on the factory system, which gave employment to an average of 23,984 persons during the year and paid out \$12,618,000 in salaries and wages. Of the persons employed, 21,238 were wage earners. These establishments made products to the value of \$52,840,000. To produce these, materials to the cost of \$30,938,000 were consumed. The value added by manufacture was thus \$21,902,000, which figure best represents the net wealth created by manufacturing operations during the year.

In general, this table brings out the fact that the manufacturing industry of Delaware as a whole showed little or no development during the five-year period 1899-1904; indeed, in some respects a de-

crease was indicated. On the other hand, a very considerable increase is shown for the more recent period 1904-1909. During this period the number of establishments increased 15.1 per cent and the average number of wage earners 15 per cent, while the value of products increased 28.4 per cent and the value added by manufacture 34.6 per cent. As pointed out in the introduction, it would be improper to draw the deduction that manufactures have increased in volume during the period 1904-1909 to the 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.

It is a matter of interest to note that the per cents of increase shown for wages, value of products, and

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value added by manufacture were very much larger than those for the number of establishments and average number of wage earners.

The relative importance and growth of the leading 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 INCREASE. <sup>1</sup>			
		Average number.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.	Value of products.		Value added by manufacture.	
								1904-1909	1899-1904	1904-1909	1899-1904
All industries.....	726	21,238	100.0	\$52,840,000	100.0	\$21,902,000	100.0	28.4	<sup>2</sup> 0.4	34.6	<sup>2</sup> 1.9
Leather, tanned, curried, and finished.....	16	3,045	14.3	12,079,000	22.9	3,932,000	18.0	17.8	9.0	68.0	<sup>2</sup> 1.4
Foundry and machine-shop products.....	37	2,210	10.4	4,781,000	9.0	2,379,000	10.9	6.6	<sup>2</sup> 7.9	6.3	3.7
Cars, steam-railroad, not including operations of railroad companies.....	3	1,679	7.9	3,628,000	6.9	1,715,000	7.8	0.8	9.9	3.4	13.6
Cars and general shop construction and repairs by steam-railroad companies.....	3	1,525	7.2	3,251,000	6.2	1,308,000	6.0	108.7	53.8	43.9	64.7
Paper and wood pulp.....	6	546	2.6	2,292,000	4.3	705,000	3.2	20.3	19.1	11.0	11.0
Canning and preserving.....	77	1,360	6.4	2,106,000	4.0	553,000	2.5	44.6	<sup>2</sup> 7.8	30.1	<sup>2</sup> 13.3
Shipbuilding.....	10	1,239	5.8	1,990,000	3.8	1,009,000	4.6	11.7	( <sup>3</sup> )	13.9	( <sup>3</sup> )
Flour-mill and gristmill products.....	65	139	0.7	1,752,000	3.3	252,000	1.2	14.0	43.6	13.5	32.1
Iron and steel, steel works and rolling mills.....	5	710	3.3	1,715,000	3.2	656,000	3.0	7.4	<sup>2</sup> 49.5	<sup>2</sup> 0.2	<sup>2</sup> 58.9
Lumber and timber products.....	116	1,174	5.5	1,312,000	2.5	704,000	3.2	53.1	14.4	55.8	10.0
Liquors, malt.....	5	107	0.5	791,000	1.5	550,000	2.5	4.1	23.4	<sup>2</sup> 5.7	13.3
Bread and other bakery products.....	62	226	1.1	750,000	1.4	302,000	1.4	14.0	35.7	22.3	11.8
Printing and publishing.....	48	288	1.4	480,000	0.9	342,000	1.6	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )
Hosiery and knit goods.....	4	492	2.3	449,000	0.8	167,000	0.8	51.7	<sup>2</sup> 31.0	26.5	<sup>2</sup> 40.0
Gas, illuminating and heating.....	5	128	0.6	364,000	0.7	255,000	1.2	19.3	52.5	36.4	25.5
Brick and tile.....	23	300	1.4	329,000	0.6	274,000	1.3	60.5	22.0	53.1	22.6
Baskets, and rattan and willow ware.....	10	420	2.0	295,000	0.6	186,000	0.8	34.1	323.1	52.5	243.6
Carriages and wagons and materials.....	25	163	0.8	290,000	0.5	166,000	0.8	1.4	<sup>2</sup> 26.1	6.4	<sup>2</sup> 36.8
Ice, manufactured.....	15	71	0.3	153,000	0.3	104,000	0.5	7.7	100.0	<sup>2</sup> 10.3	163.5
Marble and stone work.....	7	42	0.2	86,000	0.2	51,000	0.2	<sup>2</sup> 50.6	( <sup>3</sup> )	<sup>2</sup> 65.5	( <sup>3</sup> )
All other industries.....	184	5,365	25.3	13,947,000	26.4	6,292,000	28.7	60.5	<sup>2</sup> 23.5	70.6	<sup>2</sup> 23.3

<sup>1</sup> Per cent of increase is based on figures in Table I.

<sup>2</sup> Decrease.

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

Measured by "Value of products," the six most important industries specified were in the order of their importance:

"Leather, tanned, curried, and finished." The statistics showing number of wage earners, amount paid in wages, and value of product all indicate a considerable growth of this industry.

"Foundry and machine-shop products." The number of establishments engaged in this industry and the degree of their activity in any community are usually a fair index of the extent and prosperity of its manufactures. 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.

"Cars, steam-railroad, not including operations of railroad companies;" and "Cars and general shop construction and repairs by steam-railroad companies." These two branches of industry are closely allied. Combined they gave employment to 3,204 wage earners on the average during the year, and their products amounted to \$6,879,000.

"Paper and wood pulp." The establishments which produce pulp as a final product, as well as those which manufacture paper or pulp and paper, are included under this classification.

"Canning and preserving." This industry depends entirely upon the agricultural and fishery products for its raw material. It includes the canning and preserving of fruits, vegetables, fish, and oysters. Since 1850, when it was first known commercially, it has steadily

increased in importance. Considering the short season during which it is carried on, the value of products compared with other industries is significant.

Measured by "Value added by manufacture," these six leading industries held generally the same relative rank as when measured by "Value of products," though "Shipbuilding" becomes fifth in order instead of "Paper and wood pulp," which, in turn, becomes sixth, while "Canning and preserving" becomes ninth.

"Flour-mill and gristmill products" and "Lumber and timber products," while not ranking among the most important industries, are both represented by a relatively large number of establishments. The mills are, as a rule, small and 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 the establishments in either industry.

This table shows also the percentages of increase for these leading industries in respect to value of products and value added by manufacture. The leather industry showed a greater rate of increase for 1904 to 1909 in value added by manufacture than any other of the specified industries, namely, 68 per cent. The industry "Cars and general shop construction and repairs by steam-railroad companies" and the canning and preserving industry also showed remarkable increases both in gross value of products and in value added by manufacture. There are some striking dif-

ferences among the several industries specified as respects the relative increase from 1899 to 1904 and from 1904 to 1909, respectively. All but one of the industries specified showed an increase in value of product from 1904 to 1909, and all but four an increase in value added by manufacture, while, on the other hand, a considerable proportion of the industries showed decreases in these respects from 1899 to 1904.

Persons engaged in industry.—The following table shows the distribution of the average number of persons engaged in manufactures, the average number of wage earners being distributed by sex and age in the manner already explained.<sup>1</sup>

CLASS.	PERSONS ENGAGED IN MANUFACTURES.		
	Total.	Male.	Female.
All classes.....	23,984	19,972	4,012
Proprietors and officials.....	1,388	1,356	32
Proprietors and firm members.....	722	701	21
Salaried officers of corporations.....	240	235	5
Superintendents and managers.....	426	420	6
Clerks.....	1,358	1,111	247
Wage earners (average number).....	21,238	17,505	3,733
16 years of age and over.....	20,709	17,205	3,504
Under 16 years of age.....	529	300	229

This table shows that there were 23,984 persons returned as the average number engaged in manufactures during 1909, of whom 21,238 were wage earners, the rest being about equally divided between officials and clerks.

Corresponding figures for separate industries will be found in Table II. In considering this table it should be noted that the canning and preserving industry is a peculiarly seasonal one, so that the number employed during certain months is far greater than the average number for the entire year. During September 6,413 wage earners were employed in this industry, which was a much larger number than was employed at any time in any other industry.

The following table shows the percentage distribution of the persons employed in manufactures among the three groups of proprietors and officials, clerks, and wage earners, respectively. It covers all industries combined and 10 important industries.

Of all persons engaged in manufactures, 5.8 per cent were officials, 5.7 per cent clerks, and 88.6 per cent wage earners. In the flour-mill and gristmill industry the majority of the establishments are small and the work is to a large extent done by the proprietors or their immediate representatives. Therefore the proportion of persons engaged in the industry falling in the class of proprietors and officials is very much higher than for other industries or all industries combined. Similar conditions prevail to some extent in the manufacture of lumber and timber products, where the proprietors and officials form 13.4 per cent of the

total persons engaged. The smallest proportion for this class is shown for the "Cars and general shop construction and repairs by steam-railroad companies," and is due to the fact that general officials are not as a rule assigned to the supervision of this particular branch of work.

INDUSTRY.	PER CENT OF PERSONS ENGAGED IN MANUFACTURES.			
	Total.	Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	100.0	5.8	5.7	88.6
Canning and preserving.....	100.0	8.9	3.1	88.0
Cars and general shop construction and repairs by steam-railroad companies.....	100.0	1.7	4.7	93.6
Cars, steam-railroad, not including operations of railroad companies.....	100.0	2.3	0.3	91.4
Flour-mill and gristmill products.....	100.0	38.5	4.5	57.0
Foundry and machine-shop products.....	100.0	4.5	8.5	87.1
Iron and steel, steel works and rolling mills.....	100.0	3.7	5.9	90.4
Leather, tanned, curried, and finished.....	100.0	2.0	4.1	94.0
Lumber and timber products.....	100.0	13.4	0.9	85.8
Paper and wood pulp.....	100.0	3.0	5.8	91.2
Shipbuilding.....	100.0	4.2	8.0	87.8
All other industries.....	100.0	7.1	6.3	86.6

The following table shows, for all industries combined and the important industries, the percentage distribution of clerks by sex and wage earners by sex and age periods:

INDUSTRY.	CLERKS.		WAGE EARNERS (AVERAGE NUMBER).			
	Per cent.		Per cent 16 years of age and over.		Per cent under 16 years of age.	
	Male.	Female.	Male.	Female.	Male.	Female.
All industries.....	81.8	18.2	81.0	16.5	1.4	1.1
Canning and preserving.....	83.7	16.3	32.5	53.3	5.3	8.8
Cars and general shop construction and repairs by steam-railroad companies.....	100.0	.....	99.8	.....	0.2	.....
Cars, steam-railroad, not including operations of railroad companies.....	95.7	4.3	90.1	0.8	0.1	.....
Flour-mill and gristmill products.....	81.8	18.2	99.3	.....	0.7	.....
Foundry and machine-shop products.....	90.7	9.3	99.1	0.7	0.1	0.1
Iron and steel, steel works and rolling mills.....	89.1	10.9	100.0	.....	.....	.....
Leather, tanned, curried, and finished.....	79.5	20.5	75.9	23.6	0.4	0.1
Lumber and timber products.....	83.3	16.7	95.9	3.0	0.9	0.2
Paper and wood pulp.....	77.1	22.9	85.7	14.3	.....	.....
Shipbuilding.....	83.2	16.8	99.4	.....	0.6	.....
All other industries.....	72.6	27.4	71.0	25.2	2.5	1.3

The table shows that of clerks, 81.8 per cent were male and 18.2 per cent female. Of wage earners, 82.4 per cent were male and 17.6 per cent female; 97.5 per cent were 16 years or over and but 2.5 per cent were under that age.

It may be noted that the largest number of women and children are employed in canning and preserving. The average number of wage earners in that industry was 445 males and 730 females 16 years and over, and 73 males and 121 females under that age. Of the total of 3,733 female wage earners in all industries combined, 851, or 22.8 per cent, were thus in this single industry, and of the total of 529 wage earners in all industries, under 16 years of age, 194, or 36.7 per cent, were in this industry. With this industry omitted the females over 16 in all other industries

<sup>1</sup> See "Introduction."

combined would be 14 per cent of the total number of wage earners, and persons of both sexes under 16 years of age, 1.7 per cent.

To compare the distribution of persons engaged in manufactures in 1909 with those for previous censuses it is necessary to use the classification employed at such prior censuses. (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.....	23,984	100.0	20,567	100.0	16.8
Proprietors and firm members.....	722	3.0	641	3.1	12.6
Salaried employees.....	2,024	8.4	1,451	7.1	30.5
Wage earners (average number).....	21,238	88.6	18,475	89.8	15.0

Comparable figures are not obtainable for 1899. The table shows a greater per cent of increase in the salaried employees than in the other two classes, but this may be due, in part, to changes in the interpretation of the line of distinction between that class and other wage earners.

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 1899, 1904, and 1909:

CLASS.	AVERAGE NUMBER OF WAGE EARNERS.					
	1909		1904		1899	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
Total.....	21,238	100.0	18,475	100.0	20,562	100.0
16 years of age and over..	20,709	97.5	17,826	96.5	19,726	95.9
Male.....	17,205	81.0	14,806	80.5	16,416	79.8
Female.....	3,504	16.5	2,900	16.0	3,310	16.1
Under 16 years of age....	529	2.5	649	3.5	836	4.1

This table indicates that for all industries combined there has been a decrease during the 10 years in respect to the employment of children under 16 years of age. There has not been much change in the proportion of male and female wage earners. In 1909 males 16 years of age and over formed 81 per cent of all wage earners, as against 80.5 per cent in 1904 and 79.8 per cent in 1899.

**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 canning and preserving, and for all other industries; it also gives the percentage which the number each month is of the greatest number employed in any one month.

The single industry of "Canning and preserving," which is a seasonal industry, giving employment to a large number of persons in August and September, affects greatly the total for all industries combined. It thus not only makes the month of September the month of greatest employment, but also magnifies the irregularity of employment throughout the year. From 87 wage earners in this industry in May the number increased to 975 in June, and dropped to 524 in July, but in August and September, when tomatoes and corn ripen, there was a very great increase—6,413 being employed in the latter month. The variation by months in employment in canneries depends on the seasons in which the raw materials mature. Outside the canning industry the number of wage earners employed underwent but little change up to and including the month of August; but thereafter the numbers increased steadily month by month to the end of the year.

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.....	10,220	72.0	11	0.2	10,209	85.8
February.....	19,470	73.8	30	0.5	19,440	86.8
March.....	19,168	72.7	87	1.4	19,081	85.1
April.....	19,366	73.4	79	1.2	19,287	86.1
May.....	19,237	72.0	87	1.4	19,150	85.5
June.....	20,476	77.0	975	15.2	19,501	87.1
July.....	19,572	74.2	524	8.2	19,048	85.0
August.....	24,327	92.2	5,133	80.0	19,194	85.7
September.....	26,376	100.0	6,413	100.0	19,963	89.1
October.....	26,623	89.0	2,652	41.4	20,971	83.5
November.....	21,557	81.7	397	6.2	21,160	94.5
December.....	22,452	85.1	52	0.8	22,400	100.0

**Prevailing hours of labor.**—Establishments have been classified by the census according to the prevailing hours of labor of the bulk of their employees; that is to say, the wage earners of each establishment are all classified according to the prevailing hours of the establishment, even though some may have to work other hours. The table that follows shows the result of this classification. It is based on the average number of wage earners employed during the year. In the case of "Canning and preserving," this average is far less than the number employed in the busy season.

It is evident from these figures that for the great majority of wage earners employed in the manufacturing industries of Delaware the prevailing hours of labor range from 54 to 60 a week, or from 9 to 10 hours a day, only 8 per cent of the total being employed in establishments working less than 9 hours a day and only 4.5 per cent being employed in establishments working more than 10 hours a day.

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 what

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might be expected in a seasonal industry where the operations for the entire year are confined to a few weeks. The leather industry is also on a 10-hour-a-

day basis, but the car-construction, foundry and machine-shop, and shipbuilding industries are mainly on a 9-hour basis.

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.....	21,238	974	734	6,876	5,897	5,800	513	371	73
Baskets, and rattan and willow ware.....	420		6	52	281	81			
Bread and other bakery products.....	226			22	62	109	5	28	
Brick and tile.....	300	40	6	25	143	86			
Canning and preserving.....	1,369	46	10	12	41	1,097	133	30	
Carrriages and wagons and materials.....	163		20	1	88	54			
Cars and general shop construction and repairs by steam-railroad companies.....	1,525			1,467		39	19		
Cars, steam-railroad, not including operations of railroad companies.....	1,679			1,679					
Flour-mill and gristmill products.....	139	3		4	1	80	11	40	
Foundry and machine-shop products.....	2,210	200	110	1,145	725	30			
Gas, illuminating and heating.....	128					120	4		4
Hosiery and knit goods.....	492				492				
Ice, manufactured.....	71							13	58
Iron and steel, steel works and rolling mills.....	710	291			419				
Leather, tanned, curried, and finished.....	3,045		83	620	250	2,092			
Liquors, malt.....	107			106		1			
Lumber and timber products.....	1,174	65	297	63	384	365			
Marble and stone work.....	42		11	28	1	2			
Paper and wood pulp.....	546						287	259	
Printing and publishing.....	288	173	3	79	17	16			
Shipbuilding.....	1,239			1,159	50	30			
All other industries.....	5,365	156	188	414	2,943	1,598	54	1	11

Location of establishments.<sup>1</sup>—The next table shows how largely manufacturing in the state is centralized in the one city of Wilmington. In 1909, 72 per cent of the total value of products was made in this city, and 69 per cent of the average number of wage earners were employed there. The figures indicate that while very little relative change took place during the last 5 or 10 years, yet on the whole the districts outside of Wilmington have gained slightly on that city. This is due to the fact that two of the largest and most important of Delaware's industries, "Canning and preserving" and "Lumber and timber products," are conducted almost entirely outside of Wilmington, and show considerable development during the period covered by the three censuses. In most other industries Wilmington appears to have gained relatively, as shown by an examination of Tables I and III.

ITEM.	Year.	Total.	LOCATION OF ESTABLISHMENTS.		PER CENT OF TOTAL.	
			Wilmington.	Outside districts.	Wilmington.	Outside districts.
Population.....	1910	202,322	87,411	114,911	43.2	56.8
	1900	184,735	76,508	108,227	41.4	58.6
Number of establishments.	1909	726	261	465	36.0	64.0
	1904	631	215	386	38.8	61.2
	1899	633	262	371	41.4	58.6
Average number of wage earners.	1909	21,238	14,663	6,575	69.0	31.0
	1904	18,475	13,508	4,967	73.1	26.9
	1899	20,562	14,498	6,064	70.5	29.5
Value of products.	1909	\$52,839,619	\$38,060,383	\$14,779,236	72.0	28.0
	1904	41,160,276	30,285,457	10,874,819	73.6	26.4
	1899	41,321,061	30,586,810	10,734,251	74.0	26.0
Value added by manufacture.	1909	21,901,818	16,093,083	5,808,735	73.5	26.5
	1904	16,276,470	12,104,686	4,111,784	74.7	25.3
	1899	16,595,744	12,710,975	3,884,769	76.6	23.4

<sup>1</sup> Figures do not agree with those published in 1904, as data for some establishments located outside the corporate limits of the city have been excluded.

<sup>2</sup> See "Introduction."

**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 in 1904 and 1909, respectively. Corresponding data for 1899 are not available. Figures for 1909 only are also presented for several important industries. 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.
<b>All Industries:</b>				
1909.....	726	21,238	\$52,839,619	\$21,901,818
1904.....	631	18,475	41,160,276	16,276,470
<b>Individual:</b>				
1909.....	387	2,451	6,187,017	2,236,663
1904.....	339	2,448	5,517,649	2,067,177
<b>Firm:</b>				
1909.....	133	3,210	10,530,993	3,665,964
1904.....	132	2,583	6,720,715	1,914,846
<b>Corporation:</b>				
1909 <sup>1</sup> .....	202	15,573	36,071,988	15,989,174
1904.....	160	13,444	28,921,912	12,294,447
<b>Other:</b>				
1909.....	4	4	49,621	10,017
1904.....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
<b>Per cent of total:</b>				
1909.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0
<b>Individual:</b>				
1909.....	53.3	11.5	11.7	10.2
1904.....	53.7	13.3	13.4	12.7
<b>Firm:</b>				
1909.....	18.3	15.1	19.9	16.7
1904.....	20.9	14.0	16.3	11.8
<b>Corporation:</b>				
1909.....	27.8	73.3	68.3	73.0
1904.....	25.4	72.8	70.3	75.5
<b>Other:</b>				
1909.....	0.6	( <sup>3</sup> )	0.1	( <sup>3</sup> )
1904.....				
<b>Canning and preserving.....</b>	<b>77</b>	<b>1,369</b>	<b>\$2,105,945</b>	<b>\$552,449</b>
Individual.....	34	473	794,816	218,787
Firm.....	30	500	816,099	200,023
Corporation.....	13	396	495,030	133,639
<b>Per cent of total.....</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Individual.....	44.2	34.6	37.7	39.6
Firm.....	39.0	36.5	38.8	36.2
Corporation.....	16.9	28.9	23.5	24.2
<b>Flour-mill and gristmill products.....</b>	<b>65</b>	<b>139</b>	<b>\$1,751,538</b>	<b>\$251,894</b>
Individual.....	41	65	735,170	122,081
Firm.....	20	34	413,476	63,590
Corporation.....	4	40	602,881	66,217
<b>Per cent of total.....</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Individual.....	63.1	46.8	42.0	48.5
Firm.....	30.8	24.5	23.6	25.2
Corporation.....	6.2	28.8	34.4	26.3
<b>Foundry and machine-shop products.....</b>	<b>37</b>	<b>2,210</b>	<b>\$4,781,195</b>	<b>\$2,379,278</b>
Individual.....	12	65	96,986	58,046
Firm.....	4	57	131,897	97,023
Corporation.....	21	2,088	4,552,312	2,224,209
<b>Per cent of total.....</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Individual.....	32.4	2.9	2.0	2.4
Firm.....	10.8	2.6	2.8	4.1
Corporation.....	56.8	94.5	95.2	93.5
<b>Leather, tanned, curried, and finished.....</b>	<b>16</b>	<b>3,045</b>	<b>\$12,079,225</b>	<b>\$3,932,375</b>
Individual.....	3	217	980,432	290,656
Firm.....	4	1,892	7,337,670	2,456,423
Corporation.....	9	936	3,761,123	1,185,296
<b>Per cent of total.....</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Individual.....	18.8	7.1	8.1	7.4
Firm.....	25.0	62.1	60.7	62.5
Corporation.....	56.2	30.7	31.1	30.1
<b>Lumber and timber products.....</b>	<b>116</b>	<b>1,174</b>	<b>\$1,312,287</b>	<b>\$704,430</b>
Individual.....	76	527	436,245	289,712
Firm.....	30	249	278,287	170,094
Corporation.....	10	398	547,755	244,624
<b>Per cent of total.....</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Individual.....	65.5	44.9	37.0	41.1
Firm.....	25.9	21.2	21.2	24.1
Corporation.....	8.6	33.9	41.7	34.7

<sup>1</sup> Includes the group "Other" to avoid disclosure of individual operations.  
<sup>2</sup> This group included with "Corporations."  
<sup>3</sup> Less than one-tenth of 1 per cent.

The most important distinction shown is that between "Corporation" and all other forms of ownership. For all industries combined, 27.8 per cent of the total number of establishments had in 1909 a corporate form of organization, as against 72.2 per cent for all other forms. The corresponding figures for 1904 were 25.4 per cent and 74.6 per cent, respectively. Five years is too short a period to reveal any pronounced change in character of ownership. For all industries combined, as measured by value of products, and value added by manufacture, corporations lost ground to a slight extent, but this was due to the change in conditions in the one industry of leather, which is the largest in the state.

**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. To throw some light upon it the table on the following page groups the establishments according to the value of their products. The table also shows the average size of establishments for all industries and for separate industries named, measured by wage earners, value of products, and value added by manufacture. The totals for all industries are shown for the last two censuses, and the same information given for selected industries in 1909.

This table shows that, in 1909, of the 726 establishments only 7, or 1 per cent, had a value of product exceeding \$1,000,000. These establishments, however, notwithstanding their small number, had a total average number of wage earners of 6,994, or 32.9 per cent of the total number in all establishments; and the importance of their operations as measured by value of product was 32 per cent of the total, and by value added by manufacture 34.1 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 (29.3 per cent) of the total number of establishments, but the value of their product amounted to only 1.1 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 five years from 1904 to 1909 was rather too short a period to show extensive changes, and no clear tendencies can be seen as to the relative importance of the classes.

The fact that the average value of product per establishment increased from \$65,230 to \$72,782, and the value added by manufacture from \$25,795 to \$30,168, can scarcely be taken as an indication of a tendency toward concentration. The increased values shown may be, and probably are, due wholly or in part to the increase that has taken place in the prices of commodities. The average number of wage earners per establishment did not increase. The table shows further that when the size of establishments is measured by value of product the flour and grist mill and lumber and timber products industries are conducted



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chiefly in rather small establishments, while the canning and preserving, foundry and machine-shop, and leather industries 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.
<b>All industries:</b>				
1909.....	726	21,238	\$52,839,619	\$21,901,818
1904.....	631	18,475	41,160,276	16,276,470
<b>Less than \$5,000:</b>				
1909.....	213	470	559,530	235,302
1904.....	203	388	549,741	336,798
<b>\$5,000 and less than \$20,000:</b>				
1909.....	258	1,901	2,748,180	1,346,466
1904.....	222	1,695	2,318,183	1,133,879
<b>\$20,000 and less than \$100,000:</b>				
1909.....	170	3,298	6,981,337	2,674,038
1904.....	130	2,705	5,313,204	2,281,182
<b>\$100,000 and less than \$1,000,000:</b>				
1909.....	78	8,566	25,657,769	10,076,057
1904.....	67	7,546	19,267,544	7,490,829
<b>\$1,000,000 and over:</b>				
1909.....	7	6,994	16,892,803	7,460,955
1904.....	9	6,141	13,711,604	5,033,782
<b>Per cent of total:</b>				
1909.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0
<b>Less than \$5,000:</b>				
1909.....	29.3	2.3	1.1	1.5
1904.....	32.2	2.1	1.3	2.1
<b>\$5,000 and less than \$20,000:</b>				
1909.....	35.5	9.0	5.2	6.1
1904.....	35.2	9.2	5.6	7.0
<b>\$20,000 and less than \$100,000:</b>				
1909.....	23.4	15.5	13.2	12.2
1904.....	20.6	14.6	12.9	14.0
<b>\$100,000 and less than \$1,000,000:</b>				
1909.....	10.7	40.3	48.6	46.0
1904.....	10.6	40.8	46.8	46.0
<b>\$1,000,000 and over:</b>				
1909.....	1.0	32.9	32.0	34.1
1904.....	1.4	33.2	33.3	30.9
<b>Average per establishment:</b>				
1909.....		29	\$72,782	\$30,168
1904.....		29	65,230	25,705
<b>Canning and preserving.....</b>	77	1,369	\$2,105,945	\$552,449
Less than \$5,000.....	5	16	15,350	3,004
\$5,000 and less than \$20,000.....	28	309	359,355	85,178
\$20,000 and less than \$100,000 <sup>1</sup> .....	44	1,044	1,731,240	463,367
<b>Per cent of total.....</b>	100.0	100.0	100.0	100.0
Less than \$5,000.....	6.5	1.2	0.7	0.7
\$5,000 and less than \$20,000.....	36.4	22.6	17.1	15.4
\$20,000 and less than \$100,000.....	57.1	76.3	82.2	83.9
<b>Average per establishment.....</b>		18	\$27,350	\$7,175
<b>Flour-mill and gristmill products.....</b>	65	139	\$1,751,533	\$251,894
Less than \$5,000.....	15	5	39,308	9,134
\$5,000 and less than \$20,000.....	23	30	286,145	51,646
\$20,000 and less than \$100,000 <sup>1</sup> .....	27	104	1,426,080	191,114
<b>Per cent of total.....</b>	100.0	100.0	100.0	100.0
Less than \$5,000.....	23.1	3.6	2.2	3.6
\$5,000 and less than \$20,000.....	35.4	21.0	16.3	20.5
\$20,000 and less than \$100,000.....	41.5	74.8	81.4	75.0
<b>Average per establishment.....</b>		2	\$26,947	\$3,875
<b>Foundry and machine-shop products.....</b>	37	2,210	\$4,781,195	\$2,379,278
Less than \$5,000.....	6	12	16,250	11,895
\$5,000 and less than \$20,000.....	11	77	99,253	53,093
\$20,000 and less than \$100,000.....	5	85	185,854	143,877
\$100,000 and less than \$1,000,000.....	15	2,036	4,469,838	2,170,503
<b>Per cent of total.....</b>	100.0	100.0	100.0	100.0
Less than \$5,000.....	16.2	0.5	0.3	0.5
\$5,000 and less than \$20,000.....	29.7	3.5	2.1	2.2
\$20,000 and less than \$100,000.....	13.5	3.8	4.1	6.0
\$100,000 and less than \$1,000,000.....	40.5	92.1	93.5	91.2
<b>Average per establishment.....</b>		60	\$129,221	\$64,305

INDUSTRY AND VALUE OF PRODUCTS. (Continued.)	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>Leather, tanned, curried, and finished.....</b>	16	3,045	\$12,079,225	\$3,932,375
\$20,000 and less than \$100,000.....	4	104	350,833	89,354
\$100,000 and less than \$1,000,000 <sup>2</sup> .....	12	2,941	11,728,392	3,843,021
<b>Per cent of total.....</b>	100.0	100.0	100.0	100.0
\$20,000 and less than \$100,000.....	25.0	3.4	2.9	2.3
\$100,000 and less than \$1,000,000.....	75.0	96.6	97.1	97.7
<b>Average per establishment.....</b>		190	\$754,952	\$245,773
<b>Lumber and timber products.....</b>	116	1,174	\$1,312,287	\$704,430
Less than \$5,000.....	52	191	130,477	82,924
\$5,000 and less than \$20,000.....	49	499	437,752	278,490
\$20,000 and less than \$100,000 <sup>1</sup> .....	15	484	744,058	343,010
<b>Per cent of total.....</b>	100.0	100.0	100.0	100.0
Less than \$5,000.....	44.8	16.3	10.0	11.8
\$5,000 and less than \$20,000.....	42.2	42.5	33.4	39.5
\$20,000 and less than \$100,000.....	12.9	41.2	56.7	48.7
<b>Average per establishment.....</b>		10	\$11,313	\$6,073

<sup>1</sup> Includes the group "\$100,000 and less than \$1,000,000."  
<sup>2</sup> Includes establishments with products of \$1,000,000 and 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 that where establishments are grouped according to the average number of wage earners employed. The next table shows such a grouping for all industries combined and the 10 important industries, and gives not only the number of establishments falling in each group but also the average number of wage earners employed.

This table shows classes in considerable detail. Consolidating these classes to a certain extent it will be seen that 79.4 per cent of the establishments employed under 21 persons each. The most numerous single group consists of the 326 establishments employing under 6 wage earners; the next being the group employing from 6 to 20, with 205 establishments. There were 12 establishments that employed over 250 wage earners; 3 employed over 1,000.

Of the total number of wage earners, 40.4 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 5,204 wage earners, or 24.5 per cent of the total. The individual industries listed in this table, but not in the preceding one, namely, cars and general shop construction; cars, steam-railroad; iron and steel; paper and wood pulp; and shipbuilding are all industries in which comparatively large establishments do most of the business, as appears from the classification of the wage earners.

INDUSTRY.	Total.	ESTABLISHMENTS EMPLOYING—								
		No wage earners.	Under 6 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.....	726	46	326	205	81	23	93	5	4	3
Canning and preserving.....	77	1	8	18	16	4				3
Cars and general shop construction and repairs by steam-railroad companies.....	3			1	1					1
Cars, steam-railroad, not including operations of railroad companies.....	3						1		2	
Flour-mill and gristmill products.....	65	12	50	2	1					
Foundry and machine-shop products.....	37		12	10	4	3	6	2		
Iron and steel, steel works and rolling mills.....	5				1	1	3			
Leather, tanned, curried, and finished.....	10			1	4	3	6		1	1
Lumber and timber products.....	116		53	54	7	1	1			
Paper and wood pulp.....	6			1	1	1	3			
Shipbuilding.....	10		2	4	2			1	1	
All other industries.....	388	33	201	84	44	10	13	2		1
PER CENT OF NUMBER OF ESTABLISHMENTS.										
All industries.....	100.0	6.3	44.9	28.2	11.2	3.2	4.5	0.7	0.6	0.4
Canning and preserving.....	100.0	1.3	10.4	62.3	20.8	5.2				
Cars and general shop construction and repairs by steam-railroad companies.....	100.0			33.3	33.3					33.3
Cars, steam-railroad, not including operations of railroad companies.....	100.0						33.3		66.7	
Flour-mill and gristmill products.....	100.0	18.5	76.9	3.1	1.5					
Foundry and machine-shop products.....	100.0		32.4	27.0	10.8	8.1	16.2	5.4		
Iron and steel, steel works and rolling mills.....	100.0				20.0	20.0	60.0			
Leather, tanned, curried, and finished.....	100.0			6.2	25.0	18.8	37.5		6.2	6.2
Lumber and timber products.....	100.0		45.7	46.6	6.0	0.9	0.9			
Paper and wood pulp.....	100.0			16.7	16.7	16.7	50.0			
Shipbuilding.....	100.0		20.0	40.0	20.0			10.0	10.0	
All other industries.....	100.0	8.5	51.8	21.6	11.3	2.6	3.4	0.5		0.3
AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	21,238		856	2,306	2,621	1,655	5,204	1,602	2,807	4,187
Canning and preserving.....	1,369		29	404	488	248				
Cars and general shop construction and repairs by steam-railroad companies.....	1,525			19	30					1,467
Cars, steam-railroad, not including operations of railroad companies.....	1,679						137		1,542	
Flour-mill and gristmill products.....	1,139		63	15	31					
Foundry and machine-shop products.....	2,210		31	139	150	261	1,059	573		
Iron and steel, steel works and rolling mills.....	710				40	75	595			
Leather, tanned, curried, and finished.....	3,045			18	131	131	502		599	1,140
Lumber and timber products.....	1,174		166	566	224	60	158			
Paper and wood pulp.....	546			8	21	88	429			
Shipbuilding.....	1,239		6	30	53			484	666	
All other industries.....	7,602		531	907	1,444	608	1,027	545		1,580
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	100.0		4.0	10.9	12.3	7.8	24.5	7.5	13.2	19.7
Canning and preserving.....	100.0		2.1	44.1	35.6	18.1				
Cars and general shop construction and repairs by steam-railroad companies.....	100.0			1.2	2.6					90.2
Cars, steam-railroad, not including operations of railroad companies.....	100.0						8.2		91.8	
Flour-mill and gristmill products.....	100.0		66.9	10.8	22.3					
Foundry and machine-shop products.....	100.0		1.4	6.3	6.8	11.8	47.8	25.9		
Iron and steel, steel works and rolling mills.....	100.0				5.6	10.6	83.8			
Leather, tanned, curried, and finished.....	100.0			0.6	4.3	8.4	29.6		19.7	37.4
Lumber and timber products.....	100.0		14.1	48.2	19.1	5.1	13.5			
Paper and wood pulp.....	100.0			1.5	3.8	16.1	78.6			
Shipbuilding.....	100.0		0.5	2.4	4.3			39.1	53.8	
All other industries.....	100.0		7.0	11.9	19.0	8.8	25.3	7.2		20.8

Expenses.<sup>1</sup>—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 going to make up the total.

The following table shows the percentage distribution of expenses according to the classes indicated for all industries combined and for important industries. The figures on which the percentages are based appear in Table II.

This table shows that, taking all industries combined, 65.9 per cent of total expense was due to cost of materials, 26.8 per cent to services, i. e., salaries and wages, and but 7.2 per cent to other costs. As

would be expected, this proportion varies greatly in the different industries.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
All industries.....	4.9	21.9	65.9	7.2
Canning and preserving.....	2.1	14.1	80.2	3.6
Cars and general shop construction and repairs by steam-railroad companies.....	3.1	35.3	59.7	1.9
Cars, steam-railroad, not including operations by railroad companies.....	5.4	33.2	56.2	5.2
Flour-mill and gristmill products.....	0.8	3.5	92.7	2.9
Foundry and machine-shop products.....	9.2	29.0	55.8	6.0
Iron and steel, steel works and rolling mills.....	5.6	25.2	64.1	5.1
Leather, tanned, curried, and finished.....	3.3	13.0	77.3	6.4
Lumber and timber products.....	2.2	31.8	58.6	7.3
Paper and wood pulp.....	3.0	15.3	78.3	3.4
Shipbuilding.....	9.3	35.7	50.2	4.8
Other industries.....	5.8	21.8	60.7	11.7

<sup>1</sup> See "Introduction."

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

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899 <sup>1</sup>	1909	1904	1899 <sup>1</sup>	1909	1904	1899
<b>Primary power, total</b>	<b>1,345</b>	<b>784</b>	<b>810</b>	<b>52,779</b>	<b>49,490</b>	<b>40,134</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Owned.....	906	784	810	45,227	48,234	38,612	91.4	97.5	96.2
Steam.....	681	598	646	42,266	42,031	32,898	80.1	84.9	82.0
Gas.....	78	41	35	766	412	315	1.5	0.8	0.8
Water wheels..	143	139	129	5,183	5,188	5,300	9.8	10.5	13.5
Water motors..	4	6	(?)	12	92	(?)	(?)	0.2	(?)
Other.....					511			1.0	
Rented.....	439			4,552	1,256	1,622	8.6	2.5	3.8
Electric.....	439			4,502	1,092	605	8.5	2.2	1.5
Other.....				50	164	917	0.1	0.3	2.3
<b>Electric motors</b>	<b>1,397</b>	<b>333</b>	<b>137</b>	<b>17,910</b>	<b>5,764</b>	<b>1,870</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Run by current generated by establishment	958	333	137	13,408	4,672	1,265	74.9	81.1	67.6
Run by rented power.....	439	(?)	(?)	4,502	1,092	605	25.1	18.9	32.4

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

The table indicates that the increase in primary power was in power generated by steam and gas engines, water power showing a decrease. The more general use of gas engines is shown, the number of such engines being 78 in 1909, as against 41 in 1904

and 35 in 1899. The figures also show that the practice of renting power is on the increase, 8.6 per cent of the total power being rented in 1909, as against but 2.5 per cent in 1904 and 3.8 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 1,265 in 1899 to 4,672 in 1904 and 13,408 in 1909.

**Fuel.**—Closely related to the question of kind of power employed is that of fuel used in generating this power, or otherwise as material in the manufacturing processes. The following table shows the quantity of fuel of each kind used by the establishments canvassed in 1909:

INDUSTRY.	Anthracite coal (tons).	Bituminous coal (tons).	Coke (tons).	Wood (cords).	Oil, including gasoline (gallons).	Gas (1,000 feet).	Other (tons).
<b>All industries</b> .....	<b>18,267</b>	<b>328,501</b>	<b>11,608</b>	<b>29,580</b>	<b>582,297</b>	<b>185,834</b>	<b>241</b>
Canning and preserving	50	4,252		1,424	15,733	522	
Cars and general shop construction and repairs by steam-railroad companies.....	90	22,997	61		161,552		60
Cars, steam-railroad, not including operations of railroad companies.....	140	13,400	320		11,004	309	22
Flour-mill and grist-mill products.....	16	2,571		1,401	24,166		
Foundry and machine-shop products.....	2,037	31,910	5,223	302	208,953	779	134
Iron and steel, steel works and rolling mills.....	2,619	34,014	3,300	145	27,975	450	6
Leather, tanned, cured, and finished.....		26,661					66
Lumber and timber products.....	2	234			1,000		154
Paper and wood pulp.....		60,334					
Shipbuilding.....	49	9,912	984		88,112	178,660	17
Other industries.....	13,255	122,216	1,720	26,308	43,802	4,894	2

**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. Data for the quantity and value of products for three important industries in Delaware are here presented.

**Canning and preserving.**—Canning and preserving as a factory industry, is of comparatively recent origin. There has been a rapid development of it in Delaware since 1869.

The year 1904 seems to have been one of unfavorable conditions in the canning industry, and there was a general falling off in volume of business. In 1909, however, the industry had more than recovered what it lost in 1904.

The largest individual product is tomatoes, comprising, in 1909, 76.2 per cent of the aggregate value of all products. The number of cases of corn packed in 1909 was less than in 1904, but all other products increased.

Of the 77 establishments embraced within this classification in 1909, tomatoes were canned or pre-

served by 69, peas by 10, corn by 8. Forty-nine establishments canned or preserved tomatoes exclusively. Tomato pulp and scraps, to be subsequently converted into fertilizer, were among the products of 20 of the 69 establishments canning or preserving tomatoes.

The quantity and value of products, by classes, for 1899, 1904, and 1909, are given below.

PRODUCT.	QUANTITY (CASES).			VALUE.		
	1909	1904 <sup>1</sup>	1899 <sup>2</sup>	1909	1904 <sup>1</sup>	1899 <sup>2</sup>
<b>All products</b> .....				<b>\$2,105,945</b>	<b>\$1,456,185</b>	<b>\$1,579,283</b>
Canned vegetables.....	1,585,360	971,403	944,614	2,049,074	1,406,102	1,414,308
Corn.....	94,697	152,900	53,240	138,739	207,810	65,950
Peas.....	190,261	131,147	101,038	249,357	178,729	176,578
Pumpkins.....	3,145	600	1,000	4,546	500	990
Sweet potatoes.....	20,633	5,200		28,675	7,695	
Tomatoes.....	1,262,635	679,080	763,836	1,605,069	1,007,595	1,121,546
All other canned vegetables.....	13,989	2,476	25,500	22,688	3,773	49,244
All other products.....				56,871	50,083	164,955

<sup>1</sup> Does not include one establishment engaged in canning fish.  
<sup>2</sup> Does not include one establishment engaged in canning and preserving oysters.

Considerable quantities of canned and preserved fruits and vegetables were produced as by-products by other than the establishments classified within this industry, but as the total value of such by-products is less than \$70,000 it does not affect appreciably the aggregate value of products of canning and preserving for 1909.

As a result of the seasonal character of this industry, already referred to, the average number of wage earners employed during the year is very much less than the number on the representative day, being only 1,369, as compared with 5,935 on a representative day.

**Flour-mill and gristmill products.**—Owing to the extensive development of large mills in the West, this industry in most Eastern states has shown little increase for several decades; and this is true of Delaware.

The following tabular statement gives the quantity and value of products for the last two census years:

PRODUCT.	QUANTITY.		VALUE.	
	1909	1904	1909	1904
All products.....			\$1,751,533	\$1,536,604
Wheat flour:				
White.....barrels.	174,177	168,944	1,011,305	865,794
Graham.....do.	47		206	
Corn meal.....do.	70,727	92,586	219,690	225,960
Corn flour.....do.	6,672		20,082	
Rye flour.....do.	69		231	
Buckwheat flour.....pounds.	672,675	378,300	19,272	9,298
Hominy.....do.	525,096	3,024,700	9,837	41,848
Grits.....do.	1,146,129		20,449	
Feed.....tons.	12,222	10,582	356,455	233,723
Offal.....do.	3,722	8,166	93,806	159,875
All other.....			200	100

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

<sup>2</sup> Includes grits.

**Leather, tanned, curried, and finished.**—The industry of first importance in Delaware, both according to value of product and value added by manufacture, is the tanning, currying, and finishing of leather.

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

PRODUCT.	NUMBER.			VALUE.		
	1909	1904	1899	1909	1904	1899
All products.....				\$12,079,225	\$10,250,842	\$9,400,504
Goatskins.....	11,095,292	10,028,313	9,363,769	10,232,403	9,102,297	8,034,800
Black.....	7,537,440	9,396,211	7,803,193	6,801,452	7,040,780	7,104,736
Colored.....	3,467,843	1,532,102	1,560,576	3,431,011	1,461,517	1,530,064
Sheepskins.....	793,508	463,404	175,272	675,986	281,754	61,921
All other leather.....				557,942	484,785	321,255
All other products.....				402,795	331,638	201,840
Work on materials for others.....				210,039	50,368	180,688

The relative increase in the production of the colored goatskins in 1909 is an interesting feature of this table.

There has been a considerable increase in the amount received for tanning, currying, or finishing done for establishments other than those reporting.

Fifteen of the sixteen establishments reported glue and glue stock as by-products, and 13 reported hair or wool, which have been included in "All other products" in the tabular statement above.

**Laundries.**—Statistics for steam laundries are not included in the general tables. There were 15 such establishments in the state of Delaware, 11 of which

were in Wilmington. The following statement summarizes the statistics:

Number of establishments.....	15
Persons engaged in industry.....	283
Proprietors and firm members.....	17
Salaried employees.....	44
Wage earners (average number).....	222
Primary horsepower.....	235
Capital.....	\$103,025
Expenses.....	149,365
Services.....	97,776
Materials.....	29,633
Miscellaneous.....	21,956
Amount received for work done.....	187,038

The most common form of organization was the individual, with nine establishments, the firm and corporate forms having three establishments each. Three establishments had receipts for the year's business less than \$5,000; nine, \$5,000 but less than \$20,000; three, \$20,000 but less than \$100,000.

The number of persons employed each month and the per cent such number represented of the greatest number employed any month are as follows:

MONTH.	Number.	Per cent of maximum.	MONTH.	Number.	Per cent of maximum.
January.....	215	94.3	July.....	228	100.0
February.....	217	95.2	August.....	228	100.0
March.....	215	94.3	September.....	228	100.0
April.....	223	97.8	October.....	223	97.8
May.....	223	97.8	November.....	225	98.7
June.....	216	94.7	December.....	225	98.7

The different kinds of engines, their number, and the amount of horsepower used in 1909 are shown in the following tabular statement:

KIND.	Number.	Horsepower.
Total primary power.....		235
Owned—Steam.....	15	215
Rented—Electric.....	10	20

The kind and amount of fuel used are shown in the following statement:

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	12
Bituminous coal.....	Tons.....	2,535
Oil.....	Gallons.....	200
Coke.....	Tons.....	31
Gas.....	1,000 feet.....	1,000

**Custom saw and grist mills.**—Statistics for custom saw and grist mills are not included in the general tables, but are presented in the following summary:

	Custom sawmills.	Custom gristmills.
Number of establishments.....	21	6
Persons engaged in industry.....	93	6
Proprietors and firm members.....	26	6
Salaried employees.....		
Wage earners (average number).....	67	145
Primary horsepower.....	415	
Capital.....	\$26,773	\$6,400
Expenses.....	14,817	16,356
Services.....	11,371	15,733
Materials.....	845	629
Miscellaneous.....	2,601	19,600
Value of products.....	25,605	

STATISTICS OF MANUFACTURES—DELAWARE.

13

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

INDUSTRY.	Cen- sus.	Number of estab- lish- ments.	PERSONS ENGAGED IN INDUSTRY.				Pri- mary horse- power.	Capit- al.	Sala- ries.	Wages.	Cost of mate- rials.	Value of pro- ducts.	Value added by manu- fac- ture.						
			Total.	Pro- pri- etors and firm mem- bers.	Sala- ried em- ploy- ees.	Wage earn- ers (aver- age num- ber).								Expressed in thousands.					
All industries.....	1909 1904 1899	726 631 633	23,984 20,567 ( <sup>1</sup> )	722 641 ( <sup>1</sup> )	2,024 1,451 1,189	21,238 18,475 20,562	52,779 49,490 40,134	\$60,906 50,926 38,791	\$2,322 1,629 1,337	\$10,296 8,158 8,457	\$30,938 24,884 24,725	\$52,840 41,160 41,321	\$21,902 16,276 16,696						
Baskets, and rattan and willow ware.....	1909 1904 1899	10 8 7	442 286 122	8 10 9	14 9 2	420 267 111	540 455 ( <sup>1</sup> )	261 152 40	10 8 1	92 66 20	109 98 17	295 220 52	186 122 35						
Bread and other bakery products.....	1909 1904 1899	62 52 54	330 259 253	65 53 55	39 11 11	223 135 167	130 105 ( <sup>1</sup> )	348 297 281	25 10 6	118 97 96	448 411 264	750 658 485	302 247 221						
Brick and tile.....	1909 1904 1899	23 21 25	352 246 251	19 24 27	33 13 9	300 299 215	834 479 342	835 272 284	34 13 9	116 86 70	55 28 22	329 295 168	274 179 146						
Canning and preserving.....	1909 1904 1899	77 59 54	1,556 1,122 1,543	103 86 77	84 37 29	1,339 999 1,437	1,725 1,274 1,726	1,520 1,005 969	41 18 14	273 187 226	1,553 1,031 1,089	2,106 1,456 1,579	553 425 490						
Carriages and wagons and materials.....	1909 1904 1899	25 25 26	208 211 ( <sup>1</sup> )	29 32 ( <sup>1</sup> )	16 14 18	163 165 278	204 204 ( <sup>1</sup> )	433 335 504	13 10 16	81 85 130	124 131 140	290 286 387	168 156 247						
Cars and general shop construction and repairs by steam-rail- road companies.....	1909 1904 1899	3 5 5	1,629 1,430 897	..... ..... .....	104 89 17	1,525 1,341 880	1,835 1,345 330	1,635 1,010 751	99 82 21	1,147 815 529	1,943 649 461	3,251 1,558 1,013	1,368 909 552						
Cars, steam-railroad, not including operations of railroad com- panies.....	1909 1904 1899	3 3 3	1,837 1,661 2,105	..... ..... .....	158 102 73	1,679 1,559 2,032	3,388 1,717 1,623	3,497 2,707 2,429	185 112 84	1,131 1,031 1,061	1,913 1,942 1,876	3,628 3,600 3,275	1,715 1,658 1,399						
Flour-mill and gristmill products.....	1909 1904 1899	65 47 45	244 214 ( <sup>1</sup> )	86 65 ( <sup>1</sup> )	19 12 18	139 137 120	3,349 2,827 ( <sup>1</sup> )	672 484 926	14 8 17	57 58 46	1,500 1,315 902	1,752 1,537 1,070	252 222 168						
Foundry and machine-shop products.....	1909 1904 1899	37 33 31	2,538 2,630 ( <sup>1</sup> )	21 16 ( <sup>1</sup> )	307 286 187	2,210 2,328 2,471	4,270 3,635 ( <sup>1</sup> )	7,401 7,163 6,827	394 327 254	1,247 1,195 1,175	2,402 2,246 2,710	4,781 4,484 4,868	2,379 2,238 2,168						
Gas, illuminating and heating.....	1909 1904 1899	5 4 4	154 118 90	1 2 2	25 40 21	128 76 67	333 105 76	3,416 708 772	27 32 18	76 52 32	109 118 51	364 305 200	255 187 149						
Hosiery and knit goods.....	1909 1904 1899	4 7 7	598 352 603	1 2 2	15 27 10	492 323 582	200 275 246	289 213 299	13 18 15	122 75 123	282 164 200	449 296 429	167 132 220						
Ice, manufactured.....	1909 1904 1899	15 10 7	102 57 38	16 6 2	15 17 8	71 64 28	1,028 705 621	393 316 260	9 10 4	31 31 12	49 26 14	153 142 71	104 116 57						
Iron and steel, steel works and rolling mills.....	1909 1904 1899	5 5 6	785 1,146 1,571	..... ..... .....	75 91 81	710 1,055 1,460	4,912 10,310 4,925	2,107 6,280 4,207	92 103 133	416 412 705	1,059 940 1,636	1,715 1,597 3,160	656 657 1,524						
Leather, tanned, curried, and finished.....	1909 1904 1899	16 20 20	3,241 3,046 2,643	12 18 30	184 192 156	3,045 2,836 2,457	4,417 5,377 3,640	8,249 6,616 5,179	351 251 166	1,367 1,176 1,045	8,147 7,911 7,028	12,079 10,251 9,401	3,932 2,340 2,373						
Liquors, malt.....	1909 1904 1899	5 6 5	132 132 105	2 3 3	23 25 18	107 104 84	463 466 470	1,522 1,384 1,127	49 45 25	84 79 56	241 177 123	701 600 616	550 583 493						
Lumber and timber products.....	1909 1904 1899	116 94 85	1,369 786 ( <sup>1</sup> )	148 113 ( <sup>1</sup> )	47 13 12	1,174 655 935	3,767 3,637 ( <sup>1</sup> )	1,048 551 622	23 9 8	330 196 219	608 405 338	1,312 857 749	704 452 411						
Marble and stone work.....	1909 1904 1899	7 7 5	56 227 155	8 9 3	6 19 6	42 208 146	51 457 ( <sup>1</sup> )	72 167 59	5 8 4	27 93 61	35 26 10	86 174 105	51 148 95						
Paper and wood pulp.....	1909 1904 1899	6 6 6	599 575 476	4 6 6	49 22 19	549 547 451	4,318 5,115 4,010	3,314 3,176 2,143	61 79 62	310 252 194	1,587 1,270 1,028	2,292 1,905 1,600	705 635 572						
Printing and publishing.....	1909 1904 1899	48 46 42	406 359 ( <sup>1</sup> )	32 30 ( <sup>1</sup> )	86 62 60	288 247 334	365 184 ( <sup>1</sup> )	662 513 463	67 47 44	129 125 135	138 103 99	480 398 368	342 295 269						
Shipbuilding.....	1909 1904 1899	10 10 7	1,411 1,193 223	8 11 9	164 69 7	1,239 1,122 207	3,582 1,512 176	2,888 2,630 225	181 92 9	607 563 111	981 895 153	1,900 1,781 360	1,009 886 207						
All other industries.....	1909 1904 1899	184 163 187	6,085 4,487 ( <sup>1</sup> )	159 155 ( <sup>1</sup> )	561 314 418	5,365 4,018 6,050	13,128 9,876 ( <sup>1</sup> )	20,404 14,917 10,424	629 356 427	2,445 1,484 2,431	7,655 5,000 6,555	13,947 8,690 11,365	6,292 3,689 4,810						

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

<sup>2</sup> Includes the neighborhood industries and hand trades, omitted in 1904 and 1909.

<sup>3</sup> Does not include one establishment engaged in canning and preserving fish.

<sup>4</sup> Does not include one establishment engaged in canning and preserving oysters.

<sup>5</sup> Does not include two establishments for monuments and tombstones.

<sup>6</sup> Does not include one establishment engaged in bookbinding and blank-book making.

<sup>7</sup> Does not include two establishments engaged in shipbuilding, iron and steel.

TABLE II.—DETAIL STATEMENT FOR

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY—AVERAGE NUMBER.										WAGE EARNERS—NUMBER DECEMBER 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners. <sup>1</sup>			Total.	16 and over.		Under 16.				
					Male.	Female.	Total.	16 and over.			Under 16.	Male.	Female.	Male.	Female.		
								Male.	Female.								
1 All industries.....	726	23,984	722	666	1,111	247	21,238	17,205	3,504	529	.....	.....	.....	.....	.....	.....	62,779
2 Artificial stone.....	3	38	2	2	.....	1	33	33	.....	.....	28	28	.....	.....	.....	.....	32
3 Baskets and rattan and willow ware....	10	442	8	11	2	1	420	341	69	10	433	352	71	8	2	.....	540
4 Bread and other bakery products.....	62	330	65	6	20	13	226	191	31	4	219	185	30	4	.....	.....	130
5 Brick and tile.....	23	352	19	17	12	4	300	288	2	10	305	351	2	12	.....	.....	834
6 Butter, cheese, and condensed milk....	10	74	30	6	1	5	32	32	.....	.....	33	33	.....	.....	.....	.....	204
7 Canning and preserving.....	77	1,556	103	35	41	8	1,369	445	730	194	5,935	1,931	3,163	315	520	.....	1,725
8 Carriages and wagons and materials....	25	208	29	9	5	2	163	161	1	1	146	144	1	1	.....	.....	204
9 Cars and general shop construction and repairs by steam-railroad companies.	3	1,629	.....	27	77	.....	1,525	1,522	.....	3	1,697	1,694	.....	3	.....	.....	1,835
10 Cars and general shop construction and repairs by street-railroad companies.	3	34	.....	1	1	.....	32	32	.....	.....	32	32	.....	.....	.....	.....	25
11 Cars, steam-railroad, not including operations of railroad companies.	3	1,837	.....	42	111	5	1,679	1,664	14	1	2,240	2,220	19	1	.....	.....	3,383
12 Clothing, men's, including shirts.....	12	395	14	14	4	5	358	33	323	2	452	42	408	.....	2	.....	124
13 Confectionery.....	5	91	2	3	1	5	80	21	57	2	104	27	74	3	.....	.....	40
14 Copper, tin, and sheet-iron products....	10	113	10	7	4	2	90	54	33	3	107	64	39	4	.....	.....	56
15 Electrical machinery, apparatus, and supplies.	4	183	3	7	11	.....	162	103	.....	50	227	145	.....	82	.....	.....	450
16 Flour-mill and gristmill products.....	65	244	86	8	9	2	139	138	.....	1	143	142	.....	1	.....	.....	3,349
17 Foundry and machine-shop products....	37	2,538	21	92	195	20	2,210	2,190	16	4	2,643	2,610	19	3	2	.....	4,270
18 Gas, illuminating and heating.....	5	154	1	8	12	5	128	128	.....	.....	123	123	.....	.....	.....	.....	333
19 Hosiery and knit goods.....	4	508	1	9	3	3	492	83	342	67	526	83	265	17	54	.....	230
20 Ice, manufactured.....	15	102	16	9	6	.....	71	71	.....	.....	70	70	.....	.....	.....	.....	1,023
21 Iron and steel, steel works and rolling mills.	5	785	.....	29	41	5	710	710	.....	.....	909	909	.....	.....	.....	.....	4,912
22 Leather goods.....	4	66	2	6	11	3	44	44	.....	.....	49	49	.....	.....	.....	.....	30
23 Leather, tanned, curried, and finished.	16	3,241	12	52	105	27	3,045	2,311	718	16	3,460	2,626	816	13	5	.....	4,417
24 Liquors, malt.....	5	132	2	11	12	.....	107	107	.....	.....	107	107	.....	.....	.....	.....	463
25 Lumber and timber products.....	116	1,369	143	35	10	2	1,174	1,126	35	13	1,540	1,477	46	14	3	.....	3,767
26 Marble and stone work.....	7	56	8	1	3	2	42	42	.....	.....	42	42	.....	.....	.....	.....	61
27 Paint and varnish.....	4	72	2	8	5	.....	57	57	.....	.....	71	71	.....	.....	.....	.....	335
28 Paper and wood pulp.....	6	593	4	14	27	8	546	498	78	.....	559	479	80	.....	.....	.....	3,313
29 Patent medicines and compounds and druggists' preparations.	7	57	4	3	11	8	31	16	15	.....	34	18	10	.....	.....	.....	31
30 Printing and publishing.....	48	406	32	22	46	18	288	199	70	19	315	218	76	10	2	.....	365
31 Pulp goods.....	4	409	.....	16	14	20	359	350	.....	9	450	439	.....	11	.....	.....	1,067
32 Shipbuilding.....	10	1,411	8	51	94	19	1,239	1,232	.....	7	1,560	1,551	.....	9	.....	.....	3,532
33 Silk and silk goods.....	3	229	.....	6	4	1	218	20	174	24	193	15	154	6	15	.....	265
34 Slaughtering and meat packing.....	9	123	.....	6	26	1	82	81	1	.....	84	83	1	.....	.....	.....	212
35 Tobacco manufactures and snuff.....	19	293	18	6	19	5	245	114	123	8	260	124	133	1	8	.....	655
36 All other industries <sup>2</sup> .....	87	3,908	64	87	168	47	3,542	2,798	672	72	.....	.....	.....	.....	.....	.....	9,648

<sup>1</sup> Distribution by sex and age periods based on number reported December 15, or nearest representative date.

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

Automobiles, including bodies and parts.....	1	Cutlery and tools, not elsewhere specified.....	2	Jewelry.....	1
Awnings, tents, and sails.....	1	Dentists' materials.....	2	Kaolin and ground earth.....	1
Axle grease.....	1	Dyeing and finishing textiles.....	1	Mattresses and spring beds.....	2
Bags, paper.....	1	Electroplating.....	1	Mineral and soda waters.....	10
Belted and hose, leather.....	2	Explosives.....	1	Models and patterns, not including paper patterns.....	2
Belted and hose, woven and rubber.....	1	Fertilizers.....	10	Musical instruments, pianos and organs, and materials.....	1
Boots and shoes, including cut stock and findings.....	1	Firearms and ammunition.....	1	.....	1
Boxes, fancy and paper.....	1	Fire extinguishers, chemical.....	1	Oil, not elsewhere specified.....	2
Brass and bronze products.....	1	Food preparations.....	3	Paper goods, not elsewhere specified.....	1
Brooms.....	1	Furnishing goods, men's.....	1	Smelting and refining, not from the ore.....	1
Charcoal.....	1	Furniture and refrigerators.....	2	Steam packing.....	1
Coffee and spice, roasting and grinding.....	2	Glass, cutting, staining, and ornamenting.....	1	Upholstering materials.....	2
Copperage and wooden goods, not elsewhere specified.....	2	Glue.....	1	Wall paper.....	1
Corlage and twine and jute and linen goods.....	2	Grease and tallow.....	4	Wirework, including wire rope and cable.....	1
Cordials and sirups.....	1	Hats and caps other than felt, straw, and wool.....	2	Wood, turned and carved.....	1
Cotton goods and cotton small wares.....	1	Hats, felt.....	1	Woolen, worsted, and felt goods and wool hats.....	2
		Instruments, professional and scientific.....	1		
		Iron and steel forgings.....	1		

STATISTICS OF MANUFACTURES—DELAWARE.

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 \$60,905,671	\$46,958,478	\$1,810,320	\$1,012,009	\$10,295,596	\$1,138,779	\$29,799,022	\$151,444	\$286,759	\$95,087	\$2,869,462	\$52,839,619	\$21,901,818
2 61,161	54,156	3,900	624	13,876	432	32,080	1,800	168	-----	1,276	57,367	24,855
3 260,585	243,403	8,704	852	92,292	40	109,342	185	617	5,946	25,515	294,808	185,423
4 348,050	640,748	7,488	17,893	118,218	16,665	431,639	5,662	2,492	-----	46,741	749,679	301,425
5 835,148	280,751	21,039	13,233	116,480	39,484	15,107	1,360	1,003	34,029	38,956	329,454	274,803
6 207,599	240,437	3,900	1,590	14,081	3,523	207,635	847	452	-----	8,439	263,691	52,533
7 1,520,082	1,937,437	26,098	15,008	273,394	21,042	1,532,454	2,427	2,291	362	64,361	2,105,945	552,449
8 432,551	234,130	9,368	3,162	81,387	3,472	120,585	3,977	2,236	-----	9,951	290,113	160,056
9 1,635,094	3,251,201	38,922	60,491	1,146,791	58,917	1,883,655	-----	10,481	-----	51,944	3,251,201	1,308,629
10 16,702	44,286	1,140	600	20,692	418	21,086	-----	50	-----	350	44,286	22,832
11 3,496,582	3,407,013	87,896	96,813	1,130,742	44,640	1,868,493	-----	11,054	285	167,081	3,628,093	1,714,951
12 255,310	381,573	15,705	8,088	77,814	3,821	241,746	1,593	400	17,519	14,887	431,508	185,941
13 67,337	130,076	4,500	4,100	31,476	2,825	81,351	3,010	184	-----	2,570	142,796	68,620
14 185,777	124,363	8,509	3,393	81,293	1,513	63,757	1,976	235	-----	13,687	127,711	62,441
15 764,402	442,339	12,450	5,384	88,003	17,453	275,723	1,500	1,140	-----	40,080	600,051	313,475
16 672,051	1,618,218	6,667	7,048	57,159	13,582	1,486,057	13,695	2,218	240	31,552	1,751,533	251,894
17 7,401,095	4,302,124	221,822	171,987	1,247,164	118,871	2,283,040	4,226	17,382	18	237,608	4,781,195	2,379,278
18 3,415,823	273,934	15,920	11,200	76,214	71,636	37,295	-----	7,271	112	54,286	363,769	254,838
19 288,941	427,438	10,803	1,821	122,212	4,152	277,948	-----	700	-----	9,742	448,987	136,887
20 392,846	100,227	6,370	2,960	31,486	32,981	15,562	-----	1,506	147	8,269	153,138	103,655
21 2,107,094	1,651,545	59,247	32,530	415,380	112,635	946,400	-----	2,023	-----	82,220	1,715,341	650,346
22 181,898	162,589	6,772	7,703	21,841	883	107,548	480	726	-----	16,636	175,477	67,046
23 8,249,477	10,538,470	203,708	149,866	1,867,350	73,430	8,073,420	6,200	14,247	-----	653,249	12,079,225	3,932,375
24 1,521,937	657,377	34,873	14,422	84,270	18,071	222,862	-----	125,579	-----	157,000	790,919	549,986
25 1,048,225	1,036,510	16,405	6,289	329,799	1,752	606,105	2,409	3,354	9,876	60,521	1,312,257	704,430
26 72,277	72,438	1,300	3,552	26,980	684	34,614	840	251	2,000	2,217	86,250	50,952
27 260,369	202,963	9,420	2,467	32,870	17,484	131,838	900	318	-----	7,660	245,445	90,123
28 3,318,559	2,027,287	27,186	34,021	309,591	156,160	1,432,013	-----	6,462	-----	62,854	2,291,728	704,555
29 489,050	78,049	7,250	16,563	11,484	425	32,319	3,154	215	-----	6,039	91,105	53,301
30 601,024	389,178	33,539	33,660	128,641	7,581	120,971	7,947	2,156	2,219	43,464	480,464	342,912
31 1,564,318	936,468	39,932	24,947	174,599	21,253	559,272	480	3,762	-----	112,183	1,031,074	451,440
32 2,887,505	1,953,836	103,110	78,198	667,477	41,818	939,335	590	12,365	-----	81,434	1,990,240	1,009,587
33 175,692	242,568	4,836	2,050	64,223	3,848	147,673	1,550	296	15,229	2,803	255,434	103,913
34 288,932	1,352,564	7,994	17,100	52,736	6,028	1,225,538	480	1,660	3,172	38,256	1,371,853	149,687
35 6,404,036	1,009,732	27,143	30,251	91,433	9,720	749,443	4,009	25,488	-----	72,239	1,048,638	289,469
36 9,482,602	6,506,984	216,341	135,057	1,715,078	213,025	3,475,050	80,147	25,027	3,933	642,720	8,051,314	4,362,639

## STATISTICS OF MANUFACTURES—DELAWARE.

TABLE III.—WILMINGTON, DEL., COMPARATIVE SUMMARY FOR SELECTED INDUSTRIES: 1909, 1904, AND 1899.

[Population—1910, 87,411; 1900, 76,508. Per cent of increase, 14.3.]

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).							
All industries.....	1909	261	16,295	190	1,442	14,663	29,282	\$38,504	\$1,751	\$7,937	\$21,976	\$38,069	\$16,083
	1904	245	14,806	192	1,106	13,508	29,634	33,102	1,262	6,513	18,121	30,285	12,184
	1899	262	( <sup>2</sup> )	( <sup>2</sup> )	922	14,498	( <sup>2</sup> )	26,490	1,057	6,697	17,876	30,587	12,711
Bread and other bakery products.....	1909	36	269	36	35	198	106	293	24	104	380	629	249
	1904	35	222	34	10	178	101	273	10	89	365	581	216
	1899	45	236	45	11	180	( <sup>2</sup> )	264	6	93	248	453	205
Carriages and wagons and materials.....	1909	11	127	14	10	103	121	279	7	50	78	181	103
	1904	*14	153	19	8	126	86	240	5	63	92	205	113
	1899	*13	( <sup>2</sup> )	( <sup>2</sup> )	10	174	( <sup>2</sup> )	355	9	89	91	252	161
Cars and general shop construction and repairs by steam-railroad companies.	1909	3	1,629	.....	104	1,525	1,835	1,635	99	1,147	1,943	3,251	1,308
	1904	3	1,399	.....	82	1,317	1,245	999	77	803	646	1,539	893
	1899	3	880	.....	15	865	( <sup>2</sup> )	748	19	521	457	1,000	543
Cars, steam-railroad, not including operations of railroad companies.	1909	3	1,837	.....	158	1,679	3,388	3,497	125	1,131	1,913	3,628	1,715
	1904	3	1,661	.....	102	1,559	1,717	2,707	112	1,031	1,942	3,600	1,658
	1899	3	2,105	.....	73	2,032	( <sup>2</sup> )	2,429	84	1,041	1,876	3,275	1,399
Leather, tanned, curried, and finished.....	1909	16	3,241	12	184	3,045	4,417	8,240	351	1,367	8,147	12,079	3,332
	1904	20	3,046	18	192	2,836	5,377	6,646	251	1,176	7,911	10,251	2,840
	1899	19	2,636	26	150	2,454	( <sup>2</sup> )	5,167	166	1,044	7,099	9,380	2,371
Lumber and timber products.....	1909	4	23	5	.....	18	84	36	.....	14	8	30	22
	1904	3	14	4	.....	10	37	25	.....	8	8	24	16
	1899	4	29	5	4	20	( <sup>2</sup> )	125	3	13	41	71	30
Printing and publishing.....	1909	22	297	14	73	210	214	466	62	99	112	373	281
	1904	*25	200	14	57	198	150	409	44	100	86	319	233
	1899	26	( <sup>2</sup> )	( <sup>2</sup> )	52	273	( <sup>2</sup> )	374	39	118	80	311	225
Tobacco manufactures and snuff.....	1909	16	195	16	5	174	10	46	3	55	88	234	146
	1904	16	127	17	3	107	.....	95	2	41	59	151	92
	1899	22	126	23	1	102	( <sup>2</sup> )	74	1	39	37	118	81
All other industries.....	1909	150	8,677	93	873	7,711	19,107	24,003	1,020	3,970	9,307	17,664	8,357
	1904	126	7,915	86	652	7,177	20,821	21,708	761	3,202	7,012	13,615	6,603
	1899	127	( <sup>2</sup> )	( <sup>2</sup> )	600	8,398	( <sup>2</sup> )	16,954	730	3,739	8,031	15,727	7,696

<sup>1</sup> Figures do not agree with total published in 1904, because data for some establishments that were located outside of corporate limits of city have been excluded.<sup>2</sup> Figures not available.<sup>3</sup> Does not include two establishments for carriage and wagon materials.<sup>4</sup> Does not include one establishment engaged in bookbinding and blank-book making.



## MANUFACTURES : DISTRICT OF COLUMBIA

## STATISTICS OF MANUFACTURES FOR THE DISTRICT, 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 District of Columbia for the calendar year 1909 as shown by the Thirteenth Census. It will be reprinted without change 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 District as a whole and for important industries. It also presents tables in which the statistics for the industries of the District 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 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, for all industries combined and for certain important industries in 1909, 1904, and 1899.

Table II gives statistics in greater detail for 1909 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 District. A selection has been made of the leading industries of the District 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 distribution of this average number by sex and age has been estimated or computed for each industry on the basis of the proportions shown in the age and sex distribution reported for the wage earners employed in that industry on December 15 or the nearest representative day. It is believed that the distribution thus obtained can be accepted as typical and as sufficiently accurate for statistical purposes.

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 1899 and 1904 the schedule called for the average number of wage earners, 16 years and over, classified by sex, with the number of both sexes under 16 years of age, for each month, and these monthly statements were combined in an annual average. The change in the method of the enumeration was made to secure more precise information, but it may in some instances affect comparisons between the present and earlier censuses.

**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.

**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.

**Governmental establishments.**—Data for the establishments operated by the Federal Government in the District of Columbia which are not included in the general total for manufacturing industries are presented separately. No value of products is given, the statistics in this respect differing from those relating to establishments operated under private ownership.

INDUSTRIES IN GENERAL.

**General character.**—The District of Columbia, which is coextensive with the city of Washington, contains 60 square miles. Its population in 1910 was 331,069, as compared with 278,718 in 1900 and 230,392 in 1890. It ranked forty-third among the states and territories in regard to population in 1910 and forty-first in 1900.

**Importance and growth of manufactures.**—Although Washington is not essentially a manufacturing city, the number and importance of its industries have been steadily increasing. The manufacturing operations

carried on in the District by the Federal Government are of considerable importance, but as they are conducted under conditions which in many respects differ from those prevailing in establishments operated under private ownership, statistics for them are presented separately.

The following table gives the more important figures relative to all classes of manufactures combined for the District as returned at the censuses of 1909, 1904, and 1899, together with percentages of increase from census to census:

	NUMBER OR AMOUNT.			PER CENT OF INCREASE.	
	1909	1904	1899	1904-1909	1899-1904
Number of establishments.....	518	482	491	7.5	<sup>1</sup> 1.8
Persons engaged in manufactures.....	9,758	7,778	( <sup>2</sup> )	25.5	.....
Proprietors and firm members.....	475	473	( <sup>2</sup> )	0.4	.....
Salaried employees.....	1,576	1,006	957	56.7	5.1
Wage earners (average number).....	7,707	6,299	6,155	22.4	2.3
Primary horsepower.....	16,563	12,592	10,255	31.5	22.8
Capital.....	\$30,553,000	\$20,200,000	\$17,960,000	51.3	12.5
Expenses.....	20,476,000	15,322,000	13,311,000	33.6	15.1
Services.....	6,835,000	4,865,000	3,895,000	40.5	24.9
Salaries.....	1,846,000	1,207,000	872,000	52.9	38.4
Wages.....	4,989,000	3,658,000	3,023,000	36.4	21.0
Materials.....	10,246,000	7,732,000	7,475,000	32.5	3.4
Miscellaneous.....	3,395,000	2,725,000	1,941,000	24.6	40.4
Value of products.....	25,289,000	18,359,000	16,426,000	37.7	11.8
Value added by manufacture (value of products less cost of materials).....	15,043,000	10,627,000	8,951,000	41.6	18.7

<sup>1</sup> Decrease.

<sup>2</sup> Comparable figures not available for 1899.

Exclusive of the establishments operated by the Federal Government in 1909, the District of Columbia had 518 manufacturing establishments operating under the factory system, which gave employment to an average of 9,758 persons during the year, and paid out \$6,835,000 in salaries and wages. Of the persons employed, 7,707 were wage earners. These establishments turned out products to the value of \$25,289,000, to produce which materials costing \$10,246,000 were consumed. The value added by manufacture was thus \$15,043,000, which figure 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 the District showed a much greater increase during the period 1904-1909 than for the period 1899-1904. During the more recent period the number of establishments increased 7.5 per cent and the average number of wage earners 22.4 per cent, while the value of products increased 37.7 per cent and the value added by manufacture 41.6. As pointed out in the introduction, it would be improper to infer that manufactures increased in volume during the period 1904-1909 to the 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.

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 very much larger than those for the number of establishments and average number of wage earners.

The relative importance and growth of the leading manufacturing industries of the District are shown in the following table.

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

**Printing and publishing.**—The establishments classified under this head include those printing newspapers, books, and periodicals, job printing offices, establishments engaged in bookbinding and blank-book making, and lithographing and engraving establishments. The statistics show that there has been a constant and satisfactory increase in the industry.

**Bread and other bakery products.**—As measured by value of products and value added by manufacture, this industry, common to all cities, has shown, in the District, during the two periods covered by the table, practically the same rate of increases.

**Liquors, malt.**—Four establishments were reported for the industry in 1904 and five in 1909. Measured both by value of products and by value added by manufacture, this industry decreased during the

period 1899 to 1904, but increased substantially from 1904 to 1909.

*Foundry and machine-shop products.*—In any community the number of establishments engaged in this industry and the degree of their activity are usually a fair index of the extent and prosperity of its manufactures. In the District, however, the industry was

really of greater importance than is indicated by the statistics, as some machine shops manufactured a special product and were assigned to other classifications.

Measured by value added by manufacture, the four leading industries held the same relative rank as when measured by value of products.

INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		PER CENT OF INCREASE. <sup>1</sup>			
		Average number.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.	Value of products.		Value added by manufacture.	
								1904-1909	1899-1904	1904-1909	1899-1904
All industries.....	518	7,707	100.0	25,289,000	100.0	15,043,000	100.0	37.7	11.8	41.6	18.7
Printing and publishing.....	156	1,565	20.3	4,899,000	19.4	3,805,000	25.3	23.8	40.9	13.3	46.7
Bread and other bakery products.....	71	975	12.7	3,590,000	14.2	1,388,000	9.2	34.2	37.9	26.8	29.3
Liquors, malt.....	5	248	3.2	1,805,000	7.1	1,380,000	9.2	54.7	112.0	65.9	21.0
Foundry and machine-shop products.....	23	509	6.6	1,175,000	4.6	709,000	4.7	165.2	253.4	154.1	49.7
Lumber and timber products.....	10	309	4.0	609,000	2.4	355,000	2.4	55.4	18.4	43.1	40.1
Marble and stone work.....	15	265	3.4	549,000	2.2	299,000	2.0	.....	.....	.....	.....
Flour-mill and gristmill products.....	7	38	0.5	506,000	2.0	74,000	0.5	229.3	4.9	19.6	2.1
All other industries.....	231	3,798	49.3	12,156,000	48.1	7,033,000	46.8	36.6	27.6	52.5	20.2

<sup>1</sup> Per cent of increase is based on figures in Table I.

<sup>2</sup> Decrease.

This table shows also the percentages of increase for these leading industries in respect to value of products and value added by manufacture. There are some striking differences among the several industries specified in regard to the relative increase from 1899 to 1904 and from 1904 to 1909. Two industries show a decrease in value of products and three in value added by manufacture from 1899 to 1904. Only one, however, "Flour-mill and gristmill products," shows a decrease from 1904 to 1909.

In addition to the seven industries presented separately there are nine industries each of which had a value of product in 1909 in excess of \$300,000. They are included in the group of "All other industries" because in some instances if they were shown separately the operations of individual establishments would be disclosed; in others the returns do not properly present the true condition of the industry, it being more or less interwoven with one or more industries of similar character; and for others the comparable statistics for the different census years can not be presented on account of changes in classification. The nine industries omitted from this table are: Baking powder and yeast; cars and general shop construction and repairs by steam-railroad companies; coffee and spice, roasting and grinding; copper, tin, and sheet-iron products; gas, illuminating and heating; ice, manufactured; iron and steel, steel works and rolling mills; patent medicines and compounds and druggists' preparations; and slaughtering and meat packing. Of these industries comparative figures for four—copper, tin, and sheet-iron products; ice, manufactured; patent medicines and compounds and

druggists' preparations; and slaughtering and meat packing—will be found in Table I, and in Table II totals for 1909 for gas, illuminating and heating.

*Persons engaged in manufacturing industries.*—The following table shows the distribution of the average number of persons engaged in manufactures, the average number of wage earners being distributed by sex and age in the manner already explained. (See "Introduction.")

CLASS.	PERSONS ENGAGED IN MANUFACTURES.		
	Total.	Male.	Female.
All classes.....	9,758	8,598	1,160
Proprietors and officials.....	899	866	33
Proprietors and firm members.....	475	455	20
Salaries officers of corporation.....	170	164	6
Superintendents and managers.....	254	247	7
Clerks.....	1,152	853	299
Wage earners (average number).....	7,707	6,870	828
16 years of age and over.....	7,688	6,861	827
Under 16 years of age.....	19	18	1

This table shows that there were 9,758 persons returned as the average number engaged in manufactures during 1909, of whom 7,707 were wage earners, 899 proprietors and officials, and 1,152 clerks. Corresponding figures for individual industries will be found in Table II.

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

# STATISTICS OF MANUFACTURES—DISTRICT OF COLUMBIA.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	9,758	9.2	11.8	79.0
Printing and publishing.....	2,441	12.0	23.1	64.9
Bread and other bakery products.....	1,183	8.4	9.1	82.4
Slaughtering and meat packing.....	214	6.5	30.4	63.1
Liquors, malt.....	287	3.1	10.5	86.4
Foundry and machine-shop products.....	578	7.3	4.7	88.1
Lumber and timber products.....	339	4.4	4.4	91.2
Marble and stone work.....	299	10.0	1.3	88.6
Flour-mill and gristmill products.....	50	22.0	2.0	76.0
All other industries.....	4,397	8.8	7.8	83.3

Of the persons engaged in all manufacturing industries, 9.2 per cent were officials, 11.8 per cent clerks, and 79 per cent wage earners. A number of the printing and publishing establishments are small, the work to a large extent being done by proprietors, and five of the seven flour and grist mills are operated under the individual or firm form of ownership. Therefore the proportion of persons engaged in these industries falling in the class of proprietors and officials is higher than that for other industries or for all industries combined. The smallest proportion for this class is for the malt-liquor industry, due to the fact that four of the five establishments reported are operated by corporations.

The following table shows, for all industries combined and for some of the important industries separately, the average number of wage earners; their percentage distribution by age periods, and for those 16 years of age and over by sex.

INDUSTRY.	WAGE EARNERS(AVERAGE NUMBER).				
	Total.	Per cent of total.			Under 16 years of age.
		16 years of age and over.		Under 16 years of age.	
		Male.	Female.		
All industries.....	7,707	89.0	10.7	0.2	
Printing and publishing.....	1,565	81.4	18.1	0.4	
Bread and other bakery products.....	975	93.0	6.1	.....	
Slaughtering and meat packing.....	135	100.0	.....	.....	
Liquors, malt.....	248	100.0	.....	.....	
Liquors, malt.....	509	99.8	0.2	.....	
Foundry and machine-shop products.....	300	99.7	.....	0.3	
Lumber and timber products.....	265	100.0	.....	.....	
Marble and stone work.....	288	100.0	.....	.....	
Flour-mill and gristmill products.....	38	100.0	.....	.....	
All other industries.....	3,663	86.5	13.2	0.3	

Clerks are not shown in this table; of the 1,152 clerks employed in all industries, 853, or 74 per cent, were male and 299, or 26 per cent, female. Of the wage earners, 89.3 per cent were male and 10.7 per cent female; 99.8 per cent were 16 years or over, and but two-tenths of 1 per cent under 16 years.

It may be noted that the largest number of women are employed in printing and publishing. The average number of wage earners in that industry was 1,281 males and 284 females. Of the total of 828 female wage earners in all industries combined, 284, or 34.3 per cent, were thus in this single industry. Of the 19 persons under 16 years of age reported as employed in the manufactures of the District, 7 were reported in this industry.

In order to compare the distribution of persons engaged in manufactures in 1909 with that shown in 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.
	Amount.	Per cent distribution.	Amount.	Per cent distribution.	
Total.....	9,758	100.0	7,778	100.0	25.5
Proprietors and firm members.....	475	4.9	473	6.1	0.4
Salaried employees.....	1,576	16.2	1,006	12.9	56.7
Wage earners (average number).....	7,707	79.0	6,299	81.0	22.4

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, but this may be due, in part, to changes in the interpretation of the line of distinction between that class and other wage earners.

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.

CLASS.	AVERAGE NUMBER OF WAGE EARNERS.					
	1909		1904		1899	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
Total.....	7,707	100.0	6,299	100.0	6,155	100.0
16 years of age and over.....	7,688	99.8	6,225	98.8	6,082	98.8
Male.....	6,861	89.0	5,614	89.1	5,360	87.1
Female.....	827	10.7	611	9.7	722	11.7
Under 16 years of age.....	19	0.2	74	1.2	73	1.2

This table indicates that for all industries combined there has been a great decrease during the last 5 years in the employment of children under 16 years of age. There has, on the other hand, been little change in the proportion of male and female wage earners. In 1909 males 16 years of age and over formed 89 per cent of all wage earners, as compared with 89.1 per cent in 1904 and 87.1 per cent in 1899.

Wage earners employed by months.—The table following gives the number of wage earners employed on the 15th of each month during the year 1909 for all industries combined; it also gives the percentage which the number each month is of the greatest number employed in any one month.

MONTH.	WAGE EARNERS, ALL INDUSTRIES.		MONTH.	WAGE EARNERS, ALL INDUSTRIES.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	7,421	93.4	July.....	7,785	97.9
February.....	7,445	93.7	August.....	7,752	97.5
March.....	7,535	94.8	September.....	7,840	98.6
April.....	7,619	95.8	October.....	7,949	100.0
May.....	7,774	97.8	November.....	7,861	98.9
June.....	7,761	97.6	December.....	.....	.....

STATISTICS OF MANUFACTURES—DISTRICT OF COLUMBIA.

There are no important seasonal industries in the District. The table shows but little variation in the numbers reported for any of the months of the year. The greatest number, 7,949, is shown for October, and the smallest number, 7,421, for January, the minimum number thus representing 93.4 per cent of the maximum.

**Prevailing hours of labor.**—Establishments have been classified also according to the prevailing number

of hours of labor of the bulk of their employees; that is to say, the wage earners of each establishment are all classified according to the prevailing hours of labor in the establishment, even though some may have to work a different number of hours. The table that follows shows the result of this classification. It is based on the average number of wage earners employed during the year.

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.
<b>All industries.....</b>	<b>7,707</b>	<b>2,981</b>	<b>754</b>	<b>1,550</b>	<b>260</b>	<b>1,153</b>	<b>920</b>	<b>41</b>	<b>58</b>
Bread and other bakery products.....	975	120	19	785	6	27	10	8	
Flour-mill and gristmill products.....	38					38			
Foundry and machine-shop products.....	509	330	80	99					
Liquors, malt.....	248	128	38	82					
Lumber and timber products.....	309	309							
Marble and stone work.....	265	168		97					
Printing and publishing.....	1,565	1,258	161	62	83		1		
Slaughtering and meat packing.....	135	9				126			
All other industries.....	3,663	659	456	425	161	962	909	33	58

It is evident from the figures that the great majority of wage earners employed in the manufacturing industries of the District of Columbia were in establishments where the prevailing hours of labor did not exceed 54 a week.

Of the total number of wage earners, 38.7 per cent were employed in establishments running 48 hours a week or less and 29.9 per cent in establishments running more than 48 hours, but not over 54 hours a week, while 31.4 per cent were in establishments operating more than 9 hours a day.

**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.

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>				
1909.....	518	7,707	\$25,289,136	\$15,042,602
1904.....	482	6,299	18,359,159	10,827,188
<b>Individual:</b>				
1909.....	303	2,419	5,847,661	3,321,471
1904.....	298	2,139	4,440,861	2,554,434
<b>Firm:</b>				
1909.....	75	747	2,412,762	1,182,142
1904.....	77	901	3,536,031	1,174,134
<b>Corporation:</b>				
1909.....	122	4,459	16,544,835	10,117,900
1904.....	91	3,160	10,150,928	6,697,240
<b>Other:</b>				
1909.....	18	82	483,888	421,080
1904.....	10	39	231,339	201,380
<b>Per cent of total:</b>				
1909.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0
<b>Individual:</b>				
1909.....	58.5	31.4	23.1	22.1
1904.....	61.8	34.0	24.2	24.0
<b>Firm:</b>				
1909.....	14.5	9.7	9.5	7.9
1904.....	16.0	15.3	19.3	11.0
<b>Corporation:</b>				
1909.....	23.0	57.9	65.4	67.3
1904.....	18.9	50.2	55.3	63.0
<b>Other:</b>				
1909.....	3.5	1.1	1.9	2.8
1904.....	3.3	0.6	1.3	1.9

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>Bread and other bakery products, 1909.....</b>	<b>71</b>	<b>975</b>	<b>\$3,589,554</b>	<b>\$1,387,826</b>
Individual.....	56	383	1,233,407	533,400
Firm.....	9	230	1,042,150	394,783
Corporation.....	6	353	1,263,997	459,643
<b>Per cent of total.....</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Individual.....	78.9	39.3	35.8	38.4
Firm.....	12.7	24.5	29.0	28.4
Corporation.....	8.4	36.2	35.2	33.1
<b>Foundry and machine-shop products, 1909.....</b>	<b>23</b>	<b>509</b>	<b>\$1,175,085</b>	<b>\$708,713</b>
Individual.....	14	369	790,915	471,566
Firm.....	6	116	324,188	183,721
Corporation.....	3	24	59,982	53,426
<b>Per cent of total.....</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Individual.....	60.9	72.5	67.3	66.5
Firm.....	26.1	22.8	27.6	25.9
Corporation.....	13.0	4.7	5.1	7.5
<b>Marble and stone work, 1909.....</b>	<b>15</b>	<b>265</b>	<b>\$548,535</b>	<b>\$298,693</b>
Individual.....	6	54	169,450	96,361
Firm.....	5	44	68,806	50,107
Corporation.....	4	167	310,279	152,225
<b>Per cent of total.....</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Individual.....	40.0	20.4	30.9	32.3
Firm.....	33.3	16.6	12.5	16.8
Corporation.....	26.7	63.0	56.6	51.0
<b>Printing and publishing, 1909.....</b>	<b>159</b>	<b>1,565</b>	<b>\$4,899,492</b>	<b>\$3,804,610</b>
Individual.....	81	447	865,107	619,235
Firm.....	18	98	215,341	183,525
Corporation.....	39	938	3,335,156	2,550,761
Other.....	18	82	453,888	421,089
<b>Per cent of total.....</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Individual.....	51.9	28.6	17.7	17.1
Firm.....	11.5	6.3	4.4	4.8
Corporation.....	25.0	59.9	68.1	67.0
Other.....	11.5	5.2	9.9	11.1

Figures for 1909 only are presented for several important industries. In order to avoid disclosing the operations of individual concerns, it is necessary to omit several important industries from this and other tables.

The most important distinction shown is that between corporate and all other forms of ownership. For all industries combined, 23.6 per cent of the total

number of establishments had in 1909 a corporate form of organization, as against 76.5 per cent for all other forms. The corresponding figures for 1904 were 18.9 per cent and 81.1 per cent, respectively. Five years is too short a period to reveal any pronounced change in character of ownership. For all industries combined, as measured by value of products and value added by manufacture, firms lost ground to a considerable extent, while corporate ownership shows large increases.

**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 in the next column 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.

This table shows that, in 1909, of the 518 establishments, only 49, or 9.5 per cent, had a value of products exceeding \$100,000, and 3 of these had products exceeding \$1,000,000 each. These 49 establishments, however, notwithstanding their small number, had a total average number of wage earners of 4,089, or 53.1 per cent, of the total number in all establishments, and the importance of their operations, as measured by value of products, was 67.5 per cent of the total, and by value added by manufacture 66.9 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 (28.4 per cent) of the total number of establishments, but the value of their products amounted to only 1.5 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 five years from 1904 to 1909 was rather too short a period to show extensive changes. The group of establishments reporting a value of products of less than \$5,000 shows a decrease in every item between 1904 and 1909. The table indicates, therefore, that the relative importance of the smaller establishments has decreased, while that of the large establishments has increased.

The fact that the average value of products per establishment increased from \$38,090 to \$48,821 and the value added by manufacture from \$22,048 to \$29,040 can scarcely be taken as an indication of a tendency toward concentration. The increased values shown may be, and probably are, due wholly or in part to the increase that has taken place in the prices of commodities. The average number of wage earners per establishment shows a slight increase, from 13 in 1904 to 15 in 1909.

INDUSTRY AND VALUE OF PRODUCT.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>				
1909.....	518	7,707	\$25,289,136	\$15,042,602
1904.....	482	6,299	18,359,159	10,627,188
<b>Less than \$5,000:</b>				
1909.....	147	182	383,463	264,245
1904.....	160	220	386,384	268,173
<b>\$5,000 and less than \$20,000:</b>				
1909.....	187	956	2,020,003	1,294,810
1904.....	171	996	1,792,704	1,171,748
<b>\$20,000 and less than \$100,000:</b>				
1909.....	135	2,480	5,819,241	3,418,883
1904.....	114	2,565	4,756,770	2,962,817
<b>\$100,000 and less than \$1,000,000:</b>				
1909.....	46	3,028	12,053,695	7,114,346
1904.....	37	2,509	11,423,301	6,224,450
<b>\$1,000,000 and over:</b>				
1909.....	3	1,061	5,012,734	2,950,318
1904.....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
<b>Per cent of total:</b>				
1909.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0
<b>Less than \$5,000:</b>				
1909.....	28.4	2.4	1.5	1.8
1904.....	33.2	3.6	2.1	2.5
<b>\$5,000 and less than \$20,000:</b>				
1909.....	36.1	12.4	8.0	8.6
1904.....	35.5	15.8	9.8	11.0
<b>\$20,000 and less than \$100,000:</b>				
1909.....	26.1	32.2	23.0	22.7
1904.....	23.7	40.7	25.9	27.9
<b>\$100,000 and less than \$1,000,000:</b>				
1909.....	8.9	39.3	47.7	47.3
1904.....	7.7	39.8	62.2	58.6
<b>\$1,000,000 and over:</b>				
1909.....	0.6	13.8	19.8	19.6
1904.....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
<b>Average per establishment:</b>				
1909.....		15	\$48,821	\$29,040
1904.....		13	38,090	22,048
<b>Bread and other bakery products, 1909.....</b>				
1909.....	71	975	\$3,589,554	\$1,387,826
<b>Less than \$5,000.....</b>				
1909.....	23	14	65,107	30,722
<b>\$5,000 and less than \$20,000.....</b>				
1909.....	28	90	316,856	135,993
<b>\$20,000 and less than \$100,000.....</b>				
1909.....	12	199	539,669	220,060
<b>\$100,000 and less than \$1,000,000.....</b>				
1909.....	8	672	2,667,922	1,001,021
<b>Per cent of total.....</b>				
1909.....	100.0	100.0	100.0	100.0
<b>Less than \$5,000.....</b>				
1909.....	32.4	1.4	1.8	2.2
<b>\$5,000 and less than \$20,000.....</b>				
1909.....	39.4	9.2	8.8	9.8
<b>\$20,000 and less than \$100,000.....</b>				
1909.....	16.9	20.4	15.0	15.9
<b>\$100,000 and less than \$1,000,000.....</b>				
1909.....	11.3	68.9	74.3	72.1
<b>Average per establishment.....</b>				
1909.....		14	\$50,537	\$19,547
<b>Foundry and machine-shop products, 1909.....</b>				
1909.....	23	509	\$1,175,085	\$708,713
<b>\$5,000 and less than \$20,000.....</b>				
1909.....	11	81	119,870	89,888
<b>\$20,000 and less than \$100,000.....</b>				
1909.....	8	180	340,215	240,957
<b>\$100,000 and less than \$1,000,000.....</b>				
1909.....	4	248	715,000	377,868
<b>Per cent of total.....</b>				
1909.....	100.0	100.0	100.0	100.0
<b>\$5,000 and less than \$20,000.....</b>				
1909.....	47.8	15.9	12.7	12.7
<b>\$20,000 and less than \$100,000.....</b>				
1909.....	34.8	35.4	29.0	34.0
<b>\$100,000 and less than \$1,000,000.....</b>				
1909.....	17.4	48.7	60.8	53.3
<b>Average per establishment.....</b>				
1909.....		22	\$51,091	\$30,814
<b>Marble and stone work, 1909.....</b>				
1909.....	15	265	\$548,535	\$298,693
<b>\$5,000 and less than \$20,000.....</b>				
1909.....	7	45	72,708	46,441
<b>\$20,000 and less than \$100,000.....</b>				
1909.....	8	220	475,827	252,252
<b>Per cent of total.....</b>				
1909.....	100.0	100.0	100.0	100.0
<b>\$5,000 and less than \$20,000.....</b>				
1909.....	46.7	17.0	13.3	15.5
<b>\$20,000 and less than \$100,000.....</b>				
1909.....	53.3	83.0	86.7	84.5
<b>Average per establishment.....</b>				
1909.....		18	\$36,569	\$19,913
<b>Printing and publishing, 1909.....</b>				
1909.....	156	1,565	\$4,899,492	\$3,804,610
<b>Less than \$5,000.....</b>				
1909.....	57	78	144,135	115,512
<b>\$5,000 and less than \$20,000.....</b>				
1909.....	57	284	576,398	460,880
<b>\$20,000 and less than \$100,000.....</b>				
1909.....	32	510	1,268,105	993,798
<b>\$100,000 and less than \$1,000,000.....</b>				
1909.....	10	693	2,910,854	2,234,411
<b>Per cent of total.....</b>				
1909.....	100.0	100.0	100.0	100.0
<b>Less than \$5,000.....</b>				
1909.....	36.5	5.0	2.9	3.0
<b>\$5,000 and less than \$20,000.....</b>				
1909.....	36.5	18.1	11.8	12.1
<b>\$20,000 and less than \$100,000.....</b>				
1909.....	20.5	32.6	25.9	26.1
<b>\$100,000 and less than \$1,000,000.....</b>				
1909.....	6.4	44.3	59.4	58.7
<b>Average per establishment.....</b>				
1909.....		10	\$31,407	\$24,380

<sup>1</sup> Includes the group "\$1,000,000 and over."  
<sup>2</sup> Included in the group "\$100,000 and less than \$1,000,000."  
<sup>3</sup> Includes the group "Less than \$5,000."  
<sup>4</sup> Includes the group "\$100,000 and less than \$1,000,000."

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 such a classification for all in-

## STATISTICS OF MANUFACTURES—DISTRICT OF COLUMBIA.

industries combined and for eight important industries, in each group but also the average number of wage and gives not only the number of establishments falling earners employed.

INDUSTRY.	ESTABLISHMENTS EMPLOYING—									
	Total.	No wage earners.	Under 6 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.
<b>All industries</b> .....	<b>518</b>	<b>77</b>	<b>231</b>	<b>119</b>	<b>56</b>	<b>26</b>	<b>6</b>	<b>2</b>	<b>1</b>	
Bread and other bakery products.....	71	16	33	10	7	2	3			
Flour-mill and gristmill products.....	7	1	5		1					
Foundry and machine-shop products.....	23		0	0	5	3				
Liquors, malt.....	5	1			2	1	1			
Lumber and timber products.....	10		2	2	3	3				
Marble and stone work.....	15		4	8	2	1				
Printing and publishing.....	156	40	70	24	14	7	1			
Slaughtering and meat packing.....	5	1	1	1	2					
All other industries.....	220	18	110	65	20	9	1	2	1	
NUMBER OF ESTABLISHMENTS.										
<b>All industries</b> .....	<b>7,707</b>	<b>618</b>	<b>1,318</b>	<b>1,863</b>	<b>1,802</b>	<b>786</b>	<b>762</b>	<b>558</b>		
Bread and other bakery products.....	975	82	104	239	156	394				
Flour-mill and gristmill products.....	38	13		25						
Foundry and machine-shop products.....	509	20	108	167	214					
Liquors, malt.....	248			60	51	128				
Lumber and timber products.....	309	0	26	87	187					
Marble and stone work.....	265	16	90	67	92					
Printing and publishing.....	1,565	192	271	453	510	139				
Slaughtering and meat packing.....	135	2	0	124						
All other industries.....	3,633	284	710	632	592	125	762	558		
AVERAGE NUMBER OF WAGE EARNERS.										
<b>All industries</b> .....	<b>100.0</b>	<b>8.0</b>	<b>17.1</b>	<b>24.2</b>	<b>23.4</b>	<b>10.2</b>	<b>9.9</b>	<b>7.2</b>		
Bread and other bakery products.....	100.0	8.4	10.7	24.5	16.0	40.4				
Flour-mill and gristmill products.....	100.0	34.2		65.8						
Foundry and machine-shop products.....	100.0	3.9	21.2	32.8	42.0					
Liquors, malt.....	100.0			27.8	20.6	51.6				
Lumber and timber products.....	100.0	2.9	8.4	28.2	60.5					
Marble and stone work.....	100.0	6.0	34.0	25.3	34.7					
Printing and publishing.....	100.0	12.3	17.3	28.9	32.6	8.9				
Slaughtering and meat packing.....	100.0	1.5	6.7	91.9						
All other industries.....	100.0	7.8	19.4	17.3	16.2	3.4	20.8	15.2		
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										

This table shows classes in considerable detail. Consolidating these classes to a certain extent, it will be seen that 82.5 per cent of the establishments employed no wage earners at all or under 21 persons each. The most numerous single group consists of the 231 establishments employing less than 6 wage earners, and the next being 119 establishments employing from 6 to 20 wage earners. There were but 3 establishments that employed over 250 wage earners, and 1 of these employed over 500.

The per cent distribution of the number of establishments is not shown in this table; of the 518 establishments reported for all industries, 14.9 per cent employed no wage earners; 44.6 per cent employed under 6 wage earners; 23 per cent from 6 to 20 wage earners, leaving but 17.5 per cent for all of the remaining groups.

Of the total number of wage earners, 27.3 per cent were in establishments employing over 100 wage earners. The single group having the largest number of employees was the group employing from 21 to 50 wage earners. This group employed 1,863 wage earners, or 24.2 per cent of the total.

**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 going to make up the total.

The following table shows 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.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
<b>All industries</b> .....	<b>9.0</b>	<b>24.4</b>	<b>50.0</b>	<b>16.6</b>
Bread and other bakery products.....	3.2	21.5	67.5	7.7
Flour-mill and gristmill products.....	1.4	3.4	93.6	1.6
Foundry and machine-shop products.....	4.9	35.9	53.9	5.4
Liquors, malt.....	6.9	14.4	30.3	48.5
Lumber and timber products.....	4.2	38.9	52.3	4.6
Marble and stone work.....	4.4	38.6	53.0	3.4
Printing and publishing.....	21.7	28.3	28.2	21.8
Slaughtering and meat packing.....	4.1	5.0	82.0	8.9
All other industries.....	8.1	28.0	46.5	17.4



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This table shows that, for all industries combined, 50 per cent of the total expenses were incurred for materials, 33.4 per cent for services, i. e., salaries and wages, and but 16.6 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries.

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

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899 <sup>1</sup>	1909	1904	1899	1909	1904	1899
Primary power, total.	940	228	298	16,563	12,592	10,255	100.0	100.0	100.0
Owned.....	278	228	298	14,060	11,588	9,484	84.0	92.0	92.5
Steam engines.	217	180	241	12,169	10,513	8,630	73.5	83.5	84.2
Gas and oil engines.....	55	42	52	1,073	311	338	6.5	2.5	3.3
Water wheels.....	0	0	5	775	710	369	4.7	5.6	3.6
Other.....				43	54	147	0.3	0.4	1.4
Rented.....	662	( <sup>2</sup> )	( <sup>2</sup> )	2,503	1,004	771	15.1	8.0	7.5
Electric motors.	662	( <sup>2</sup> )	( <sup>2</sup> )	2,433	996	100	14.7	7.9	1.0
Other.....				70	8	671	0.4	0.1	6.5
Electric motors..	887	82	20	4,527	1,761	348	100.0	100.0	100.0
Run by current generated by establishment.	225	82	20	2,094	765	248	46.3	43.4	71.3
Run by rented power.....	662	( <sup>2</sup> )	( <sup>2</sup> )	2,433	996	100	53.7	56.6	28.7

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

The table indicates a general increase from 1899 to 1909 in the primary power generated by steam and gas and oil engines and by water wheels, with the exception of a slight decrease in the amount generated by gas and oil engines between 1899 and 1904. Steam is still the predominant power, and although it furnished but 73.5 per cent of the total power in 1909, as compared with 84.2 per cent in 1899, the actual horsepower increased during this period from 8,630 to 12,169, or 41 per cent. The figures also show that the practice of renting power is on the increase, 15.1 per cent of the total power being rented in 1909, as against but 8 per cent in 1904 and 7.5 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 248 in 1899 to 765 in 1904 and 2,094 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 as material in the manufac-

turing processes. The following table shows the quantity of each kind of fuel used in 1909:

INDUSTRY.	Anthracite coal (tons).	Bituminous coal (tons).	Coke (tons).	Wood (cords).	Oil, including gasoline (barrels, 50 gallons).	Gas (1,000 feet).	Other (tons).
All industries.....	11,163	176,333	20,587	2,029	195,744	22,275	45
Bread and other bakery products.....	3,362	4,165	509	1,078	0	1,456	
Flour-mill and grist-mill products.....		708				192	
Foundry and machine-shop products.....	65	1,535	708	19	13	1,416	
Liquors, malt.....		15,954			4	220	
Lumber and timber products.....	18	578				1,611	
Marble and stone work.....	19	5					
Printing and publishing.....	566	2,105			3	7,094	
Slaughtering and meat-packing.....		4,875		364	7	25	
All other industries.....	7,133	146,408	19,370	568	195,711	10,231	45

<sup>1</sup> Includes oil used in the manufacture of gas.

**Laundries.**—Statistics for steam laundries are not included in the general tables. For 1909 there were 17 such establishments in the District of Columbia. The following statement summarizes the statistics:

Number of establishments.....	17
Persons engaged in the industry.....	1,096
Proprietors and firm members.....	13
Salaried employees.....	90
Wage earners (average number).....	993
Primary horsepower.....	998
Capital.....	\$699,007
Expenses:	
Services.....	\$419,285
Materials.....	126,256
Miscellaneous.....	140,516
Amount received for work done.....	795,999

The most common form of organization was the individual, with eight establishments, the firm and corporate forms having two and seven establishments, respectively. Six establishments had receipts for the year's business of less than \$20,000; nine, \$20,000 but less than \$100,000; while two establishments reported receipts of more than \$100,000.

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

MONTH.	PERSONS EMPLOYED.		MONTH.	PERSONS EMPLOYED.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	1,020	95.4	July.....	927	86.7
February.....	1,009	94.4	August.....	916	85.7
March.....	1,013	94.8	September.....	935	87.5
April.....	1,017	95.1	October.....	1,001	93.6
May.....	1,013	94.8	November.....	1,027	96.1
June.....	965	90.3	December.....	1,069	100.0

The kinds of primary power, number of engines, and horsepower for 1909 were as follows:

KIND.	Number of engines.	Horsepower.
<b>Total primary power.....</b>		<b>998</b>
Owned—Steam.....	18	926
Rented—Electric.....	3	32
Other.....	70	40
Electric motors run by current generated by establishments.....		222

The kind and amount of fuel used for all establishments reporting are shown in the following statement:

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	1,500
Bituminous coal.....	Tons.....	7,003
Coke.....	Tons.....	961
Oil.....	Barrels (50 gallons).....	4
Gas.....	1,000 feet.....	1,293

### ESTABLISHMENTS OPERATED BY FEDERAL GOVERNMENT.

A large proportion of the wage earners of the District of Columbia is employed by the Federal Government in operations similar to those carried on in the manufacturing establishments conducted under private ownership. These operations, however, are carried on for the exclusive benefit of the Government, and as the products are not manufactured for sale and therefore have no commercial value, no value of products is shown. In order to avoid confusion the statistics for the Government establishments are presented separately from those for other establishments.

As shown by the following statement, which is exclusive of a number of manufacturing industries of minor importance common to most large governmental departments, there was little change in the extent of the

manufactures carried on in connection with the operations of the Federal Government during 1909 as compared with 1904. There were reports from 11 establishments at each census, and the average number of employees increased only 196. The capital reported represented almost exclusively the value placed on the land, buildings, and materials. If, however, cash and other items similar to those reported for the establishments operated under private ownership had been included, it is estimated that it would about equal the \$30,552,623 reported as capital by such establishments. In 1909 the average number of wage earners, 10,657, was 325 less than the number reported for 1904, but exceeded by 2,950 the number reported for the establishments conducted under private ownership in 1909.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.			Capital.	EXPENSES.				
			Total.	Officials and clerks.	Wage earners (average number).		Total.	Salaries.	Wages.	Cost of materials, including fuel and rent of power.	Miscellaneous expenses.
<b>All industries.....</b>	<b>1909</b>	<b>11</b>	<b>11,668</b>	<b>1,009</b>	<b>10,657</b>	<b>\$28,479,599</b>	<b>\$15,704,242</b>	<b>\$1,016,745</b>	<b>\$10,668,040</b>	<b>\$3,807,626</b>	<b>\$216,831</b>
	<b>1904</b>	<b>11</b>	<b>11,470</b>	<b>488</b>	<b>10,982</b>	<b>24,507,754</b>	<b>15,079,361</b>	<b>643,113</b>	<b>9,740,261</b>	<b>4,502,090</b>	<b>193,897</b>
Engraving and printing <sup>1</sup> .....	1909	4	4,190	311	3,879	3,107,610	4,680,161	352,547	3,593,419	708,217	25,978
	1904	4	3,206	183	3,023	2,409,100	3,400,517	238,871	2,601,896	621,372	37,378
Instrument, professional and scientific (Smithsonian Institution).	1909	1	1	.....	1	3,500	1,695	.....	1,260	310	125
	1904	1	1	.....	1	2,650	1,679	.....	1,080	599	.....
Naval Gun Factory (United States Navy Yard).....	1909	1	3,141	297	2,844	10,192,224	4,623,758	203,317	2,893,670	1,480,676	46,095
	1904	1	3,306	107	3,289	16,449,605	5,331,450	107,966	2,630,184	2,509,334	14,975
Government printing <sup>2</sup> .....	1909	3	4,155	390	3,765	6,102,938	6,211,747	449,042	4,042,467	1,587,786	132,452
	1904	4	4,572	190	4,382	5,679,074	6,010,516	287,916	4,330,998	1,256,626	134,976
Other industries <sup>3</sup> .....	1909	2	179	11	168	73,327	186,881	11,839	132,224	30,637	12,181
	1904	1	295	8	287	27,325	236,190	8,360	167,103	54,159	6,568

<sup>1</sup> Includes the Bureau of Engraving and Printing and establishments operated in the Geodetic Survey, the Geological Survey, and the Department of State.

<sup>2</sup> Includes the Government Printing Office and establishments operated in the Weather Bureau and the War Department.

<sup>3</sup> Includes two reports from the Post Office Department in 1909, one for the mail-bag repair shop, and one for the mail-lock shop. In 1904 both of these shops were included in one report, but since then the operations of the lock shop have been increased and separated from those of the bag-repair shop.

There is a marked stability in the number of wage earners employed in the governmental establishments during the year. The greatest number, 11,030, was reported for January, and the smallest, 10,115, for September, a difference of 915, or 9.1 per cent. During the months of July, August, and September fewer wage earners were employed than during any

other period, as will be seen from the following statement:

January.....	11,030	July.....	10,258
February.....	11,027	August.....	10,416
March.....	10,998	September.....	10,115
April.....	10,852	October.....	10,681
May.....	10,631	November.....	10,591
June.....	10,517	December.....	10,775

STATISTICS OF MANUFACTURES—DISTRICT OF COLUMBIA.

The different kinds of primary power, the number of engines, and the amount of horsepower used in the Government establishments during 1909 are given in the following statement:

KIND.	Number of engines.	Horse-power.
Total primary power.....		5,902
Owned:		
Steam.....	28	5,746
Gas.....	1	10
Rented—Electric.....	148	146
Electric motors run by current generated by establishments.....	1,972	10,729

The kind and amount of fuel used are shown in the following statement:

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	46,259
Bituminous coal.....	Tons.....	7,731
Coke.....	Tons.....	715
Wood.....	Cords.....	136
Oil.....	Barrels (50 gallons).....	9,553
Gas.....	1,000 feet.....	33,377

In the following table is given a comparative summary for the District, by selected industries, in 1909, 1904, and 1899:

TABLE I.—COMPARATIVE SUMMARY FOR DISTRICT OF COLUMBIA, BY SELECTED INDUSTRIES: 1909, 1904, AND 1899.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaries and employes.	Wage earners (average number).							
Expressed in thousands.													
All industries.....	1909	518	9,758	475	1,576	7,707	16,563	\$30,553	\$1,846	\$4,989	\$10,246	\$25,289	\$15,043
	1904	482	7,778	473	1,008	6,299	12,592	20,200	1,207	3,658	7,732	18,359	10,627
	1899	491	( <sup>1</sup> )	( <sup>1</sup> )	957	6,155	10,255	17,960	872	3,023	7,475	16,426	8,951
Bread and other bakery products.....	1909	71	1,183	79	120	975	911	1,713	105	702	2,202	3,500	1,388
	1904	77	895	84	40	771	431	1,507	33	492	1,581	2,676	1,095
	1899	80	( <sup>1</sup> )	( <sup>1</sup> )	138	588	( <sup>1</sup> )	945	107	306	1,093	1,040	847
Carrriages and wagons and materials.....	1909	6	75	10	6	59	27	134	4	40	47	128	81
	1904	6	59	6	1	52	57	50	2	25	22	75	53
	1899	5	( <sup>1</sup> )	( <sup>1</sup> )	1	42	( <sup>1</sup> )	42	1	19	17	54	37
Confectionery.....	1909	15	157	18	11	128	15	74	7	62	152	284	132
	1904	13	145	17	10	118	26	131	5	42	118	258	140
	1899	12	( <sup>1</sup> )	( <sup>1</sup> )	29	132	( <sup>1</sup> )	106	15	41	161	279	118
Copper, tin, and sheet-iron products.....	1909	17	184	16	16	152	6	112	11	108	160	340	180
	1904	<sup>2</sup> 12	183	14	21	148	43	134	16	100	71	228	157
	1899	12	( <sup>1</sup> )	( <sup>1</sup> )	11	161	( <sup>1</sup> )	115	12	94	95	251	156
Flour-mill and gristmill products.....	1909	7	50	7	5	38	556	504	7	16	432	506	74
	1904	7	77	11	5	61	462	193	8	30	568	660	92
	1899	8	( <sup>1</sup> )	( <sup>1</sup> )	18	84	606	197	13	31	535	629	94
Foundry and machine-shop products.....	1909	23	578	27	42	509	571	1,089	42	310	466	1,175	709
	1904	15	337	22	22	293	267	391	22	156	164	443	279
	1899	17	( <sup>1</sup> )	( <sup>1</sup> )	24	375	( <sup>1</sup> )	1,624	20	203	396	951	555
Ice, manufactured.....	1909	7	122	2	27	63	2,683	1,485	27	78	90	350	260
	1904	6	108	1	13	94	2,770	700	12	46	71	261	190
	1899	4	101	2	16	83	1,460	630	14	41	61	183	122
Liquors, malt.....	1909	5	287	1	38	248	3,571	3,040	96	201	425	1,805	1,380
	1904	4	249	.....	39	210	1,695	3,167	93	173	335	1,167	832
	1899	4	228	2	35	191	1,772	2,299	56	141	287	1,340	1,053
Lumber and timber products.....	1909	10	336	12	18	369	501	385	20	189	254	609	355
	1904	6	295	6	18	271	460	273	17	159	144	392	248
	1899	5	( <sup>1</sup> )	( <sup>1</sup> )	15	212	( <sup>1</sup> )	180	12	98	154	331	177
Marble and stone work.....	1909	15	290	17	17	265	72	317	20	180	250	549	299
	1904	<sup>2</sup> 7	109	10	4	95	70	234	5	64	54	166	112
	1899	<sup>2</sup> 7	( <sup>1</sup> )	( <sup>1</sup> )	1	90	( <sup>1</sup> )	174	1	47	61	160	99
Patent medicines and compounds.....	1909	17	103	11	14	78	50	155	18	36	57	384	327
	1904	<sup>3</sup> 6	74	4	11	59	45	68	16	23	35	264	220
	1899	<sup>3</sup> 6	( <sup>1</sup> )	( <sup>1</sup> )	44	23	( <sup>1</sup> )	112	15	8	31	233	202
Printing and publishing.....	1909	156	2,411	122	724	1,565	1,703	3,807	844	1,101	1,095	4,899	3,804
	1904	<sup>3</sup> 145	1,787	120	516	1,151	1,035	3,111	585	736	601	3,958	3,357
	1899	147	1,888	155	340	1,303	( <sup>1</sup> )	3,158	323	784	521	2,810	2,280
Slaughtering and meat packing.....	1909	5	214	2	77	135	345	1,037	73	90	1,470	1,800	420
	1904	<sup>3</sup> 3	167	1	43	83	108	280	19	69	475	615	140
	1899	<sup>3</sup> 6	129	7	31	91	( <sup>1</sup> )	206	16	43	981	1,131	150
Tobacco manufactures.....	1909	21	85	21	1	63	3	97	1	32	45	109	64
	1904	25	87	25	2	60	.....	77	1	30	33	98	65
	1899	28	( <sup>1</sup> )	( <sup>1</sup> )	.....	54	.....	45	.....	28	42	108	66
All other industries.....	1909	143	3,671	130	451	3,090	5,549	16,595	571	1,844	3,101	8,671	5,570
	1904	150	3,266	152	291	2,823	5,123	9,884	373	1,513	3,460	7,098	3,638
	1899	150	( <sup>1</sup> )	( <sup>1</sup> )	254	2,632	( <sup>1</sup> )	8,127	258	1,139	3,040	6,026	2,986

<sup>1</sup> Figures not available.  
<sup>2</sup> Does not include statistics for one or two establishments excluded to avoid making disclosure of individual operations.  
<sup>3</sup> Does not include statistics for one or two unimportant establishments excluded to avoid making disclosure of individual operations.

STATISTICS OF MANUFACTURES—DISTRICT OF COLUMBIA.

TABLE II.—DETAIL STATEMENT FOR DISTRICT

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY—AVERAGE NUMBER.										WAGE EARNERS—NUMBER DEC. 15, 1909, OR NEAREST REPRESENTATIVE DAY.				Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners. <sup>1</sup>			Total.	16 and over.		Under 16.			
					Male.	Female.	Total.	16 and over.			Under 16.	Male.	Female.	Male.	Female.	
								Male.	Female.							
1 All Industries.....	518	9,768	475	424	853	299	7,707	6,861	827	19	113	24	87	2	18,563	
2 Boxes, fancy and paper.....	3	99	2	5	1	3	88	19	68	1	113	24	87	2	34	
3 Brass and bronze products.....	3	10	4				6	6			9	9			10	
4 Bread and other bakery products.....	71	1,183	79	21	82	26	975	916	59		1,002	941	61		911	
5 Brick and tile.....	5	210	5	4	4	2	195	195			171	171			911	
6 Carriages and wagons and materials.....	6	75	10	4	1	1	59	59			52	52			27	
7 Confectionery.....	15	157	18		4	7	128	58	70		132	60	72		15	
8 Copper, tin, and sheet-iron products.....	17	184	10	7	0	3	152	150		2	165	163		2	6	
9 Electroplating.....	3	11	5				6	5	1		7	6	1		5	
10 Flour-mill and gristmill products.....	7	50	7	4	1		38	38			44	44			556	
11 Foundry and machine-shop products.....	23	578	27	15	22	5	509	508	1		518	517	1		571	
12 Fur goods.....	6	52	5	1	1	5	40	18	21	1	49	22	26	1	2	
13 Furniture, including refrigerators.....	6	47	7		1		39	39			46	46			58	
14 Gas, illuminating and heating.....	3	667		18	24	9	616	616			636	636			1,330	
15 Hand stamps and stencils and brands.....	3	39	1	7	1	8	22	18	1	3	22	18	1	3	8	
16 Ice, manufactured.....	7	122	2	10	15	2	93	93			79	79			2,683	
17 Jewelry.....	6	33	6	4		1	22	21		1	26	25		1	5	
18 Liquors, malt.....	5	287	1	8	30		248	248			240	240			3,571	
19 Lumber and timber products.....	10	339	12	3	14	1	309	308		1	308	307		1	501	
20 Marble and stone work.....	15	299	17	13	2	2	265	265			263	263			72	
21 Mattresses and spring beds.....	7	73	10	2	4		57	45	12		64	51	13		50	
22 Models and patterns, not including paper patterns.....	6	23	6		1		16	15	1		16	15	1		12	
23 Patent medicines and compounds and druggists' preparations.....	17	103	11	12	2		78	29	48	1	84	31	52	1	59	
24 Pottery, terra-cotta and fire-clay products.....	4	57	4	4			49	49			48	48			200	
25 Printing and publishing.....	156	2,411	122	167	423	134	1,565	1,274	284	7	1,600	1,303	290	7	1,703	
26 Slaughtering and meat packing.....	5	214	2	12	56	9	135	135			138	138			345	
27 Tobacco manufactures.....	21	85	21	1			63	47	14	2	79	59	18	2	3	
28 All other industries <sup>2</sup> .....	88	2,350	75	102	158	81	1,934	1,687	247						2,934	

<sup>1</sup> Distribution by sex and age periods based on number reported Dec. 15, or nearest representative day.

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

Artificial stone.....	3	Fancy articles, not elsewhere specified.....	2	Optical goods.....	2
Awnings, tents, and sails.....	3	Flags, banners, regalia, society badges and emblems.....	1	Paint and varnish.....	1
Baking powders and yeast.....	1	Food preparations.....	4	Paper and wood pulp.....	1
Baskets, and rattan and willow ware.....	1	Gas and electric fixtures and lamps and reflectors.....	1	Paper goods, not elsewhere specified.....	2
Brooms.....	2	Glass, cutting, staining, and ornamenting.....	1	Paving materials.....	1
Canning and preserving.....	2	Glue.....	1	Peanuts, grading, roasting, cleaning, and shelling.....	2
Carpets, rag.....	1	Grease and tallow.....	1	Photo-engraving.....	2
Cars and general shop construction and repairs by steam-railroad companies.....	2	Hats and caps, other than felt, straw, and wool.....	2	Rubber goods, not elsewhere specified.....	1
Cars and general shop construction and repairs by street-railroad companies.....	2	Instruments, professional and scientific.....	3	Shipbuilding, including boat building.....	1
Chemicals.....	1	Iron and steel, steel works and rolling mills.....	1	Soap.....	1
China decorating.....	2	Leather goods.....	1	Stereotyping and electrotying.....	1
Clothing, men's, including shirts.....	2	Lime.....	1	Surgical appliances and artificial limbs.....	1
Coffee and spice, roasting and grinding.....	4	Liquors, distilled.....	1	Type founding and printing materials.....	1
Dentists' materials.....	1	Millinery and lace goods.....	2	Vinegar and cider.....	1
Electrical machinery, apparatus, and supplies.....	2	Mineral and soda waters.....	9	Window shades and fixtures.....	1
		Mirrors.....	1	Wirework, including wire rope and cable.....	2

STATISTICS OF MANUFACTURES—DISTRICT OF COLUMBIA.

OF COLUMBIA, 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 \$30,552,023	\$20,476,661	\$935,138	\$910,465	\$4,889,448	\$1,070,228	\$9,176,300	\$229,055	\$583,063	\$304,326	\$2,298,031	\$25,289,136	\$15,042,602
2 43,811	63,342	4,004	1,000	24,289	1,375	25,176	2,140	50	100	4,248	68,300	41,749
3 5,465	14,570	.....	.....	5,270	398	8,259	3,354	35	.....	154	15,150	6,393
4 1,713,326	3,259,674	31,170	74,052	702,256	54,112	2,147,616	23,749	9,655	1,000	217,064	3,589,554	1,387,826
5 252,181	163,957	5,036	3,652	78,800	38,249	17,541	550	1,003	.....	18,526	181,519	125,729
6 133,720	95,120	2,882	1,084	40,331	924	46,079	1,820	523	.....	1,477	128,107	81,104
7 74,472	238,897	.....	7,246	62,358	3,801	148,360	12,536	301	.....	4,205	283,701	131,540
8 112,413	280,388	6,134	4,529	107,783	1,333	159,053	3,731	469	.....	3,347	340,133	179,741
9 3,775	5,212	.....	.....	2,791	494	850	1,013	19	.....	45	11,100	9,756
10 503,511	461,079	5,725	900	15,518	5,292	426,465	2,670	986	.....	3,523	505,680	73,023
11 1,030,113	865,347	20,710	21,424	310,329	17,366	449,006	11,067	4,886	17,718	12,241	1,175,085	708,713
12 96,250	112,052	1,000	3,312	28,518	459	65,765	7,580	513	.....	4,905	163,965	97,741
13 21,116	49,900	.....	564	25,427	1,049	18,439	3,376	136	.....	909	69,756	50,268
14 9,732,060	1,769,559	82,300	50,929	389,442	612,016	16,170	.....	145,538	.....	473,158	2,305,340	1,677,148
15 64,845	59,873	8,476	4,290	8,120	730	34,925	2,460	238	.....	625	79,050	43,386
16 1,485,295	249,825	17,000	9,712	78,320	57,122	33,375	1,000	4,249	.....	48,357	349,547	250,050
17 12,773	35,235	5,020	520	12,366	552	14,219	2,174	71	.....	313	40,269	34,498
18 3,043,757	1,493,138	51,700	44,471	201,462	49,515	375,447	300	322,316	.....	357,927	1,804,791	1,379,529
19 385,210	480,116	3,926	16,515	189,295	4,019	249,119	8,208	3,015	.....	11,119	609,438	355,400
20 317,337	466,148	17,035	2,776	179,895	1,820	248,022	5,349	1,096	3,777	5,718	548,535	298,693
21 29,896	121,422	2,700	2,592	31,308	1,036	72,373	4,493	190	.....	6,730	144,203	70,794
22 31,718	19,854	.....	480	12,555	636	4,168	928	202	75	810	38,218	33,414
23 155,380	200,055	17,024	1,020	35,719	306	56,900	8,070	725	1,376	78,906	384,463	327,248
24 48,738	37,831	3,900	.....	20,127	6,188	2,200	1,260	373	100	3,683	44,425	36,037
25 3,806,714	3,889,093	398,129	446,082	1,101,043	48,853	1,046,029	87,798	24,810	252,716	483,718	4,899,492	3,804,610
26 1,936,701	1,703,169	26,300	46,436	90,478	17,985	1,451,723	1,200	1,710	16,637	140,700	1,899,575	419,867
27 37,071	92,090	1,300	.....	32,116	847	43,847	2,430	6,062	.....	2,497	109,322	64,628
28 6,250,999	4,236,806	222,917	165,919	1,203,525	142,739	2,015,162	32,680	20,992	10,827	413,036	5,501,418	3,343,517

## MANUFACTURES : FLORIDA

## 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 Florida 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 Florida 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 Jacksonville. It also gives the same items for all industries combined for the three cities 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 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 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.**—Florida, with a gross area of 58,666 square miles, of which 3,805 represent water surface, ranks twenty-first in size among the states and territories of continental United States. Its population in 1910 was 752,619, as compared with 528,542 in 1900 and 391,422 in 1890. It ranked thirty-third in population among the 49 states and territories both in 1910 and in 1900. The density of population for the entire state in 1910 was 13.7 persons per square mile, as compared with 9.6 in 1900.

Jacksonville, with a population of 57,699, is the only city in the state having over 50,000 inhabitants. There are 3 cities, Key West, Pensacola, and Tampa, each of which has a population of over 10,000 but less than 50,000. There are 19 cities and towns having between 2,500 and 10,000 inhabitants each. Only 29.1 per cent of the entire population of the state resided in incorporated cities and towns each having a population of 2,500 or over, as against 20.3 per cent in 1900.

A number of navigable streams and the extensive coast line of the state afford the manufacturing interests cheap transportation. All four of the cities having over 10,000 inhabitants have extensive docking facilities.

Railroad transportation in the state is good, except in the Everglades region of southern Florida.

**Importance and growth of manufactures.**—Although Florida is not primarily a manufacturing state, its manufactures have shown a steady growth during the last 60 years. In 1849-50, when the manufacturing establishments in the state numbered 103 with a value of products of \$668,335, employment was given to an average of 991 wage earners, representing 1.1 per cent of the total population of the state. In 1909 there were 2,159 establishments giving employment to an average of 57,473 wage earners, or 7.6 per cent of the total population. During this period the gross value of products per capita for the entire population of the state increased from \$8 to \$97.

From 1849-50 to 1909 the proportion which the manufactures of the state represent of the total value of products of manufacturing industries in the United States increased more than fourfold. This proportion was less than one-tenth of 1 per cent in 1849-50 and nearly four-tenths of 1 per cent in 1909.

The following table gives the most important figures relative to all classes of manufactures combined for the state as returned at the censuses of 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.....	2,159	1,413	1,275	52.8	10.8
Persons engaged in manufactures.....	64,810	46,985	( <sup>1</sup> )	37.9	( <sup>1</sup> )
Proprietors and firm members.....	2,712	1,769	( <sup>1</sup> )	53.3	( <sup>1</sup> )
Salaried employees.....	4,625	3,125	1,781	48.0	75.5
Wage earners (average number).....	57,473	42,091	35,471	36.5	18.7
Primary horsepower.....	89,816	43,413	36,356	106.9	19.4
Capital.....	\$65,291,000	\$32,972,000	\$25,682,000	98.0	28.4
Expenses.....	63,218,000	40,577,000	27,241,000	55.8	49.0
Services.....	27,937,000	18,437,000	12,216,000	51.5	50.9
Salaries.....	4,955,000	2,670,000	1,300,000	85.6	105.4
Wages.....	22,982,000	15,767,000	10,916,000	45.8	44.4
Materials.....	26,128,000	16,532,000	12,847,000	58.0	28.7
Miscellaneous.....	9,153,000	5,608,000	2,178,000	63.2	157.5
Value of products.....	72,890,000	50,298,000	34,184,000	44.9	47.1
Value added by manufacture (value of products less cost of materials).....	46,762,000	33,766,000	21,337,000	38.5	58.2

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

In 1909 the state of Florida had 2,159 manufacturing establishments which gave employment to an average of 64,810 persons during the year and paid out \$27,937,000 in salaries and wages. Of the persons employed, 57,473 were wage earners. These establishments turned out products to the value of \$72,890,000, to produce which materials costing \$26,128,000 were used. The value added by manufacture was thus

\$46,762,000, which figure, as explained in the Introduction, best represents the net wealth created by manufacturing operations during the year.

In general, this table shows that there was a substantial development in the manufacturing industries of Florida during each of the intercensal periods, no decrease being shown in any item for either period. For the five-year period 1904-1909 greater percent-



## STATISTICS OF MANUFACTURES—FLORIDA.

ages of increase are shown for the number of establishments, average number of wage earners, and total wages paid than for the period 1899-1904. On the other hand, smaller percentages of increase are shown for the value of products and value added by manufacture. It is interesting to note that while the average number of wage earners increased only 36.5 per cent during the period 1904-1909, the amount paid in wages increased 45.8 per cent. During the same period the number of establishments increased 52.8 per cent, while the value of products and the value added by manufacture increased 44.9 per cent and 38.5 per cent.

There are two United States Government establishments in the state, the statistics for which are not included in any tables shown in this bulletin. Both are naval stations doing general repair work. One, located at Pensacola, employed in 1909 an average of 229 wage earners and turned out products valued at \$240,814. The other, located at Key West, gave employment to 72 wage earners and reported a value of products of \$218,502. (See Introduction.)

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

INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		PER CENT OF INCREASE. <sup>1</sup>			
		Average number.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.	Value of products.		Value added by manufacture.	
								1904-1909	1899-1904	1904-1909	1899-1904
All industries.....	2,159	57,473	100.0	\$72,890,000	100.0	\$46,762,000	100.0	44.9	47.1	38.5	42.1
Tobacco manufactures.....	229	12,280	21.4	21,575,000	29.6	12,800,000	27.6	28.7	56.1	26.8	42.1
Lumber and timber products.....	515	19,227	33.5	20,863,000	28.6	14,624,000	31.3	40.8	12.0	62.6	28.5
Turpentine and rosin.....	893	18,143	31.6	11,938,000	16.4	9,969,000	21.3	20.6	53.0	8.6	74.9
Fertilizers.....	12	589	1.0	3,878,000	5.3	1,003,000	2.1	143.9	218.6	278.5	56.8
Printing and publishing.....	174	905	1.6	1,866,000	2.6	1,432,000	3.1	63.8	88.9	64.8	91.9
Cars and general shop construction and repairs by steam-railroad companies.....	12	1,753	3.0	1,743,000	2.4	1,142,000	2.4	50.8	4.0	86.6	15.6
Bread and other bakery products.....	113	405	0.7	1,292,000	1.8	532,000	1.1	72.7	146.1	60.2	114.2
Ice, manufactured.....	70	461	0.8	1,207,000	1.7	823,000	1.8	75.5	59.8	60.4	71.9
Foundry and machine-shop products.....	36	508	0.9	837,000	1.1	506,000	1.1				
Shipbuilding, including boat building.....	52	482	0.8	697,000	1.0	464,000	1.0				
Gas, illuminating and heating.....	12	210	0.4	585,000	0.8	403,000	0.9	86.3	81.7	73.0	80.6
Boxes, cigar.....	3	370	0.6	504,000	0.7	272,000	0.6	93.1	93.3	56.3	112.2
Carriages and wagons and materials.....	39	230	0.4	453,000	0.6	243,000	0.5				
Brick and tile.....	29	439	0.8	379,000	0.5	266,000	0.6	59.9	75.6	94.7	63.6
Cooperage and wooden goods, not elsewhere specified.....	10	133	0.2	333,000	0.5	116,000	0.2	27.1	48.0	16.0	23.5
Artificial stone.....	32	124	0.2	215,000	0.3	122,000	0.3	117.2		110.3	
Canning and preserving.....	18	188	0.3	213,000	0.3	133,000	0.3	29.1	61.4	82.2	29.1
Patent medicines and compounds and druggists' preparations.....	13	27	( <sup>2</sup> )	185,000	0.3	104,000	0.2	-56.9		-15.9	
Flour-mill and gristmill products.....	6	11	( <sup>2</sup> )	164,000	0.2	25,000	0.1	19.7	7.0		13.6
Wood distillation, not including turpentine and rosin.....	7	82	0.1	138,000	0.2	83,000	0.2	62.4		63.7	
Copper, tin, and sheet-iron products.....	8	32	0.1	105,000	0.1	62,000	0.1	-45.3		-48.8	
Confectionery.....	4	31	0.1	83,000	0.1	36,000	0.1	-30.8	275.0	-62.0	294.7
All other industries.....	172	823	1.4	3,637,000	5.0	1,510,000	3.2				

<sup>1</sup> Per cent of increase is based on figures in Table I, and a minus sign (-) denotes a decrease. Where percentages are omitted the figures are not comparable.

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

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

A few industries greatly predominate in importance, and, as will be seen from Table II, there is on the whole little diversity in the manufacturing activities of the state. Combined, the three leading industries, tobacco manufacturing, lumber and timber, and the turpentine and rosin industries, gave employment in 1909 to an average of 49,650 wage earners, or 86.4 per cent of the total average number reported for all industries in the state. These three industries combined reported a value of products of \$54,376,000, or 74.6 per cent of the total for the state, and a value added by manufacture of \$37,483,000, or 80.2 per cent of the total. 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.

*Tobacco manufactures.*—This industry in Florida is practically confined to the manufacture of cigars and cigarettes, and in 1904, when this branch of tobacco manufactures was shown separately, Florida held third place in value of products among the states. It is the leading industry of the state when measured by value of products. Proximity to the tobacco-producing islands of the West Indies is chiefly responsible for the extent of the industry. The 229 establishments reported in 1909 gave employment to an average of 12,280 wage earners and manufactured products valued at \$21,575,000, representing 29.6 per cent of the total value of the manufactured products of the state. In 1909, of the total value of the manufactured products of the city of Key West, 93.7 per cent represents the value of tobacco manufactures, while the corresponding percentage for Tampa is 82.7.

*Lumber and timber products.*—This classification includes the operation of timber plants, sawmills, planing mills, and establishments manufacturing

wooden packing boxes. In respect to average number of wage earners and value added by manufacture, this industry, employing an average of 19,227 wage earners and reporting a value of \$14,624,000 as added by manufacturing processes, ranked first in the state in 1909. In value of products it was second, with \$20,863,000.

*Turpentine and rosin.*—Florida reported 47.2 per cent of the total value of the turpentine and rosin produced in the United States in 1909 and 41.4 per cent in 1904, occupying first place among the states in this industry in both years. This industry was third in importance among the industries of the state in 1909 when measured by value of products, employing an average of 18,143 wage earners and reporting products valued at \$11,938,000. The number of establishments is relatively large, as compared with other industries in the state.

*Fertilizers.*—This industry has attained its greatest development in the South Atlantic states, due principally to the existence there of phosphate mines and of the cottonseed-oil mills. In Florida, the industry, with 12 establishments, gave employment to an average of 589 wage earners in 1909, and products were reported valued at \$3,878,000.

*Printing and publishing.*—This industry in Florida includes book and job printing, and the printing and publishing of newspapers and periodicals. In 1909 it was fifth in importance among the manufacturing industries of the state when measured by value of products, reporting 174 establishments, which gave employment to an average of 905 wage earners and had products valued at \$1,866,000.

When measured by value added by manufacture instead of by value of products, the lumber industry displaces the tobacco industry from first place. The turpentine and rosin industry holds the same relative rank as when measured by value of products. Printing and publishing and railroad repair shops become fourth and fifth, respectively, and the fertilizer industry, which was fourth when measured by value of products, drops to sixth place.

In addition to the 22 industries presented separately in the table, there were 7 other industries which had a value of products in 1909 in excess of \$250,000. They are included under "All other industries," because in some cases the operations of individual establishments would be disclosed if they were shown separately, while 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. These industries are: Coffee and spice, roasting and grinding; food preparations; liquors, distilled; liquors, malt; mineral and soda waters; oil, cottonseed, and cake; and slaughtering and meat packing. Statistics for liquors, distilled, and slaughtering and meat packing, however, are presented in Table II for 1909.

This table shows also the percentages of increase for these leading industries in respect to value of products and value added by manufacture where these statistics are comparable. The fertilizer industry reported greater rates of increase from 1904 to 1909 both in value of products and in value added by manufacture than any other industry shown separately in the table, the respective figures being 143.9 per cent and 278.5 per cent. Among the other important industries marked increases were also shown; the lumber and timber industry, printing and publishing, the bakeries, and the manufactured ice industry increasing more than 60 per cent both in value of products and in value added by manufacture.

Only three of the industries shown separately—patent medicines and compounds and druggists' preparations; copper, tin, and sheet-iron products; and confectionery, all of minor importance—reported decreases in value of products and 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.....	64,810	61,500	3,310
Proprietors and officials.....	4,614	4,541	73
Proprietors and firm members.....	2,712	2,652	60
Salaried officers of corporations.....	460	462	7
Superintendents and managers.....	1,433	1,427	6
Clerks.....	2,723	2,539	184
Wage earners (average number).....	57,473	54,420	3,053
16 years of age and over.....	56,532	53,520	3,012
Under 16 years of age.....	941	800	41

The average number of persons engaged in manufactures during 1909 was 64,810, of whom 57,473 were wage earners. Of the remainder, 4,614 were proprietors and officials, and 2,723 were clerks. Corresponding figures for individual industries will be found in Table II.

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 10 important industries individually.

Of the total number of persons engaged in all manufacturing industries, 7.1 per cent were proprietors and officials, 4.2 per cent clerks, and 88.7 per cent wage earners. The highest percentage of proprietors and officials shown for any individual industry, 27, is for the bakeries, which usually are very small establishments. The corresponding percentage for establish-

ments engaged in the manufacture of ice, where the processes are simple and require relatively little labor, is 22.6, and for those engaged in printing and publishing, where most of the establishments are small, it is 19. The railroad repair shops show the smallest percentage of proprietors and officials, this being due partly to the fact that the establishments in the industry were under corporate ownership, and so reported no proprietors; and partly to the fact that the higher officials of the railroad companies, who exercise general supervision over them, are not as a rule assigned to this particular branch of the work.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	64,810	7.1	4.2	88.7
Bread and other bakery products.....	585	27.0	3.8	69.2
Brick and tile.....	501	9.6	2.8	87.6
Cars and general shop construction and repairs by steam-railroad companies.....	1,862	2.7	3.2	94.1
Foundry and machine-shop products.....	592	10.6	3.5	85.8
Ice, manufactured.....	634	22.6	4.7	72.7
Lumber and timber products.....	20,893	5.4	2.6	92.0
Printing and publishing.....	1,308	19.0	11.8	69.2
Shipbuilding, including boat building.....	568	14.1	1.1	84.9
Tobacco manufactures.....	13,434	3.8	4.7	91.4
Turpentine and rosin.....	20,687	7.6	4.6	87.7
All other industries.....	3,746	15.9	7.5	76.6

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 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 total number employed for the year is also given in each case.

INDUSTRY.	WAGE EARNERS.			
	Average number. <sup>1</sup>	Per cent of total.		
		16 years of age and over.		Under 16 years of age.
Male.	Female.			
All industries.....	57,473	93.1	5.2	1.6
Bread and other bakery products.....	405	83.7	11.1	5.2
Brick and tile.....	439	94.1	.....	5.9
Cars and general shop construction and repairs by steam-railroad companies.....	1,753	99.6	0.1	0.3
Foundry and machine-shop products.....	598	99.8	.....	0.2
Ice, manufactured.....	461	100.0	.....	.....
Lumber and timber products.....	19,227	98.4	.....	.....
Printing and publishing.....	995	81.8	0.2	1.3
Shipbuilding, including boat building.....	482	99.8	14.7	3.5
Tobacco manufactures.....	12,280	78.2	.....	0.2
Turpentine and rosin.....	18,143	98.2	20.1	1.8
All other industries.....	2,870	86.8	10.6	1.7

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

For all industries combined, 93.1 per cent of the average number of wage earners were males 16 years

of age and over; 5.2 per cent females 16 years of age and over; and 1.6 per cent persons under the age of 16. More than four-fifths of the total average number of female wage earners 16 years of age and over were employed in the manufacture of cigars and cigarettes. Printing and publishing is another industry in which women formed a considerable percentage of all the wage earners, namely, 14.7 per cent. The brick and tile and the bakery industries show the largest percentages of employees under 16 years of age, 5.9 and 5.2, respectively.

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.....	64,810	100.0	46,985	100.0	37.9
Proprietors and firm members.....	2,712	4.2	1,709	3.8	53.3
Salaried employees.....	4,625	7.1	3,125	6.7	48.0
Wage earners (average number).....	57,473	88.7	42,091	89.6	26.5

Comparable figures are not obtainable for 1899. The table shows a greater percentage of increase in the proprietors and firm members than in the other two classes. This increase is due to the increased number of small establishments shown in 1909. The group of proprietors and firm members and that of salaried employees both show increases in 1909 over 1904 in their proportions of the total number of persons engaged in manufactures.

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.....	57,473	100.0	42,091	100.0	35,471	100.0
16 years of age and over.....	56,532	98.4	41,754	99.2	35,143	99.1
Male.....	53,520	93.1	39,656	94.2	33,628	94.8
Female.....	3,012	5.2	2,098	5.0	1,517	4.3
Under 16 years of age.....	941	1.6	337	0.8	323	0.9

This table indicates that for all industries combined there has been a marked increase during the 10 years

# STATISTICS OF MANUFACTURES—FLORIDA.

in the employment of children under 16 years of age, although during the first half of the decade the proportion of children among the total number employed decreased slightly. Only slight changes have taken place in the proportions of adult male and female wage earners, although the actual number of women employed nearly doubled during the decade. In 1909 males 16 years of age and over formed 93.1 per cent of all wage earners, as compared with 94.2 per cent in 1904 and 94.8 per cent in 1899.

**Wage earners employed by months.**—The table in the next column gives the number of wage earners employed on the 15th of each month during the year 1909 for all industries combined, and gives also the percentage which the number reported for each month is of the greatest number reported for any month. In Table II, page 16, 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.

There are no seasonal industries of importance in Florida which give employment to a large number of persons at certain periods of the year. On the contrary, all of the more important industries show but little fluctuation in the number of wage earners employed. Canning and preserving; the manufacture of fertilizers; shipbuilding, including boat build-

ing; and wood distillation are more or less seasonal industries in the state, but they do not employ sufficiently large numbers of wage earners to influence greatly the stability of employment for all industries combined. For all industries combined, 56,016 wage earners were reported in January, the month of minimum employment, and 60,661 in November, the month of maximum employment.

MONTH.	WAGE EARNERS.		MONTH.	WAGE EARNERS.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	56,016	92.3	July.....	56,182	92.6
February.....	56,414	93.0	August.....	58,276	92.8
March.....	56,596	93.3	September.....	58,035	95.7
April.....	56,371	92.9	October.....	59,487	98.1
May.....	56,858	93.7	November.....	60,661	100.0
June.....	56,195	92.6	December.....	60,587	99.9

**Prevailing hours of labor.**—In the following 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.

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.
<b>All industries.....</b>	<b>57,473</b>	<b>13,214</b>	<b>4,379</b>	<b>6,467</b>	<b>1,505</b>	<b>22,766</b>	<b>8,568</b>	<b>316</b>	<b>258</b>
Artificial stone.....	124	7		103		14			
Boxes, cigar.....	370			370					
Bread and other bakery products.....	405	30		22	8	237	60	21	18
Brick and tile.....	439		29		30	239	82		
Canning and preserving.....	188	84		4		100			
Carrriages and wagons and materials.....	230	23	52	82	20	53			
Cars and general shop construction and repairs by steam-railroad companies.....	1,753	350	346	465		367	225		
Cooperage and wooden goods, not elsewhere specified.....	133	10		11		112			
Copper, tin, and sheet-iron products.....	52	36		1		15			
Fertilizers.....	589				12	562	15		
Foundry and machine-shop products.....	508	50	71	144	23	220			
Gas, illuminating and heating.....	210			115	7	4	50		28
Ice, manufactured.....	461	13	3	18	36	69	25	87	210
Lumber and timber products.....	19,227	238	999	440	730	9,307	7,418	95	
Printing and publishing.....	905	408	39	314	93	43	7	1	
Shipbuilding, including boat building.....	482	23	6	164		280			
Tobacco manufactures.....	12,280	3,466	832	3,248	337	3,962	426	9	
Turpentine and rosin.....	18,143	8,344	1,983	635	147	6,859	149	26	
Wood distillation, not including turpentine and rosin.....	82			3		17	46	16	
All other industries.....	892	132	19	328	3	297	50	61	2

It is evident from these figures that for the wage earners employed in the manufacturing industries of Florida there is considerable diversity in the prevailing hours of labor. Of the total number employed, 53.5 per cent are in establishments where the prevailing hours are from 54 to 60 per week; 30.6 per cent, in establishments where they are less than 54 per week; and 15.9 per cent, in establishments where they are more than 60 per week. Two industries are largely responsible for this somewhat unusual distribution.

The lumber industry, in which 39.1 per cent of the total number of wage earners are reported from establishments where the prevailing hours are more than 60 per week, reports 82.2 per cent of the total average number of wage earners in the state working where these hours prevail. In the turpentine and rosin industry, 46 per cent of the total number was employed in establishments where the prevailing hours are 48 or less per week, and 10.9 per cent where they are between 48 and 54 hours per week. This industry gave

employment to 58.7 per cent of the total average number of wage earners for the state working less than 54 hours per week.

**Location of establishments.**—The next table shows the extent to which the manufactures of Florida are centralized in cities of 10,000 population or over. (See Introduction.) The population in 1900 was used as the basis in making the classification for 1904, as well as for 1899, and the classification for 1909 was made on the basis of the population in 1910.

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	752,619	138,408	614,211	18.4	81.6
	1900	528,542	79,129	449,413	15.0	85.0
Number of establishments.	1909	2,159	445	1,714	20.6	79.4
	1904	1,413	378	1,035	26.8	73.2
	1899	1,275	220	1,046	18.0	82.0
Average number of wage earners.	1909	57,473	14,376	43,097	25.0	75.0
	1904	42,001	12,153	29,848	28.9	71.1
	1899	35,471	7,544	27,927	21.3	78.7
Value of products.	1909	\$72,889,659	\$30,303,322	\$42,586,337	41.6	58.4
	1904	50,298,290	22,795,162	27,503,128	45.3	54.7
	1899	34,183,509	13,022,947	21,160,562	38.1	61.9
Value added by manufacture.	1909	46,761,380	16,334,944	30,426,436	34.9	65.1
	1904	33,765,851	12,828,374	20,937,477	38.0	62.0
	1899	21,336,322	7,118,431	14,217,891	33.4	66.6

In 1909, with only 18.4 per cent of the total population of the state, the cities having over 10,000 inhabitants reported 41.6 per cent of the total value of manufactured products and 25 per cent of the total average number of wage earners engaged in manufacturing. The table shows that during the decade the manufactures of the cities made a more rapid growth in every respect than did those of the districts outside the cities. Although the relative importance of the manufactures outside of cities of 10,000 inhabitants was less in 1909 than it was in 1899, this group reported for the later year 79.4 per cent of the total number of establishments, 75 per cent of the average number of wage earners, and 58.4 per cent of the total value of products. The large percentages of the total shown for the industries located outside of cities of 10,000 inhabitants or over are the result, in part, of the development of such rural industries as lumbering, the production of turpentine and rosin, and canning and preserving.

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.	1910	1900
Jacksonville.....	57,609	28,429
Tampa.....	37,782	15,839
Pensacola.....	22,082	17,747
Key West.....	19,945	17,114

The relative importance in manufactures 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
Tampa.....	8,996	5,831	3,919	\$17,653,021	\$11,264,123	\$7,092,600
Jacksonville.....	1,988	2,650	1,238	6,722,277	5,340,264	1,708,607
Key West.....	2,431	2,466	1,809	3,968,364	4,254,024	3,088,225
Pensacola.....	961	1,206	578	1,962,661	1,936,751	1,033,422

From 1899 to 1904 each city showed large increases in value of products and average number of wage earners. During the five-year period, 1904-1909, however, the percentages of increase were either greatly reduced or changed to absolute decreases, except in the case of Tampa, for which city both the percentages of increase in question were larger for the later five-year period. Key West showed decreases from 1904 to 1909 in the value of its products and in the average number of wage earners, while Jacksonville and Pensacola showed decreases in the average number of wage earners.

Tampa, although ranking second in population, is easily first when measured either by the average number of wage earners or by value of products. The leading industry in this city is the manufacture of cigars and cigarettes, the value of which amounted to \$14,557,329 in 1909. In Key West also the manufacture of cigars and cigarettes is the leading industry, with a value of products of \$3,716,740. In Jacksonville the leading industry, when measured by value of products, is the manufacture of fertilizers, the value of products in 1909, \$2,511,356, forming 37.4 per cent of the total value of all products reported for that city. Pensacola, which has no single industry which contributes any great proportion of its total value of products, except lumber manufactures (25.4 per cent), shows, upon the whole, a considerable diversity of manufacturing industries.

**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 following table.

The most important distinction shown is that between corporate and all other forms of ownership. For all industries combined, 23.2 per cent of the total number of establishments were under corporate ownership, as against 76.7 per cent under all other forms in

1909. The corresponding figures for 1904 were 21.8 per cent and 78.2 per cent, respectively. In respect to value of products, the corresponding proportions are reversed. In 1909 the establishments operated by corporations reported 62.9 per cent of the total value of products, as against 37.2 per cent for those under all other forms of ownership, while in 1904 the corresponding figures were 54.2 per cent and 45.8 per cent, respec-

tively. The greatest decreases in relative importance from 1904 to 1909 are shown for establishments operated by firms, which represented 32.4 per cent of the total number of establishments in 1909, as compared with 35.1 per cent in 1904. Seven-tenths of the value of products in the tobacco and lumber industries was reported by corporations, while over one-half of the value of turpentine and rosin was reported by firms.

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>					<b>Lumber and timber products, 1909</b>				
1909.....	2,159	57,473	\$72,889,659	\$46,761,380	Individual.....	252	2,849	\$3,406,787	2,291,973
1904.....	1,413	42,091	50,298,290	33,765,851	Firm.....	139	2,560	2,860,584	2,059,137
Individual:					Corporation.....	124	13,812	14,585,645	10,272,461
1909.....	851	9,520	10,507,500	7,127,405	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	609	8,306	8,612,316	6,201,396	Individual.....	48.9	14.8	16.3	15.7
Firm:					Firm.....	27.0	13.3	13.7	14.1
1909.....	700	16,349	16,223,927	11,457,492	Corporation.....	24.1	71.8	70.0	70.2
1904.....	496	14,761	14,446,208	10,916,140	<b>Printing and publishing, 1909</b>				
Corporation:					Individual.....	174	905	\$1,865,848	\$1,431,639
1909.....	501	31,589	45,815,852	28,145,223	Individual.....	109	273	476,367	374,391
1904.....	308	19,024	27,239,766	16,648,315	Firm.....	20	66	103,628	77,218
Other:					Corporation.....	41	500	1,271,805	967,278
1909.....	7	15	42,380	\$1,260	Other.....	4	6	14,048	12,752
1904.....					Per cent of total.....	100.0	100.0	100.0	100.0
Per cent of total:					Individual.....	62.6	30.2	25.5	26.2
1909.....	100.0	100.0	100.0	100.0	Firm.....	11.5	7.3	5.6	5.4
1904.....	100.0	100.0	100.0	100.0	Corporation.....	23.6	61.9	68.2	67.6
Individual:					Other.....	2.3	0.7	0.8	0.0
1909.....	44.0	16.6	14.8	15.2	<b>Tobacco manufactures, 1909</b>				
1904.....	43.1	19.7	17.1	18.4	Individual.....	229	12,280	\$21,575,021	12,889,783
Firm:					Individual.....	115	895	1,231,961	731,876
1909.....	32.4	28.4	22.3	24.5	Firm.....	59	3,216	5,235,957	3,160,487
1904.....	35.1	35.1	28.7	32.3	Corporation.....	55	8,199	15,107,193	8,997,400
Corporation:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	23.2	55.0	62.9	60.2	Individual.....	50.2	7.0	5.7	5.7
1904.....	21.8	45.2	51.2	49.3	Firm.....	25.8	26.2	24.3	24.5
Other:					Corporation.....	24.0	66.8	70.0	69.8
1909.....	0.3	( <sup>2</sup> )	0.1	0.1	<b>Turpentine and rosin, 1909</b>				
1904.....					Individual.....	598	18,143	\$11,937,518	\$9,968,450
<b>Ice, manufactured, 1909</b>	70	461	\$1,206,874	\$822,834	Individual.....	161	4,255	2,657,523	2,218,034
Individual.....	18	87	180,276	138,808	Firm.....	342	9,892	6,451,526	5,364,630
Firm.....	11	73	149,667	104,833	Corporation.....	90	3,996	2,828,469	2,385,786
Corporation.....	41	301	876,931	579,193	Per cent of total.....	100.0	100.0	100.0	100.0
Per cent of total.....	100.0	100.0	100.0	100.0	Individual.....	27.2	23.5	22.3	22.2
Individual.....	25.7	18.9	14.9	16.0	Firm.....	57.7	54.5	54.0	53.8
Firm.....	15.7	15.8	12.4	12.7	Corporation.....	15.2	22.0	23.7	23.9
Corporation.....	58.6	65.3	72.7	70.4					

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

<sup>2</sup> None reported.

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

**Size of establishment.**—The tendency for manufacturing to become concentrated in large establishments, or the reverse, is a matter of interest from the standpoint of industrial organization. In order to throw some light upon it the 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 certain important industries figures are given for 1909 only.

This table shows that, in 1909, of the 2,159 establishments only 138, or 6.4 per cent, had a value of products of \$100,000 or over, while only 4 of these had a value of products exceeding \$1,000,000. The 138 establishments, however, had a total average of 26,080 wage earners, or 45.4 per cent of the total number in all establishments, and reported 55.9 per cent of the

total value of products and 52 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 (28.9 per cent) of the total number of establishments, but the value of their products amounted to only 2.1 per cent of the total.

It will be seen from the above table that during the five years from 1904 to 1909 there were decreases when measured by value of products in the relative importance of the two groups made up of establishments having products valued at \$20,000 but less than \$100,000 and \$100,000 but less than \$1,000,000, and increases in the two groups made up of the smaller establishments. In 1904 there was no establishment with a product exceeding \$1,000,000 in value, while in 1909 there were four such establishments, representing two-tenths of 1 per cent of the total number of establishments, and reporting 6.1 per cent of the total value of products.

INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>					<b>Lumber and timber products,</b>				
1909.....	2,159	57,473	\$72,889,659	\$46,761,380	1909.....	515	19,227	\$20,863,016	\$14,623,571
1904.....	1,413	42,091	50,298,290	33,765,851	Less than \$5,000.....	147	532	383,844	306,540
Less than \$5,000:					\$5,000 and less than \$20,000.....	175	1,871	1,874,809	1,389,981
1909.....	623	1,387	1,547,102	1,082,701	\$20,000 and less than \$100,000.....	137	5,366	6,202,239	4,185,886
1904.....	388	656	905,782	619,408	\$100,000 and less than \$1,000,000 <sup>2</sup> .....	56	11,458	12,837,064	8,731,151
\$5,000 and less than \$20,000:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	871	11,393	9,818,056	7,255,477	Less than \$5,000.....	28.5	2.8	1.9	2.1
1904.....	460	6,375	5,387,587	4,130,772	\$5,000 and less than \$20,000.....	34.0	9.7	9.0	9.5
\$20,000 and less than \$100,000:					\$20,000 and less than \$100,000.....	26.6	27.0	30.0	28.7
1909.....	527	18,613	20,734,942	14,123,529	\$100,000 and less than \$1,000,000.....	10.9	59.6	59.1	59.7
1904.....	456	13,105	16,819,502	12,553,615	Average per establishment.....		37	\$40,811	\$28,395
\$100,000 and less than \$1,000,000:					<b>Printing and publishing, 1909.....</b>	<b>174</b>	<b>905</b>	<b>\$1,865,848</b>	<b>\$1,431,609</b>
1909.....	134	23,509	36,332,800	21,369,589	Less than \$5,000.....	111	152	267,018	216,555
1904.....	100	16,955	27,185,419	16,162,050	\$5,000 and less than \$20,000.....	45	222	404,129	315,097
\$1,000,000 and over:					\$20,000 and less than \$100,000.....	13	234	442,618	335,508
1909.....	4	2,571	4,456,660	2,950,094	\$100,000 and less than \$1,000,000.....	5	297	752,183	561,179
1904.....					Per cent of total.....	100.0	100.0	100.0	100.0
Per cent of total:					Less than \$5,000.....	63.8	16.8	14.3	15.1
1909.....	100.0	100.0	100.0	100.0	\$5,000 and less than \$20,000.....	25.0	24.5	21.7	22.2
1904.....	100.0	100.0	100.0	100.0	\$20,000 and less than \$100,000.....	7.5	25.9	23.7	24.4
Less than \$5,000:					\$100,000 and less than \$1,000,000.....	2.0	32.8	40.3	39.2
1909.....	28.9	2.4	2.1	2.3	Average per establishment.....		5	\$10,723	\$8,228
1904.....	27.5	1.6	1.8	1.8	<b>Tobacco manufactures, 1909.....</b>	<b>229</b>	<b>12,280</b>	<b>\$21,575,021</b>	<b>\$12,889,763</b>
\$5,000 and less than \$20,000:					Less than \$5,000.....	105	* 176	215,250	133,593
1909.....	40.3	19.8	13.5	15.5	\$5,000 and less than \$20,000.....	41	385	482,019	394,711
1904.....	33.2	15.1	10.7	12.2	\$20,000 and less than \$100,000.....	39	1,279	1,900,255	1,118,404
\$20,000 and less than \$100,000:					\$100,000 and less than \$1,000,000 <sup>2</sup> .....	44	10,440	18,971,488	11,333,066
1909.....	24.4	32.4	28.4	30.2	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	32.3	43.0	33.4	38.1	Less than \$5,000.....	45.9	1.4	1.0	1.0
\$100,000 and less than \$1,000,000:					\$5,000 and less than \$20,000.....	17.9	3.1	2.2	2.4
1909.....	6.2	40.9	49.8	45.7	\$20,000 and less than \$100,000.....	17.0	10.4	8.8	8.7
1904.....	7.1	40.3	54.0	47.9	\$100,000 and less than \$1,000,000.....	10.2	85.0	87.9	87.9
\$1,000,000 and over:					Average per establishment.....		54	\$94,214	\$56,267
1909.....	0.2	4.5	6.1	6.3	<b>Turpentine and rosin, 1909.....</b>	<b>593</b>	<b>18,143</b>	<b>\$11,937,518</b>	<b>\$9,988,450</b>
Average per establishment:					Less than \$5,000.....	30	210	100,402	77,207
1909.....		27	\$33,761	\$21,659	\$5,000 and less than \$20,000.....	346	7,538	4,364,670	3,019,670
1904.....		30	35,597	23,897	\$20,000 and less than \$100,000.....	214	9,772	6,983,683	5,856,871
Ice, manufactured, 1909.....	70	461	\$1,208,874	\$822,834	\$100,000 and less than \$1,000,000.....	3	573	488,763	384,702
Less than \$5,000.....	13	23	40,610	25,575	Per cent of total.....	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000.....	40	188	420,564	310,457	Less than \$5,000.....	5.1	1.2	0.8	0.8
\$20,000 and less than \$100,000 <sup>2</sup> .....	17	250	745,700	486,602	\$5,000 and less than \$20,000.....	58.3	41.8	36.6	36.3
Per cent of total.....	100.0	100.0	100.0	100.0	\$20,000 and less than \$100,000.....	36.1	53.9	58.5	59.1
Less than \$5,000.....	18.6	5.0	3.4	3.1	\$100,000 and less than \$1,000,000.....	0.5	3.2	4.1	3.9
\$5,000 and less than \$20,000.....	57.1	40.8	34.8	37.8	Average per establishment.....		31	\$20,131	\$16,810
\$20,000 and less than \$100,000.....	24.3	54.2	61.8	59.1					
Average per establishment.....		7	\$17,241	\$11,755					

<sup>1</sup> None reported.

<sup>2</sup> Includes the group "\$100,000 and less than \$1,000,000."

<sup>3</sup> Includes the group "\$1,000,000 and over."

From 1904 to 1909 the average number of wage earners per establishment decreased from 30 to 27; the average value of products from \$35,597 to \$33,761, a decrease of \$1,836; and the average value added by manufacture from \$23,897 to \$21,659, a decrease of \$2,238. In only two of the five industries shown separately in the table, the tobacco manufacturing industry and the lumber industry, is the bulk of the product manufactured in large establishments—that is, those having a value of product 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 10 important industries individually, and gives not only the number of establishments falling in each group, but also the average number of wage earners employed.

The per cent distribution of the number of establishments is not shown in the table. Of the 2,159 establishments reported for all industries, 5.1 per cent employed no wage earners; 35.9 per cent employed from 1 to 5; 28.4 per cent, from 6 to 20; and 19.7 per cent, from 21 to 50. There were 35 establishments that employed over 250 wage earners, and 8 of these,

3 lumber and timber establishments and 5 cigar factories, employed over 500 each.

Of the total number of wage earners, 45.2 per cent were in establishments employing over 100 wage earners. The single group having the largest number of employees was the group of establishments employing from 21 to 50 wage earners. This group employed 13,670 wage earners, or 23.8 per cent of the total. The group comprising the establishments employing from 101 to 250 wage earners ranked second in respect to the number of wage earners employed, with 12,111, or 21.1 per cent of the total. In the turpentine and rosin industry, which had an average of 31 wage earners per establishment, 50.3 per cent of the establishments employed from 21 to 50 wage earners each, these establishments reporting 53.2 per cent of the total average number of wage earners for the industry. In the railroad repair shops 97.7 per cent of the total average number of wage earners were employed in establishments reporting over 100 wage earners, while 80.9 per cent of the total average number employed in the tobacco factories and 61.2 per cent of those employed in the lumber establishments were reported for this class of establishments. In the bakeries 79.3 per cent of all the wage earners were employed in establishments employing less than 21 wage earners, and in the manufactured ice industry 76.6 per cent were in such establishments.

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.
NUMBER OF ESTABLISHMENTS.									
<b>All industries</b> .....	<b>2,159</b>	<b>111</b>	<b>775</b>	<b>613</b>	<b>426</b>	<b>121</b>	<b>78</b>	<b>27</b>	<b>8</b>
Bread and other bakery products.....	113	14	79	18	1	1			
Brick and tile.....	29		10	13	1	2			
Cars and general shop construction and repairs by steam-railroad companies.....	12		3	3			2	4	
Foundry and machine-shop products.....	36	2	17	8	7	2			
Ice, manufactured.....	70		17	19	1				
Lumber and timber products.....	515	3	152	293	68	35	49	11	3
Printing and publishing.....	174	29	112	23	7	3			
Shipbuilding, including boat building.....	52	5	34	10	2		1		
Tobacco manufactures.....	229	22	89	50	18	13	21	11	5
Turpentine and rosin.....	593	10	18	195	298	57	12		
All other industries.....	336	25	214	68	17	8	2	1	
AVERAGE NUMBER OF WAGE EARNERS.									
<b>All industries</b> .....	<b>57,473</b>		<b>1,968</b>	<b>7,786</b>	<b>13,670</b>	<b>8,074</b>	<b>12,111</b>	<b>8,934</b>	<b>4,935</b>
Bread and other bakery products.....	405		153	168	30	54			
Brick and tile.....	439		27	157	128	127			
Cars and general shop construction and repairs by steam-railroad companies.....	1,753		10	30			402	1,311	
Foundry and machine-shop products.....	508		51	80	208	167			
Ice, manufactured.....	461		151	202	108				
Lumber and timber products.....	19,227		448	2,397	2,167	2,452	5,972	3,758	2,033
Printing and publishing.....	905		248	230	192	235			
Shipbuilding, including boat building.....	482		79	99	72		232		
Tobacco manufactures.....	12,280		188	613	634	907	3,431	3,605	2,902
Turpentine and rosin.....	18,143		67	3,047	9,644	3,603	1,782		
All other industries.....	2,870		539	763	487	529	292	260	
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.									
<b>All industries</b> .....	<b>100.0</b>		<b>3.4</b>	<b>13.5</b>	<b>23.8</b>	<b>14.0</b>	<b>21.1</b>	<b>15.5</b>	<b>8.0</b>
Bread and other bakery products.....	100.0		37.8	41.5	7.4	13.3			
Brick and tile.....	100.0		6.2	35.8	29.2	28.9			
Cars and general shop construction and repairs by steam-railroad companies.....	100.0		0.6	1.7			22.9	74.8	
Foundry and machine-shop products.....	100.0		10.4	15.7	40.9	32.9			
Ice, manufactured.....	100.0		32.8	43.8	23.4				
Lumber and timber products.....	100.0		2.3	12.5	11.3	12.8	31.1	19.5	10.6
Printing and publishing.....	100.0		27.4	25.4	21.2	26.0			
Shipbuilding, including boat building.....	100.0		16.4	20.5	14.9		48.1		
Tobacco manufactures.....	100.0		1.5	5.0	5.2	7.4	27.9	23.4	23.6
Turpentine and rosin.....	100.0		0.4	16.8	53.2	19.9	9.8		
All other industries.....	100.0		18.8	26.6	17.0	18.4	10.2	9.1	

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

The following table shows in percentages for 1909 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.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
<b>All industries</b> .....	<b>7.8</b>	<b>36.4</b>	<b>41.3</b>	<b>14.5</b>
Bread and other bakery products.....	2.9	18.7	70.6	7.8
Brick and tile.....	11.9	42.2	34.3	11.6
Cars and general shop construction and repairs by steam-railroad companies.....	6.8	58.4	34.5	0.3
Foundry and machine-shop products.....	7.7	39.6	45.7	7.0
Ice, manufactured.....	16.0	25.0	43.0	15.9
Lumber and timber products.....	7.0	41.9	34.7	16.5
Printing and publishing.....	17.0	36.7	30.1	16.3
Shipbuilding, including boat building.....	5.8	47.6	38.3	8.3
Tobacco manufactures.....	7.1	35.7	43.2	14.0
Turpentine and rosin.....	10.8	47.3	21.6	20.2
All other industries.....	6.7	13.7	69.5	10.1

This table shows that, for all industries combined, 41.3 per cent of the total expense was incurred for materials, 44.2 per cent for services—that is, salaries and wages—and but 14.5 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 a large general increase in the primary power generated, every form of which, except that developed by water motors, which is negligible in amount, showed marked increases for the five-year period 1904-1909. The number of steam engines and their horsepower more than doubled during this period, while during the earlier period the number of engines actually decreased and their horsepower increased at a much lower rate than during the later



period. The more general use of gas engines is shown, the number of such engines reported being 250 in 1909, as compared with 59 in 1904 and 34 in 1899. The figures also show that the practice of renting power is on the increase, 3.8 per cent of the total power being rented in 1909, as against 2.3 per cent in 1904 and four-tenths of 1 per cent in 1899.

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899 <sup>1</sup>	1909	1904	1899 <sup>1</sup>	1909	1904	1899
<b>Primary power, total</b> .....	<b>2,445</b>	<b>771</b>	<b>893</b>	<b>89,816</b>	<b>43,413</b>	<b>36,356</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Owned.....	2,044	771	893	86,376	42,413	36,194	96.2	97.7	99.6
Steam.....	1,783	702	848	84,508	41,075	35,044	94.1	96.7	96.4
Gas.....	250	59	34	1,497	320	173	1.7	0.7	0.5
Water wheels.....	10	6	11	168	107	116	0.2	0.2	0.3
Water motors.....	1	4	( <sup>2</sup> )	3	11	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Other.....				200		861	0.2		2.4
Rented.....	401	( <sup>2</sup> )	( <sup>2</sup> )	3,440	1,000	162	3.8	2.3	0.4
Electric.....	401	( <sup>2</sup> )	( <sup>2</sup> )	3,353	1,000	162	3.7	2.3	0.4
Other.....				87			0.1		
<b>Electric motors</b> .....	<b>579</b>	<b>45</b>	<b>8</b>	<b>7,563</b>	<b>2,960</b>	<b>302</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Run by current generated by establishment.....	178	45	8	4,210	1,960	140	55.7	66.2	46.4
Run by rented power.....	401	( <sup>2</sup> )	( <sup>2</sup> )	3,353	1,000	162	44.3	33.8	53.6

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

The table shows that the use of electric motors for the purpose of applying the power generated within the establishments is also becoming more general, the horsepower of such motors having increased from 140 in 1899 to 1,960 in 1904 and 4,210 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 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 (cords).	Oil, including gasoline (barrels).	Gas (1,000 feet).
<b>All industries</b> .....	<b>6,582</b>	<b>64,623</b>	<b>4,999</b>	<b>180,197</b>	<b>49,333</b>	<b>37,201</b>
Bread and other bakery products.....	341	334	2	5,166	34	47
Brick and tile.....	80	3,028		30,238	11	
Cars and general shop construction and repairs by steam-railroad companies.....	18	9,297	1	5,554	6	
Fertilizers.....	290	4,956		702		
Foundry and machine-shop products.....	32	663	1,719	1,747	306	290
Ice, manufactured.....	1,050	33,459		51,133	22	
Lumber and timber products.....		701		1,737	2,085	
Printing and publishing.....	231	46		27	495	2,421
Shipbuilding, including boat building.....	3	1,014	27	300	202	
Tobacco manufactures.....	11	1		30		29,190
Turpentine and rosin.....		250		59,854	237	
All other industries.....	4,526	11,124	3,000	23,689	45,935	5,153

<sup>1</sup> In addition there were 125 tons of other varieties of fuel reported.

### SUPPLEMENTARY DATA REGARDING IMPORTANT INDUSTRIES.

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

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

**Lumber and timber products.**—The following table shows the quantity of rough lumber, shingles, and lath produced by the sawmills of the state in 1909 and 1899:

PRODUCT.	1909	1899
Rough lumber.....M feet, b. m.	1,201,734	790,373
Shingles.....thousands.	283,206	177,123
Lath.....thousands.	55,741	21,761

This statement shows the decided growth of this industry in the state during the decade, the production of rough lumber increasing 52 per cent, that of shingles 59.9 per cent, and that of lath 156.2 per cent. In 1909, of the total cut of rough lumber of 1,201,734 M feet board measure, the softwoods constituted 1,196,912 M feet. Of the softwoods cut, 1,110,840 M feet board measure, were yellow pine and 84,811 M feet were cypress. Florida ranked second in the production of cypress in 1909. The hardwood cut amounted to only 4,822 M feet board measure, most of which was oak, yellow poplar, and hickory.

**Turpentine and rosin.**—The table which follows shows the quantity and value of the turpentine and rosin produced in 1909 and 1904.

PRODUCT.	1909	1904
<b>Total value</b> .....	<b>\$11,837,518</b>	<b>\$9,901,905</b>
Turpentine:		
Gallons.....	13,809,785	12,872,590
Value.....	\$5,847,478	\$6,425,326
Rosin:		
Barrels (280 pounds).....	1,555,749	1,445,992
Value.....	\$6,057,524	\$3,447,418
Dross and other products.....	\$32,516	\$23,061

From 1904 to 1909, notwithstanding an increase of 936,916 gallons in the quantity of turpentine produced, the value decreased \$578,348. During the same period there was an increase of 109,847 barrels in the quantity of rosin, with an increase in value of \$2,610,106. In 1909 the crops worked under the box system numbered 8,809, while 1,114 were reported under the cup system. The greatest number worked under the box system was on trees which had already been worked three years or more, while the greatest number worked under the cup system was on first-year trees.

**Fertilizers.**—Although more phosphate rock was mined in 1909 in Florida than in all other states combined, when measured by value of products, the state ranked eleventh in the production of fertilizers. The following statement shows the quantities and values of products for 1909, 1904, and 1899.

PRODUCT.	1909	1904	1899
<b>Total value.....</b>	<b>\$3,878,296</b>	<b>\$1,590,371</b>	<b>\$500,239</b>
Superphosphates from minerals, bones, etc.:			
Tons.....	37,787	12,500	9,394
Value.....	\$293,315	3194,000	893,940
Ammoniated fertilizers:			
Tons.....	10,946		
Value.....	\$205,538		
Concentrated phosphates:			
Tons.....	8,783	(1)	
Value.....	\$99,987	(1)	
Complete fertilizers:			
Tons.....	87,370	53,559	15,435
Value.....	\$2,672,108	\$1,330,271	\$377,535
Other fertilizers:			
Tons.....	10,960	5,233	1,315
Value.....	\$321,934	\$65,500	\$25,107
Sulphuric acid:			
Tons.....	8,527		90
Value.....	\$38,373		\$623
Chemicals, not elsewhere specified.....	\$176,509		
All other products.....	\$70,532	\$600	\$2,074

<sup>1</sup> Included with other fertilizers.

This table shows marked increases throughout. Complete fertilizers, representing about two-thirds of the total value of products shown, increased in quantity 247 per cent from 1899 to 1904 and 63.1 per cent during the following five years. Superphosphates increased in quantity 36.3 per cent during the earlier period and 195.2 per cent during the later period, while the corresponding percentages for "Other fertilizers" were 297.9 and 109.4, respectively.

**Printing and publishing.**—The following statement shows the number of publications and their aggregate circulation, by period of issue, for the three most recent census years:

PERIOD OF ISSUE.	NUMBER OF PUBLICATIONS.			AGGREGATE CIRCULATION PER ISSUE.		
	1909	1904	1899	1909	1904	1899
<b>Total.....</b>	<b>160</b>	<b>154</b>	<b>108</b>	<b>283,992</b>	<b>223,214</b>	<b>112,302</b>
Daily.....	19	20	11	80,309	54,875	27,907
Sunday.....	0	5	11	48,539	30,300	(1)
Semiweekly.....	3	3	2	10,300	8,500	6,000
Weekly.....	127	117	76	137,818	112,124	66,295
Monthly.....	5	9	8	7,035	17,325	12,100

<sup>1</sup> Included in circulation for daily.    <sup>2</sup> Includes one triweekly publication.

In 1909, as compared with 1904, a decrease is shown of 1 daily and 4 monthlies, but an increase of 10 weeklies and 1 Sunday. Each class, except monthlies, showed steady increases in circulation for the 10-year period. All of the publications were printed in the English language, except 1 daily and 2 weeklies in Spanish, 1 weekly in German, and 1 weekly in Italian.

**Laundries.**—Statistics for steam laundries are not included in the general tables or in the totals for manufacturing industries. There were 28 such establishments in the state, 6 of which were in Jacksonville, 4 in Tampa, 3 in Pensacola, and 1 in Key West.

Thirteen of the 28 establishments were under individual ownership, 8 under corporate ownership, and 7 under firm ownership. Nine establishments had receipts for the year's business of less than \$5,000; 11, receipts of \$5,000 but less than \$20,000; and 8, receipts of \$20,000 but less than \$100,000.

The following statement summarizes the statistics.

Number of establishments.....	28
Persons engaged in the industry.....	638
Proprietors and firm members.....	28
Salaried employees.....	39
Wage earners (average number).....	571
Primary horsepower.....	528
<b>Capital.....</b>	<b>\$461,038</b>
<b>Expenses.....</b>	<b>371,750</b>
Services.....	232,639
Materials.....	77,221
Miscellaneous.....	61,890
Amount received for work done.....	474,088

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.....	506	87.5	July.....	548	84.7
February.....	505	87.3	August.....	553	85.5
March.....	578	89.3	September.....	555	85.8
April.....	562	86.9	October.....	570	88.1
May.....	550	85.0	November.....	620	95.8
June.....	542	83.8	December.....	647	100.0

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.
<b>Primary power, total.....</b>		<b>528</b>
Owned.....	25	476
Steam.....	23	467
Gas.....	2	9
Rented.....	3	52
Electric.....	3	43
Other.....		9

The kind and amount of fuel used are shown in the following statement:

KIND.	Unit.	Quantity.
Bituminous coal.....	Tons.....	1,265
Wood.....	Cords.....	7,826
Oil.....	Barrels.....	244
Gas.....	1,000 feet.....	1,417

**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.....	5	88
Persons engaged in industry.....	24	144
Proprietors and firm members.....	10	127
Salaried employees.....	1	2
Wage earners (average number).....	13	15
Primary horsepower.....	155	1,830
<b>Capital.....</b>	<b>\$7,628</b>	<b>\$98,947</b>
<b>Expenses.....</b>	<b>4,220</b>	<b>244,672</b>
Services.....	3,524	4,417
Materials.....	252	1,237,351
Miscellaneous.....	453	2,904
Value of products.....	6,817	1,273,928

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

STATISTICS OF MANUFACTURES—FLORIDA.

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

THE STATE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES.

INDUSTRY.	Cen- sus.	Number of estab- lish- ments.	PERSONS ENGAGED IN INDUSTRY				Pri- mary horse- power.	Capital.	Sala- ries.	Wages.	Cost of mate- rials.	Value of prod- ucts.	Value added by manu- facture.											
			Total.	Pro- pri- etors and firm mem- bers.	Sala- ried em- plov- ees.	Wage earners (aver- age num- ber).								Expressed in thousands.										
														1909	1904	1899	1909	1904	1899	1909	1904	1899	1909	1904
<b>STATE—All industries.....</b>	<b>1909</b>	<b>2,159</b>	<b>64,810</b>	<b>2,712</b>	<b>4,625</b>	<b>57,473</b>	<b>89,816</b>	<b>\$65,291</b>	<b>\$4,955</b>	<b>\$22,982</b>	<b>\$26,128</b>	<b>\$72,890</b>	<b>\$46,768</b>											
	<b>1904</b>	<b>1,413</b>	<b>46,985</b>	<b>1,769</b>	<b>3,125</b>	<b>42,091</b>	<b>43,413</b>	<b>32,972</b>	<b>2,670</b>	<b>15,767</b>	<b>18,532</b>	<b>50,398</b>	<b>33,766</b>											
	<b>1899</b>	<b>1,275</b>			<b>1,781</b>	<b>35,471</b>	<b>36,356</b>	<b>25,682</b>	<b>1,300</b>	<b>10,916</b>	<b>12,647</b>	<b>34,184</b>	<b>21,337</b>											
Artificial stone.....	1909	32	173	38	11	124	44	167	13	57	93	215	122											
	1904	10	64	8	9	47	5	70	8	23	41	99	58											
Boxes, cigar.....	1909	3	399	3	26	370	461	333	34	175	232	594	372											
	1904	4	244	6	9	229	152	90	10	88	87	261	171											
	1899	3	133	2	8	123		41	5	33	53	135	82											
Bread and other bakery products.....	1909	113	585	139	41	405	666	594	32	201	760	1,292	732											
	1904	85	396	107	5	284	42	223	3	124	416	748	332											
	1899	39	202	43	6	153		102	2	49	149	304	155											
Brick and tile.....	1909	29	501	21	41	439	2,288	778	39	138	113	370	296											
	1904	14	459	15	19	425	903	342	17	109	65	237	172											
	1899	17	288	19	11	258		196	10	66	33	135	102											
Canning and preserving.....	1909	18	221	18	15	188	70	231	11	51	80	213	135											
	1904	10	216	12	20	184	56	105	8	28	92	165	73											
	1899	9			8	153		84	7	33	52	169	57											
Carriages and wagons and materials.....	1909	39	309	51	28	230	354	427	29	126	210	453	243											
	1904	131	247	42	9	196	169	222	6	102	124	344	220											
	1899	131			3	131		131	2	56	91	198	167											
Cars and general shop construction and repairs by steam-railroad companies.	1909	12	1,862		109	1,753	1,035	1,251	118	1,018	601	1,743	1,142											
	1904	6	1,156		45	1,111	545	440	45	561	544	1,156	612											
	1899	13	991		33	958		414	27	486	580	1,112	512											
Confectionery.....	1909	4	41	1	9	31	17	23	8	11	47	83	36											
	1904	5	41	4	14	23		79	14	9	45	120	75											
	1899	3			3	13		13	2	5	13	32	19											
Cooperage and wooden goods, not elsewhere specified.	1909	10	153	6	14	133	369	195	18	48	217	333	116											
	1904	7	155	7	14	134	170	134	12	48	162	262	109											
	1899	10			4	56		68	4	21	96	177	81											
Copper, tin, and sheet-iron products.....	1909	8	72	10	10	52	30	89	12	30	43	105	62											
	1904	9	113	14	5	94	1	57	3	47	71	192	121											
	1899																							
Fertilizers.....	1909	12	710		121	589	1,710	3,768	160	218	2,875	3,878	1,033											
	1904	8	304	1	61	242	555	809	63	70	1,325	1,590	265											
	1899	7	150	4	29	117		733	27	40	331	500	169											
Flour-mill and gristmill products.....	1909	6	21	5	5	11	141	61	6	5	139	164	25											
	1904	7	24	8	3	13	167	78	3	6	112	137	25											
	1899	6			4	10		64	4	4	106	123	22											
Foundry and machine-shop products.....	1909	36	592	33	51	508	725	1,213	56	287	331	817	506											
	1904	18	314	14	36	264	342	417	37	138	211	499	288											
	1899	20	262	26	22	214		282	19	101	88	321	233											
Gas, illuminating and heating.....	1909	12	273		63	210	746	3,551	70	113	182	555	431											
	1904	11	129		34	95	522	1,348	26	35	81	314	231											
	1899	11	75		28	47		1,156	16	24	41	170	129											
Ice, manufactured.....	1909	70	634	61	112	461	8,585	2,450	143	224	384	1,207	823											
	1904	47	405	41	69	295	2,943	1,360	60	151	171	684	513											
	1899	33	285	24	24	237	2,971	726	21	96	129	428	299											
Lumber and timber products.....	1909	515	20,893	580	1,086	19,227	65,097	27,670	1,253	7,551	6,239	20,863	14,624											
	1904	242	12,578	253	655	11,470	33,527	12,040	709	4,229	3,977	12,972	8,956											
	1899	388		441	10,300			9,009	365	3,229	4,583	11,578	6,995											
Patent medicines and compounds and drug- gists' preparations.	1909	13	63	10	26	27	4	115	21	9	79	185	106											
	1904	19	55	5	24	26	10	182	22	5	303	429	126											
	1899																							
Printing and publishing.....	1909	174	1,308	163	240	905	794	1,683	245	529	434	1,866	1,142											
	1904	155	872	156	173	543	382	1,414	173	271	270	1,139	809											
	1899	100	582	113	63	406		539	56	180	155	603	415											
Shipbuilding, including boat building.....	1909	52	568	65	21	482	873	1,022	36	289	233	697	464											
	1904	13	111	14	5	92	52	64	5	40	37	115	75											
	1899	15	159	15	3	141		149	3	74	111	255	144											
Tobacco manufactures.....	1909	229	13,434	269	885	12,280	100	11,164	1,434	7,160	8,685	21,575	12,899											
	1904	1208	10,687	284	746	9,657	23	7,384	765	5,577	6,596	16,764	10,163											
	1899	127		296	6,370			5,337	356	3,160	4,724	10,736	6,012											
Turpentine and rosin.....	1909	593	20,687	1,051	1,493	18,143	1,916	5,511	987	4,316	1,969	11,938	9,530											
	1904	406	17,282	668	1,073	15,541	349	2,939	574	3,714	725	9,992	9,177											
	1899	366	16,373	552	748	15,073		5,527	306	3,049	1,223	6,470	5,217											
Wood distillation, not including turpentine and rosin.	1909	7	102	2	18	82	738	264	12	32	55	138	85											
	1904	4	44	2	8	34	195	114	10	14	31	85	34											
All other industries.....	1909	172	1,209	186	200	823	3,053	2,722	218	375	2,127	3,637	1,310											
	1904	104	1,089	108	89	892	2,363	2,071	97	378	1,046	2,084	1,069											
	1899	77			77	711		1,111	68	205	289	793	394											

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

STATISTICS OF MANUFACTURES—FLORIDA.

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

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

INDUSTRY.	Cen- sus.	Num- ber of estab- lish- ments.	PERSONS ENGAGED IN INDUSTRY.				Tri- mary horse- power.	Capital.	Salu- ries.	Wages.	Cost of mate- rials.	Value of prod- ucts.	Value added by manu- facture.
			Total.	Pro- pri- tors and firm mem- bers.	Salu- ried em- ploy- ees.	Wage earn- ers (aver- age num- ber).							
Expressed in thousands.													
<b>JACKSONVILLE—All industries</b> .....	1909	114	2,455	80	387	1,988	5,165	\$7,068	\$455	\$988	\$3,997	\$6,722	\$2,735
	1904	125	3,046	122	274	2,650		4,837	302	1,073	2,789	5,340	2,551
	1899	74			112	1,238		1,858	101	498	806	1,799	993
Artificial stone.....	1909	3	45	1	4	20	12	32	5	17	18	49	31
	1904	4	30	4	3	43		19	2	12	16	42	26
Bread and other bakery products.....	1909	9	144	9	13	122	75	117	16	55	176	309	133
	1904	14	128	20	3	105		72	3	45	117	221	104
	1899	8	61	9	1	51		25	1	15	39	73	34
Carriages and wagons and materials.....	1909	4	81	6	8	67	34	52	9	42	35	100	65
	1904	4	61	7	5	54		43		26	32	72	41
	1899	3	39	3	1	35		24	1	16	14	48	34
Fertilizers.....	1909	4	457		72	385	855	1,842	82	131	1,935	2,511	576
	1904	3	134		32	102		497	34	37	1,003	1,164	161
	1899												
Lumber and timber products.....	1909	8	216	8	28	180	865	302	25	82	225	382	157
	1904	14	1,104	10	40	1,114		1,592	55	408	404	1,080	676
	1899	6	471	4	15	452		700	16	193	331	650	319
Patent medicines and compounds and drug- gists' preparations.	1909	7	30	4	14	12		53	8	5	18	73	55
	1904	6	50	3	23	24		177	22	5	300	397	97
	1899												
Printing and publishing.....	1909	28	377	20	107	250	252	456	104	163	146	636	490
	1904	21	251	20	80	151		743	90	83	98	379	281
	1899	15	204	13	36	155		187	35	79	73	251	178
Tobacco manufactures.....	1909	14	157	14	9	134		97	11	73	115	264	149
	1904	14	163	17	7	139		33	7	64	54	199	145
	1899	9	46	10	2	34		20	1	12	9	36	27
All other industries.....	1909	37	948	18	132	798	3,072	4,117	195	420	1,329	2,398	1,069
	1904	45	1,065	41	86	938		1,661	89	353	765	1,785	1,020
	1899	33			57	511		992	47	188	340	741	401

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

<b>Key West</b> .....	1909	56	2,693	72	190	2,431	295	\$1,911	\$267	\$1,397	\$1,643	\$3,965	\$2,322
	1904	73	2,787	103	218	2,466		1,512	229	1,325	1,806	4,254	2,448
	1899	53			60	1,809		1,738	82	1,074	1,231	3,088	1,857
<b>Pensacola</b> .....	1909	60	1,142	59	122	961	1,438	2,164	131	473	955	1,963	1,008
	1904	39	1,354	28	120	1,206		2,147	132	476	820	1,937	1,117
	1899	32			39	578		1,158	34	246	502	1,053	551
<b>Tampa</b> .....	1909	215	9,970	250	724	8,906	2,658	11,610	1,219	5,375	7,373	17,653	10,280
	1904	141	6,523	161	531	5,831		6,014	545	3,578	4,551	11,264	6,713
	1899	70			179	3,919		3,821	238	1,901	3,366	7,083	3,717

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

TABLE II.—DETAIL STATEMENT FOR

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners.			Total.	16 and over.		Under 16.				
					Male.	Female.	Average number.	Number.			Male.	Female.	Male.	Female.			
								Maximum month.	Minimum month.								
<b>All industries.....</b>	<b>2,159</b>	<b>64,810</b>	<b>2,712</b>	<b>1,902</b>	<b>2,539</b>	<b>184</b>	<b>57,473</b>	<b>No 60,661</b>	<b>Ja 56,016</b>	(1)	(1)	(1)	(1)	(1)	<b>89,816</b>		
1 Artificial stone.....	32	173	38	9	2	.....	124	De 158	Au 94	161	161	.....	.....	.....	44		
2 Boxes, cigar.....	3	399	3	15	10	1	370	Oc 384	Fe 353	375	203	159	8	5	461		
3 Bread and other bakery products.....	113	585	139	19	15	7	405	De 429	Je 382	433	363	48	21	1	666		
4 Brick and tile.....	29	501	21	27	14	.....	439	Ap 489	Fe 373	558	525	33	33	.....	2,288		
5 Canning and preserving.....	18	221	18	7	7	1	188	De 311	Au 30	491	234	223	18	16	70		
6 Carriages and wagons and materials.....	39	309	51	15	11	2	230	Je 243	De 214	238	230	.....	8	.....	354		
7 Cars and general shop construction and repairs by steam-railroad companies.....	12	1,862	50	50	4	.....	1,753	Ja 1,886	Au 1,643	1,768	1,761	1	6	.....	1,035		
8 Cars and general shop construction and repairs by street-railroad companies.....	6	62	.....	5	1	1	55	Ja 59	Je 53	53	53	.....	.....	.....	63		
9 Confectionery.....	4	41	1	6	2	1	31	De 32	My 30	32	12	14	6	.....	17		
10 Cooperage and wooden goods, not elsewhere specified.....	10	153	6	9	4	1	133	Jy 175	Ja 90	103	102	.....	1	.....	360		
11 Copper, tin, and sheet-iron products.....	8	72	10	7	2	1	52	Oc 58	Mh 48	61	60	1	.....	.....	80		
12 Fertilizers.....	12	710	40	67	14	.....	589	Fe 820	Jy 471	591	583	2	6	.....	1,710		
13 Flour-mill and gristmill products.....	6	21	5	3	2	.....	11	No 12	My 11	12	12	.....	.....	.....	141		
14 Foundry and machine-shop products.....	36	592	33	30	15	6	508	No 542	Jy 482	530	529	.....	1	.....	725		
15 Gas, illuminating and heating.....	12	273	.....	26	32	5	210	De 239	Ap 181	240	240	.....	.....	.....	746		
16 Ice, manufactured.....	70	694	61	82	29	1	461	Ap 482	Ja 426	480	480	.....	.....	.....	8,555		
17 Leather goods.....	3	34	4	1	1	.....	8	Ja 8	Jy 8	8	7	.....	1	.....	.....		
18 Liquors, distilled.....	4	37	3	7	2	.....	25	No 34	Mh 8	34	34	.....	.....	.....	310		
19 Lumber and timber products.....	515	20,893	580	549	508	28	19,227	De 20,651	Jy 18,222	21,666	21,328	50	273	15	65,097		
20 Marble and stone work.....	10	66	15	4	3	2	42	Jy 44	Ja 40	43	41	.....	.....	.....	.....		
21 Patent medicines and compounds and druggists' preparations.....	13	63	10	8	12	6	27	De 31	Mh 25	31	11	19	.....	1	4		
22 Printing and publishing.....	174	1,308	163	85	120	35	905	De 904	Ap 853	1,007	823	148	32	4	704		
23 Shipbuilding, including boat building.....	52	568	65	15	5	1	482	Oc 597	Fe 419	525	524	.....	1	.....	873		
24 Slaughtering and meat packing.....	11	59	19	4	4	.....	32	Mh 34	De 28	40	40	.....	.....	.....	.....		
25 Tobacco manufactures.....	226	13,494	269	248	588	49	12,280	No 13,811	Ja 11,497	13,887	10,855	2,785	243	4	109		
26 Turpentine and rosin.....	503	20,687	1,051	531	960	2	18,143	Jy 18,456	Fe 17,556	18,750	18,412	22	309	7	1,916		
27 Wood distillation, not including turpentine and rosin.....	7	102	2	11	7	.....	82	De 137	My 48	137	137	.....	.....	.....	738		
28 All other industries 4.....	138	971	145	89	60	16	661	.....	.....	.....	.....	.....	.....	.....	2,680		

1 No figures given for reasons explained in the Introduction, page 2. See also discussion of wage earners on page 7.  
 2 Same number reported for one or more other months.  
 3 Same number reported for entire year.  
 4 All other industries embrace—

Agricultural implements.....	2	Dyestuffs and extracts.....	1	Mattresses and spring beds.....	2
Artificial flowers, feathers, and plumes.....	1	Fancy articles, not elsewhere specified.....	1	Mineral and soda waters.....	74
Awnings, tents, and sails.....	3	Food preparations.....	5	Oil, cottonseed, and cake.....	5
Bags, other than paper.....	1	Furniture and refrigerators.....	4	Paint and varnish.....	2
Baking powders and yeast.....	1	Gas and electric fixtures, and lamps and reflectors.....	1	Photo-engraving.....	1
Brass and bronze products.....	1	Glucose and starch.....	2	Statuary and art goods.....	1
Brooms.....	2	Hand stamps and stencils and brands.....	1	Stereotyping and electrotyping.....	1
Brushes.....	1	Kaolin and ground earths.....	1	Vinegar and cider.....	1
Chemicals.....	1	Lime.....	3	Wood, turned and carved.....	5
Coffee and spice, roasting and grinding.....	13	Liquors, malt.....	1		

STATISTICS OF MANUFACTURES—FLORIDA.

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.
	\$65,290,643	\$63,217,979	\$2,095,863	\$2,259,004	\$22,981,572	\$723,587	\$25,404,692	\$221,248	\$1,771,766	\$1,316,766	\$5,843,432	\$72,889,659	\$46,761,880
1	160,915	172,307	10,250	2,312	56,907	924	92,246	1,378	840	252	7,288	214,518	121,348
2	332,899	459,134	21,404	12,144	174,638	5,888	225,078	1,500	1,220	.....	16,602	504,317	272,751
3	593,917	1,075,979	17,984	13,625	200,966	23,977	735,639	17,966	4,594	.....	61,228	1,291,849	532,233
4	778,382	328,093	30,147	8,851	138,389	83,334	29,205	995	2,562	27	34,583	379,021	266,482
5	231,213	149,076	6,262	4,750	50,873	2,882	76,893	1,373	716	.....	5,337	213,320	133,545
6	426,610	406,988	18,348	11,146	135,965	5,068	205,297	10,680	3,365	.....	17,209	452,599	242,324
7	1,250,714	1,742,579	68,276	49,438	1,018,266	35,231	565,610	600	3,060	.....	2,098	1,742,579	1,141,738
8	65,231	67,825	4,060	1,980	30,459	329	28,885	.....	1,047	.....	1,065	67,825	38,611
9	23,460	74,047	4,792	3,650	10,588	1,206	45,377	1,884	118	.....	7,032	83,310	36,727
10	195,413	305,714	14,651	2,940	47,721	3,417	213,226	7,798	494	.....	15,407	332,768	116,125
11	88,509	94,805	10,013	1,555	30,149	743	42,656	820	590	.....	8,279	104,535	61,136
12	3,758,094	3,526,475	87,159	72,923	217,947	28,672	2,845,945	5,160	24,287	.....	244,382	3,878,296	1,003,679
13	61,102	153,658	3,940	1,920	5,050	2,149	137,279	381	627	.....	2,312	164,018	24,590
14	1,213,321	723,698	41,601	13,942	286,754	19,194	311,817	7,108	7,641	.....	35,641	837,411	506,400
15	3,550,624	418,380	40,435	29,761	113,207	118,990	63,426	.....	15,368	3,000	34,193	585,398	402,982
16	2,459,103	892,995	116,061	26,280	223,645	236,634	147,406	2,190	17,530	7,555	114,794	1,206,874	822,834
17	17,199	25,589	1,200	650	4,841	65	16,000	1,920	133	.....	780	29,747	13,682
18	80,330	236,414	7,150	540	11,372	3,028	44,427	.....	165,657	.....	4,840	251,498	204,043
19	27,670,429	18,006,347	808,214	444,512	7,551,369	28,291	6,211,154	11,790	262,135	694,313	1,994,569	20,863,016	14,023,571
20	62,301	81,833	4,550	3,540	30,266	4	35,484	2,072	393	1,000	4,524	111,088	75,600
21	115,476	136,843	11,184	9,778	9,312	85	78,740	2,689	499	.....	24,556	184,540	105,724
22	1,682,771	1,442,744	131,184	113,663	528,909	25,700	408,569	39,484	9,926	31,282	154,087	1,865,848	1,431,639
23	1,031,592	607,685	30,500	5,015	280,467	9,241	223,316	2,553	5,153	118	42,322	696,644	404,087
24	101,512	434,476	8,160	1,950	20,193	482	391,370	996	885	.....	10,440	467,084	75,232
25	11,163,718	20,098,128	611,948	822,061	7,169,309	3,154	8,682,104	78,495	1,072,655	312	1,658,690	21,575,021	12,889,763
26	5,510,987	9,116,757	450,638	536,266	4,316,348	3,472	1,965,596	1,950	129,342	578,696	1,134,455	11,937,518	9,968,450
27	203,925	132,372	9,732	1,780	32,492	10,268	44,507	.....	1,312	.....	32,371	138,146	83,371
28	2,394,896	2,306,948	125,130	62,638	276,260	71,150	1,536,990	19,406	40,817	200	174,288	2,710,862	1,102,713

## MANUFACTURES : GEORGIA

## 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 Georgia 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 Georgia, 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 Atlanta and Savannah. 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 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 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.**—Georgia, with a gross area of 59,265 square miles, of which 540 represent water surface, is the twentieth state of the Union in point of size. The state had a population of 2,609,121 in 1910, as compared with 2,216,331 in 1900 and 1,837,353 in 1890. It ranked tenth among the 49 states and territories of continental United States as regards population in 1910 and eleventh in 1900. The density of population for the entire state is 44.4 per square mile, the corresponding figure for 1900 being 37.7. Twenty and six-tenths per cent of the entire population of the state resided in incorporated cities and towns having a population of 2,500 inhabitants or over, as against 15.6 per cent in 1900.

Atlanta, with a population of 154,839, and Savannah, with 65,064, are the only cities in the state having a population of over 50,000. There are, however, seven other cities having a population of over 10,000. These cities, named in order of their population, were Augusta, Macon, Columbus, Athens, Waycross, Rome, and Brunswick. Apart from these nine cities, only 6.3 per cent of the population resided in incorporated places of 2,500 or over.

The superior transportation facilities of the state account in part for its rapid industrial growth during the past 50 years. It is traversed by the important railway systems of the South, from which numerous feeders afford easy access to all parts of the state, and it possesses also the advantages of excellent water communication. On the east the Savannah River is navigable as far as Augusta by light-draft vessels, and on the west the Chattahoochee River as far as Columbus, while other streams, such as the Ocmulgee, Altamaha, and Oconee Rivers, are navigable for considerable distances. Savannah is one of the most important seaports of the South, while Brunswick has an excellent harbor and is of growing commercial importance.

**Importance and growth of manufactures.**—Though Georgia is an agricultural rather than a manufacturing state, it has been for the past 60 years one of the leading and most progressive industrial states of the South. In 1849–50 the total value of the manufactured products of the state, including the products of neighborhood and hand industries, amounted to only \$7,082,000, while in 1899, exclusive of the value of the products of the neighborhood and hand industries, it was \$94,532,000, or more than thirteen times as great as 50 years previous. The increase during the past decade has been even more remarkable. The value of products of the factory industries of the state had

by 1909 increased to \$202,863,000, a gain of 114.6 per cent, which was far in excess of that in the population of the state. In 1849–50 an average of 8,368 wage earners, representing nine-tenths of 1 per cent of the total population, were employed in manufacturing industries, while in 1909 an average of 104,588 wage earners, or 4 per cent of the total population, were so engaged. During this period the gross value of products per capita of the total population of the state increased from \$8 to \$78. From 1849–50 to 1909, however, the proportion which the manufactures of the state represented of the total value of the products of manufacturing industries in the United States increased very little. This proportion was seven-tenths of 1 per cent in 1849–50, eight-tenths of 1 per cent in 1899, and 1 per cent in 1909. The relative rank of the state in respect to the value of its manufactures has also undergone little change during this period, being twenty-second in 1849–50 and twenty-fourth both in 1899 and 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.

In 1909 the state of Georgia had 4,792 manufacturing establishments, which gave employment to an average of 118,036 persons during the year and paid out \$43,867,000 in salaries and wages. Of the persons employed, 104,588 were wage earners. These establishments turned out products to the value of \$202,863,000, to produce which materials costing \$116,970,000 were used. The value added by manufacture was thus \$85,893,000, 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 Georgia as a whole showed great development during the 10-year period 1899–1909. Except in the number of establishments and average number of wage earners, the development during the more recent period 1904–1909 was not as great relatively as during the earlier period 1899–1904, although the actual increases were more nearly the same. During the later period the number of establishments increased 48.9 per cent and the average number of wage earners 12.8 per cent, while the value of products increased 34.3 per cent and the value added by manufacture 27.4 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.

More than half of the large increase in number of establishments from 1904 to 1909 was due to the increase in the number of establishments reported for the lumber industry.

	NUMBER OR AMOUNT.			PER CENT OF INCREASE.	
	1909	1904	1899	1904-1909	1899-1904
Number of establishments.....	4,792	3,219	3,015	48.9	6.8
Persons engaged in manufactures.....	118,036	102,365	(1)	15.3	(1)
Proprietors and firm members.....	5,141	3,512	(1)	46.4	(1)
Salaried employees.....	8,307	6,104	3,815	36.1	60.0
Wage earners (average number).....	104,588	92,749	83,336	12.8	11.3
Primary horsepower.....	298,241	220,419	136,499	35.3	61.5
Capital.....	\$202,778,000	\$135,211,000	\$79,303,000	50.0	70.5
Expenses.....	176,165,000	129,151,000	78,069,000	36.4	65.4
Services.....	43,867,000	33,320,000	23,162,000	31.7	43.9
Salaries.....	9,062,000	5,927,000	3,204,000	52.9	85.0
Wages.....	34,805,000	27,393,000	19,958,000	27.1	37.2
Materials.....	116,970,000	83,625,000	49,356,000	39.9	69.4
Miscellaneous.....	15,328,000	12,206,000	5,551,000	25.6	119.9
Value of products.....	202,863,000	151,040,000	94,532,000	34.3	59.8
Value added by manufacture (value of products less cost of materials).....	85,893,000	67,415,000	45,176,000	27.4	49.2

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

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

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.

INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		PER CENT OF INCREASE. <sup>1</sup>			
		Average number.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.	Value of products.		Value added by manufacture.	
								1904-1909	1899-1904	1904-1909	1899-1904
<b>All industries.....</b>	<b>4,792</b>	<b>104,588</b>	<b>100.0</b>	<b>\$202,863,000</b>	<b>100.0</b>	<b>\$85,893,000</b>	<b>100.0</b>	<b>34.3</b>	<b>59.8</b>	<b>27.4</b>	<b>49.2</b>
Cotton goods, including cotton small wares.....	116	27,803	26.6	48,037,000	23.7	15,988,000	18.6	36.6	90.6	41.0	54.4
Lumber and timber products.....	1,826	22,257	21.3	24,632,000	12.1	16,127,000	18.8	13.8	21.4	7.6	32.1
Oil, cottonseed, and cake.....	142	2,888	2.8	23,641,000	11.7	4,201,000	4.9	74.6	67.9	84.4	24.1
Fertilizers.....	110	2,770	2.6	16,800,000	8.3	5,850,000	6.8	77.6	181.0	99.6	188.5
Flour-mill and gristmill products.....	105	386	0.4	8,000,000	3.9	1,271,000	1.5	-2.2	53.6	39.1	4.0
Turpentine and rosin.....	592	12,787	12.2	0,939,000	3.4	5,679,000	6.6	-10.0	-5.0	-13.3	12.6
Cars and general shop construction and repairs by steam-railroad companies.....	34	6,269	6.0	6,535,000	3.2	3,571,000	4.2	36.0	55.9	31.4	51.9
Printing and publishing.....	442	2,395	2.3	0,400,000	3.2	4,812,000	5.6	60.8	67.2	63.1	66.9
Foundry and machine-shop products.....	107	2,892	2.8	5,808,000	2.9	3,146,000	3.7	10.3	47.5	-2.1	63.5
Hosiery and knit goods.....	22	2,743	2.6	3,233,000	1.6	1,361,000	1.6	39.0	89.0	49.7	91.3
Marble and stone work.....	104	2,099	2.0	2,648,000	1.3	1,855,000	2.2	10.0	183.6	4.1	219.9
Carriages and wagons and materials.....	83	1,059	1.0	2,560,000	1.3	1,193,000	1.4	11.2	74.9	10.4	33.1
Confectionery.....	23	648	0.6	2,172,000	1.1	740,000	0.9	38.3	88.7	23.1	62.0
Leather goods.....	34	683	0.7	2,086,000	1.0	754,000	0.9	0.7	61.9	0.9	68.2
Furniture and refrigerators.....	42	1,406	1.3	2,060,000	1.0	1,177,000	1.4	-2.6	66.1	-3.0	60.4
Clothing, men's, including shirts.....	22	1,242	1.2	1,934,000	0.9	706,000	0.9	30.5	32.2	38.5	19.2
Brick and tile.....	75	1,901	1.8	1,711,000	0.8	1,177,000	1.4	28.0	27.0	21.1	23.2
Bread and other bakery products.....	110	491	0.5	1,532,000	0.8	600,000	0.7	63.8	56.4	60.0	22.1
Gas, illuminating and heating.....	15	460	0.4	1,425,000	0.7	1,057,000	1.2	34.3	66.5	37.3	48.4
Patent medicines and compounds and druggists' preparations.....	50	210	0.2	1,421,000	0.7	979,000	1.1	-7.8	34.4	-19.9	84.9
Leather, tanned, curried, and finished.....	10	306	0.3	1,374,000	0.7	323,000	0.4	-42.3	100.5	-34.7	90.4
Copper, tin, and sheet-iron products.....	25	619	0.6	1,326,000	0.7	619,000	0.7				
Liquors, malt.....	4	212	0.2	1,207,000	0.6	791,000	0.9	-6.0	32.0	-19.1	40.3
Ice, manufactured.....	61	494	0.5	1,163,000	0.7	888,000	1.0	35.5	87.7	35.0	93.4
Boxes, fancy and paper.....	8	300	0.3	1,140,000	0.6	354,000	0.4	516.2	51.6	261.2	2.1
Agricultural implements.....	17	552	0.5	1,117,000	0.5	534,000	0.6	7.4	40.9	21.9	46.0
Mattresses and spring beds.....	20	310	0.3	949,000	0.5	437,000	0.5	39.4	196.1	67.4	214.5
Woolen, worsted, and felt goods, and wool hats.....	7	660	0.6	871,000	0.4	428,000	0.5	32.8	33.6	84.5	10.0
Cooperage and wooden goods, not elsewhere specified.....	14	344	0.3	777,000	0.4	307,000	0.4	23.1	-6.9	46.9	-28.9
Pottery, terra-cotta, and fire-clay products.....	27	592	0.6	614,000	0.3	461,000	0.5	27.9	133.0	37.2	104.9
Slaughtering and meat packing.....	8	90	0.1	509,000	0.2	107,000	0.1	58.6	-45.7	4.9	-4.7
Tobacco manufactures.....	50	360	0.3	506,000	0.2	310,000	0.4	70.9	186.8	80.2	132.4
All other industries.....	487	6,352	6.1	21,736,000	10.7	8,024,000	9.3				

<sup>1</sup> Per cent of increase is based on figures in Table I, and a minus sign (-) denotes a decrease. Where percentages are omitted, the figures are not comparable.

In addition to the 32 industries presented separately, there are 6 other industries, each of which had a value of products in 1909 in excess of \$500,000. 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, 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; and for others comparable statistics for the different census years can not be presented, because the data for prior censuses are not available. These industries are: Bags, other than paper; cordials and sirups; food preparations; iron and steel, steel works and rolling mills; mineral and soda waters; and waste. The 1909 statistics, however, for the manufacture of bags, other than paper, are presented in Table II.

Although a few industries greatly predominate in importance, 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 order of the value of products, call for brief consideration.

*Textiles.*—The combined value of the textile manufactures, including cotton goods, hosiery and knit goods, and woolen and worsted goods, amounted to \$52,141,000, or 25.7 per cent of the total value of all manufactured products of the state in 1909. Two cordage and twine mills, one silk mill engaged in throwing raw silk into organzine and tram, and one establishment making shoddy were reported, but the statistics can not be shown separately without disclosing the operations of individual establishments. The textile industries of Georgia are confined almost entirely to the cotton-goods branch, which was first in importance among the individual industries of the state, with a value of products in 1909 almost double that of the lumber and timber industry, which ranked next. For a number of years Georgia has produced next to the largest cotton crop of any state, but it ranks only fifth among the states in the value of its cotton manufactures. It is interesting to note that while the percentage of increase in value of products from 1899 to 1904 was greater than that in value added by manufacture, from 1904 to 1909 the increase in the value added by manufacture was the greater. This variation was due partly to the rise in the price of raw cotton during the earlier five-year period. Only one establishment included under this classification was reported as primarily engaged in the manufacture of cotton small wares.

Closely allied to the cotton industry in this state is the manufacture of hosiery and knit goods, which are made almost entirely of cotton materials. Although the value of products of this industry is small when

compared with that of the cotton-goods industry in 1909, it increased 89 per cent from 1899 to 1904 and 39 per cent from 1904 to 1909.

The establishments included under the classification "Woolen, worsted, and felt goods, and wool hats" were engaged primarily in the manufacture of woolen goods, which is a comparatively unimportant industry in this state.

*Lumber and timber products.*—This industry, which is among the oldest manufacturing industries of the state, embraces establishments engaged in logging and also sawmills, planing mills, and wooden packing-box factories. It does not include statistics of mills engaged exclusively in custom sawing for local consumption. The number of establishments reported in 1909 was more than three times as great as the number engaged in any other branch of manufacture in the state.

*Oil, cottonseed, and cake.*—The statistics presented include those for all establishments engaged primarily in extracting oil from the seed or in refining crude cottonseed oil. This industry, which is dependent upon the cotton crop for its raw materials, was not important among the manufactures of the state until after 1890, but since that date its growth has been rapid. The total value of the products increased \$15,577,000, or 193.2 per cent, during the decade 1899-1909.

*Fertilizers.*—All establishments primarily engaged in the manufacture of superphosphates from minerals, bones, etc., ammoniated fertilizers, concentrated phosphate, complete fertilizers, soda products, and other fertilizers are included in this classification. A number of other establishments, chiefly those engaged in the manufacture of cottonseed oil and cake, produce fertilizers as by-products, therefore the figures here given do not fully represent the extent of the fertilizer industry in the state. Georgia contributed about one-sixth of the total value of products of the industry in the United States as reported in 1904 and in 1909. The increased production of fertilizers in the state, the value of which was about five times as great in 1909 as in 1899, was due to several causes, among which were the greater demand for fertilizers, the rapid increase in the manufacture of cottonseed oil in the state, and the increase in the amount of phosphate rock mined in adjoining states.

*Flour-mill and gristmill products.*—This classification includes statistics for all mills grinding wheat, rye, or buckwheat flour, or corn meal, hominy, grits, or feed. It does not, however, include statistics for factories making fancy cereals or other food preparations as a chief product, or for mills doing custom grinding exclusively.

*Turpentine and rosin.*—The presence of extensive pine forests has made this industry one of importance in the state and has also made Georgia one of the lead-

ing states in the production of turpentine and rosin. The decreases shown for this industry are due in part to a depletion of the forests in certain localities of the state and in part to the unsatisfactory prices for turpentine, which tended to discourage its manufacture in 1909.

When measured by value added by manufacture, instead of by value of products, a considerable change occurs in the rank of the first six industries in the preceding table. The lumber and timber industry displaces the cotton-goods industry from first place, and the fertilizer industry becomes third in order instead of the cottonseed oil and cake, which drops to sixth place. The turpentine and rosin industry becomes fourth, while the flour-mill and gristmill industry drops to eleventh place. These changes are due more or less to the fact that in certain industries the manufacturing processes are simpler and carried on to a greater extent by machinery than in others, and for this reason the value added by manufacture is not commensurate with the gross value of products.

This table also shows the percentages of increase in value added by manufacture as well as in value of products for these leading industries where the statistics are comparable. The manufacture of fancy and paper boxes showed a greater rate of increase from 1904 to 1909 in both items than any other of the industries shown separately in the table, namely, 261.2 per cent in value added by manufacture and 516.2 per cent in value of products.

There are some striking differences among the several industries shown separately as regards increases and decreases from 1899 to 1904 and from 1904 to 1909. Six of the industries for which a separate presentation is made show a decrease from 1904 to 1909 in value of products, while five of these industries and one other show a decrease in value added by manufacture. Three industries show a decrease in value of products from 1899 to 1904, and two a decrease in value added by manufacture.

**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 118,036, of whom 104,588 were wage earners. Of the remainder, 8,793 were proprietors and officials, and 4,655 were clerks. Corresponding figures for individual industries will be found in Table II.

CLASS.	PERSONS ENGAGED IN MANUFACTURES.		
	Total.	Male.	Female.
All classes .....	118,036	100,245	17,791
Proprietors and officials .....	8,793	8,655	138
Proprietors and firm members.....	5,141	5,026	115
Salaried officers of corporations.....	1,385	1,372	13
Superintendents and managers.....	2,267	2,257	10
Clerks.....	4,655	3,953	702
Wage earners (average number).....	104,588	87,637	16,951
16 years of age and over.....	98,547	83,998	14,549
Under 16 years of age.....	6,041	3,639	2,402

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 12 important industries individually.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	118,036	7.4	3.9	88.6
Carrriages and wagons and materials.....	1,252	10.4	5.0	84.6
Cars and general shop construction and repairs by steam-railroad companies.....	6,643	1.6	4.1	94.4
Cotton goods, including cotton small wares.....	28,495	1.4	1.1	97.6
Fertilizers.....	3,373	7.9	10.0	82.1
Flour-mill and gristmill products.....	430	29.2	9.5	61.3
Foundry and machine-shop products.....	3,363	7.7	6.3	86.0
Hosiery and knit goods.....	2,880	1.0	2.8	96.2
Lumber and timber products.....	25,491	11.0	1.7	87.3
Marble and stone work.....	2,391	8.0	4.2	87.8
Oil, cottonseed, and cake.....	3,669	10.4	0.0	89.6
Printing and publishing.....	3,849	18.4	19.4	62.2
Turpentine and rosin.....	14,253	9.4	0.9	89.7
All other industries.....	21,807	9.1	7.2	83.6

Of the total number of persons engaged in all manufacturing industries, 7.4 per cent were proprietors and officials, 3.9 per cent clerks, and 88.6 per cent wage earners. The highest percentage of proprietors and officials shown for any individual industry, 29.2, is in the flour and gristmill industry. In this industry and also in printing and publishing, the majority of the establishments are 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 in the class of proprietors and officials is very much higher than for most other industries or for all industries combined. Similar conditions prevail in the lumber industry, but on account of a larger average number of wage earners to an individual establishment it shows a smaller proportion of proprietors and officials than either of the two industries mentioned, although as a matter of fact it has by far the largest number of proprietors and firm members reported for any industry.

The smallest proportions of proprietors and officials are shown for the cotton-goods industry and for steam-railroad repair shops. This condition results from the large number of wage earners to an establishment.

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 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 total number employed for the year is also given in each case.

INDUSTRY.	WAGE EARNERS.			
	Average number. <sup>1</sup>	Per cent of total.		
		16 years of age and over.		Under 16 years of age.
Male.	Female.			
<b>All industries</b> .....	<b>104,588</b>	<b>80.3</b>	<b>13.9</b>	<b>5.8</b>
Carriages and wagons, and materials.....	1,059	96.6	0.3	3.1
Cars and general shop construction and repairs by steam-railroad companies.....	6,269	99.5	0.5	( <sup>2</sup> )
Cotton goods, including cotton small wares.....	27,803	52.6	32.4	15.0
Fertilizers.....	2,770	98.7	0.1	1.2
Flour-mill and gristmill products.....	386	98.4		1.6
Foundry and machine-shop products.....	2,892	98.9	( <sup>2</sup> )	1.1
Hosiery and knit goods.....	2,743	28.8	55.1	16.1
Lumber and timber products.....	22,257	98.6	0.4	1.1
Marble and stone work.....	2,099	97.4		2.6
Oil, cottonseed, and cake.....	2,888	90.7	0.1	0.2
Printing and publishing.....	2,395	77.9	15.9	6.2
Turpentine and rosin.....	12,787	98.5		1.5
All other industries.....	18,240	76.9	19.4	3.7

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

For all industries combined, 80.3 per cent of the average number of wage earners were males 16 years of age and over; 13.9 per cent females 16 years of age and over; and 5.8 per cent children under the age of 16. The larger part of the total number of female wage earners are employed in the cotton-goods industry, in which nearly one-third of the wage earners are women 16 years of age and over. In the hosiery and knit-goods industry the proportion of women is over one-half. These two industries also include the larger part of the total number of wage earners 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 table following makes this comparison according to occupational status.

Comparable figures are not obtainable for 1899. The table shows a greater percentage of increase in proprietors and firm members than in the other two classes.

CLASS.	PERSONS ENGAGED IN MANUFACTURES.				
	1909		1904		Per cent of increase, 1904-1909.
	Number.	Per cent distribution.	Number.	Per cent distribution.	
<b>Total</b> .....	<b>118,036</b>	<b>100.0</b>	<b>102,365</b>	<b>100.0</b>	<b>15.3</b>
Proprietors and firm members.....	5,141	4.4	3,512	3.4	46.4
Salaries employees.....	8,307	7.0	6,104	6.0	36.1
Wage earners (average number)...	104,588	88.6	92,749	90.6	12.8

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

CLASS.	AVERAGE NUMBER OF WAGE EARNERS.					
	1909		1904		1899	
	Number.	Percent distribution.	Number.	Percent distribution.	Number.	Percent distribution.
<b>Total</b> .....	<b>104,588</b>	<b>100.0</b>	<b>92,749</b>	<b>100.0</b>	<b>83,336</b>	<b>100.0</b>
16 years of age and over..	98,547	94.2	85,454	92.1	77,110	92.5
Male.....	83,998	80.3	72,814	78.5	67,039	80.4
Female.....	14,549	13.9	12,640	13.6	10,071	12.1
Under 16 years of age...	6,041	5.8	7,295	7.9	6,226	7.5

This table indicates that for all industries combined there has not been much change in the proportion of male and female wage earners. There has been a small decrease during the 10 years in the employment of children under 16 years of age. In 1909 males 16 years of age and over formed 80.3 per cent of all wage earners, as compared with 78.5 per cent in 1904 and 80.4 per cent in 1899.

**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, fertilizer, and cottonseed oil and cake industries, 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, are shown, for practically all of the important industries in the state, the largest number, and the smallest number, of employees reported for any month. The figures are for the 15th day, or the nearest representative day, of the month.

The variation from month to month in the number of wage earners employed in all industries combined was not great. The highest number, 109,839, was reported for December, and the lowest, 98,622, for May.

Of the three industries shown separately in the table, the manufacture of fertilizers and the cottonseed-oil industry show the greatest variations. As comparatively little work is done during the summer months in the cottonseed-oil industry, the largest number of wage earners were employed from September to

March. In the manufacture of fertilizers the bulk of the work is done in the first four months of the year, in the brick and tile industry, in the summer months. Exclusive of the three industries shown separately, the manufactures of the state show a steady increase from May to December in the number of employees.

MONTH.	NUMBER OF WAGE EARNERS.									
	All industries.		Brick and tile.		Fertilizers.		Oil, cottonseed, and cake.		All other industries.	
	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.....	103,477	94.2	1,337	60.9	3,006	43.9	4,424	91.7	94,710	93.6
February.....	107,544	97.9	1,385	63.1	5,619	82.0	4,269	88.5	96,271	95.1
March.....	108,271	98.0	1,770	80.6	6,851	100.0	3,409	70.7	96,241	95.1
April.....	102,881	93.7	2,125	96.8	3,697	54.0	1,994	41.3	95,065	94.0
May.....	98,622	89.8	2,196	100.0	2,003	29.2	1,129	23.4	93,294	92.2
June.....	99,445	90.5	2,196	100.0	1,392	20.3	686	14.2	95,171	94.1
July.....	99,518	90.6	2,130	97.0	1,366	19.9	688	14.3	95,334	94.2
August.....	102,577	93.4	2,163	98.5	1,402	20.5	871	18.1	98,141	97.0
September.....	106,033	96.5	2,110	96.1	1,670	24.5	3,131	64.9	99,113	98.0
October.....	107,837	98.2	1,971	89.8	1,904	27.8	4,642	96.2	99,320	98.2
November.....	109,012	99.2	1,836	83.6	2,076	30.3	4,584	95.0	100,516	99.3
December.....	109,839	100.0	1,593	72.5	2,240	32.7	4,823	100.0	101,183	100.0

Prevailing hours of labor.—In the following 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.

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.....	104,588	7,076	2,948	6,709	7,552	51,424	23,507	3,949	1,424
Agricultural implements.....	552		3		106	443			
Boxes, fancy and paper.....	309				171	138			
Bread and other bakery products.....	491	17		9	65	240	80	34	46
Brick and tile.....	1,901	61	160		167	1,446	53		14
Carriages and wagons and materials.....	1,059	50		14	142	847	3	3	
Cars and general shop construction and repairs by steam-railroad companies.....	6,269		412	4,440	318	1,082	9		8
Clothing, men's, including shirts.....	1,242	724	18	129	248				
Confectionery.....	648	35	2	6	406	196		3	
Cooperage and wooden goods, not elsewhere specified.....	344	15	9		81	239			
Copper, tin, and sheet-iron products.....	619	16	64	139	15	376	9		
Cotton goods, including cotton small wares.....	27,803	304	105		519	10,868	15,013	94	
Fertilizers.....	2,770	4	7		169	2,146	87	108	282
Flour-mill and gristmill products.....	886	25			71	80	210		
Foundry and machine-shop products.....	2,892	5	308	40	796	1,743			
Furniture and refrigerators.....	1,406		112	128	174	992			
Gas, illuminating and heating.....	459							36	416
Hosiery and knit goods.....	2,743			2	5		965	34	339
Ice, manufactured.....	494				1,120	658			
Leather goods.....	683			33	159	58	3	66	
Leather, tanned, curried, and finished.....	306					488			
Liquors, malt.....	212			67	107		38		
Lumber and timber products.....	22,257	865	732	144	875	14,722	4,437	452	30
Marble and stone work.....	2,099	952	125	148	130	744			
Mattresses and spring beds.....	310	18		3	202	87			
Oil, cottonseed, and cake.....	2,888			6		338	359	2,146	39
Patent medicines and compounds and druggists' preparations.....	210	88	16	11	14	81			
Pottery, terra-cotta, and fire-clay products.....	592	3			87	270	232		
Printing and publishing.....	2,395	793	226	664	302	390		1	19
Slaughtering and meat packing.....	90	3		15		24	31	17	
Tobacco manufactures.....	360	28	12	39	70	206	5		
Turpentine and rosin.....	12,787	2,764	428	139	109	8,032	241	74	
Woolen, worsted, and felt goods, and wool hats.....	660				15	306			
All other industries.....	6,352	305	209	526	990	2,764	589	705	264

It is evident from these figures that for the great majority of wage earners employed in the manufacturing industries of Georgia the prevailing hours of

labor range from 60 to 72 a week. Twenty-three and two-tenths per cent of all wage earners were employed in establishments where the prevailing

hours were less than 60 a week, and only 1.4 per cent in establishments where they were more than 72 a week.

It will be noted that among the more important industries the prevailing hours of labor for the lumber and the turpentine and rosin industries are mainly 60 per week, while in the cotton-goods industry the majority of the wage earners work between 60 and 72 hours per week. In the steam-railroad repair shops the prevailing hours were mainly 54 per week.

**Location of establishments.**—The next table shows the extent to which the manufactures of Georgia are centralized in cities of 10,000 population and over. (See Introduction.) The statistics for 1904 are omitted from this table, because there was no Federal census of population in 1905, and it was impossible to determine the cities that came within the group having over 10,000 inhabitants.

ITEM.	Year.	Aggregate.	CITIES HAVING A POPULATION OF 10,000 AND OVER.								DISTRICTS OUTSIDE OF CITIES HAVING A POPULATION OF 10,000 AND OVER.	
			Total.		10,000 to 25,000.		25,000 to 100,000.		100,000 and over.		Number or amount.	Percent of total.
			Number or amount.	Percent of total.	Number or amount.	Percent of total.	Number or amount.	Percent of total.	Number or amount.	Percent of total.		
Population.....	1910	2,609,121	373,841	14.3	72,233	2.8	146,760	5.6	154,839	5.9	2,235,280	85.7
	1900	2,216,331	234,688	10.6	51,131	2.3	183,557	8.3	.....	.....	1,981,043	89.4
Number of establishments.....	1909	4,792	943	19.7	172	3.6	288	6.0	483	10.1	3,849	80.3
	1899	3,015	509	16.9	151	5.0	358	11.9	.....	.....	2,506	83.1
Average number of wage earners...	1909	104,588	31,983	30.6	8,152	7.8	11,529	11.0	12,302	11.8	72,605	69.4
	1899	83,336	23,471	28.2	7,093	9.2	15,778	18.9	.....	.....	59,865	71.8
Value of products.....	1909	\$202,863,262	\$75,334,309	37.1	\$14,403,331	7.1	\$27,892,976	13.7	\$33,038,002	16.3	\$127,528,953	62.9
	1899	94,532,368	37,344,230	39.5	11,191,072	11.8	26,153,158	27.7	.....	.....	57,188,138	60.5
Value added by manufacture.....	1909	85,893,498	33,256,700	38.7	5,564,072	6.5	11,072,943	12.9	16,619,685	19.3	52,636,798	61.3
	1899	45,176,072	16,425,044	36.4	4,069,365	10.3	11,756,279	26.0	.....	.....	28,750,428	63.6

In 1909 establishments located outside of cities having 10,000 inhabitants or over reported 62.9 per cent of the total value of manufactured products for the state and employed 69.4 per cent of the total average number of wage earners. The figures indicate that while very little relative change took place during the 10 years, yet on the whole the industries of the districts outside have increased somewhat more rapidly in respect to value of products than the industries located in cities of 10,000 and over. This is due largely to the fact that three of the largest and most important industries of Georgia, the manufacture of cotton goods, the lumber, and the fertilizer industries, are, to a large extent, conducted outside of cities having a population of 10,000 or over, and a fourth, the turpentine and rosin industry, wholly outside of such cities, and that all these industries, except the turpentine and rosin industry, show considerable development during the decade.

The increase in the population of different cities has affected the grouping in the table. In 1900 Macon was in the group composed of cities of less than 25,000 inhabitants, but by 1910 its population had increased sufficiently to bring it into the group of cities having from 25,000 to 100,000 inhabitants. Atlanta also has increased in population since 1900, passing the 100,000 limit, so that it is no longer included in the group made up of cities having from 25,000 to 100,000 inhabitants. In 1900 Rome and Waycross had less than 10,000 inhabitants, and so are not included in the presentation of cities for 1899. This fact makes the relative gains in value of products shown for the districts outside of cities even more conspicuous.

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

CITY.	1910	1900
Atlanta.....	154,839	89,872
Savannah.....	65,064	54,244
Augusta.....	41,040	39,441
Macon.....	40,665	23,272
Columbus.....	20,554	17,614
Athens.....	14,913	10,245
Waycross.....	14,455	5,919
Rome.....	12,099	7,291
Brunswick.....	10,182	9,081

The relative importance in manufactures of each of the nine 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
Atlanta.....	12,302	11,891	7,966	\$33,038,002	\$25,745,650	\$14,418,834
Macon.....	3,729	3,661	2,994	10,702,918	7,297,347	5,451,900
Augusta.....	5,073	4,839	5,563	10,456,407	8,829,305	7,984,324
Columbus.....	4,861	4,434	4,110	8,551,998	7,079,702	5,061,485
Savannah.....	2,727	3,230	2,249	6,733,651	6,340,004	3,750,000
Athens.....	962	509	589	2,111,516	1,153,205	677,687
Rome.....	1,014	( <sup>1</sup> )	( <sup>1</sup> )	1,864,267	( <sup>1</sup> )	( <sup>1</sup> )
Waycross.....	1,130	( <sup>1</sup> )	( <sup>1</sup> )	1,203,393	( <sup>1</sup> )	( <sup>1</sup> )
Brunswick.....	385	254	351	672,167	406,723	703,348

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

Every city for which comparative figures are given shows an increase in value of products from 1904 to 1909, and also from 1899 to 1904, with the exception of Brunswick. Atlanta, the first city in population and in manufactures, had in 1909 a

value of products 129.1 per cent in excess of the value reported for 1899. There is a great diversity in the manufacturing industries of this city. Printing and publishing is the principal industry and its growth has been rapid, as is shown in Table I. In addition to the industries presented separately in that table for Atlanta, the cotton-goods, flour and grist mill, steam-railroad repair shop, cordial and sirup, and fancy and paper box industries are important, each reporting products in 1909 exceeding \$1,000,000 in value, but the statistics for these industries can not be shown separately without disclosing the operations of individual concerns. There were 27 other industries represented in the city, each of which had a value of products exceeding \$100,000, that are omitted from Table I for the reason given above or for those given in explanation of the failure to show certain important industries separately in the table on page 4 for the state.

Macon, Augusta, and Columbus, although smaller cities than Savannah, each exceeded that city in the total value of manufactured products. In each of these cities, with the exception of Macon, however, the manufacture of cotton goods and cottonseed oil and cake were the predominating industries, contributing about one-half of the total value of products reported for both Augusta and Columbus. Both of these industries are important in Macon, but are outranked in that city by the manufacture of food preparations. Columbus has, in addition to the industries mentioned, extensive flour and grist mill interests.

Savannah is more of a trading center than a manufacturing city, being the most important seaport of the state. Through this city a large part of the manufactured products of the state are exported or sent to other parts of the country. While there is a diversity in its manufacturing interests, none of its industries reach \$1,000,000 in value of products, and only three—steam-railroad repair shops, the manufacture of fertilizers, and printing and publishing—report products exceeding \$500,000 in value.

The leading manufactures of Athens are the production of cotton goods and of cottonseed products;

those of Rome, the cottonseed-oil and the lumber industries; those of Waycross, steam-railroad repair shops and the construction of steam-railroad cars, by other than railroad companies; and those of Brunswick, tobacco manufactures and the lumber industry.

**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.

The most important distinction shown is that between corporate and all other forms of ownership. For all industries combined, 26.1 per cent of the total number of establishments were in 1909 under corporate ownership, as against 73.9 per cent under all other forms. The corresponding figures for 1904 were 28.9 per cent and 71.1 per cent, respectively. The value of products for establishments under corporate ownership constituted about four-fifths of the total for the state in 1909, as compared with about three-fourths in 1904, indicating a considerable gain. As a general rule, the larger establishments were operated by corporations.

The form of ownership prevailing in the different industries varies considerably. In each industry shown separately in the table, except in the manufacture of turpentine and rosin, a far greater value of products was shown for establishments under corporate ownership than for those under any other form. Measured by number of establishments, however, the individual form of ownership was the most common form in 5 of the 10 industries shown separately in the above table, the corporate in 4 and the firm in 1—the turpentine and rosin industry. The largest proportion of establishments under corporate ownership is found in the cottonseed-oil and cotton-goods industries.



INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>					<b>Flour-mill and gristmill products, 1909—Continued.</b>				
1909.....	4,792	104,588	\$202,863,262	\$85,893,498	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	3,210	92,749	151,040,455	67,418,951	Individual.....	42.9	15.0	9.5	7.4
Individual:					Firm.....	36.2	16.1	11.4	7.4
1909.....	2,292	16,527	19,355,313	11,840,005	Corporation.....	21.0	68.9	79.1	85.2
1904.....	1,401	15,673	17,808,471	10,883,771					
Firm:					<b>Foundry and machine-shop products, 1909.....</b>	107	2,892	\$5,808,152	\$3,146,493
1909.....	1,230	15,785	18,328,108	10,862,880	Individual.....	33	224	437,130	274,575
1904.....	884	14,998	18,250,682	10,805,009	Firm.....	22	209	419,583	297,111
Corporation:					Corporation.....	52	2,459	4,951,430	2,574,807
1909.....	1,252	72,207	165,057,980	63,105,154	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	931	62,077	114,970,572	45,722,830	Individual.....	30.8	7.7	7.5	8.7
Other:					Firm.....	20.6	7.2	7.2	9.4
1909.....	18	69	121,861	85,459	Corporation.....	48.6	85.0	85.2	81.8
1904.....	3	1	4,730	4,341					
Per cent of total:					<b>Lumber and timber products, 1909.....</b>	1,826	22,257	\$24,632,093	\$16,127,490
1909.....	100.0	100.0	100.0	100.0	Individual.....	1,144	6,730	6,370,663	4,616,432
1904.....	100.0	100.0	100.0	100.0	Firm.....	509	5,008	5,422,801	3,813,779
Individual:					Corporation.....	173	10,519	12,838,629	7,697,279
1909.....	47.8	15.8	9.5	13.8	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	43.5	16.9	11.8	16.1	Individual.....	62.6	30.2	25.9	28.6
Firm:					Firm.....	27.9	22.5	22.0	23.6
1909.....	25.7	15.1	9.0	12.6	Corporation.....	9.5	47.3	52.1	47.7
1904.....	27.5	16.2	12.1	16.0	<b>Marble and stone work, 1909.....</b>	104	2,099	\$2,648,218	\$1,854,818
Corporation:					Individual.....	50	409	574,771	309,584
1909.....	26.1	69.0	81.4	73.5	Firm.....	28	601	628,616	511,135
1904.....	28.9	66.9	76.1	67.8	Corporation.....	26	1,089	1,444,831	944,099
Other:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	0.4	0.1	( <sup>1</sup> )	0.1	Individual.....	48.1	19.5	21.7	21.5
1904.....	0.1	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	Firm.....	26.9	28.6	23.7	27.6
<b>Carriages and wagons and materials, 1909.....</b>					Corporation.....	25.0	51.9	54.6	50.9
Individual.....	83	1,059	\$2,560,031	\$1,192,629	<b>Oil, cottonseed, and cake, 1909.....</b>	142	2,888	\$23,640,779	\$4,200,827
Individual.....	45	291	476,012	284,983	Firm <sup>2</sup> .....	6	48	178,514	36,201
Firm.....	17	139	290,763	159,607	Corporation.....	136	2,840	23,462,265	4,164,626
Corporation.....	21	629	1,793,256	748,039	Per cent of total.....	100.0	100.0	100.0	100.0
Per cent of total.....	100.0	100.0	100.0	100.0	Individual.....	4.2	1.7	0.8	0.9
Individual.....	54.2	27.5	18.6	23.0	Corporation.....	95.8	98.3	99.2	99.1
Firm.....	20.5	13.1	11.4	13.4	<b>Printing and publishing, 1909.....</b>	442	2,395	\$6,400,241	\$4,812,466
Corporation.....	25.3	59.4	70.0	62.7	Individual.....	235	529	982,651	757,817
<b>Cotton goods, including cotton small wares, 1909.....</b>					Firm.....	73	275	551,848	376,323
Individual.....	116	27,803	\$48,036,817	\$15,988,078	Corporation.....	123	1,549	4,791,909	3,610,232
Individual.....	8	884	1,803,939	581,863	Other.....	11	42	73,833	62,064
Corporation.....	108	20,919	46,172,878	15,406,215	Per cent of total.....	100.0	100.0	100.0	100.0
Per cent of total.....	100.0	100.0	100.0	100.0	Individual.....	53.2	22.1	15.4	15.7
Individual.....	6.9	3.2	3.9	3.6	Firm.....	16.5	11.5	8.6	7.8
Corporation.....	93.1	96.8	96.1	96.4	Corporation.....	27.8	64.7	74.9	75.1
<b>Fertilizers, 1909.....</b>					Other.....	2.5	1.8	1.2	1.3
Individual.....	110	2,770	\$18,800,301	\$5,856,150	<b>Tarrentine and rosin, 1909.....</b>	592	12,787	\$6,938,957	\$5,679,314
Individual.....	11	36	284,545	50,068	Individual.....	261	5,092	2,792,941	2,273,014
Firm.....	21	262	1,376,817	504,563	Firm.....	306	6,973	3,764,182	3,069,271
Corporation.....	78	2,472	15,138,939	5,301,519	Corporation.....	25	722	381,834	307,029
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	10.0	1.3	1.7	0.9	Individual.....	44.1	39.8	40.2	40.0
Firm.....	19.1	9.5	8.2	8.6	Firm.....	51.7	51.5	54.2	54.6
Corporation.....	70.9	89.2	90.1	90.5	Corporation.....	4.2	5.6	5.5	5.4
<b>Flour-mill and gristmill products, 1909.....</b>									
Individual.....	105	386	\$7,999,912	\$1,271,375					
Individual.....	45	58	750,325	94,074					
Firm.....	38	62	614,468	94,261					
Corporation.....	22	260	6,326,110	1,083,040					

<sup>1</sup> Less than one-tenth of 1 per cent.  
<sup>2</sup> Includes the group "Firm," to avoid disclosure of individual operations.  
<sup>3</sup> Includes the group "Individual," to avoid disclosure of individual operations.

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 which follows 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 4,792 establishments in the state only 18, or four-tenths of 1 per cent, had a value of products exceeding \$1,000,000 each. These establishments, however, notwithstanding their small number, gave employment to an average of 10,928 wage earners, or 10.4 per cent of the total number in all establishments, and reported 16.8 per cent of the total value of products and 11.7 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 very considerable proportion (40 per cent) of the total number of establishments, but the

value of their product amounted to only 2.1 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.

INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>					<b>Flour-mill and gristmill products, 1909—Continued.</b>				
1909	4,792	104,588	\$202,863,262	\$85,893,498	Per cent of total	100.0	100.0	100.0	100.0
1904	3,219	92,749	151,040,456	67,415,951	Less than \$5,000	24.8	6.2	1.0	1.1
<b>Less than \$5,000:</b>					<b>\$5,000 and less than \$20,000:</b>				
1909	1,918	5,303	4,356,414	3,100,327	\$20,000 and less than \$100,000 <sup>3</sup>	26.7	14.5	12.2	10.2
1904	941	2,299	2,385,888	1,761,109	\$100,000 and less than \$1,000,000	16.2	67.4	81.4	81.1
<b>\$5,000 and less than \$20,000:</b>					<b>Average per establishment</b>				
1909	1,024	17,719	16,813,566	11,583,013	Number of establishments	107	2,892	\$5,808,152	\$3,146,493
1904	1,158	13,208	12,675,263	8,748,189	Less than \$5,000	25	41	60,306	42,749
<b>\$20,000 and less than \$100,000:</b>					<b>Foundry and machine-shop products, 1909</b>				
1909	799	20,431	34,954,524	17,613,878	\$5,000 and less than \$20,000	34	200	366,298	290,613
1904	768	23,492	32,479,382	17,761,551	\$20,000 and less than \$100,000	31	718	1,385,449	826,983
<b>\$100,000 and less than \$1,000,000:</b>					<b>\$100,000 and less than \$1,000,000:</b>				
1909	433	50,207	112,684,678	43,539,772	Average per establishment	17	1,933	3,996,099	2,046,548
1904	342	45,988	82,835,728	34,009,584	Per cent of total	100.0	100.0	100.0	100.0
<b>\$1,000,000 and over:</b>					<b>Less than \$5,000</b>				
1909	18	10,928	34,054,085	10,055,908	\$5,000 and less than \$20,000	23.4	1.4	1.0	1.3
1904	10	7,702	20,664,194	5,135,518	\$20,000 and less than \$100,000	31.8	6.9	6.3	7.3
<b>Per cent of total:</b>					<b>\$20,000 and less than \$100,000</b>				
1909	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000	29.0	24.8	23.9	26.3
1904	100.0	100.0	100.0	100.0	Average per establishment	15.9	66.8	408.8	65.0
<b>Less than \$5,000:</b>					<b>Value added by manufacture</b>				
1909	40.0	5.1	2.1	3.6	Less than \$5,000	27		\$5,282	\$29,496
1904	29.2	2.5	1.6	2.6	<b>Lumber and timber products, 1909</b>				
<b>\$5,000 and less than \$20,000:</b>					<b>Less than \$5,000</b>				
1909	33.9	16.9	8.3	13.5	1,828	22,257	\$24,632,093	\$18,127,480	
1904	36.0	14.2	8.4	13.0	\$5,000 and less than \$20,000	1,086	3,260	2,261,763	1,065,209
<b>\$20,000 and less than \$100,000:</b>					<b>\$20,000 and less than \$100,000</b>				
1909	16.7	19.5	17.2	20.5	\$20,000 and less than \$100,000	501	4,957	4,823,341	3,551,444
1904	23.9	25.3	21.5	26.3	\$100,000 and less than \$1,000,000	182	6,183	7,462,812	4,654,646
<b>\$100,000 and less than \$1,000,000:</b>					<b>\$100,000 and less than \$1,000,000</b>				
1909	9.0	48.0	55.5	50.7	Per cent of total	100.0	100.0	100.0	100.0
1904	10.6	49.6	54.8	50.4	Less than \$5,000	59.5	14.6	9.2	10.3
<b>\$1,000,000 and over:</b>					<b>\$5,000 and less than \$20,000</b>				
1909	0.4	10.4	16.8	11.7	\$20,000 and less than \$100,000	27.4	22.3	19.6	22.0
1904	0.3	8.4	13.7	7.6	\$20,000 and less than \$100,000	10.0	27.8	30.3	28.9
<b>Average per establishment:</b>					<b>\$0,000 and less than \$1,000,000</b>				
1909		22	\$42,334	\$17,924	Average per establishment	3.1	35.3	40.9	38.8
1904		20	46,922	20,943	Value added by manufacture	12		\$13,490	\$8,832
<b>Carriages and wagons and materials, 1909</b>					<b>Marble and stone work, 1909</b>				
Less than \$5,000	83	1,059	\$2,560,031	\$1,192,629	104	2,099	\$2,648,218	\$1,854,818	
\$5,000 and less than \$20,000	20	35	56,537	35,850	Less than \$5,000	22	66	77,809	50,837
\$20,000 and less than \$100,000	38	226	330,964	200,911	\$5,000 and less than \$20,000	53	362	560,211	390,947
\$100,000 and less than \$1,000,000	17	342	758,489	399,995	\$20,000 and less than \$100,000	23	892	937,006	741,599
Average per establishment	8	456	1,414,041	556,807	\$100,000 and less than \$1,000,000	6	779	1,073,132	671,495
<b>Per cent of total:</b>					<b>Per cent of total</b>				
Less than \$5,000	100.0	100.0	100.0	100.0	Less than \$5,000	21.2	3.1	2.9	2.7
\$5,000 and less than \$20,000	24.1	3.3	2.2	3.0	\$5,000 and less than \$20,000	51.0	17.2	21.2	21.1
\$20,000 and less than \$100,000	45.8	21.3	12.9	16.8	\$20,000 and less than \$100,000	22.1	42.5	35.4	40.0
\$100,000 and less than \$1,000,000	20.5	32.3	29.6	33.5	\$100,000 and less than \$1,000,000	5.8	37.1	40.5	36.2
Average per establishment	9.6	43.1	55.2	40.6	Average per establishment	20		\$25,464	\$17,335
<b>Per cent of total:</b>					<b>Oil, cottonseed, and cake, 1909</b>				
Less than \$5,000	100.0	100.0	100.0	100.0	142	2,888	\$23,640,779	\$4,200,827	
\$5,000 and less than \$20,000	24.1	3.3	2.2	3.0	\$5,000 and less than \$20,000	5	20	69,982	12,696
\$20,000 and less than \$100,000	45.8	21.3	12.9	16.8	\$20,000 and less than \$100,000	74	837	4,492,812	1,025,509
\$100,000 and less than \$1,000,000	20.5	32.3	29.6	33.5	\$100,000 and less than \$1,000,000	63	2,031	19,077,985	3,162,822
Average per establishment	9.6	43.1	55.2	40.6	<b>Per cent of total</b>				
<b>Per cent of total:</b>					<b>Per cent of total</b>				
Less than \$5,000	100.0	100.0	100.0	100.0	Less than \$5,000	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000	24.1	3.3	2.2	3.0	\$5,000 and less than \$20,000	3.5	0.7	0.3	0.3
\$20,000 and less than \$100,000	45.8	21.3	12.9	16.8	\$20,000 and less than \$100,000	52.1	29.0	19.0	24.4
\$100,000 and less than \$1,000,000	20.5	32.3	29.6	33.5	\$100,000 and less than \$1,000,000	44.4	70.3	80.7	75.3
Average per establishment	9.6	43.1	55.2	40.6	Average per establishment	20		\$106,484	\$29,383
<b>Per cent of total:</b>					<b>Printing and publishing, 1909</b>				
Less than \$5,000	100.0	100.0	100.0	100.0	442	2,395	\$6,400,241	\$4,812,466	
\$5,000 and less than \$20,000	24.1	3.3	2.2	3.0	Less than \$5,000	274	405	624,302	498,337
\$20,000 and less than \$100,000	45.8	21.3	12.9	16.8	\$5,000 and less than \$20,000	116	534	1,108,837	892,067
\$100,000 and less than \$1,000,000	20.5	32.3	29.6	33.5	\$20,000 and less than \$100,000	41	704	1,808,670	1,328,822
Average per establishment	9.6	43.1	55.2	40.6	\$100,000 and less than \$1,000,000	11	752	2,858,432	2,092,670
<b>Per cent of total:</b>					<b>Per cent of total</b>				
Less than \$5,000	100.0	100.0	100.0	100.0	Less than \$5,000	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000	24.1	3.3	2.2	3.0	\$5,000 and less than \$20,000	62.0	16.9	9.8	10.4
\$20,000 and less than \$100,000	45.8	21.3	12.9	16.8	\$20,000 and less than \$100,000	26.2	22.3	17.3	18.5
\$100,000 and less than \$1,000,000	20.5	32.3	29.6	33.5	\$20,000 and less than \$100,000	9.3	29.4	28.3	27.6
Average per establishment	9.6	43.1	55.2	40.6	\$100,000 and less than \$1,000,000	2.5	31.4	44.7	43.5
<b>Per cent of total:</b>					<b>Average per establishment</b>				
Less than \$5,000	100.0	100.0	100.0	100.0	5		\$14,480	\$10,888	
\$5,000 and less than \$20,000	24.1	3.3	2.2	3.0	<b>Turpentine and rosin, 1909</b>				
\$20,000 and less than \$100,000	45.8	21.3	12.9	16.8	592	12,787	\$6,938,957	\$5,879,314	
\$100,000 and less than \$1,000,000	20.5	32.3	29.6	33.5	Less than \$5,000	107	847	368,588	289,780
Average per establishment	9.6	43.1	55.2	40.6	\$5,000 and less than \$20,000	416	8,696	4,604,758	3,769,689
<b>Per cent of total:</b>					<b>\$20,000 and less than \$100,000</b>				
Less than \$5,000	100.0	100.0	100.0	100.0	69	3,244	1,975,611	1,632,862	
\$5,000 and less than \$20,000	24.1	3.3	2.2	3.0	<b>Per cent of total</b>				
\$20,000 and less than \$100,000	45.8	21.3	12.9	16.8	Less than \$5,000	100.0	100.0	100.0	100.0
\$100,000 and less than \$1,000,000	20.5	32.3	29.6	33.5	Less than \$5,000	18.1	6.6	5.2	6.1
Average per establishment	9.6	43.1	55.2	40.6	\$5,000 and less than \$20,000	70.3	68.0	66.4	68.1
<b>Per cent of total:</b>					<b>\$20,000 and less than \$100,000</b>				
Less than \$5,000	100.0	100.0	100.0	100.0	Average per establishment	11.7	25.4	28.5	28.8
\$5,000 and less than \$20,000	24.1	3.3	2.2	3.0	Value added by manufacture	22		\$11,721	\$9,593
\$20,000 and less than \$100,000	45.8	21.3	12.9	16.8	<b>Flour-mill and gristmill products, 1909</b>				
\$100,000 and less than \$1,000,000	20.5	32.3	29.6	33.5	105	388	\$7,999,912	\$1,271,375	
Average per establishment	9.6	43.1	55.2	40.6	Less than \$5,000	26	24	82,068	14,105
<b>Per cent of total:</b>					<b>\$5,000 and less than \$20,000</b>				
Less than \$5,000	100.0	100.0	100.0	100.0	34	46	424,429	59,405	
\$5,000 and less than \$20,000	24.1	3.3	2.2	3.0	\$20,000 and less than \$100,000	28	56	979,532	129,060
\$20,000 and less than \$100,000	45.8	21.3	12.9	16.8	\$100,000 and less than \$1,000,000	17	260	6,513,883	1,068,805
\$100,000 and less than \$1,000,000	20.5	32.3	29.6	33.5	<b>Per cent of total:</b>				
Average per establishment	9.6	43.1	55.2	40.6	Less than \$5,000	100.0	100.0	100.0	100.0
<b>Per cent of total:</b>					<b>Per cent of total</b>				
Less than \$5,000	100.0	100.0	100.0	100.0	Less than \$5,000	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000	24.1	3.3	2.2	3.0	\$5,000 and less than \$20,000	18.1	6.6	5.2	6.1
\$20,000 and less than \$100,000	45.8	21.3	12.9	16.8	\$20,000 and less than \$100,000	70.3	68.0	66.4	68.1
\$100,000 and less than \$1,000,000	20.5	32.3	29.6	33.5	\$100,000 and less than \$1,000,000	11.7	25.4	28.5	28.8
Average per establishment	9.6	43.1	55.2	40.6	Average per establishment	22		\$11,721	\$9,593

<sup>1</sup> Includes the group "\$5,000 and less than \$20,000."

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

<sup>3</sup> Includes the group "\$1,000,000 and over."

It will be seen from the above table that during the five years from 1904 to 1909 there was a considerable increase 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 in the relative numerical importance of the smallest establishments—those reporting products of less than \$5,000 in value.

The average value of products per establishment decreased from \$46,922 in 1904 to \$42,334 in 1909, and the value added by manufacture from \$20,943 to \$17,924. The average number of wage earners per establishment also shows a decrease. These decreases were due mainly to the large increase in the relative number of small establishments reported. The table shows further that when the size of establishments is measured by the average value of products per establishment, the manufacture of cotton goods, cottonseed oil, and fertilizers are conducted chiefly in the larger establishments, while all the other industries shown

separately are conducted mainly in comparatively small establishments.

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 12 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.....	4,792	231	2,163	1,426	569	210	133	42	15	3
Carriages and wagons and materials.....	83	3	37	28	11	4				
Cars and general shop construction and repairs by steam-railroad companies.....	34		5	6	6	3	5	5	4	
Cotton goods, including cotton small wares.....	116			4	7	30	39	22	11	3
Fertilizers.....	110	1	49	27	14	14	5			
Flour-mill and gristmill products.....	105	14	81	8	1		1			
Foundry and machine-shop products.....	107	3	43	32	13	8	7	1		
Hosiery and knit goods.....	22				2	11	6	3		
Lumber and timber products.....	1,826	20	1,062	551	108	47	31	7		
Marble and stone work.....	104		49	31	13	6	5			
Oil, cottonseed, and cake.....	142		17	74	46	4	1			
Printing and publishing.....	442	104	253	61	17	5	2			
Turpentine and rosin.....	592	2	35	319	214	21	1			
All other industries.....	1,109	84	532	285	117	57	30	4		
AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	104,588		5,543	16,621	18,099	15,331	20,223	14,225	10,501	4,045
Carriages and wagons and materials.....	1,059		108	307	356	288				
Cars and general shop construction and repairs by steam-railroad companies.....	6,269		17	84	200	174	787	1,755	3,252	
Cotton goods, including cotton small wares.....	27,603			62	270	2,343	6,164	7,670	7,249	4,045
Fertilizers.....	2,770		149	262	507	1,093	759			
Flour-mill and gristmill products.....	386		151	108	23		104			
Foundry and machine-shop products.....	2,892		125	375	462	500	1,084	280		
Hosiery and knit goods.....	2,743				87	752	935	969		
Lumber and timber products.....	22,257		2,646	5,917	3,379	3,614	4,628	2,073		
Marble and stone work.....	2,099		158	308	382	487	764			
Oil, cottonseed, and cake.....	2,888		79	933	1,483	259	134			
Printing and publishing.....	2,895		592	612	554	360	277			
Turpentine and rosin.....	12,787		134	4,515	6,620	1,414	104			
All other industries.....	18,240		1,384	3,138	3,776	3,081	4,483	1,478		
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	100.0		5.3	15.9	17.3	14.7	19.3	13.6	10.0	3.9
Carriages and wagons and materials.....	100.0		10.2	29.0	33.6	27.2				
Cars and general shop construction and repairs by steam-railroad companies.....	100.0		0.3	1.3	3.2	2.8	12.6	28.0	51.9	
Cotton goods, including cotton small wares.....	100.0			0.2	1.0	8.4	22.2	27.6	28.1	14.5
Fertilizers.....	100.0		5.4	9.5	18.3	39.5	27.4			
Flour-mill and gristmill products.....	100.0		39.1	28.0	6.0		25.9			
Foundry and machine-shop products.....	100.0		4.3	13.0	16.0	19.6	37.5	9.7		
Hosiery and knit goods.....	100.0				3.2	27.4	34.1	35.3		
Lumber and timber products.....	100.0		11.9	26.6	15.2	16.2	20.8	9.3		
Marble and stone work.....	100.0		7.5	14.7	18.2	23.2	36.4			
Oil, cottonseed, and cake.....	100.0		2.7	32.3	51.4	9.0	4.6			
Printing and publishing.....	100.0		24.7	25.6	23.1	15.0	11.6			
Turpentine and rosin.....	100.0		1.0	35.3	51.8	11.1	0.8			
All other industries.....	100.0		7.6	17.2	20.7	21.8	24.6	8.1		

Of the 4,792 establishments reported for all industries, 4.8 per cent employed no wage earners; 45.1 per cent, from 1 to 5; 29.8 per cent, 6 to 20; and 11.9 per cent, 21 to 50. The most numerous single group consists of the 2,163 establishments employing from 1 to 5 wage earners, and the next of the 1,426 establishments employing from 6 to 20 wage earners.

There were 60 establishments that employed over 250 wage earners, of which 36 were cotton mills and 9 were steam-railroad repair shops.

Of the total number of wage earners, 27.5 per cent were in establishments employing over 250 wage earners each. The single group having the largest number of employees was the group comprising the establish-

ments employing from 101 to 250 wage earners. This group employed 20,223 wage earners, or 19.3 per cent of the total. The individual industries listed in this table, but not in the preceding one, namely, steam-railroad repair shops and the manufacture of hosiery and knit goods, are both industries in which comparatively large establishments do most of the business, as appears from the classification according to the number of 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.

The following table shows in percentages for 1909 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.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
<b>All industries.....</b>	5.1	19.8	66.4	8.7
Carriages and wagons and materials.....	5.9	22.6	63.2	8.3
Cars and general shop construction and repairs by steam-railroad companies.....	5.9	48.4	45.4	0.4
Cotton goods, including cotton small wares.....	2.3	17.7	73.5	6.5
Fertilizers.....	5.0	6.5	77.7	10.8
Flour-mill and gristmill products.....	1.8	2.0	93.6	2.6
Foundry and machine-shop products.....	10.2	28.0	51.3	10.5
Hosiery and knit goods.....	5.2	24.2	62.9	7.7
Lumber and timber products.....	5.3	38.6	44.9	11.2
Marble and stone work.....	8.0	46.1	36.6	9.3
Oil, cottonseed, and cake.....	3.0	3.8	88.4	4.7
Printing and publishing.....	18.9	25.0	29.5	26.6
Turpentine and rosin.....	5.7	57.1	24.5	12.7
All other industries.....	7.1	16.6	65.7	10.7

This table shows that, for all industries combined, 66.4 per cent of the total expenses was incurred for materials, 24.9 per cent for services—that is, salaries and wages—and but 8.7 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries.

**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.

The table indicates that the total amount of primary power more than doubled during the decade 1899–1909. The increase was largely in power generated by steam engines, although every class of power shows a gain for the 10 years. The more general use of gas engines is shown, the number of such engines being 418 with an indicated capacity of 3,380 horsepower in

1909, as against 118 engines with 632 horsepower in 1904, and 45 engines with 365 horsepower in 1899. The figures also show that the practice of renting electric power is rapidly increasing, 8 per cent of the total power being of this character in 1909, as against but 2.9 per cent in 1904, and 1.2 per cent in 1899. A still more marked increase is shown in the use of electric motors for the purpose of applying the power generated within the establishment, the horsepower of such motors increasing from 1,030 in 1899 to 9,092 in 1904 and 20,374 in 1909.

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899 <sup>1</sup>	1909	1904	1899 <sup>1</sup>	1909	1904	1899
<b>Primary power, total.....</b>	6,323	2,839	2,481	298,241	220,419	136,499	100.0	100.0	100.0
Owned.....	4,660	2,839	2,481	272,928	212,657	134,559	91.5	96.3	95.6
Steam.....	4,011	2,519	2,187	240,264	183,369	110,972	80.6	83.2	81.3
Gas.....	418	118	45	3,380	332	365	1.1	0.3	0.3
Water wheels.....	221	186	249	28,288	28,242	22,729	9.5	12.8	16.7
Water motors.....	10	16	( <sup>2</sup> )	460	62	( <sup>2</sup> )	0.2	( <sup>2</sup> )	( <sup>2</sup> )
Other.....				536	362	403	0.2	0.2	0.4
Rented.....	1,663	( <sup>2</sup> )	( <sup>2</sup> )	25,313	7,762	1,040	8.5	3.5	1.4
Electric.....	1,663	( <sup>2</sup> )	( <sup>2</sup> )	23,800	6,464	1,668	8.0	2.9	1.2
Other.....				1,423	1,298	272	0.5	0.6	0.2
<b>Electric motors.....</b>	2,492	284	45	44,264	15,556	2,698	100.0	100.0	100.0
Run by current generated by establishment.....	829	284	45	20,374	9,092	1,030	46.0	58.4	53.2
Run by rented power.....	1,663	( <sup>2</sup> )	( <sup>2</sup> )	23,890	6,464	1,668	54.0	41.6	46.8

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

**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 for all industries combined and for certain selected industries:

INDUSTRY.	Anthracite coal (tons).	Bituminous coal (tons).	Coko. (tons).	Wood (cords).	Oil, including gasoline (barrels).	Gas (1,000 feet).
<b>All industries<sup>1</sup>.....</b>	10,762	1,304,445	34,628	251,917	53,728	40,568
Brick and tile.....	600	140,786	1,009	42,649	87	.....
Carriages and wagons and materials.....	70	3,927	16	.....	267	41
Cars and general shop construction and repairs by steam-railroad companies.....	.....	58,061	214	494	.....	.....
Cotton goods, including cotton small wares.....	6	356,218	2,500	19,633	587	316
Fertilizers.....	.....	43,977	25	4,333	377	.....
Flour-mill and gristmill products.....	.....	13,037	.....	4,044	272	.....
Foundry and machine-shop products.....	90	17,974	11,047	6,439	607	656
Gas, illuminating and heating.....	1,917	83,718	.....	.....	49,106	.....
Hosiery and knit goods.....	232	23,537	26	895	.....	.....
Ice, manufactured.....	1,596	52,372	.....	23,954	.....	.....
Lumber and timber products.....	122	9,551	60	3,859	.....	.....
Marble and stone work.....	.....	29,535	.....	70	.....	.....
Oil, cottonseed, and cake.....	4,591	121,570	.....	65,401	.....	4,574
Printing and publishing.....	105	2,037	31	140	.....	.....
Turpentine and rosin.....	.....	.....	40	39,255	.....	.....
All other industries.....	1,433	347,230	19,600	41,381	3,602	33,533

<sup>1</sup> In addition there were 12,200 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 the number and kinds of machines used in manufactures which do not appear on the general schedule. Certain data of this character for eight important industries in Georgia are here presented.

Textiles.—The progress of the textile industries is indicated by the increase in the number of spindles, looms, and knitting machines. The following table shows the number of these machines used in the combined industries and in each of the three branches during 1909, 1904, and 1899:

MACHINE.	Cen- sus.	Total.	Cotton goods, including cotton small wares.	Woolen, worsted, and felt goods, and wool hats.	Hosiery and knit goods.
Producing spindles.....	1909	1,794,111	1,751,547	24,772	17,792
	1904	1,344,889	1,318,573	19,964	6,352
	1899	828,353	817,345	11,008	.....
Looms.....	1909	36,034	35,358	676	.....
	1904	31,767	31,221	546	.....
	1899	19,901	19,398	503	.....
Knitting machines.....	1909	3,530	.....	.....	3,530
	1904	1,077	.....	.....	1,077
	1899	1,078	.....	.....	1,078

The increases from 1904 to 1909 in the total number of the three principal kinds of machines used during the three census years were as follows: 449,222, or 33.4 per cent, in producing spindles; 4,267, or 13.4 per cent, in looms; and 1,853, or 110.5 per cent, in knitting machines. During the preceding five years, 1899-1904, the gains in spindles and looms were considerably more pronounced, but the increase in knitting machines was much less. In addition to the number of spindles shown for the three industries presented separately in the table, there were 17,136 reported in 1909 by the one establishment engaged in the manufacture of silk and silk goods and 2,700 for the two establishments which produced cordage and twine.

For the five-year period from 1904 to 1909 the number of producing spindles in the cotton mills increased 432,974, or 32.8 per cent; in the knitting mills, 11,440, or 180.1 per cent; and in the woolen mills, 4,808, or 24.1 per cent. The gains shown in the number of looms were not so large in proportion as the increases shown for spindles in the cotton mills and in the woolen mills. The number of knitting machines used in 1909 was more than double the number reported for 1904 and over three times that shown for 1899.

Of the six branches of the textile industries represented in the state, detailed statistics regarding materials and products can only be given for the cotton-goods and hosiery and knit-goods industries. Such data for the other four branches would disclose the operations of individual establishments.

Cotton goods, including cotton small wares.—The conditions for the growth of this industry have been favorable because of the proximity of the factories to the supply of raw cotton and an abundance of labor. While there is no direct connection between the cotton crop and the amount consumed in the mills, it is of interest to know that in 1909 the total crop of cotton in Georgia amounted to 885,389,000 pounds, or over three times the quantity of raw cotton used in the cotton factories of the state.

The following is a statement of the quantity and cost of the principal materials used in the manufacture of cotton goods, and the quantity and value of the chief products as reported for 1909, 1904, and 1899:

MATERIAL OR PRODUCT.	1909	1904 <sup>1</sup>	1899 <sup>1</sup>
<b>Materials used, total cost.....</b>	<b>\$32,048,739</b>	<b>\$23,832,297</b>	<b>\$11,113,366</b>
<b>Cotton:</b>			
Pounds.....	250,820,180	197,349,593	145,695,324
Cost.....	\$27,884,458	\$21,132,744	\$9,692,464
<b>Cotton yarn, purchased:</b>			
Pounds.....	429,003	595,403	76,026
Cost.....	\$84,782	\$117,755	\$10,775
<b>Cotton waste, purchased:</b>			
Pounds.....	8,201,342	3,067,157	48,641
Cost.....	\$310,055	\$202,201	\$1,946
<b>Starch.....</b>	<b>\$107,828</b>	<b>\$121,734</b>	<b>\$65,960</b>
<b>Chemicals and dyestuffs.....</b>	<b>\$251,230</b>	<b>\$276,817</b>	<b>\$225,971</b>
<b>Fuel and rent of power.....</b>	<b>\$1,020,216</b>	<b>\$674,825</b>	<b>\$318,657</b>
<b>All other materials.....</b>	<b>\$2,330,161</b>	<b>\$1,306,131</b>	<b>\$797,583</b>
<b>Products, total value.....</b>	<b>\$48,036,817</b>	<b>\$35,174,248</b>	<b>\$18,467,645</b>
<b>Plain cloths for printing and converting:</b>			
Square yards.....	48,989,335	20,036,228	6,213,595
Value.....	\$1,685,182	\$1,145,605	\$214,237
<b>Brown or bleached sheetings and shirtings:</b>			
Square yards.....	214,520,588	202,934,687	131,739,917
Value.....	\$11,442,365	\$10,135,007	\$5,127,400
<b>Fancy woven fabrics:</b>			
Square yards.....	12,449,694	5,976,201	965,038
Value.....	\$843,803	\$303,266	\$142,887
<b>Ginghams:</b>			
Square yards.....	7,002,638	( <sup>2</sup> )	25,302,954
Value.....	\$480,846	( <sup>2</sup> )	\$1,117,529
<b>Ducks:</b>			
Square yards.....	49,484,921	30,429,272	31,673,022
Value.....	\$6,640,339	\$3,669,472	\$2,143,546
<b>Drills:</b>			
Square yards.....	64,075,402	41,727,888	36,378,866
Value.....	\$4,378,103	\$2,809,105	\$1,801,586
<b>Ticks, denims, and stripes:</b>			
Square yards.....	36,219,627	33,766,527	16,971,764
Value.....	\$2,585,817	\$3,040,931	\$1,048,395
<b>Cottonades:</b>			
Square yards.....	11,051,565	13,316,815	4,173,815
Value.....	\$1,209,678	\$1,078,754	\$309,583
<b>Napped fabrics:</b>			
Square yards.....	20,472,753	6,797,117	6,044,140
Value.....	\$1,700,767	\$591,435	\$265,960
<b>Cotton towels and toweling:</b>			
Square yards.....	12,264,366	4,057,247	( <sup>3</sup> )
Value.....	\$1,374,772	\$697,004	( <sup>3</sup> )
<b>Yarns for sale:</b>			
Pounds.....	61,956,708	45,356,389	35,745,604
Value.....	\$11,971,488	\$8,620,720	\$4,882,437
<b>Twine:</b>			
Pounds.....	4,596,792	430,206	686,709
Value.....	\$830,522	\$72,614	\$74,394
<b>Cotton waste for sale:</b>			
Pounds.....	19,684,927	16,162,249	15,310,595
Value.....	\$510,165	\$457,184	\$286,614
<b>All other products.....</b>	<b>\$2,382,917</b>	<b>\$2,484,101</b>	<b>\$953,098</b>

<sup>1</sup> Does not include one establishment manufacturing cotton small wares.

<sup>2</sup> Figures can not be shown without disclosing individual operations.

<sup>3</sup> Not reported separately.

Raw cotton represented about seven-eighths of the total cost of all materials used during each of the three census years. The quantity of this material increased 53,470,587 pounds, or 27.1 per cent, from 1904 to 1909 and 51,654,269 pounds, or 35.5 per cent, from 1899 to

1904, while the gains in cost were \$6,751,714, or 31.9 per cent, and \$11,440,280, or 118 per cent, for the respective five-year periods. The disproportionate increases from 1899 to 1904 in the quantity and cost of raw cotton were due to the decided increase in price during the five years. The fact that the quantity of yarns purchased for use in 1909 was less than that reported for 1904 indicates that yarns are being manufactured to an increasing extent within the establishment in which they are used.

Brown or bleached sheetings and shirtings, and yarns for sale were the most important products, each contributing about one-fourth of the total value. The value of the former class represented 27.8 per cent of the total value of products in 1899, 28.8 per cent in 1904, and 23.8 per cent in 1909, while that of yarns constituted 26.5 per cent of the total in 1899, 24.5 per cent in 1904, and 24.9 per cent in 1909. Duck and drills combined represented nearly one-half of the value of the remaining products in 1909. From 1904 to 1909 the largest absolute gain in quantity was 22,347,514 square yards for drills, and the largest increase in value was \$3,350,768 for yarns. The most noteworthy relative increases, however, are shown for the quantity and the value of twine. Cotton towels and toweling, napped fabrics, and fancy woven fabrics also show decided relative gains in both items during the same period. The only class of products showing a decrease in both quantity and value during the decade is gingham, which shows a falling off of 18,300,316 square yards, or 72.3 per cent, in quantity and of \$636,683, or 57 per cent, in value. The partly manufactured products—yarns for sale, twine and cotton waste for sale—to a limited extent represent a duplication, because, although they are the products of one set of mills, they become the materials of other establishments within the industry.

**Hosiery and knit goods.**—The following statement shows the quantity and cost of the principal materials used, and the quantity and value of the different products, as reported at the last three censuses:

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost</b> .....	\$1,872,436	\$1,417,411	\$757,430
<b>Cotton:</b>			
Pounds.....	4,043,536	(1)	.....
Cost.....	\$450,956	(1)	.....
<b>Cotton yarns, purchased:</b>			
Pounds.....	4,886,428	6,606,954	3,707,218
Cost.....	\$978,805	\$1,127,123	\$624,311
<b>Chemicals and dyestuffs</b> .....	\$64,558	\$48,290	\$12,063
<b>Fuel and rent of power</b> .....	\$61,737	\$31,510	\$10,894
<b>All other materials</b> .....	\$310,300	\$210,488	\$110,162
<b>Products, total value</b> .....	\$3,232,623	\$2,325,854	\$1,230,801
<b>Cotton half hose:</b>			
Dozens.....	2,500,095	1,278,107	794,345
Value.....	\$1,370,920	\$780,390	\$430,610
<b>Cotton hose:</b>			
Dozens.....	1,226,235	602,388	400,427
Value.....	\$1,018,086	\$485,155	\$321,058
<b>Cotton shirts and drawers:</b>			
Dozens.....	314,893	425,000	205,165
Value.....	\$573,020	\$803,112	\$432,329
<b>All other products</b> .....	\$270,591	\$287,197	\$46,804

<sup>1</sup> Included under "All other materials," to avoid disclosure of individual operations.

Raw cotton as a material was not reported at any census prior to that of 1904, indicating that at the preceding censuses the establishments engaged in this industry purchased the cotton yarn which they used. In 1904, although most of the yarn used was purchased, some of it was manufactured in the mills, as is indicated by the fact that some raw cotton was used in that year. Since then the practice of making the yarn in the mills has largely increased, accompanied by a corresponding decrease in the amount of cotton yarn purchased.

Half hose and hose together contributed 73.9 per cent of the total value of products in this industry for the state in 1909, shirts and drawers forming a minor product and showing decreases in quantity and value since 1904. Large per cents of increase both in the quantity and value of cotton hose and of half hose are shown for each five-year period, and with the exception of the value of half hose by far the greatest gains were from 1904 to 1909. The greatest absolute increases in both quantity and value during the decade as a whole were reported for half hose, which furnished 42.4 per cent of the total value of products for the industry in 1909.

**Lumber and timber products.**—Although Georgia cut a slightly greater amount of lumber in 1909 than in 1899, the rate of increase was considerably less than that shown for any other Southern state, and it dropped from seventh place among the states of the Union in the production of lumber in 1899 to fifteenth in 1909. The following is a statement of the quantities of the principal products reported for the saw-mills at the censuses of 1909 and 1899:

PRODUCT.	QUANTITY.	
	1909	1899
Rough lumber..... M feet b. m.	1,342,249	1,311,917
Lath..... thousands.	58,704	31,496
Shingles..... thousands.	443,260	243,797

The production of rough lumber sawed increased 2.3 per cent from 1899 to 1909; that of lath, 86.4 per cent; and that of shingles 81.8 per cent. Of the total output of 1,342,249 M feet, board measure, in 1909, 1,194,987 M feet, or 89 per cent, was yellow pine. Hardwoods formed but 6.2 per cent of the total production, the principal varieties being oak and yellow poplar.

**Oil, cottonseed, and cake.**—The table following shows the quantity of cotton seed crushed and the quantity of the different crude products for each of the last three census years.

The statistics in this table include the figures for all establishments which crushed any seed during the year, regardless of the extent to which these establishments were engaged in other lines of [manufac-

largest decreases are shown for white flour, 256,960 barrels, or 38.3 per cent, in quantity and \$1,115,283, or 29.8 per cent, in value.

**Turpentine and rosin.**—This, like the lumber industry, is dependent upon the forests of the state for its raw materials. The quantity and value of products for the census years 1909, 1904, and 1899 are shown in the following tabular statement:

PRODUCT.	1909	1904	1899
<b>Total value</b> .....	\$6,938,957	\$7,705,643	\$8,110,468
<b>Spirits of turpentine:</b>			
Gallons.....	8,056,752	9,542,316	<sup>1</sup> 15,595,341
Value.....	\$3,556,905	\$4,795,331	\$6,024,054
<b>Rosin:</b>			
Barrels.....	904,103	1,104,968	<sup>1</sup> 1,612,594
Value.....	\$3,371,676	\$2,901,583	\$2,055,650
<b>Dross and other products</b> .....	\$10,316	\$8,729	\$30,864

<sup>1</sup> Spirits of turpentine was reported in barrels of 51 gallons, and rosin in barrels of 475 pounds in the 1899 census. In this report turpentine is reported in gallons and rosin in barrels of 280 pounds.

The importance of the turpentine industry has decreased considerably since 1899, owing to the rapid depletion of the longleaf-pine forests of the state and the clearing of the land for agricultural purposes. In 1909 the production of spirits of turpentine was 15.6 per cent less than in 1904 and 48.3 per cent less than in 1899, while the output of rosin shows a decrease of 18.2 per cent in 1909, as compared with 1904, and of 43.9 per cent, as compared with 1899.

The working unit in turpentine operations is called a crop, which consists of 10,500 boxes or cups. In 1909 there were 6,178 crops worked in the state, of which 1,146 were from virgin trees, 1,283 from yearling or second-year trees, 1,621 from third-year trees, and 2,128 from older trees. A rapidly increasing proportion of the trees in Georgia are being worked by the new cup system.

**Printing and publishing.**—The printing and publishing industry as a whole in Georgia not only shows a considerable growth during the last 10 years as measured by the financial statistics, but the number of publications and aggregate circulation have increased substantially during each of the two five-year periods, as shown by the following table:

PERIOD OF ISSUE.	NUMBER OF PUBLICATIONS.			AGGREGATE CIRCULATION PER ISSUE.		
	1909	1904	1899	1909	1904	1899
<b>Total</b> .....	357	318	278	1,628,562	924,545	549,493
Daily.....	27	26	27	215,660	178,904	102,872
Sunday.....	13	14	13	172,039	143,052	( <sup>1</sup> )
Semiweekly and triweekly	17	11	9	285,620	81,613	33,941
Weekly.....	246	233	205	423,897	371,274	331,905
Monthly.....	51	29	17	385,337	120,927	67,425
All other classes.....	3	5	7	143,000	28,775	13,350

<sup>1</sup> Included in circulation for daily.

There was an increase of 79 in the number of publications of all kinds during the 10-year period, and of 196 per cent in their circulation. While the number

of daily papers was the same in 1909 as in 1899, the circulation more than doubled. During the more recent five-year period the circulation of the Sunday newspapers increased 20.3 per cent. The greatest relative increase in circulation reported for any class was in those included under the head of "All other classes," which was more than ten times as great in 1909 as in 1899. There was an increase of 20 per cent in the number of weekly publications, and of 27.7 per cent in their circulation during the same period. The number of monthly publications in 1909 was three times, and their circulation more than five times, as great as in 1899. All of the publications were in the English language, with the exception of three weeklies, one of which was in German, one in German-English, and one in Hebrew.

**Laundries.**—Statistics for steam laundries are not included in the general tables, or in the totals for manufacturing industries. There were 42 such establishments in the state of Georgia, 10 of which were in Atlanta, 4 in Savannah, and 3 in Macon. The following statement summarizes the statistics:

Number of establishments.....	42
Persons engaged in the industry.....	1,525
Proprietors and firm members.....	37
Salaried employees.....	156
Wage earners (average number).....	1,332
Primary horsepower.....	1,180
Capital.....	\$654,756
Expenses.....	832,036
Services.....	516,075
Materials.....	191,654
Miscellaneous.....	124,307
Amount received for work done.....	1,006,724

Of the 42 establishments reported, 17 were operated by corporations, 15 by individuals, and 10 by firms. Seven establishments had receipts of less than \$5,000 for the year's business; 22, \$5,000 but less than \$20,000; 12, \$20,000 but less than \$100,000; and 1, \$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.....	1,292	94.5	July.....	1,366	99.9
February.....	1,285	94.0	August.....	1,367	100.0
March.....	1,303	95.3	September.....	1,366	99.9
April.....	1,318	96.4	October.....	1,351	98.8
May.....	1,325	96.9	November.....	1,342	98.2
June.....	1,342	98.2	December.....	1,323	96.8

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

KIND.	Number of engines or motors.	Horse-power.
Primary power, total.....		1,180
Owned—Steam.....	40	1,101
Rented.....		79
Electric.....	12	76
Other.....		3

The kind and amount of fuel used are shown in the following statement:

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	310
Bituminous coal.....	Tons.....	12,279
Oil.....	Barrels.....	212
Coke.....	Tons.....	204
Gas.....	1,000 feet.....	1,695

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.....	92	677
Persons engaged in industry.....	360	1,354
Proprietors and firm members.....	143	877
Salaried employees.....	2	8
Wage earners (average number).....	215	409
Primary horsepower.....	1,771	13,774
Capital.....	\$98,122	\$1,212,407
Expenses.....	49,677	2,342,154
Services.....	39,060	80,031
Materials.....	2,749	1,233,693
Miscellaneous.....	7,868	28,430
Value of products.....	109,319	1,2617,845

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



## MANUFACTURES—GEORGIA.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
<b>STATE—All industries.....</b>	1909	4,792	118,036	5,141	8,307	104,588	298,241	\$202,778	\$9,062	\$34,805	\$116,970	\$202,863	\$85,893
	1904	3,219	102,365	3,512	6,104	92,749	220,419	135,212	5,928	27,392	83,625	151,040	67,415
	1899	3,015	.....	.....	3,815	83,336	136,499	79,303	3,204	19,958	49,356	94,532	45,176
Agricultural implements.....	1909	17	614	20	42	552	1,307	1,410	60	190	583	1,117	534
	1904	16	635	16	35	584	939	792	44	171	602	1,040	433
	1899	10	393	10	23	300	409	455	31	100	438	788	300
Boxes, fancy and paper.....	1909	8	367	1	57	309	208	650	100	93	783	1,140	354
	1904	4	195	.....	23	172	36	114	20	36	87	185	63
	1899	3	139	4	12	123	.....	72	14	29	26	122	95
Bread and other bakery products.....	1909	110	706	115	100	491	227	525	64	213	932	1,532	600
	1904	82	508	90	22	306	52	312	17	138	560	935	375
	1899	62	326	64	21	241	27	233	14	82	291	598	307
Brick and tile.....	1909	75	2,085	73	111	1,901	7,476	2,771	132	547	534	1,711	1,177
	1904	59	1,622	77	90	1,446	5,479	1,814	92	350	365	1,337	913
	1899	70	1,837	77	59	1,701	3,120	1,045	46	347	264	1,053	789
Carriages and wagons and materials.....	1909	83	1,252	81	112	1,059	1,353	2,220	128	489	1,367	2,560	1,189
	1904	75	1,293	91	87	1,115	1,110	1,509	97	426	1,222	2,393	1,061
	1899	104	.....	.....	39	808	.....	825	31	257	534	1,317	783
Cars and general shop construction and repairs by steam-railroad companies.....	1909	34	6,643	.....	374	6,269	6,879	4,271	386	3,162	2,964	6,535	3,871
	1904	28	5,000	.....	223	4,777	2,141	2,162	225	2,416	2,058	4,775	2,717
	1899	32	3,272	.....	97	3,175	1,237	1,499	98	1,602	1,273	3,062	1,783
Clothing, men's, including shirts.....	1909	22	1,354	17	95	1,242	290	1,006	110	341	1,168	1,934	756
	1904	14	1,095	11	62	1,022	168	548	53	265	929	1,482	553
	1899	18	1,350	31	43	1,276	154	514	37	231	657	1,121	464
Confectionery.....	1909	23	878	18	212	648	583	902	164	225	1,432	2,172	740
	1904	16	738	14	135	589	392	656	112	156	969	1,570	601
	1899	15	.....	.....	71	402	.....	438	62	105	519	832	313
Cooperage and wooden goods, not elsewhere specified.....	1909	14	376	11	21	344	647	294	21	114	470	777	307
	1904	16	300	3	29	268	496	250	31	89	422	631	296
	1899	23	451	21	22	408	.....	270	22	99	392	678	286
Copper, tin, and sheet-iron products.....	1909	25	718	23	76	619	409	2,808	83	292	707	1,326	619
	1904	11	213	10	17	186	.....	414	15	88	182	325	143
	1899	7	.....	.....	27	202	.....	.....	22	63	495	634	139
Cotton goods, including cotton small wares.....	1909	116	28,495	12	680	27,893	92,970	64,651	1,005	7,721	32,040	48,037	15,688
	1904	103	24,701	13	568	24,130	77,435	42,350	726	5,813	23,832	35,174	11,342
	1899	167	18,625	10	332	18,283	39,307	24,158	431	3,567	11,113	18,458	7,345
Fertilizers.....	1909	60	3,373	71	532	2,770	10,488	24,233	699	921	10,944	16,800	5,586
	1904	57	2,442	40	210	2,192	6,531	11,188	200	581	6,527	9,461	2,934
	1899	41	1,279	39	114	1,126	3,823	6,664	147	295	2,350	3,367	1,017
Flour-mill and gristmill products.....	1909	105	630	137	107	386	9,052	2,749	129	144	6,729	8,000	1,271
	1904	114	712	146	102	464	8,341	1,896	96	146	7,265	8,179	914
	1899	94	.....	.....	71	447	.....	1,338	55	133	4,445	5,324	839
Foundry and machine-shop products.....	1909	107	3,363	83	388	2,892	5,244	7,093	528	1,452	2,662	5,868	3,146
	1904	84	3,457	74	271	3,112	3,779	5,200	309	1,298	2,052	5,264	3,212
	1899	91	.....	.....	177	2,416	.....	3,410	199	931	1,005	3,569	1,994
Furniture and refrigerators.....	1909	42	1,569	28	135	1,406	2,610	2,080	160	508	883	2,060	1,177
	1904	32	1,979	24	127	1,828	2,410	1,904	149	604	902	2,115	1,213
	1899	21	1,456	17	85	1,354	1,565	1,196	91	350	517	1,273	756
Gas, illuminating and heating.....	1909	15	604	.....	145	459	689	7,075	123	206	308	1,425	1,057
	1904	12	570	.....	88	482	582	5,832	74	164	291	1,061	770
	1899	12	346	.....	75	271	307	4,209	56	92	142	661	519
Hosiery and knit goods.....	1909	22	2,880	3	134	2,743	2,948	3,270	155	719	1,872	3,233	1,381
	1904	21	2,027	4	88	1,935	2,095	1,947	93	396	1,417	2,326	909
	1899	16	1,254	.....	46	1,208	557	929	39	201	767	1,231	474
Ice, manufactured.....	1909	61	651	27	130	494	8,125	3,360	133	210	275	1,163	888
	1904	48	522	18	105	399	5,353	1,705	70	142	200	855	613
	1899	32	313	14	48	261	3,555	975	43	86	127	457	330
Leather goods.....	1909	34	829	35	111	683	685	1,426	128	252	1,332	2,080	754
	1904	29	1,119	34	64	1,021	827	1,011	58	330	1,325	2,072	747
	1899	24	.....	.....	52	674	.....	427	38	162	836	1,280	444
Leather, tanned, curried, and finished.....	1909	10	327	4	17	306	1,228	1,267	23	99	1,051	1,374	323
	1904	29	595	38	24	533	1,161	2,406	29	154	1,887	2,352	495
	1899	36	474	38	26	410	673	1,434	20	92	928	1,188	260
Liquors, malt.....	1909	4	247	.....	35	212	908	1,790	74	120	416	1,207	791
	1904	5	357	1	37	319	1,063	1,574	65	141	306	1,284	973
	1899	5	337	.....	37	300	1,300	1,638	85	128	276	973	697

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

MANUFACTURES—GEORGIA.

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

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

INDUSTRY.	Cen- sus.	Number of estab- lish- ments.	PERSONS ENGAGED IN INDUSTRY.				Pri- mary horse- power.	Capital.	Sala- ries.	Wages.	Cost of mate- rials.	Value of pro- ducts.	Value added by manu- facture.
			Total.	Pro- pri- etors and firm mem- bers.	Sala- ried em- ploy- ees.	Wage ear- ners (ave- rage num- ber).							
Expressed in thousands.													
<b>STATE—Continued.</b>													
Lumber and timber products.....	1909 1904 1899	1,826 949 1,010	25,491 21,877 .....	2,271 1,212 .....	963 981 625	22,257 19,634 19,628	83,464 56,431 .....	\$23,337 15,309 9,867	\$997 961 482	\$7,305 6,321 4,688	\$8,505 6,666 6,497	\$24,632 21,648 17,839	\$10,127 14,982 11,342
Marble and stone work.....	1909 1904 1899	104 50 31	2,391 2,201 .....	111 50 .....	181 133 37	2,099 2,018 748	3,370 2,883 .....	2,117 2,924 625	174 114 36	998 626 315	793 626 292	2,648 1,782 849	1,855 1,782 557
Mattresses and spring beds.....	1909 1904 1899	20 9 5	388 265 .....	15 3 .....	63 36 21	310 226 65	465 ..... .....	589 264 109	84 44 22	129 67 29	512 420 147	949 681 230	437 261 83
Oil, cottonseed, and cake.....	1909 1904 1899	142 112 43	3,609 2,816 1,793	11 11 7	710 498 195	2,888 2,307 1,591	29,510 20,890 9,810	12,720 11,527 4,099	667 472 187	846 608 354	19,440 11,262 6,220	23,641 13,540 8,064	4,201 2,278 1,835
Patent medicines and compounds and drug- gists' preparations.....	1909 1904 1899	50 34 19	376 327 .....	33 18 .....	133 141 33	210 168 177	84 126 .....	557 758 494	126 137 30	81 63 44	442 319 486	1,421 1,541 1,147	979 1,222 661
Pottery, terra-cotta, and fire-clay products.....	1909 1904 1899	27 21 21	650 648 329	21 19 23	46 37 21	592 532 285	1,540 2,055 416	932 801 267	58 48 18	234 166 67	153 144 42	614 480 205	461 336 164
Printing and publishing.....	1909 1904 1899	442 359 1,287	3,849 2,953 2,406	422 383 300	1,032 505 245	2,395 2,065 1,861	2,008 1,264 977	4,732 3,770 2,488	1,018 440 219	1,344 964 692	1,588 1,030 614	6,400 3,980 2,381	4,812 2,950 1,767
Slaughtering and meat packing.....	1909 1904 1899	8 6 7	113 84 146	9 4 8	14 4 34	90 76 104	262 321 .....	168 228 116	9 1 20	34 29 32	402 219 484	509 321 501	107 162 107
Tobacco manufactures.....	1909 1904 1899	50 37 34	435 328 149	52 45 36	23 28 7	360 255 106	10 ..... .....	122 303 56	18 16 3	169 81 35	196 124 51	506 296 125	310 172 74
Turpentine and rosin.....	1909 1904 1899	592 432 524	14,253 13,070 20,777	1,003 707 815	463 627 763	12,787 11,736 19,199	1,407 362 .....	2,900 2,374 3,785	293 315 320	2,931 3,041 3,773	1,260 1,156 2,293	6,939 7,706 8,110	5,679 6,550 5,817
Woolen, worsted, and felt goods, and wool hats.....	1909 1904 1899	7 8 14	692 668 575	4 4 1	28 17 13	660 647 501	1,437 1,181 755	1,415 815 455	36 22 17	175 129 97	443 424 280	871 656 491	428 232 211
All other industries.....	1909 1904 1899	487 347 237	7,819 7,048 .....	430 352 .....	1,037 691 344	6,352 6,005 3,575	20,289 14,566 .....	16,339 10,722 5,130	1,163 717 319	2,541 1,793 871	13,712 7,835 3,956	21,736 13,024 6,563	8,024 5,159 2,607

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

ATLANTA—All industries.....	1909 1904 1899	483 294 198	15,091 13,417 .....	367 223 .....	2,422 1,303 692	12,302 11,891 7,966	22,768 ..... .....	\$30,878 21,631 14,603	\$2,711 1,361 759	\$5,436 4,435 2,597	\$16,418 13,441 7,443	\$33,038 25,746 14,419	\$16,620 12,305 6,976
Artificial stone.....	1909 1904 1899	9 8 .....	180 23 .....	7 3 .....	16 5 .....	157 20 .....	25 ..... .....	72 20 .....	17 2 .....	61 12 .....	61 15 .....	166 37 .....	105 22 .....
Bread and other bakery products.....	1909 1904 1899	20 14 13	272 175 118	19 14 13	60 11 9	193 150 96	113 ..... .....	182 90 80	47 12 10	93 53 20	438 248 99	690 391 248	252 143 149
Carriages and wagons and materials.....	1909 1904 1899	11 5 6	202 149 96	12 5 7	19 11 7	171 133 82	85 ..... .....	204 101 52	23 13 5	97 67 31	222 150 32	383 286 112	161 136 80
Clothing, men's, including shirts.....	1909 1904 1899	8 6 7	744 664 828	6 5 16	48 31 11	690 628 801	119 ..... .....	517 315 226	75 28 13	213 167 156	601 530 389	1,020 873 671	419 343 282
Confectionery.....	1909 1904 1899	12 8 6	753 550 306	8 9 9	180 94 38	565 447 259	520 ..... .....	701 514 334	145 82 34	198 118 63	1,288 642 254	1,924 1,079 451	636 437 197
Copper, tin, and sheet-iron products.....	1909 1904 1899	12 6 3	458 387 197	10 4 8	51 21 27	397 362 162	162 ..... .....	1,893 1,270 307	54 38 22	188 124 37	433 362 391	817 579 487	384 217 .....

<sup>1</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.  
<sup>2</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.  
<sup>3</sup> Not reported separately.

MANUFACTURES—GEORGIA.

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.	Cen- sus.	Number of estab- lish- ments.	PERSONS ENGAGED IN INDUSTRY.				Pri- mary horse- power.	Capital.	Sala- ries.	Wages.	Cost of ma- terials.	Value of prod- ucts.	Value added by man- u- fac- ture.
			Total.	Pro- pri- etors and firm mem- bers.	Salu- ried em- ploy- ees.	Wage earn- ers (aver- age num- ber).							
<b>ATLANTA—Continued.</b>													
Foundry and machine-shop products.....	1909	25	662	17	91	554	1,084	\$1,620	\$125	\$310	\$594	\$1,234	\$49
	1904	22	1,053	10	94	949	.....	1,881	100	433	740	1,818	1,068
	1899	19	688	10	59	619	.....	1,209	74	291	454	1,050	576
Furniture and refrigerators.....	1909	19	632	15	66	551	1,116	945	87	226	363	899	559
	1904	8	391	3	20	359	.....	513	39	125	222	467	235
	1899	3	310	1	15	294	.....	495	22	96	148	373	225
Leather goods.....	1909	10	102	7	28	67	61	117	26	35	101	202	101
	1904	7	154	8	21	125	.....	114	21	50	125	200	165
	1899	6	.....	.....	13	80	.....	65	13	34	98	208	110
Lumber and timber products.....	1909	19	1,162	13	115	1,034	2,699	1,588	150	395	1,230	2,043	813
	1904	11	1,006	8	81	917	.....	898	99	313	843	1,555	712
	1899	12	693	8	47	638	.....	592	61	215	801	1,247	446
Marble and stone work.....	1909	16	197	23	19	155	95	75	17	109	77	245	163
	1904	9	152	8	16	128	.....	107	11	73	87	206	119
	1899	6	.....	.....	1	81	.....	23	1	50	42	126	84
Mattresses and spring beds.....	1909	10	284	7	46	231	291	483	70	100	404	768	264
	1904	5	232	1	32	199	.....	246	41	61	397	628	231
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Paint and varnish.....	1909	4	46	4	14	28	68	143	13	14	150	177	27
	1904	3	33	1	13	19	.....	107	13	8	98	164	66
	1899	5	38	3	12	23	.....	101	9	10	112	182	70
Patent medicines and compounds and drug- gists' preparations.	1909	35	315	23	118	175	78	505	114	66	364	1,205	841
	1904	15	190	3	86	101	.....	419	72	39	184	1,150	366
	1899	10	163	8	27	128	.....	430	25	32	441	1,008	367
Printing and publishing.....	1909	116	1,781	85	678	1,018	963	2,420	707	640	951	3,836	2,489
	1904	65	1,243	57	227	959	.....	2,051	211	506	638	2,184	1,569
	1899	35	727	30	105	592	.....	1,309	118	288	307	1,081	774
All other industries.....	1909	157	7,301	112	873	6,316	15,349	19,443	1,041	2,691	9,141	17,429	8,288
	1904	107	7,010	84	531	6,395	.....	12,985	579	2,286	8,160	14,049	5,883
	1899	65	4,448	16	321	4,111	.....	9,410	352	1,265	3,875	7,175	3,200
<b>SAVANNAH—All industries.....</b>													
Bread and other bakery products.....	1909	137	3,196	121	348	2,727	6,403	\$9,334	\$382	\$1,222	\$3,348	\$6,734	\$3,855
	1904	122	3,699	130	339	3,230	.....	8,000	357	1,320	3,254	6,340	3,656
	1899	82	.....	.....	197	2,240	.....	3,755	204	979	1,807	3,750	1,943
Confectionery.....	1909	25	145	23	21	98	45	122	7	42	170	280	119
	1904	24	137	25	8	104	.....	85	4	40	142	253	111
	1899	16	.....	.....	2	49	.....	39	1	27	99	156	66
Copper, tin, and sheet-iron products.....	1909	4	34	4	3	27	18	41	2	9	46	90	44
	1904	4	111	5	22	84	.....	50	13	17	105	187	62
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Foundry and machine-shop products.....	1909	5	179	5	19	155	241	866	19	60	206	389	174
	1904	3	37	5	1	31	.....	22	1	15	21	60	23
	1899	3	.....	.....	.....	38	.....	105	.....	25	98	138	49
Lumber and timber products.....	1909	6	285	7	23	255	488	715	30	137	105	442	257
	1904	5	290	18	17	255	.....	441	21	125	115	338	223
	1899	6	.....	.....	8	230	.....	276	11	98	90	276	155
Patent medicines and compounds and drug- gists' preparations.	1909	8	263	8	30	225	1,140	409	29	90	167	382	215
	1904	8	309	10	36	263	.....	462	36	89	202	391	193
	1899	5	.....	.....	28	273	.....	454	23	86	160	327	167
Printing and publishing.....	1909	4	26	1	0	16	5	26	8	5	52	133	81
	1904	6	63	4	28	31	.....	250	43	11	82	208	127
	1899	3	.....	.....	2	21	.....	31	1	5	26	75	41
Tobacco manufactures.....	1909	24	398	26	85	287	183	573	84	169	188	658	459
	1904	24	280	26	66	188	.....	443	71	115	93	449	357
	1899	9	.....	.....	50	232	.....	248	37	116	96	329	253
All other industries.....	1909	6	79	4	3	72	2	15	3	21	42	78	35
	1904	7	179	6	20	153	.....	342	13	37	69	148	79
	1899	7	.....	.....	.....	14	.....	8	.....	5	6	19	11
All other industries.....	1909	55	1,787	40	155	1,592	4,281	6,567	200	680	2,372	4,291	1,918
	1904	41	2,293	31	141	2,121	.....	5,905	155	871	2,425	4,306	1,831
	1899	33	.....	.....	107	1,392	.....	2,594	131	617	1,241	2,430	1,169

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

MANUFACTURES—GEORGIA.

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

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

CITY.	Cen- sus.	Num- ber of estab- lish- ments.	PERSONS ENGAGED IN INDUSTRY.			Pri- mary horse- power.	Capital.	Sala- ries.	Wages.	Cost of mate- rials.	Value of prod- ucts.	Value added by manu- fac- ture.	
			Total.	Pro- pri- tors and firm mem- bers.	Sala- ried em- ploy- ees.								Wage earn- ers (aver- age num- ber).
Expressed in thousands.													
Athens.....	1909	37	1,104	41	101	962	2,209	\$1,021	\$104	\$294	\$1,320	\$2,112	\$783
	1904	28	590	23	58	509	.....	946	49	140	753	1,158	405
	1899	27	.....	.....	29	589	.....	671	16	109	414	678	264
Augusta.....	1909	71	5,442	45	324	5,073	13,324	11,066	412	1,741	6,602	10,456	3,854
	1904	64	5,180	50	291	4,839	.....	8,101	304	1,294	5,953	8,829	2,876
	1899	80	.....	.....	195	5,563	.....	7,987	220	1,325	5,146	7,984	2,838
Brunswick.....	1909	23	450	11	54	385	712	452	50	191	258	672	414
	1904	29	300	27	25	254	.....	287	22	103	187	407	220
	1899	25	.....	.....	15	351	.....	270	14	186	399	703	304
Columbus.....	1909	55	4,944	26	267	4,661	14,741	7,997	320	1,631	5,562	8,552	2,990
	1904	52	4,702	25	243	4,434	.....	5,874	272	1,305	4,284	7,080	2,796
	1899	58	.....	.....	162	4,110	.....	4,710	159	1,010	2,956	5,061	2,105
Macon.....	1909	80	4,150	51	370	3,729	8,872	8,476	421	1,433	6,869	10,703	3,834
	1904	61	4,000	41	298	3,661	.....	6,750	357	1,201	4,116	7,297	3,181
	1899	66	.....	.....	208	2,994	.....	4,009	231	804	3,151	5,452	2,301
Rome.....	1909	36	1,129	15	100	1,014	2,265	1,551	110	320	1,078	1,864	786
	<sup>1</sup> 1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	<sup>1</sup> 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Waycross.....	1909	21	1,210	13	76	1,130	2,995	868	65	469	612	1,203	591
	<sup>1</sup> 1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	<sup>1</sup> 1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

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

MANUFACTURES—GEORGIA.

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.		Average number.	Wage earners.		Total.	16 and over.		Under 16.			
					Male.	Female.		Maximum month.	Minimum month.		Male.	Female.	Male.	Female.		
1 All industries.....	4,792	118,036	5,141	3,652	3,963	702	104,588	Do 100,839	My 98,622	(1)	(1)	(1)	(1)	238,241		
2 Agricultural implements.....	17	614	20	18	20	4	552	De 774	Je 286	768	740	2	26	1,307		
3 Artificial stone.....	36	324	39	15	7		263	Se 314	Ja 185	319	310			45		
4 Bags, other than paper.....	5	223	3	8	7	3	302	Au 217	Ja 169	209	83	75	20	521		
5 Boxes, fancy and paper.....	8	367	1	19	31	7	309	Oc 349	Au 275	341	129	186	12	266		
6 Bread and other bakery products.....	110	706	115	13	36	51	491	De 506	Je 481	509	434	43	28	237		
7 Brick and tile.....	75	2,085	73	82	26	3	1,901	Je 2,196	Ja 1,337	2,169	2,116	2	51	7,476		
8 Brooms.....	11	118	10	3	3	1	101	No 117	Jy 81	99	96		3	47		
9 Brushes.....	3	15	4	1			10	De 12	Je 7	12	7	5		11		
10 Butter, cheese, and condensed milk.....	4	6	1	1			4	De 5	Je 4	5	5			45		
11 Canning and preserving.....	26	479	27	15	9		428	Jy 1,251	My 7	1,646	651	810	90	318		
12 Carriages and wagons and materials.....	83	1,252	81	49	59	4	1,059	De 1,228	Ja 953	1,228	1,186	4	36	1,353		
13 Cars and general shop construction and repairs by steam-railroad companies.....	34	6,643		103	258	13	6,269	De 6,718	Ja 5,348	6,706	6,673	32	1	6,879		
14 Cars and general shop construction and repairs by street-railroad companies.....	7	145		2	1		142	Jy 155	Ja 135	141	141			342		
15 Chemicals.....	4	75	2	7	9	4	53	Oc 57	Jy 47	55	48	7		290		
16 Clothing, men's, including shirts.....	22	1,354	17	41	44	10	1,242	Je 1,318	De 1,075	1,283	164	1,093	8	18		
17 Clothing, women's.....	4	145	5	8	8	4	120	De 131	Se 106	131	16	114		21		
18 Coffins, burial cases, and undertakers' goods.....	6	206	2	10	20	2	166	De 175	Jy 152	175	166	9		435		
19 Confectionery.....	23	878	18	34	151	27	648	De 852	Fe 554	852	372	443	25	12		
20 Cooperage and wooden goods, not elsewhere specified.....	14	376	11	15	5	1	344	Oc 381	Ja 284	382	375		7	637		
21 Copper, tin, and sheet-iron products.....	25	718	23	26	40	10	619	De 767	Ap 502	767	722	44	1	499		
22 Cotton goods, including cotton small wares.....	116	28,495	12	375	252	53	27,803	No 28,218	Jy 26,990	28,495	14,993	9,219	2,333	1,050		
23 Fertilizers.....	110	3,373	71	195	310	27	2,770	Mh 6,851	Jy 1,366	3,070	3,030	4	36	10,485		
24 Flags, banners, regalia, society badges, and emblems.....	3	25	4	1	2		16	Ap 29	Au 9	14	4	10		3		
25 Flour-mill and gristmill products.....	105	630	137	47	54	6	386	Se 443	Fe 358	409	403		6	9,932		
26 Foundry and machine-shop products.....	107	3,363	83	176	186	26	2,892	De 3,101	Ja 2,657	3,116	3,080	1	35	5,244		
27 Furnishing goods, men's.....	3	153		14	28	2	109	Au 137	Ja 74	130	8	122		22		
28 Furniture and refrigerators.....	42	1,569	28	72	46	17	1,406	De 1,593	Jy 1,204	1,614	1,592	32	78	2,610		
29 Gas, illuminating and heating.....	15	604		36	91	18	459	Oc 482	Ja 443	464	464			659		
30 Hand stamps and stencils and brands.....	6	28	5	4	1	3	15	Jy 16	No 14	15	14		1	1,048		
31 Hosiery and knit goods.....	22	2,880	3	53	64	17	2,743	De 2,897	Ja 2,626	2,897	834	1,590	193	274		
32 Ice, manufactured.....	61	651	27	87	42	1	494	Jy 678	Ja 320	561	547		14	8,125		
33 Leather goods.....	34	829	35	40	61	10	683	De 803	Ap 606	815	652	117	31	15		
34 Leather, tanned, curried, and finished.....	10	327	4	12	4	1	306	Ja 359	De 267	277	277			1,228		
35 Lime.....	5	70	4	2			64	No 78	Ja 49	78	76		2	150		
36 Liquors, malt.....	4	247		17	17	1	212	Jy 223	Ja 200	215	215			958		
37 Lumber and timber products.....	1,826	25,491	2,371	537	801	35	22,257	De 24,410	Je 20,623	27,631	27,232	99	295	5		
38 Marble and stone work.....	104	2,391	111	80	88	13	2,090	Au 2,262	My 1,730	2,242	2,184		58	3,370		
39 Mattresses and spring beds.....	20	388	15	27	28	8	310	De 371	Je 370	370	319	45	6	465		
40 Millinery and lace goods.....	5	127	2	7	9	4	105	Fe 177	Je 61	127	23	104		10		
41 Oil, cottonseed, and cake.....	142	3,609	11	365	337	8	2,583	De 4,823	Je 686	4,726	4,711	3	12	29,510		
42 Optical goods.....	6	45	6	4	5	2	28	De 29	Je 28	29	25	4		249		
43 Paint and varnish.....	7	56	5	6	9	1	35	Oc 37	Je 33	35	32	2	1	95		
44 Patent medicines and compounds and druggists' preparations.....	50	376	33	27	80	26	210	Fe 231	Au 170	221	100	119	2	84		
45 Photo-engraving.....	3	53	1	6	11	1	34	De 34	Jy 34	34	33		1	36		
46 Pottery, terra-cotta, and fire-clay products.....	27	659	21	20	18	8	592	Oc 620	Ap 537	640	632		8	1,540		
47 Printing and publishing.....	442	3,849	422	285	547	200	2,305	De 2,483	Je 2,343	2,510	1,955	400	133	22		
48 Show cases.....	4	264	2	16	15		231	Se 252	My 211	242	242			333		
49 Slaughtering and meat packing.....	8	113	9	3	8	3	90	Mh 101	Au 79	95	95			262		
50 Stoves and furnaces, including gas and oil stoves.....	6	350	1	14	16	4	315	Oc 337	Jy 292	326	324		2	322		
51 Tobacco manufactures.....	50	435	52	18	5		360	No 396	Ja 324	405	267	124	10	4		
52 Turpentine and rosin.....	592	14,253	1,003	337	126		12,787	My 13,016	Ja 12,288	13,120	12,923		197	1,497		
53 Wood distillation, not including turpentine and rosin.....	4	77	2	5	7		63	De 66	Jy 36	66	66			579		
54 Woolen, worsted, and felt goods, and wool hats.....	7	692	4	17	7	4	660	Oc 699	My 639	672	347	257	44	24		
55 All other industries.....	329	4,835	305	277	348	57	3,848							16,518		

1 No figures given for reasons explained in the Introduction, page 2. See also discussion of wage earners on page 7.  
 2 Same number reported for one or more other months.  
 3 Same number reported for entire year.  
 4 All other industries embrace—

Artists' materials.....	2	Charcoal.....	14	Gas and electric fixtures and lamps and reflectors.....	1
Automobiles, including bodies and parts.....	1	Coffee and spice, roasting and grinding.....	5	Glass.....	4
Awnings, tents, and sails.....	4	Coke.....	1	Glass, cutting, staining, and ornamenting.....	1
Baskets, and rattan and willow ware.....	4	Cordage and twine and jute and linen goods.....	2	Grease and tallow.....	1
Belting and hose, leather.....	1	Cordials and sirups.....	4	Hats and caps, other than felt, straw, and wool.....	2
Blacking and cleansing and polishing preparations.....	2	Corsets.....	1	Hats, straw.....	2
Boots and shoes, including cut stock and findings.....	3	Cutlery and tools, not elsewhere specified.....	1	House-furnishing goods, not elsewhere specified.....	3
Brass and bronze products.....	2	Dyestuffs and extracts.....	3	Iron and steel, blast furnaces.....	1
Card cutting and designing.....	2	Electrical machinery, apparatus, and supplies.....	2	Iron and steel, steel works and rolling mills.....	1
Cars, steam-railroad, not including operations of railroad companies.....	3	Electroplating.....	1	Iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills.....	1
Cement.....	3	Flavoring extracts.....	5		
		Food preparations.....	9		

# MANUFACTURES—GEORGIA.

25

THE STATE, BY INDUSTRIES: 1909.

Capital.		EXPENSES.									Value of products.	Value added by manufacture.		
		Services.			Materials.		Miscellaneous.							
		Total.	Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.			Other.	
1	\$202,777,665	\$176,164,569	\$5,312,492	\$3,749,115	\$34,804,818	\$4,302,189	\$112,667,575	\$533,268	\$1,448,577	\$757,805	\$12,588,730	\$202,863,262	\$85,893,498	
2	1,410,458	915,718	38,600	21,475	190,364	21,182	501,755	794	9,844	6,090	65,614	1,116,700	533,763	
3	172,813	250,690	15,926	5,640	98,856	610	115,284	3,545	1,375	.....	15,451	295,775	179,881	
4	421,447	565,437	14,180	6,915	50,884	6,661	459,773	.....	2,852	.....	14,672	604,366	137,932	
5	659,082	1,037,379	47,016	52,141	92,520	4,521	781,244	.....	9,172	.....	60,760	1,139,935	354,170	
6	525,062	1,308,388	22,304	41,900	213,005	25,922	900,304	.....	34,443	.....	6,741	1,531,978	590,762	
7	2,771,068	1,395,535	111,089	21,014	546,967	480,961	53,152	3,837	11,571	1,500	165,444	1,711,096	1,176,983	
8	146,525	176,304	4,225	1,920	32,201	937	126,798	.....	772	.....	6,645	220,924	93,139	
9	11,230	21,966	.....	.....	3,545	159	9,810	.....	122	1,000	770	19,359	9,370	
10	27,951	20,623	.....	.....	1,245	307	18,052	.....	173	.....	306	23,171	4,752	
11	141,377	280,181	9,496	6,452	56,375	2,587	195,792	.....	1,126	50	7,023	321,287	122,938	
12	2,219,901	2,162,620	75,734	51,807	480,036	21,365	1,346,037	.....	21,960	.....	16,705	2,560,031	1,192,629	
13	4,276,699	6,535,019	143,959	242,240	3,161,522	96,079	2,898,112	.....	7,007	.....	16,100	6,535,035	3,670,844	
14	285,047	201,090	4,500	720	62,611	1,587	125,326	.....	2,790	450	3,096	201,374	74,461	
15	378,508	190,030	16,700	11,852	24,342	7,383	62,592	.....	5,731	.....	2,812	245,725	185,750	
16	1,005,780	1,719,114	58,550	51,836	341,498	9,548	1,153,250	.....	3,770	34,600	48,216	1,933,659	765,861	
17	71,062	130,073	11,400	6,550	32,615	1,103	63,340	.....	3,000	.....	455	162,225	87,782	
18	445,797	267,936	15,244	26,284	57,383	1,640	119,485	.....	3,462	.....	44,438	345,491	324,366	
19	901,725	1,999,334	62,150	101,685	224,837	30,334	1,402,002	.....	23,659	2,280	143,845	2,171,737	739,401	
20	293,521	654,599	19,205	2,155	114,405	4,816	464,887	.....	1,542	.....	45,014	770,900	367,197	
21	2,808,115	1,245,792	38,073	44,456	291,709	11,764	695,472	.....	10,750	500	148,448	1,325,769	618,533	
22	64,650,706	43,621,506	754,733	250,398	7,721,245	1,020,216	31,028,523	.....	2,736	394,083	107,296	2,342,276	48,036,817	15,988,078
23	24,232,757	14,090,036	349,745	348,812	920,513	177,905	10,760,246	.....	24,764	104,683	2,894	16,800,301	5,856,150	
24	20,350	31,230	1,040	1,848	5,786	138	18,200	.....	990	.....	3,062	40,754	22,416	
25	2,749,465	7,189,438	75,457	53,523	143,891	56,659	6,671,878	.....	5,012	22,880	100	7,999,912	1,271,375	
26	7,902,824	5,188,302	299,933	227,834	1,452,038	118,909	2,842,751	.....	15,725	47,632	5,114	5,808,152	3,146,493	
27	256,336	355,077	26,200	30,234	35,030	1,212	238,087	.....	4,850	907	.....	17,657	331,191	
28	2,089,375	1,747,473	120,620	48,713	508,415	23,111	850,770	.....	25,625	12,063	34,285	2,060,185	1,177,304	
29	7,074,534	881,169	46,609	76,002	265,623	310,552	57,175	.....	75,000	5,215	105,023	1,425,271	1,057,544	
30	32,490	32,453	4,180	1,306	9,359	132	11,253	.....	290	.....	2,594	40,373	28,988	
31	3,269,652	2,975,327	81,512	73,578	718,931	61,757	1,810,679	.....	2,224	1,025	.....	3,232,623	1,360,187	
32	3,360,459	786,070	106,317	26,857	299,872	203,489	71,611	.....	3,977	.....	2,475	1,162,636	887,536	
33	1,426,439	1,867,081	61,374	66,414	251,770	10,984	1,321,427	.....	15,168	.....	7,566	132,378	753,785	
34	1,266,933	1,243,306	20,938	7,535	98,704	20,492	1,039,951	.....	3,079	.....	61,907	1,374,070	322,627	
35	96,442	43,770	4,425	.....	23,072	7,097	8,057	.....	600	.....	255	60,146	34,992	
36	1,789,889	907,448	47,040	20,067	120,327	54,629	361,287	.....	156,431	.....	230,467	1,206,817	790,901	
37	23,337,198	18,929,154	678,394	318,717	7,304,567	62,927	8,441,676	.....	31,889	152,220	200,836	24,632,093	16,127,490	
38	2,117,492	2,167,125	105,658	68,725	908,058	66,702	726,698	.....	9,245	11,719	2,360	2,648,218	1,854,818	
39	688,813	829,097	42,701	41,516	129,077	9,489	502,079	.....	15,054	4,394	.....	948,700	437,132	
40	70,699	156,503	7,614	6,391	35,927	947	94,161	.....	2,488	159	.....	176,812	80,704	
41	12,720,146	21,979,655	432,803	234,167	846,433	620,941	18,819,011	.....	12,000	98,175	14,721	23,640,779	4,200,827	
42	41,081	91,664	5,430	5,002	10,332	920	51,958	.....	4,050	.....	425	123,887	71,000	
43	175,711	229,953	7,060	6,975	16,115	2,455	179,027	.....	3,540	.....	792	13,089	291,508	
44	556,943	1,149,238	47,035	78,650	81,265	2,058	439,539	.....	9,329	5,174	360	1,420,870	979,273	
45	47,026	61,877	8,010	8,317	25,541	3,172	10,976	.....	1,344	.....	98	73,282	59,134	
46	932,290	602,410	29,792	28,010	233,748	86,271	66,874	.....	304	4,222	550	613,868	460,723	
47	4,732,337	5,382,220	462,973	554,508	1,343,791	64,318	1,523,457	.....	108,190	35,999	314,167	6,400,241	4,812,466	
48	420,727	487,117	23,234	18,471	118,494	7,142	257,559	.....	2,000	1,906	.....	464,780	200,079	
49	168,150	468,038	2,100	7,357	34,110	15,528	385,987	.....	4,044	1,709	884	509,346	107,831	
50	413,680	372,915	25,399	18,232	166,016	11,722	108,919	.....	900	3,938	.....	473,637	352,996	
51	122,118	448,179	15,920	2,150	169,098	340	195,647	.....	5,550	.....	46,297	505,929	309,942	
52	2,989,971	5,134,671	229,033	63,603	2,930,808	700	1,258,943	.....	34,976	.....	616,608	6,938,957	5,679,314	
53	353,392	179,585	13,425	4,150	34,874	643	113,170	.....	1,204	.....	12,119	209,214	95,401	
54	1,415,021	708,964	29,075	6,100	175,221	18,559	424,173	.....	3,580	5,472	46,178	870,520	427,788	
55	12,295,966	14,750,804	433,322	341,089	1,627,287	530,498	10,754,489	.....	86,360	79,983	13,651	17,103,660	5,818,673	

4 All other industries embrace—Continued.

Jewelry.....	3	Pencils, lead.....	1	Steam packing.....	1
Kaolin and ground earths.....	2	Rice, cleaning and polishing.....	2	Stereotyping and electrotyping.....	1
Labels and tags.....	2	Roofing materials.....	2	Surgical appliances and artificial limbs.....	2
Liquors, distilled.....	1	Safes and vaults.....	1	Type founding and printing materials.....	2
Locomotives, not made by railroad companies.....	1	Saws.....	2	Umbrellas and canes.....	2
Looking-glass and picture frames.....	4	Shipbuilding, including boat building.....	2	Upholstering materials.....	6
Mineral and soda waters.....	176	Shoddy.....	1	Vinegar and cider.....	2
Models and patterns, not including paper patterns.....	1	Silk and silk goods, including throwsters.....	1	Wall plaster.....	1
Musical instruments and materials, not specified.....	1	Soap.....	3	Waste.....	1
Oil, not elsewhere specified.....	3	Sporting and athletic goods.....	1	Wirework, including wire rope and cable.....	2
Paper and wood pulp.....	1	Stationery goods, not elsewhere specified.....	1	Wood preserving.....	1
Paving materials.....	1	Statuary and art goods.....	2	Wood, turned and carved.....	5

## MANUFACTURES : HAWAII

## STATISTICS OF MANUFACTURES FOR THE TERRITORY, 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 territory of Hawaii 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 Hawaii 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 territory as a whole and for important industries. It also presents tables in which the statistics for the industries of the territory 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 three general tables.

Table I gives 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 for all industries combined and for certain important industries in 1909 and 1899.

Table II gives, for the city of Honolulu in 1909 and in 1899, the same information that is given for the territory in Table I.

Table III gives statistics in greater detail for 1909 for the territory 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 for Hawaii was not confined strictly 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 only when such establishments have not been included in 1909. The census does not include establishments which were idle during the entire year, or had a value of products 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 state or city. 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 for a given industry may thus, on the one hand, include minor products quite 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 territory. A selection has been made of the leading industries of the territory 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 and 1899, therefore, does not embrace all the industries shown for 1909 in Table III.

**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 and 1899 the following general classes of persons engaged in industry 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 census of 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 industry, 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 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 distribution of this average number by sex and age has been estimated or computed for each industry on the basis of the proportions shown in the age and sex distribution reported for the wage earners employed in that industry on December 15 or the nearest representative day. It is believed that the distribution thus obtained can be accepted as typical and as sufficiently accurate for statistical purposes.

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 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 1899 the schedule called for the average number of wage earners 16 years and over, classified by sex, with the number of both sexes under 16 years of age for each month, and these monthly statements were combined in an annual average. The change in the method of the enumeration was made to secure more precise information, but the change of method may in some instances affect comparisons between the present and earlier censuses.

**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 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.



INDUSTRIES IN GENERAL.

General character of the territory.—The territory of Hawaii consists of eight inhabited islands, with a combined area of 6,449 square miles, besides a number of small uninhabited islands. Its population in 1910 was 191,909, as compared with 154,001 in 1900. It ranked forty-eighth among the 51 states and territories, including Alaska and Hawaii, as regards population both in 1910 and in 1900. Honolulu (coextensive with Honolulu district), with a population of 52,183 in 1910, is the only large city. The remainder of the population is mostly rural. The density of population for the entire territory is 30 per square mile, and if Honolulu is excluded, only 22 per square mile.

Hawaii has no important mineral resources, but its climate and soil are well adapted for agriculture, and its industrial progress is entirely dependent upon its

agricultural products. Those manufacturing industries which have not been called into being by the agricultural products of the islands exist for the production or repair of articles of local consumption.

Importance and growth of manufactures.—Hawaii was annexed to the United States in 1898 and organized as a territory in 1900, and was therefore included in the census of 1900, which was the first enumeration of its manufactures. The industrial census of 1904 was confined to continental United States, consequently no canvass was made in Hawaii.<sup>1</sup>

The following table gives the more important figures relative to all classes of manufactures combined for the territory as returned at the censuses of 1909 and 1899, together with percentages of increase for the 10 years.

	NUMBER OR AMOUNT.		PER CENT OF INCREASE.
	1909	1899	1899-1909
Number of establishments.....	500	222	125.2
Persons engaged in manufactures.....	7,572	4,418	71.4
Proprietors and firm members.....	1,074	244	340.2
Salaried employees.....	594	519	14.4
Wage earners (average number).....	5,904	3,655	61.5
Primary horsepower.....	41,930	19,590	114.0
Capital.....	\$23,875,000	\$10,746,000	122.2
Expenses.....	\$31,753,000	\$15,061,000	110.8
Services.....	\$2,795,000	\$2,038,000	37.1
Salaries.....	\$686,000	\$565,000	21.4
Wages.....	\$2,109,000	\$1,473,000	43.2
Materials.....	\$25,629,000	\$12,251,000	109.2
Miscellaneous.....	\$3,329,000	\$772,000	331.2
Value of products.....	\$47,404,000	\$23,354,000	103.0
Value added by manufacture (value of products less cost of materials).....	\$21,775,000	\$11,103,000	96.1

<sup>1</sup> Includes 272 members of cooperative associations not reported in 1899.

In 1909 the territory of Hawaii had 500 manufacturing establishments, which gave employment to an average of 7,572 persons during the year and paid out \$2,795,000 in salaries and wages. Of the persons employed, 5,904 were wage earners. These establishments turned out products to the value of \$47,404,000, to produce which materials costing \$25,629,000 were consumed. The value added by manufacture was thus \$21,775,000, which figure 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 Hawaii as a whole showed marked development during the decade, due at least in part to the impetus given manufacturing industries by the annexation of the territory to the United States. During this period the number of establishments increased 125.2 per cent and the average number of

wage earners 61.5 per cent, while the value of products increased 103 per cent and the value added by manufacture 96.1 per cent. As pointed out in the introduction, it would be improper to infer that manufactures increased in volume during the period 1899-1909 to the 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.

It is a matter of interest to note that the percentages of increase shown for number of wage earners and for wages were much less than those for the number of establishments, value of products, and value added by manufacture.

<sup>1</sup> In 1905, however, an interesting study of the labor conditions and general industrial progress in the territory was made under the direction of the Commissioner of Labor. See Bulletin of the Bureau of Labor, No. 66, published in 1906.

## STATISTICS OF MANUFACTURES—HAWAII.

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

INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		PER CENT OF INCREASE <sup>1</sup> (1899-1909).	
		Average number.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.	Value of products.	Value added by manufacture.
All industries.....	500	5,904	100.0	\$47,404,000	100.0	\$21,775,000	100.0	103.0	86.1
Sugar.....	46	2,517	42.6	35,950,000	75.8	17,408,000	79.9	86.7	83.7
Rice, cleaning and polishing.....	74	138	2.3	2,239,000	4.7	638,000	2.9	237.2	250.5
Canning and preserving, pineapples.....	10	816	20.4	1,591,000	3.4	664,000	3.0	( <sup>2</sup> )	( <sup>2</sup> )
Slaughtering and meat packing, wholesale.....	10	37	0.6	864,000	1.8	122,000	0.6	( <sup>2</sup> )	( <sup>2</sup> )
Printing and publishing.....	37	319	5.4	435,000	0.9	337,000	1.5	117.5	101.8
Food preparations.....	87	172	2.9	341,000	0.7	146,000	0.7	450.6	294.6
Bread and other bakery products.....	46	107	1.8	344,000	0.7	124,000	0.6	3,340.0	2,350.0
Copper, tin, and sheet-iron products.....	12	80	0.2	304,000	0.6	133,000	0.6	234.1	159.9
Coffee, cleaning and polishing.....	5	71	1.2	297,000	0.6	46,000	0.2	213.6	31.4
Lumber and timber products.....	8	254	4.3	281,000	0.6	184,000	0.8	208.8	273.5
All other industries.....	* 165	1,393	18.2	4,758,000	10.1	1,973,000	9.3	64.9	73.7

<sup>1</sup> Per cent of increase is based on figures in Table I.

<sup>2</sup> New industry since 1899.

<sup>3</sup> Includes two important industries—foundry and machine shops, with 3 establishments, and "fertilizers," with 2 establishments, for which separate figures can not be given without disclosing individual operations.

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

*Sugar.*—The prosperity of Hawaii depends largely upon its sugar products. The cultivation of sugar cane in commercial quantities and the manufacture of sugar were begun about 75 years ago, and since 1875 this industry has increased rapidly and steadily. Cane sugar alone is produced, although recent experiments in growing sugar beets indicate the possibility that this industry may secure a foothold in the territory.

In 1909 the value of the sugar manufactured amounted to 75.8 per cent of the value of all manufactures of the territory. Since the sugar industry so greatly preponderates among the manufacturing industries of the islands, it exerts a powerful effect on the increase shown for all manufacturing industries combined. Exclusive of sugar, the value of the manufactures increased from \$4,099,000 in 1899 to \$11,454,000 in 1909, or 179.4 per cent.

The United States has imported nearly all of the Hawaiian sugar, a large part of which is refined after importation. The exports of sugar during the year ending June 30, 1909, were valued at \$37,632,821 and represented 93.1 per cent of the value of all exports to the United States. The exports of domestic merchandise to the United States, exclusive of sugar, were valued at \$2,762,219, and of these canned fruit amounted to \$1,229,647 and rice to \$255,312, leaving a balance of \$1,277,260 to represent the value of all other exports.

*Rice, cleaning and polishing.*—With the exception of some of the larger mills in and near Honolulu, this industry is carried on by the Chinese and Japanese. Practically all of the rice milled in the islands is consumed locally, being in great demand among the Chinese and Japanese, who constitute about one-half of the population. During the year ending June 30, 1909, the imports of rice products amounted to 28,197,453 pounds, valued at \$728,791, while the exports amounted

to only 5,869,759 pounds, valued at \$257,247. About 99 per cent of the imported rice came from Japan.

*Canning and preserving, pineapples.*—Since 1895, when this industry was first known commercially in the islands, it has shown a steady growth. It was not of enough importance, however, at the census of 1899 to be shown separately, and was probably included with food preparations. Considering the short season during which it is carried on the value of products is significant compared with the values reported for other industries. Measured by value added by manufacture, this industry is second in importance, although holding third place in actual value of products.

This table shows also the percentages of increase for these leading industries in respect to value of products and value added by manufacture. The rice cleaning and polishing industry showed an increase of 237.2 per cent in value of products, while sugar showed an increase of 86.7 per cent. The canning and preserving industry is shown as a new industry.

The increase in manufacturing in Hawaii since 1899 is shown in greater detail in Table I. In practically every industry an increase is indicated in number of establishments and in value of products.

In 1909, 87 establishments were engaged in the manufacture of food preparations, 74 of these making poi, a native food obtained by baking and pounding to a thin paste the kalo or taro root, which is allowed to ferment. The articles included under "Food preparations," the number of establishments preparing them, and the value of the output of the several kinds, are shown in the following tabular statement:

CLASS OF PRODUCTS.	Number of establishments.	Value of products.
Total.....	87	\$341,052
Poi.....	74	271,729
Soy and fish paste.....	5	9,137
Bean-curd.....	4	4,663
Macaroni.....	4	55,530

It is significant that the boot and shoe shops reported for Hawaii have an average value of products of only about \$9,000. They include a number of small establishments engaged largely in custom work, which in continental United States would be excluded from the census. They are, however, included for Hawaii, because they represent such an important part of the boot and shoe industry in the territory.

Three establishments which have commenced operations since 1899 were engaged in the manufacture of malt liquors, two in the distillation of liquors, and one in the manufacture of wine. For 1909 the total products of these six establishments amounted to more than \$300,000. Of the three establishments engaged in the manufacture of malt liquors, only one, located in Honolulu, is engaged in the manufacture of beer from malt and hops, the other two producing a Japanese drink made from rice, known as saki. One of the distilleries made a rum from molasses, and the other was engaged in the manufacture of brandy and wine from pineapples, bananas, and grapes.

A petroleum gas plant, which went into operation in Honolulu in 1905, is the only gas plant in Hawaii. Early in 1907 a company was organized to manufacture lime. Four small establishments have recently begun to extract salt from brine.

Persons engaged in manufacturing industries.—The following table shows the distribution of the average number of persons engaged in manufactures, the average number of wage earners being distributed by sex and age in the manner already explained:<sup>1</sup>

CLASS.	PERSONS ENGAGED IN MANUFACTURES.		
	Total.	Male.	Female.
All classes.....	7,572	7,046	526
Proprietors and officials.....	1,338	1,327	11
Proprietors and firm members.....	1,074	1,063	11
Salaried officers of corporations.....	24	24	.....
Superintendents and managers.....	240	240	.....
Clerks.....	330	317	13
Wage earners (average number).....	5,904	5,401	503
16 years of age and over.....	5,842	5,344	498
Under 16 years of age.....	62	57	5

This table shows that there were 7,572 persons returned as the average number engaged in manufactures during 1909, of whom 5,904 were wage earners, 1,338 proprietors and officials, and 330 clerks. Of the total number, 93.1 per cent were male and 6.9 per cent female. Almost all the females were wage earners, only 11 female proprietors and firm members and 13 female clerks being reported. Corresponding figures for individual industries will be found in Table III.

Of the total number of persons engaged in manufactures, 4,080, or 53.9 per cent, were in three industries,

as follows: Canning and preserving, pineapples, 853; rice cleaning and polishing, 518; and sugar, 2,709. The sugar industry far outranks all other industries in respect to the average number of persons engaged, but owing to its seasonal character employed a less number of wage earners during the months of least activity—September, October, and November—than did the canning and preserving industry during the months of greatest activity in this industry—July, August, and September.

The following table shows the percentage of proprietors and officials, clerks, and wage earners, respectively, in the number of the persons employed in manufactures. It covers all industries combined and three important industries.

INDUSTRY.	PER CENT OF PERSONS ENGAGED IN MANUFACTURES.			
	Total.	Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	100.0	17.7	4.4	78.0
Canning and preserving, pineapples.....	100.0	2.1	2.2	95.7
Rice, cleaning and polishing.....	100.0	69.7	3.7	26.6
Sugar.....	100.0	3.4	3.7	92.9
All other industries.....	100.0	24.8	5.5	69.7

Of the persons engaged in manufactures, 17.7 per cent were officials, 4.4 per cent clerks, and 78 per cent wage earners. In the cleaning and polishing of rice, the majority of the establishments is small and the work is to a large extent done by the proprietors or their immediate representatives. Therefore the proportion of persons engaged in the industry falling in the class of proprietors and officials is very much higher than for other industries or all industries combined.

The following table shows in percentages, for all industries combined and for some of the important industries separately, the distribution of clerks by sex and wage earners by age periods and sex:

INDUSTRY.	CLERKS.		WAGE EARNERS.			
	Per cent.		Per cent 16 years of age and over.		Per cent under 16 years of age.	
	Male.	Female.	Male.	Female.	Male.	Female.
All industries.....	90.1	3.9	90.5	8.4	1.0	0.1
Canning and preserving, pineapples.....	80.5	10.5	69.1	30.0	0.7	0.1
Rice, cleaning and polishing.....	100.0	.....	100.0	.....	.....	.....
Sugar.....	100.0	.....	96.5	3.4	0.1	.....
All other industries.....	94.3	5.7	91.0	6.9	2.0	0.2

Of the clerks, 96.1 per cent were male and 3.9 per cent female. Of the wage earners, 91.5 per cent were male and 8.5 per cent female; 98.9 per cent were 16 years of age or over and but 1.1 per cent were under 16 years.

It may be noted that the largest number of women and children were employed in canning and preserv-

<sup>1</sup> See "Introduction."

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ing. The average number of wage earners in that industry was 564 males and 245 females 16 years of age or over and 6 males and 1 female under that age. Of the total of 503 females in all industries combined, 246 were in this industry and 86 in the sugar industry. Thus 66 per cent of the total female employees were reported by these two industries.

In order to compare the distribution of persons engaged in manufactures in 1909 with that shown in the census of 1899 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		1899		Per cent of increase, 1899-1909.
	Num-ber.	Per cent distribution.	Num-ber.	Per cent distribution.	
Total.....	7,572	100.0	4,418	100.0	71.4
Proprietors and firm members.....	1,074	14.2	244	5.5	340.2
Salaried employees.....	594	7.8	519	11.7	14.4
Wage earners (average number).....	5,904	78.0	3,655	82.7	61.5

There were 4,418 persons engaged in manufactures in 1899, as compared with 7,572 in 1909, an apparent increase of 3,154, or 71.4 per cent. The actual increase was only 2,882, or 65.2 per cent, as 272 members of cooperative societies were reported as partners in 1909, this industrial class not being included in the census of 1899. The formation of general partnerships with from 5 to 40 partners in each, accounts for the large increase in the number of proprietors and firm members, only a very few such partnerships being reported in 1899, and these with less than 10 partners in each case. Both the cooperative associations and these large general partnerships are composed of Japanese or of Chinese, one of the cooperative establishments having 200 Japanese members and another general partnership being composed of 40 Chinese.

The following table shows the average number of wage earners, distributed according to age periods, and in case of those 16 years of age or over according to sex, for 1909 and 1899:

CLASS.	AVERAGE NUMBER OF WAGE EARNERS.			
	1909		1899	
	Num-ber.	Per cent distribution.	Num-ber.	Per cent distribution.
Total.....	5,904	100.0	3,655	100.0
16 years of age and over.....	5,842	98.9	3,630	99.3
Male.....	5,344	90.5	3,496	95.6
Female.....	498	8.4	134	3.7
Under 16 years of age.....	62	1.0	25	0.7

This table indicates that for all industries combined there was an increase of 364, or 271.6 per cent, in the number of adult female wage earners, the number having increased from 134 in 1899 to 498 in 1909, and an increase of 37, or 148 per cent, in the number of children employed. In 1909, 8.4 per cent of the total number of wage earners 16 years of age and over were women, while in 1899 only 3.7 per cent were women.

**Wage earners 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 canning and preserving pineapples, for sugar, and for all other industries; it also gives the percentage which the number each month is of the greatest number employed in any one month:

MONTH.	NUMBER OF WAGE EARNERS.							
	All Industries.		Canning and preserving, pineapples.		Sugar and molasses.		All other industries.	
	Num-ber.	Per cent of maximum.	Num-ber.	Per cent of maximum.	Num-ber.	Per cent of maximum.	Num-ber.	Per cent of maximum.
January.....	5,927	81.3	364	18.7	3,217	91.7	2,346	86.8
February.....	6,086	83.5	305	15.7	3,479	99.2	2,302	85.2
March.....	6,041	82.8	427	22.0	3,280	93.5	2,334	86.3
April.....	6,509	89.3	464	23.0	3,508	100.0	2,537	93.8
May.....	6,457	88.5	488	25.1	3,328	94.9	2,611	97.7
June.....	6,608	90.6	610	41.7	3,134	89.3	2,664	95.6
July.....	7,292	100.0	1,686	86.8	2,948	84.0	2,658	98.3
August.....	6,324	86.7	1,043	100.0	1,764	50.3	2,617	96.6
September.....	5,726	78.5	1,587	81.7	1,448	41.3	2,691	99.6
October.....	4,345	59.0	724	37.1	970	27.6	2,654	98.2
November.....	4,214	57.8	526	27.1	994	28.3	2,694	99.7
December.....	5,326	73.0	477	24.5	2,146	61.2	2,703	100.0

The two industries, "Canning and preserving, pineapples" and "Sugar," which are seasonal industries, the former giving employment to an unusually large number of persons during July, August, and September, and the latter during the months from January to July, inclusive, affect greatly the total for all industries combined. They thus not only make the month of July the month of greatest employment, but also magnify the irregularity of employment throughout the year. The variation by months in employment in these two industries depends on the seasons in which the raw materials mature. Outside these two industries the number of wage earners employed underwent but little change from month to month, the numbers showing a general increase from February to the end of the year.

**Prevailing hours of labor.**—Establishments have been classified also according to the prevailing number of hours of labor of the bulk of their employees; that is to say, the wage earners of each establishment are all classified according to the prevailing hours of labor in the establishment, even though some may have to work a different number of hours. The table that follows shows the result of this classification. It is based on the average number of wage

earners employed during the year. In the cases of "Canning and preserving, pineapples" and of "Sugar" this average is far less than the number employed in the busy season.

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.....	5,004	100	839	825	580	865	892	1,394	319
Bread and other bakery products.....	107	14	1	17	235	7	34	9	25
Canning and preserving, pineapples.....	816	3	4	310	271	64	2		
Coffee, cleaning and polishing.....	71	11	12	4	55	2			
Copper, tin, and sheet-iron products.....	80	61	3	8	70	25	5		
Food preparations.....	172	32	16	15	181	10			
Lumber and timber products.....	254								
Printing and publishing.....	319	36	156	84	7	30			
Rice, cleaning and polishing.....	138		11	27	1	61	22	10	
Slaughtering and meat packing.....	37	9		18	3	4	3		
Sugar.....	2,517					115	779	1,348	275
All other industries.....	1,393	24	652	330	153	172	27	16	10

It is evident from these figures that for nearly half the total number of wage earners employed in the manufacturing industries of Hawaii the prevailing hours of labor per week are over 60, or an average of over 10 hours per day. The figures for all industries combined are affected, however, to a large extent by the long hours reported in the sugar industry. In this industry all of the employees were engaged 60 or more hours per week, and about two-thirds were engaged 72 hours and over. Exclusive of those engaged in the sugar industry, almost two-thirds of the wage earners were employed from 54 to 60 hours, inclusive, per week, 5.6 per cent were employed 48 hours or less per week, and 6 per cent were employed more than 60 hours per week.

Location of establishments.—The next table shows the extent to which manufacturing in the territory is centralized in the one city, Honolulu. In 1909, 22.6 per cent of the total value of products was made in this city, and 41.2 per cent of the average number of wage earners were employed there. The figures indicate that since 1899 there has been a more rapid increase in Honolulu than in the districts outside. The relatively large number of establishments in Honolulu was due, however, to the fact that in this city were found many of the poi shops, bakeries, tin shops, and less important industries. While there was a large number of these concerns, they were all small establishments. Indeed, the combined value of products of 226 of the 236 establishments reported from Honolulu amounted to about \$4,980,000, while the value of products of the remaining 10 establishments, of which 3 were foundry and machine shops, 3 pineapple canneries, 3 fertilizer factories, and 1 a sugar mill, approximated \$5,700,000. The other sugar mills were located on the plantations or farms in the rural districts.

The statistics for the principal manufacturing industries in the territory and of the city of Honolulu are presented for 1909 and 1899 in Tables I and II.

ITEM.	Year.	Total.	LOCATION OF ESTABLISHMENTS.		PER CENT OF TOTAL.	
			Honolulu.	Outside districts.	Honolulu.	Outside districts.
Population.....	1910	191,000	52,183	139,726	27.2	72.8
	1900	154,001	39,306	114,695	25.5	74.5
Number of establishments.	1909	500	236	264	47.2	52.8
	1899	222	53	169	23.9	76.1
Average number of wage earners.	1909	5,004	2,432	3,472	41.2	58.8
	1899	3,655	920	2,726	25.4	74.6
Value of products.....	1909	\$47,463,880	\$10,704,744	\$36,699,136	22.6	77.4
	1899	\$23,353,065	\$3,264,574	\$20,089,091	14.0	86.0
Value added by manufacture.	1909	\$21,774,571	\$4,335,520	\$17,439,051	19.9	80.1
	1899	\$11,102,764	\$1,293,330	\$9,809,425	11.6	88.4

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 in 1909 and 1899, respectively.

The most important distinction shown is that between corporate and all other forms of ownership. For all industries combined, 28 per cent of the total number of establishments had in 1909 a corporate form of organization, as against 72 per cent for all other forms. The corresponding figures for 1899 were 32.4 per cent and 67.6 per cent, respectively. For all industries combined, as measured by value of products and value added by manufacture, corporations show a slight increase in relative importance, as they operated establishments whose value of products formed 92.2 per cent of the total for all establishments in 1899 and 92.8 per cent in 1909, while the value added by manufacture formed 93.4 per cent of the total in 1899 and 94 per cent in 1909.

STATISTICS OF MANUFACTURES—HAWAII.

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>				
1909.....	500	5,904	\$47,403,880	\$21,774,571
1899.....	222	3,656	23,353,665	11,102,764
<b>Individual:</b>				
1909.....	240	520	1,596,352	728,750
1899.....	90	320	902,695	375,033
<b>Firm:</b>				
1909.....	92	414	1,712,287	542,334
1899.....	53	279	906,146	344,377
<b>Corporation:</b>				
1909.....	140	4,935	43,982,101	20,459,615
1899.....	72	3,048	21,526,749	10,375,513
<b>Other:</b>				
1909.....	28	26	113,160	42,872
1899.....	1	8	18,073	7,841
<b>Per cent of total:</b>				
1909.....	100.0	100.0	100.0	100.0
1899.....	100.0	100.0	100.0	100.0
<b>Individual:</b>				
1909.....	48.0	9.0	3.4	3.3
1899.....	43.2	8.8	3.9	3.4
<b>Firm:</b>				
1909.....	18.4	7.0	3.6	2.5
1899.....	23.9	7.6	3.9	3.1
<b>Corporation:</b>				
1909.....	28.0	83.5	92.8	94.0
1899.....	32.4	83.4	92.2	93.4
<b>Other:</b>				
1909.....	5.6	0.4	0.2	0.2
1899.....	0.4	0.2	0.1	0.1
<b>INDUSTRIES, 1909</b>				
<b>Rice, cleaning and polishing</b>				
Individual.....	74	138	\$2,238,687	\$637,919
Firm.....	38	58	536,900	242,268
Corporation.....	30	53	595,639	128,145
.....	6	27	1,106,128	267,506
<b>Per cent of total:</b>				
Individual.....	100.0	100.0	100.0	100.0
.....	51.4	42.0	24.0	38.0
Firm.....	40.5	38.4	26.6	20.1
Corporation.....	8.1	19.6	49.4	41.9
<b>Sugar.....</b>	46	2,517	\$35,949,822	\$17,407,747
Firm.....	3	52	480,218	180,863
Corporation.....	43	2,465	35,469,604	17,226,884
<b>Per cent of total:</b>				
Individual.....	100.0	100.0	100.0	100.0
.....	6.5	2.1	1.3	1.0
Corporation.....	93.5	97.9	98.7	99.0

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

The establishments conducted by individuals and partners were confined to the smaller and less important industries. Considering the three most important manufacturing industries of the islands—all of the canning establishments and 43 of the 46 sugar mills were under corporate ownership, while only 6 of the 74 rice mills belonged to this class. These 6 rice mills, however, reported 49.4 per cent of the total value of rice products. The incorporated companies in the three specified industries reported products to the amount of \$38,166,805, or 86.8 per cent of the total value of products reported by all incorporated companies engaged in manufactures.

Size of establishments.—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 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.

INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>				
1909.....	500	5,904	\$47,403,880	\$21,774,571
1899.....	222	3,656	23,353,665	11,102,764
<b>Less than \$5,000:</b>				
1909.....	255	355	564,867	288,576
1899.....	97	122	185,928	113,238
<b>\$5,000 and less than \$20,000:</b>				
1909.....	109	540	1,085,306	495,977
1899.....	50	332	486,704	240,892
<b>\$20,000 and less than \$100,000:</b>				
1909.....	72	855	2,951,873	1,198,972
1899.....	31	443	1,336,409	638,587
<b>\$100,000 and less than \$1,000,000:</b>				
1909.....	52	2,818	20,733,541	8,562,543
1899.....	39	1,940	15,331,918	6,377,425
<b>\$1,000,000 and over:</b>				
1909.....	12	1,336	22,068,293	11,228,503
1899.....	5	818	6,012,700	3,232,622
<b>Per cent of total:</b>				
1909.....	100.0	100.0	100.0	100.0
1899.....	100.0	100.0	100.0	100.0
<b>Less than \$5,000:</b>				
1909.....	51.0	6.0	1.2	1.3
1899.....	43.7	3.3	0.8	1.0
<b>\$5,000 and less than \$20,000:</b>				
1909.....	21.8	9.1	2.3	2.3
1899.....	22.5	9.1	2.1	2.2
<b>\$20,000 and less than \$100,000:</b>				
1909.....	14.4	14.5	6.2	5.5
1899.....	14.0	12.1	5.7	5.8
<b>\$100,000 and less than \$1,000,000:</b>				
1909.....	10.4	47.7	43.7	38.3
1899.....	17.6	53.1	65.6	61.9
<b>\$1,000,000 and over:</b>				
1909.....	2.4	22.6	46.6	51.6
1899.....	2.2	22.4	25.7	20.1
<b>Average per establishment:</b>				
1909.....	12		\$94,808	\$43,549
1899.....	10		\$105,197	\$50,012
<b>INDUSTRIES, 1909</b>				
<b>Canning and preserving, pine-apples.....</b>	10	816	\$1,591,073	\$664,482
\$20,000 and less than \$100,000.....	6	127	270,859	124,087
\$100,000 and less than \$1,000,000.....	4	689	1,311,214	540,425
<b>Per cent of total:</b>				
\$20,000 and less than \$100,000.....	100.0	100.0	100.0	100.0
\$100,000 and less than \$1,000,000.....	60.0	15.6	17.6	18.7
Average per establishment.....	40.0	84.4	82.4	81.3
Average per establishment.....		82	\$159,107	\$66,448
<b>Rice, cleaning and polishing.....</b>	74	138	\$2,238,687	\$637,909
Less than \$5,000.....	34	22	74,529	27,769
\$5,000 and less than \$20,000.....	19	31	205,777	93,322
\$20,000 and less than \$100,000.....	15	54	617,062	193,880
\$100,000 and less than \$1,000,000.....	6	31	1,340,399	375,938
<b>Per cent of total:</b>				
Less than \$5,000.....	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000.....	45.9	15.9	3.3	4.4
\$20,000 and less than \$100,000.....	20.3	22.5	9.2	5.5
\$100,000 and less than \$1,000,000.....	26.3	30.1	27.6	31.2
Average per establishment.....	8.1	22.5	59.9	58.9
Average per establishment.....		2	\$30,252	\$8,620
<b>Sugar.....</b>	46	2,517	\$35,949,822	\$17,407,747
\$20,000 and less than \$100,000.....	3	54	228,778	73,941
\$100,000 and less than \$1,000,000.....	32	1,170	14,670,438	6,234,800
\$1,000,000 and over.....	11	1,284	21,050,614	11,099,006
<b>Per cent of total:</b>				
\$20,000 and less than \$100,000.....	100.0	100.0	100.0	100.0
\$100,000 and less than \$1,000,000.....	6.5	2.1	0.6	0.4
\$1,000,000 and less than \$1,000,000.....	69.6	46.8	40.8	35.8
Average per establishment.....	23.9	51.0	58.6	63.8
Average per establishment.....		55	\$781,518	\$378,429

<sup>1</sup> Includes the group "Less than \$5,000."

This table shows that, in 1909, of the 500 establishments, only 12, or 2.4 per cent, had a value of products exceeding \$1,000,000. These establishments, however, notwithstanding their small number, had a total average number of wage earners of 1,336, or 22.6 per cent of the total number in all establishments; and the importance of their operations, as measured by value of product, was 46.6 per cent of the total and by value added by manufacture 51.6 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 (51 per cent) of the total number of establishments, but the value of their product amounted to only 1.2 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 fact that the average number of wage earners per establishment decreased from 16 to 12, the value of products from \$105,197 to \$94,808, and the value added by manufacture from \$50,012 to \$43,549, can scarcely be taken as an indication of a change in the tendency away from concentration. It may be due to a more thorough canvass of the small establishments at the census of 1909 or to an increase in the number of small establishments in the less important industries measured by value of product, such as "Bread and other bakery products" and "Food preparations."

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

This table shows classes in considerable detail. Consolidating these classes to a certain extent it will be seen that 67.2 per cent of the establishments employed under 21 persons each, and 18.6 per cent employed no wage earners. The most numerous single group consists of the 256 establishments employing under 6 wage earners, the next being the group employing from 6 to 20, with 80 establishments. There were 14 establishments that employed over 100 wage earners; 2 employed over 250.

Of the total number of wage earners, 38.3 per cent were in establishments employing over 100 wage earners. The single group having the largest number of employees was the group employing from 101 to 250 wage earners. This group employed 1,670 wage earners, or 28.3 per cent of the total. The next most numerous group was that employing from 21 to 50 wage earners, with 1,396 wage earners, or 23.6 per cent of the total.

The sugar and the canning and preserving industries listed in this table are industries in which comparatively large establishments do most of the business, as appears from the classification of the wage earners. On the other hand, 71.7 per cent of the wage earners engaged in the cleaning and polishing of rice were in establishments employing under 6 wage earners, and the remaining 28.3 per cent in this industry were in establishments employing from 6 to 20 wage earners.

INDUSTRY.	Total.	ESTABLISHMENTS EMPLOYING—						
		No wage earners.	Under 6 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.
NUMBER OF ESTABLISHMENTS.								
All Industries.....	500	98	256	80	44	13	12	2
Canning and preserving, pineapples.....	10	1	1	4	3	1		
Rice, cleaning and polishing.....	71	13	56	5				
Sugar.....	46		6	26	6	8		
All other industries.....	370	80	199	68	14	7	1	1
PER CENT OF NUMBER OF ESTABLISHMENTS.								
All Industries.....	100.0	19.6	51.2	16.0	8.8	2.6	2.4	0.4
Canning and preserving, pineapples.....	100.0		10.0	10.0	40.0		30.0	10.0
Rice, cleaning and polishing.....	100.0	17.0	75.7	6.8				
Sugar.....	100.0		13.0	56.5	13.0	17.4		
All other industries.....	100.0	21.6	53.8	18.4	3.8	1.9	0.3	0.3
AVERAGE NUMBER OF WAGE EARNERS.								
All Industries.....	5,904		571	825	1,390	852	1,670	590
Canning and preserving, pineapples.....	816		4	20	103		370	310
Rice, cleaning and polishing.....	138		99	30				
Sugar.....	2,517		82	920	399	1,110		
All other industries.....	2,433		468	684	367	453	181	280
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.								
All Industries.....	100.0		9.7	14.0	23.6	14.4	28.3	10.0
Canning and preserving, pineapples.....	100.0		0.5	2.4	12.6		40.4	38.0
Rice, cleaning and polishing.....	100.0		71.7	28.3				
Sugar.....	100.0		3.3	36.8	15.9	44.1		
All other industries.....	100.0		19.2	28.1	16.1	18.6	7.4	11.5

**Expenses.**<sup>1</sup>—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, however, can be brought out concerning the relative importance of the different classes of expenses going to make up the total.

The following table shows, 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 III.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
All industries.....	2.2	6.6	80.7	10.5
Canning and preserving, pineapples.....	3.5	13.1	60.6	13.8
Rice, cleaning and polishing.....	0.7	2.1	94.6	2.7
Sugar.....	1.2	3.5	84.1	11.1
All other industries.....	5.4	16.7	68.2	9.7

This table shows that, for all industries combined, 80.7 per cent of total expenses were incurred for materials. An unusual condition is found in Hawaii in the fact that the miscellaneous expenses form a larger proportion of the total expenses than do the salaries and wages combined. The large amount reported for miscellaneous expenses is due partly to the generally high taxes prevailing in Hawaii and also to the large amount reported in the sugar industry under the general head of "Rent of offices and buildings, rent of machinery, royalties, use of patents, insurance, ordinary repairs of buildings and machinery, advertising, traveling, and other sundry expenses." In addition to a general property tax of 1 per cent on the full value of real and personal property and a general income tax of 2 per cent on incomes of over \$1,500, a special income tax on the net profits or incomes above \$4,000 went into effect beginning with the year 1909.

**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 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 increase in primary power was largely in power generated by steam. The more general use of gas engines is shown, the number of such engines being 87 in 1909, as against 10 in 1899,

<sup>1</sup> See "Introduction."

and the horsepower showing even a larger increase, being 1,117 in 1909, as against 79 in 1899. There were 228 establishments reported as using power in 1909, as compared with 124 in 1899. In 1909 the average horsepower per establishment using horsepower was 183.9, as compared with 158 in 1899. Comparatively little water power was used, and this almost entirely in the rice and the sugar mills, which were located on the various plantations where mountain streams were available for water power. The figures also show that the practice of renting power is on the increase, the number of motors using rented power being 99 in 1909, as against 18 in 1899. The use of electric motors for the purpose of applying power generated within the establishment is shown to be rapidly increasing, the horsepower of such motors increasing from 299 in 1899 to 1,242 in 1909.

POWER.	NUMBER OF ENGINES OR MOTORS.		HORSEPOWER.		PER CENT DISTRIBUTION OF HORSEPOWER.	
	1909	1899	1909	1899	1909	1899
Primary power, total.....	942	347	41,930	19,590	100.0	100.0
Owned.....	843	320	41,354	19,415	98.6	99.1
Steam engines.....	661	253	38,742	18,365	92.4	93.5
Gas and oil engines.....	87	10	1,117	79	2.7	0.4
Water wheels.....	85	66	1,345	971	3.2	5.1
Water motors.....	9	( <sup>1</sup> )	147	( <sup>1</sup> )	0.4	.....
Other.....	1	.....	3	.....	( <sup>2</sup> )	.....
Rented.....	99	18	576	175	1.4	0.9
Electric motors.....	99	18	565	175	1.3	0.9
Other.....	.....	.....	11	.....	( <sup>2</sup> )	.....
Electric motors.....	180	20	1,807	474	100.0	100.0
Run by current generated by establishment.....	90	11	1,242	299	68.8	63.1
Run by rented power.....	99	18	565	175	31.2	36.9

<sup>1</sup> Not reported in 1899.

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

**Fuel.**—Closely related to the question of kind of power employed is that of fuel used in generating this power, or otherwise as material in the manufacturing processes. As the Hawaiian Islands have practically no mineral resources, all mineral fuel must be procured elsewhere, principally from the United States. In the sugar-mill industry a large amount of fuel is required, and the refuse from the sugar cane has almost entirely supplied the necessary fuel. The following table shows the quantity of each kind of fuel used by the establishments canvassed in 1909:

INDUSTRY.	Anthracite coal (tons).	Bituminous coal (tons).	Coke (tons).	Wood (cords).	Oil, including gasoline (barrels).	Gas (1,000 feet).	Other (tons).
All industries.....	1,222	4,747	720	14,570	272,392	4,120	130
Canning and preserving, pineapples.....	.....	212	.....	222	6,302	.....	.....
Rice, cleaning and polishing.....	218	155	.....	120	2,733	650	.....
Sugar.....	419	3,719	.....	10,957	214,365	.....	.....
All other industries.....	585	661	720	3,271	48,002	3,470	130



SUPPLEMENTARY DATA REGARDING IMPORTANT INDUSTRIES.

(With statistics for laundries.)

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. Data for the quantity and value of products for two important industries in Hawaii are here presented.

**Canning and preserving, pineapples.**—Canning and preserving, though a comparatively new factory industry, had a value of products in 1909 amounting to \$1,591,073. The first shipment of preserved pineapples from Hawaii was made in 1895, the exports for that year amounting to 468 cases, valued at \$972. By 1899 the value of the exports had increased to \$3,948. Soon after the annexation of the islands to the United States in 1898 a more rapid development is shown. In the year last named a company was organized for the growing and canning of pineapples, and in 1903 its first crop of any considerable size was gathered. Meanwhile other companies had come into existence, and by 1904 fruit canneries were established in Wahiawa on Oahu, on Maui, and in Hilo and Kona on the island of Hawaii. In that year the value of canned fruit exported to the United States was \$32,349; in 1905, \$66,876; in 1906, \$152,582; in 1907, \$267,629; in 1908, \$632,277; and in 1909, \$1,229,647. The exports of canned fruit consisted almost entirely of canned pineapples, as very little other fruit was canned.

The following tabular statement gives the number of cases put up during 1909:

SIZE OF CAN.	Number of cases.
1-pound cans.....	22, 192
2-pound cans.....	168, 902
3-pound cans.....	265, 600
Gallon cans.....	42, 603

**Rice, cleaning and polishing.**—The cleaning and polishing of rice ranks second in importance among the manufacturing industries of the Hawaiian Islands, being exceeded only by the manufacture of cane sugar.

The following statement shows the number of establishments engaged in merchant and custom milling, respectively, and in both kinds of milling, together with the value of products of the several classes of establishments in 1909:

Total number of mills.....	74
Merchant.....	35
Custom.....	7
Merchant and custom.....	32
Total value of products.....	\$2, 238, 667
Merchant milled.....	1, 354, 267
Custom milled.....	884, 400
Value of toll received.....	61, 154

Of the 74 mills reported, 35, with products valued at \$1,032,904, are classified as merchant mills; 7, with products valued at \$737,848, as custom mills; and 32, with products valued at \$467,915, as both merchant and custom. The amount of toll received for custom-treated rice was returned as \$61,154, indicating an average toll rate equivalent to about one-fourth of a cent per pound.

The total quantity of rough rice milled in 1909, distributed according to domestic and foreign growth, and the kind, quantity, and value of products manufactured therefrom are shown in the following tabular statement:

CLASS.	ROUGH RICE MILLED AND RICE PRODUCTS: 1909.	
	Quantity (pounds).	Value.
Rough rice, milled.....	62, 768, 070	(1)
Domestic.....	34, 019, 056	(1)
Foreign.....	28, 749, 016	(1)
Rice products, aggregate.....	(1)	\$2, 238, 667
Clean, total.....	51, 967, 465	2, 134, 157
Whole.....	61, 381, 561	2, 122, 516
Broken.....	585, 904	11, 641
Polished.....	10, 146	32
Bran.....	6, 415, 232	67, 689
Hulls and waste.....	134, 089	134
All other.....	(1)	36, 595

<sup>1</sup> Not reported.

The total quantity of rice milled was 62,768,070 pounds, of which only 54.2 per cent was of domestic growth, while 45.8 per cent was of foreign growth. The total quantity of clean rice obtained amounted to 51,967,465 pounds, of which 51,381,561 pounds, valued at \$2,122,516, was classed as whole rice, and 585,904 pounds, valued at \$11,641, as broken rice.

The average quantity of clean rice milled per establishment in 1909 was 702,263 pounds, compared with 365,879 in 1899, an increase of 91.9 per cent. The average value of products per establishment in 1909 was \$30,252, compared with \$16,202 in 1899, an increase of 86.7 per cent. In 1909, 6 establishments reported a value of product of over \$100,000 each; 15 between \$20,000 and \$100,000; 19 between \$5,000 and \$20,000; and 34, less than \$5,000. In 1899 the establishments were generally smaller, and only one establishment reported a value of products of more than \$100,000.

**Laundries.**—Statistics for steam laundries are not included in the general tables. There were 4 such establishments in the territory of Hawaii, 3 of which were in Honolulu. The statement following summarizes the statistics.

One laundry was operated by a corporation, one by a limited partnership, and two by individuals. Two of the establishments reported over \$5,000 but less than \$100,000 as receipts for the year and two less than \$5,000.

Number of establishments.....	4
Persons engaged in industry.....	88
Proprietors and firm members.....	4
Salaried employees.....	2
Wage earners (average number).....	82
Primary horsepower.....	65
Capital.....	\$75,355
Expenses.....	34,087
Services.....	24,987
Materials.....	6,613
Miscellaneous.....	2,487
Amount received for work done.....	52,409

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

MONTH.	Number.	Per cent of maximum.	MONTH.	Number.	Per cent of maximum.
January.....	79	76.7	July.....	74	71.8
February.....	77	74.8	August.....	80	77.7
March.....	79	76.7	September.....	78	75.7
April.....	82	79.6	October.....	78	75.7
May.....	88	85.4	November.....	87	84.5
June.....	82	79.6	December.....	103	100.0

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

KIND.	Number of engines.	Horse-power.
<b>Total primary power.....</b>		85
Owned:		
Steam.....	3	65
Gas.....	1	5
Rented:		
Electric.....	1	5

The kind and amount of fuel used are shown in the following statement:

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	36
Bituminous coal.....	Tons.....	15
Wood.....	Cords.....	31
Oil.....	Barrels.....	163
Gas.....	1,000 feet.....	558

STATISTICS OF MANUFACTURES—HAWAII.

TABLE I.—COMPARATIVE SUMMARY FOR SELECTED INDUSTRIES: 1909 AND 1899.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total	Proprietors and firm members.	Salaries employed.	Wage earners (average number).							
Expressed in thousands.													
All industries.....	1909 1899	500 222	7,572 4,418	1,074 244	594 519	5,904 3,655	41,930 19,500	\$23,875 10,746	\$686 565	\$2,109 1,473	\$25,629 12,251	\$47,404 23,354	\$21,775 11,103
Boot and shoe shops.....	1909 1899	14 14	120 65	31 23	8 3	81 39	4	38 18	2 1	17 11	78 20	126 47	48 27
Bread and other bakery products.....	1909 1899	40 8	180 14	63 10	10	107 4	38	142 2	5	36 1	220 5	344 10	124 5
Carriages and wagons and materials.....	1909 1899	17 7	87 57	14 4	5 2	68 51	25 37	87 81	9 4	33 33	50 50	116 106	66 56
Coffee and spice, roasting and grinding.....	1909 1899	4 4	33 20	3 7	2 2	28 17	33 20	23 86	3 3	4 4	36 26	50 38	14 12
Coffee, cleaning and polishing.....	1909 1899	5 6	285 54	203 3	11 4	71 47	237 140	346 70	9 3	12 9	251 60	297 90	46 35
Copper, tin, and sheet-iron products.....	1909 1899	12 12	106 55	14 15	12 4	80 36	18	794 55	10 3	33 22	171 38	304 91	133 53
Food preparations.....	1909 1899	87 27	326 127	148 43	6 2	172 82	41 28	100 23	4 1	36 17	195 25	341 62	146 37
Ice, manufactured.....	1909 1899	5 4	48 25	2	8 4	40 19	271 204	190 137	8 6	24 12	21 10	107 57	86 41
Lumber and timber products.....	1909 1899	8 3	290 40	21 1	24 4	254 35	805 205	403 47	24 7	110 22	97 42	281 91	184 49
Mineral and soda waters.....	1909 1899	22 7	116 46	13 7	20 4	83 35	114 10	214 61	19 4	35 11	74 25	194 89	120 64
Printing and publishing.....	1909 1899	37 10	440 170	19 7	102 31	319 132	117 55	256 110	84 41	147 22	98 33	435 200	337 167
Rice, cleaning and polishing.....	1909 1899	74 41	518 267	346 70	34 18	138 173	1,428 600	716 382	11 12	36 49	1,601 482	2,239 664	638 182
Saddlery and harness.....	1909 1899	6 7	25 28	9 7	2	14 21	.....	29 29	4	6 16	28 47	49 78	21 31
Sugar.....	1909 1899	40 44	2,709 2,759	13 5	179 385	2,517 2,369	36,420 17,774	13,724 7,922	206 304	781 748	18,542 9,778	35,950 19,255	17,408 9,477
All other industries.....	1909 1899	117 28	2,280 685	177 34	171 56	1,032 595	2,373 499	6,813 1,653	223 116	799 496	4,167 1,604	6,571 2,471	2,404 867

TABLE II.—HONOLULU, HAWAII, COMPARATIVE SUMMARY FOR SELECTED INDUSTRIES: 1909 AND 1899.

[Population—(1910, 52,183; 1900, 39,306. Per cent of increase, 32.8.)

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total	Proprietors and firm members.	Salaries employed.	Wage earners (average number).							
Expressed in thousands.													
All industries.....	1909 1899	236 53	3,194 1,090	443 69	319 92	2,432 929	4,327 1,001	\$8,716 2,244	\$343 168	\$1,080 626	\$6,369 1,971	\$10,705 3,265	\$4,386 1,204
Boot and shoe shops.....	1909 1899	9 6	101 54	25 14	8 3	68 37	4	33 14	2 1	14 10	68 17	109 37	42 20
Copper, tin, and sheet-iron products.....	1909 1899	9 9	101 51	11 12	12 4	78 35	18	792 54	10 3	32 22	170 37	301 88	131 51
Printing and publishing.....	1909 1899	23 6	354 151	12 5	91 28	251 118	95 49	224 93	73 36	127 76	88 31	383 181	205 150
Rice, cleaning and polishing.....	1909 1899	13 4	151 48	82 15	15 4	54 20	611 155	198 167	4 6	14 14	1,028 134	1,447 188	419 54
Saddlery and harness.....	1909 1899	5 4	16 18	7 5	1	8 13	.....	10 20	2	4 11	11 28	24 49	13 21
All other industries.....	1909 1899	177 24	2,471 768	308 18	192 53	1,973 697	3,609 797	7,450 1,906	252 122	889 493	5,004 1,724	8,440 2,722	3,436 998

STATISTICS OF MANUFACTURES—HAWAII.

TABLE III.—DETAIL STATEMENT

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY—AVERAGE NUMBER.										WAGE EARNERS—NUMBER DECEMBER 15, 1909, OR NEAREST REPRESENTATIVE DAY.						Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners. <sup>1</sup>			Total.	16 and over.		Under 16.					
					Male.	Female.	Total.	16 and over.			Under 16.	Male.	Female.	Male.	Female.			
								Male.	Female.									
1 All industries .....	500	7,572	1,074	264	317	13	5,904	5,344	498	62	86	85	1	3	3	41,830		
2 Boot and shoe shops .....	14	120	31	3	5		81	80	1		86	85	1			4		
3 Bread and other bakery products .....	46	180	63	4	4	2	107	97	7	3	108	98	7	3		38		
4 Canning and preserving, pineapples .....	10	853		18	17	2	816	564	245	7	1,202	831	361	9	1	337		
5 Carriages and wagons and materials .....	17	87	14	5			68	67		1	70	69		1		25		
6 Charcoal .....	9	13	12				1	1			1	1						
7 Coffee and spice, roasting and grinding .....	4	33	3	2			28	4	24		70	10	60			33		
8 Coffee, cleaning and polishing .....	5	285	203	8	3		71	36	33	2	83	42	38		3	237		
9 Confectionery .....	6	44	18	3	2		21	19	2		23	21	2					
10 Copper, tin, and sheet-iron products .....	12	106	14	3	7	2	80	78		2	40	39		1		18		
11 Food preparations .....	87	326	148	5	1		172	143	29		176	146	30			41		
12 Furniture .....	6	79	18	3	4		54	53	1		58	57	1			14		
13 Ice, manufactured .....	5	48		5	3		40	33		7	40	33		7		271		
14 Jewelry .....	6	89	30	4	1		54	42	4	8	58	45	4	9		1		
15 Lumber and timber products .....	8	299	21	7	16	1	254	251		3	237	234		3		895		
16 Mattresses and spring beds .....	6	43	18	4			21	21			26	26				34		
17 Millinery and lace goods .....	7	32	7		1		24	12	11	1	25	12	12	1		2		
18 Mineral and soda waters .....	22	116	13	10	1		83	81		2	84	82		2		114		
19 Pickles, preserves, and sauces .....	6	21	5	1	2		13	13			13	13				5		
20 Printing and publishing .....	37	440	19	29	69	4	319	278	30	11	362	315	34	12	1	117		
21 Rice, cleaning and polishing .....	74	518	346	15	19		138	138			166	166				1,428		
22 Saddlery and harness .....	6	25	9	2			14	14			14	14						
23 Salt .....	4	14	9				5	5			4	4				2		
24 Shipbuilding, wooden, including boat building .....	5	66	5	3	1		57	57			68	68				124		
25 Shirts .....	4	7	4				3	3			3	3						
26 Slaughtering and meat packing .....	10	73	23	8	4	1	37	37			39	39				124		
27 Sugar .....	46	2,709	13	80	99		2,517	2,429	86	2	3,389	3,271	116	2		36,426		
28 All other industries <sup>2</sup> .....	38	946	28	33	58	1	826	788	25	13						1,730		

<sup>1</sup> Distribution by sex and age periods based on number reported December 15, or nearest representative date.

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

Automobile bodies and parts .....	2	Flax and hemp, dressed .....	2	Monuments and tombstones .....	1
Awnings, tents, and sails .....	1	Flour-mill and gristmill products .....	1	Musical instruments and materials, not specified ..	1
Cars and general shop construction and repairs by steam-railroad companies .....	3	Foundry and machine-shop products .....	3	Paints .....	1
Cars and general shop construction and repairs by street-railroad companies .....	1	Gas, illuminating and heating .....	1	Patent medicines and compounds and druggists' preparations .....	2
Coffins, burial cases, and undertakers' goods ..	1	Hats, straw .....	2	Roofing materials .....	1
Fancy articles, not elsewhere specified .....	2	Lime .....	1	Soap .....	1
Fertilizers .....	2	Liquors, distilled .....	2	Starch .....	2
		Liquors, malt .....	3	Statuary and art goods .....	1
		Liquors, vinous .....	1		

STATISTICS OF MANUFACTURES—HAWAII.

FOR HAWAII, 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	\$23,874,999	\$31,753,005	\$384,082	\$302,372	\$2,108,903	\$301,578	\$25,327,731	\$108,804	\$1,127,611	\$188,425	\$1,003,589	\$47,403,880	\$21,774,571
2	38,092	111,892	850	1,344	17,159	349	77,771	3,958	503	.....	9,958	126,475	48,355
3	142,277	289,545	3,037	2,086	35,560	12,842	206,733	8,544	1,710	.....	19,033	343,520	123,945
4	2,150,277	1,332,144	32,330	14,956	174,502	13,358	913,233	4,877	8,364	.....	170,524	1,591,073	664,432
5	87,094	104,224	8,550	.....	32,772	3,687	46,645	6,031	810	.....	4,138	115,642	65,310
6	2,168	971	.....	.....	200	711	.....	.....	.....	.....	60	5,506	4,795
7	23,324	46,351	3,180	.....	3,729	1,117	34,512	462	759	.....	2,250	50,127	14,498
8	345,711	274,727	6,357	2,400	12,100	274,702	150	869	.....	.....	2,146	297,263	46,558
9	29,003	36,003	1,032	780	6,330	615	22,959	1,658	141	.....	.....	43,162	19,588
10	793,708	247,041	2,047	7,065	32,836	2,781	168,453	14,478	1,536	.....	.....	17,245	303,983
11	99,605	201,887	3,360	216	36,066	11,437	183,336	9,431	599	.....	177	17,205	341,052
12	28,882	64,115	2,586	1,972	14,741	147	38,516	3,430	250	.....	.....	69,752	31,089
13	190,279	76,703	6,015	2,489	23,963	17,526	3,800	.....	3,089	.....	.....	107,111	85,725
14	33,836	84,690	3,010	300	24,143	911	50,095	2,550	319	.....	.....	111,335	60,329
15	403,249	275,126	9,425	14,281	100,647	4,233	93,226	5,323	2,447	.....	.....	36,544	281,325
16	35,959	29,826	2,780	.....	7,511	328	15,809	1,370	259	.....	.....	1,769	183,806
17	13,530	28,395	.....	600	7,308	525	17,856	1,260	38	.....	.....	718	32,994
18	219,760	155,731	18,500	960	35,391	4,240	70,063	1,846	2,474	.....	.....	22,248	194,273
19	34,910	25,926	900	636	2,522	1,085	10,048	703	178	.....	.....	3,854	33,572
20	255,667	384,953	32,868	50,727	146,830	5,744	92,740	13,276	1,500	.....	3,958	37,250	434,779
21	715,735	1,692,997	6,662	4,593	35,522	14,520	1,586,228	6,087	4,982	.....	.....	34,403	2,238,667
22	29,369	42,197	3,960	.....	6,065	.....	27,779	2,230	258	.....	.....	1,548	49,163
23	3,228	4,091	.....	.....	1,518	10	777	1,053	42	.....	.....	357	5,698
24	91,865	91,045	4,180	390	40,714	2,011	31,965	4,627	1,010	.....	.....	6,269	105,403
25	3,355	6,033	.....	.....	600	10	3,975	532	78	.....	.....	838	7,630
26	289,498	812,163	5,640	2,669	20,095	8,652	733,597	1,748	971	.....	.....	39,421	863,785
27	13,724,308	22,042,499	146,075	120,141	781,280	127,440	18,414,035	175	1,055,128	.....	179,540	1,218,020	35,949,822
28	4,066,280	3,231,891	80,738	73,817	499,709	64,371	2,229,128	13,135	30,160	.....	540	231,284	17,407,747

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## MANUFACTURES : IDAHO

## 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 Idaho for the calendar year 1909 as shown by the Thirteenth Census. It will be reprinted without change as a part of the state Compendium of the Census for Idaho, 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, for all industries combined and for certain important industries in the state. It also gives the same items for 1909 for all industries combined for the city of Boise, the only city in the state having a population of over 10,000 in 1910.

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, 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, 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 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 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.**—Idaho, containing 84,290 square miles of land area, is the tenth state of the Union in size. Its population in 1910 was 325,594, compared with 161,772 in 1900 and 88,548 in 1890. It ranked forty-fifth among the 49 states and territories as regards population in 1910 and forty-sixth in 1900.

The state has but one city having a population of over 10,000, Boise, with a population of 17,358. The density of population for the state is 3.9 per square mile, the corresponding figure for 1900 being 1.9. Railways traverse the northern and southern portions of the state, but the greater part of the central portion

is without railway facilities, while the rapid currents and shallow waters of the rivers make water transportation impracticable.

**Importance and growth of manufactures.**—Idaho was admitted to the Union as a state in 1890, and since that date its development in manufacturing has more than kept pace with its growth in population.

The following table gives the more important figures relative to all classes of manufactures combined for the state as returned at the censuses of 1909, 1904, and 1899, together with percentages of increase from census to census:

	NUMBER OR AMOUNT.			PER CENT OF INCREASE.	
	1909	1904	1899	1904-1909	1899-1904
Number of establishments.....	725	364	287	99.2	26.8
Persons engaged in industry.....	9,909	3,791	(1)	161.4	(1)
Proprietors and firm members.....	831	371	(1)	124.0	(1)
Salaried employees.....	858	359	92	139.0	290.2
Wage earners (average number).....	8,220	3,061	1,552	168.5	97.2
Primary horsepower.....	42,804	16,987	5,649	152.0	200.7
Capital.....	\$32,477,000	\$9,689,000	\$2,130,000	235.2	354.9
Expenses.....	18,891,000	7,619,000	2,465,000	147.9	209.1
Services.....	6,482,000	2,438,000	884,000	165.9	175.8
Salaries.....	984,000	379,000	66,000	159.6	474.2
Wages.....	5,498,000	2,059,000	818,000	167.0	151.7
Materials.....	9,920,000	4,069,000	1,439,000	143.8	182.8
Miscellaneous.....	2,489,000	1,112,000	142,000	123.8	683.1
Value of products.....	22,400,000	8,769,000	3,001,000	155.4	192.2
Value added by manufacture (value of products less cost of materials).....	12,480,000	4,700,000	1,562,000	165.5	200.9

† Figures not available.

In 1909 the state of Idaho had 725 manufacturing establishments operating under the factory system, which gave employment to an average of 9,909 persons during the year and paid out \$6,482,000 in salaries and wages. Of the persons employed, 8,220 were wage earners. These establishments turned out products to the value of \$22,400,000, to produce which materials costing \$9,920,000 were consumed. The value added by manufacture was thus \$12,480,000, 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 Idaho as a whole showed an unusually large percentage of increase during each of the five-year periods 1899-1904 and 1904-1909. During the period 1904-1909 the number of establishments increased 99.2 per cent and the average number of wage earners 168.5 per cent, while the value of products increased 155.4 per cent and the

value added by manufacture 165.5 per cent. The increase is due primarily to the increase in lumber and timber products. As pointed out in the Introduction, it would be improper to infer that manufactures have increased in volume during the period 1904-1909 to the 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 next table.

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.

The most important industries listed in this table, in which they are arranged in the order of value of products, are briefly considered.



## STATISTICS OF MANUFACTURES—IDAHO.

INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		PER CENT OF INCREASE. <sup>1</sup>			
		Average number.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.	Value of products.		Value added by manufacture.	
								1904-1909	1899-1904	1904-1909	1899-1904
All industries .....	725	8,220	100.0	\$22,400,000	100.0	\$12,480,000	100.0	155.4	192.2	165.5	209.9
Lumber and timber products .....	256	5,212	63.4	10,689,000	47.7	7,344,000	58.8	240.2	232.5	228.4	204.2
Flour-mill and gristmill products .....	57	125	1.5	2,480,000	11.1	455,000	3.6	56.6	115.8	69.1	66.0
Cars and general shop construction and repairs by steam-railroad companies .....	5	849	10.3	1,366,000	6.1	707,000	5.7	49.5	74.4	20.2	68.7
Printing and publishing .....	132	468	5.7	1,148,000	5.1	905,000	7.3	109.1	278.8	104.8	253.7
Butter, cheese, and condensed milk .....	18	118	1.4	884,000	3.9	203,000	1.6	414.0	48.3	403.9	16.1
Liquors, malt .....	11	74	0.9	698,000	3.1	464,000	3.7	130.4	304.0	102.6	308.9
Brick and tile .....	36	286	3.5	444,000	2.0	335,000	2.7	292.9	156.8	289.5	138.9
All other industries .....	210	1,983	13.2	4,091,000	20.9	2,097,000	16.6	135.5	678.1	158.9	607.8

<sup>1</sup> Per cent of increase is based on figures in Table I.

<sup>2</sup> Does not include statistics for two establishments in 1904 to avoid disclosure of individual operations.

*Lumber and timber products.*—The statistics showing number of wage earners, amount paid in wages, and value of products all indicate a very large growth for this industry. At each of the three censuses for which the figures are shown in Table I it may be seen that lumber formed a considerable proportion of the total value of all manufactures for the state. The exact proportions at the three censuses are as follows: In 1899, 31.5 per cent; in 1904, 35.8 per cent; and in 1909, 47.7 per cent. These figures show a steady increase in the relative importance of this industry, as compared with the total manufactures in the state.

*Flour-mill and gristmill products.*—Although the totals for this industry show an increase in value of the products, 1904 to 1909, of 56.6 per cent, this was only about one-half the per cent of gain for the period 1899-1904. The value of the flour and gristmill products formed a smaller relative proportion of the total for all industries at each succeeding census, as follows: In 1899, 24.5 per cent; in 1904, 18.1 per cent; and in 1909, 11.1 per cent. Owing to the comparatively simple processes involved and the extent to which they are carried on by machinery, the value added by manufacture is not commensurate with the gross value of products or the number of establishments.

*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. In 1909 employment was given to an average of 849 wage earners, or 10.3 per cent of the total for the state, and the value of products, \$1,366,000, formed 6.1 per cent of the corresponding total for all industries.

*Printing and publishing.*—The establishments classified under this head for 1909 include 115 publishing newspapers and periodicals, 16 book and job offices, and 1 bookbinding establishment.

Measured by value added by manufacture, the rank of these four industries is somewhat different, though lumber and timber products is still first. Printing and publishing becomes second; cars and general shop construction and repairs by steam-railroad companies remains third; while flour-mill and gristmill products becomes fifth, and liquors, malt, takes fourth place.

This table shows also the percentages of increase for the leading industries in respect to value of products and value added by manufacture. The butter, cheese, and condensed milk industry showed greater rates of increase from 1904 to 1909 in both value of products and value added by manufacture than any other of the specified industries, namely, 414 per cent and 463.9 per cent, respectively. The brick and tile and the lumber industries also showed remarkable increases.

In addition to the 7 industries presented separately, there are 7 other important industries which are included in the group of all other industries, for reasons as follows: Beet sugar—The totals for this industry can not be shown, since to do so would disclose the operations of individual establishments, while for artificial stone; confectionery; copper, tin, and sheet-iron products; gas, illuminating and heating; leather goods; and marble and stone work, although the 1909 totals will be found in Table I, comparative statistics for prior censuses are not available.

*Persons engaged in manufacturing industries.*—The table following shows 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 9,909. Of these, 8,220 were wage earners, 1,187 proprietors and officials, and 502 clerks. Corresponding figures for separate industries will be found in Table II.

# STATISTICS OF MANUFACTURES—IDAHO.

CLASS.	PERSONS ENGAGED IN MANUFACTURES.		
	Total.	Male.	Female.
All classes.....	9,909	9,646	263
Proprietors and officials.....	1,187	1,163	24
Proprietors and firm members.....	831	811	20
Salariad officers of corporations.....	108	104	4
Superintendents and managers.....	248	248	
Clerks.....	502	418	84
Wage earners (average number).....	8,220	8,065	155
16 years of age and over.....	8,190	8,035	155
Under 16 years of age.....	30	30	

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

Of the total number of persons engaged in all manufacturing industries, 12 per cent were proprietors and officials, 5.1 per cent clerks, and 83 per cent wage earners. All of the wage earners under 16 years of age were males. In the flour mills and gristmills and the creameries a large number of the establishments are small and the work is, to a great extent, done by the proprietors or their immediate representatives. Therefore the proportion of persons engaged in these industries falling in the class of proprietors and officials is very much higher than for other industries or all industries combined. The smallest proportion for this class is shown for repair shops operated by steam-railroad companies, and is due to the fact that corporations which operate these establishments report no proprietors, in addition to which general officials are not, as a rule, assigned to the supervision of this particular branch of work.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	9,909	12.0	5.1	83.0
Brick and tile.....	347	15.8	1.7	82.4
Butter, cheese, and condensed milk.....	159	14.5	11.3	74.2
Cars and general shop construction and repairs by steam-railroad companies.....	870	0.6	1.8	97.6
Flour-mill and gristmill products.....	242	42.1	6.2	51.7
Liquors, malt.....	111	16.2	17.1	66.7
Lumber and timber products.....	5,904	8.0	3.7	88.3
Printing and publishing.....	768	26.9	11.3	61.7
All other industries.....	1,518	20.4	8.0	71.7

The following table shows 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 percentage 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. Of the 8,220 wage earners, 98.1

per cent were males and 1.9 per cent females; 99.6 per cent were 16 years or over, and but four-tenths of 1 per cent were under 16 years.

INDUSTRY.	WAGE EARNERS.			
	Average number. <sup>1</sup>	Per cent of total.		Under 16 years of age.
		16 years of age and over.	Male.	
All industries.....	8,220	97.7	1.9	0.4
Brick and tile.....	286	97.9	0.3	1.7
Butter, cheese, and condensed milk.....	118	95.8	4.2	
Cars and general shop construction and repairs by steam-railroad companies.....	849	200.0		
Flour-mill and gristmill products.....	125	100.0		
Liquors, malt.....	74	98.6	1.4	
Lumber and timber products.....	5,212	99.6	0.3	0.1
Printing and publishing.....	468	85.3	11.1	3.6
All other industries.....	1,088	92.6	7.4	0.1

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

The largest number of women and children were employed in the printing and publishing industry. The average number of wage earners in that industry was 399 males and 52 females 16 years of age and over and 17 males under that 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.				Per cent of increase, 1904-1909.
	1909		1904		
	Number.	Per cent distribution.	Number.	Per cent distribution.	
Total.....	9,909	100.0	3,791	100.0	161.4
Proprietors and firm members.....	831	8.4	371	9.8	124.0
Salariad employees.....	868	8.7	359	9.5	139.0
Wage earners (average number).....	8,220	83.0	3,061	80.7	108.5

Comparable figures are not obtainable for 1899. The table shows a greater percentage of increase in the wage earners than in either of the other two classes, due chiefly to the great increase in the number of wage earners in the lumber industry.

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.....	8,220	100.0	3,061	100.0	1,552	100.0
16 years of age and over.....	8,190	99.6	3,021	98.7	1,530	98.6
Male.....	8,035	97.7	2,931	95.8	1,498	96.5
Female.....	155	1.9	90	2.9	32	2.1
Under 16 years of age.....	30	0.4	40	1.3	22	1.4

STATISTICS OF MANUFACTURES—IDAHO.

This table indicates that for all industries combined during the 10 years there has been an increase in the number of women and children employed, but the numbers are small and the percentage which they form of all wage earners has decreased.

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 lumber industry, and for

all other industries combined; it gives also the centage which the number reported for each month of the greatest number reported for any month. Table II, page 14, is shown, for each industry in state, the largest number and also the smallest number of employees reported for any month. The number for each month relates to the 15th day or the nearest representative day of that month.

MONTH.	NUMBER OF WAGE EARNERS.									
	All industries.		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.
January.....	6,145	64.5	3,477	57.6	1,587	41.3	1,890	71.2	2,668	68.0
February.....	6,033	63.3	3,569	59.1	1,773	46.1	1,796	67.7	2,464	63.0
March.....	7,270	76.3	4,634	76.8	2,511	65.3	2,123	80.0	2,636	68.0
April.....	8,279	86.9	5,389	89.3	3,357	87.3	2,032	76.6	2,890	75.0
May.....	8,664	91.0	5,781	95.8	3,822	99.4	1,959	73.8	2,883	75.0
June.....	8,929	93.7	5,873	97.3	3,845	100.0	2,028	76.4	3,056	78.0
July.....	8,939	93.8	5,718	94.8	3,702	97.8	1,956	73.7	3,221	83.0
August.....	8,696	91.3	5,584	92.5	3,693	96.0	1,891	71.3	3,112	79.0
September.....	8,690	91.2	5,575	92.4	3,490	91.0	2,076	78.3	3,115	79.0
October.....	9,525	100.0	6,034	100.0	3,605	95.3	2,369	89.3	3,491	90.0
November.....	8,971	94.2	5,550	92.0	3,042	79.1	2,508	94.5	3,421	89.0
December.....	8,507	89.3	5,373	89.0	2,720	70.7	2,653	100.0	3,134	83.0

While the lumber industry in Idaho is conducted throughout the year, yet on account of climatic conditions it is to a certain extent a seasonal industry, giving employment to a larger number of persons during the summer months than during the winter. From 3,477 wage earners employed in this industry in January the number increased steadily until June, when it reached 5,873. It decreased during July, August, and September, but in October increased to 6,034, the largest number employed during any one month. Exclusive of the lumber industry the number of wage earners varies from a minimum of 2,464 in February to a maximum of 3,491 in October.

Prevailing hours of labor.—In the following 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 some few employees work a greater or less number of hours.

It is evident from the figures that for the majority of wage earners employed in the manufacturing industries of Idaho the prevailing hours of labor were 6 1/2 hours a week, or 10 hours a day, 24.1 per cent of the total being employed in establishments working less than 10 hours a week, and only 10 per cent being employed in establishments working longer 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.
All industries.....	8,220	697	70	1,195	79	5,419	355	68
Brick and tile.....	286	36	.....	110	.....	140	.....	.....
Butter, cheese, and condensed milk.....	118	4	.....	1	.....	8	100	.....
Cars and general shop construction and repairs by steam-railroad companies.....	849	.....	.....	718	.....	2	129	.....
Flour-mill and gristmill products.....	125	6	.....	.....	2	73	26	18
Liquors, malt.....	74	43	.....	1	17	13	.....	.....
Lumber and timber products.....	5,212	31	26	111	.....	4,965	69	10
Printing and publishing.....	468	300	38	102	.....	16	3	.....
All other industries.....	1,088	208	6	152	60	202	28	35

Location of establishments.<sup>1</sup>—The next table shows a comparison of the totals for all industries in the city of Boise and the remainder of the state for 1909. The population of the city was less than 10,000 at prior

<sup>1</sup> See Introduction.

censuses, and therefore comparable data are not available. The figures indicate that 6.9 per cent of establishments of the state, 5 per cent of the average number of wage earners, and 7.4 per cent of the value of products were reported from its principal city.

STATISTICS OF MANUFACTURES—IDAHO.

ITEM.	Total.	LOCATION OF ESTABLISHMENTS.		PER CENT OF TOTAL.	
		Boise.	Outside districts.	Boise.	Outside districts.
Population <sup>1</sup> .....	325,594	17,358	308,236	5.3	94.7
Number of establishments.....	725	50	675	6.9	93.1
Average number of wage earners.....	8,220	411	7,809	5.0	95.0
Value of products.....	\$22,399,800	\$1,600,497	\$20,799,303	7.4	92.6
Value added by manufacture.....	\$12,479,843	\$765,909	\$11,713,934	6.1	93.9

<sup>1</sup> Population figures are for 1910.

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. In order to avoid disclosing the operations of individual concerns, it is necessary to omit several important industries from this and the following table.

The most important distinction shown is that between corporate and all other forms of ownership. For all industries combined, 27.6 per cent of the total number of establishments were in 1909 under corporate ownership, as against 72.4 per cent under all other forms. The corresponding figures for 1904 were 28.8 per cent and 71.2 per cent, respectively. For all industries combined, as measured by value of products and value added by manufacture, corporations gained ground, but the percentage of establishments operated under this form of ownership was slightly less in 1909 than in 1904.

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>				
1909.....	725	8,220	\$22,399,800	\$12,479,843
1904.....	364	3,061	8,768,743	4,700,220
Individual:				
1909.....	350	1,237	3,567,130	1,940,755
1904.....	170	487	1,393,488	771,505
Firm:				
1909.....	172	577	1,807,025	1,031,867
1904.....	85	434	1,202,462	688,717
Corporation:				
1909.....	200	6,401	16,982,034	9,489,056
1904.....	105	2,130	6,130,137	3,225,730
Other:				
1909.....	3	5	43,671	9,105
1904.....	4	10	36,656	14,268
Per cent of total:				
1909.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0
Individual:				
1909.....	48.3	15.0	15.9	15.6
1904.....	46.7	15.9	15.9	16.4
Firm:				
1909.....	23.7	7.0	8.1	8.3
1904.....	23.4	14.2	13.7	14.7
Corporation:				
1909.....	27.6	77.9	75.8	76.0
1904.....	28.8	69.6	70.0	68.6
Other:				
1909.....	0.4	0.1	0.2	0.1
1904.....	1.1	0.3	0.4	0.3

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>Flour-mill and gristmill products, 1909.....</b>	<b>57</b>	<b>125</b>	<b>\$2,479,719</b>	<b>\$455,121</b>
Individual.....	18	32	483,402	95,718
Firm.....	15	15	334,508	86,499
Corporation.....	24	75	1,661,809	272,904
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	31.6	25.6	19.5	21.0
Firm.....	26.3	14.4	13.5	19.0
Corporation.....	42.1	60.0	67.0	60.0
<b>Lumber and timber products, 1909.....</b>	<b>256</b>	<b>5,212</b>	<b>\$10,689,310</b>	<b>\$7,344,532</b>
Individual.....	113	705	1,314,217	915,168
Firm.....	71	306	524,015	377,888
Corporation <sup>1</sup> .....	72	4,201	8,851,078	6,051,476
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	44.1	13.5	12.3	12.5
Firm.....	27.7	5.9	4.9	5.1
Corporation.....	28.1	80.6	82.8	82.4
<b>Printing and publishing, 1909.....</b>	<b>132</b>	<b>488</b>	<b>\$1,148,033</b>	<b>\$905,129</b>
Individual.....	67	134	325,580	264,997
Firm.....	32	84	206,833	160,755
Corporation.....	33	250	612,569	479,377
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	50.8	28.6	28.6	29.3
Firm.....	24.2	17.9	18.0	17.8
Corporation.....	25.0	53.4	53.4	53.0

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

Of the three separate industries given in the table, lumber and timber products show the largest proportion for corporations in average number of wage earners, value of products, and value added by manufacture, while for number of establishments the largest proportion for corporations is shown by flour mills and gristmills.

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 which follows 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.

This table shows that, in 1909, of the 725 establishments only 36, or 5 per cent, had a value of products exceeding \$100,000. These establishments, however, notwithstanding their comparatively small number, had an average number of wage earners of 4,931, or 60 per cent of the total number in all establishments; and the importance of their operations measured by value of products was 58.1 per cent of the total, and by value added by manufacture 59.5 per cent of the total.

On the other hand, small establishments—that is, those having a value of products of less than \$5,000—constituted a considerable proportion (38.5 per cent) of the total number of establishments, but the value

of their product amounted to only 3.3 per cent of the total. About one-fourth of the total value of products was reported by establishments whose products were between \$20,000 and \$100,000 in value.

During the period 1904-1909 there was a slight decrease in the percentage of establishments having a product of less than \$5,000 and in those having a product of \$20,000 and less than \$100,000. The percentage for each of the other groups shows a correspondingly slight increase.

The five years from 1904 to 1909 was rather too short a period to show extensive changes, although it is evident that the proportional importance of the small establishments has decreased and that of the large establishments increased.

The fact that the average value of products increased from \$24,090, to \$30,896, and the value added by manufacture from \$12,913 to \$17,214, can scarcely 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 by three. The table shows further that when the size of establishments is measured by value of products the largest establishments in the three industries specified are found in lumber and timber products.

INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>				
1909.....	725	3,220	\$22,399,860	\$12,479,848
1904.....	364	3,061	8,768,743	4,700,220
Less than \$5,000:				
1909.....	279	354	743,265	523,268
1904.....	146	182	365,075	252,544
\$5,000 and less than \$20,000:				
1909.....	281	1,184	2,854,751	1,750,015
1904.....	123	540	1,204,213	739,508
\$20,000 and less than \$100,000:				
1909.....	129	1,751	5,785,475	2,771,134
1904.....	74	1,043	3,470,002	1,766,766
\$100,000 and less than \$1,000,000:				
1909.....	36	4,931	13,016,369	7,428,836
1904.....	15	1,290	3,669,453	1,941,412
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.....	38.5	4.3	3.3	4.2
1904.....	40.1	5.9	4.2	5.4
\$5,000 and less than \$20,000:				
1909.....	38.8	14.4	12.7	14.1
1904.....	35.4	17.8	14.4	15.7
\$20,000 and less than \$100,000:				
1909.....	17.8	21.3	25.8	22.2
1904.....	20.3	34.1	39.6	37.6
\$100,000 and less than \$1,000,000:				
1909.....	5.0	60.0	58.1	59.5
1904.....	4.1	42.1	41.8	41.3
Average per establishment:				
1909.....		11	30,896	17,214
1904.....		8	24,090	12,913

INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>Flour-mill and gristmill products, 1909.....</b>	<b>57</b>	<b>125</b>	<b>\$2,478,719</b>	<b>\$455,121</b>
Less than \$5,000.....	5	1	20,714	4,687
\$5,000 and less than \$20,000.....	19	27	255,655	63,997
\$20,000 and less than \$100,000.....	28	72	1,484,880	233,255
\$100,000 and less than \$1,000,000.....	5	25	718,464	104,082
Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	8.8	0.8	0.8	1.0
\$5,000 and less than \$20,000.....	33.3	21.6	10.3	13.9
\$20,000 and less than \$100,000.....	49.1	57.6	59.9	62.2
\$100,000 and less than \$1,000,000.....	8.8	20.0	29.0	22.9
Average per establishment.....		2	\$43,504	\$7,885
<b>Lumber and timber products, 1909.....</b>	<b>256</b>	<b>5,212</b>	<b>\$10,689,310</b>	<b>\$7,344,882</b>
Less than \$5,000.....	106	188	277,081	214,799
\$5,000 and less than \$20,000.....	87	509	838,551	588,597
\$20,000 and less than \$100,000.....	40	1,026	2,051,227	1,378,125
\$100,000 and less than \$1,000,000.....	17	3,489	7,522,451	5,163,011
Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	41.4	3.6	2.6	2.9
\$5,000 and less than \$20,000.....	34.0	9.8	7.8	8.0
\$20,000 and less than \$100,000.....	18.0	19.7	19.2	18.8
\$100,000 and less than \$1,000,000.....	6.6	66.9	70.4	70.3
Average per establishment.....		20	\$41,755	\$28,690
<b>Printing and publishing, 1909.....</b>	<b>132</b>	<b>468</b>	<b>\$1,148,033</b>	<b>\$905,129</b>
Less than \$5,000.....	73	79	190,412	154,282
\$5,000 and less than \$20,000.....	50	217	499,728	394,280
\$20,000 and less than \$100,000.....	9	172	448,895	356,567
Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	55.3	16.9	17.4	17.0
\$5,000 and less than \$20,000.....	37.9	46.4	43.5	43.6
\$20,000 and less than \$100,000.....	6.8	36.8	39.1	39.4
Average per establishment.....		4	\$8,697	\$6,857

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

<sup>2</sup> Includes the group "\$100,000 but less than \$1,000,000."

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

The per cent distribution of the number of establishments is not shown in this table; of the 725 establishments reported for all industries, 92.8 per cent employed under 21 persons each or no wage earners at all. The most numerous single group consists of the 496 establishments employing 1 to 5 wage earners, the next being the group employing from 6 to 20 wage earners, with 123 establishments. There were 11 establishments employing over 100 wage earners each; 3 employed over 500 each.

Of the total average number of wage earners, 41 per cent were in establishments employing over 250 wage

STATISTICS OF MANUFACTURES—IDAHO.

earners. The single group having the largest number of employees was the group employing from 501 to 1,000 wage earners. This group employed 2,418 wage earners, or 29.4 per cent of the total.

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.....	725	54	496	133	28	13	5	3	3	
Brick and tile.....	36	1	19	13	3					
Butter, cheese, and condensed milk.....	13	2	14	1		1				
Cars and general shop construction and repairs by steam-railroad companies.....	5		2			2			1	
Flour-mill and gristmill products.....	57	3	52	2						
Liquors, malt.....	11		6	5						
Lumber and timber products.....	256	4	161	56	19	8	3	3	2	
Printing and publishing.....	132	18	95	16	2	1				
All other industries.....	210	26	147	30	4	1	2			
AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	8,220		1,098	1,304	929	857	601	953	2,418	
Brick and tile.....	286		45	148	93					
Butter, cheese, and condensed milk.....	118		29	9		80				
Cars and general shop construction and repairs by steam-railroad companies.....	849		5			126			718	
Flour-mill and gristmill products.....	125		112	13						
Liquors, malt.....	74		12	62						
Lumber and timber products.....	5,212		394	637	665	497	306	953	1,700	
Printing and publishing.....	408		215	138	57	58				
All other industries.....	1,088		286	207	114	96	295			
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	100.0		13.4	15.9	11.3	10.4	8.0	11.6	29.4	
Brick and tile.....	100.0		15.7	51.7	32.5					
Butter, cheese, and condensed milk.....	100.0		24.6	7.6		67.8				
Cars and general shop construction and repairs by steam-railroad companies.....	100.0		0.6			14.8			84.6	
Flour-mill and gristmill products.....	100.0		89.6	10.4						
Liquors, malt.....	100.0		16.2	83.8						
Lumber and timber products.....	100.0		7.6	12.2	12.8	9.5	7.0	18.3	32.6	
Printing and publishing.....	100.0		45.9	29.5	12.2	12.4				
All other industries.....	100.0		26.3	27.3	10.5	8.8	27.1			

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 the profits. Facts of interest can, however, be brought out concerning the relative importance of the different classes of expenses going to make up the total.

The following table shows 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 I.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
All industries.....	5.2	29.1	52.5	13.2
Flour-mill and gristmill products.....	2.1	4.1	90.7	3.1
Lumber and timber products.....	5.2	38.2	37.8	18.8
Printing and publishing.....	16.1	43.1	28.1	12.8
All other industries.....	4.0	23.8	62.1	9.3

This table shows that, for all industries combined, 52.5 per cent of the total expenses was incurred for materials, 34.3 per cent for services, i. e., salaries and

wages, and but 13.1 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries.

Engines and power.—The table following 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.

From 1904 to 1909 the large per cent of increase in the amount of primary horsepower used is in proportion to the growth of manufacturing industries in the state—86.5 per cent of the actual increase being due to the increase in the amount of power used in the lumber industry alone. The largest actual increase was in steam power, which in 1909 represented 93.1 per cent of the owned primary power and 83 per cent of all primary power both owned and rented. The largest per cent of increase was for rented electrical power, which class also shows 15.5 per cent of the total actual increase in primary horsepower from 1904 to 1909.

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POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1900	1904	1899	1909	1904	1899	1909	1904	1899
<b>Primary power, total.</b>	<b>937</b>	<b>268</b>	<b>204</b>	<b>42,804</b>	<b>16,387</b>	<b>5,649</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Owned.....	540	268	204	38,178	16,350	5,643	89.2	96.2	99.9
Steam.....	437	212	141	35,529	15,145	4,010	83.0	89.2	71.0
Gas.....	53	27	6	242	127	28	0.6	0.7	0.5
Water wheels..	47	23	57	2,403	1,060	1,605	5.6	6.2	28.4
Water motors..	3	6	( <sup>2</sup> )	4	18	( <sup>2</sup> )	( <sup>2</sup> )	0.1	( <sup>2</sup> )
Rented.....	397	( <sup>2</sup> )	( <sup>2</sup> )	4,626	637	6	10.8	3.8	0.1
Electric motors	397	( <sup>2</sup> )	( <sup>2</sup> )	4,606	537	6	10.8	3.2	0.1
Other.....				20	100		( <sup>2</sup> )	0.6	
Electric motors..	608	71		8,409	1,792	6	100.0	100.0	100.0
Run by current generated by establishment.....	211	71		3,803	1,165		45.2	68.4	
Run by rented power.....	397	( <sup>2</sup> )	( <sup>2</sup> )	4,606	537	6	54.8	31.6	100.0

<sup>1</sup> Includes hand trades and neighborhood industries omitted in 1904 and 1909.

<sup>2</sup> Not reported.  
Less than one-tenth of 1 per cent.

Fuel.—Closely related to the question of kind of power employed is that of the fuel used in generating this power, or otherwise as material in the manufacturing processes. The following table shows the quantity of each kind of fuel used in 1909:

INDUSTRY.	Anthracite coal (tons).	Bituminous coal (tons).	Coke (tons).	Wood (cords).	Oil, including gasoline (barrels).	Gas (1,000 feet).	Other (tons).
<b>All industries...</b>	<b>451</b>	<b>64,590</b>	<b>3,066</b>	<b>22,325</b>	<b>2,790</b>	<b>615</b>	<b>3</b>
Brick and tile.....		8,279		13,020			
Cars and general shop construction and repairs by steam-railroad companies.....		11,788					
Flour-mill and gristmill products.....	4	1,011		1,389	56		
Gas, illuminating and heating.....		3,601	908		2,409		
Liquors, malt.....		4,079		1,872			
Printing and publishing.....	22	472		332	167	400	
All other industries....	425	34,460	2,158	5,112	150	125	3

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. Data for three important industries are here presented.

**Lumber and timber products.**—The lumber industry is of first importance in Idaho measured by value of products. The following is a statement of the quantity of the various classes of products reported for the sawmills at the censuses of 1909 and 1899.

The annual cut of lumber has increased rapidly during recent years. The product of rough lumber in 1909 was nearly ten times as great as in 1899, that of lath was about twenty-seven times as great, and that of shingles almost four times as great. In 1909 the cut of rough lumber was practically all softwoods, but 5,446 M feet consisting of the hardwoods. Almost 40 per cent of the cut was western pine, and this with white pine, larch, and Douglas fir constituted 90.6 per cent of the total cut of rough lumber in 1909.

PRODUCT.		QUANTITY. <sup>1</sup>	
		1909	1899
Rough lumber	M feet, b. m.	645,800	65,363
Lath	thousands	86,740	3,220
Shingles	thousands	62,308	15,800

<sup>1</sup> Does not include reports for establishments with a product less than \$500.

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

PRODUCT.	QUANTITY.		VALUE.	
	1909	1904	1909	1904
<b>All products</b>			<b>\$2,479,719</b>	<b>\$1,584,473</b>
Wheat flour	barrels 386,022	300,476	1,819,581	1,225,672
White	barrels 379,858	308,780	1,790,895	1,222,609
Graham	barrels 6,104	696	28,680	3,063
Corn meal	barrels 180	1,800	1,016	2,400
Rye flour	barrels 57	75	285	310
Barley meal	pounds 40,000		600	
Grits	pounds 213,340		5,924	
Feed	tons 10,491	6,586	293,767	181,326
Offal	tons 17,182	14,150	350,376	223,798
All other			8,180	967

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

As shown in the table, the principal product for this industry both in 1909 and 1904 was white flour, forming 72.2 and 77.2 per cent, respectively, of the total value of all products of the industry. During the period 1904 to 1909 an increase is shown for

each class of products except for corn meal and rye flour. Each of the two latter classes show a decrease, but the figures are small and of comparatively little importance.

**Printing and publishing.**—That there has been a pronounced growth in the newspaper and periodical branch of the industry in the state of Idaho is shown in the table following.

CLASS.	NUMBER OF PUBLICATIONS.			AGGREGATE CIRCULATION PER ISSUE.		
	1909	1904	1899	1909	1904	1899
<b>Total</b>	<b>130</b>	<b>95</b>	<b>73</b>	<b>140,781</b>	<b>86,965</b>	<b>48,795</b>
Daily	13	6	5	28,608	13,075	15,100
Sunday	3	3	1	13,864	7,675	( <sup>1</sup> )
Semiweekly	26	210	5	7,185	11,850	4,645
Weekly	108	74	69	91,134	51,265	36,300
All other classes		2	3		2,500	2,750

<sup>1</sup> Included in circulation for daily. <sup>2</sup> Includes one triweekly publication.

All of the publications included in the above table were in the English language. During the period 1904-1909 there was no increase in the number of Sunday publications, but a large increase in the aggregate circulation is shown; daily and weekly publications show an increase both in the number of publications and in circulation, while semiweeklies and all other classes show a decrease in number of publications and in circulation.

**Laundries.**—Statistics for steam laundries are not included in the general tables. In 1909 there were 24 such establishments in the state of Idaho, 3 of which were in Boise. The following statement summarizes the statistics:

Number of establishments	24
Persons engaged in the industry	410
Proprietors and firm members	31
Salaried employees	22
Wage earners (average number)	357
Primary horsepower	489
Capital	\$252,110
Expenses	327,375
Services	201,836
Materials	94,879
Miscellaneous	30,660
Amount received for work	394,226

The most common form of organization was the individual, with thirteen establishments. There were nine firms and two incorporated companies. Five establishments had receipts for the year's business of less than \$5,000; eleven, \$5,000 but less than \$20,000; eight, \$20,000 but less than \$100,000.



## STATISTICS OF MANUFACTURES—IDAHO.

The number of persons employed each month and the per cents which these numbers 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.....	338	90.9	July.....	355	95.7
February.....	352	94.6	August.....	372	100.0
March.....	370	99.5	September.....	367	98.7
April.....	368	98.9	October.....	364	97.8
May.....	340	91.4	November.....	352	94.6
June.....	351	94.4	December.....	361	97.0

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.	Horse-power.
<b>Total primary power.....</b>	<b>38</b>	<b>489</b>
Owned.....	17	370
Steam.....	16	377
Gas.....	1	2
Rented—Electric.....	16	110
Electric motors.....	19	133
Run by current generated by establishment.....	3	23
Run by rented power.....	16	110

The kind and amount of fuel used are shown in the following statement:

KIND.	Unit.	Quantity.
Bituminous coal.....	Tons.....	4,609
Wood.....	Cords.....	1,486
Oil.....	Barrels.....	51
Gas.....	1,000 feet.....	718
Other.....	Tons.....	903

Custom saw and grist mills.—Statistics for custom saw and grist mills are not included in the general tables, but are presented in the following summary:

	Custom sawmills.	Custom gristmills.
Number of establishments.....	4	11
Persons engaged in industry.....	27	17
Proprietors and firm members.....	22	14
Wage earners (average number).....	5	3
Primary horsepower.....	111	189
Capital.....	\$9,110	\$55,225
Expenses.....	3,255	104,143
Services.....	2,392	1,674
Materials.....	150	1101,516
Miscellaneous.....	713	853
Value of products.....	4,585	118,581

<sup>1</sup> Includes estimated cost of grain ground.

STATISTICS OF MANUFACTURES—IDAHO.

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

THE STATE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).							
Expressed in thousands.													
STATE—All industries.....	1909	725	9,909	831	858	8,220	42,804	\$32,477	\$984	\$5,498	\$9,920	\$22,400	\$12,480
	1904	364	3,791	371	359	3,061	16,987	9,889	379	2,059	4,069	8,769	4,700
	1899	287	( <sup>1</sup> )	( <sup>1</sup> )	92	1,552	5,649	2,130	66	818	1,439	3,001	1,562
Brick and tile.....	1909	36	347	39	22	286	1,050	800	17	179	109	444	335
	1904	19	95	21	2	72	147	91	3	45	27	113	86
	1899	23	71	28	.....	43	20	40	.....	18	8	44	36
Butter, cheese, and condensed milk.....	1909	18	159	12	29	118	260	231	24	77	681	884	203
	1904	16	35	9	13	13	120	44	2	10	136	172	36
	1899	19	33	11	8	14	140	75	3	7	85	116	31
Cars and general shop construction and repairs by steam-rail-road companies.	1909	5	870	.....	21	849	755	468	25	672	659	1,366	707
	1904	8	753	.....	40	713	965	183	46	539	326	914	588
	1899	4	411	.....	12	399	167	178	13	293	214	524	310
Flour-mill and gristmill products.....	1909	57	242	58	59	125	3,595	2,038	47	91	2,025	2,480	455
	1904	28	127	22	21	84	1,963	685	19	67	1,315	1,584	269
	1899	26	( <sup>1</sup> )	( <sup>1</sup> )	19	68	1,522	518	14	42	572	734	162
Liquors, malt.....	1909	11	111	6	31	74	986	1,281	45	65	234	698	464
	1904	14	86	17	8	61	319	459	11	54	74	303	229
	1899	16	49	19	1	29	82	144	1	19	19	75	56
Lumber and timber products.....	1909	256	5,904	342	350	5,212	32,342	17,872	459	3,382	8,345	10,689	7,344
	1904	107	1,670	123	98	1,449	10,013	3,516	120	876	906	3,142	2,236
	1899	100	( <sup>1</sup> )	( <sup>1</sup> )	24	737	3,523	721	15	297	331	945	614
Printing and publishing.....	1909	132	758	160	130	468	388	1,106	139	373	243	1,148	905
	1904	<sup>91</sup>	398	96	44	258	140	488	44	178	107	549	442
	1899	99	284	77	17	190	( <sup>1</sup> )	286	12	94	60	307	238
All other industries.....	1909	210	1,518	214	216	1,088	3,428	8,731	228	659	2,624	4,691	2,067
	1904	81	627	83	133	411	3,320	4,223	134	290	1,178	1,992	814
	1899	30	( <sup>1</sup> )	( <sup>1</sup> )	11	72	( <sup>1</sup> )	159	8	48	141	256	115

THE CITY OF BOISE—ALL INDUSTRIES COMBINED.

BOISE.....	1909	50	577	48	118	411	672	\$1,544	\$120	\$308	\$895	\$1,680	\$765
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<sup>1</sup> Figures not available.

<sup>2</sup> Does not include statistics for two establishments to avoid disclosure of individual operations.

STATISTICS OF MANUFACTURES—IDAHO.

TABLE II.—DETAIL STATEMENT FOR

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Average number.	Wage earners.		Total.	16 and over.		Under 16.				
					Male.	Female.		Number.			Male.	Female.	Male.	Female.			
								Maximum month.	Minimum month.								
1 All industries.....	725	9,909	831	356	418	84	8,220	Oct 9,525	Feb 6,033						42,804		
2 Artificial stone.....	20	89	24	5	5	1	54	Apr 72	Jan 27	67	67				6		
3 Bread and other bakery products.....	47	150	59	1	7	9	83	Aug 93	Jan 72	87	69	18			35		
4 Brick and tile.....	36	347	39	16	6		286	July 544	Dec 81	305	387	1	7		68		
5 Butter, cheese, and condensed milk.....	18	159	12	11	10	8	118	Aug 129	Jan 103	122	117	5			1,050		
6 Cars and general shop construction and repairs by steam-railroad companies.....	5	870		5	15	1	849	Dec 932	Jan 783	932	932				260		
7 Confectionery.....	6	42	8	5	3	2	24	Dec 34	Jan 19	34	24	10			6		
8 Copper, tin, and sheet-iron products.....	7	42	5	3	2		32	Dec 39	May 29	39	39				38		
9 Flour-mill and gristmill products.....	57	242	58	41	13	2	125	Nov 156	July 91	173	173				3,695		
10 Foundry and machine-shop products.....	14	99	15	5	4	1	74	Jan 83	Feb 65	77	77				203		
11 Gas, illuminating and heating.....	3	45		4	4	2	35	Jan 57	Feb 24	32	32				27		
12 Ice, manufactured.....	4	30	1	6	3	1	19	Aug 28	Jan 12	18	17	1			355		
13 Leather goods.....	20	49	21	1		1	26	Nov 28	Jan 24	28	28				5		
14 Lime.....	7	67	5	5	1		56	Aug 68	Jan 35	62	62				65		
15 Liquors, malt.....	11	111	6	12	18	1	74	Aug 92	Feb 58	65	64	1			656		
16 Lumber and timber products.....	256	5,904	242	129	194	27	5,212	Oct 6,034	Jan 3,477	6,995	6,964	22	9		32,342		
17 Marble and stone work.....	9	65	11	5			49	Sept 59	Jan 16	57	57				159		
18 Patent medicines and compounds.....	3	11		4	1		6	Feb 10	Nov 2	10	8	2			82		
19 Printing and publishing.....	132	758	160	44	65	21	468	Dec 501	Apr 453	505	431	56	18		338		
20 Shipbuilding, including boat building.....	3	5	4				1	Jan 3	Jan 0	3	3				26		
21 Slaughtering and meat packing.....	4	50	1	4	11	1	39	Jan 39	Jan 39	39	38	1			115		
22 Tobacco manufactures.....	24	108	25	1	1	1	80	Nov 84	July 68	87	71	15	1				
23 All other industries.....	39	651	35	46	55	5	510								2,224		

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

<sup>2</sup> None reported for one or more other months.

<sup>3</sup> All other industries embrace—

Agricultural implements.....	1	Clothing, women's.....	1	Malt.....	1
Awnings, tents, and sails.....	2	Coffee and spice, roasting and grinding.....	1	Mattresses and spring beds.....	1
Beet sugar.....	3	Dairymen's, poultryers', and apiarists' supplies.....	2	Mineral and soda waters.....	12
Brooms.....	1	Fertilizers.....	1	Salt.....	1
Canning and preserving.....	2	Fur goods.....	1	Smelting and refining, lead.....	1
Carriages and wagons and materials.....	1	Glass, cutting, staining, and ornamenting.....	1	Vinegar and cider.....	1
Cars and general shop construction and repairs by street-railroad companies.....	2	Hosiery and knit goods.....	1	Woolen, worsted, and felt goods, and wool hats.....	1
		Jewelry.....	1		

STATISTICS OF MANUFACTURES—IDAHO.

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.			
	\$32,476,749	\$18,890,536	\$530,567	\$453,488	\$5,407,647	\$480,848	\$0,439,169	\$77,917	\$350,218	\$736,018	\$1,324,664	\$22,399,860	\$12,479,843
1	97,973	121,523	5,600	4,552	36,744	1,439	68,752	100	358	1,200	2,769	149,443	79,252
2	183,174	299,204	1,200	6,680	57,441	12,176	203,661	10,796	1,321	50	5,879	393,894	178,057
3	800,137	332,849	13,776	3,685	178,654	88,421	20,865	115	4,720		22,613	443,623	334,337
4	230,910	823,980	12,840	10,600	77,409	11,158	669,433	6,857	1,037	85	34,501	884,066	203,475
5	468,328	1,366,408	9,520	15,371	671,517	27,848	631,390		2,305		8,457	1,366,408	707,170
6													
7	39,483	81,730	4,912	2,392	12,129	873	55,381	3,620	75		2,348	103,179	46,925
8	55,109	93,035	4,300	1,000	29,006	1,060	52,088	2,280	585		2,716	111,501	58,353
9	2,037,978	2,233,268	38,070	9,300	91,921	36,366	1,988,232	955	11,258	975	57,091	2,479,719	455,121
10	276,753	179,018	6,932	6,490	70,519	8,913	80,455	540	2,020	645	2,495	228,469	139,101
11	525,651	104,738	6,115	4,067	26,596	34,874	17,563		2,444		13,079	113,472	61,035
12	188,597	47,174	9,060	2,245	13,953	10,031	1,611		1,558	1,788	6,923	64,828	53,180
13	151,584	189,539	700	300	23,001	1,157	149,000	6,999	1,461		6,031	233,765	82,708
14	273,130	65,499	6,150	950	33,734	14,970	7,135		374		2,180	100,308	78,203
15	1,230,676	496,112	25,290	19,586	64,878	30,952	203,162	600	73,500	1,600	76,535	697,627	463,513
16	17,872,478	8,851,315	218,432	240,895	3,381,578	12,521	3,332,257	4,739	184,681	720,265	755,947	10,689,310	7,344,532
17	75,065	101,234	5,003		39,778	4,506	49,845	484	491		2,130	123,053	68,702
18	26,729	25,078	4,380	567	4,308	804	7,350	120	222		7,327	19,162	11,008
19	1,105,986	865,376	63,887	75,177	372,575	23,326	219,578	30,553	6,854	8,810	64,616	1,148,033	905,129
20	9,380	3,118			797	30	2,061		47			8,420	6,320
21	343,199	511,529	6,120	9,720	32,763	4,584	445,976	1,500	2,749		8,117	531,702	81,142
22	74,753	132,451	678	1,660	46,845	475	63,903	2,182	10,268		6,350	170,730	106,262
23	6,409,676	1,966,356	88,605	38,291	232,311	154,364	1,168,481	5,408	41,872	600	236,366	2,339,148	1,016,303

## MANUFACTURES : ILLINOIS

## 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 Illinois 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 Illinois, 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 Chicago, East St. Louis, Peoria, and Springfield. It also gives the same items for all industries combined for every incorporated place 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 dis-

tinguished 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 class 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.**—Illinois, with a gross area of 56,665 square miles, of which 622 represent water surface, ranks twenty-third in size among the states of the Union. Its population in 1910 was 5,638,591, as compared with 4,821,550 in 1900 and 3,826,352 in 1890. It ranked third among the 49 states and territories as regards population both in 1910 and in 1900. The density of population for the state in 1910 was 100.6 per square mile, the corresponding figures for 1900 and 1890 being 86.1 and 68.3, respectively. Sixty-one and seven-tenths per cent of the entire population of the state in 1910 resided in incorporated places having 2,500 inhabitants or over, as compared with 54.3 per cent in 1900.

There were 32 incorporated places in the state which had a population of over 10,000 in 1910. One of these, Chicago, had 2,185,283 inhabitants; 11 others had over 25,000 but less than 100,000; and the remaining 20 had between 10,000 and 25,000. A list of these places, with the population of each in 1910 and 1900, is given on page 14. These 32 places contained 52.3 per cent of the total population of the state and were credited in 1909 with 83.1 per cent of the total value of its manufactures. Apart from these places, only 9.3 per cent of the population resided in places of 2,500 inhabitants or over.

Illinois lies wholly within the great prairie region, and, with the exception of Louisiana and Delaware, is the most level state in the Union. On account of the situation of the state, many of the trunk lines both between the East and the West and between the North and the South enter or pass through it, and thus afford excellent transportation facilities. On June 30, 1909, there were 152 railroad companies having lines within the state, and nearly every county is traversed by one or more railroads, many of them trunk lines running into Chicago or St. Louis. The state has approximately 12,000 miles of main track of steam railroads<sup>1</sup>—an average of over 21 miles for every 100 square miles of territory—and also over 2,700 miles of electric railroads. In addition to these ample railway facilities, the state has the advantages of cheap water transportation afforded by the Mississippi and its navigable tributaries, and by the Great Lakes.

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

**Importance and growth of manufactures.**—Illinois is the most important manufacturing state west of the Alleghenies. In 1849 an average of 11,559 wage earners, representing 1.4 per cent of the total population, were employed in manufactures, while in 1879 an average of 144,727 wage earners, or 4.7 per cent of the total, and in 1909 an average of 465,764 wage earners, or 8.3 per cent of the total population, were so engaged. The gross value of products per capita of the total population of the state increased from \$19.42 in 1849 to \$340.38 in 1909, and the proportion which the manufactures of the state represented of the total value of the products of manufacturing industries in the United States, from 1.6 per cent in 1849 to 9.3 per cent in 1909. In the value of its manufactures Illinois ranked fifteenth in 1849 and third in 1909.

The first 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 Illinois had 18,026 manufacturing establishments, which gave employment to an average of 561,044 persons during the year and paid out \$364,768,000 in salaries and wages. Of the persons employed, 465,764 were wage earners. These establishments turned out products to the value of \$1,919,277,000, in the manufacture of which materials costing \$1,160,927,000 were utilized. The value added by manufacture was thus \$758,350,000, which figure, as explained in the Introduction, best represents the net wealth created by manufacturing operations during the year.

The totals presented in the table do not include the statistics for an establishment operated by the Federal Government—the arsenal at Rock Island. In 1909 this plant employed an average of 1,698 wage earners, and the value of its products, which consisted of infantry, cavalry, and artillery equipment, was reported as \$3,114,338.

In general, the table brings out the fact that the manufacturing industries of Illinois as a whole developed more rapidly during the five-year period 1904–1909 than during the preceding five-year period, 1899–1904, the percentage of increase being greater for all items shown in the table except miscellaneous expenses. During the later five-year period the

number of establishments increased 20.8 per cent and the average number of wage earners 22.8 per cent, while the value of products increased 36.1 per cent, and the value added by manufacture 33 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 the figures representing values, since the increase shown is certainly due, in part, to the increase that has taken place in the price of commodities.

	NUMBER OR AMOUNT.			PER CENT OF INCREASE.	
	1909	1901	1899	1904-1909	1899-1901
	Number of establishments . . . . .	18,026	14,921	14,374	20.8
Persons engaged in manufactures . . . . .	561,044	447,947	( <sup>1</sup> )	25.2	
Proprietors and firm members . . . . .	17,357	13,990	( <sup>1</sup> )	24.1	
Salaried employees . . . . .	77,923	54,521	40,964	42.9	33.1
Wage earners (average number) . . . . .	465,764	379,436	332,871	22.8	14.0
Primary horsepower . . . . .	1,013,071	741,555	559,347	36.6	32.6
Capital . . . . .	\$1,548,171,000	\$975,845,000	\$732,830,000	58.6	33.2
Expenses . . . . .	1,733,327,000	1,281,208,000	999,151,000	35.3	28.2
Services . . . . .	364,768,000	268,965,000	199,653,000	35.6	34.7
Salaries . . . . .	91,449,000	60,560,000	40,549,000	51.0	49.4
Wages . . . . .	273,319,000	208,405,000	159,104,000	31.1	31.0
Materials . . . . .	1,160,927,000	840,057,000	681,450,000	38.2	23.3
Miscellaneous . . . . .	207,632,000	172,186,000	118,048,000	20.6	45.9
Value of products . . . . .	1,919,277,000	1,410,842,000	1,120,868,000	36.1	25.8
Value added by manufacture (value of products less cost of materials) . . . . .	758,350,000	570,285,000	439,418,000	33.0	29.8

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

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

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 products of one establishment in the industry as materials for other establishments.

INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		PER CENT OF INCREASE. <sup>1</sup>			
		Average number.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.	Value of products.		Value added by manufacture.	
								1904-1909	1899-1904	1904-1909	1899-1904
								<b>All industries . . . . .</b>	<b>18,026</b>	<b>465,764</b>	<b>100.0</b>
Slaughtering and meat packing . . . . .	109	26,705	5.7	389,595,000	20.3	45,610,000	6.0	22.4	10.2	21.3	-9.3
Foundry and machine-shop products . . . . .	1,178	52,266	11.2	138,579,000	7.2	74,760,000	9.9	46.0	16.1	35.6	26.5
Clothing, men's, including shirts . . . . .	715	36,132	7.8	89,473,000	4.7	44,245,000	5.8	57.0	43.6	52.7	42.7
Printing and publishing . . . . .	2,608	28,644	6.1	87,247,000	4.5	62,567,000	8.3	40.1	43.8	38.2	40.9
Iron and steel, steel works and rolling mills . . . . .	24	17,584	3.8	86,608,000	4.5	30,364,000	4.0	44.3	32.9	42.1	41.3
Agricultural implements . . . . .	79	19,240	4.1	57,268,000	3.0	32,444,000	4.3	49.1	-8.6	57.0	-10.8
Liquors, distilled . . . . .	9	750	0.2	55,200,000	2.9	45,991,000	6.1	2.0	41.6	-3.6	33.4
Flour-mill and gristmill products . . . . .	461	2,464	0.5	51,111,000	2.7	5,521,000	0.7	28.1	39.6	11.3	36.4
Lumber and timber products . . . . .	814	16,507	3.6	44,982,000	2.3	17,688,000	2.3	37.3	41.2	21.8	43.0
Iron and steel, blast furnaces . . . . .	6	2,493	0.5	38,300,000	2.0	7,392,000	1.0	40.1	80.4	-11.2	141.6
Bread and other bakery products . . . . .	2,099	8,611	1.8	36,118,000	1.9	14,512,000	1.9	38.1	64.7	22.3	54.4
Cars and general shop construction and repairs by steam-railroad companies . . . . .	73	23,131	5.0	32,229,000	1.7	16,996,000	2.2	26.4	53.7	28.5	59.4
Liquors, malt . . . . .	106	4,398	0.9	28,449,000	1.5	21,416,000	2.8	19.6	20.5	15.7	18.0
Furniture and refrigerators . . . . .	267	13,575	2.9	27,900,000	1.5	15,390,000	2.0	24.6	43.3	21.0	45.1
Cars, steam-railroad, not including operations of railroad companies . . . . .	28	10,945	2.3	27,001,000	1.4	11,665,000	1.5	-12.7	24.5	19.6	25.5
Electrical machinery, apparatus, and supplies . . . . .	143	9,641	2.1	26,826,000	1.4	13,198,000	1.7	60.6	37.2	45.8	26.8
Copper, tin, and sheet-iron products . . . . .	483	7,473	1.6	22,823,000	1.2	9,630,000	1.3	48.3	45.2	46.1	49.5
Tobacco manufactures . . . . .	1,944	8,034	1.7	21,870,000	1.1	13,267,000	1.7	36.2	34.9	31.8	30.4
Gas, illuminating and heating . . . . .	78	6,301	1.3	21,052,000	1.1	14,842,000	2.0	31.5	82.4	29.2	68.4
Paint and varnish . . . . .	74	1,792	0.4	20,434,000	1.1	7,532,000	1.0	53.4	62.9	61.3	84.9
Soap . . . . .	34	2,188	0.5	20,181,000	1.1	6,233,000	0.8	42.6	50.0	29.5	41.4
Coffee and spice, roasting and grinding . . . . .	35	1,018	0.2	19,751,000	1.0	4,637,000	0.6	25.4	23.9	42.2	26.8
Musical instruments, pianos and organs and materials . . . . .	68	8,777	1.9	19,176,000	1.0	10,534,000	1.4	43.9	63.4	32.0	64.0
Butter, cheese, and condensed milk . . . . .	295	1,732	0.4	17,798,000	0.9	3,531,000	0.5	34.1	3.1	37.5	-4.2
Carriages and wagons and materials . . . . .	325	5,832	1.3	16,831,000	0.9	7,382,000	1.0	47.7	26.5	30.2	21.4
Boots and shoes, including cut stock and findings . . . . .	53	5,792	1.2	16,755,000	0.9	5,886,000	0.8	67.7	-4.8	64.5	7.2
Clothing, women's . . . . .	221	6,151	1.3	16,635,000	0.9	7,421,000	1.0	35.9	25.2	25.7	24.1
Leather, tanned, curried, and finished . . . . .	29	3,001	0.6	14,912,000	0.8	2,781,000	0.4	38.6	37.1	7.6	25.2
Patent medicines and compounds and druggists' preparations . . . . .	359	1,869	0.4	13,114,000	0.7	8,701,000	1.1	-1.5	103.6	-12.0	115.8
Confectionery . . . . .	140	3,799	0.8	12,738,000	0.7	5,133,000	0.7	67.4	18.3	49.0	27.6
Stoves and furnaces, including gas and oil stoves . . . . .	71	4,494	1.0	10,287,000	0.5	6,431,000	0.8	30.8		27.3	
Brick and tile . . . . .	340	6,574	1.4	9,765,000	0.5	7,274,000	1.0	29.4	48.5	24.5	44.0
Smelting and refining, zinc . . . . .	5	1,922	0.4	9,004,000	0.5	2,508,000	0.3	65.9	-7.8	64.4	4.1
Leather goods . . . . .	168	2,940	0.6	8,948,000	0.5	3,813,000	0.5	33.3	29.0	16.3	35.6
Baking powders and yeast . . . . .	24	657	0.1	7,632,000	0.4	4,371,000	0.6	68.1	35.7	58.7	33.8

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



INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		PER CENT OF INCREASE. <sup>1</sup>			
		Average number.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.	Value of products.		Value added by manufacture.	
								1904-1909	1899-1904	1904-1909	1899-1904
Canning and preserving.....	118	2,383	0.5	\$7,620,000	0.4	\$2,807,000	0.4	8.2	20.1	2.9	29.0
Millinery and lace goods.....	103	3,328	0.7	7,282,000	0.4	3,485,000	0.5	47.2	133.3	36.5	140.7
Furnishing goods, men's.....	61	2,688	0.6	7,213,000	0.4	2,640,000	0.3	75.8	21.9	61.7	25.7
Automobiles, including bodies and parts.....	65	2,382	0.5	7,154,000	0.4	3,173,000	0.4	1,903.9	-52.3	1,195.9	-46.3
Clocks and watches, including cases and materials.....	19	5,665	1.2	7,045,000	0.4	5,357,000	0.7				
Brass and bronze products.....	79	1,688	0.4	6,842,000	0.4	2,604,000	0.4				
Marble and stone work.....	278	2,226	0.5	6,771,000	0.4	3,741,000	0.5	25.6	34.1	15.0	36.7
Copperage and wooden goods, not elsewhere specified.....	80	2,388	0.5	6,611,000	0.3	2,132,000	0.3	-6.7	14.7	-7.5	0.7
Boxes, fancy and paper.....	61	4,085	0.9	6,350,000	0.3	3,338,000	0.4	72.3	23.2	66.7	30.2
Hosiery and knit goods.....	43	2,913	0.6	5,947,000	0.3	2,715,000	0.4	59.4	69.2	73.5	70.3
Gas and electric fixtures and lamps and reflectors.....	78	2,000	0.4	5,797,000	0.3	3,103,000	0.4	99.6	70.2	81.4	67.9
Grease and tallow.....	36	778	0.2	5,500,000	0.3	1,525,000	0.2	129.3	29.1	60.5	143.0
Glass.....	11	3,507	0.7	5,047,000	0.3	3,506,000	0.5	-10.2	98.3	-10.9	95.4
Paper and wood pulp.....	19	1,397	0.3	4,983,000	0.3	1,884,000	0.2	104.0	70.6	83.4	62.0
Chemicals.....	19	836	0.2	4,656,000	0.2	1,760,000	0.2	103.9	9.4	89.7	2.0
Pottery, terra-cotta, and fire-clay products.....	39	3,157	0.7	4,615,000	0.2	3,489,000	0.5	41.7	61.9	38.2	61.0
Babbit metal and solder.....	19	183	(?)	4,146,000	0.2	772,000	0.1	65.8	64.4	32.2	125.5
Cement.....	6	1,395	0.3	4,088,000	0.2	2,469,000	0.3	247.0		243.9	
Smelting and refining, not from the ore.....	11	369	0.1	3,930,000	0.2	696,000	0.1	98.9	507.6	78.5	369.9
Paper goods, not elsewhere specified.....	46	1,317	0.3	3,779,000	0.2	1,782,000	0.2	131.6	58.1	100.9	121.8
Sewing machines, cases, and attachments.....	7	1,713	0.4	3,622,000	0.2	2,512,000	0.3				
Cars and general shop construction and repairs by street-railroad companies.....	30	2,240	0.5	3,451,000	0.2	1,644,000	0.2	201.9	2.4	126.8	24.1
Mattresses and spring beds.....	86	831	0.2	2,890,000	0.1	1,226,000	0.2	35.1	28.2	35.2	5.6
Jewelry.....	67	900	0.2	2,780,000	0.1	1,516,000	0.2	58.4	9.6	58.9	19.4
Cutlery and tools, not elsewhere specified.....	80	1,393	0.3	2,758,000	0.1	1,686,000	0.2	82.0		77.5	
Corsets.....	16	1,502	0.3	2,711,000	0.1	1,516,000	0.2	119.2	23.1	124.3	24.7
Photo-engraving.....	27	1,114	0.2	2,678,000	0.1	2,144,000	0.3	96.2	28.7	93.0	22.1
Gloves and mittens, leather.....	29	1,309	0.3	2,523,000	0.1	1,045,000	0.1	49.2	-31.9	24.6	-32.9
Brooms and brushes.....	119	820	0.2	2,430,000	0.1	1,041,000	0.1	44.0	16.1	27.1	10.4
Coffins, burial cases, and undertakers' goods.....	21	732	0.2	2,260,000	0.1	1,278,000	0.2	21.0	50.3	36.2	81.4
Belting and hose, leather.....	11	233	(?)	2,188,000	0.1	803,000	0.1	107.4	-22.5	83.3	-6.4
Cotton goods, including cotton small wares.....	5	1,319	0.3	2,111,000	0.1	1,009,000	0.1	244.4		217.3	
Surgical appliances and artificial limbs.....	29	536	0.1	2,090,000	0.1	1,178,000	0.2	107.8	92.4	96.7	68.7
Fur goods.....	63	319	0.1	1,920,000	0.1	868,000	0.1	34.7	-38.6	40.0	-42.7
Ice, manufactured.....	83	804	0.2	1,928,000	0.1	1,486,000	0.2	105.1	-5.1	114.4	-15.2
Bicycles, motorcycles, and parts.....	14	910	0.2	1,777,000	0.1	804,000	0.1	53.1	-87.0	24.1	-84.3
Artificial stone.....	366	785	0.2	1,488,000	0.1	911,000	0.1	841.8		767.6	
Explosives.....	8	290	0.1	1,469,000	0.1	534,000	0.1	103.3	145.5	78.0	105.5
Wall paper.....	5	290	0.1	1,367,000	0.1	665,000	0.1	25.0	105.6	55.4	64.0
Fancy articles, not elsewhere specified.....	44	444	0.1	1,320,000	0.1	746,000	0.1	-21.1	84.4	-26.6	110.4
Woolen, worsted, and felt goods, and wool hats.....	9	499	0.1	1,314,000	0.1	541,000	0.1				
Stereotyping and electrotyping.....	21	592	0.1	1,282,000	0.1	906,000	0.1	6.4	79.0	-1.9	68.6
Type founding and printing materials.....	19	438	0.1	1,248,000	0.1	873,000	0.1	6.8	-7.1	3.1	-5.6
Blackening and cleansing and polishing preparations.....	58	236	(?)	1,230,000	0.1	661,000	0.1	86.1	30.1	118.2	-3.2
Dairymen's, poultrymen's, and apirlarists' supplies.....	29	323	0.1	1,181,000	0.1	606,000	0.1	4.4		6.3	
Mirrors.....	10	353	0.1	1,106,000	0.1	471,000	0.1	-21.4	56.4	-33.3	112.7
Hats and caps, other than felt, straw, and wool.....	38	463	0.1	1,046,000	0.1	567,000	0.1	1.9	7.9	15.5	3.8
Bags, other than paper.....	6	189	(1)	965,000	0.1	280,000	(?)	19.3	47.9	67.7	-6.2
Models and patterns, not including paper patterns.....	81	426	0.1	889,000	(?)	686,000	0.1	64.9	43.7	50.1	49.3
Show cases.....	16	386	0.1	829,000	(?)	530,000	0.1	-2.2	34.4	10.2	47.3
Photographic apparatus and materials.....	13	284	0.1	740,000	(?)	422,000	0.1	-8.8	27.1	-19.5	18.0
Electroplating.....	43	375	0.1	697,000	(?)	471,000	0.1	64.0	34.1	56.5	15.3
Lime.....	16	511	0.1	688,000	(?)	514,000	0.1	-58.6		-58.8	
Buttons.....	28	548	0.1	676,000	(?)	430,000	0.1	169.3	3.7	143.9	2.3
Flags, banners, regalia, society badges and emblems.....	21	203	0.1	676,000	(?)	363,000	(?)	20.1	94.1	12.7	116.1
Boxes, cigar.....	18	404	0.1	661,000	(?)	347,000	(?)	15.5	22.3	7.4	29.7
Pumps, not including steam pumps.....	14	282	0.1	659,000	(?)	331,000	(?)	9.3	168.0	-16.2	240.5
Musical instruments and materials, not specified.....	30	336	0.1	620,000	(?)	451,000	0.1	-6.7	31.1	-3.4	35.0
Shipbuilding, including boat building.....	23	413	0.1	584,000	(?)	385,000	0.1				
Scales and balances.....	13	248	(?)	574,000	(?)	320,000	(?)	88.2	-1.0	58.9	-5.5
All other industries.....	1,751	41,270	8.9	223,763,000	11.7	78,773,000	10.4				

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

The foregoing table gives separate statistics for 95 industries or industry groups for which products valued at more than \$500,000 were reported in 1909. These industries include 8 with products exceeding \$50,000,000 in value, 8 with products between \$25,000,000 and \$50,000,000 in value, and 15 with products between \$10,000,000 and \$25,000,000 in

value, making an aggregate of 31 industries with products in excess of \$10,000,000 in value. The other industries shown separately comprise 17 with products between \$5,000,000 and \$10,000,000 in value, 34 with products between \$1,000,000 and \$5,000,000 in value, and 13 with products between \$500,000 and \$1,000,000 in value.

In addition to the 95 industries presented separately in the foregoing table, there were 65 other industries in the state which reported products in 1909 to the value of \$500,000 or over.<sup>1</sup> These industries comprised 4 with products exceeding \$10,000,000 in value, 6 with products between \$5,000,000 and \$10,000,000 in value, 40 with products between \$1,000,000 and \$5,000,000 in value, and 15 with products between \$500,000 and \$1,000,000 in value. These industries 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, as it is more or less interwoven with other industries; and in still others, because comparative statistics for 1904 and 1899 can not be presented without disclosing the operations of individual establishments, or on account of changes in classification. The 1909 statistics, however, for three of these industries—the manufacture of paper bags, cordage and twine and jute and linen goods, and signs and advertising novelties—are presented in Table II, page 42.

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

*Slaughtering and meat packing.*—This classification includes wholesale slaughtering and meat-packing establishments and those engaged in the manufacture of sausage only, but not the operations of the numerous slaughterhouses killing for the retail trade which, in the aggregate, slaughter a large number of animals. Illinois continues to hold first place in this industry, the value of the output in 1909, \$389,595,000, forming 28.4 per cent of the total for the industry in the United States and representing an increase of 22.4 per cent as compared with 1904. In 1904 the state's proportion of the total value of products for this industry was

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

<ul style="list-style-type: none"> <li>Awnings, tents, and sails.</li> <li>Bags, paper.</li> <li>Belting and hose, woven and rubber.</li> <li>Butter, reworking.</li> <li>Candles.</li> <li>Cars, street-railroad, not including operations of railroad companies.</li> <li>Cash registers and calculating machines.</li> <li>Coke.</li> <li>Cordage and twine and jute and linen goods.</li> <li>Cordials and sirups.</li> <li>Fertilizers.</li> <li>Firearms and ammunition.</li> <li>Flavoring extracts.</li> <li>Food preparations.</li> <li>Glass, cutting, staining, and ornamenting.</li> <li>Glucose and starch.</li> <li>Glue.</li> <li>Gold and silver, reducing and refining, not from the ore.</li> <li>Hair work.</li> <li>House-furnishing goods, not elsewhere specified.</li> <li>Ink, writing.</li> <li>Instruments, professional and scientific.</li> <li>Iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills.</li> <li>Iron and steel, doors and shutters.</li> <li>Iron and steel forgings.</li> <li>Iron and steel, nails and spikes, cut and wrought, including wire nails, not made in steel works or rolling mills.</li> <li>Iron and steel pipe, wrought.</li> <li>Labels and tags.</li> <li>Lard, refined, not made in slaughtering and meat-packing establishments.</li> </ul>	<ul style="list-style-type: none"> <li>Lead, bar, pipe, and sheet.</li> <li>Looking-glass and picture frames.</li> <li>Malt.</li> <li>Mineral and soda waters.</li> <li>Moving pictures.</li> <li>Oil, cottonseed, and cake.</li> <li>Oil, linseed.</li> <li>Oil, not elsewhere specified.</li> <li>Oilecloth and linoleum.</li> <li>Oleomargarine.</li> <li>Optical goods.</li> <li>Petroleum, refining.</li> <li>Roofing materials.</li> <li>Saws.</li> <li>Signs and advertising novelties.</li> <li>Silk and silk goods, including throwsters.</li> <li>Smelting and refining, lead.</li> <li>Soda-water apparatus.</li> <li>Sporting and athletic goods.</li> <li>Springs, steel, car and carriage.</li> <li>Stationery goods, not elsewhere specified.</li> <li>Statuary and art goods.</li> <li>Sugar and molasses.</li> <li>Sulphuric, nitric, and mixed acids.</li> <li>Tin plate and terneplate.</li> <li>Toys and games.</li> <li>Typewriters and supplies.</li> <li>Upholstering materials.</li> <li>Vinegar and cider.</li> <li>Windmills.</li> <li>Window shades and fixtures.</li> <li>Wire.</li> <li>Wirework, including wire rope and cable.</li> <li>Wood preserving.</li> <li>Wood, turned and carved.</li> <li>Wool scouring.</li> </ul>
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34.5 per cent, and in 1899, 36.6 per cent. Measured by value of products this is by far the most important industry in Illinois, contributing a little over one-fifth of the state total for all manufacturing industries in 1909. Although greatly exceeding any other industry in the state in value of products, the industry ranked only fourth in average number of wage earners and in value added by manufacture.

*Foundry and machine-shop products.*—This industry includes all foundries and machine shops and similar establishments except those which manufacture a distinctive product covered by some other classification, such as cash registers, sewing machines, and electrical machinery and apparatus. Establishments engaged in the manufacture of bells, cast-iron and cast-steel pipe, gas machines and gas and water meters, hardware, steam fittings and heating apparatus, and structural ironwork, some of which were classified separately at previous censuses, are all included under this general heading. This industry ranks second in value of products, with 7.2 per cent of the state total for all manufacturing industries, and shows a much greater growth for the five-year period 1904-1909 than for the preceding five-year period. In 1909 it was the leading industry in the state in average number of wage earners employed, having 52,266, or 11.2 per cent of the state total.

*Clothing, men's, including shirts.*—This classification includes the making of men's and boys' ready-made clothing and of overalls, butchers' aprons, bathing suits, and gymnasium clothing, and the manufacture of all kinds of shirts—cotton, linen, flannel, etc.—as well as of shirt bosoms, and of shirt waists for men and boys. Most of the establishments engaged in this industry in Illinois are located in Chicago. The number of establishments increased from 624 in 1904 to 715 in 1909, the average number of wage earners increased from 21,355 to 36,152, or 69.3 per cent, and the value of products from \$57,002,000 to \$89,473,000, or 57 per cent.

*Printing and publishing.*—This classification includes the printing and publishing of books, newspapers and periodicals, and music, job printing, bookbinding and blank-book making, steel and copper plate engraving, and lithographing. In this industry Illinois ranks second only to New York, with a value of products in 1909 forming 11.8 per cent of the total for the United States. There were 2,608 establishments reported in 1909, as against 2,414 in 1904 and 2,150 in 1899. The figures indicate a considerable growth in the industry throughout the decade. The leading items going to make up the total value of products in 1909 were as follows: Job printing, \$28,010,000; book and pamphlet printing and publishing, \$9,399,000; subscriptions and sales of newspapers, \$8,937,000; newspaper advertising, \$13,720,000; subscriptions and sales of periodicals, \$5,722,000; periodical advertising, \$6,893,000; bookbinding and blank-book making, \$5,756,000; and electrotyping, engraving, and lithographing, \$5,456,000.

*Iron and steel, steel works and rolling mills.*—This industry embraces the manufacture of steel and the hot rolling of iron and steel. It also includes the making of forgings and castings and the manufacture of rolled iron and steel into more highly finished forms when conducted as a part of the rolling-mill operations. It does not, however, include the making of cold-rolled products, nor of forgings, castings, and other manufactures of iron and steel by establishments not equipped with steel-making furnaces or hot trains of rolls. There were 24 establishments in Illinois in 1909 coming under this classification, or one more than in 1904. In 1909 this industry ranked fifth in the state in value of products, in 1904 it was fourth, and in 1899 third. From 1904 to 1909 the value of products for Illinois increased 44.3 per cent, as compared with an increase of 46.3 per cent for the entire country for the same period. Of the total value of products for the industry in the United States, Illinois contributed 8.8 per cent in 1909 and 8.9 per cent in 1904, holding third position among the states in each year.

*Iron and steel, blast furnaces.*—These establishments include those engaged in the manufacture of pig iron from the ore. The number of establishments in this industry increased from four in 1904 to six in 1909. In value of products there was an increase of \$10,969,000, or 40.1 per cent, from 1904 to 1909, as compared with an increase of \$12,177,000, or 80.4 per cent, from 1899 to 1904. Illinois contributed \$38,300,000, or 9.8 per cent of the total value of products for all blast furnaces in the United States, in 1909, as compared with \$27,331,000, or 11.8 per cent, in 1904, and \$15,154,000, or 7.3 per cent, in 1899. For the last three censuses Illinois has ranked third among the states in this industry.

The manufacture of wire is a very important branch of the iron and steel industry in Illinois, but the statistics can not be presented separately because of the possible disclosure of individual operations. Seven establishments manufacturing wire were reported in 1909 and four in 1904.

*Agricultural implements.*—This classification includes the manufacture of various kinds of seeders and planters, implements of cultivation, harvesting implements, seed separators, etc. There was an over-production of agricultural implements in Illinois in 1903, followed by a curtailment of manufacture in 1904. The figures for 1904, the year covered by the census, are therefore below the normal. The value of the products of the industry shows a decrease of 8.6 per cent in 1904 as compared with 1899, but in 1909 it amounted to \$57,268,000, representing an increase of 49.1 per cent as compared with 1904, and of 36.2 per cent as compared with 1899. Illinois is the leading state in this industry, reporting 39.1 per cent of the total value of products for the United States in 1909, 34.3 per cent in 1904, and 41.5 per cent in 1899.

*Liquors, distilled.*—This industry was seventh in the state in 1909 and in 1899 as measured by value

of products, and sixth in 1904. In 1909, as in 1904 and 1899, Illinois ranked first in this industry in the United States, reporting products in 1909 valued at \$55,200,000, or 27 per cent of the total for the United States. Of the total value of products of this industry in the state in 1909, more than three-fourths (\$42,758,000) represents the Federal internal-revenue tax. The greater part of the distilled liquors made in Illinois was corn whisky, the state ranking high in the production of corn.

*Liquors, malt.*—During the five-year period 1904–1909 the number of breweries decreased from 116 to 106, but there was an increase of 365, or 9.1 per cent, in the average number of wage earners and of \$4,662,000, or 19.6 per cent, in the value of products.

*Flour-mill and gristmill products.*—This classification includes mills grinding wheat, rye, barley, buckwheat, or corn, but it does not include mills doing custom grinding exclusively, or factories making fancy cereals or other food preparations as a chief product. Statistics for custom gristmills, however, are presented separately on page 30. The number of establishments reporting increased from 363 in 1904 to 461 in 1909, and during the same period there was a slight increase (54) in the average number of wage earners reported, and an increase of \$11,219,000, or 28.1 per cent, in value of products.

*Lumber and timber products.*—This industry embraces logging operations, sawmills, planing mills, and establishments engaged in the manufacture of wooden packing-boxes. It does not include mills engaged exclusively or chiefly in custom sawing for local consumption, statistics for which are given on page 30. Over one-half of the 814 establishments reporting were sawmills, but the greater part of the total value of products was reported by the planing mills, which include establishments making sash, doors, blinds, stairwork, moldings, and interior woodwork. From 1904 to 1909 the value of products increased \$12,211,000, or 37.3 per cent.

*Cars and general shop construction and repairs by steam-railroad companies.*—Among the manufacturing industries this one is peculiar in that it is practically confined to repairs on the rolling stock and equipment of the railroad companies operating the plants, and that except to the very limited extent that repair work is done for other companies the amount shown as value of products represents only the cost of materials added to the expenditure for salaries and wages. The industry does not include minor repairs made in round-houses. From 1904 to 1909 the number of establishments decreased from 99 to 73, while the average number of wage earners increased 4,036, or 21.1 per cent, and the value of products \$6,738,000, or 26.4 per cent.

*Cars, steam-railroad, not including operations of railroad companies.*—For this industry Illinois reported in 1909 more than one-fifth of the total value of products for the United States. While the number of estab-

lishments in the state increased from 16 in 1904 to 28 in 1909, and the average number of wage earners from 9,036 to 10,945, or 21.1 per cent, the value of products decreased \$3,925,000, or 12.7 per cent. Eighteen of the car construction shops reported in 1909 were in Chicago. The products of these plants include sleeping cars, dining cars, chair cars, mail, express, and baggage cars, and refrigerator cars, as well as ordinary passenger coaches and many kinds of freight cars. In 1904 Illinois held first place in value of products for this industry in the United States, but in 1909 it stood second.

*Furniture and refrigerators.*—This industry embraces the manufacture of wood and metal furniture of all kinds, refrigerators and ice boxes, and store and office fixtures, with the exception of products, such as show cases, which are provided for by a distinct classification. This industry shows increases from 1904 to 1909 of 29 per cent in number of establishments, 9.2 per cent in average number of wage earners, and 24.6 per cent in value of products.

*Electrical machinery, apparatus, and supplies.*—The most important products of the establishments in this industry in Illinois are insulated wires and cables and telephone apparatus. From 1904 to 1909 the number of establishments increased from 104 to 143, the average number of wage earners increased 3,510, or 57.2 per cent, and the value of products \$10,126,000, or 60.6 per cent. During the preceding five-year period the number of establishments increased from 82 to 104, the number of wage earners increased 1.4 per cent, and the value of products, 37.2 per cent.

*Copper, tin, and sheet-iron products.*—This classification comprises the manufacture of all sheet metal products of copper, tin, and sheet iron, including the preparation of copper, tin, or sheet-iron materials for building construction. Between 1904 and 1909 the number of establishments increased from 288 to 483, the average number of wage earners increased 1,828, or 32.4 per cent, and the value of products, \$7,438,000, or 48.3 per cent. In this industry Illinois held second place in the United States in 1909, with 11.4 per cent of the total value of products.

*Gas, illuminating and heating.*—The number of establishments in this industry increased from 64 in 1904 to 78 in 1909, and the total value of products increased \$5,044,000, or 31.5 per cent.

*Musical instruments, pianos and organs and materials.*—This classification covers, in general, the manufacture of pianos, organs, and piano-players, and materials used in their construction, such as piano cases, strings, keys, keyboards, pedal attachments, sounding boards, and back frames, organ reeds, pipes, and stops, and piano and organ hardware. It does not include the manufacture of band and orchestral instruments, such as horns, clarinets, flutes, drums, violins, and similar instruments, which are included under the head of "Musical instruments and materials, not specified." In 1909 there were 68 establish-

ments in the industry, as compared with 56 in 1904, and the number of wage earners increased 1,269, or 16.9 per cent, during the five-year period. The value of products shows an increase of 43.9 per cent, as against an increase of 63.4 per cent for the five-year period 1899-1904. Measured by value of products Illinois ranked second in this industry in the United States in 1909, 1904, and 1899, the value of its products forming 21.4 per cent of the total for the country in 1909, and practically 20 per cent in both 1904 and 1899.

*Butter, cheese, and condensed milk.*—The number of establishments in this industry shows a decrease of 110, or over one-fourth, from 1904 to 1909, and a decrease of 122 from 1899 to 1904. The average number of wage earners increased 17 per cent from 1899 to 1904, but in 1909 the number was practically the same as in 1904. The value of products increased only 3.1 per cent in the earlier five-year period, while in the later period it increased 34.1 per cent. The changes shown for the decade indicate the abandonment of many of the small factories and an increase in the output of the larger ones. Condensed milk is the most important of the products. The state ranked second in the value of condensed milk produced in 1909 (New York leading), seventh in the value of cheese, and eighth in the value of butter. In the total value of products for the industry the state held fifth place in 1909, as compared with fourth place in both 1904 and 1899.

*Boots and shoes, including cut stock and findings.*—Under this head are included factories making boots and shoes and those whose chief products are cut stock and findings, as well as shops specially engaged in stitching, crimping, fitting, and bottoming, or performing other special operations in connection with the manufacture of boots and shoes. The manufacture of footwear not coming strictly under the head of boots and shoes, such as overgaiters, moccasins, and leggings, is also covered by this designation. There were decreases from 1899 to 1904 in the number of establishments, average number of wage earners, and value of products, but there was a decided increase in the industry during the five-year period 1904-1909 and a net increase during the decade.

*Clothing, women's.*—In addition to the making of suits, dresses, skirts, and shirtwaists, this industry includes the manufacture of women's underwear and night robes, of infants' clothing, and of such articles as belts, dress shields, and hose supporters. From 1904 to 1909 there was an increase of 30, or 15.7 per cent, in the number of establishments in this industry; of 1,461, or 31.2 per cent, in the average number of wage earners; and of \$4,398,000, or 35.9 per cent, in the value of products.

*Patent medicines and compounds and druggists' preparations.*—Under this head are included establishments making so-called patent medicines and also some compounds that are not used for medicinal purposes, and those manufacturing capsules, extracts,

tinctures, and other pharmaceuticals, and perfumery and cosmetics. There was a decrease of 1.5 per cent in the value of products of this industry, and of 12 per cent in the value added by manufacture during the five-year period 1904-1909, while during the preceding five-year period there were increases of 103.6 per cent and 118.8 per cent, respectively. Measured by value of products, the state ranked third in this industry in the United States in 1909, with 9.2 per cent of the total for the country as a whole.

*Automobiles, including bodies and parts.*—There was a remarkable growth in the manufacture of automobiles during the five-year period 1904-1909. The number of establishments increased from 12 to 65; the average number of wage earners employed, from 167 to 2,382; and the value of products, from \$357,000 to \$7,154,000.

The rank of the industries shown in the table on pages 4 and 5, on the basis of value added by manufacture is somewhat different from their rank as determined by value of products. Slaughtering and meat packing drops from first place to fourth, the men's clothing industry from third to fifth, and the steel works and rolling mills from fifth to seventh, while the foundry and machine-shop, printing and publishing, and distillery industries become first, second, and third, respectively. The manufacture of agricultural implements, the lumber industry, and the manufacture of paint and varnish are the only industries presented separately in the table which maintain the same rank in both cases, being sixth, ninth, and twentieth, respectively. In those industries in which the manufacturing processes are comparatively simple or are carried on largely by the aid of machinery, the value added by manufacture is not commensurate with the gross value of products and the rank on the basis of value added by manufacture is much lower than the rank on the basis of value of products. This is especially noticeable in the flour-mill and gristmill industry, which drops from eighth place in value of products to twenty-eighth in value added by manufacture; the blast furnaces, which drop from tenth place to twenty-second; the roasting and grinding of coffee and spice, which drops from twenty-second place to thirty-first; and the butter, cheese, and condensed-milk industry, which drops from twenty-fourth place to thirty-fifth. Of the 83 industries presented in this table for which comparative data can be given for both five-year periods, 34 show a greater rate of increase in value of products for the later than for the earlier period; 29 show a lower rate; and 10 show a decrease for the period 1904-1909, while 10 others show a decrease for the period 1899-1904.

As stated in the Introduction, each establishment, as a whole, has been assigned to a given classification according to its products of chief value, so that the figures for any given industry must not be taken either as fully covering or as representing exclusively the operations of that branch of manufacturing indi-

cated by the industry designation. Therefore, in considering the relative importance of the industries shown in the preceding table or in Table II, page 42, it should be noted that the figures for several of the industries listed fall short of being a complete presentation of the statistics for the branch of manufacturing covered by the industry designation. Some conspicuous examples of this kind in Illinois are the following industries, in each of which the value of the products reported in 1909 by establishments included under other classifications exceeded \$1,000,000: Canning and preserving, carriages and wagons and materials, chemicals, women's clothing, foundry and machine-shop products, and patent medicines and compounds and druggists' preparations.

*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.
<b>All classes</b> .....	<b>561,044</b>	<b>465,139</b>	<b>95,905</b>
Proprietors and officials.....	33,611	32,567	1,044
Proprietors and firm members.....	17,357	16,725	632
Salaries officers of corporations.....	6,704	6,538	216
Superintendents and managers.....	9,490	9,294	196
Clerks.....	61,669	46,390	15,279
Wage earners (average number).....	465,764	386,182	79,582
16 years of age and over.....	458,847	382,691	76,156
Under 16 years of age.....	6,917	3,491	3,426

The average number of persons engaged in manufactures during 1909 was 561,044, of whom 465,764 were wage earners. Of the remainder, 33,611 were proprietors and officials and 61,669 were clerks. Corresponding figures for individual industries will be found in Table II, page 42.

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 40 important industries individually.

Of the total number of persons engaged in all manufacturing industries, 6 per cent were proprietors and officials, 11 per cent clerks, and 83 per cent wage earners. The highest percentage of proprietors and officials shown for any individual industry, 34.3, is for the butter, cheese, and condensed-milk industry. Many of the establishments in this industry are carried on by cooperative associations, and from the information contained in the reports it was often impossible to positively distinguish such associations from partnerships. It is probable, therefore, that members of some of these cooperative associations have been

tabulated as partners. In the flour-mill and gristmill, tobacco, and bakery industries also the percentage of proprietors and officials is high. In these industries the majority of the establishments are 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.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
<b>All industries</b> .....	561,044	6.0	11.0	83.0
Agricultural implements.....	21,511	3.0	7.5	89.4
Automobiles, including bodies and parts.....	2,804	5.8	9.2	85.0
Baking powders and yeast.....	1,133	5.2	36.8	58.0
Boots and shoes, including cut stock and findings.....	6,302	2.4	7.0	90.6
Bread and other bakery products.....	12,566	20.5	11.0	68.5
Brick and tile.....	7,347	8.5	2.0	89.5
Butter, cheese, and condensed milk.....	3,000	34.3	8.0	57.7
Canning and preserving.....	2,800	8.1	0.8	85.1
Carrriages and wagons and materials.....	6,746	8.0	5.3	86.7
Cars and general shop construction and repairs by steam-railroad companies.....	24,406	1.6	3.6	94.8
Cars, steam-railroad, not including operations of railroad companies.....	11,782	1.7	5.4	92.9
Clocks and watches, including cases and materials.....	5,883	0.8	2.0	96.3
Clothing, men's, including shirts.....	41,122	3.1	9.0	87.9
Clothing, women's.....	7,270	5.6	9.0	84.5
Coffee and spice, roasting and grinding.....	1,792	5.2	37.9	56.8
Confectionery.....	4,622	4.8	13.0	82.2
Copper, tin, and sheet-iron products.....	8,897	8.8	7.2	84.0
Electrical machinery, apparatus, and supplies.....	11,854	3.0	15.1	81.3
Flour-mill and gristmill products.....	3,634	21.9	10.3	67.8
Foundry and machine-shop products.....	61,303	4.0	9.8	85.3
Furnishing goods, men's.....	3,116	3.8	0.9	89.3
Furniture and refrigerators.....	15,240	4.6	6.3	89.1
Gas, illuminating and heating.....	8,020	3.4	18.1	78.6
Iron and steel, blast furnaces.....	2,927	1.3	13.6	85.2
Iron and steel, steel works and rolling mills.....	19,437	1.5	8.0	90.5
Leather goods.....	3,569	8.0	0.3	82.0
Leather, tanned, carried, and finished.....	3,194	2.5	3.6	94.0
Liquors, distilled.....	851	3.8	8.1	88.1
Liquors, malt.....	5,301	0.8	11.2	82.0
Lumber and timber products.....	19,025	7.7	5.2	87.1
Millinery and lace goods.....	3,987	6.0	10.5	83.5
Musical instruments, pianos and organs and materials.....	9,628	2.3	6.6	91.2
Paint and varnish.....	2,906	8.1	30.2	61.7
Patent medicines and compounds and druggists' preparations.....	3,902	14.1	38.0	47.9
Printing and publishing.....	43,074	10.2	23.3	66.5
Slaughtering and meat packing.....	32,642	1.0	17.1	81.8
Smelting and refining, zinc.....	2,034	1.8	3.7	94.5
Soap.....	3,468	2.8	33.0	64.2
Stoves and furnaces, including gas and oil stoves.....	5,223	3.8	10.0	86.1
Tobacco manufactures.....	10,767	21.1	3.9	75.0
All other industries.....	115,920	6.7	10.7	82.6

On account of the large average number of wage earners per establishment in certain industries, the proportion of proprietors and officials in the industry is small. The more important industries of this class are the manufacture of clocks and watches, slaughtering and meat packing, blast furnaces, steel works and rolling mills, steam-railroad repair shops, car construction shops, and the smelting and refining of zinc.

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 of 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.

INDUSTRY.	WAGE EARNERS.			
	Average number. <sup>1</sup>	Per cent of total.		Under 16 years of age.
		Male.	Female.	
<b>All industries</b> .....	465,764	82.2	16.3	1.5
Agricultural implements.....	19,240	98.7	1.2	0.1
Automobiles, including bodies and parts.....	2,382	98.6	1.4	.....
Baking powders and yeast.....	657	45.1	54.0	0.9
Boots and shoes, including cut stock and findings.....	5,792	61.2	33.0	5.8
Bread and other bakery products.....	8,611	70.4	19.3	1.3
Brick and tile.....	6,574	99.3	.....	0.7
Butter, cheese, and condensed milk.....	1,732	79.3	19.9	0.8
Canning and preserving.....	2,383	48.0	48.0	3.4
Carrriages and wagons and materials.....	5,852	98.1	1.7	0.2
Cars and general shop construction and repairs by steam-railroad companies.....	23,131	99.8	0.2	( <sup>2</sup> )
Cars, steam-railroad, not including operations of railroad companies.....	10,945	99.6	0.4	.....
Clocks and watches, including cases and materials.....	5,605	55.0	44.4	0.6
Clothing, men's, including shirts.....	36,142	47.0	50.3	2.8
Clothing, women's.....	6,151	31.1	67.4	1.5
Coffee and spice, roasting and grinding.....	1,018	55.9	41.2	2.9
Confectionery.....	3,790	34.4	58.9	0.7
Copper, tin, and sheet-iron products.....	7,473	85.3	13.0	1.7
Electrical machinery, apparatus, and supplies.....	9,641	75.3	24.3	0.5
Flour-mill and gristmill products.....	2,464	99.3	0.6	0.1
Foundry and machine-shop products.....	52,266	97.2	2.4	0.4
Furnishing goods, men's.....	2,688	12.4	84.2	3.4
Furniture and refrigerators.....	13,575	96.4	2.3	1.3
Gas, illuminating and heating.....	6,301	100.0	.....	.....
Iron and steel, blast furnaces.....	2,493	100.0	.....	.....
Iron and steel, steel works and rolling mills.....	17,584	99.8	0.1	0.1
Leather goods.....	2,949	86.6	12.3	1.1
Leather, tanned, carried, and finished.....	3,001	99.8	0.2	.....
Liquors, distilled.....	750	94.4	5.6	.....
Liquors, malt.....	4,398	98.0	1.4	0.6
Lumber and timber products.....	10,567	98.0	0.8	1.1
Millinery and lace goods.....	3,328	18.8	75.4	5.8
Musical instruments, pianos and organs and materials.....	8,777	91.0	5.5	3.5
Paint and varnish.....	1,792	89.0	10.3	0.8
Patent medicines and compounds and druggists' preparations.....	1,860	43.2	48.7	8.1
Printing and publishing.....	28,644	74.1	23.3	2.6
Slaughtering and meat packing.....	26,795	88.8	11.0	0.1
Smelting and refining, zinc.....	1,922	99.3	.....	0.7
Soap.....	2,188	69.7	24.9	5.4
Stoves and furnaces, including gas and oil stoves.....	4,409	99.2	( <sup>2</sup> )	0.8
Tobacco manufactures.....	8,034	69.1	28.9	2.0
All other industries.....	95,772	78.5	10.2	2.3

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

In all manufacturing industries combined, 82.2 per cent of the average number of wage earners in 1909 were males 16 years of age and over; 16.3 per cent, females 16 years of age and over; and 1.5 per cent, children under the age of 16. The men's clothing industry employed more women than any other one industry, and together with the women's clothing and men's furnishing goods industries, employed nearly one-third of the total number of female wage earners 16 years of age and over reported for the state. Other industries employing large numbers of female wage earners were printing and publishing, slaughtering and meat packing, and the manufacture of clocks and watches, millinery and lace goods, electrical machinery, tobacco products, and fancy and paper boxes. Of the industries presented in the table above, those which show the highest proportion of female wage earners 16 years of age or over

are the men's furnishing goods industry, with 84.2 per cent; the millinery and lace goods industry, with 75.4 per cent; and the women's clothing industry, with 67.4 per cent. Statistics for a number of other less important industries in which the female wage earners predominate will be found in Table II, page 42. Of the wage earners under 16 years of age, 46.9 per cent were employed in the seven industries which reported an average of over 200 such wage earners each. These industries were the men's clothing industry, with an average of 995; printing and publishing, with 739; the manufacture of fancy and paper boxes, with 410; the boot and shoe industry, with 334; the manufacture of pianos and organs, with 309; the confectionery industry, with 255; and foundries and machine shops, with 202. The proportion of children in the total number of wage earners was highest (8.1 per cent) in the manufacture of patent medicines and compounds, but the actual number employed on the average was only 151.

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.	Percent distribution.	Number.	Percent distribution.	
Total.....	561,044	100.0	447,947	100.0	25.2
Proprietors and firm members.....	17,357	3.1	13,990	3.1	24.1
Salaried employees.....	77,023	13.9	54,521	12.2	42.9
Wage earners (average number)....	466,764	83.0	379,436	84.7	22.8

Comparable figures are not obtainable for 1899. Salaried employees show the greatest percentage of increase and constitute the only class forming a larger proportion of the total in 1909 than in 1904.

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

CLASS.	AVERAGE NUMBER OF WAGE EARNERS.					
	1909		1904		1899	
	Number.	Percent distribution.	Number.	Percent distribution.	Number.	Percent distribution.
Total.....	466,764	100.0	379,436	100.0	332,871	100.0
16 years of age and over.....	458,847	98.5	374,490	98.7	322,928	97.0
Male.....	382,601	82.2	314,001	82.8	275,006	82.6
Female.....	76,156	16.4	60,390	15.9	47,922	14.4
Under 16 years of age.....	6,917	1.5	4,946	1.3	9,943	3.0

The proportion of wage earners under 16 years of age in all manufacturing industries combined was only one-half as great in 1909 as in 1899. There was a moderate increase during the decade, however, in the proportion of female wage earners 16 years of age or over, while the proportion of males 16 years of age or over shows a slight decrease.

Wage earners employed, by months.—The following tabular statement gives the number of wage earners employed on the 15th of each month during the year 1909 for all 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 42, 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.

MONTH.	WAGE EARNERS.		MONTH.	WAGE EARNERS.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	438,504	88.0	July.....	454,410	91.1
February.....	442,881	88.8	August.....	400,414	82.3
March.....	452,503	90.8	September.....	481,796	96.6
April.....	455,145	91.3	October.....	403,928	89.1
May.....	454,965	91.2	November.....	496,452	99.6
June.....	450,375	92.1	December.....	498,640	100.0

In the number of wage earners employed in all industries combined there was an almost continuous increase throughout the year. This was no doubt due to general business conditions rather than to the employment of labor in the so-called seasonal industries. The maximum number was employed in December, and the minimum number, which was 88 per cent of the maximum, in January.

There are no very important seasonal industries in Illinois, but among the industries which show a considerable fluctuation in the number of wage earners employed throughout the year may be mentioned canning and preserving, with a maximum of 6,539 wage earners in September and a minimum of 1,013, or 15.5 per cent of the maximum, in January; the glass industry, with a maximum of 4,396 in April and May and a minimum of 1,441, or 32.8 per cent of the maximum, in September; the manufacture of artificial stone, with a maximum of 1,040 in June and a minimum of 369, or 35.5 per cent of the maximum, in January; the artificial-ice industry, with a maximum of 1,134 in August, and a minimum of 479, or 42.2 per cent of the maximum, in January; and the brick and tile industry, with a maximum of 8,302 in June and a minimum of 3,795, or 45.7 per cent of the maximum, in January. While these five industries show considerable variations, the total number of wage earners employed in them was too small to affect materially the variation in employment for all industries combined.

only are presented for several important industries individually. In order to avoid disclosing the operations

of individual concerns it is necessary to omit several important industries from this table and the one following.

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>									
1909.....	18,026	465,764	\$1,919,276,594	\$758,349,904	<b>Clothing, women's, 1909.....</b>	221	6,151	\$16,635,236	\$7,421,710
1904.....	14,921	379,436	1,410,342,129	570,284,813	Individual.....	107	1,817	3,038,904	1,896,652
Individual:					Firm.....	71	2,778	6,960,832	2,873,294
1909.....	9,654	40,524	134,433,290	63,720,740	Corporation.....	43	1,550	5,735,500	2,651,764
1904.....	7,933	44,563	108,120,545	51,692,327	Per cent of total.....	100.0	100.0	100.0	100.0
Firm:					Individual.....	48.4	29.5	23.7	25.6
1909.....	2,966	43,524	133,143,273	57,004,830	Firm.....	32.1	45.2	41.8	35.7
1904.....	2,680	37,983	120,637,913	52,631,245	Corporation.....	19.5	25.3	34.5	35.7
Corporation:					<b>Confectionery, 1909.....</b>	140	3,799	\$12,798,077	\$5,132,079
1909.....	5,209	374,855	1,046,518,916	634,229,181	Individual.....	66	437	1,368,845	540,311
1904.....	4,145	296,610	1,179,028,840	462,870,654	Firm.....	22	198	430,027	189,121
Other:					Corporation.....	52	3,164	10,799,205	4,403,247
1909.....	197	861	5,176,109	2,399,144	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	163	280	2,548,831	690,587	Individual.....	47.1	11.5	10.7	10.5
Per cent of total:					Firm.....	15.7	5.2	4.9	9.7
1909.....	100.0	100.0	100.0	100.0	Corporation.....	37.1	83.3	84.4	85.8
1904.....	100.0	100.0	100.0	100.0	<b>Copper, tin, and sheet-iron products, 1909.....</b>	483	7,473	\$22,822,810	\$9,629,647
Individual:					Individual.....	283	1,008	2,742,344	1,623,761
1909.....	53.6	10.0	7.0	8.4	Firm.....	102	977	3,023,028	1,534,653
1904.....	53.2	11.7	7.7	9.6	Corporation.....	98	5,488	17,057,438	6,471,233
Firm:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	16.5	9.3	6.9	7.6	Individual.....	58.6	13.5	12.0	10.9
1904.....	18.0	10.0	8.6	9.1	Firm.....	21.1	13.1	13.2	15.9
Corporation:					Corporation.....	20.3	73.4	74.7	67.2
1909.....	28.9	80.5	85.8	83.0	<b>Flour-mill and gristmill products, 1909.....</b>	461	2,464	\$51,110,681	\$5,521,110
1904.....	27.8	78.2	83.6	81.2	Individual.....	210	424	8,253,326	770,698
Other:					Firm.....	146	421	6,022,994	923,049
1909.....	1.1	0.2	0.3	0.3	Corporation.....	105	1,619	36,234,361	3,827,303
1904.....	1.1	0.1	0.2	0.1	Per cent of total.....	100.0	100.0	100.0	100.0
<b>Boots and shoes, including cut stock and findings, 1909</b>	53	5,792	\$16,754,704	\$5,885,862	Individual.....	45.6	17.2	16.1	14.0
Individual.....	17	510	1,510,025	595,083	Firm.....	31.7	17.1	13.0	16.7
Firm.....	9	399	815,241	301,845	Corporation.....	22.8	65.7	70.9	69.3
Firm.....	9	399	815,241	301,845	<b>Foundry and machine-shop products, 1909.....</b>	1,178	52,266	\$138,578,993	\$74,768,805
Corporation.....	27	4,883	14,423,438	4,687,934	Individual.....	360	3,764	8,475,204	4,769,850
Per cent of total.....	100.0	100.0	100.0	100.0	Firm.....	150	1,834	4,288,137	2,258,710
Individual.....	32.1	8.8	9.0	10.1	Corporation.....	668	46,668	125,815,652	67,740,245
Firm.....	17.0	6.9	4.9	5.1	Per cent of total.....	100.0	100.0	100.0	100.0
Corporation.....	50.9	84.3	86.1	84.7	Individual.....	30.6	7.2	6.1	6.4
<b>Brick and tile, 1909.....</b>	340	6,574	\$9,785,051	\$7,273,693	Firm.....	12.7	3.5	3.1	3.0
Individual.....	146	862	1,220,274	680,033	Corporation.....	56.7	80.3	90.8	90.6
Firm.....	100	777	1,103,109	839,561	<b>Furniture and refrigerators, 1909.....</b>	267	13,575	\$27,000,262	\$15,389,042
Corporation.....	94	4,935	7,441,668	5,447,499	Individual.....	85	1,224	2,409,423	1,453,540
Per cent of total.....	100.0	100.0	100.0	100.0	Firm.....	40	903	2,005,844	907,832
Individual.....	42.9	13.1	12.5	13.0	Corporation.....	139	11,448	23,484,995	12,947,670
Firm.....	29.4	11.8	11.3	11.5	Per cent of total.....	100.0	100.0	100.0	100.0
Corporation.....	27.6	75.1	76.2	74.9	Individual.....	33.0	0.0	8.6	9.4
<b>Butter, cheese, and condensed milk, 1909.....</b>	295	1,732	\$17,708,278	\$3,531,357	Firm.....	15.0	6.7	7.2	6.5
Individual.....	60	101	1,574,475	200,040	Corporation.....	52.1	84.3	84.2	84.1
Firm.....	43	83	1,384,527	177,770	<b>Leather goods, 1909.....</b>	168	2,949	\$8,948,324	\$3,813,354
Corporation.....	84	1,447	13,200,456	2,941,488	Individual.....	88	710	2,149,577	916,425
Other.....	78	101	1,038,820	200,047	Firm.....	39	459	1,441,018	704,681
Per cent of total.....	100.0	100.0	100.0	100.0	Corporation.....	41	1,774	5,357,729	2,192,448
Individual.....	30.5	5.8	8.8	5.8	Per cent of total.....	100.0	100.0	100.0	100.0
Firm.....	14.6	4.8	7.8	5.0	Individual.....	52.4	24.3	24.0	24.0
Corporation.....	28.5	83.5	74.2	83.3	Firm.....	23.2	15.0	16.1	18.5
Other.....	20.4	5.9	9.2	5.8	Corporation.....	24.4	60.2	59.9	57.5
<b>Canning and preserving, 1909.....</b>	118	2,383	\$7,619,566	\$2,806,890	<b>Leather, tanned, curried, and finished, 1909.....</b>	29	3,001	\$14,911,782	\$2,781,173
Individual.....	45	264	685,062	273,374	Individual.....	4	201	1,080,872	218,334
Firm.....	24	504	1,042,989	619,071	Firm.....	9	325	1,684,428	359,538
Corporation.....	49	1,615	5,291,495	1,914,445	Corporation.....	10	2,475	12,140,482	2,203,301
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	38.1	11.1	9.0	9.7	Individual.....	13.8	6.7	7.3	7.8
Firm.....	20.3	21.1	21.0	22.1	Firm.....	31.0	10.8	11.3	12.9
Corporation.....	41.5	67.8	69.4	68.2	Corporation.....	55.2	82.5	81.4	79.2
<b>Carriages and wagons and materials, 1909.....</b>	325	5,852	\$16,831,283	\$7,951,948	<b>Lumber and timber products, 1909.....</b>	814	16,567	\$44,951,804	\$17,687,608
Individual.....	201	797	1,714,435	1,000,483	Individual.....	437	2,309	5,419,920	2,749,240
Firm.....	69	421	1,052,885	586,986	Firm.....	160	1,059	2,210,937	1,133,303
Corporation.....	55	4,634	14,063,963	5,764,479	Corporation.....	208	13,139	37,320,947	13,805,065
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	61.8	13.6	10.2	13.6	Individual.....	53.7	14.3	12.1	15.5
Firm.....	21.2	7.2	6.3	8.0	Firm.....	20.8	6.4	4.9	6.4
Corporation.....	16.0	79.2	83.6	78.4	Corporation.....	25.6	79.3	83.0	78.0
<b>Clothing, men's, including shirts, 1909.....</b>	715	36,152	\$89,472,755	\$44,244,475	<b>Includes the group "Other," to avoid disclosure of individual operations.</b>				
Individual.....	449	8,378	12,400,131	7,804,224					
Firm.....	179	18,383	40,006,095	22,084,782					
Corporation.....	87	9,391	28,066,529	14,375,469					
Per cent of total.....	100.0	100.0	100.0	100.0					
Individual.....	62.8	23.2	13.9	17.6					
Firm.....	25.0	50.8	54.8	49.9					
Corporation.....	12.2	26.0	31.4	32.5					



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.
Lumber and timber products.....	10,567	870	401	4,882	5,231	5,087	3	1	32
Marble and stone work.....	2,226	1,057	148	629	153	211	28		
Mattresses and spring beds.....	831	45	73	207	240	206			
Millinery and lace goods.....	3,328	557	1,348	688	626	109			
Mirrors.....	353		160	91	102				
Models and patterns, not including paper patterns.....	426	71	85	171	32	67			
Musical instruments and materials, not specified.....	336	5	37	240		54			
Musical instruments, pianos and organs and materials.....	8,777	121	564	4,604	842	2,046			
Paint and varnish.....	1,792	152	217	148	982	281	12		
Paper and wood pulp.....	1,397				180	446	138	624	
Paper goods, not elsewhere specified.....	1,317	122	201	316	640	38			
Patent medicines and compounds and druggists' preparations.....	1,869	569	541	505	154	90	1		
Photographic apparatus and materials.....	284	21	15	92	156				
Photo-engraving.....	1,114	778	265	56	3	12			
Pottery, terra-cotta, and fire-clay products.....	3,157	613	2	141	1,185	1,216			
Printing and publishing.....	28,644	18,064	4,406	3,083	1,293	629	57	122	
Pumps, not including steam pumps.....	282		7	25	71	179			
Scales and balances.....	248	1	86	23	123	15			
Sewing machines, cases, and attachments.....	1,713			663	776	274			
Shipbuilding, including boat building.....	413	30		314		60			
Show cases.....	386	3	15	140	138	90			
Slaughtering and meat packing.....	20,705	2,900	45	1,143	57	22,557	3		
Smelting and refining, zinc.....	1,022				702	698	522		
Smelting and refining, not from the ore.....	360	112		5	101	17	88		46
Soap.....	2,188	8	95	19	40	2,015		2	
Stereotyping and electrotyping.....	592	592							
Stoves and furnaces, including gas and oil stoves.....	4,490	430	63	1,107	811	2,098			
Surgical appliances and artificial limbs.....	536	36	7	478	10	5			
Tobacco manufactures.....	8,034	4,063	700	508	1,028	833	2		
Type founding and printing materials.....	438	21	71	346					
Wall paper.....	200				10	196	84		
Woolen, worsted, and felt goods, and wool hats.....	409		3	107	108	281			
All other industries.....	41,270	3,347	4,729	8,166	11,045	10,250	819	186	2,728

Location of establishments.—The following table shows the extent to which the manufactures of Illinois are centralized in incorporated places of 10,000 inhabitants or over. (See Introduction.)

Owing to the fact that the statistics for Cicero were not tabulated separately for 1899, the figures shown in the table for 1899 fall short to that extent of a complete presentation of the manufactures statistics for the incorporated places having a population of over 10,000 in 1900. In 1909, however, Cicero and

Oak Park (which was organized from part of Cicero in 1902) employed an average of only 940 wage earners in manufacturing industries, while the combined value of their manufactured products was only \$2,578,861, figures which are in each case equivalent to less than one-half of 1 per cent of the corresponding totals for 1899 for incorporated places having a population of 10,000 or over, so that the effect of the omission upon the statistics is negligible.

ITEM	Year.	Aggregate.	CITIES, TOWNS, AND VILLAGES HAVING A POPULATION OF 10,000 AND OVER.								DISTRICTS OUTSIDE OF CITIES, TOWNS, AND VILLAGES HAVING A POPULATION OF 10,000 AND OVER.	
			Total.		10,000 to 25,000.		25,000 to 100,000.		100,000 and over.			
			Number or amount.	Percent of total.	Number or amount.	Percent of total.	Number or amount.	Percent of total.	Number or amount.	Percent of total.	Number or amount.	Percent of total.
Population.....	1910	5,638,501	2,950,963	52.3	331,285	5.0	434,395	7.7	2,185,283	38.8	2,687,628	47.7
	1900	4,821,550	2,218,630	46.0	302,885	6.3	216,570	4.5	1,698,575	35.2	2,603,520	54.0
Number of establishments.....	1909	18,020	12,525	69.5	1,079	6.0	1,790	9.9	9,656	53.6	5,501	30.5
	1899	14,374	9,695	67.4	1,080	7.5	947	6.6	7,608	53.3	4,679	32.6
Average number of wage earners.	1909	465,764	379,741	81.5	33,446	7.2	52,318	11.2	293,977	63.1	86,023	18.5
	1899	332,871	279,322	83.9	31,372	9.4	26,759	8.0	221,191	66.4	53,549	16.1
Value of products.....	1909	\$1,919,270,594	\$1,595,135,686	83.1	\$111,599,951	5.8	\$202,364,554	10.5	\$1,281,171,181	66.8	\$324,140,908	16.9
	1899	1,120,868,308	957,089,720	85.3	59,860,800	5.3	99,349,710	8.9	797,879,141	71.2	103,778,588	14.6
Value added by manufacture..	1909	758,349,904	639,345,049	84.3	46,860,440	6.2	104,783,151	13.8	487,701,458	64.3	119,004,855	15.7
	1899	439,418,186	378,306,775	86.1	29,120,558	6.6	53,529,477	12.2	295,659,740	67.3	61,111,411	13.9

In 1909, 83.1 per cent of the total value of products was reported from incorporated places having over 10,000 inhabitants, and 81.5 per cent of the average number of wage earners were employed in such places. The figures indicate that, except in number of establishments, the manufacturing interests in the territory

outside of such incorporated places gained somewhat, on the whole, during the last decade, in their proportions of the respective totals for the state, in spite of the greater increase in population in the cities.

The make-up of the several groups shown in the table has been affected by the increase in population

of certain of the cities. There were 19 incorporated places having between 10,000 and 25,000 inhabitants in 1900, 5 of which—Decatur, Aurora, Danville, Elgin, and Bloomington—had passed the 25,000 mark in population by 1910, while 1 city—Ottawa—dropped out of the group through a decline in population. These losses were partially made up, however, by the addition in 1910 of the cities of Waukegan, Chicago Heights, Champaign, Mattoon, Lincoln, and Canton, as the result of increases in their population during the decade, while the number of places included in the group was further increased by the organization of Oak Park from part of Cicero in 1902. This group shows a decrease in its proportion of the total for every item presented in the table except value of products, for which it shows an increase from 5.3 per cent of the state total in 1899 to 5.8 per cent in 1909. The influence of the addition of the five cities named above to the group comprising the cities having between 25,000 and 100,000 inhabitants, which increased the number of cities included from 6 to 11, is reflected in the larger proportions which the group contributed to the various totals in 1909 as compared with 1899. Chicago, the only city having more than 100,000 inhabitants, shows a decrease in its proportions of the total for all items except number of establishments. Of the total number of wage earners employed in Illinois in 1909, 63.1 per cent were in Chicago, and 66.8 per cent of the total value of products was credited to this city. The corresponding figures for 1899 were 66.4 per cent and 71.2 per cent, respectively.

The following statement shows the principal statistics for 1909 and 1899 for Ottawa, which had a population in 1900 in excess of 10,000 but which fell below this figure in 1910:

	1909	1899
Population.....	0,535	10,588
Number of establishments.....	52	57
Average number of wage earners.....	1,071	1,020
Value of products.....	\$2,407,985	\$1,737,884
Value added by manufacture.....	\$1,507,002	\$980,032

In the decade 1899-1909 the value of manufactured products for Ottawa increased 42 per cent and the value added by manufacture 52.8 per cent. The leading industries in 1909 were the manufacture of glass, pottery, terra-cotta, and fire-clay products, agricultural implements, carriages and wagons, and pianos. Forty-six per cent of the total number of wage earners were employed in the first two industries named.

The population, in 1910 and 1900, of the 32 incorporated places which had 10,000 inhabitants or over in 1910, and of Ottawa, which had over 10,000 inhabitants in 1900 but less than that number in 1910, is given in the next tabular statement.

CITY, TOWN, OR VILLAGE.	1910	1900	CITY, TOWN, OR VILLAGE.	1910	1900
Chicago.....	2,185,283	1,698,575	Oak Park.....	19,444	(1)
Peoria.....	60,950	56,100	Freeport.....	17,567	13,258
East St. Louis.....	58,547	29,655	Alton.....	17,528	14,210
Springfield.....	51,678	34,159	Waukegan.....	16,069	9,420
Rockford.....	45,401	31,051	Jacksonville.....	15,326	15,078
Quincy.....	36,587	36,252	Cicero.....	14,557	16,310
Joliet.....	34,670	29,353	Cairo.....	14,548	12,566
Decatur.....	31,140	20,754	Chicago Heights..	14,525	5,100
Aurora.....	29,807	24,147	Streator.....	14,253	14,079
Danville.....	27,871	16,354	Kankakee.....	13,986	13,595
Elgin.....	25,976	22,433	Champaign.....	12,421	9,098
Bloomington.....	25,768	25,768	La Salle.....	11,537	10,446
Evanson.....	24,978	19,250	Mattoon.....	11,456	9,622
Rock Island.....	24,335	19,493	Lincoln.....	10,892	8,962
Moline.....	24,199	17,248	Canton.....	10,453	6,564
Galesburg.....	22,080	18,607	Ottawa.....	9,535	10,588
Belleville.....	21,122	17,484			

<sup>1</sup> Not incorporated in 1900.

The relative industrial importance of each of the 32 municipalities having a population of 10,000 or over in 1910 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, so far as comparative figures can be given:

CITY, TOWN, OR VILLAGE.	AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS.		
	1909	1904	1899	1909	1904	1899
Chicago.....	203,977	241,984	221,191	\$1,281,171,181	\$955,036,277	\$797,870,141
Peoria <sup>1</sup> .....	5,981	5,834	5,996	63,061,155	60,419,598	44,569,371
Joliet.....	6,383	5,702	5,792	38,816,523	32,897,110	26,131,625
Rockford.....	9,309	7,239	5,851	22,265,740	15,270,120	11,021,550
Moline.....	5,449	3,987	4,138	20,891,668	13,158,420	9,562,054
Waukegan <sup>1</sup> .....	3,090	2,265	495	10,984,082	10,094,247	732,704
East St. Louis <sup>1</sup> .....	5,252	4,505	3,100	18,227,960	10,580,320	6,241,391
Quincy.....	4,032	4,602	3,815	11,435,572	10,748,224	7,918,728
Elgin.....	6,094	4,885	4,376	11,119,670	9,349,274	6,386,243
Aurora.....	5,095	4,078	3,949	10,054,175	7,320,028	5,638,191
Chicago Heights.....	3,953	(2)	(2)	10,839,268	(2)	(2)
Alton.....	2,429	3,069	2,174	10,006,333	8,690,814	4,250,389
Decatur.....	2,690	2,340	1,920	9,767,988	8,667,362	5,133,677
Springfield.....	3,652	3,071	2,199	8,497,245	5,706,637	3,467,045
Freeport.....	2,853	1,510	1,333	7,811,277	3,109,362	2,707,915
Rock Island.....	1,754	1,703	1,885	5,386,776	5,392,967	4,621,590
La Salle.....	1,298	1,197	917	5,307,551	3,158,173	3,009,413
Bloomington.....	2,077	2,275	1,071	4,867,930	5,777,000	3,011,899
Belleville.....	1,872	1,765	1,335	4,614,098	4,360,015	2,873,334
Cairo.....	1,237	1,435	1,501	4,440,148	4,381,465	3,110,515
Evanson.....	837	738	400	3,778,298	2,550,529	830,020
Danville.....	1,744	1,884	957	3,350,596	3,304,120	1,913,762
Canton.....	1,262	(2)	(2)	2,941,625	(2)	(2)
Galesburg.....	1,465	1,447	1,070	2,919,091	2,217,772	1,450,092
Kankakee.....	1,349	1,038	377	2,723,171	2,089,143	648,713
Jacksonville.....	947	899	1,066	2,208,700	1,981,582	1,684,260
Streator.....	1,275	1,544	1,283	2,137,252	1,888,894	1,244,978
Cicero.....	658	(2)	(2)	1,401,164	(2)	(2)
Mattoon.....	948	1,022	632	1,434,420	1,308,781	764,443
Oak Park.....	282	(2)	(2)	1,117,697	(2)	(2)
Champaign.....	273	289	245	846,489	486,229	353,090
Lincoln.....	220	236	188	570,243	784,248	375,167

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

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

<sup>3</sup> Not incorporated in 1900.

Every city for which comparative statistics can be given, except Bloomington and Lincoln, shows an increase in value of products from 1904 to 1909, and all but La Salle an increase from 1899 to 1904. The greatest gain, 151.2 per cent, was made by Freeport, and was due largely to the increased production of carriages and wagons, windmills, and patent medicines and compounds. A gain of 81.8 per cent was made by Waukegan, mainly on account of the increased production of glucose and of steel-works and rolling-mill products. The next largest increase, 72.2 per cent,

is shown for East St. Louis, and was due principally to large increases in the output of the steam-railroad repair shops, flour mills and gristmills, chemical works, paint works, and foundries and machine shops.

Chicago, with manufactured products valued at \$1,281,171,181 and an average of 293,977 wage earners in manufacturing industries in 1909, is not only the most important manufacturing city in Illinois but ranks second only to New York City in the United States as a whole.

In fact, there were only four states besides Illinois (namely, New York, Pennsylvania, Massachusetts, and Ohio), which had a greater value of products in 1909 than the city of Chicago. The percentage of increase from 1904 to 1909 in average number of wage earners was 21.5 and in value of products 34.1, as compared with corresponding percentages of 9.4 and 19.7, respectively, for the preceding five-year period. The rates of increase for Chicago from 1904 to 1909, however, were a little below those shown for the entire state.

The leading industries of Chicago for which statistics can be presented separately, arranged in the order of value of products, are shown in the following table, which gives the absolute and relative increase in this respect between 1904 and 1909, and also the percentage which the value of products for each industry represents of the corresponding total for the state:

INDUSTRY.	VALUE OF PRODUCTS.			
	Amount.	Per cent of total for the industry for the state.	Increase over 1904. <sup>1</sup>	
			Amount.	Per cent.
<b>All industries.....</b>	<b>\$1,281,171,000</b>	<b>66.8</b>	<b>\$326,135,000</b>	<b>34.1</b>
Slaughtering and meat packing.....	325,002,000	83.4	54,513,000	20.1
Foundry and machine-shop products.....	89,609,000	64.7	21,178,000	30.9
Clothing, men's, including shirts.....	85,200,000	65.3	30,070,000	56.1
Printing and publishing.....	74,211,000	85.1	21,178,000	39.9
Iron and steel, steel works and rolling mills.....	45,984,000	53.1	21,144,000	85.1
Lumber and timber products.....	32,700,000	72.8	12,901,000	65.1
Bread and other bakery products.....	26,908,000	74.5	6,254,000	30.3
Cars, steam-railroad, not including operations of railroad companies.....	20,802,000	77.4	-2,907,000	-12.2
Electrical machinery, apparatus, and supplies.....	20,000,000	77.0	4,377,000	26.9
Furniture and refrigerators.....	20,512,000	73.5	2,850,000	16.1
Soap.....	19,939,000	93.8	6,109,000	44.8
Coffee and spices, roasting and grinding.....	19,593,000	90.2	4,030,000	25.9
Liquors, malt.....	19,512,000	63.6	2,529,000	14.9
Paint and varnish.....	18,942,000	92.7	6,277,000	49.0
Tobacco manufactures.....	16,633,000	76.1	5,616,000	51.0
Clothing, women's.....	15,077,000	94.2	4,040,000	34.7
Cars and general shop construction and repairs by steam-railroad companies.....	15,359,000	47.7	4,187,000	37.5
Leather, tanned, curried, and finished.....	13,244,000	88.8	3,824,000	40.0
Copper, tin, and sheet-iron products.....	12,242,000	53.6	4,105,000	50.4
Musical instruments, pianos and organs and materials.....	11,487,000	59.0	2,909,000	35.3
Confectionery.....	11,222,000	87.7	4,072,000	71.3
Patent medicines and compounds and druggists' preparations.....	10,360,000	79.0	-1,582,000	-13.2

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

The great importance of the slaughtering and meat-packing industry in Chicago is apparent when it is noted that its value of products formed 25.4 per cent of the total for all manufacturing industries in the city

and 23.7 per cent of the United States total for the industry. Comparative statistics for 60 less important industries, in addition to the 22 shown in the preceding table, are presented for Chicago in Table I, page 35.

In addition to the 82 industries presented separately for Chicago in Table I, page 35, there were 49 others which, for various reasons, are included under the head of "All other industries." Some of these industries were among the most important in the city, 49 reporting products in 1909 exceeding \$1,000,000 in value.<sup>1</sup> Of these, 4 reported products valued at \$10,000,000 or over; 7 reported products between \$5,000,000 and \$10,000,000 in value; and 38 reported products between \$1,000,000 and \$5,000,000 in value.

Peoria, the second city of the state in respect to manufactures, had products in 1909 valued at \$63,061,155, an increase of 4.4 per cent over the figure for 1904. Though the total value of its manufactured products amounts to less than 5 per cent of that for Chicago, Peoria is widely known on account of the importance of its distilleries, the value of its products in 1909 formed 70.7 per cent of the total for all manufacturing industries of the city. The value of products reported by the four distilleries of Peoria formed a little more than four-fifths of the total for this industry in Illinois, and over one-fifth of the total for the entire country. Other important industries were: Slaughtering and meat packing, cooperage, and printing and publishing; the manufacture of agricultural implements, and of food preparations; and the breweries, foundries, and machine shops, flour mills and gristmills, and bakeries.

Joliet holds third place among the manufacturing cities of Illinois. The value of its manufactured products increased 18 per cent and the average number of wage earners in the manufacturing industries, 10.2 per cent between 1904 and 1909. The most important industries of the city in 1909 were steel works and rolling mills, blast furnaces, and the manufacture of wire, and of coke, each of which was represented by one establishment. Over one-half of both the total

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

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>Agricultural implements.</li> <li>Babbitt metal and solder.</li> <li>Bolting and hose, woven and rubber.</li> <li>Bicycles, motorcycles, and parts.</li> <li>Blacking and cleansing and polishing preparations.</li> <li>Butter, cheese, and condensed milk.</li> <li>Butter, reworking.</li> <li>Cash registers and calculating machines.</li> <li>Coke.</li> <li>Cordage and twine and jute and linen goods.</li> <li>Cordials and syrups.</li> <li>Fertilizers.</li> <li>Flour-mill and gristmill products.</li> <li>Food preparations.</li> <li>Gas, illuminating and heating.</li> <li>Glass, cutting, staining, and ornamenting.</li> <li>Glue.</li> <li>Gold and silver, reducing and refining, not from the ore.</li> <li>Hair work.</li> <li>House-furnishing goods, not elsewhere specified.</li> <li>Instruments, professional and scientific.</li> <li>Iron and steel, blast furnaces.</li> <li>Iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills.</li> <li>Iron and steel forgings.</li> </ul> | <ul style="list-style-type: none"> <li>Iron and steel, nails and spikes, cut and wrought, including wire nails, not made in steel works or rolling mills.</li> <li>Lard, refined, not made in slaughtering and meat-packing establishments.</li> <li>Lead, bar, pipe, and sheet.</li> <li>Looking-glass and picture frames.</li> <li>Malt.</li> <li>Millinery and lace goods.</li> <li>Mineral and soda waters.</li> <li>Moving pictures.</li> <li>Oil, linseed.</li> <li>Oleomargarine.</li> <li>Paper and wood pulp.</li> <li>Pottery, terra-cotta, and fire-clay products.</li> <li>Roofing materials.</li> <li>Saws.</li> <li>Signs and advertising novelties.</li> <li>Smelting and refining, lead.</li> <li>Soda-water apparatus.</li> <li>Sporting and athletic goods.</li> <li>Stationery goods, not elsewhere specified.</li> <li>Sulphuric, nitric, and mixed acids.</li> <li>Upholstering materials.</li> <li>Wall paper.</li> <li>Windmills.</li> <li>Window shades and fixtures.</li> <li>Wool scouring.</li> </ul> |
|---|--|

number of wage earners and the total value of products was credited to the steel works and rolling mills and the blast furnaces. The manufacture of coke is a comparatively new industry in Joliet.

Rockford has a great diversity of manufactures, but the furniture factories, knitting mills, agricultural-implement shops, and foundries and machine shops were the most important in 1909. The city shows a gain of 28.6 per cent in average number of wage earners and 45.8 per cent in value of products for the five-year period 1904-1909.

Moline is well known on account of the large number of plows manufactured there. Four establishments manufacturing agricultural implements gave employment to more than one-half the total number of wage earners in 1909 and reported more than one-half the total value of products for the city. Other important industries were the manufacture of carriages and wagons, foundry and machine-shop products, steel works and rolling-mill products, and automobiles. The city shows an increase from 1904 to 1909 of 36.7 per cent in average number of wage earners and of 58.8 per cent in value of products.

The chief industries of Waukegan are the manufacture of glucose and the steel works and rolling mills; these two industries gave employment to about two-thirds of the wage earners in 1909 and reported over three-fourths of the total value of products for the city. This city, whose population was less than 10,000 in 1900, shows an increase of 36.4 per cent in average number of wage earners from 1904 to 1909, and of 81.8 per cent in value of products. It may be noted also that the value of products reported in 1909 was more than twenty-seven times that in 1899.

East St. Louis made a large increase (72.2 per cent) in value of products between 1904 and 1909. The most important industries in the city in 1909 were flour mills and gristmills, foundries and machine shops, steel works and rolling mills, the chemical industry, slaughtering and meat packing, and the manufacture of paints and of paper and wood pulp. Several very large slaughtering and meat-packing establishments are located at the National Stock Yards, just outside the city limits, but the statistics presented for cities are confined to establishments within the city limits.

In Quincy the principal industries in 1909 were the manufacture of stoves and furnaces, slaughtering and meat packing, the manufacture of food preparations, foundries and machine shops, and breweries. The increase in value of products from 1904 to 1909 was only 6.4 per cent, and there was a decrease in the average number of wage earners employed.

Elgin is well known for the manufacture of watch movements. The manufacture of clocks and watches, including cases and materials, of foundry and machine-shop products and of condensed milk, and printing and publishing were the chief contributors to Elgin's manufacturing importance in 1909, the four industries

employing over three-fourths of the average number of wage earners and reporting more than one-half of the total value of products.

Aurora shows an increase of 24.9 per cent in number of wage earners and of 49.5 per cent in total value of products from 1904 to 1909. The leading industries were steam-railroad repair shops, foundries and machine shops, and the manufacture of bicycles, motorcycles, and parts, and of cotton goods.

The leading industries in Chicago Heights in 1909 were foundries and machine shops, steel works and rolling mills, and steam-railroad car construction shops. These three industries reported a majority of the average number of wage earners and more than one-half the total value of products for the city.

While Alton shows a decrease of 640, or 20.9 per cent, between 1904 and 1909 in the average number of wage earners in its manufacturing industries, there was an increase of 16.1 per cent in the value of its manufactured products. Flour mills and gristmills, glass works, and slaughtering and meat packing were the leading industries, and together contributed four-fifths of the total value of products. More than one-half of the average number of wage earners reported for the city were employed in the glass works.

The leading industries of the other incorporated places included in the preceding table are shown in the following statement:

CITY, TOWN, OR VILLAGE.	Principal industries.
Decatur.....	Flour-mill and gristmill products.
Springfield.....	Foundry and machine-shop products. Agricultural implements. Boots and shoes.
Freeport.....	Flour-mill and gristmill products. Watches. Carriages and wagons Windmills.
Rock Island.....	Patent medicines and compounds. Foundry and machine-shop products. Agricultural implements. Lumber and timber products.
La Salle.....	Oilecloth and linoleum. Smelting and refining, zinc. Cement.
Bloomington.....	Steam-railroad repair shops.
Belleville.....	Stoves and furnaces. Boots and shoes.
Cairo.....	Flour-mill and gristmill products. Lumber and timber products.
Evanston.....	Wrought-iron and steel pipe.
Danville.....	Steam-railroad repair shops.
Canton.....	Agricultural implements.
Galesburg.....	Steam-railroad repair shops. Foundry and machine-shop products.
Kankakee.....	Hosiery and knit goods.
Jacksonville.....	Men's clothing.
Streator.....	Glass.
Cicero.....	Foundry and machine-shop products. Wrought-iron and steel pipe.
Mattoon.....	Steam-railroad repair shops.
Oak Park.....	Gas.
Champaign.....	Leather goods. Planos.
Lincoln.....	Printing and publishing. Coffins and burial cases and undertakers' goods. Mattresses and spring beds.

**Character of ownership.**—The table that follows has for its purpose the presentation of conditions in respect to the character of ownership or legal organization of manufacturing enterprises. For all industries combined comparative figures are given covering the censuses of 1909 and 1904. Comparative data for 1899 are not available. Figures for 1909

only are presented for several important industries individually. In order to avoid disclosing the operations

of individual concerns it is necessary to omit several important industries from this table and the one following.

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>									
1909	18,026	465,764	\$1,919,276,594	\$758,349,904	<b>Clothing, women's, 1909</b>	221	6,151	\$16,635,236	\$7,421,710
1904	14,921	379,436	1,410,342,129	570,284,813	Individual	107	1,817	3,038,904	1,896,652
Individual:					Firm	71	2,778	6,960,832	2,873,294
1909	9,654	40,524	134,433,290	63,720,740	Corporation	43	1,556	5,735,500	2,651,764
1904	7,933	44,503	108,120,545	51,692,327	Per cent of total:	100.0	100.0	100.0	100.0
Firm:					Individual	48.4	29.5	23.7	25.6
1909	2,966	43,524	133,143,273	57,004,830	Firm	32.1	45.2	41.8	35.7
1904	2,680	37,983	120,037,913	52,031,245	Corporation	19.5	25.3	34.5	35.7
Corporation:					<b>Confectionery, 1909</b>	140	3,799	\$12,798,077	\$5,132,079
1909	5,209	374,855	1,046,518,916	634,229,181	Individual	66	437	1,368,845	540,311
1904	4,145	290,610	1,179,028,840	462,870,654	Firm	22	198	430,027	189,121
Other:					Corporation	52	3,164	10,799,205	4,403,247
1909	197	861	5,176,109	2,399,144	Per cent of total:	100.0	100.0	100.0	100.0
1904	163	280	2,548,831	690,587	Individual	47.1	11.5	10.7	10.5
Per cent of total:					Firm	15.7	5.2	4.9	9.7
1909	100.0	100.0	100.0	100.0	Corporation	37.1	83.3	84.4	85.8
1904	100.0	100.0	100.0	100.0	<b>Copper, tin, and sheet-iron products, 1909</b>	483	7,473	\$22,822,810	\$9,629,647
Individual:					Individual	283	1,008	2,742,344	1,623,761
1909	53.6	10.0	7.0	8.4	Firm	102	977	3,023,028	1,534,653
1904	53.2	11.7	7.7	9.6	Corporation	98	5,468	17,057,438	6,471,233
Firm:					Per cent of total:	100.0	100.0	100.0	100.0
1909	16.5	9.3	6.9	7.6	Individual	58.6	13.5	12.0	10.9
1904	18.0	10.0	8.6	9.1	Firm	21.1	13.1	13.2	15.9
Corporation:					Corporation	20.3	73.4	74.7	67.2
1909	28.9	80.5	85.8	83.0	<b>Flour-mill and gristmill products, 1909</b>	461	2,464	\$51,110,681	\$5,521,110
1904	27.8	78.2	83.6	81.2	Individual	210	424	8,253,326	770,608
Other:					Firm	146	421	6,022,904	923,049
1909	1.1	0.2	0.3	0.3	Corporation	105	1,619	36,234,361	3,827,303
1904	1.1	0.1	0.2	0.1	Per cent of total:	100.0	100.0	100.0	100.0
<b>Boots and shoes, including cut stock and findings, 1909</b>	53	5,792	\$16,754,704	\$5,885,862	Individual	45.6	17.2	16.1	14.0
Individual	17	510	1,510,025	595,083	Firm	31.7	17.1	13.0	16.7
Firm	9	399	815,241	301,045	Corporation	22.8	65.7	70.9	69.3
Corporation	27	4,883	14,429,438	4,987,934	<b>Foundry and machine-shop products, 1909</b>	1,178	52,266	\$138,578,993	\$74,768,805
Per cent of total:					Individual	360	3,764	8,475,204	4,769,850
1909	100.0	100.0	100.0	100.0	Firm	150	1,834	4,288,137	2,258,710
1904	92.1	8.8	9.0	10.1	Corporation	668	46,668	125,815,652	67,740,245
Firm	17.0	6.9	4.9	5.1	Per cent of total:	100.0	100.0	100.0	100.0
Corporation	50.9	84.3	86.1	84.7	Individual	30.6	7.2	6.1	6.4
<b>Brick and tile, 1909</b>	340	6,574	\$9,785,051	\$7,273,693	Firm	12.7	3.5	3.1	3.0
Individual	146	862	1,220,274	680,033	Corporation	56.7	80.3	90.8	90.6
Firm	100	777	1,103,109	839,561	<b>Furniture and refrigerators, 1909</b>	267	13,575	\$27,900,262	\$15,389,042
Corporation	94	4,935	7,461,668	5,447,499	Individual	85	1,224	2,409,423	1,453,540
Per cent of total:					Firm	40	903	2,005,844	907,832
1909	100.0	100.0	100.0	100.0	Corporation	139	11,448	23,484,995	12,947,670
1904	42.9	13.1	12.6	13.0	Per cent of total:	100.0	100.0	100.0	100.0
Firm	29.4	11.8	11.3	11.5	Individual	33.0	0.0	8.6	9.4
Corporation	27.6	75.1	76.2	74.9	Firm	15.0	6.7	7.2	6.5
<b>Butter, cheese, and condensed milk, 1909</b>	295	1,732	\$17,798,278	\$3,531,357	Corporation	52.1	84.3	84.2	84.1
Individual	60	101	1,574,475	200,040	<b>Leather goods, 1909</b>	168	2,949	\$8,948,324	\$3,813,354
Firm	43	83	1,384,527	177,770	Individual	88	710	2,149,577	916,425
Corporation	84	1,447	13,200,456	2,941,458	Firm	39	459	1,441,018	704,681
Other	78	101	1,038,820	200,047	Corporation	41	1,774	5,357,729	2,192,448
Per cent of total:					Per cent of total:	100.0	100.0	100.0	100.0
1909	100.0	100.0	100.0	100.0	Individual	52.4	24.3	24.0	24.0
1904	80.5	5.8	8.8	5.8	Firm	23.2	15.0	16.1	18.5
Firm	14.6	4.8	7.8	5.0	Corporation	24.4	60.2	59.9	57.5
Corporation	28.5	83.5	74.2	83.3	<b>Leather, tanned, curried, and finished, 1909</b>	29	3,001	\$14,911,782	\$2,781,173
Other	20.4	5.8	9.2	5.8	Individual	4	201	1,080,872	218,334
<b>Canning and preserving, 1909</b>	118	2,383	\$7,619,566	\$2,806,890	Firm	9	325	1,684,428	359,538
Individual	45	264	685,062	273,374	Corporation	10	2,475	12,140,482	2,203,301
Firm	24	504	1,042,989	619,071	Per cent of total:	100.0	100.0	100.0	100.0
Corporation	49	1,615	5,291,495	1,914,445	Individual	13.8	6.7	7.3	7.8
Per cent of total:					Firm	31.0	10.8	11.3	12.9
1909	100.0	100.0	100.0	100.0	Corporation	55.2	82.5	81.4	79.2
1904	38.1	11.1	9.0	9.7	<b>Lumber and timber products, 1909</b>	814	16,567	\$44,951,804	\$17,687,608
Firm	20.3	21.1	21.0	22.1	Individual	437	2,309	5,419,920	2,749,240
Corporation	41.5	67.8	66.4	68.2	Firm	160	1,059	2,210,937	1,133,303
<b>Carriages and wagons and materials, 1909</b>	325	5,852	\$16,831,283	\$7,951,948	Corporation	208	13,139	37,320,947	13,805,065
Individual	201	797	1,714,435	1,000,483	Per cent of total:	100.0	100.0	100.0	100.0
Firm	69	421	1,052,885	586,986	Individual	13.8	6.7	7.3	7.8
Corporation	55	4,634	14,063,963	5,764,479	Firm	31.0	10.8	11.3	12.9
Per cent of total:					Corporation	55.2	82.5	81.4	79.2
1909	100.0	100.0	100.0	100.0	<b>Clothing, men's, including shirts, 1909</b>	715	36,152	\$89,472,755	\$44,244,475
1904	61.8	13.6	10.2	13.6	Individual	449	8,378	12,400,131	7,804,224
Firm	21.2	7.2	6.3	8.0	Firm	179	18,383	40,006,095	22,084,782
Corporation	16.0	70.2	83.6	78.4	Corporation	87	9,391	28,065,929	14,375,469
<b>Clothing, women's, 1909</b>	221	6,151	\$16,635,236	\$7,421,710	Per cent of total:	100.0	100.0	100.0	100.0
Individual	107	1,817	3,038,904	1,896,652	Individual	62.8	23.2	13.0	17.6
Firm	71	2,778	6,960,832	2,873,294	Firm	25.0	50.8	54.8	49.9
Corporation	43	1,556	5,735,500	2,651,764	Corporation	12.2	26.0	31.4	32.5
Per cent of total:					<b>Lumber and timber products, 1909</b>	814	16,567	\$44,951,804	\$17,687,608
1909	100.0	100.0	100.0	100.0	Individual	437	2,309	5,419,920	2,749,240
1904	48.4	29.5	23.7	25.6	Firm	160	1,059	2,210,937	1,133,303
Firm	32.1	45.2	41.8	35.7	Corporation	208	13,139	37,320,947	13,805,065
Corporation	19.5	25.3	34.5	35.7	Per cent of total:	100.0	100.0	100.0	100.0
<b>Confectionery, 1909</b>	140	3,799	\$12,798,077	\$5,132,079	Individual	53.7	14.3	12.1	15.5
Individual	66	437	1,368,845	540,311	Firm	20.8	6.4	4.9	6.4
Firm	22	198	430,027	189,121	Corporation	25.6	79.3	83.0	78.0
Corporation	52	3,164	10,799,205	4,403,247	<b>Foundry and machine-shop products, 1909</b>	1,178	52,266	\$138,578,993	\$74,768,805
Per cent of total:					Individual	360	3,764	8,475,204	4,769,850
1909	100.0	100.0	100.0	100.0	Firm	150	1,834	4,288,137	2,258,710
1904	47.1	11.5	10.7	10.5	Corporation	668	46,668	125,815,652	67,740,245
Firm	15.7	5.2	4.9	9.7	Per cent of total:	100.0	100.0	100.0	100.0
Corporation	37.1	83.3	84.4	85.8	Individual	30.6	7.2	6.1	6.4
<b>Copper, tin, and sheet-iron products, 1909</b>	483	7,473	\$22,822,810	\$9,629,647	Firm	12.7	3.5	3.1	3.0
Individual	283	1,008	2,742,344	1,623,761	Corporation	56.7	80.3	90.8	90.6
Firm	102	977	3,023,028	1,534,653	<b>Furniture and refrigerators, 1909</b>	267	13,575	\$27,900,262	\$15,389,042
Corporation	98	5,468	17,057,438	6,471,233	Individual	85	1,224	2,409,423	1,453,540
Per cent of total:					Firm	40	903	2,005,844	907,832
1909	100.0	100.0	100.0	100.0	Corporation	139	11,448	23,484,995	12,947,670
1904	58.6	13.5	12.0	10.9	Per cent of total:	100.0	100.0	100.0	100.0
Firm	21.1	13.1	13.2	15.9	Individual	33.0	0.0	8.6	9.4
Corporation	20.3	73.4	74.7	67.2	Firm	15.0	6.7	7.2	6.5
<b>Flour-mill and gristmill products, 1909</b>	461	2,464	\$51,110,681	\$5,521,110	Corporation	52.1	84.3	84.2	84.1
Individual	210	424	8,253,326	770,608	<b>Leather goods, 1909</b>	168	2,949	\$8,948,324	\$3,813,354
Firm	146	421	6,022,904	923,049	Individual	88	710	2,149,577	916,425

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>Millinery and lace goods, 1909</b>	103	3,328	\$7,281,914	\$3,484,618	<b>Patent medicines and compounds and druggists' preparations, 1909—Con.</b>				
Individual.....	39	373	696,519	377,891	Per cent of total.....	100.0	100.0	100.0	100.0
Firm.....	20	834	1,954,243	960,288	Individual.....	42.6	13.9	11.0	10.7
Corporation.....	35	2,121	4,631,152	2,146,439	Firm.....	10.0	5.2	7.0	4.5
Per cent of total.....	100.0	100.0	100.0	100.0	Corporation.....	47.4	81.0	82.0	84.8
Individual.....	37.9	11.2	9.6	10.8	<b>Printing and publishing, 1909</b>	2,608	28,644	\$87,247,090	\$62,567,117
Firm.....	28.2	25.1	26.8	27.6	Individual.....	1,352	3,704	10,252,467	7,889,922
Corporation.....	34.0	63.7	63.6	61.6	Firm.....	423	2,524	6,610,653	4,118,519
<b>Paint and varnish, 1909</b>	74	1,792	\$20,434,291	\$7,532,680	Corporation.....	729	21,914	69,133,450	48,764,031
Individual.....	10	115	675,344	258,466	Other.....	104	442	2,250,520	1,794,645
Firm.....	5	67	502,894	206,403	Per cent of total.....	100.0	100.0	100.0	100.0
Corporation.....	59	1,610	19,256,053	7,067,811	Individual.....	51.8	13.1	11.8	12.6
Per cent of total.....	100.0	100.0	100.0	100.0	Firm.....	16.2	8.8	6.4	6.6
Individual.....	13.5	6.4	3.3	3.4	Corporation.....	28.0	76.5	78.2	77.9
Firm.....	6.8	3.7	2.5	2.7	Other.....	4.0	1.5	2.6	2.9
Corporation.....	79.7	89.8	94.2	93.8	<b>Slaughtering and meat packing, 1909</b>	109	26,705	\$389,694,906	\$45,618,899
<b>Patent medicines and compounds and druggists' preparations, 1909</b>	359	1,869	\$13,114,307	\$8,761,289	Individual.....	36	688	9,844,697	857,279
Individual.....	153	259	1,440,203	933,545	Firm.....	19	350	4,982,255	742,958
Firm.....	36	97	918,029	391,058	Corporation <sup>1</sup> .....	54	25,667	374,768,054	44,038,662
Corporation.....	170	1,513	10,756,075	7,376,686	Per cent of total.....	100.0	100.0	100.0	100.0
					Individual.....	33.0	2.0	2.5	1.9
					Firm.....	17.4	1.3	1.3	1.6
					Corporation <sup>1</sup> .....	49.5	96.1	96.2	96.5

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

The most important point brought out by this table is the extent of corporate ownership. In all industries combined, 28.9 per cent of the total number of establishments were under corporate ownership in 1909, as compared with 27.8 per cent in 1904. Establishments operated by corporations reported 85.8 per cent of the total value of products in 1909, however, and 83.6 per cent in 1904. Establishments under firm ownership represented only 16.5 per cent of the total number in 1909, as against 18 per cent in 1904, and both these establishments and those owned by individuals reported a smaller proportion of the total number of wage earners and the total value of products in 1909 than in 1904.

In 8 of the 20 individual industries for which figures are given in the table, namely, the manufacture of paint and varnish; the foundries and machine shops; the tanning, currying, and finishing of leather; the manufacture of furniture and refrigerators; the manufacture of boots and shoes; slaughtering and meat packing; the manufacture of patent medicines and compounds; and canning and preserving, there was a larger number of establishments under corporate management than under any other form of ownership, while in all except two of the industries shown—the men's clothing and the women's clothing industries—the establishments operated by corporations contributed the greater part of the total value of products and of the total value added by manufacture. In three industries—foundries and machine shops, the manufacture of paint and varnish, and slaughtering and meat packing—over 90 per cent of the total value of products and total value added by manufacture was reported by establishments under corporate ownership. Firm ownership predominates in the men's clothing and women's clothing industries.

**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 average 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.

The table shows that of the 18,026 manufacturing establishments in the state in 1909 only 273, or 1.5 per cent, had a value of products exceeding \$1,000,000. These establishments, however, employed an average of 179,787 wage earners, or 38.6 per cent of the total number in all establishments, and reported 56.2 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 (34.3 per cent) of the total number of establishments, but the value of their products amounted to only eight-tenths 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 table that during the five years from 1904 to 1909 there was a considerable increase in the relative importance of the largest establishments—those reporting products valued at not less than \$1,000,000—as measured by number of wage earners, value of products, and value added by manufacture.

INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>									
1909.....	18,026	465,764	\$1,919,276,594	\$758,349,904	<b>Carriages and wagons and materials, 1909.....</b>	325	5,852	\$16,831,283	\$7,351,948
1904.....	14,921	379,436	1,410,342,129	570,284,813	Less than \$5,000.....	122	173	341,896	230,353
Less than \$5,000:					\$5,000 and less than \$20,000.....	123	649	1,242,315	780,090
1909.....	6,181	7,000	15,040,808	9,864,314	\$20,000 and less than \$100,000.....	46	740	1,901,131	944,169
1904.....	5,208	7,086	12,892,051	8,741,174	\$100,000 and less than \$1,000,000.....	25	2,042	7,482,204	3,211,022
\$5,000 and less than \$20,000:					\$1,000,000 and over.....	4	1,048	5,803,737	2,186,314
1909.....	5,823	27,327	59,704,517	36,175,677	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	4,795	26,594	49,128,915	30,404,988	Less than \$5,000.....	37.5	3.0	2.0	3.1
\$20,000 and less than \$100,000:					\$5,000 and less than \$20,000.....	39.4	11.1	7.4	10.6
1909.....	3,773	65,907	170,400,943	91,858,229	\$20,000 and less than \$100,000.....	14.2	12.6	11.3	12.8
1904.....	3,157	60,376	142,152,026	78,950,358	\$100,000 and less than \$1,000,000.....	7.7	45.1	44.5	43.7
\$100,000 and less than \$1,000,000:					\$1,000,000 and over.....	1.2	28.2	34.8	29.7
1909.....	1,976	185,743	595,294,105	280,112,984	Average per establishment.....	18		\$51,780	\$22,621
1904.....	1,593	159,171	451,011,747	215,350,376	<b>Clothing, men's, including shirts, 1909.....</b>	715	36,152	\$89,472,755	\$44,244,475
\$1,000,000 and over:					Less than \$5,000.....	135	618	378,498	943,280
1909.....	273	179,787	1,078,740,101	340,338,700	\$5,000 and less than \$20,000.....	297	4,724	3,210,703	2,028,566
1904.....	168	129,210	755,157,389	236,831,917	\$20,000 and less than \$100,000.....	173	6,131	7,134,890	4,870,020
Per cent of total:					\$100,000 and less than \$1,000,000.....	91	7,426	30,185,453	14,379,391
1909.....	100.0	100.0	100.0	100.0	\$1,000,000 and over.....	19	17,253	48,563,207	21,716,609
1904.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000:					Less than \$5,000.....	18.9	1.7	0.4	0.8
1909.....	34.3	1.5	0.8	1.3	\$5,000 and less than \$20,000.....	41.5	13.1	3.6	6.0
1904.....	34.9	1.9	0.9	1.5	\$20,000 and less than \$100,000.....	24.2	17.0	8.0	11.0
\$5,000 and less than \$20,000:					\$100,000 and less than \$1,000,000.....	12.7	20.5	33.7	32.5
1909.....	32.3	5.9	3.1	4.8	\$1,000,000 and over.....	2.7	47.7	54.3	49.1
1904.....	32.1	7.0	3.5	5.3	Average per establishment.....	51		\$126,137	\$31,880
\$20,000 and less than \$100,000:					<b>Clothing, women's, 1909.....</b>	221	6,151	\$18,635,236	\$7,421,710
1909.....	20.9	14.2	8.9	12.1	Less than \$5,000.....	21	54	54,982	44,020
1904.....	21.2	15.9	10.1	13.8	\$5,000 and less than \$20,000.....	64	616	740,280	508,541
\$100,000 and less than \$1,000,000:					\$20,000 and less than \$100,000.....	94	2,154	4,583,549	2,182,099
1909.....	11.0	39.9	31.0	36.9	\$100,000 and less than \$1,000,000.....	42	3,327	11,256,425	4,687,050
1904.....	10.7	41.2	32.0	37.8	Per cent of total.....	100.0	100.0	100.0	100.0
\$1,000,000 and over:					Less than \$5,000.....	9.5	0.9	0.3	0.6
1909.....	1.5	38.6	56.2	44.9	\$5,000 and less than \$20,000.....	29.0	10.0	4.4	6.9
1904.....	1.1	34.1	53.5	41.5	\$20,000 and less than \$100,000.....	42.5	35.0	27.6	29.4
Average per establishment:					\$100,000 and less than \$1,000,000.....	19.0	54.1	67.7	63.2
1909.....	26		\$106,473	\$42,070	\$1,000,000 and over.....	28		\$75,273	\$33,582
1904.....	25		94,521	38,220	Confectionery, 1909.....	140	3,799	\$12,798,077	\$5,182,679
<b>Boots and shoes, including out stock and findings, 1909.....</b>	53	5,792	\$18,754,704	\$5,885,892	Less than \$5,000.....	40	48	92,961	62,006
Less than \$5,000.....	9	17	25,920	15,580	\$5,000 and less than \$20,000.....	47	198	509,871	277,744
\$5,000 and less than \$20,000.....	7	63	80,328	49,762	\$20,000 and less than \$100,000.....	29	553	1,488,859	608,103
\$20,000 and less than \$100,000.....	11	236	531,935	202,302	\$100,000 and less than \$1,000,000.....	21	1,972	6,302,435	2,606,127
\$100,000 and less than \$1,000,000.....	19	2,192	5,470,033	1,697,074	\$1,000,000 and over.....	3	1,028	4,313,951	1,568,609
\$1,000,000 and over.....	7	3,284	10,645,888	3,021,144	Per cent of total.....	100.0	100.0	100.0	100.0
Per cent of total.....	100.0	100.0	100.0	100.0	Less than \$5,000.....	28.6	1.3	0.7	1.0
Less than \$5,000.....	17.0	0.3	0.2	0.3	\$5,000 and less than \$20,000.....	33.6	5.2	4.0	5.4
\$5,000 and less than \$20,000.....	13.2	1.1	0.5	0.8	\$20,000 and less than \$100,000.....	20.7	14.6	11.0	13.0
\$20,000 and less than \$100,000.....	20.8	4.1	3.2	3.4	\$100,000 and less than \$1,000,000.....	15.0	51.9	49.9	50.0
\$100,000 and less than \$1,000,000.....	35.8	37.8	32.7	28.8	\$1,000,000 and over.....	2.1	27.1	33.7	30.6
\$1,000,000 and over.....	13.2	56.7	63.5	66.0	Average per establishment.....	27		\$91,415	\$30,162
Average per establishment.....	109		\$316,126	\$111,054	<b>Copper, tin, and sheet-iron products, 1909.....</b>	483	7,473	\$22,822,810	\$9,620,647
<b>Brick and tile, 1909.....</b>	340	6,574	\$9,765,051	\$7,273,693	Less than \$5,000.....	151	170	436,710	287,382
Less than \$5,000.....	134	311	320,186	258,353	\$5,000 and less than \$20,000.....	205	840	2,147,622	1,321,954
\$5,000 and less than \$20,000.....	139	1,146	1,307,510	1,035,211	\$20,000 and less than \$100,000.....	93	1,446	3,064,068	2,082,118
\$20,000 and less than \$100,000.....	44	1,429	1,982,832	1,513,753	\$100,000 and less than \$1,000,000.....	31	3,256	10,078,570	4,284,133
\$100,000 and less than \$1,000,000.....	23	3,088	6,154,523	4,466,376	\$1,000,000 and over.....	3	1,740	6,194,044	1,654,000
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	39.4	4.7	3.3	3.0	Less than \$5,000.....	31.3	2.3	1.0	3.0
\$5,000 and less than \$20,000.....	40.9	17.4	14.4	14.2	\$5,000 and less than \$20,000.....	42.4	11.4	9.4	13.7
\$20,000 and less than \$100,000.....	12.9	21.7	20.3	20.8	\$20,000 and less than \$100,000.....	19.3	19.3	17.4	21.6
\$100,000 and less than \$1,000,000.....	6.8	56.1	61.4	61.4	\$100,000 and less than \$1,000,000.....	6.4	43.6	44.2	44.5
Average per establishment.....	19		\$28,721	\$21,393	\$1,000,000 and over.....	0.6	23.4	27.1	17.2
<b>Butter, cheese, and condensed milk, 1909.....</b>	295	1,732	\$17,798,278	\$3,531,357	Average per establishment.....	15		\$47,252	\$10,937
Less than \$5,000.....	29	17	77,280	15,442	<b>Flour-mill and gristmill products, 1909.....</b>	461	2,464	\$51,110,651	\$5,521,110
\$5,000 and less than \$20,000.....	140	142	1,519,150	269,319	Less than \$5,000.....	113	60	284,604	60,704
\$20,000 and less than \$100,000.....	96	240	4,038,145	538,169	\$5,000 and less than \$20,000.....	117	172	1,285,941	301,967
\$100,000 and less than \$1,000,000.....	30	1,327	12,163,694	2,708,427	\$20,000 and less than \$100,000.....	153	495	6,942,150	1,133,944
Per cent of total.....	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000.....	68	1,133	22,355,804	2,571,742
Less than \$5,000.....	9.8	1.0	0.4	0.4	\$1,000,000 and over.....	10	595	20,242,113	1,440,083
\$5,000 and less than \$20,000.....	47.5	8.2	8.5	7.6	Per cent of total.....	100.0	100.0	100.0	100.0
\$20,000 and less than \$100,000.....	32.5	14.2	22.7	15.2	Less than \$5,000.....	24.5	2.8	0.0	1.2
\$100,000 and less than \$1,000,000.....	10.2	76.6	68.3	76.7	\$5,000 and less than \$20,000.....	25.4	7.0	0.0	1.2
Average per establishment.....	6		\$60,333	\$11,971	\$20,000 and less than \$100,000.....	33.2	20.1	13.0	5.5
<b>Canning and preserving, 1909.....</b>	118	2,383	\$7,619,586	\$2,806,890	\$100,000 and less than \$1,000,000.....	14.8	46.0	43.7	46.6
Less than \$5,000.....	24	68	60,061	30,884	\$1,000,000 and over.....	2.2	24.1	39.0	26.2
\$5,000 and less than \$20,000.....	39	181	410,803	164,771	Average per establishment.....	5		\$110,800	\$11,976
\$20,000 and less than \$100,000.....	32	547	1,447,243	547,790	<b>Foundry and machine-shop products, 1909.....</b>	1,178	52,266	\$138,578,993	\$74,768,805
\$100,000 and less than \$1,000,000.....	23	1,687	5,701,479	2,063,445	Less than \$5,000.....	201	246	3,557,632	307,899
Per cent of total.....	100.0	100.0	100.0	100.0	\$5,000 and less than \$20,000.....	320	1,687	3,554,851	2,245,204
Less than \$5,000.....	20.3	2.9	0.8	1.1	\$20,000 and less than \$100,000.....	403	8,000	10,762,090	11,205,059
\$5,000 and less than \$20,000.....	33.0	7.6	5.4	5.9	\$100,000 and less than \$1,000,000.....	222	20,403	69,525,050	37,442,726
\$20,000 and less than \$100,000.....	27.1	23.0	19.0	19.5	\$1,000,000 and over.....	23	15,970	45,178,162	23,597,857
\$100,000 and less than \$1,000,000.....	19.5	66.6	74.8	73.5					
Average per establishment.....	20		\$64,573	\$23,787					

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

INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>Foundry and machine-shop products, 1909—Continued.</b>					<b>Millinery and lace goods, 1909—Continued.</b>				
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	17.1	0.5	0.4	0.5	Less than \$5,000.....	10.7	0.8	0.3	0.3
\$5,000 and less than \$20,000.....	27.9	3.0	2.6	3.0	\$5,000 and less than \$20,000.....	31.1	6.3	4.5	5.9
\$20,000 and less than \$100,000.....	34.2	15.4	14.3	15.0	\$20,000 and less than \$100,000.....	40.8	30.8	27.3	31.5
\$100,000 and less than \$1,000,000.....	18.8	50.5	50.2	50.1	\$100,000 and less than \$1,000,000.....	17.5	62.1	67.9	62.5
\$1,000,000 and over.....	2.0	30.6	32.6	31.4	Average per establishment.....		32	\$70,098	\$33,381
Average per establishment.....		44	\$117,030	\$63,471					
<b>Furniture and refrigerators, 1909.....</b>					<b>Paint and varnish, 1909.....</b>				
Less than \$5,000.....	287	13,575	\$27,900,262	\$15,399,042	Less than \$5,000.....	74	1,792	\$20,434,291	\$7,532,666
\$5,000 and less than \$20,000.....	32	33	80,025	52,729	\$5,000 and less than \$20,000.....	7	6	18,999	9,720
\$20,000 and less than \$100,000.....	69	396	780,301	508,150	\$20,000 and less than \$100,000.....	11	17	119,138	72,165
\$100,000 and less than \$1,000,000.....	85	2,804	4,248,013	2,432,744	\$100,000 and less than \$1,000,000.....	20	110	1,019,334	384,322
\$1,000,000 and over.....	78	9,131	19,123,074	10,466,063	\$1,000,000 and over.....	30	997	10,590,586	3,765,522
Average per establishment.....	3	1,051	3,667,349	1,938,450	Average per establishment.....	6	662	8,686,234	3,300,322
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	12.0	0.2	0.3	0.3	Less than \$5,000.....	9.5	0.3	0.1	0.3
\$5,000 and less than \$20,000.....	25.8	2.0	2.8	3.3	\$5,000 and less than \$20,000.....	14.9	1.0	0.6	1.0
\$20,000 and less than \$100,000.....	31.8	17.4	15.2	15.8	\$20,000 and less than \$100,000.....	27.0	6.1	5.0	5.2
\$100,000 and less than \$1,000,000.....	29.2	67.3	68.5	68.0	\$100,000 and less than \$1,000,000.....	40.5	55.4	51.8	50.2
\$1,000,000 and over.....	1.1	12.2	13.1	12.6	\$1,000,000 and over.....	8.1	37.0	42.5	43.8
Average per establishment.....		51	\$104,405	\$57,074	Average per establishment.....		24	\$276,130	\$101,793
<b>Leather goods, 1909.....</b>					<b>Patent medicines and compounds and druggists' preparations, 1909.....</b>				
Less than \$5,000.....	168	2,949	\$8,948,324	\$3,813,354	Less than \$5,000.....	359	1,869	\$13,114,307	\$8,701,288
\$5,000 and less than \$20,000.....	21	25	65,063	30,818	\$5,000 and less than \$20,000.....	147	57	307,575	219,509
\$20,000 and less than \$100,000.....	74	294	801,757	409,548	\$20,000 and less than \$100,000.....	110	228	1,127,216	778,188
\$100,000 and less than \$1,000,000.....	47	707	2,208,911	1,109,023	\$20,000 and less than \$100,000.....	69	501	3,335,888	2,160,012
Average per establishment.....	26	1,803	5,872,503	2,257,865	\$100,000 and less than \$1,000,000.....	24	1,083	8,343,628	5,541,580
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	12.5	0.8	0.7	1.0	Less than \$5,000.....	40.9	3.0	2.3	2.2
\$5,000 and less than \$20,000.....	44.0	10.0	9.0	10.7	\$5,000 and less than \$20,000.....	33.1	12.2	8.6	8.9
\$20,000 and less than \$100,000.....	28.0	26.0	24.7	29.1	\$20,000 and less than \$100,000.....	19.2	26.8	25.4	24.8
\$100,000 and less than \$1,000,000.....	15.5	68.2	65.6	59.2	\$100,000 and less than \$1,000,000.....	6.7	57.9	63.0	63.7
Average per establishment.....		18	\$58,204	\$22,099	Average per establishment.....		5	\$36,530	\$24,238
<b>Leather, tanned, curried, and finished, 1909.....</b>					<b>Printing and publishing, 1909.....</b>				
\$20,000 and less than \$100,000.....	29	3,001	\$14,911,782	\$2,781,173	Less than \$5,000.....	2,608	28,644	\$87,247,090	\$62,567,117
\$100,000 and less than \$1,000,000.....	9	78	395,525	100,032	\$5,000 and less than \$20,000.....	1,148	1,433	2,944,486	2,363,826
\$1,000,000 and over.....	15	1,202	5,870,552	1,256,158	\$20,000 and less than \$100,000.....	830	3,465	8,435,336	6,571,812
Average per establishment.....	5	1,721	8,639,704	1,424,083	\$20,000 and less than \$100,000.....	479	7,085	20,580,593	15,438,982
Per cent of total.....	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000.....	142	12,388	36,279,032	25,421,582
Less than \$5,000.....	31.0	2.0	2.7	3.6	\$1,000,000 and over.....	9	4,273	10,007,643	12,770,480
\$5,000 and less than \$20,000.....	51.7	40.1	39.4	45.2	Per cent of total.....	100.0	100.0	100.0	100.0
\$20,000 and less than \$100,000.....	17.2	57.3	57.9	51.2	Less than \$5,000.....	44.0	5.0	3.4	3.4
Average per establishment.....		103	\$514,109	\$95,903	\$5,000 and less than \$20,000.....	31.8	12.1	9.7	10.3
<b>Lumber and timber products, 1909.....</b>					<b>Slaughtering and meat packing, 1909.....</b>				
Less than \$5,000.....	814	16,567	\$44,951,804	\$17,087,608	Less than \$5,000.....	109	26,705	\$389,594,906	\$45,618,899
\$5,000 and less than \$20,000.....	306	598	717,759	485,855	\$5,000 and less than \$20,000.....	6	6	21,099	9,585
\$20,000 and less than \$100,000.....	180	1,012	1,598,702	1,112,506	\$20,000 and less than \$100,000.....	13	31	146,451	44,381
\$100,000 and less than \$1,000,000.....	171	3,080	8,526,078	4,176,080	\$20,000 and less than \$100,000.....	23	134	1,208,200	225,799
\$1,000,000 and over.....	91	0,197	23,734,818	9,066,200	\$100,000 and less than \$1,000,000.....	43	1,249	15,448,049	2,411,899
Average per establishment.....	6	1,810	10,073,787	2,240,961	\$1,000,000 and over.....	24	25,285	372,775,417	42,927,259
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	45.0	3.4	1.6	2.7	Less than \$5,000.....	5.5	(3)	(3)	(3)
\$5,000 and less than \$20,000.....	22.1	6.1	4.2	6.3	\$5,000 and less than \$20,000.....	11.9	0.1	0.3	0.3
\$20,000 and less than \$100,000.....	21.0	24.0	19.0	23.6	\$20,000 and less than \$100,000.....	21.1	0.5	0.3	0.3
\$100,000 and less than \$1,000,000.....	11.2	55.5	52.8	54.6	\$20,000 and less than \$100,000.....	39.4	4.7	4.0	5.2
\$1,000,000 and over.....	0.7	10.9	22.4	12.7	\$100,000 and less than \$1,000,000.....	22.0	94.7	95.7	94.1
Average per establishment.....		20	\$55,223	\$21,720	Average per establishment.....		245	\$3,574,205	\$418,522
<b>Millinery and lace goods, 1909.....</b>					<b>Patent medicines and compounds and druggists' preparations, 1909.....</b>				
Less than \$5,000.....	103	3,328	\$7,281,914	\$3,484,618	Less than \$5,000.....	359	1,869	\$13,114,307	\$8,701,288
\$5,000 and less than \$20,000.....	11	25	12,040	5,729	\$5,000 and less than \$20,000.....	147	57	307,575	219,509
\$20,000 and less than \$100,000.....	32	211	320,117	204,336	\$20,000 and less than \$100,000.....	110	228	1,127,216	778,188
\$100,000 and less than \$1,000,000.....	42	1,026	1,991,063	1,096,275	\$20,000 and less than \$100,000.....	69	501	3,335,888	2,160,012
\$1,000,000 and less than \$1,000,000.....	18	2,066	4,642,894	2,171,907	\$100,000 and less than \$1,000,000.....	24	1,083	8,343,628	5,541,580
Average per establishment.....					Average per establishment.....				

<sup>1</sup> Includes the groups "Less than \$5,000" and "\$5,000 and less than \$20,000."

<sup>2</sup> Includes the group "\$1,000,000 and over."

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

The fact that the average value of products per establishment increased between 1904 and 1909 from \$94,521 to \$106,473, and the value added by manufacture from \$38,220 to \$42,070, 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 25 to 26.

Of the individual industries for which figures are given in the table, those in which the average size of establishment, as measured by value of products was smallest, were the manufacture of brick and tile; printing and publishing; the manufacture of patent

medicines and compounds and druggists' preparations; the manufacture of copper, tin, and sheet-iron products; and the manufacture of carriages and wagons. In each of these industries more than 70 per cent of the establishments reported products valued at less than \$20,000 for the year 1909. The industries in which the average value of products per establishment was the largest were slaughtering and meat packing, the tanning, currying, and finishing of leather, the manufacture of boots and shoes, and the paint and varnish industry, in which 61.5 per cent, 69 per cent, 49 per cent, and 48.6 per cent, respectively, of the establishments reported products valued at \$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 the 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 certain 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.										
<b>All industries.....</b>	<b>18,026</b>	<b>2,518</b>	<b>8,801</b>	<b>3,560</b>	<b>1,578</b>	<b>709</b>	<b>541</b>	<b>194</b>	<b>86</b>	<b>30</b>
Agricultural implements.....	79	5	15	17	5	0	13	0	4	4
Automobiles, including bodies and parts.....	65	2	25	13	12	0	4	2		
Baking powders and yeast.....	24	1	10	4	5	1	1			
Boots and shoes, including cut stock and findings.....	53	1	12	0	10	5	9	4	3	
Bread and other bakery products.....	2,099	328	1,540	197	16	3	11	3	1	
Brick and tile.....	340	2	186	97	27	14	11	1	2	
Butter, cheese, and condensed milk.....	295	20	232	16	0	5	4			
Canning and preserving.....	118	10	46	29	19	0	7			
Carriages and wagons and materials.....	325	25	191	68	17	11		5	1	
Cars and general shop construction and repairs by steam-railroad companies.....	73		5	9	10	7	13	11	0	4
Cars, steam-railroad, not including operations of railroad companies.....	28	1	7	3	5	2	8	4	3	1
Clocks and watches, including cases and materials.....	10	1	7	3	1	2	1	1	2	1
Clothing, men's, including shirts.....	715	20	122	285	188	57	20	12	6	5
Clothing, women's.....	221	4	40	89	6	19	8	2		
Coffee and spice, roasting and grinding.....	35		14	0	6	0	8	3		
Confectionery.....	140	8	70	20	16	6	8	3		
Copper, tin, and sheet-iron products.....	483	23	294	117	42	17	14	4	1	2
Electrical machinery, apparatus, and supplies.....	143	5	55	42	17	22	6		1	
Flour-mill and gristmill products.....	461	70	297	64	04	06	6			
Foundry and machine-shop products.....	1,178	65	409	321	104	69	78	20	10	3
Furnishing goods, men's.....	61	3	15	10	14	5	6	2		
Furniture and refrigerators.....	267	0	67	68	51	40	29	5	3	
Gas, illuminating and heating.....	78		34	20	9	10	4			1
Iron and steel, blast furnaces.....	6									5
Iron and steel, steel works and rolling mills.....	24					2	7	5	4	
Leather goods.....	188	7	82	43	24	7	7	1		
Leather, tanned, curried, and finished.....	20		3	7	4	5	7	2		
Liquors, distilled.....	0		2	0	1	2	4		1	
Liquors, malt.....	106		12	30	32	19	5	2		
Lumber and timber products.....	814	20	450	181	77	41	24	10	2	
Millinery and lace goods.....	103		24	30	24	10	4	2		
Musical instruments, pianos and organs and materials.....	68	1	8	17	14	6	12	7	2	1
Paint and varnish.....	74	2	38	11	13	5	5			
Patent medicines and compounds and druggists' preparations.....	359	110	185	38	13	5	2			
Printing and publishing.....	2,008	708	1,218	439	144	54	34	11	6	
Slaughtering and meat packing.....	100	5	32	22	21	12	5	2	2	9
Smelting and refining, zinc.....	5									
Soap.....	34	1	17	5	5	1	2	1	2	
Stoves and furnaces, including gas and oil stoves.....	71	1	16	14	16	8	12	4		
Tobacco manufactures.....	1,044	681	1,000	212	93	11	5		2	
All other industries.....	4,195	398	2,014	678	421	205	143	48	14	2
AVERAGE NUMBER OF WAGE EARNERS.										
<b>All industries.....</b>	<b>465,784</b>	<b>20,079</b>	<b>40,022</b>	<b>51,490</b>	<b>50,856</b>	<b>82,889</b>	<b>66,781</b>	<b>57,742</b>	<b>95,905</b>	<b>11,165</b>
Agricultural implements.....	10,240	35	180	172	618	1,889	2,108	3,007		
Automobiles, including bodies and parts.....	2,382	65	150	402	400	737	556			
Baking powders and yeast.....	657	24	30	184	163	250				
Boots and shoes, including cut stock and findings.....	5,792	30	120	371	402	1,531	911	1,922		
Bread and other bakery products.....	8,011	3,070	1,775	429	214	1,555	916	657		
Brick and tile.....	0,574		646	1,092	887	1,030	300	1,208		
Butter, cheese, and condensed milk.....	1,732		348	162	301	363	558			
Canning and preserving.....	2,333		140	522	604	710	547			
Carriages and wagons and materials.....	5,852		406	700	539	729	1,042	520		
Cars and general shop construction and repairs by steam-railroad companies.....	23,131		13	123	313	450	3,021	4,123	5,904	0,184
Cars, steam-railroad, not including operations of railroad companies.....	10,945		3	51	209	146	1,385	1,640	2,509	5,002
Clocks and watches, including cases and materials.....	5,805		12	41	22	148	207	396	1,413	3,426
Clothing, men's, including shirts.....	30,152		353	3,665	5,825	4,004	3,186	4,176	4,221	10,662
Clothing, women's.....	6,151		140	1,130	1,859	1,311	1,045	606		
Coffee and spice, roasting and grinding.....	1,018		44	107	190	178	238	255		
Confectionery.....	3,799		158	342	633	442	1,195	1,120		
Copper, tin, and sheet-iron products.....	7,473		697	1,207	748	778	1,543	1,474		
Electrical machinery, apparatus, and supplies.....	9,641		145	469	529	906	699	437	665	5,731
Flour-mill and gristmill products.....	2,464		934	684	718	428				
Foundry and machine-shop products.....	62,260	1,131	3,819	6,330	5,001	12,300	10,455	5,853	7,306	
Furnishing goods, men's.....	2,088		39	201	431	365	944	708		
Furniture and refrigerators.....	13,575		180	720	1,872	2,904	4,277	1,667	1,880	1,026
Gas, illuminating and heating.....	6,301		81	214	272	727	637			4,470
Iron and steel, blast furnaces.....	2,493					80		900	1,513	
Iron and steel, steel works and rolling mills.....	17,584				42	177	1,234	1,511	2,610	12,010
Leather goods.....	2,949		251	513	760	548	693	275		
Leather, tanned, curried, and finished.....	3,001		5	93	137	367	1,120	620	653	
Liquors, distilled.....	750		4		20	135	582			
Liquors, malt.....	4,398		39	488	1,151	1,373	640	707		
Lumber and timber products.....	10,567		917	1,996	2,487	2,909	3,438	3,476	1,284	
Millinery and lace goods.....	3,328		66	441	775	735	699	612		
Musical instruments, pianos and organs and materials.....	8,777		23	223	471	423	1,079	2,601	1,533	1,524
Paint and varnish.....	1,792		109	164	480	395	644			
Patent medicines and compounds and druggists' preparations.....	1,860		379	390	378	394	328			
Printing and publishing.....	28,644		2,943	4,680	4,505	3,784	5,372	3,289	4,060	
Slaughtering and meat packing.....	20,705		90	265	724	891	954	254	1,617	21,010
Smelting and refining, zinc.....	1,922						283	345	1,294	
Soap.....	2,188		42	41	165	58	322	267	1,293	
Stoves and furnaces, including gas and oil stoves.....	4,499		44	152	498	603	1,850	1,352		
Tobacco manufactures.....	8,034		1,965	2,164	986	777	807		1,335	
All other industries.....	95,772		4,813	11,067	14,081	14,484	21,000	16,513	10,725	2,480

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 EAGNERS.								
All industries.....	100.0		4.3	8.6	11.1	10.9	17.8	14.3	12.4	20.6
Agricultural implements.....	100.0		0.2	1.0	0.9	3.2	9.8	11.0	15.9	58.9
Automobiles, including bodies and parts.....	100.0		2.7	6.5	16.9	19.6	30.9	23.3		
Baking powders and yeast.....	100.0		3.7	5.5	28.0	24.8	38.1			
Boots and shoes, including cut stock and findings.....	100.0		0.5	2.1	6.4	6.9	26.4	24.4	33.2	
Bread and other bakery products.....	100.0		35.7	20.6	5.0	2.5	18.1	10.6	7.6	
Brick and tile.....	100.0		8.3	10.6	13.5	15.7	23.0	4.6	18.4	
Butter, cheese, and condensed milk.....	100.0		20.1	9.4	17.4	21.0	32.2			
Canning and preserving.....	100.0		5.9	13.5	27.9	29.8	23.0			
Carriages and wagons and materials.....	100.0		8.5	12.1	9.2	12.5	20.8	28.1	8.0	
Cars and general shop construction and repairs by steam-railroad companies.....	100.0		0.1	0.5	1.4	1.9	13.1	17.8	25.5	39.7
Cars, steam-railroad, not including operations of railroad companies.....	100.0		( <sup>1</sup> )	0.5	1.9	1.3	12.7	15.0	22.9	45.7
Clocks and watches, including cases and materials.....	100.0		0.2	0.7	0.4	2.6	3.7	7.0	24.9	60.5
Clothing, men's, including shirts.....	100.0		1.0	10.1	16.1	11.2	8.8	11.6	11.7	29.5
Clothing, women's.....	100.0		2.3	18.4	30.2	21.3	17.0	10.8		
Coffee and spice, roasting and grinding.....	100.0		4.3	10.5	19.3	17.5	23.4	25.0		
Confectionery.....	100.0		4.2	9.0	14.0	11.6	31.5	20.7		
Copper, tin, and sheet-iron products.....	100.0		9.3	16.2	10.0	10.4	20.6	19.7		13.7
Electrical machinery, apparatus, and supplies.....	100.0		1.5	4.9	5.5	10.0	7.2	4.5	6.9	59.4
Flour-mill and gristmill products.....	100.0		25.7	27.8	29.1	17.4				
Foundry and machine-shop products.....	100.0		2.2	7.3	12.1	9.6	23.7	20.0	11.2	14.0
Furnishing goods, men's.....	100.0		1.4	7.5	16.0	13.6	35.1	26.3		
Furniture and refrigerators.....	100.0		1.3	5.4	13.8	21.8	31.5	12.3	13.9	
Gas, illuminating and heating.....	100.0		1.3	3.4	4.3	11.5	8.5			70.9
Iron and steel, blast furnaces.....	100.0					3.2		36.1	60.7	
Iron and steel, steel works and rolling mills.....	100.0				0.2	1.0	7.0	8.6	14.8	68.3
Leather goods.....	100.0		8.5	17.4	26.1	18.6	20.1	9.3		
Leather, tanned, curried, and finished.....	100.0		0.2	3.1	4.6	12.2	37.5	20.7	21.8	
Liquors, distilled.....	100.0		0.5		3.9	18.0	77.0			
Liquors, malt.....	100.0		0.9	11.1	26.2	31.2	14.6	16.1		
Lumber and timber products.....	100.0		5.5	12.0	15.0	17.9	20.8	21.0	7.8	
Millinery and lace goods.....	100.0		2.0	13.3	23.3	22.1	21.0	18.4		
Musical instruments, pianos and organs and materials.....	100.0		0.3	2.5	5.4	4.8	22.5	20.6	17.5	17.4
Paint and varnish.....	100.0		6.1	9.2	26.8	22.0	35.9			
Patent medicines and compounds and druggists' preparations.....	100.0		20.3	20.9	20.2	21.1	17.5			
Printing and publishing.....	100.0		10.3	16.4	15.7	13.2	18.8	11.5	14.2	
Slaughtering and meat packing.....	100.0		0.3	1.0	2.7	3.3	3.6	1.0	6.1	82.9
Smelting and refining, zinc.....	100.0						14.7	18.0	67.3	
Soap.....	100.0		1.9	1.9	7.5	2.6	14.7	12.2	50.1	
Stoves and furnaces, including gas and oil stoves.....	100.0		1.0	3.4	11.1	13.4	41.1	30.1		
Tobacco manufactures.....	100.0		24.5	20.9	12.3	9.7	10.0		16.6	
All other industries.....	100.0		5.0	11.6	14.7	15.1	22.6	17.2	11.2	2.6

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

Of the 18,026 establishments reported for all industries, 14 per cent employed no wage earners; 48.8 per cent, from 1 to 5; 19.7 per cent, from 6 to 20; 8.8 per cent, from 21 to 50; 3.9 per cent, from 51 to 100; and 4.8 per cent, over 100. The most numerous single group consists of the 8,801 establishments employing from 1 to 5 wage earners each, and the next of the 3,560 establishments employing from 6 to 20 wage earners each. There were 39 establishments that employed over 1,000 wage earners each, of which 9 were engaged in slaughtering and meat packing; 5 in the making of men's clothing, 5 were steel works and rolling mills, 4 were steam-railroad repair shops, and 4 were agricultural-implement factories. In some industries, such as the bakery industry, the manufacture of butter, cheese, and condensed milk, the flour-mill and gristmill, and the lumber industries, printing and publishing, and tobacco manufactures, the establishments are mostly small, employing no wage earners or less than 6.

Of the total number of wage earners, 95,905, or 20.6 per cent, were in establishments employing over 1,000 each. This group, which employed a larger number of wage earners than any other, was composed mainly of slaughtering and meat-packing establishments, steel works and rolling mills, men's clothing

factories, agricultural-implement factories, steam-railroad repair shops, and foundries and machine shops.

Most of the industries listed in this table but not in the preceding one, namely, the manufacture of agricultural implements, railroad repair shops, steam-railroad car construction shops, the manufacture of clocks and watches and of electrical machinery, the gas and blast-furnace industries, steel works and rolling mills, the manufacture of pianos and organs, the smelting and refining of zinc, and the manufacture of soap, are industries in which comparatively large establishments do most of the business, as appears from the classification according to the number of 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.

The next 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 42.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
<b>All industries.....</b>	<b>5.3</b>	<b>15.8</b>	<b>67.0</b>	<b>12.0</b>
Agricultural implements.....	0.0	26.5	56.2	11.3
Automobiles, including bodies and parts.....	0.3	24.4	58.7	10.6
Baking powders and yeast.....	8.5	5.8	54.2	31.6
Boots and shoes, including cutstock and findings.....	4.5	20.3	70.2	5.0
Bread and other bakery products.....	4.4	17.8	69.9	7.9
Brick and tile.....	5.0	52.0	30.1	11.4
Butter, cheese, and condensed milk.....	2.4	5.7	86.5	5.3
Canning and preserving.....	5.5	13.5	71.8	9.3
Carriages and wagons and materials.....	4.3	24.2	64.0	7.4
Cars and general shop construction and repairs by steam-railroad companies.....	4.0	47.4	47.3	1.3
Cars, steam-railroad, not including operations of railroad companies.....	3.9	30.5	50.7	5.9
Clocks and watches, including cases and materials.....	5.3	55.3	29.0	10.5
Clothing, men's, including shirts.....	5.6	20.6	56.3	17.5
Clothing, women's.....	6.6	21.0	61.5	10.9
Coffee and spice, roasting and grinding.....	5.9	2.9	82.4	8.9
Confectionery.....	6.9	12.7	68.4	12.0
Copper, tin, and sheet-iron products.....	5.4	21.3	65.0	8.4
Electrical machinery, apparatus, and supplies.....	8.5	25.7	54.6	11.1
Flour-mill and gristmill products.....	1.6	2.6	93.3	2.4
Foundry and machine-shop products.....	8.7	26.9	51.7	12.7
Furnishing goods, men's.....	6.3	15.1	68.0	10.6
Furniture and refrigerators.....	7.0	32.2	40.7	11.2
Gas, illuminating and heating.....	11.2	21.3	44.6	22.9
Iron and steel, blast furnaces.....	1.4	5.2	90.4	2.9
Iron and steel, steel works and rolling mills.....	3.1	17.2	74.8	4.9
Leather goods.....	6.2	20.5	64.3	9.0
Leather, tanned, curried, and finished.....	1.9	10.7	82.3	5.1
Liquors, distilled.....	0.4	0.9	17.3	81.4
Liquors, malt.....	7.2	14.7	29.8	48.3
Lumber and timber products.....	4.8	22.2	66.3	6.8
Millinery and lace goods.....	10.0	21.5	58.0	9.6
Musical instruments, pianos and organs and materials.....	7.3	30.0	51.8	10.9
Paint and varnish.....	9.2	6.2	72.0	12.6
Patent medicines and compounds and druggists' preparations.....	16.3	7.5	41.1	35.1
Printing and publishing.....	16.7	24.9	33.4	25.0
Slaughtering and meat packing.....	1.7	3.9	91.0	3.5
Smelting and refining, zinc.....	3.7	15.2	77.2	3.9
Soap.....	7.2	5.6	74.1	13.2
Stoves and furnaces, including gas and oil stoves.....	9.7	32.8	42.7	14.8
Tobacco manufactures.....	4.5	23.1	47.2	25.2
All other industries.....	6.4	16.7	67.2	9.7

This table shows that, for all industries combined, 67 per cent of the total expenses were incurred for materials, 21 per cent for services—that is, salaries and wages—and 12 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries. The large percentages shown for "Miscellaneous expenses" for the distillery and brewery industries are due to the inclusion of internal-revenue taxes under this head.

**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 amount of primary power used in the manufacturing industries of Illinois increased 32.6 per cent from 1899 to 1904, and 36.6 per cent from 1904 to 1909.

The total increase during the decade was 453,724 horsepower, 72.9 per cent of which was in power generated by steam engines. Notwithstanding this large increase in the horsepower of steam engines, their proportion of the total primary power decreased from 90.7 per cent in 1899 to 82.7 per cent in 1909. Power generated by water wheels and the forms of power included under the head of "Other" show a decrease from 1904 to 1909. The more general use of gas engines is shown, the number of such engines reported being 1,755 in 1909, as compared with 1,447 in 1904 and 1,293 in 1899. Their indicated horsepower was 37,025 in 1909, as compared with 12,319 in 1904, and 8,758 in 1899, the increase during the five-year period 1904-1909 being 24,706 horsepower, or a little more than 200 per cent. Rented electric power represented 11.5 per cent of the total primary power in 1909, as compared with 2.2 per cent in 1899, and the amount reported in 1909 was more than nine times as great as in 1899.

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899 <sup>1</sup>	1909	1904	1899 <sup>1</sup>	1909	1904	1899
<b>Primary power, total.....</b>	<b>30,546</b>	<b>7,888</b>	<b>8,343</b>	<b>1,013,071</b>	<b>741,555</b>	<b>559,347</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Owned.....	8,700	7,888	8,343	880,348	688,036	532,251	87.8	92.8	95.2
Steam.....	6,728	6,201	6,787	838,199	651,578	507,471	82.7	87.6	90.7
Gas.....	1,755	1,447	1,293	37,025	12,319	8,758	3.7	1.7	1.6
Water wheels.....	182	194	263	12,178	14,845	11,614	1.2	2.0	2.1
Water motors.....	35	46	( <sup>2</sup> )	513	185	( <sup>2</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>2</sup> )
Other.....				1,433	9,199	4,408	0.1	1.2	0.8
Rented.....	21,846	( <sup>2</sup> )	( <sup>2</sup> )	123,723	53,519	27,096	12.2	7.2	4.8
Electric.....	21,846	( <sup>2</sup> )	( <sup>2</sup> )	117,007	41,978	12,471	11.5	5.7	2.2
Other.....				6,716	11,541	14,625	0.7	1.6	2.6
<b>Electric motors.....</b>	<b>39,278</b>	<b>8,285</b>	<b>1,839</b>	<b>398,621</b>	<b>165,265</b>	<b>49,235</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Run by current generated by establishment.....	17,432	8,285	1,839	281,614	123,287	36,764	70.6	74.0	74.7
Run by rented power.....	21,846	( <sup>2</sup> )	( <sup>2</sup> )	117,007	41,978	12,471	29.4	25.4	25.3

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

The use of electric motors for the purpose of applying power by means of current generated within the establishment is also shown to be rapidly becoming more common, the horsepower of such motors having increased from 36,764 in 1899 to 123,287 in 1904 and 281,614 in 1909, representing an increase for the decade of over 650 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 next table shows, for 1909, the quantity of each kind of fuel used in all industries combined and in certain selected industries.

MANUFACTURES—ILLINOIS.

INDUSTRY.	An-thra-cite coal (tons).	Bitumi-nous coal (tons).	Coke (tons).	Wood (cords).	Oil, in-cluding gasoline (bar-rels).	Gas (1,000 feet).	INDUSTRY.	An-thra-cite coal (tons).	Bitumi-nous coal (tons).	Coke (tons).	Wood (cords).	Oil, in-cluding gasoline (bar-rels).	Gas (1,000 feet).
All industries.....	155,462	14,235,950	3,982,844	125,490	2,831,328	12,645,341	All industries—Contd.						
Agricultural implements.....	800	287,554	38,303	8,643	135,401	2,800	Foundry and machine-shop products.....	9,641	685,202	530,177	13,405	84,109	6,163,655
Automobiles, including bodies and parts.....	7	11,839	161		153	3,196	Furnishing goods, men's.....	33	2,936			12	1,029
Baking powders and yeast.....		19,024			4	4	Furniture and refrigerators.....	443	106,511	466	50	448	5,535
Boots and shoes, including cutstock and findings.....	94	18,054	14		608	1,307	Gas, illuminating and heat-ing.....	5,551	437,127	253,479		1,520,480	200
Bread and other bakery products.....	13,777	38,675	29,762	40,209	633	58,324	Iron and steel, blast fur-naces.....		37,389	2,804,001	950	4,360	
Brick and tile.....	3,775	904,310	1,236	26,062	118,752	3,550	Iron and steel, steel works and rolling mills.....	15,311	3,088,782	86,143	4,704	260,003	
Butter, cheese, and condensed milk.....	94	111,890		718	711	78	Leather goods.....	217	14,936	121		170	2,741
Canning and preserving.....	272	24,891	63	213	375	6,270	Leather, tanned, curried, and finished.....	2,702	56,105				
Carriages and wagons and materials.....	637	47,599	3,483	97	6,745	3,122	Liquors, distilled.....	2,581	238,278			56	
Cars and general shop construction and repairs by steam-railroad companies.....	6,825	602,367	4,025	6,232	50,036	11,197	Liquors, malt.....	343,470	300			81	1,555
Cars, steam-railroad, not including operations of railroad companies.....	1,967	108,273	51,993	3,199	33,697	5,987	Lumber and timber products.....	1,272	62,128	62	1,855	1,544	10,509
Clocks and watches, including cases and materials.....	9	16,540	200		689	29,120	Millinery and lace goods.....	104	2,951	65		31	5,159
Clothing, men's, including shirts.....	1,848	15,001	51	52	3	51,754	Musical instruments, pianos and organs and materials.....	2,406	83,988		0	403	448
Clothing, women's.....	167	387		1	93	7,436	Paint and varnish.....	378	55,018	3,988	178	2,736	8,729
Coffee and spice, roasting and grinding.....	2,646	9,384	46	50	7	29,019	Patent medicines and compounds and druggists' preparations.....	5,247	15,779	41	4	95	5,133
Confectionery.....	154	28,005	1,558	66	49	20,595	Printing and publishing.....	2,317	83,242	200	88	2,741	69,461
Copper, tin, and sheet-iron products.....	1,907	62,707	440	416	1,333	27,499	Slaughtering and meat pack-ing.....	3,609	957,979	600	4,693	1,929	128,503
Electrical machinery, apparatus, and supplies.....	166	71,903	5,720	1	1,100	235,983	Smelting and refining, zinc.....	24,149	378,627		120		
Flour-mill and gristmill products.....	1,670	109,804	580	1,789	1,753	20,387	Soap.....	21	113,638		72	13	3,318
							Stoves and furnaces, includ-ing gas and oil stoves.....	506	32,078	9,927	856	154	2,604
							Tobacco manufactures.....	3,405	10,417	214	39	22	2,641
							All other industries.....	38,714	4,830,046	64,366	11,320	599,187	5,776,083

NOTE.—In addition, there were 19,587 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. Certain data of this character for 11 important industries in Illinois are here presented.

Slaughtering and meat packing.—This classification includes wholesale slaughtering and meat-packing establishments and establishments engaged in the manufacture of sausage only. The following table gives the quantity and cost of the different materials and the quantity and value of the various products reported at the censuses of 1909, 1904, and 1899:

MATERIAL OR PRODUCT.	1909	1904	1899	MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost.....</b>	<b>\$343,876,007</b>	<b>\$280,591,937</b>	<b>\$247,215,120</b>	<b>Products—Continued.</b>			
Beeves slaughtered:				All other meat sold fresh:			
Number.....	2,181,169	2,643,028	2,057,059	Pounds.....	192,514,045	56,323,048	57,936,886
Cost.....	\$100,980,873	\$110,026,678	\$93,289,543	Value.....	\$11,146,711	\$5,346,938	\$6,159,827
Calves slaughtered:				Canned goods:			
Number.....	513,639	295,928	149,450	Pounds.....	78,155,327	(1)	(1)
Costs.....	\$4,720,290	\$2,097,500	\$1,378,384	Value.....	\$9,677,618	\$10,928,144	\$6,446,283
Sheep slaughtered:				Lard:			
Number.....	3,892,142	3,634,216	3,139,160	Pounds.....	403,177,806	456,577,415	372,162,769
Cost.....	\$10,429,169	\$15,155,386	\$13,558,698	Value.....	\$40,592,051	\$31,463,099	\$22,290,356
Hogs slaughtered:				Tallow, oleo stock, and stearin:			
Number.....	7,293,544	7,854,370	8,291,743	Pounds.....	63,059,600	(1)	(1)
Cost.....	\$107,716,321	\$88,459,545	\$82,979,678	Value.....	\$5,100,877	(1)	(1)
Dressed meat, purchased.....	\$35,679,430	\$18,977,058	\$21,373,908	Oleo oil:			
Fuel and rent of power.....	\$1,485,207	\$1,465,830	\$729,948	Gallons.....	7,938,568	9,143,055	9,760,701
All other materials.....	\$64,954,717	\$44,409,940	\$33,904,961	Value.....	\$6,694,011	\$4,515,283	\$5,907,573
<b>Products, total value.....</b>	<b>\$389,594,906</b>	<b>\$318,201,253</b>	<b>\$288,871,779</b>	Other oils:			
Beef, fresh:				Gallons.....	4,396,960	986,981	4,385,191
Pounds.....	1,142,920,916	1,376,889,532	1,042,234,306	Value.....	\$2,382,433	\$406,239	\$2,010,394
Value.....	\$85,704,478	\$91,996,834	\$74,321,711	Oleomargarine:			
Beef, salted or cured:				Pounds.....	30,793,365	(1)	(1)
Pounds.....	53,965,719	78,334,416	67,917,743	Value.....	\$4,413,578	(1)	(1)
Value.....	\$4,676,501	\$4,931,741	\$5,066,362	Fertilizers and fertilizer materials:			
Veal, fresh:				Tons.....	102,638	191,549	53,614
Pounds.....	51,359,193	30,348,138	17,673,896	Value.....	\$2,614,087	\$3,741,650	\$1,212,519
Value.....	\$4,781,751	\$2,135,486	\$1,489,318	Hides:			
Mutton, fresh:				Number.....	2,408,757	2,766,594	2,206,337
Pounds.....	157,615,125	160,511,123	148,003,635	Pounds.....	135,617,679	165,007,637	128,702,573
Value.....	\$15,051,397	\$12,453,289	\$11,842,741	Value.....	\$19,372,440	\$16,064,648	\$13,092,590
Pork, fresh:				Pelts:			
Pounds.....	303,896,802	260,619,428	411,376,731	Number.....	3,619,577	3,632,161	(1)
Value.....	\$30,221,023	\$18,754,198	\$28,774,485	Value.....	\$3,890,008	\$2,895,350	(1)
Pork, salted or cured:				Wool:			
Pounds.....	720,216,994	885,740,292	935,621,438	Pounds.....	10,688,105	8,653,419	8,389,307
Value.....	\$73,049,000	\$72,754,024	\$73,361,355	Value.....	\$4,523,534	\$2,385,020	\$1,935,374
Sausage, fresh or cured.....	\$14,883,731	\$8,748,970	\$8,631,356	Amount received for custom or contract work.....	\$83,125	\$20,109	\$7,550
				All other products.....	\$45,757,552	\$27,970,172	\$26,116,008

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

From 1904 to 1909 there was an increase of 257,926, or 7.1 per cent, in the number of sheep slaughtered and of 217,711, or 73.6 per cent, in the number of calves slaughtered, but a decrease of 461,829, or 17.5 per cent, in the number of beeves slaughtered, and of 560,826, or 7.1 per cent, in the number of hogs slaughtered. These decreases were due in a large measure to a movement of the industry toward the stock-raising states of the West and Southwest, or nearer the source of supply.

The total cost of materials shows an increase in 1909 as compared with 1904 of 22.6 per cent, which was practically the same as the relative increase in total value of products.

The output of fresh, salted, and cured beef decreased 258,337,313 pounds, or 17.8 per cent, from 1904 to 1909; that of fresh mutton, 2,895,998 pounds, or 1.8 per cent; and that of fresh and cured pork, 122,245,924 pounds, or 10.7 per cent; while that of fresh veal increased 21,011,055 pounds, or 69.2 per cent, and that of the meats included under the head of "All other meats sold fresh" shows an increase of 136,190,697 pounds, or 241.8 per cent. The production of lard in 1909 was 53,399,609 pounds, or 11.7 per cent, less than in 1904, although its value shows an increase of \$9,128,952, or 29 per cent. The decrease shown in the amount of oleo oil reported in 1909 as compared with 1904 was due to the fact that some slaughtering and meat-packing establishments, instead of selling the oleo oil which they make as a by-product, now use it in the manufacture of oleomargarine. The increase in the quantity of the oils included under the head of "Other oils" results almost entirely from an increase in the output of lard oil.

**Printing and publishing.**—The progress of the newspaper and periodical branch of the printing and publishing industry is indicated in the following statement, which shows the number and aggregate circulation per issue of the different classes of publications for the years 1909, 1904, and 1899:

PERIOD OF ISSUE	NUMBER OF PUBLICATIONS.			AGGREGATE CIRCULATION PER ISSUE.		
	1909	1904	1899	1909	1904	1899
Total.....	1,682	1,753	1,591	20,823,166	16,542,740	10,429,368
Daily.....	194	192	197	2,323,913	1,954,329	1,449,087
Sunday.....	38	40	43	1,616,506	1,442,721	( <sup>1</sup> )
Semiweekly and tri-weekly.....	48	59	70	138,165	177,213	176,058
Weekly.....	1,018	1,089	1,000	5,008,500	4,502,043	3,866,983
Monthly.....	289	287	219	9,492,099	6,344,701	3,072,932
Quarterly.....	50	50	23	1,967,558	1,898,000	1,083,434
All other classes.....	45	36	33	276,335	133,043	180,874

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

Illinois ranks second both in number and in circulation of all classes of publications combined; third in number and in circulation of dailies; second in number and in circulation of Sunday papers; first in number and third in circulation of weeklies; and second in number and circulation of monthlies.

The number of dailies and the number of monthlies both show an increase of 2 in 1909 as compared with 1904, and the number of publications included under the head of "All other classes" an increase of 9. The number of quarterlies was the same in both years, while the other three classes show decreases in number. A substantial increase in circulation, on the other hand, is shown for each class except the semiweeklies and triweeklies, while the aggregate circulation reported for all newspapers and periodicals published increased during this period from 16,542,740 to 20,823,166, a gain of 4,280,426, or 25.9 per cent. The increase in the circulation of the different classes of publications was as follows: Dailies, 369,584, or 18.9 per cent; Sunday publications, 173,785, or 12 per cent; weeklies, 416,547, or 9.1 per cent; monthlies, 3,147,308, or 49.6 per cent; and quarterlies, 69,558, or 3.7 per cent. In number and circulation of publications printed in foreign languages, Illinois is second among the states, being outranked only by New York, and it leads all the states in number and circulation of newspapers and periodicals printed in the Letto-Slavic languages, having 41, with a total circulation of 342,007.

The following tabular statement gives, for 1909 and 1904, the number and circulation of the different classes of newspapers and periodicals printed, respectively, in English and in a foreign language. Newspapers and periodicals which are printed partly in English and partly in a foreign language are included with those printed entirely in a foreign language.

PERIOD OF ISSUE.	CON-SIS.	TOTAL.		IN ENGLISH.		IN FOREIGN LANGUAGES.	
		Number.	Aggregate circulation per issue.	Number.	Aggregate circulation per issue.	Number.	Aggregate circulation per issue.
Total.....	1909	1,682	20,823,166	1,509	19,365,799	173	1,457,367
	1904	1,753	16,542,740	1,604	15,358,385	149	1,184,355
Daily and Sunday.	1909	232	3,940,419	201	3,464,495	31	475,924
	1904	232	3,397,050	201	3,003,160	31	393,890
Semiweekly and triweekly.	1909	48	138,165	34	61,965	14	76,200
	1904	59	177,213	40	123,133	10	54,080
Weekly.....	1909	1,018	5,008,500	923	4,448,973	95	559,617
	1904	1,089	4,502,043	1,008	4,048,729	81	543,314
Monthly.....	1909	289	9,492,099	267	9,239,890	22	252,209
	1904	287	6,344,701	271	6,240,866	16	103,925
Quarterly.....	1909	50	1,967,558	44	1,885,266	6	82,292
	1904	50	1,898,000	47	1,850,800	3	47,200
All other classes.	1909	45	276,335	40	265,210	5	11,125
	1904	36	133,043	28	91,697	8	41,946

The publications in foreign languages increased 24 in number between 1904 and 1909, while their circulation increased 273,012, or 23.1 per cent. The monthlies, which increased 6 in number, made the largest absolute and relative increases in circulation. The languages represented correspond more or less closely to the classes of immigrants that have settled in the North Central states. Sixty-three periodicals were published in German; 11 in German and English; 32 in Scandinavian languages, including 1 in Swedish

and English; 18 in Bohemian; 14 in Polish; 8 in Yiddish; 6 in Italian; 3 in Greek; 2 each in Dutch, French, Lithuanian, Slovenian, and Slovak, and 1 each in Bulgarian, Croatian, Servian, Spanish, Esperanto, Yiddish and English, English, German, and Italian, and English, German, and French.

Publications devoted to news, politics, and family reading formed the largest class, numbering 1,169, with a circulation of 5,893,427. Those devoted to general literature, consisting largely of monthly magazines, numbered 36, and had a circulation of 5,582,991; religious periodicals numbered 123, and had a circulation of 3,869,839; fraternal journals numbered 49, and had a circulation of 2,125,069; agricultural journals, 36, with a circulation of 1,115,493; trade journals, 102, with a circulation of 707,096; and scientific and mechanical journals, 26, with a circulation of 508,037. The remaining publications, relating chiefly to commerce, insurance, medicine and surgery, law, education and history, society, art, music, and fashion, numbered 141, and had an aggregate circulation of 1,021,214.

**Iron and steel, steel works and rolling mills.**—The quantity and cost of the principal materials used by the steel works and rolling mills and the quantity and value of their leading products are shown for 1909, 1904, and 1899 in the following table:

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost.....</b>	\$56,244,463	\$38,640,762	\$30,021,296
<b>Pig iron and ferroalloys:</b>			
Tons.....	2,433,805	1,440,200	1,410,721
Cost.....	\$36,686,448	\$19,282,009	\$14,137,074
<b>Scrap, including old rails not intended for rerolling:<sup>1</sup></b>			
Tons.....	278,874	490,533	461,767
Cost.....	\$3,996,891	\$9,202,392	\$7,312,159
<b>Ingots, blooms, billets, slabs, muck and scrap bar, rerolling rails, and sheet and tin-plate bars:<sup>1</sup></b>			
Tons.....	280,727	220,572	121,301
Cost.....	\$6,357,011	\$5,343,045	\$3,279,125
<b>Fuel and rent of power.....</b>	\$3,598,585	\$3,308,450	\$2,433,156
<b>All other materials.....</b>	5,604,928	4,513,806	2,859,782
<b>Products, total value.....</b>	\$86,808,137	\$60,021,925	\$45,149,498
<b>Rolled, forged, and other classified products:</b>			
Tons.....	2,644,161	1,657,885	1,485,346
Value.....	\$78,841,720	\$52,809,066	\$37,090,574
<b>All other products, including value added to rolled products by further manufacture.....</b>	\$7,766,417	\$7,212,259	\$8,082,924
<i>Steel production.</i>			
<b>Total tons.....</b>	<b>2,667,043</b>	<b>1,555,198</b>	<b>1,460,710</b>
<b>Bessemer.....</b>	1,631,164	1,193,548	1,211,115
<b>Open-hearth.....</b>	1,020,208	361,650	249,313
<b>Crucible and miscellaneous.....</b>	15,671	.....	282
<b>Ingots.....</b>	2,592,430	1,499,160	1,421,687
<b>Castings.....</b>	74,613	56,038	39,023

<sup>1</sup> Purchased, or transferred from other works of the company reporting; not including scrap and partially manufactured material consumed in plant where produced.

In using this table it should be borne in mind that the year 1904 was one of partial depression in the iron and steel industry, and hence neither comparatively small increases in quantity and value for 1904 as compared with 1899 nor comparatively large increases for 1909

as compared with 1904 are representative of the normal rate of growth for the industry.

The total cost of the materials consumed in the steel works and rolling mills of the state increased 87.3 per cent from 1899 to 1909. The principal increase was in the most important group of materials, pig iron and ferroalloys, the tonnage of which increased from 1,410,721 to 2,433,805, or 72.5 per cent, accompanied by an increase from \$14,137,074 to \$36,686,448, or 159.5 per cent, in cost. Ingots, blooms, billets, etc., also show a material increase in both tonnage and cost, while scrap shows a large decrease in both respects.

The total value of products increased 91.8 per cent from 1899 to 1909. The total steel production was 2,667,043 tons in 1909, as compared with 1,460,710 tons in 1899, the increase for the decade being 82.6 per cent. The output of all classes of steel increased between 1899 and 1909, but the actual increase in open-hearth steel was particularly striking. Most of the increased steel production was in the form of ingots, the tonnage of which increased from 1,421,687 in 1899 to 2,592,430 in 1909, or 82.3 per cent, while the tonnage of castings increased from 39,023 to 74,613, or 91.2 per cent, during the same period. The leading rolling-mill products in 1909 in the order of total tonnage were rails, bars and rods, wire rods, structural shapes, plates and sheets, and rail fastenings.

**Iron and steel, blast furnaces.**—The tonnage and value of pig iron produced and the value of all other products in 1909, 1904, and 1899 are shown in the following table:

PRODUCT.	1909	1904	1899
<b>Total value.....</b>	\$38,299,867	\$27,330,836	\$15,153,646
<b>Pig iron:</b>			
Tons.....	2,433,805	1,440,200	1,410,721
Value.....	\$36,686,448	\$19,282,009	\$14,137,074
<b>All other products.....</b>		\$1,822,565	\$119,950
<b>Pig iron, classified by grades (tons):</b>			
Bessemer.....	1,805,718	1,424,030	1,320,287
Basic.....	352,381	52,958	.....
Foundry.....	60,151	105,835	64,008
Forge or mill.....	2,033	1,411	7,500
Malleable Bessemer.....	173,871	31,588	.....
White, mottled, miscellaneous, and direct castings.....	9,803	680	47
Ferroalloys—spiegeleisen, ferromanganese, etc.....	64,125	44,408	47,088

The production of pig iron in the state increased 48.7 per cent in quantity and 50.1 per cent in value from 1904 to 1909, as compared with 13 per cent in quantity and 69.7 per cent in value during the five-year period 1899–1904. Bessemer pig iron formed only 73.1 per cent of the total production in 1909, whereas in 1904 and in 1899 it formed over 85 per cent. All the pig iron produced in Illinois was coke iron. The establishments operating the blast furnaces produced in 1909, 2,152,608 tons for their own use and 316,164 tons for sale.

**Agricultural implements.**—The following table shows the value of the different classes of agricultural implements manufactured in Illinois in 1909 and 1904 and the total value of products for 1899:

PRODUCT.	1909	1904	1899
<b>Total value</b> .....	\$57,268,325	\$38,412,452	\$42,033,796
Implements of cultivation.....	14,422,970	12,273,939	41,359,000
Seeders and planters.....	5,680,681	2,998,075	
Harvesting implements.....	22,417,070	16,874,413	
Seed separators.....	1,847,026	915,095	
All other products.....	12,528,685	5,167,368	674,790
Amount received for repair work.....	371,893	183,562	

The value of agricultural implements manufactured was \$57,268,325 in 1909, as compared with \$38,412,452 in 1904, an increase for the five years of \$18,855,873, or 49.1 per cent. The production in 1904, however, was abnormally low, owing to an overproduction in 1903, and a comparison of the figures for 1909 with those for 1899, therefore, better indicates the true growth of the industry. Such a comparison shows an increase in value of products for the decade of \$15,234,529, or 36.2 per cent. In both 1909 and 1904 harvesting implements constituted the most important class of products, as measured by value.

**Flour-mill and gristmill products.**—The manufacture of flour-mill and gristmill products has long been one of the leading industries of Illinois. The following tabular statement gives the quantity and value of the products for 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
<b>Total value</b> .....	\$51,110,681	\$39,892,127	\$28,575,357
Wheat flour:			
White—			
Barrels.....	6,360,318	5,930,383	5,932,815
Value.....	\$33,858,081	\$27,542,880	\$20,320,387
Graham—			
Barrels.....	26,220	15,207	( <sup>1</sup> )
Value.....	\$134,413	\$76,521	( <sup>1</sup> )
Corn meal and corn flour:			
Barrels.....	738,864	1,008,280	1,580,178
Value.....	\$2,168,824	\$2,319,104	\$2,361,040
Rye flour:			
Barrels.....	116,925	77,309	50,043
Value.....	\$530,732	\$279,992	\$175,246
Buckwheat flour:			
Pounds.....	1,802,689	2,055,372	3,090,578
Value.....	\$54,842	\$62,210	\$100,652
Barley meal:			
Pounds.....	110,400	1,272,000	1,322,000
Value.....	\$1,500	\$20,220	\$15,792
Hominy and grits:			
Pounds.....	221,177,853	239,728,150	33,701,026
Value.....	\$3,224,171	\$2,551,096	\$263,059
Feed:			
Tons.....	250,543	147,419	204,089
Value.....	\$6,256,207	\$2,636,807	\$2,897,455
Offal:			
Tons.....	216,309	258,992	203,099
Value.....	\$4,510,073	\$4,344,053	\$2,320,450
All other products.....	\$362,778	\$58,554	\$111,376

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

White flour, which is the leading product of the industry in the state, shows an increase between 1904 and 1909 of 420,935 barrels, or 7.1 per cent, in quantity, and of \$6,315,201, or 22.9 per cent, in value, while the output of feed, the second product in importance on the basis of value, increased 112,124 tons, or

76.1 per cent, in quantity, and \$3,619,310, or 137.3 per cent, in value. The output of hominy and grits shows an increase of \$673,075, or 26.4 per cent, in value in 1909 as compared with 1904, but a decrease of 18,550,303 pounds, or 7.7 per cent, in quantity, and that of offal, which consists mainly of bran and middlings, the by-products of the flour mills, an increase of \$165,420, or 3.8 per cent, in value, but a decrease of 42,683 tons, or 16.5 per cent, in quantity. The output of corn meal and corn flour decreased 329,422 barrels, or 30.8 per cent, in quantity, and \$150,280, or 6.5 per cent, in value. The value of products for the industry as a whole shows an increase from \$39,892,127 in 1904 to \$51,110,681 in 1909, or 28.1 per cent.

The following tabular statement classifies the flour mills reported in 1909 and 1904 according to their output for the year:

OUTPUT.	NUMBER OF MILLS.	
	1909	1904
<b>All classes</b> .....	309	302
Less than 1,000 barrels.....	88	48
1,000 barrels but less than 5,000.....	80	106
5,000 barrels but less than 20,000.....	76	89
20,000 barrels but less than 100,000.....	47	47
100,000 barrels and over.....	12	12

The flour mills and gristmills of the state reported in 1909, 3,477 pairs of rolls as compared with 4,008 pairs in 1904 and 3,008 pairs in 1899, and 416 runs of stone and steel burrs, as against 296 in 1904 and 307 in 1899. Fifty-nine establishments manufactured the barrels in which to ship their product in 1909, and 3 manufactured sacks.

**Soap.**—In the next table the quantity and cost of the principal materials used in making soap and the quantity and value of the chief products are shown.

The quantity of tallow, grease, and other fats used shows a decrease in 1909 as compared with 1904 of 31.1 per cent; that of cottonseed oil, a decrease of 81.3 per cent; and that of caustic soda, a decrease of 21.2 per cent. On the other hand, the quantity of coconut and palm-kernel oil used increased 108.3 per cent; that of foots, 60.1 per cent; and that of soda ash, 61 per cent. The materials included under the head of "All other materials" show an increase of \$5,719,088, or 376.1 per cent, in cost, due largely to the fact that under this head are included the cost of the principal materials used in the manufacture of cottolene, of which a considerable amount was produced in Illinois as a secondary product in 1909 by establishments classified as engaged in the soap industry.

The output of hard soaps, which constitute the most important class of products of the industry, was 55,646,050 pounds, or 28.1 per cent, greater in 1909 than in 1904. Of the total increase of \$6,024,091, or 42.6 per cent, in the value of products for the industry, a little more than two-thirds represented the increase in

the value of hard soaps produced. The quantity of soft soap manufactured in 1909 was more than thirteen times that reported for 1904 and its value more than five times that reported for the earlier year. The quantity of glycerin manufactured in 1909 was nearly double that made in 1904, and its value shows an increase of 130.8 per cent.

MATERIAL OR PRODUCT.	1909	1904
<b>Materials used, total cost.....</b>	<b>\$13,948,160</b>	<b>\$9,345,061</b>
Tallow, grease, and other fats:		
Pounds.....	54,540,522	79,134,570
Cost.....	\$3,225,011	\$3,573,202
Cocconut and palm-kernel oil:		
Gallons.....	2,174,700	1,043,976
Cost.....	\$1,034,613	\$438,644
Cottonseed oil:		
Gallons.....	1,505,800	8,356,680
Cost.....	\$570,024	\$2,515,047
Resin:		
Pounds.....	18,272,898	18,667,593
Cost.....	\$423,329	\$303,456
Roots:		
Pounds.....	21,403,551	13,367,007
Cost.....	\$511,907	\$256,008
Caustic soda:		
Tons.....	8,022	10,186
Cost.....	\$335,312	\$304,256
Soda ash:		
Tons.....	15,640	9,715
Cost.....	\$238,647	\$148,109
Fuel and rent of power.....	\$262,310	\$225,460
All other materials.....	\$7,230,898	\$1,520,810
<b>Products, total value.....</b>	<b>\$20,180,799</b>	<b>\$14,156,708</b>
Hard soaps:		
Pounds.....	253,629,401	197,983,351
Value.....	\$13,050,220	\$8,071,921
Soft soap:		
Pounds.....	7,554,416	507,153
Value.....	\$200,521	\$39,433
Glycerin:		
Pounds.....	6,768,939	3,721,009
Value.....	\$876,871	\$379,363
All other products <sup>1</sup> .....	\$0,053,187	\$5,065,491

<sup>1</sup> Includes liquid soap, special soap articles, and cottolene in 1909.

**Musical instruments, pianos and organs and materials.**—The following table gives the number and value of the principal products reported by the piano and organ industry for 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
<b>Total value.....</b>	<b>\$19,176,328</b>	<b>\$13,323,358</b>	<b>\$8,251,930</b>
Pianos:			
Number.....	108,283	74,137	40,134
Value.....	\$14,783,394	\$9,606,142	\$5,091,747
Upright—			
Number.....	107,903	73,899	46,024
Value.....	\$14,646,471	\$9,614,431	\$5,043,287
Without player attachments—			
Number.....	103,433	73,874	46,024
Value.....	\$13,226,311	\$9,606,681	\$5,043,287
For or with player attachments—			
Number.....	4,470	25	.....
Value.....	\$1,419,900	\$8,750	.....
Grand—			
Number.....	380	238	110
Value.....	\$130,923	\$81,711	\$48,400
Player attachments made separate from pianos:			
Number.....	464	2,647	.....
Value.....	\$34,908	\$227,837	.....
Organs:			
Number.....	28,798	55,759	52,394
Value.....	\$1,281,415	\$1,969,543	\$1,773,200
Pipe—			
Number.....	154	140	87
Value.....	\$307,632	\$230,323	\$105,157
Reed—			
Number.....	28,644	55,019	52,307
Value.....	\$973,783	\$1,739,220	\$1,608,043
Parts and materials.....	\$2,785,667	\$858,111	(1)
All other products.....	\$290,944	\$571,875	\$736,983

<sup>1</sup> Included with "All other products."

Increases occurred during the decade in both the number and the value of all kinds of pianos and organs

manufactured except reed organs, which show decreases in both respects from 1904 to 1909. The player pianos, which increased in number from 25 in 1904 to 4,470 in 1909, are now being manufactured in far greater number than the detached piano players, which decreased in number from 2,647 in 1904 to 464 in 1909. The number of upright pianos manufactured without the player attachment was 73,874 in 1904 and 103,433 in 1909, an increase of 29,559, or 40 per cent, while the value of the output increased 37.7 per cent during this interval. From 1904 to 1909 the number of grand pianos manufactured increased from 238 to 380 and the number of pipe organs from 140 to 154.

**Butter, cheese, and condensed milk.**—The butter, cheese, and condensed-milk industry, although showing a decrease since 1904 of 110, or 27.2 per cent, in the number of establishments, shows an increase of \$4,521,745, or 34.1 per cent, in the total value of products. In Illinois, as in most other states where dairying is carried on extensively, the total amount of milk used in this industry has decreased and the total amount of cream has increased. This is due to the fact that a large part of the cream used is now separated on the farms instead of at the factories, and only the cream is sold, instead of the whole milk, as formerly. This decrease in the amount of milk bought by the butter factories has been counteracted to some extent by the rapid growth in the demand on the part of the condensed-milk factories, which necessarily use whole milk. The net result has been a decrease of 12.7 per cent in the amount of milk bought.

The following table gives in detail the quantity and value of the products of the industry for 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
<b>Total value.....</b>	<b>\$17,798,278</b>	<b>\$13,276,533</b>	<b>\$12,879,299</b>
Butter:			
Packed solid—			
Pounds.....	14,707,503	20,466,655	30,234,587
Value.....	\$4,215,191	\$4,290,377	\$6,108,308
Prints or rolls—			
Pounds.....	9,803,473	6,873,270	3,816,725
Value.....	\$2,873,223	\$1,459,935	\$782,755
Cream sold:			
Pounds.....	11,496,133	2,102,048	9,531,000
Value.....	\$1,274,796	\$179,071	\$609,185
All other butter-factory products <sup>1</sup> .....	\$257,711	\$230,508	\$301,103
Cheese:			
Full cream—			
Pounds.....	2,919,897	.....	.....
Value.....	\$398,397	.....	.....
Part cream—			
Pounds.....	561,028	5,301,211	9,055,119
Value.....	\$68,005	\$420,026	\$626,934
Other kinds—			
Pounds.....	1,313,310	.....	.....
Value.....	\$64,084	.....	.....
All other cheese-factory products.....	\$0,801	\$3,161	\$16,097
Condensed milk:			
Sweetened—			
Pounds.....	48,240,252	47,511,291	.....
Value.....	\$4,468,085	\$3,410,927	71,257,449
Unsweetened—			
Pounds.....	66,260,496	45,913,761	34,303,597
Value.....	\$3,969,542	\$3,257,807	.....
All other condensed-milk factory products.....	\$134,242	.....	\$10,700
All other products.....	\$78,201	\$12,661	.....

<sup>1</sup> Includes skimmed milk sold and casein.



The quantity of butter produced in factories has shown a marked decrease at each of the last two censuses. In 1899 the quantity produced was 34,055,312 pounds, but by 1909 it had decreased to 24,570,976 pounds, a loss of 9,484,336 pounds, or 27.8 per cent. The value of the output, on the other hand, although it decreased a little between 1899 and 1904, increased during the next five-year period. In 1899 the total value was \$6,891,033, but in 1909 it was \$7,088,414, an increase of \$197,381, or 2.9 per cent, for the decade as a whole. A decrease of 27.8 per cent in quantity has thus been accompanied by an increase of 2.9 per cent in value.

The total value of the cheese-factory products decreased from \$643,681 in 1899 to \$429,187 in 1904 and increased during the following five years to \$527,287. The total output of all kinds of cheese in 1909 amounted to 4,799,235 pounds, representing a decrease of 47 per cent as compared with 1899, when it was 9,055,119 pounds.

There were 15 condensed-milk factories in Illinois in 1904 and 27 in 1909. In 1909 the total value of the condensed-milk product, including both sweetened and unsweetened, formed 48.2 per cent of the state total for the combined industry. For both kinds of condensed milk combined there was an increase from 1899 to 1904 of 31.1 per cent in quantity and of 55.1 per cent in value, while the corresponding gains for the five-year period 1904-1909 were 22.6 per cent and 26.4 per cent, respectively.

**Boots and shoes, including cut stock and findings.**—The following table shows the number of pairs of the various kinds of footwear manufactured in Illinois during 1909, 1904, and 1899:

KIND.	NUMBER OF PAIRS.		
	1909	1904	1899
Boots and shoes.....	6,893,731	5,736,197	5,609,470
Men's.....	4,018,016	3,403,185	2,075,057
Boys' and youths'.....	1,270,520	691,165	410,839
Women's.....	1,034,470	887,707	1,552,473
Misses' and children's.....	570,725	604,140	721,207
Slippers.....	274,697	201,265	213,126
Men's, boys, and youths'.....	112,900	43,069	45,420
Women's, misses, and children's.....	161,797	218,160	167,700
Infants' shoes and slippers.....	1,002,277	( <sup>1</sup> )	( <sup>1</sup> )
All other kinds.....	125,100	140,000	170,380

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

The number of pairs of boots and shoes manufactured increased 1,157,534, or 20.2 per cent, between 1904 and 1909, and the number of pairs of slippers, exclusive of infants' slippers, increased 13,432, or 5.1 per cent. Increases in the production of men's and of boys' and youths' boots and shoes are shown for both five-year periods, while decreases are shown for the two five-year periods in the output of misses' and children's boots and shoes. A decrease in the output of women's boots and shoes occurred between 1899 and 1904, but an increase took place between 1904 and 1909. In the latter period there was a decrease of 56,369 pairs, or 25.8 per cent, in the production of women's, misses', and children's slippers, but an

increase of 69,801 pairs, or 162 per cent, in the production of men's, boys', and youths' slippers.

The following table classifies the number of pairs of the various kinds of footwear produced in 1909 according to the method of manufacture:

KIND.	NUMBER OF PAIRS, BY METHOD OF MANUFACTURE 1909.			
	Total.	Machine or hand welt.	McKay.	All other methods. <sup>1</sup>
Boots and shoes.....	6,893,731	3,310,544	3,174,420	408,767
Men's.....	4,018,016	3,127,767	630,755	259,494
Boys' and youths'.....	1,270,520	( <sup>2</sup> )	1,170,688	99,832
Women's, misses', and children's.....	1,605,195	182,777	1,372,977	49,441
Slippers, all kinds.....	274,697	45,540	211,722	17,435
Infants' shoes and slippers.....	1,002,277	448,338	( <sup>2</sup> )	553,939
All other kinds.....	125,100	( <sup>2</sup> )	( <sup>2</sup> )	125,100

<sup>1</sup> Includes wire-screw or metal-fastened, turned, and wooden-pegged.  
<sup>2</sup> Included in "All other methods."

Of the total output of boots and shoes, nearly one-half were made by the machine or hand-welt process and a slightly smaller proportion by the McKay process, the remainder being turned, wooden-pegged, or wire-screw or metal-fastened. The greater part of the men's boots and shoes (77.8 per cent) were made by the machine or hand-welt method, while most of the boys' and youths' boots and shoes (92.1 per cent) and the greater part of the women's, misses', and children's boots and shoes (85.5 per cent) were made by the McKay process.

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

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost.....</b>	<b>\$12,130,609</b>	<b>\$8,173,788</b>	<b>\$5,784,474</b>
Hides, all kinds:			
Number.....	1,003,928	707,441	748,978
Cost.....	\$3,859,429	\$2,537,379	\$2,204,141
Skins:			
Number.....	4,052,358	4,406,850	2,775,071
Cost.....	\$6,801,454	\$4,571,703	\$2,642,313
Calf and kip—			
Number.....	3,005,616	2,291,540	1,478,832
Cost.....	\$5,532,850	\$3,378,163	\$2,073,504
Sheep—			
Number.....	1,562,628	2,095,943	1,293,323
Cost.....	\$922,466	\$1,075,737	\$560,604
All other—			
Number.....	2,381,114	130,367	33,706
Cost.....	\$436,138	\$117,873	\$11,785
Fuel and rent of power.....	\$151,707	\$76,064	\$73,730
All other materials.....	\$1,223,010	\$987,982	\$774,284
<b>Products, total value.....</b>	<b>\$14,911,782</b>	<b>\$10,758,196</b>	<b>\$7,847,835</b>
Leather:			
Sole, hemlock and chrome—			
Soles.....	109,266	103,198	68,324
Value.....	\$490,442	\$460,000	\$310,290
Upper, other than calf or kip skins—			
Grain, satin, pebble, etc.—			
Soles.....	932,482	304,050	932,180
Value.....	\$3,058,427	\$828,030	\$1,318,540
Finished splits—			
Number.....	613,045	100,800	974,992
Value.....	\$414,160	\$123,000	\$487,675
Horsehides—			
Number.....	101,875	134,893	100,000
Value.....	\$356,700	\$617,604	\$385,000
Calf and kip skins, tanned and finished—			
Number.....	2,920,624	2,293,950	1,455,154
Value.....	\$7,071,221	\$4,741,324	\$3,034,307
Sheepskins—			
Number.....	1,142,069	1,096,713	1,293,323
Value.....	\$716,005	\$964,099	\$540,193
Glove.....	\$586,823	\$707,419	\$185,450
All other.....	\$1,039,736	\$1,564,208	\$1,067,949
All other products.....	\$577,608	\$752,482	\$518,350

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

<sup>2</sup> Includes horsehides.

This table shows an increase of 48.4 per cent from 1904 to 1909 in the total cost of materials used, as compared with an increase of 41.3 per cent from 1899 to 1904. There was a decrease during each of the five-year periods in the number of hides used, but an increase in their total cost. Large increases are shown for both five-year periods in the number and cost of calf and kip skins treated, while for sheepskins increases are shown for the earlier period only, although both the number and the value of the sheepskins used in 1909 were materially larger than in 1899.

The total value of products increased 38.6 per cent from 1904 to 1909 and 37.1 per cent from 1899 to 1904. Tanned and finished calf and kip skins were the leading products, on the basis of value, at each census, contributing 47.4 per cent of the total value of all the products of the industry in 1909. The value of grain, satin, pebble, and similar upper leathers, the class of products second in importance in this respect, formed only 20.5 per cent of the total value of products in 1909. The relative increase in value from 1904 to 1909 was greater for leather of this class, however, than for any other, amounting to 269.3 per cent. The output shows an increase of 155.5 per cent in 1909 as compared with 1904, although practically the same as in 1899. The greatest relative increase in output for the five-year period 1904-1909 (281.2 per cent), was reported for finished splits of upper leather, which, however, show a decrease of 37.1 per cent in 1909 as compared with 1899. Sheepskins and horsehides increased in number and value from 1899 to 1904 and decreased in both respects from 1904 to 1909, the output of sheepskins in 1909 being somewhat less than in 1899, while that of horsehides was slightly greater.

**Laundries.**—Statistics for steam laundries are not included in the general tables or in the totals for manufacturing industries. There were 448 such establishments in the state of Illinois, 226 of which were in Chicago, 8 in Rockford, 7 each in Evanston and Peoria, 6 in Decatur and Springfield, and 5 each in Aurora, Moline, Quincy, and Rock Island. No other incorporated place of 10,000 inhabitants or over had as many as 5 steam laundries. The following statement summarizes the statistics:

Number of establishments.....	448
Persons engaged in the industry.....	10,916
Proprietors and firm members.....	470
Salaried employees.....	741
Wage earners (average number).....	9,705
Primary horsepower.....	10,780
Capital.....	\$5,540,003
Expenses.....	8,239,441
Services.....	5,035,652
Materials.....	1,721,845
Miscellaneous.....	1,481,944
Amount received for work done.....	10,049,445

Of the total number of wage earners in the industry 6,601, or 68 per cent, and of the total amount received for work done in the state, \$7,108,126, or 70.7 per cent,

were reported from Chicago. The most common form of ownership was the individual, with 250 establishments. The firm and the corporate forms of ownership were represented by 100 and 98 establishments, respectively. Ninety-nine establishments had receipts for the year's business of less than \$5,000; 209, receipts of \$5,000 but less than \$20,000; 130, receipts of \$20,000 but less than \$100,000; and 10, receipts of \$100,000 but less than \$1,000,000.

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

MONTH.	WAGE EARNERS.		MONTH.	WAGE EARNERS.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	9,288	91.6	July.....	10,042	99.0
February.....	9,369	92.4	August.....	10,141	100.0
March.....	9,425	92.9	September.....	10,008	98.7
April.....	9,522	93.9	October.....	9,718	95.8
May.....	9,741	96.1	November.....	9,657	95.2
June.....	9,802	97.2	December.....	9,686	95.3

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.	Horse-power.
<b>Primary power, total.....</b>		<b>10,760</b>
<b>Owued:</b>		
Steam.....	304	9,494
Gas.....	23	171
Water wheel.....	1	15
<b>Rented:</b>		
Electric.....	271	1,044
Other.....		56

The kind and quantity of fuel used are shown in the following statement:

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	12,854
Bituminous coal.....	Tons.....	126,068
Coke.....	Tons.....	551
Wood.....	Cords.....	89
Oil.....	Barrels.....	2,172
Gas.....	1,000 feet.....	47,659

**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.....	123	157
Persons engaged in the industry.....	305	311
Proprietors and firm members.....	149	206
Salaried employees.....		4
Wage earners (average number).....	156	101
Primary horsepower.....	2,244	5,577
Capital.....	\$139,731	\$628,452
Expenses.....	48,100	2,125,590
Services.....	38,784	42,296
Materials.....	2,699	1,2,042,592
Miscellaneous.....	6,707	20,762
Value of products.....	117,443	1,2,340,542

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

MANUFACTURES—ILLINOIS.

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

THE STATE—ALL INDUSTRIES COMBINED AND SELECTED INDUSTRIES.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
<b>STATE—All industries.....</b>	1909	18,028	561,044	17,357	77,923	465,704	1,013,071	\$1,548,171	\$81,449	\$273,319	\$1,160,927	\$1,019,277	\$758,350
	1904	14,921	447,947	13,990	54,521	379,436	741,555	975,846	60,560	208,405	840,057	1,410,342	670,285
	1899	14,374	.....	.....	40,964	332,871	569,347	732,830	40,549	159,104	681,450	1,120,868	439,418
Agricultural implements.....	1909	79	21,511	48	2,223	19,240	38,040	110,605	2,033	11,718	24,824	57,208	32,444
	1904	82	17,331	43	1,029	15,359	34,934	71,383	2,152	8,851	17,761	38,412	20,601
	1899	94	22,731	56	4,444	18,231	30,161	92,202	3,420	9,065	18,860	42,034	23,174
Artificial stone.....	1909	306	1,312	473	54	785	1,111	1,230	30	439	577	1,488	911
	1904	27	142	34	17	91	32	121	11	52	53	168	105
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Automobiles, including bodies and parts.....	1909	65	2,804	41	381	2,382	1,786	4,084	426	1,053	3,979	7,154	3,175
	1904	12	192	8	17	167	136	401	28	107	112	357	245
	1899	4	.....	.....	30	303	.....	975	28	218	292	748	450
Babbitt metal and solder.....	1909	19	201	6	102	183	988	1,410	161	109	3,374	4,146	772
	1904	12	200	4	54	142	427	971	61	70	1,910	2,500	584
	1899	9	177	2	40	135	.....	558	58	68	1,262	1,521	259
Bags, other than paper.....	1909	6	213	4	20	189	157	576	24	175	685	965	280
	1904	4	150	2	21	127	112	104	21	47	642	809	167
	1899	4	127	4	17	106	.....	94	11	36	369	547	178
Baking powders and yeast.....	1909	24	1,133	11	465	657	1,189	6,115	509	346	3,261	7,632	4,371
	1904	22	971	21	192	758	1,057	3,808	248	349	1,787	4,541	2,754
	1899	17	612	11	154	447	.....	1,170	229	155	1,288	3,347	2,059
Belting and hose, leather.....	1909	11	403	9	161	233	430	1,279	183	105	1,385	2,188	893
	1904	10	226	6	63	157	212	833	82	96	617	1,055	438
	1899	8	326	2	93	231	.....	640	71	108	893	1,361	468
Bicycles, motorcycles, and parts.....	1909	14	1,005	8	87	910	775	1,270	78	600	973	1,777	894
	1904	13	1,057	6	82	969	2,234	1,030	82	594	513	1,101	648
	1899	60	5,061	31	642	4,388	.....	7,095	522	2,145	4,837	8,969	4,123
Blackening and cleansing and polishing preparations.....	1909	58	407	50	121	230	336	517	153	123	569	1,230	661
	1904	38	257	33	49	175	63	219	40	60	358	661	303
	1899	37	203	37	45	121	.....	144	46	43	195	508	313
Boots and shoes, including cut stock and findings.....	1909	53	6,392	38	562	5,792	2,770	7,570	700	3,143	10,869	16,755	5,880
	1904	52	4,587	41	297	4,249	1,977	3,945	336	1,991	6,415	9,993	3,578
	1899	43	.....	.....	304	4,790	.....	3,558	347	2,095	7,160	10,499	3,339
Boxes, cigar.....	1909	18	463	17	42	404	296	358	51	158	317	664	347
	1904	17	406	21	20	416	183	253	30	151	252	575	323
	1899	17	398	17	20	352	.....	187	20	111	221	470	249
Boxes, fancy and paper.....	1909	61	4,509	31	393	4,085	4,143	3,813	444	1,501	3,012	6,350	3,338
	1904	50	2,946	35	211	2,700	2,649	2,102	241	954	1,684	3,686	2,002
	1899	44	2,673	35	101	2,477	.....	1,495	100	798	1,453	2,991	1,538
Brass and bronze products.....	1909	79	2,052	56	308	1,088	1,859	4,056	426	1,136	4,148	6,842	2,694
	1904	58	1,932	40	281	1,605	1,231	3,430	289	910	2,372	4,751	2,370
	1899	53	1,436	44	129	1,263	.....	1,472	149	617	1,948	3,270	1,328
Bread and other bakery products.....	1909	2,009	12,566	2,409	1,546	8,611	5,618	24,224	1,347	5,495	21,000	36,118	14,512
	1904	1,406	9,632	1,512	705	7,415	3,795	13,515	591	4,115	14,270	20,145	11,806
	1899	1,064	7,703	1,167	987	5,569	.....	7,294	700	2,597	8,193	15,879	7,686
Brick and tile.....	1909	340	7,347	384	389	6,574	36,013	18,495	406	4,380	2,491	9,705	7,274
	1904	435	6,275	509	303	5,463	28,059	12,088	350	3,052	1,705	7,546	5,841
	1899	566	6,120	688	208	5,224	23,876	9,199	218	2,131	1,026	5,081	4,055
Brooms and brushes.....	1909	119	1,074	124	130	820	503	1,220	137	415	1,389	2,430	1,041
	1904	129	908	129	98	711	621	631	67	334	868	1,687	819
	1899	156	958	162	76	720	.....	501	67	324	711	1,453	742
Butter, cheese, and condensed milk.....	1909	295	3,000	896	372	1,732	6,753	7,820	308	942	14,267	17,798	8,531
	1904	405	2,302	272	295	1,735	6,350	5,322	154	820	10,700	13,277	2,568
	1899	527	2,097	394	220	1,483	.....	4,466	136	697	10,199	12,879	2,680
Buttons.....	1909	28	623	39	36	548	275	262	31	247	297	676	439
	1904	22	330	30	20	280	220	164	11	102	71	251	180
	1899	14	301	15	14	272	.....	53	8	101	66	242	176
Canning and preserving.....	1909	118	2,800	113	304	2,383	4,305	5,030	367	904	4,813	7,620	2,807
	1904	125	2,533	106	221	2,146	2,630	4,007	225	827	4,316	7,044	2,728
	1899	122	.....	.....	313	2,121	.....	2,470	202	641	3,750	5,804	2,114
Carriages and wagons and materials.....	1909	325	6,746	349	545	5,852	9,684	17,859	644	3,588	9,479	16,831	7,352
	1904	324	5,981	361	465	5,155	7,238	12,005	534	2,778	5,746	11,392	5,646
	1899	361	.....	.....	345	4,345	.....	8,880	350	2,114	4,353	9,002	4,049
Cars and general shop construction and repairs by steam-railroad companies.....	1909	73	24,406	.....	1,275	23,131	20,740	13,722	1,295	15,288	15,233	32,229	16,909
	1904	99	20,232	.....	1,137	19,095	15,733	13,242	1,062	12,105	12,208	25,491	13,223
	1899	98	14,421	.....	618	13,803	6,979	11,726	569	7,423	8,287	16,580	8,293
Cars and general shop construction and repairs by street-railroad companies.....	1909	30	2,364	.....	124	2,240	2,225	3,886	123	1,395	1,807	3,451	1,644
	1904	30	1,935	.....	29	1,006	412	1,082	31	654	418	1,143	725
	1899	12	914	.....	29	885	.....	736	32	599	532	1,116	584
Cars, steam-railroad, not including operations of railroad companies.....	1909	28	11,782	.....	835	10,945	18,651	37,935	1,002	7,824	15,336	27,001	11,005
	1904	16	9,666	.....	623	9,036	14,830	15,467	719	5,931	21,173	39,926	9,753
	1899	17	9,693	.....	279	9,314	.....	18,732	330	5,361	17,075	24,846	7,771

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

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

## MANUFACTURES—ILLINOIS.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
STATE—Continued.													
Cement.....	1909	6	1,536		141	1,395	15,270	\$6,637	\$266	\$855	\$1,019	\$4,088	\$2,469
	1904	6	607		67	540	6,100	2,455	102	328	460	1,178	718
	1899												
Chemicals.....	1909	19	972	2	134	836	5,907	4,639	181	531	2,896	4,656	1,760
	1904	14	846	2	123	721	2,874	4,280	186	302	1,355	2,283	628
	1899	26	688	13	96	579	1,461	2,384	119	309	1,170	2,083	910
Clocks and watches, including cases and materials.	1909	19	5,883	9	209	5,665	2,578	12,412	306	3,217	1,088	7,045	5,357
	1904	12	4,240	8	161	4,071	1,232	8,639	247	2,357	906	4,999	4,003
	1899	17	3,400	14	116	3,270		7,285	115	1,691	706	2,811	2,105
Clothing, men's, including shirts.....	1909	715	41,122	861	4,109	30,152	3,729	38,763	4,494	16,580	45,228	89,473	44,245
	1904	624	25,063	746	2,962	21,355	2,176	19,724	3,138	10,215	28,026	57,002	28,976
	1899	638			1,837	16,857		14,417	1,943	6,427	19,386	39,685	20,299
Clothing, women's.....	1909	221	7,279	267	861	6,151	804	5,567	987	3,152	9,214	16,635	7,421
	1904	191	5,064	256	718	4,690	721	3,558	717	2,198	6,333	12,237	5,904
	1899	169	5,179	218	559	4,402		2,946	603	1,492	5,019	9,775	4,756
Coffee and spice, roasting and grinding..	1909	35	1,792	23	751	1,018	2,709	8,752	1,080	525	15,114	19,751	4,637
	1904	25	1,361	22	386	953	2,010	6,488	473	432	12,483	15,745	3,262
	1899	27	1,484	19	535	930		5,225	564	373	10,007	12,708	2,701
Coffins, burial cases, and undertakers' goods.	1909	21	924	10	182	732	1,071	2,089	305	406	982	2,260	1,278
	1904	18	819	11	132	676	1,102	1,404	150	345	929	1,867	938
	1899	13	575	10	72	493		1,081	79	242	725	1,242	517
Confectionery.....	1909	140	4,622	112	711	3,799	3,417	6,094	771	1,429	7,665	12,708	5,133
	1904	87	4,115	67	461	3,687	3,623	3,704	425	1,179	4,202	7,646	3,444
	1899	64			447	3,079		2,253	348	835	3,763	6,461	2,698
Cooperage and wooden goods, not elsewhere specified.	1909	80	2,017	56	173	2,388	5,247	4,453	240	1,127	4,479	6,611	2,132
	1904	110	2,845	110	108	2,567	4,072	3,830	208	1,170	4,782	7,088	2,390
	1899	147	3,288	146	123	3,019		2,942	129	1,295	3,890	6,181	2,291
Copper, tin, and sheet-iron products....	1909	483	8,897	508	916	7,473	5,510	31,018	1,088	4,315	13,193	22,823	9,630
	1904	288	6,472	305	522	5,645	3,080	27,378	767	2,958	8,795	15,385	6,500
	1899	282			310	4,541		5,498	328	2,145	6,191	10,598	4,467
Corsets.....	1909	16	1,663	6	155	1,502	541	1,306	210	525	1,195	2,711	1,516
	1904	15	1,011	14	30	961	387	579	36	331	561	1,237	676
	1899	18	1,103	20	48	1,095		532	35	274	403	1,005	542
Cotton goods, including cotton small wares.	1909	5	1,397		78	1,319	2,020	1,979	105	522	1,102	2,111	1,009
	1904	3	548	2	25	521	1,666	1,800	27	187	295	613	318
	1899												
Cutlery and tools, not elsewhere specified.	1909	80	1,661	63	205	1,393	2,385	2,455	276	760	1,072	2,758	1,686
	1904	59	1,036	56	85	895	1,340	1,445	87	416	565	1,615	956
	1899	39	400	37	58	305		742	29	160	156	589	433
Dairymen's, poulterers', and apiarists' supplies.	1909	29	427	30	74	323	664	859	59	178	575	1,181	606
	1904	24	450	22	78	359	578	571	53	152	561	1,131	570
	1899												
Electrical machinery, apparatus, and supplies.	1909	143	11,854	55	2,158	9,641	11,636	24,202	2,124	6,413	13,628	26,826	13,198
	1904	104	7,898	46	1,631	6,131	6,253	21,645	1,407	3,203	7,649	16,790	9,051
	1899	82	7,251	61	1,142	6,048	6,274	11,641	638	2,818	4,676	12,169	7,493
Electroplating.....	1909	43	457	49	33	375	703	290	31	245	226	697	471
	1904	26	324	29	23	272	281	158	20	155	124	425	301
	1899	30			19	320		87	20	140	56	317	261
Explosives.....	1909	8	327		37	290	1,828	1,562	44	100	935	1,469	534
	1904	5	174		32	142	1,383	775	56	83	412	712	300
	1899	3	85		14	71		494	14	32	144	290	146
Fancy articles, not elsewhere specified..	1909	44	613	32	137	444	230	659	140	222	574	1,320	740
	1904	39	934	29	120	785	286	718	137	334	658	1,674	1,016
	1899	44			96	468		370	67	175	425	908	483
Flags, banners, regalia, society badges and emblems.	1909	24	376	18	65	293	57	383	58	112	313	676	363
	1904	27	359	23	55	281	51	275	45	102	241	563	322
	1899	12			27	178		128	23	66	141	290	149
Flour-mill and gristmill products.....	1909	461	3,634	544	626	2,404	38,472	18,454	805	1,271	45,590	51,111	5,521
	1904	363	3,287	412	405	2,410	38,158	14,128	509	1,211	34,030	39,892	4,962
	1899	353			356	1,966		10,714	356	1,030	24,937	28,575	3,638
Foundry and machine-shop products...	1909	1,178	61,303	700	8,337	52,266	92,831	143,277	10,721	33,157	63,810	138,570	74,769
	1904	947	48,912	639	5,644	42,629	55,903	95,618	7,035	25,425	39,761	94,017	55,156
	1899	949			3,777	39,536		64,051	4,304	20,877	38,325	81,987	43,662
Fur goods.....	1909	63	473	63	91	319	59	972	109	230	1,071	1,929	858
	1904	36	410	40	44	326	27	522	68	200	819	1,432	613
	1899	34			82	711		756	77	325	1,261	2,331	1,070
Furnishing goods, men's.....	1909	61	3,116	60	368	2,688	796	2,881	427	1,015	4,573	7,213	2,640
	1904	36	1,938	45	246	1,647	277	1,819	179	581	2,470	4,103	1,633
	1899	33	1,944	43	151	1,750		998	133	534	2,066	3,365	1,299
Furniture and refrigerators.....	1909	267	15,240	300	1,365	13,575	20,875	22,383	1,755	8,100	12,501	27,900	15,399
	1904	207	13,638	141	1,071	12,426	15,638	17,027	1,239	6,714	9,664	22,395	12,731
	1899	156	10,976	128	874	9,974		10,356	801	4,543	6,849	15,623	8,774

1 Not reported separately.

2 Excluding statistics for two establishments, to avoid disclosure of individual operations.

3 Figures can not be shown without disclosing individual operations.

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

MANUFACTURES—ILLINOIS.

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

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

INDUSTRY.	Consus.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employ-ees.	Wage earners (average number).							
Expressed in thousands.													
<b>STATE—Continued.</b>													
Gas and electric fixtures and lamps and reflectors.	1909	78	2,610	41	488	2,090	1,883	\$3,057	\$607	\$1,184	\$2,694	\$5,707	\$3,103
	1904	44	1,386	34	198	1,154	703	1,730	219	640	1,194	2,905	1,711
	1899	50	855	50	171	634	800	800	154	323	688	1,707	1,019
Gas, illuminating and heating . . . . .	1909	78	8,020	2	1,717	6,301	18,385	131,790	1,567	2,967	6,210	21,052	14,842
	1904	64	4,069	10	1,005	2,964	5,700	97,110	1,344	1,695	4,519	16,008	11,489
	1899	63	3,198	827	827	2,371	2,371	76,810	770	1,306	1,991	8,774	6,783
Glass . . . . .	1909	11	3,080	3	176	3,507	6,638	7,738	231	2,182	1,541	5,047	3,506
	1904	13	4,895	8	119	4,708	1,583	3,570	151	3,012	1,400	4,220	4,220
	1899	6	3,380	1	75	3,304	700	2,182	110	1,621	674	2,834	2,160
Gloves and mittens, leather . . . . .	1909	29	1,463	33	121	1,309	657	1,093	100	519	1,478	2,523	1,045
	1904	24	1,220	30	65	1,134	560	555	63	425	852	1,691	839
	1899	26	1,910	23	108	1,770	701	701	94	600	1,234	2,484	1,250
Grease and tallow . . . . .	1909	36	959	30	151	778	2,842	2,852	224	531	4,005	5,590	1,525
	1904	24	708	22	90	596	1,124	1,207	105	390	1,488	2,438	950
	1899	22	385	25	59	301	703	673	53	175	1,039	2,030	391
Hats and caps, other than felt, straw, and wool.	1909	38	574	48	63	403	61	280	64	267	479	1,046	567
	1904	35	510	51	23	436	39	175	17	253	536	1,027	491
	1899	48	521	48	44	420	39	321	37	214	479	952	473
Hosiery and knit goods . . . . .	1909	43	3,141	40	188	2,943	3,452	5,116	221	1,116	3,232	5,047	2,715
	1904	38	2,440	38	65	2,342	1,336	2,093	97	782	2,165	3,730	1,565
	1899	27	1,800	18	46	1,832	703	1,550	67	507	1,286	2,205	919
Ice, manufactured . . . . .	1909	83	1,013	25	184	804	13,288	5,575	192	534	442	1,028	1,486
	1904	43	648	20	134	485	6,509	2,192	110	269	247	940	693
	1899	29	738	22	92	624	4,083	1,680	75	303	174	901	817
Iron and steel, blast furnaces . . . . .	1909	0	2,927	434	2,493	70,453	52,300	400	1,793	30,908	38,300	7,392	7,392
	1904	4	1,993	83	1,910	45,487	14,293	101	1,398	19,005	27,331	8,326	8,326
	1899	4	3,220	210	3,010	35,520	10,684	205	2,176	11,708	15,154	3,446	3,446
Iron and steel, steel works and rolling mills.	1909	24	10,437	3	1,850	17,584	152,470	69,682	2,295	12,062	56,244	86,608	30,364
	1904	23	17,718	3	1,267	16,448	111,308	44,276	1,684	10,071	38,650	10,022	21,372
	1899	22	14,205	3	670	13,632	77,616	32,592	632	7,464	30,021	45,149	16,128
Jewelry . . . . .	1909	67	1,280	69	221	900	367	1,823	210	650	1,264	2,780	1,516
	1904	43	890	51	135	713	189	827	124	456	801	1,755	954
	1899	31	507	37	70	484	754	754	82	341	802	1,661	799
Leather goods . . . . .	1909	168	3,569	172	448	2,949	2,200	5,300	498	1,633	5,135	8,048	3,813
	1904	1	3,164	163	346	2,655	1,115	3,783	364	1,416	3,437	6,715	3,278
	1899	2	143	271	271	2,642	2,806	2,806	208	1,153	2,787	5,205	2,418
Leather, tanned, curried, and finished . . . . .	1909	29	3,104	26	167	3,001	6,769	15,075	277	1,582	12,131	14,912	2,781
	1904	28	2,887	20	97	2,770	5,260	11,649	135	1,326	8,174	10,758	2,584
	1899	27	2,373	24	80	2,263	3,305	4,751	177	1,145	5,784	7,848	2,064
Limc . . . . .	1909	16	572	12	49	511	704	1,258	64	283	174	688	514
	1904	20	1,121	12	75	1,034	1,312	2,955	100	533	413	1,660	1,247
	1899	3											
Liquors, distilled . . . . .	1909	9	851	1	100	750	3,908	7,500	201	479	9,209	55,200	45,991
	1904	11	762	3	67	692	4,655	5,456	131	407	6,406	54,102	47,696
	1899	20	402	0	58	338	338	3,165	105	192	3,735	38,208	34,473
Liquors, malt . . . . .	1909	106	5,361	25	938	4,398	27,900	56,141	1,099	3,473	7,033	28,449	21,416
	1904	116	4,861	51	777	4,033	20,012	39,003	1,409	3,004	5,271	23,787	18,516
	1899	94	3,804	47	578	3,269	17,511	32,798	1,041	2,000	4,086	19,734	15,698
Lumber and timber products . . . . .	1909	814	10,025	825	1,633	10,567	52,015	29,778	1,961	9,110	27,264	44,952	17,088
	1904	591	16,909	611	1,172	15,126	44,347	21,651	1,393	7,424	18,222	32,741	14,519
	1899	706	706	683	683	11,869	11,869	13,400	645	5,178	13,036	23,190	10,155
Marble and stone work . . . . .	1909	278	2,821	324	271	2,226	5,003	4,689	369	1,700	3,030	6,771	3,741
	1904	176	2,431	212	179	2,040	3,422	3,252	244	1,435	2,140	5,392	3,252
	1899	2	200	222	222	2,044	2,044	3,674	223	1,161	1,643	4,022	2,379
Mattresses and spring beds . . . . .	1909	86	1,030	85	120	831	849	1,151	100	448	1,634	2,860	1,226
	1904	59	1,048	64	98	886	699	995	104	389	1,210	2,110	907
	1899	62		92	92	692	692	646	70	314	792	1,661	859
Millinery and lace goods . . . . .	1909	103	3,987	105	554	3,328	549	2,189	645	1,384	3,797	7,282	3,485
	1904	47	3,145	47	208	2,800	398	1,321	278	1,097	4,948	2,554	2,554
	1899	26	1,692	27	148	1,517	516	516	135	396	1,042	2,103	1,001
Mirrors . . . . .	1909	10	306	4	39	353	370	447	40	232	635	1,106	471
	1904	10	572	9	69	494	640	701	86	265	702	1,408	706
	1899	0	351	4	47	300	300	430	50	145	568	900	332
Models and patterns, not including paper patterns.	1909	81	585	92	67	426	701	521	79	308	203	889	686
	1904	60	407	64	31	312	277	260	32	216	82	530	457
	1899	60	348	69	8	271	271	252	7	168	69	375	306
Musical instruments and materials, not specified.	1909	30	425	35	54	336	208	512	57	201	178	629	451
	1904	28	550	27	41	491	255	641	51	302	207	674	467
	1899	27	479	25	24	430	430	350	20	216	168	514	346
Musical instruments, pianos and organs and materials.	1909	68	9,028	18	833	8,777	8,123	27,719	1,215	5,099	8,042	19,176	10,534
	1904	50	8,265	18	739	7,508	6,800	16,471	886	3,932	5,398	13,323	7,925
	1899	45	5,092	33	389	4,670	4,670	11,166	486	2,392	3,323	8,156	4,833

<sup>1</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.  
<sup>2</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.  
<sup>3</sup> Not reported separately.

## MANUFACTURES—ILLINOIS.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>STATE—Continued.</b>													
Paint and varnish.....	1909	74	2,906	31	1,083	1,792	7,108	\$15,725	\$1,657	\$1,114	\$12,002	\$20,434	\$7,582
	1904	03	1,979	19	084	1,276	5,068	11,340	987	771	8,656	13,325	4,699
	1899	52	1,425	18	618	889	.....	5,733	703	473	5,653	8,178	2,525
Paper and wood pulp.....	1909	19	1,542	3	142	1,397	15,169	8,400	200	727	3,099	4,083	1,884
	1904	19	1,036	4	73	959	12,818	3,903	462	462	1,410	2,443	1,027
	1899	15	664	6	35	623	9,551	1,555	37	250	798	1,432	634
Paper goods, not elsewhere specified....	1909	46	1,659	27	315	1,317	869	2,260	331	546	1,997	3,770	1,782
	1904	47	1,095	29	131	935	412	933	130	330	745	1,032	887
	1899	21	638	18	57	563	.....	519	68	172	632	1,032	460
Patent medicines and compounds and druggists' preparations.	1909	359	3,902	249	1,784	1,869	3,234	7,989	1,756	805	4,413	13,114	8,761
	1904	312	3,428	237	1,323	1,808	1,545	7,062	1,208	818	3,438	13,320	9,882
	1899	256	2,348	221	823	1,304	.....	3,364	706	502	2,025	6,542	4,517
Photographic apparatus and materials.	1909	13	356	8	64	284	430	708	81	157	318	740	422
	1904	20	481	13	201	267	207	484	156	127	287	811	524
	1899	24	331	24	54	253	.....	254	35	113	194	638	444
Photo-engraving.....	1909	27	1,561	8	430	1,114	600	1,391	475	949	534	2,678	2,164
	1904	21	834	9	229	596	434	605	220	519	289	1,305	1,106
	1899	20	834	8	165	661	.....	359	171	449	155	1,001	966
Pottery, terra-cotta, and fire-clay products.	1909	39	3,474	23	294	3,157	7,995	14,901	383	1,885	1,126	4,615	3,489
	1904	45	2,710	34	200	2,410	5,015	6,008	329	1,244	732	3,256	2,524
	1899	53	2,199	41	153	2,005	4,980	3,512	201	841	576	2,144	1,568
Printing and publishing.....	1909	2,608	43,074	2,384	12,046	28,644	20,975	60,084	12,372	18,437	24,680	87,247	62,567
	1904	2,414	32,909	2,232	7,859	22,818	17,577	41,380	7,738	13,883	17,034	62,202	45,258
	1899	2,160	27,475	2,120	5,078	20,277	.....	28,125	4,537	9,873	11,211	43,327	32,116
Pumps, not including steam pumps....	1909	14	348	7	59	232	328	664	68	179	328	659	331
	1904	15	323	8	44	271	502	709	56	170	298	603	305
	1899	5	190	2	27	161	.....	378	23	62	109	225	116
Scales and balances.....	1909	13	306	7	51	248	293	515	65	161	245	574	329
	1904	9	136	3	23	110	82	274	23	71	98	305	207
	1899	9	140	7	19	123	.....	214	20	57	89	308	219
Sewing machines, cases, and attachments.	1909	7	2,073	1	359	1,713	2,366	4,430	265	1,114	1,110	3,622	2,512
	1904	19	1,645	5	250	1,390	1,840	3,593	257	803	1,068	2,711	1,631
	1899	14	1,602	3	137	1,522	.....	2,196	170	829	2,018	3,485	1,467
Shipbuilding, including boat building..	1909	23	470	24	33	413	1,113	2,061	34	252	199	584	385
	1904	21	322	20	14	288	1,191	1,094	17	179	118	414	296
	1899	17	343	19	13	311	.....	393	47	159	83	322	229
Show cases.....	1909	16	442	18	38	386	410	539	50	248	290	820	539
	1904	19	498	17	42	439	534	398	44	252	359	848	489
	1899	17	393	19	21	368	.....	280	20	191	299	631	332
Slaughtering and meat packing.....	1909	109	32,642	93	5,844	20,705	56,651	131,020	6,440	14,062	343,976	389,595	45,619
	1904	95	32,856	99	5,646	27,111	39,400	80,733	6,571	14,668	280,592	318,201	37,609
	1899	78	.....	.....	4,236	27,991	.....	71,394	4,432	14,115	247,215	288,072	41,437
Smelting and refining, zinc.....	1909	5	2,034	2	110	1,922	7,485	7,596	313	1,275	6,400	9,004	2,566
	1904	5	1,717	.....	74	1,643	5,187	2,376	140	884	3,900	5,426	1,526
	1899	5	1,631	.....	80	1,561	.....	3,186	222	759	4,417	5,833	1,466
Smelting and refining, not from the ore..	1909	11	423	4	50	369	1,763	1,608	108	207	3,234	3,030	696
	1904	9	274	3	21	250	1,642	1,470	42	125	1,586	1,976	390
	1899	0	50	5	6	39	.....	58	7	24	213	290	83
Soap.....	1909	34	3,408	20	1,200	2,188	5,155	11,094	1,356	1,053	13,948	20,181	6,233
	1904	34	2,497	24	568	1,905	3,519	7,004	640	887	9,345	14,157	4,812
	1899	39	1,987	38	393	1,556	.....	6,529	453	500	6,033	9,436	3,463
Stereotyping and electrotyping.....	1909	21	747	13	142	592	725	777	187	472	310	1,282	666
	1904	20	812	8	119	685	506	660	139	547	220	1,205	976
	1899	15	515	9	51	455	.....	344	68	299	94	673	579
Stoves and furnaces, including gas and oil stoves.	1909	71	5,223	28	606	4,499	4,983	9,863	876	2,957	3,856	10,287	6,431
	1904	60	4,350	25	417	3,908	4,623	7,543	520	2,358	2,815	7,807	5,052
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Surgical appliances and artificial limbs.	1909	29	820	19	265	536	595	1,674	372	285	921	2,099	1,178
	1904	29	560	20	107	433	239	615	149	178	411	1,010	599
	1899	27	289	20	77	192	.....	234	105	87	170	525	355
Tobacco manufactures.....	1909	1,944	10,707	2,127	546	8,034	878	12,794	818	4,216	8,003	21,870	13,267
	1904	1,825	9,874	2,032	371	7,471	618	9,102	315	3,738	5,995	16,062	10,067
	1899	1,519	7,559	1,638	306	5,822	.....	4,109	315	2,070	4,189	11,909	7,739
Type founding and printing materials..	1909	19	588	9	141	438	391	1,852	201	303	375	1,248	873
	1904	17	574	15	127	432	314	2,111	139	293	321	1,168	847
	1899	10	533	4	86	443	.....	565	91	246	360	1,267	897
Wall paper.....	1909	5	359	2	97	290	492	1,140	120	173	702	1,367	663
	1904	7	320	.....	54	268	491	851	76	139	666	1,094	428
	1899	3	.....	.....	38	146	.....	222	32	84	271	632	261
Woolen, worsted, and felt goods, and wool hats.	1909	9	543	6	38	499	1,342	1,063	75	237	773	1,314	541
	1904	9	491	8	37	446	1,150	1,030	53	162	495	783	288
	1899	13	747	4	50	693	1,229	1,572	69	210	462	933	441
All other industries.....	1909	1,751	51,450	1,350	8,830	41,270	107,835	191,102	11,011	23,535	144,090	223,763	78,773
	1904	1,445	41,373	1,243	6,215	33,915	90,453	99,944	6,639	18,028	101,285	150,137	48,852
	1899	1,481	.....	.....	3,735	29,996	.....	106,212	3,927	13,373	83,144	127,440	44,296

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
			Expressed in thousands.										
<b>CHICAGO—All Industries</b> .....	1909	9,656	356,954	8,150	54,821	293,977	525,236	\$371,841	\$65,925	\$174,112	\$793,470	\$1,281,171	\$487,701
	1904	8,159	289,529	7,269	40,276	241,084		637,743	45,601	138,405	689,914	955,036	305,122
	1899	7,668			32,406	221,191		511,249	32,068	108,727	502,222	797,879	295,657
Artificial stone.....	1909	10	192	20	22	150	82	240	21	104	140	350	210
	1904	3	18	3	3	12		8	2	8	5	19	14
	1899												
Automobiles, including bodies and parts.	1909	41	1,725	17	248	1,460	734	2,094	305	1,131	1,707	3,940	2,233
	1904	11	190	7	17	166		309	28	106	111	354	243
	1899												
Bags, other than paper.....	1909	6	213	4	20	189	157	570	24	175	685	965	280
	1904	4	150	2	21	127		104	21	47	642	809	107
	1899	4	127	4	17	106		94	11	30	369	547	178
Baking powders and yeast.....	1909	16	940	8	410	522	1,142	5,873	447	304	2,838	7,009	4,121
	1904	16	804	14	145	645		3,718	200	317	1,481	3,890	2,409
	1899	14	603	7	154	442		1,103	229	163	1,284	3,336	2,052
Baskets, and rattan and willow ware...	1909	10	52	11		41	16	20		26	34	81	47
	1904	10	68	11	1	56		31	2	27	30	89	59
	1899	8			6	51		49	4	28	21	70	49
Belting and hose, leather.....	1909	11	403	9	161	233	430	1,270	183	165	1,385	2,188	803
	1904	10	226	6	63	157		833	82	96	617	1,055	438
	1899	8	326	2	93	231		640	71	108	893	1,301	408
Boots and shoes, including cut stock and findings.	1909	31	3,326	29	270	3,027	1,103	3,881	325	1,920	6,045	9,855	3,810
	1904	35	2,651	33	172	2,440		2,311	208	1,311	4,138	6,559	2,421
	1899	45	3,245	51	202	2,992		1,788	239	1,431	4,422	6,814	2,392
Boxes, cigar.....	1909	9	348	9	35	304	214	292	46	125	258	541	283
	1904	10	380	10	26	344		188	28	130	198	478	280
	1899	9	327	7	28	292		153	26	94	204	399	195
Boxes, fancy and paper.....	1909	48	3,084	22	353	3,009	1,575	3,118	400	1,811	2,232	5,044	2,812
	1904	30	2,541	24	103	2,324		1,557	217	809	1,824	2,825	1,501
	1899	38	2,565	25	159	2,381		1,455	158	771	1,427	2,923	1,496
Brass and bronze products.....	1909	56	1,430	38	225	1,107	1,099	2,492	304	810	3,266	5,131	1,865
	1904	43	1,092	37	166	880		1,940	195	534	1,825	3,195	1,370
	1899	44	923	38	97	788		944	114	421	1,688	2,703	1,016
Bread and other bakery products.....	1909	1,177	8,842	1,240	1,159	6,437	3,847	20,000	1,148	4,146	16,280	29,908	10,628
	1904	852	7,216	880	532	5,795		11,191	409	3,240	11,132	20,654	9,522
	1899	710	6,007	740	838	4,423		5,940	631	2,051	6,560	12,783	6,263
Brick and tile.....	1909	7	657	6	30	612	3,225	2,210	62	559	210	1,172	962
	1904	20	853	3	70	780		3,364	121	585	309	1,573	1,204
	1899	22	441	34	18	389		923	23	187	77	434	357
Brooms and brushes.....	1909	56	616	60	50	497	203	690	66	281	918	1,560	642
	1904	62	489	61	33	395		342	35	205	530	1,048	518
	1899	67	506	71	27	408		291	20	199	422	865	443
Buttons.....	1909	13	231	14	27	190	39	151	26	72	139	335	196
	1904	11	68	17	4	47		27	2	16	22	71	49
	1899	7	70	8	3	59		22	1	24	30	82	52
Calcium lights.....	1909	3	12	1	4	7	10	29	4	5	19	27	3
	1904	3	14	1	0	7		7	5	5	6	24	18
	1899	3	12	1	4	7		15	4	4	0	34	25
Canning and preserving.....	1909	47	1,107	41	162	904	1,274	2,058	203	395	2,533	3,827	1,294
	1904	50	1,208	54	144	1,010		2,124	153	440	2,398	3,882	1,484
	1899	40			240	914		1,137	151	322	2,323	3,545	1,222
Carpets, rag.....	1909	25	205	24	18	163	73	87	14	68	43	206	103
	1904	39	210	42	12	105		128	10	84	32	212	180
	1899	52	284	61	10	213		59	7	90	28	204	176
Carriages and wagons and materials....	1909	126	2,203	139	159	1,965	3,022	7,016	194	1,253	2,802	5,203	2,601
	1904	122	2,108	138	141	1,829		4,466	200	1,093	1,812	4,076	2,204
	1899	97			99	1,569		3,400	111	839	1,355	3,036	1,681
Cars and general shop construction and repairs by steam-railroad companies.	1909	22	11,562		503	11,059	7,232	9,558	567	7,305	7,310	15,350	8,049
	1904	22	9,082		480	8,592		7,582	465	5,792	4,993	11,172	6,179
	1899	24	7,094		307	6,787		6,779	301	3,708	4,030	8,185	4,165
Cars and general shop construction and repairs by street-railroad companies.	1909	7	1,721		57	1,664	1,584	3,061	64	1,069	1,520	2,758	1,238
	1904	8	1,011		26	985		1,061	27	641	403	1,110	707
	1899	9	890		24	860		705	25	497	517	1,076	569
Cars, steam-railroad, not including operations of railroad companies.	1909	18	9,226		673	8,553	14,576	29,730	787	6,387	11,620	20,892	9,272
	1904	11	7,606		547	7,059		11,535	621	4,897	15,761	23,799	8,038
	1899	13	7,800		211	7,589		14,482	240	4,474	13,097	19,108	6,011
Chemicals.....	1909	10	218	2	73	143	780	887	92	92	598	1,140	551
	1904	8	445	2	92	351		2,974	151	223	1,026	1,724	698
	1899	13	457	9	51	397		1,401	63	223	740	1,382	630
Clocks and watches, including cases and materials.	1909	5	145	3	33	109	26	421	44	60	282	445	163
	1904	3	58	2	11	45		39	14	32	34	147	113
	1899	6	77	6	17	54		78	11	27	40	111	71

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

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

MANUFACTURES—ILLINOIS.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
			Expressed in thousands.										
<b>CHICAGO—Continued.</b>													
Cloth, sponging and refinishing.....	1909	6	100	4	11	91	36	\$31	\$13	\$52	\$1	\$119	\$118
	1904	5	73	4	5	64	.....	19	7	47	3	90	87
	1899	5	64	4	6	54	.....	13	7	29	2	55	53
Clothing, men's, including shirts.....	1909	678	38,370	830	3,925	33,615	2,916	36,521	4,292	15,777	42,768	85,206	42,528
	1904	593	23,163	723	2,785	19,655	.....	18,512	2,975	9,706	26,655	54,026	27,971
	1899	905	.....	.....	1,710	15,019	.....	13,527	1,827	5,957	18,447	37,847	19,400
Clothing, women's.....	1909	204	6,666	254	797	5,615	698	5,193	915	2,997	8,658	15,077	7,019
	1904	174	5,217	239	670	4,308	.....	3,304	680	2,083	6,011	11,637	5,626
	1899	151	4,708	197	523	3,988	.....	2,793	575	1,400	4,685	9,208	4,523
Coffee and spice, roasting and grinding..	1909	32	1,775	22	747	1,006	2,575	8,096	1,078	521	14,909	19,593	4,624
	1904	23	1,436	21	380	940	.....	6,440	467	425	12,319	15,593	3,244
	1899	25	1,474	19	533	923	.....	5,196	563	369	9,937	12,612	2,675
Coffins, burial cases, and undertakers' goods.	1909	13	733	5	152	576	828	1,721	270	339	764	1,838	1,074
	1904	10	576	8	97	471	.....	986	117	236	632	1,297	685
	1899	8	463	9	58	386	.....	473	61	207	610	1,005	395
Confectionery.....	1909	87	3,895	53	571	3,241	3,045	5,275	638	1,250	6,703	11,222	4,519
	1904	62	3,378	44	381	2,953	.....	3,143	362	1,018	3,594	6,550	2,950
	1899	51	.....	.....	406	2,586	.....	1,971	320	713	3,332	5,718	2,386
Cooperage and wooden goods, not elsewhere specified.	1909	37	1,269	32	71	1,166	1,984	1,860	110	601	2,188	3,368	1,180
	1904	54	1,436	61	89	1,286	.....	1,591	101	623	2,135	3,406	1,271
	1899	57	1,474	64	69	1,341	.....	1,249	63	555	1,850	2,912	1,062
Copper, tin, and sheet-iron products....	1909	268	4,610	256	495	3,859	2,859	12,216	659	2,472	6,463	12,242	5,779
	1904	170	3,885	167	371	3,347	.....	8,712	610	1,983	3,957	8,137	4,180
	1899	161	.....	.....	233	3,606	.....	4,382	270	1,741	4,952	8,425	3,473
Corsets.....	1909	10	1,124	5	114	1,005	120	925	150	340	705	1,779	1,074
	1904	11	472	12	22	438	.....	179	26	175	192	559	367
	1899	15	370	17	24	329	.....	172	20	83	101	395	234
Cutlery and tools, not elsewhere specified	1909	53	1,167	43	142	982	1,499	1,796	200	554	680	1,895	1,215
	1904	37	721	37	45	639	.....	946	50	288	348	946	593
	1899	24	228	22	31	175	.....	518	13	87	86	278	192
Dairymen's, poulterers', and apiarists' supplies.	1909	7	70	5	16	49	79	179	21	37	147	340	193
	1904	5	36	4	14	18	.....	90	12	10	199	271	72
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dentists' materials.....	1909	10	85	5	32	48	36	72	28	36	115	232	117
	1904	8	93	7	13	78	.....	190	12	30	24	115	91
	1899	9	123	9	8	106	.....	148	9	40	71	173	102
Electrical machinery, apparatus, and supplies	1909	123	7,333	45	1,192	6,066	6,443	10,624	1,370	3,860	11,405	29,669	9,204
	1904	96	7,504	38	1,599	5,927	.....	21,271	1,367	3,009	7,501	16,292	8,791
	1899	71	6,951	51	1,113	5,787	.....	11,216	611	2,711	4,283	11,358	7,075
Electroplating.....	1909	34	374	40	24	310	422	181	25	214	107	484	377
	1904	23	282	27	21	234	.....	101	19	142	54	327	273
	1899	26	.....	.....	19	301	.....	75	20	134	53	302	249
Fancy articles, not elsewhere specified..	1909	40	603	29	136	438	210	641	139	218	568	1,289	721
	1904	38	929	28	120	781	.....	711	137	332	659	1,664	1,038
	1899	39	.....	.....	79	376	.....	281	52	152	365	791	426
Fire extinguishers, chemical.....	1909	5	54	2	24	28	11	110	56	15	62	164	103
	1904	4	23	3	2	18	.....	10	4	14	25	50	31
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Foundry and machine-shop products....	1909	669	36,868	338	5,475	31,055	54,870	90,050	7,308	20,490	40,755	89,660	48,014
	1904	582	33,373	349	4,237	28,792	.....	68,558	5,407	17,772	28,558	68,491	39,633
	1899	593	29,130	460	2,663	26,017	.....	45,369	3,116	14,290	20,883	57,721	30,633
Fur goods.....	1909	59	455	58	89	308	59	959	108	225	1,090	1,903	843
	1904	34	399	38	43	318	.....	514	67	193	816	1,421	605
	1899	33	.....	.....	82	706	.....	748	77	322	1,257	2,310	1,062
Furnishing goods, men's.....	1909	38	2,273	38	330	1,965	502	2,340	333	820	3,877	6,122	2,245
	1904	31	1,542	41	219	1,282	.....	1,618	157	488	2,131	3,503	1,372
	1899	30	1,932	40	148	1,744	.....	986	130	531	2,045	3,335	1,290
Furniture and refrigerators.....	1909	202	11,097	144	1,077	9,876	14,371	16,373	1,454	6,026	9,090	20,512	11,416
	1904	157	10,702	120	872	9,710	.....	13,007	1,037	5,386	7,537	17,062	10,125
	1899	119	8,792	107	735	7,950	.....	8,114	755	3,703	5,397	12,510	7,122
Gas and electric fixtures and lamps and reflectors.	1909	63	2,068	30	430	1,602	1,060	2,706	588	914	2,124	4,683	2,560
	1904	40	1,143	30	183	930	.....	1,422	204	532	1,000	2,485	1,470
	1899	48	704	41	165	698	.....	746	152	306	653	1,630	977
Gloves and mittens, leather.....	1909	25	1,223	29	85	1,109	570	900	130	441	1,308	2,181	873
	1904	21	1,139	27	63	1,049	.....	506	62	390	749	1,511	762
	1899	22	1,658	20	79	1,559	.....	624	75	606	1,085	2,240	1,155
Gold and silver, leaf and foil.....	1909	7	159	6	10	143	13	66	15	61	128	226	98
	1904	5	154	6	8	140	.....	52	9	74	100	223	123
	1899	5	101	5	2	94	.....	41	1	44	101	178	77
Grease and tallow.....	1909	10	773	7	117	649	2,207	2,181	187	452	3,781	4,948	1,167
	1904	13	652	10	82	560	.....	1,130	99	371	1,417	2,303	886
	1899	9	335	9	57	269	.....	606	52	161	1,577	1,922	345

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



MANUFACTURES—ILLINOIS.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>CHICAGO—Continued.</b>													
Hand stamps and stencils and brands...	1909	27	273	20	72	172	100	\$287	\$57	\$101	\$167	\$467	\$300
	1904	25	293	24	47	222	.....	251	27	134	84	363	279
	1899	24	285	20	37	228	.....	218	30	113	128	452	324
Hats and caps, other than felt, straw, and wool.	1909	38	574	48	63	463	61	280	64	267	479	1,046	567
	1904	35	510	51	23	436	.....	175	17	253	536	1,027	491
	1899	48	521	48	44	429	.....	321	37	214	479	952	473
Hostery and knit goods.....	1909	29	837	36	58	743	167	908	90	280	783	1,477	694
	1904	30	828	38	21	760	.....	695	22	262	621	1,300	688
	1899	19	615	13	22	580	.....	321	26	148	310	647	328
Ice, manufactured.....	1909	6	229	.....	23	206	3,024	1,136	42	153	126	569	443
	1904	3	188	3	52	133	.....	341	47	78	87	349	262
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ink, printing.....	1909	7	86	3	45	38	185	254	72	26	164	415	251
	1904	6	64	4	27	33	.....	133	37	17	99	257	158
	1899	7	35	7	14	14	.....	109	9	8	59	96	87
Iron and steel, steel works and rolling mills.	1909	6	7,689	.....	766	6,683	79,456	32,577	978	5,663	20,023	45,984	10,661
	1904	5	5,595	.....	508	5,087	.....	16,913	638	3,526	16,711	24,840	8,129
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jewelry.....	1909	55	1,166	55	204	610	294	1,574	104	606	1,218	2,635	1,417
	1904	41	892	49	133	710	.....	825	123	455	798	1,746	948
	1899	31	507	37	76	484	.....	754	82	341	802	1,601	709
Lapidary work.....	1909	3	18	2	2	14	0	34	1	13	53	88	35
	1904	4	28	5	4	10	.....	52	3	18	82	140	58
	1899	4	26	4	2	20	.....	56	2	12	69	140	50
Leather goods.....	1909	90	2,581	66	367	2,178	804	2,877	367	1,174	3,289	5,861	2,581
	1904	82	2,354	74	258	2,022	.....	2,421	269	1,076	2,492	5,023	2,531
	1899	72	.....	196	.....	2,023	.....	1,876	269	885	2,078	3,868	1,780
Leather, tanned, curried, and finished..	1909	24	2,841	23	144	2,674	6,212	14,486	242	1,418	10,788	13,244	2,456
	1904	23	2,577	18	80	2,479	.....	10,749	111	1,188	7,133	9,420	2,287
	1899	22	2,128	20	61	2,047	.....	4,075	130	1,061	5,142	6,079	1,837
Liquors, malt.....	1909	45	3,450	2	581	2,867	16,666	29,385	1,145	2,378	4,850	19,512	14,662
	1904	50	3,314	11	540	2,763	.....	28,353	1,004	2,127	3,529	10,983	13,454
	1899	37	2,670	9	389	2,272	.....	26,625	812	1,508	2,959	14,067	11,098
Lumber and timber products.....	1909	195	11,680	119	1,099	10,462	25,917	17,605	1,448	6,149	20,768	32,700	11,941
	1904	154	8,600	106	700	7,704	.....	11,431	845	4,013	11,763	10,808	8,045
	1899	128	6,153	128	359	5,696	.....	6,249	381	2,609	6,560	11,536	4,970
Marble and stone work.....	1909	107	1,640	108	144	1,388	3,002	2,557	230	1,137	1,714	3,630	2,216
	1904	73	1,537	97	103	1,337	.....	1,872	170	951	1,244	3,350	2,112
	1899	71	.....	106	.....	1,103	.....	1,672	130	708	735	2,061	1,320
Mattresses and spring beds.....	1909	58	835	53	99	683	495	837	135	371	1,340	2,377	1,028
	1904	46	874	45	74	755	.....	802	83	331	1,011	1,753	742
	1899	49	723	50	71	596	.....	628	60	284	706	1,488	783
Models and patterns, not including paper patterns.	1909	56	435	63	50	322	494	362	47	227	161	687	526
	1904	49	351	52	26	273	.....	222	29	197	76	494	419
	1899	49	304	58	8	238	.....	228	7	142	65	342	277
Musical instruments and materials, not specified.	1909	27	418	33	53	332	200	502	57	199	172	614	442
	1904	24	547	22	41	434	.....	628	51	299	206	663	457
	1899	26	471	22	24	425	.....	347	20	214	166	507	341
Musical instruments, pianos and organs and materials.	1909	37	5,792	12	571	5,200	4,677	17,335	812	3,034	4,848	11,487	6,059
	1904	32	5,383	11	486	4,886	.....	10,818	693	2,716	3,416	8,488	5,072
	1899	30	4,415	21	337	4,057	.....	9,740	425	2,034	2,730	6,802	4,072
Paint and varnish.....	1909	61	2,667	27	1,034	1,666	5,837	13,830	1,587	996	11,845	18,942	7,097
	1904	52	1,842	13	634	1,195	.....	9,768	940	725	8,262	12,665	4,463
	1899	46	1,385	10	503	866	.....	5,421	690	462	5,607	8,096	2,489
Paper goods, not elsewhere specified....	1909	41	1,255	27	271	957	607	1,367	290	410	1,393	2,831	1,458
	1904	29	508	19	60	423	.....	435	60	154	325	781	456
	1899	17	401	10	40	345	.....	185	41	104	211	455	244
Patent medicines and compounds and druggists' preparations.	1909	273	3,011	160	1,490	1,961	2,030	5,377	1,512	632	3,216	10,360	7,144
	1904	243	2,949	173	1,212	1,564	.....	5,820	1,119	675	2,833	11,042	6,109
	1899	204	2,031	108	734	1,129	.....	2,831	640	448	1,745	5,921	4,176
Photographic apparatus and materials..	1909	13	356	8	64	284	430	768	81	157	318	740	422
	1904	19	473	13	200	260	.....	468	156	124	282	802	520
	1899	18	215	21	41	153	.....	160	25	70	156	494	338
Photo-engraving.....	1909	21	1,186	4	304	878	405	902	341	848	422	2,156	1,734
	1904	18	800	5	224	571	.....	563	236	507	254	1,324	1,070
	1899	20	834	8	165	661	.....	359	171	449	155	1,061	906
Printing and publishing.....	1909	1,395	33,439	1,065	10,048	22,326	20,162	47,982	10,725	15,077	21,256	74,211	52,655
	1904	1,262	25,147	983	6,700	17,464	.....	33,088	6,836	11,279	14,672	53,093	38,161
	1899	1,093	20,845	646	4,482	15,417	.....	22,336	4,033	7,062	9,357	36,238	26,881

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

MANUFACTURES—ILLINOIS.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).							
Expressed in thousands.													
<b>CHICAGO—Continued.</b>													
Pumps, not including steam pumps.	1909 1904 1899	6 8	74 74	1 3	21 13	52 58	43	\$94 103	\$29 13	\$38 46	\$72 82	\$179 199	\$107 117
Rubber goods, not elsewhere specified.	1900 1904 1899	13 10 15	145 1,315 1,111	8 5 17	33 156 264	104 1,154 830	203	252 1,550 1,127	28 167 201	53 453 300	200 1,645 1,915	381 2,808 3,586	181 1,163 1,671
Shipbuilding, including boat building.	1900 1904 1899	8 27 27	306 205 178	7 7 0	17 8 9	282 190 160	902	1,858 1,000 284	18 12 13	174 113 86	108 68 55	359 244 187	251 186 132
Slaughtering and meat packing.	1900 1904 1899	67 50 51	27,147 27,803	66 63	5,017 4,973	22,064 22,767	45,620	115,312 70,517 67,301	5,535 5,951 4,241	11,985 12,483 12,946	285,250 237,751 218,737	325,062 270,549 257,270	39,812 32,795 38,533
Smelting and refining, not from the ore.	1900 1904 1899	7 6 5	127 38 37	4 3 5	32 10 4	91 25 28	168	816 184 40	71 17 5	63 20 21	2,237 1,002 292	2,574 1,140 278	337 138 76
Soap.	1900 1904 1899	27 23 27	3,329 2,387 1,872	17 15 24	1,173 537 364	2,139 1,835 1,484	4,967	11,474 7,232 6,307	1,333 617 420	1,035 857 532	13,787 9,125 5,793	10,930 13,770 9,065	6,152 4,645 3,272
Steam packing.	1900 1904 1899	15 11 7	160 178 113	8 0 4	44 42 26	108 130 83	146	157 161 65	42 40 21	62 66 40	194 222 78	408 468 231	214 240 153
Stereotyping and electrotyping.	1900 1904 1899	21 18 15	747 773 515	13 8 9	142 114 51	592 651 455	725	777 641 344	187 135 68	472 524 269	316 224 94	1,282 1,105 673	966 941 579
Stoves and furnaces, including gas and oil stoves.	1900 1904 1899	28 20	1,263 848	14 11	201 85	1,048 762	937	2,546 1,669	272 126	726 463	1,157 878	3,133 2,138	2,026 1,260
Surgical appliances and artificial limbs.	1900 1904 1899	24 27 24	807 555 275	13 17 17	265 107 75	529 431 183	592	1,058 614 230	372 140 104	279 177 84	917 410 168	2,075 1,004 513	1,168 594 345
Tobacco manufactures.	1900 1904 1899	1,050 960 822	6,758 5,589 4,569	1,111 1,030 877	427 212 200	5,220 4,347 3,492	783	10,331 6,794 2,239	717 200 242	2,785 2,283 1,637	6,722 4,199 2,880	10,033 11,017 8,174	9,911 6,818 5,294
Type founding and printing materials.	1900 1904 1899	19 17 10	588 574 533	9 15 4	141 127 86	438 432 443	391	1,852 2,111 505	201 139 91	303 203 246	375 321 360	1,248 1,168 1,257	873 847 897
All other industries.	1900 1904 1899	1,305 1,086 1,022	60,504 46,736	929 870	9,008 6,497 8,248	50,477 39,360 44,875	159,447	326,874 198,873 208,645	11,140 7,387 7,478	28,397 21,500 22,776	142,590 101,888 104,300	234,104 164,900 170,032	91,514 63,012 65,723
<b>EAST ST. LOUIS—All industries.</b>													
Bread and other bakery products.	1900 1904 1899	139 81 58	6,005 4,951	92 52	661 394 112	5,252 4,505 3,106	23,273	\$31,298 12,864 5,448	\$691 473 147	\$3,250 2,494 1,426	\$11,440 5,696 3,678	\$18,228 10,586 6,241	\$6,788 4,890 2,563
Carriages and wagons and materials.	1900 1904 1899	20 11 9	121 76 37	21 9 8	29 9 29	71 58 29	49	128 87 27	25 6 10	53 41 16	177 124 53	336 221 95	159 97 42
Copper, tin, and sheet-iron products.	1900 1904 1899	5 3 3	35 31 17	4 4 4	3 3 13	28 24 13	16	55 25 17	2 2 9	15 20 4	24 20 4	56 48 19	32 28 15
Foundry and machine-shop products.	1900 1904 1899	14 4 5	92 33	17 1	2 3 13	73 29 13	73	53 37 8	1 3 9	66 21 31	82 16 9	183 51 92	101 35 31
Foundry and machine-shop products.	1900 1904 1899	11 25 3	925 811 890	3 50 23	65 761 807	857 761 807	1,251	2,031 1,314 901	108 78 37	513 456 433	1,053 709 662	1,872 1,417 1,268	819 708 606
Lumber and timber products.	1900 1904 1899	7 27 3	147 115 46	0 2 5	36 23 1	102 90 40	685	405 244 20	19 17 1	02 77 23	211 98 06	328 236 111	117 138 45
Printing and publishing.	1900 1904 1899	8 9 5	77 75 49	5 14 4	22 11 4	50 50 41	51	148 52 45	17 11 4	38 28 17	27 10 12	105 83 56	78 64 44
Tobacco manufactures.	1900 1904 1899	12 9 4	23 20 15	12 9 0	11 20 9	11 20 9	11	19 22 4	9 11 4	12 11 7	12 39 18	40 39 18	28 28 11
All other industries.	1900 1904 1899	62 43 26	4,585 3,781	21 13	504 295 84	4,000 3,473 2,094	21,221	28,459 11,073 4,417	519 356 105	2,404 1,845 915	9,854 4,000 2,843	15,308 8,491 4,612	5,454 3,792 1,769

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

MANUFACTURES—ILLINOIS.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
			Expressed in thousands.										
<b>PEORIA—All industries</b> .....	1909	283	7,323	242	1,100	5,081							
	1904	263	6,707	227	736	5,834							
	1899	291			686	5,996							
Bread and other bakery products.....	1909	39	274	39	41	194	172	289	22	104	482	704	282
	1904	40	237	41	21	172		436	20	81	430	690	230
	1899	42	290	42	37	211		301	13	70	325	592	237
Carriages and wagons and materials....	1909	8	78	0	0	63	62	106	4	41	69	141	72
	1904	2 6	125	0	5	114		199	6	57	128	211	83
	1899	3 8			8	127		154	7	67	141	243	102
Cooperage and wooden goods, not elsewhere specified.	1909	5	543	2	27	514	910	935	50	172	840	1,153	313
	1904	4	400	2	17	447		636	38	170	984	1,288	304
	1899	4	773	1	22	750		872	34	356	770	1,325	540
Copper, tin, and sheet-iron products....	1909	0	283	12	32	230	106	415	33	130	453	684	231
	1904	10	215	7	27	181		210	26	90	211	395	184
	1899	8			17	133		184	14	59	143	301	158
Flour-mill and gristmill products.....	1909	4	54	6	14	34	326	199	0	22	610	759	119
	1904	3	47	5	10	32		282	10	19	487	594	107
	1899	3			8	28		176	7	15	384	481	97
Foundry and machine-shop products....	1909	20	488	10	58	420	986	915	75	315	515	1,082	567
	1904	19	403	16	49	398		801	48	221	298	786	488
	1899	25			80	440		729	65	214	610	1,130	520
Leather goods.....	1909	4	55	7	11	37	10	30	0	24	21	72	51
	1904	3	59	4	8	47		140	0	30	68	151	83
	1899	2 6			6	63		112	5	29	93	169	76
Liquors, distilled.....	1909	4	652		70	582	3,367	5,959	140	380	7,478	44,570	37,092
	1904	6	597		36	561		4,515	72	323	4,044	42,171	37,227
	1899	11	246		33	213		2,407	53	124	2,554	26,792	21,238
Liquors, malt.....	1909	3	228		31	197	900	2,211	81	143	199	1,101	602
	1904	3	132		22	110		1,100	34	79	184	888	704
	1899	3	115		20	89		848	35	47	112	531	419
Lumber and timber products.....	1909	6	100	7	17	166	458	366	20	120	184	398	214
	1904	5	169	5	9	155		242	0	95	177	325	148
	1899	3	69	2	8	59		118	7	32	88	158	70
Models and patterns, not including paper patterns.	1909	4	16	5		11	24	15		0	2	21	10
	1904	3	12	2	1	9		11	1	7	1	15	14
Printing and publishing.....	1909	32	513	25	163	325	410	600	167	209	221	881	660
	1904	26	390	29	81	280		432	78	165	166	608	442
	1899	2 20	375	30	86	259		392	64	137	159	543	384
Tobacco manufactures.....	1909	30	399	41	20	308		273	15	204	240	647	407
	1904	43	338	45	17	270		233	12	155	162	470	317
	1899	32	270	35	4	240		150	3	133	117	357	240
All other industries.....	1909	109	3,580	79	610	2,891	8,365	12,023	700	1,079	0,429	10,788	4,359
	1904	92	3,547	65	430	3,052		11,177	452	1,711	7,595	11,849	4,254
	1899	117			351	3,384		20,135	402	1,593	7,483	11,977	4,494
<b>SPRINGFIELD—All industries</b> .....	1909	171	4,355	174	529	3,652	6,398	\$7,174	\$466	\$2,096	\$4,204	\$8,497	\$4,293
	1904	122	3,546	118	357	3,071		5,264	383	1,639	2,490	5,787	3,307
	1899	106			174	2,199		3,459	164	1,037	1,412	3,467	2,055
Bread and other bakery products.....	1909	16	88	22	11	55	79	124	7	43	182	310	128
	1904	10	67	11		46		82		34	132	204	72
	1899	12	39	13		26		33		14	53	92	39
Carriages and wagons and materials....	1909	7	70	10	6	54	80	100	4	35	41	98	57
	1904	4	26	6		21		59		10	12	28	16
	1899	5	39	9		30		50		13	14	38	24
Copper, tin, and sheet-iron products....	1909	10	77	11	0	60	32	79	5	39	90	178	88
	1904	3 6	51	7	2	42		70	2	20	47	95	48
	1899	5			2	24		29	2	12	20	43	23
Foundry and machine-shop products....	1909	10	270	14	35	221	794	647	28	135	255	482	227
	1904	4	286	6	30	241		307	32	127	153	427	274
	1899	6	194	7	9	178		246	0	93	107	267	160
Lumber and timber products.....	1909	7	176	10	10	147	312	220	14	80	110	242	132
	1904	4	153	3	3	147		174	2	108	131	280	149
	1899	4	99	5	4	90		139	3	50	112	201	89
Marble and stone work.....	1909	5	36	4	0	26	70	96	10	20	52	110	67
	1904	3	39	2	3	34		52	3	20	41	84	43
	1899	3	29	2	1	26		42	1	16	40	70	39
Printing and publishing.....	1909	27	549	20	208	321	257	584	133	203	163	739	573
	1904	16	447	8	85	354		411	66	181	93	470	377
	1899	13	293	11	44	241		233	34	115	70	310	240
Tobacco manufactures.....	1909	30	157	31	4	122		54	4	61	73	206	133
	1904	32	166	38	2	126		68	1	61	64	195	131
	1899	20	110	21	3	86		40	2	34	43	124	81
All other industries.....	1909	59	2,932	52	234	2,446	4,744	5,270	261	1,471	3,238	6,123	2,885
	1904	43	2,321	38	223	2,060		3,651	277	1,069	1,817	4,014	2,197
	1899	38			111	1,498		2,647	116	684	953	2,313	1,300

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 Excluding statistics for one establishment, to avoid disclosure of individual operations.  
 3 Excluding statistics for two establishments, to avoid disclosure of individual operations.  
 4 Figures can not be shown without disclosing individual operations.

## MANUFACTURES—ILLINOIS.

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

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

CITY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
Alton	1909	60	2,729	45	255	2,429	5,453	\$5,585	\$299	\$1,528	\$7,262	\$10,090	\$2,834
	1904	62	3,346	37	240	3,069	.....	4,002	220	1,728	5,423	8,697	3,274
	1899	59	.....	.....	123	2,174	.....	2,773	112	1,037	2,472	4,250	1,774
Aurora	1909	165	5,884	165	624	5,095	7,906	11,427	722	2,936	5,580	10,954	5,374
	1904	103	4,517	91	348	4,078	.....	6,800	387	2,068	3,538	7,329	3,790
	1899	97	.....	.....	280	3,949	.....	4,606	275	1,615	2,592	5,638	3,066
Bellefonte	1909	110	2,248	107	269	1,872	4,541	5,541	290	1,062	2,324	4,615	2,260
	1904	90	2,005	75	165	1,765	.....	3,084	171	1,011	1,787	4,357	2,370
	1899	89	.....	.....	118	1,335	.....	2,314	108	620	935	2,873	1,906
Bloomington	1909	107	2,495	99	319	2,077	2,877	4,702	325	1,186	2,527	4,808	2,341
	1904	81	2,079	78	326	2,275	.....	3,347	268	1,228	3,492	5,777	2,360
	1899	98	.....	.....	166	1,671	.....	2,135	127	797	1,595	3,012	1,417
Calro	1909	50	1,444	51	150	1,237	4,704	4,854	178	628	2,957	4,440	1,656
	1904	57	1,649	64	150	1,435	.....	3,086	153	653	2,538	4,381	1,564
	1899	53	.....	.....	105	1,501	.....	1,936	92	548	1,900	3,117	1,217
Canton	1909	33	1,421	30	120	1,202	3,716	8,180	120	692	1,183	2,942	1,730
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Champaign	1909	42	381	44	64	273	476	895	52	174	410	846	427
	1904	39	360	40	31	289	.....	580	28	169	158	486	326
	1899	33	.....	.....	26	245	.....	379	23	118	132	354	222
Chicago Heights	1909	70	4,444	60	431	3,953	10,176	10,421	606	2,471	5,611	10,839	5,228
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cicero	1909	7	735	2	75	658	1,580	2,496	97	406	733	1,461	726
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Danville	1909	76	2,044	76	224	1,744	3,258	2,050	236	1,077	1,430	3,351	1,921
	1904	70	2,109	77	148	1,884	.....	2,102	129	977	1,665	3,304	1,629
	1899	72	.....	.....	47	957	.....	1,413	47	458	1,047	1,914	897
Decatur	1909	157	3,447	148	600	2,899	6,447	6,579	609	1,420	5,918	9,708	3,334
	1904	113	2,841	91	410	2,340	.....	4,874	373	1,125	5,693	8,607	3,054
	1899	108	.....	.....	217	1,920	.....	3,266	201	830	3,350	5,134	1,773
Elgin	1909	115	6,583	100	389	6,094	6,059	16,070	491	3,379	4,538	11,120	6,162
	1904	76	5,253	72	296	4,885	.....	10,980	427	2,713	4,090	9,349	5,239
	1899	80	.....	.....	152	4,376	.....	8,383	189	2,074	2,614	6,386	3,772
Evanston	1909	60	1,040	63	140	837	1,056	4,241	178	590	2,350	3,778	1,426
	1904	33	876	36	102	738	.....	1,723	70	384	1,583	2,551	946
	1899	27	.....	.....	29	400	.....	1,260	24	192	362	830	496
Freeport	1909	69	3,225	56	310	2,853	4,412	6,403	307	1,570	4,417	7,811	3,394
	1904	61	1,754	70	168	1,516	.....	3,490	145	827	1,423	3,109	1,666
	1899	51	.....	.....	127	1,333	.....	2,010	118	695	1,814	2,708	1,394
Galesburg	1909	62	1,738	58	215	1,465	1,908	2,454	201	887	1,416	2,919	1,505
	1904	58	1,665	46	172	1,447	.....	1,566	165	756	936	2,218	1,282
	1899	39	.....	.....	99	1,070	.....	1,285	89	521	620	1,450	803
Jacksonville	1909	57	1,066	58	91	947	1,189	1,503	84	487	1,307	2,269	892
	1904	55	1,077	70	108	899	.....	1,817	115	458	1,102	1,982	890
	1899	55	.....	.....	113	1,066	.....	1,296	103	433	850	1,684	834
Joliet	1909	137	7,266	128	755	6,383	37,744	25,586	930	4,435	27,758	38,817	11,639
	1904	104	6,627	86	749	5,792	.....	14,136	853	3,699	21,259	32,897	11,638
	1899	135	.....	.....	406	5,792	.....	15,040	345	3,548	17,193	26,132	8,929
Kankakee	1909	55	1,552	60	143	1,349	3,988	2,599	105	622	1,493	2,723	1,220
	1904	49	1,205	47	120	1,038	.....	1,746	120	512	1,026	2,089	1,061
	1899	36	.....	.....	10	377	.....	604	19	162	289	649	381
La Salle	1909	29	1,439	24	122	1,293	8,795	4,393	324	850	2,928	5,308	2,340
	1904	24	1,298	22	79	1,197	.....	2,053	139	685	1,878	3,158	1,260
	1899	26	.....	.....	67	917	.....	2,020	177	447	2,397	3,300	912
Lincoln	1909	40	308	49	39	220	385	611	32	115	200	570	360
	1904	39	331	53	42	236	.....	551	26	125	375	784	409
	1899	36	.....	.....	31	188	.....	398	17	82	156	376	219
Mattoon	1909	35	1,102	30	115	948	1,019	832	94	561	668	1,434	766
	1904	34	1,112	32	58	1,022	.....	683	60	590	522	1,300	787
	1899	39	.....	.....	38	632	.....	449	22	297	346	764	414
Moline	1909	66	6,106	44	613	5,449	10,230	26,334	888	3,523	11,189	20,892	9,795
	1904	62	4,474	45	442	3,987	.....	24,405	630	2,363	6,895	13,158	6,263
	1899	55	.....	.....	332	4,138	.....	10,994	372	2,116	4,598	9,302	4,794
Oak Park	1909	23	362	21	59	282	758	6,061	57	197	391	1,118	722
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

1 Figures not available.

2 Not incorporated in 1900.

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.

MANUFACTURES—ILLINOIS.

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 employes.	Wage earners (average number).							
Quincy.....	1909	235	5,050	201	823	4,032	7,557	\$11,908	\$680	\$2,083	\$5,792	\$11,436	\$5,644
	1904	231	5,509	207	700	4,602	.....	9,470	643	2,206	5,188	10,748	5,560
	1899	198	.....	.....	408	3,815	.....	6,443	364	1,602	4,351	7,010	3,568
Rock Island.....	1909	74	2,179	51	374	1,754	3,173	0,287	360	1,026	2,818	5,387	2,560
	1904	72	2,027	58	266	1,703	.....	7,203	292	895	2,580	5,333	2,753
	1899	66	.....	.....	184	1,685	.....	4,763	100	962	2,083	4,622	1,930
Rockford <sup>1</sup> .....	1909	205	10,523	208	1,006	9,309	16,217	22,412	1,131	5,213	10,582	22,206	11,684
	1904	180	7,969	112	618	7,230	.....	14,150	669	3,608	8,066	15,276	7,210
	1899	150	.....	.....	430	5,851	.....	13,613	405	2,397	6,202	11,022	4,820
Streator.....	1909	45	1,409	44	90	1,275	3,140	4,588	103	644	817	2,137	1,320
	1904	34	1,629	35	50	1,544	.....	1,370	68	1,035	584	1,880	1,305
	1899	42	.....	.....	41	1,283	.....	937	44	602	362	1,245	883
Waukegan.....	1909	59	3,773	146	537	3,000	23,144	17,092	586	2,103	14,164	19,684	5,820
	1904	42	2,614	34	315	2,265	.....	8,608	363	1,436	7,721	10,094	3,273
	1899	32	.....	.....	41	405	.....	771	40	181	338	733	305

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

MANUFACTURES—ILLINOIS.

TABLE II.—DETAIL STATEMENT

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.								WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.				
		Total.	Proprietors and firm members.	Salaried officers, supts. and managers.	Clerks.		Wage earners.			Total.	10 and over.		Under 16.	
					Male.	Female.	Average number.	Number.			Male.	Female.	Male.	Female.
								Maximum month.	Minimum month.					
1 All industries.....	18,026	561,044	17,357	16,254	46,390	15,279	465,764	De 498,640	Ja 438,594	(1)	(1)	(1)	(1)	(1)
2 Agricultural implements.....	79	21,511	48	604	1,342	277	19,240	De 21,855	Jy 16,391	21,528	21,244	264	20	
3 Artificial flowers and feathers and plumes.....	25	338	26	5	16	7	284	Mh 339	Jy 241	311	40	258		13
4 Artificial stone.....	366	1,312	473	32	11	11	785	Jo 1,040	Ja 369	1,117	1,117			
5 Automobiles, including bodies and parts.....	65	2,804	41	122	195	64	2,382	My 2,524	No 2,107	2,698	2,562	36		
6 Babbitt metal and solder.....	19	291	6	34	49	19	183	De 243	Mh 137	245	242	2	1	
7 Bags, other than paper.....	6	213	4	6	8	6	189	Oc 190	Ap 2 173	198	88	110		
8 Bags, paper.....	4	231	1	8	26	2	104	Se 210	My 182	200	136	64		
9 Baking powders and yeast.....	24	1,133	11	48	316	101	657	De 689	Jy 624	689	311	372		6
10 Baskets, and rattan and willow ware.....	15	78	16				62	Jy 83	Ja 44	64	46	18		
11 Belting and hose, leather.....	11	403	9	25	116	20	233	Se 251	Fe 210	247	241	6		
12 Bicycles, motorcycles, and parts.....	14	1,005	8	12	66	9	910	Jo 1,047	Ja 726	933	929		4	
13 Billiard tables and materials.....	8	204	6	9	17	5	167	My 211	De 133	133	125	8		
14 Blacking and cleansing and polishing preparations.....	58	407	50	20	65	30	230	Oc 251	Ja 218	249	150	84	15	
15 Bluing.....	10	28	8	1		1	18	De 21	Ja 2 16	21	11	8	2	
16 Boots and shoes, including cut stock and findings.....	53	6,392	38	113	311	138	5,762	Fe 5,981	Je 5,572	5,917	3,923	1,953	177	104
17 Boxes, cigar.....	18	463	17	11	24	7	404	So 421	Mh 392	419	148	220	14	28
18 Boxes, fancy and paper.....	61	4,509	31	159	139	104	4,085	De 4,448	Fe 3,925	4,448	1,623	2,478	44	403
19 Brass and bronze products.....	79	2,052	56	110	138	60	1,688	Do 1,861	Mh 1,574	1,865	1,817	41	7	
20 Bread and other bakery products.....	2,099	12,566	2,409	161	801	584	8,611	Au 8,765	Ja 8,319	8,871	7,047	1,711	50	57
21 Brick and tile.....	340	7,347	384	242	117	30	6,574	Je 8,302	Ja 3,795	7,849	7,796		53	
22 Brooms.....	87	682	98	23	50	11	494	De 550	Je 452	641	537	92	6	6
23 Brushes.....	32	392	26	15	16	9	326	My 358	Je 308	321	212	103	2	4
24 Butter, cheese, and condensed milk.....	295	3,000	896	133	187	52	1,732	Je 1,867	De 1,027	1,689	1,340	335	6	8
25 Buttons.....	28	623	39	13	6	17	548	De 685	Jy 434	686	588	92	5	1
26 Calcium lights.....	3	12	1	2		2	7	De 7	Je 6	7	7			
27 Canning and preserving.....	118	2,800	113	114	140	50	2,383	Se 6,539	Ja 1,013	4,996	2,428	2,399	82	87
28 Carpets, rag.....	67	368	69	10	18	3	266	My 302	Fe 218	273	230	38	5	
29 Carriages and wagons and materials.....	325	6,746	349	188	260	97	5,832	My 6,999	Ja 5,345	6,094	5,975	106	13	
30 Cars and general shop construction and repairs by steam-railroad companies.....	73	24,406		394	835	46	23,131	De 25,501	My 21,319	25,501	25,441	50	4	
31 Cars and general shop construction and repairs by street-railroad companies.....	30	2,364		73	49	2	2,240	No 2,427	Jy 2,101	2,573	2,569	4		
32 Cars, steam-railroad, not including operations of railroad companies.....	28	11,782	2	200	589	46	10,945	De 14,553	Au 8,670	13,746	13,695	51		
33 Cement.....	6	1,536		28	95	18	1,395	Je 1,491	Fe 1,254	1,468	1,466	2		
34 Chemicals.....	19	972	2	37	69	28	836	No 993	Fe 660	970	964	12		
35 Clocks and watches, including cases and materials.....	10	5,883	9	37	125	47	5,605	No 5,931	Ap 5,493	5,881	3,322	2,614	23	12
36 Cloth, sponging and refinishing.....	6	106	4	4	3	4	91	De 94	Au 87	94	93			
37 Clothing, men's, including shirts.....	715	41,122	861	400	2,544	1,165	36,152	Se 37,746	Ja 33,275	38,493	18,081	10,353	200	793
38 Clothing, women's.....	221	7,279	267	143	483	235	6,151	Oc 6,865	Ja 5,578	6,524	2,931	4,397	9	87
39 Coffee and spice, roasting and grinding.....	35	1,792	23	71	596	84	1,018	No 1,070	Au 975	1,043	2,031	4,397	18	13
40 Coffins, burial cases, and undertakers' goods.....	21	924	10	41	130	11	732	Mh 774	Se 705	717	508	182	7	20
41 Confectionery.....	140	4,622	112	112	392	207	3,799	Oc 4,617	Ja 3,200	4,493	1,546	2,645	25	277
42 Cooperage and wooden goods, not elsewhere specified.....	80	2,617	56	95	50	28	2,388	No 2,685	Je 2,241	2,572	2,556	2	14	
43 Copper, tin, and sheet-iron products.....	483	8,897	508	276	425	215	7,473	De 7,923	Ja 6,551	8,202	6,837	1,045	85	53
44 Cordage and twine and jute and linen goods.....	7	1,884		49	28	8	1,799	De 2,147	Au 1,610	2,102	2,102	1,142	14	50
45 Cork, cutting.....	4	112	1	4	4	1	102	Mh 113	Jy 2 98	99	65	34		
46 Corsets.....	16	1,663	6	30	59	66	1,502	Fe 1,574	Je 1,400	1,470	104	1,248	25	102
47 Cotton goods, including cotton small wares.....	5	1,397		33	26	19	1,319	De 1,454	Ja 1,212	1,464	445	911	43	55
48 Cutlery and tools, not elsewhere specified.....	80	1,661	63	72	81	52	1,398	De 1,517	Jn 1,322	1,547	1,402	117	22	6
49 Dairymen's poulterers', and apiarists' supplies.....	29	427	30	21	21	32	323	Ap 455	Se 234	343	310	20	4	
50 Dentists' materials.....	10	85	5	9	8	15	48	Ja 2 52	Jy 2 44	52	42	8	2	
51 Electrical machinery, apparatus, and supplies.....	143	11,854	55	367	1,262	529	9,641	No 11,273	Ja 8,112	11,382	8,666	2,763	44	9
52 Electroplating.....	43	457	49	18	7	8	375	No 397	Au 352	390	373	11	12	3
53 Emery and other abrasive wheels.....	4	67	3	9	10	4	41	De 43	Fe 39	43	40	3		
54 Enameling and japanning.....	5	35	4	2			29	Oc 36	Ja 22	34	31			
55 Explosives.....	8	327		15	15	7	290	De 326	Ap 251	326	326			
56 Fancy articles, not elsewhere specified.....	44	613	32	43	53	41	444	Oc 556	Ap 334	521	290	215	8	8
57 Files.....	4	85	5	2	1	1	76	Fe 79	Au 2 74	78	78			
58 Fire extinguishers, chemical.....	5	54	2	5	16	3	28	Au 33	De 21	32	29	3		
59 Fireworks.....	6	114	1	8	4	3	98	Ap 128	Jy 64	95	49	46		
60 Flags, banners, regalia, society badges and emblems.....	24	376	18	12	33	20	293	Je 345	De 257	257	64	181	5	7
61 Flour-mill and gristmill products.....	461	3,634	544	253	285	88	2,464	Au 2,557	Je 2,272	2,627	2,608	17	2	
62 Foundry and machine-shop products.....	1,178	61,363	700	2,317	4,863	1,157	52,266	De 59,220	Ja 47,909	59,221	57,542	1,450	211	18
63 Fur goods.....	63	473	63	21	57	13	319	No 434	Mh 237	394	215	175	1	3
64 Furnishing goods, men's.....	61	3,116	60	50	215	94	2,638	No 3,018	Ja 2,355	2,878	358	2,423	9	88
65 Furniture and refrigerators.....	267	15,240	300	407	701	257	13,575	Oc 14,451	Ja 12,139	14,125	13,613	323	185	4
66 Gas and electric fixtures and lamps and reflectors.....	78	2,619	41	125	238	125	2,090	No 2,334	Je 1,940	2,335	1,826	458	40	11
67 Gas, illuminating and heating.....	78	8,020	2	209	1,315	133	6,301	Je 7,135	Fe 5,018	5,785	5,785			

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

THE STATE, BY INDUSTRIES: 1909.

	EXPENSES.											Value of products.	Value added by manufacture.
	Capital.	Total.	Services.			Materials.		Miscellaneous.					
			Officals.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1	\$1,548,170,701	\$1,783,327,352	\$38,128,166	\$53,320,948	\$273,319,005	\$48,104,400	\$1,112,732,200	\$11,153,257	\$57,023,503	\$13,025,794	\$125,829,989	\$1,910,276,594	\$758,349,904
2	110,605,187	44,148,008	1,226,127	1,400,606	11,718,384	797,922	24,026,185	8,315	358,174	15,931	4,590,664	57,268,325	32,444,218
3	174,548	332,502	6,970	13,882	85,075	2,000	140,931	17,982	560	520	57,082	406,030	287,099
4	1,236,408	1,123,170	31,639	7,643	439,214	10,548	506,363	11,137	4,358	1,311	50,966	1,488,209	911,388
5	4,083,973	0,774,527	267,022	168,547	1,053,189	61,312	3,017,807	96,973	12,110	70,947	535,853	7,153,818	3,174,099
6	1,400,799	3,817,757	80,838	71,447	108,517	22,617	3,351,255	4,010	8,450	.....	161,008	4,145,789	771,917
7	575,574	805,618	14,500	0,060	176,042	4,060	680,073	4,442	1,453	.....	5,488	965,442	280,400
8	1,690,925	1,025,820	22,402	32,980	98,899	9,804	757,091	750	3,377	.....	103,430	1,123,610	356,715
9	0,115,498	0,017,782	167,123	342,250	340,250	33,230	3,227,629	20,357	20,138	.....	1,851,757	7,032,063	4,371,105
10	40,675	80,046	.....	.....	30,296	413	44,115	3,020	330	.....	1,866	101,472	56,944
11	1,279,476	2,051,612	64,686	118,409	104,530	16,532	1,368,030	30,755	2,935	.....	285,733	2,187,555	802,987
12	1,276,856	1,755,616	25,322	53,072	600,233	10,099	954,033	9,271	3,088	1,080	90,318	1,777,464	804,332
13	381,023	359,957	15,400	29,500	87,600	5,813	153,022	2,220	1,378	.....	66,944	403,103	243,428
14	616,088	997,542	59,909	98,883	122,022	7,885	562,016	17,240	2,270	.....	132,878	1,229,961	660,500
15	15,277	52,640	1,800	578	7,862	247	31,816	3,012	58	.....	0,376	66,949	34,886
16	7,699,020	15,485,947	298,955	400,916	3,142,912	106,895	10,701,977	81,340	23,920	4,170	604,892	16,754,704	5,885,802
17	358,050	581,030	20,880	30,357	158,099	8,672	308,414	19,153	1,995	1,000	33,660	664,469	347,383
18	3,813,498	5,050,611	240,707	197,198	1,501,273	64,233	2,947,314	123,416	19,509	25,000	525,061	6,349,621	3,338,074
19	4,055,823	0,189,929	250,033	179,238	1,130,179	95,743	4,051,802	61,443	11,746	2,640	305,105	6,841,735	2,694,190
20	24,224,210	30,899,184	304,629	981,980	5,494,007	672,880	20,933,099	629,595	103,443	1,004	1,717,887	36,117,988	14,612,007
21	18,496,247	8,285,610	347,258	118,882	4,386,001	1,806,102	686,256	13,897	79,548	33,004	815,572	9,785,051	7,273,698
22	722,783	1,248,615	27,600	64,942	235,060	5,758	829,088	9,336	2,601	8,685	65,406	1,464,896	630,100
23	497,181	874,123	25,346	18,700	180,370	4,316	549,830	10,748	1,086	.....	83,067	964,850	410,704
24	7,819,090	10,485,553	175,463	222,812	942,208	259,396	14,007,625	20,150	84,186	225	823,690	17,798,278	3,591,357
25	262,004	557,542	10,231	14,656	246,892	7,187	229,350	8,328	514	10,015	24,360	675,981	439,444
26	29,265	32,385	2,800	1,240	5,292	256	19,130	1,740	60	.....	1,867	26,720	7,343
27	5,629,637	0,704,951	201,452	105,382	903,632	73,393	4,739,303	65,786	26,037	10,383	518,983	7,610,586	2,806,890
28	173,701	249,305	12,634	9,089	116,230	8,943	58,143	12,818	864	700	32,945	340,799	275,718
29	17,868,786	14,810,098	343,145	300,393	3,688,016	182,298	9,297,007	105,562	85,148	4,865	903,634	16,831,283	7,351,948
30	18,722,338	32,236,134	553,697	741,000	15,287,571	943,716	14,289,060	.....	95,395	27	325,608	32,229,243	16,900,467
31	3,885,611	3,439,334	80,476	42,391	1,395,029	44,064	1,703,238	1,250	24,905	554	87,427	3,450,643	1,643,341
32	37,984,778	25,685,563	506,912	494,720	7,823,910	403,240	14,872,742	92,441	133,282	277,851	1,020,456	27,001,002	11,065,110
33	6,686,567	3,197,433	83,855	181,680	854,707	700,369	900,440	15,520	14,826	.....	427,040	4,087,507	2,468,098
34	4,039,170	3,927,458	88,888	92,443	531,315	205,714	2,690,086	6,007	8,839	4,180	290,408	4,659,274	1,700,474
35	12,411,573	5,819,048	143,516	162,117	3,217,149	45,745	1,642,706	0,098	70,233	148	531,936	7,045,275	5,350,824
36	80,806	93,072	6,820	5,688	51,824	672	.....	13,300	201	.....	14,567	119,290	118,024
37	38,762,020	80,393,885	1,314,012	3,179,394	10,589,002	280,747	44,947,533	808,744	77,858	5,259,046	7,858,449	89,472,755	44,244,475
38	5,607,104	14,992,614	334,753	651,855	3,151,998	54,109	9,159,417	282,251	15,484	502,014	840,783	10,635,236	7,421,710
39	8,751,891	18,352,146	267,163	822,389	524,800	87,040	15,025,755	152,953	40,007	33,183	1,407,188	19,751,188	4,637,484
40	2,088,893	2,042,390	103,521	201,777	405,910	10,545	965,835	24,086	10,802	5,150	309,287	2,259,783	1,277,493
41	6,094,450	11,214,390	248,102	522,742	1,428,045	116,187	7,549,211	104,909	21,497	1,166	1,161,932	12,798,077	5,122,079
42	4,452,842	6,137,357	184,461	64,263	1,126,580	62,507	4,410,811	24,248	17,978	0,373	234,136	6,610,969	2,131,651
43	31,018,411	20,390,274	588,053	499,565	4,314,684	213,083	12,079,480	219,785	81,528	14,251	1,389,245	22,822,810	9,629,647
44	13,014,494	6,883,300	66,068	24,658	659,584	66,222	5,875,400	3,000	60,079	.....	142,356	8,237,165	2,205,534
45	180,018	207,433	16,040	6,524	44,071	2,855	116,714	7,740	640	.....	12,840	238,468	118,899
46	1,306,114	2,280,612	77,969	132,378	524,530	14,857	1,180,468	20,706	2,565	.....	321,139	2,711,213	1,515,888
47	1,079,075	1,806,052	60,860	44,043	522,073	30,720	1,071,294	18,800	6,020	.....	139,542	2,111,208	1,009,194
48	2,455,288	2,363,064	155,942	120,180	760,385	53,286	1,018,883	33,484	11,034	985	208,885	2,757,702	1,085,593
49	850,129	978,104	17,878	31,130	178,333	10,006	565,436	8,560	2,914	2,027	151,280	1,180,898	605,450
50	71,764	201,740	13,000	14,874	36,043	1,639	113,103	6,663	339	.....	16,089	231,884	117,142
51	24,201,532	24,937,852	762,884	1,360,742	6,412,671	233,308	13,395,080	200,876	169,782	37,172	2,315,277	20,826,177	13,197,729
52	289,702	562,107	23,110	7,739	245,432	15,020	210,402	20,510	1,115	.....	28,879	606,672	470,250
53	84,866	119,180	9,602	10,756	19,784	1,480	43,415	4,640	197	.....	29,246	155,818	110,423
54	14,066	40,230	1,092	.....	14,745	1,847	15,632	2,620	57	.....	3,337	27,679	27,679
55	1,561,612	1,250,804	28,030	16,190	189,558	29,226	905,066	150	4,414	1,603	76,157	1,469,469	534,177
56	659,251	1,119,375	67,162	73,075	221,757	7,768	566,508	31,294	1,209	24,072	125,930	1,819,861	745,585
57	84,200	86,973	2,240	1,976	49,081	3,900	23,260	1,172	744	200	4,391	99,522	72,363
58	109,771	142,098	19,340	37,650	14,590	166	61,750	3,318	83	.....	5,795	164,437	102,521
59	180,844	142,939	21,900	4,916	35,548	745	60,522	4,470	1,037	.....	8,711	142,973	75,706
60	383,331	576,368	18,136	111,923	38,804	3,804	309,361	11,181	1,008	.....	12,110	69,310	362,590
61	18,453,727	48,852,744	488,094	316,182	1,271,182	330,242	45,259,329	25,140	87,302	546	1,073,827	51,110,681	5,521,110
62	143,276,987	123,396,892	5,413,640	5,309,986	33,159,824	2,689,463	61,120,725	1,065,162	589,672	1,059,200	12,995,230	138,578,993	74,768,805
63	971,515	1,584,835	49,408	59,403	229,532	3,206	1,007,726	71,349	1,976	20,370	81,865	1,929,470	858,538
64	2,881,103	0,726,981	170,804	255,918	1,014,719	17,984	4,555,098	83,640	17,676	16,959	594,093	7,213,437	2,640,355
65	22,383,174	25,169,468	887,571	867,002	8,999,683	317,015	12,183,305	313,768	116,333	55,147	2,328,734	27,990,262	15,899,642
66	3,667,399	5,102,455	881,241	286,240	1,184,283	44,024	2,049,298	89,950	10,300	.....	445,808	5,797,373	





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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	\$7,738,230	\$4,664,447	\$126,660	\$104,784	\$2,181,683	\$468,582	\$1,072,872	\$1,320	\$25,034	\$536	\$682,367	\$5,047,333	\$3,505,870
2	1,093,490	2,331,900	79,176	90,287	518,802	19,114	1,450,288	22,997	7,952	16,000	110,214	2,522,063	1,044,551
3	66,747	209,833	14,050	1,274	61,183	1,163	126,702	3,060	174	.....	2,227	226,806	97,041
4	2,852,246	5,076,472	91,285	132,282	531,305	154,921	3,910,127	9,345	13,250	400	233,488	5,689,617	1,624,569
5	295,106	396,973	26,665	30,714	102,030	4,253	165,074	22,548	1,900	938	41,861	478,911	300,584
6	279,637	902,607	37,469	26,320	266,879	5,978	472,532	30,171	963	5,286	57,009	1,046,485	607,975
7	70,007	250,898	1,560	10,650	70,990	1,774	153,163	9,732	227	.....	2,802	286,721	131,784
8	5,115,962	4,938,859	105,179	115,841	1,116,476	56,391	3,175,974	38,128	14,957	38,825	277,088	5,940,737	2,714,372
9	5,674,739	1,424,335	145,830	46,246	534,166	291,192	150,738	7,298	26,012	3,682	219,271	1,028,323	1,486,393
10	254,387	316,498	29,600	42,496	26,508	5,394	158,869	4,320	939	.....	49,382	415,025	260,772
11	52,389,822	34,196,011	174,841	320,726	1,792,965	12,256,101	18,652,361	.....	184,240	.....	814,768	38,209,807	7,391,435
12	69,682,405	75,221,710	880,917	1,414,278	12,902,087	3,598,585	52,045,878	5,800	207,590	.....	3,446,575	86,608,137	30,363,074
13	1,822,066	2,358,271	94,440	115,277	650,233	10,727	1,247,125	68,723	5,706	2,006	158,028	2,770,062	1,516,110
14	687,177	368,440	26,720	67,474	37,198	10,147	157,017	3,230	2,260	.....	63,794	431,352	263,688
15	34,007	70,625	.....	716	12,974	252	52,910	1,140	56	.....	2,477	87,883	34,721
16	5,269,975	7,985,971	218,990	279,004	1,633,407	50,040	5,078,924	132,937	25,214	4,990	555,509	8,948,324	3,813,354
17	15,974,832	14,736,180	169,964	116,908	1,522,630	151,707	11,078,902	26,278	35,181	7,310	677,900	14,011,782	2,781,173
18	1,258,141	519,065	40,717	23,594	282,967	88,878	85,442	488	7,608	.....	61,011	687,976	513,656
19	7,600,330	53,219,062	120,059	71,483	478,685	247,594	8,001,701	4,451	42,770,367	24,235	623,037	55,199,874	45,900,579
20	56,141,165	23,618,940	1,018,247	680,966	3,473,300	591,827	6,441,366	.....	5,602,471	8,601	5,902,162	28,449,148	21,416,955
21	34,150	15,840	.....	.....	1,989	4	12,004	236	84	.....	620	28,711	15,803
22	20,777,623	41,125,558	1,132,843	828,257	9,109,584	356,832	26,907,304	306,484	146,020	234,491	2,103,083	44,951,804	17,087,008
23	4,689,083	5,667,371	231,300	137,570	1,706,107	87,010	2,943,230	60,716	20,408	123,782	297,239	6,770,990	3,740,747
24	1,150,945	2,503,832	70,020	84,131	447,691	18,876	1,614,888	60,520	3,864	4,377	193,465	2,860,042	1,226,278
25	2,188,576	6,444,318	203,213	352,007	1,383,832	31,217	3,769,070	168,758	7,367	2,656	439,129	7,281,914	3,484,018
26	447,280	992,144	22,854	17,435	231,681	11,086	623,702	19,545	2,182	400	63,259	1,106,480	471,602
27	520,739	701,410	45,643	33,302	308,255	14,507	188,893	34,661	1,252	1,455	73,448	889,437	689,037
28	511,602	502,478	30,041	21,206	200,606	8,707	169,675	18,500	2,192	72	45,339	629,163	450,691
29	27,718,851	16,686,065	631,455	583,811	5,009,042	158,028	8,484,403	89,168	95,084	14,144	1,020,930	19,176,328	10,533,897
30	15,725,376	17,926,283	608,050	1,048,943	1,114,298	149,280	12,752,331	61,785	72,083	6,144	2,113,369	20,434,291	7,532,080
31	8,400,333	4,567,670	118,514	81,299	727,420	320,352	2,770,088	8,080	17,723	3,927	511,267	4,063,075	1,883,635
32	2,260,405	3,435,708	149,076	182,130	546,165	32,582	1,994,879	69,873	46,277	70,677	374,440	3,770,297	1,782,136
33	7,988,944	10,742,989	652,117	1,104,065	804,761	73,308	4,330,710	183,928	30,313	70,795	3,474,992	13,114,307	8,701,289
34	117,164	141,816	3,000	21,266	23,224	734	67,551	3,000	166	8,550	12,224	170,467	102,182
35	708,260	642,700	54,065	27,006	159,592	6,402	311,382	9,126	3,919	500	73,807	739,857	422,073
36	1,390,856	2,268,578	177,632	207,753	949,100	31,342	502,413	63,385	6,488	25,590	214,896	2,678,304	2,144,549
37	14,900,981	3,946,383	199,795	186,052	1,884,879	433,231	603,215	3,894	23,434	45,566	479,117	4,614,728	3,488,282
38	60,084,133	73,964,422	4,788,751	7,583,416	18,430,924	845,508	23,834,405	1,705,047	250,085	4,738,140	11,773,080	87,247,090	62,567,117
39	664,286	641,100	46,371	21,435	179,136	11,383	316,168	6,770	3,157	246	56,440	658,554	331,063
40	251,977	323,529	16,900	11,070	52,875	5,448	104,528	12,517	462	.....	29,829	381,363	181,387
41	515,477	528,831	39,870	25,108	151,166	7,700	237,420	7,579	3,299	.....	56,589	674,420	329,195
42	4,430,468	3,306,683	114,404	151,014	1,113,885	48,412	1,062,064	2,938	16,757	.....	798,209	3,021,554	2,511,078
43	2,060,884	532,277	22,772	11,079	251,504	21,423	177,332	3,179	12,595	288	32,015	583,783	385,028
44	539,250	691,413	23,700	32,770	247,869	9,125	280,525	10,525	3,025	22,175	61,090	829,472	539,322
45	2,693,029	2,915,265	158,216	233,602	750,349	18,179	967,165	57,780	4,093	75,229	649,512	3,271,331	2,285,987
46	131,026,247	378,189,420	1,007,485	5,432,564	14,601,991	1,485,207	342,400,800	165,663	519,147	239,732	12,255,870	389,594,000	45,618,899
47	7,599,278	8,409,061	200,891	111,765	1,275,192	629,206	5,895,578	.....	27,229	.....	298,330	9,003,634	2,507,840
48	1,603,000	3,638,984	99,929	38,369	206,079	78,593	3,155,613	6,028	4,249	.....	79,017	3,929,755	695,630
49	11,693,053	18,835,398	219,192	1,136,533	1,052,608	292,310	13,045,841	28,669	49,811	19,468	2,381,056	20,180,799	9,232,639
50	156,862	355,569	20,369	61,942	5,130	188,462	9,835	.....	343	.....	29,717	18,496	214,308
51	777,366	1,156,678	106,926	79,768	472,376	26,593	280,335	50,493	2,122	4,784	124,251	1,282,292	966,364
52	9,862,026	9,025,860	366,171	509,366	2,057,646	143,358	3,712,879	33,213	49,130	18,531	1,239,486	10,287,335	6,431,398
53	1,073,702	1,855,790	83,031	288,851	284,512	13,947	906,887	23,743	4,719	1,150	248,956	2,098,942	1,178,198
54	12,794,393	18,230,593	257,298	560,436	4,215,848	66,700	8,535,962	250,791	2,410,665	3,486	1,929,497	21,870,252	13,267,590
55	1,852,184	1,188,289	100,600	100,696	392,566	12,920	392,459	46,793	3,754	5,692	253,023	1,247,937	872,552
56	1,139,847	1,168,877	64,020	56,273	173,127	14,804	686,779	7,790	4,248	.....	161,770	1,366,763	665,120
57	261,036	177,930	7,758	5,079	33,361	7,825	108,797	1,936	2,120	.....	10,148	203,312	86,690
58	1,663,075	1,190,230	60,938	14,054	236,760	21,110	752,037	2,720	5,917	.....	96,685	1,314,100	540,944
59	169,900,392	181,930,730	4,310,009	5,539,512	20,944,403	7,892,285	127,040,368	1,181,455	832,792	209,172	13,974,734	205,467,461	70,528,808

\* All other industries embrace—Continued.

Lard, refined, not made in slaughtering and meat-packing establishments.....	1	Petroleum, refining.....	7	Sulphuric, nitric, and mixed acids.....	2
Lasts.....	2	Phonographs and graphophones.....	1	Tin plate and terneplate.....	2
Lead, bar, pipe and sheet.....	2	Pipes, tobacco.....	4	Tin foil.....	1
Looking-glass and picture frames.....	68	Roofing materials.....	17	Toys and games.....	19
Malt.....	12	Rules, ivory and wood.....	1	Typewriters and supplies.....	11
Matches.....	1	Safes and vaults.....	3	Umbrellas and canes.....	4
Millstones.....	1	Sand and emery paper and cloth.....	1	Upholstering materials.....	10
Mineral and soda waters.....	276	Saws.....	8	Vault lights and ventilators.....	5
Moving pictures.....	3	Screws, machine.....	2	Vinegar and cider.....	15
Mucilage and paste.....	8	Screws, wood.....	2	Washing machines and clothes wringers.....	13
Oil, cottonseed, and cake.....	2	Shoddy.....	1	Waste.....	2
Oil, linseed.....	5	Silk and silk goods, including throwsters.....	2	Whips.....	2
Oil, not elsewhere specified.....	11	Silverware and plated ware.....	1	Windmills.....	11
Oilcloth and linoleum.....	1	Smelting and refining, lead.....	4	Window shades and fixtures.....	36
Oleomargarine.....	3	Soda-water apparatus.....	0	Wire.....	7
Optical goods.....	8	Sporting and athletic goods.....	24	Wirework, including wire rope and cable.....	60
Paper patterns.....	3	Springs, steel, car and carriage.....	5	Wood preserving.....	6
Paving materials.....	7	Stationary goods, not elsewhere specified.....	21	Wood, turned and carved.....	47
Peanuts, grading,					