

MANUFACTURES : ALASKA

STATISTICS OF MANUFACTURES FOR THE TERRITORY 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 Alaska 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 Alaska, and in the final reports of the Thirteenth Census.

The text summarizes the general results of the census inquiry, presenting special tables in which some

of the main facts printed in the general table and certain additional information are given. At the end of the bulletin is a general table giving for 1909 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 nine important industries individually.

INDUSTRIES IN GENERAL.

**General character of the territory.**—The territory of Alaska has a gross area of 590,884 square miles, and its population in 1910 was 64,356, as compared with 63,592 in 1900. The density of population was the same in 1910 as in 1900, one person to every 10 square miles. There were but two towns in the territory in 1910 having over 2,500 inhabitants—Fairbanks with 3,541 and Nome with 2,600—and only five others with a population exceeding 1,000. Only 26.8 per cent of the inhabitants of the territory resided in these seven towns and the seven smaller incorporated places. The absence of transportation facilities is one of the great drawbacks to the development of the vast resources of Alaska. The territory had only about 300 miles of railroad in 1909, which consisted chiefly of short lines

to meet local requirements. Several rivers are navigable, but these are open only a few months of the year. Alaska has great natural wealth; it is rich in minerals, in timber, and in fisheries, and has some agricultural possibilities.

**Importance and growth of manufactures.**—Although the manufactures of Alaska are relatively unimportant, they have shown considerable development since the first industrial census of the territory in 1890, when the only establishments reported were those engaged in the lumber industry.

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

	NUMBER OR AMOUNT.			PER CENT OF INCREASE. <sup>1</sup>	
	1909	1904	1899	1904-1909	1899-1904
Number of establishments.....	152	82	48	85.4	70.8
Persons engaged in manufactures.....	3,479	2,164	( <sup>2</sup> )	60.8	-----
Proprietors and firm members.....	195	31	( <sup>2</sup> )	335.5	-----
Salaried employees.....	245	195	82	25.6	137.8
Wage earners (average number).....	3,099	1,938	2,260	59.9	-14.2
Primary horsepower.....	3,975	2,946	1,071	34.9	175.1
Capital.....	\$13,060,000	\$10,685,000	\$3,569,000	22.2	199.4
Expenses.....	9,453,000	7,012,000	3,414,000	34.8	105.4
Services.....	2,328,000	1,418,000	1,493,000	64.2	-5.0
Salaries.....	380,000	322,000	118,000	18.0	172.9
Wages.....	1,948,000	1,096,000	1,375,000	77.7	-20.3
Materials.....	5,120,000	3,742,000	1,763,000	36.8	112.3
Miscellaneous.....	2,005,000	1,852,000	158,000	8.3	-17.2
Value of products.....	11,340,000	8,245,000	4,194,000	37.5	96.6
Value added by manufacture (value of products less cost of materials).....	6,220,000	4,503,000	2,431,000	38.1	85.2

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

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

In 1909 the territory of Alaska had 152 manufacturing establishments, which gave employment to an average of 3,479 persons during the year and paid out \$2,328,000 in salaries and wages. Of the persons em-

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ployed, 3,099 were wage earners. These establishments turned out products to the value of \$11,340,000, in the manufacture of which materials costing \$5,120,000 were utilized. The value added by manufacture was thus \$6,220,000, which figure best represents the net wealth created by manufacturing operations during the year.

From 1904 to 1909 the number of establishments increased 85.4 per cent and the average number of wage earners 59.9 per cent, while the value of products increased 37.5 per cent and the value added by manufacture 38.1 per cent. It would be improper to infer that manufactures increased in volume to the full extent indicated by these figures relating to values, since the increase shown is certainly due, in part, to the increase that has taken place in the prices of commodities.

The relative importance and growth of the leading manufacturing industries of the territory are shown in the comparative table below.

An evidence of the advance made in manufactures in Alaska is the fact that the 82 establishments reported in 1904 represented only 11 different industries, whereas the 152 establishments in 1909 represented 24 industries.

The figures for canning and preserving represent only the operations of fish canneries and fish-salting establishments. Alaska leads all of the states and territories of the Union in the production of canned and preserved fish, contributing 26.5 per cent of the total value of the output of this branch of the canning industry for the country as a whole in 1909, as compared with 29.3 per cent in 1904 and 17.4 per cent in 1899. In 1909, 46

establishments, with products valued at \$9,190,000, were reported for this industry, while in 1899 there were 36 establishments, with products valued at \$3,821,000. The average number of wage earners, which was only about one-half of the maximum number employed during the busy season, was 2,717 in 1909, as compared with 2,092 in 1899.

The lumber industry and printing and publishing are the only other industries for which comparative data for earlier censuses can be given. Twenty-two establishments were reported for the lumber industry in 1909, as compared with 6 in 1904 and 10 in 1899, and the value of products for this industry was \$400,000 in 1909, \$245,000 in 1904, and \$155,000 in 1899. Nearly all the lumber cut was spruce, only a few thousand feet each of cottonwood, cedar, and hemlock being cut. The principal products of the mills, next to rough lumber, were salmon boxes, shingles, and building materials.

The printing and publishing industry has shown rapid growth since 1904, the first census year for which it was reported. In that year there were 5 establishments, and in 1909 there were 16. The value of products increased from \$26,000 in 1904 to \$228,000 in 1909. The number of daily papers increased from 3, with a circulation of 1,070, in 1904, to 12, with a circulation of 5,800, in 1909. No Sunday papers were published in 1904; but two of this class were published in 1909. The weeklies increased in number and circulation nearly as much as the dailies. All the publications were printed in the English language, and the average price for the dailies, exclusive of Sunday editions, was \$24 per annum, and for the weeklies \$12 per annum.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.					Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaries employees.	Wage earners (average number).								
								Expressed in thousands.						
<b>All industries.....</b>	1909	152	3,479	135	245	3,099	3,975	\$13,060	\$380	\$1,948	\$5,120	\$11,340	\$6,220	
	1904	82	2,164	31	185	1,938	2,946	10,685	322	1,098	3,742	8,245	4,503	
	1899	48			82	2,260	1,071	3,569	118	1,375	1,763	4,194	2,431	
<b>Canning and preserving.....</b>	1909	46	2,922	21	184	2,717	1,855	10,822	247	1,458	4,053	9,190	5,137	
	1904	63	1,993	13	175	1,805	2,305	10,276	292	950	3,546	7,736	4,190	
	1899	36	2,163	7	64	2,092		3,203	106	1,248	1,588	3,821	2,233	
<b>Lumber and timber products.....</b>	1909	22	178	28	19	131	1,391	658	36	108	169	400	231	
	1904	6	72	5	4	63	335	205	8	72	78	245	107	
	1899	10			13	78		150	8	56	67	155	88	
<b>Printing and publishing.....</b>	1909	16	80	14	11	64	76	141	28	100	36	228	192	
	1904	5	18	6	1	11	12	13	1	9	4	26	22	
<b>All other industries.....</b>	1909	68	290	72	31	187	653	1,439	69	282	862	1,522	660	
	1904	8	81	7	15	59	294	191	21	65	114	238	124	
	1899	2			5	90		216	4	70	108	218	110	

**Persons engaged in manufacturing industries.**—Table I, page 4, shows that the average number of persons engaged in manufactures during 1909 was 3,479, of whom 3,099 were wage earners. Of the remainder, 278 were proprietors and officials and 102 were clerks. Corresponding figures for individual industries also will be found in this table.

Of the total number of persons engaged in all manufacturing industries, 8 per cent were proprietors and officials, 2.9 per cent clerks, and 89.1 per cent wage earners.

The industries of the territory are dependent upon male wage earners 16 years of age and over. In 1909 but 59 females over the age of 16 and 36 children under

that age were reported, who formed 1.9 per cent and 1.2 per cent, respectively, of the average number of wage earners employed in all industries combined.

**Wage earners employed, by months.**—The next table gives the number of wage earners employed on the 15th of each month during the year 1909, for all industries combined, for canning and preserving, 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 I, page 4, are shown, for all of the important industries in the territory, the largest number and the smallest number of wage earners reported for any month. The figures are for the 15th day, or the nearest representative day, of the month.

The canning and preserving industry, which is a seasonal one, giving employment to a large number of persons from April to September, inclusive, greatly affects the total for all industries combined, by increasing the degree of variation between the numbers employed in different months. From 30 wage earners in this industry in January the number increased to 5,569 in July, the month of greatest employment. In the industries other than canning and preserving, considered together, the number is also largest in July, declining to a minimum in January, but the numbers reported for the months of least activity, January and February, form somewhat more than one-third of the number in July, whereas in the case of canning and preserving the proportions are less than 1 per cent.

MONTH.	NUMBER OF WAGE EARNERS.					
	All industries.		Canning and preserving.		All other industries.	
	Num-ber.	Per-cent of maxi-mum.	Num-ber.	Per-cent of maxi-mum.	Num-ber.	Per-cent of maxi-mum.
January.....	242	3.9	30	0.5	212	38.9
February.....	256	4.2	44	0.8	212	39.9
March.....	688	9.6	288	5.2	300	52.3
April.....	4,377	81.0	4,530	82.2	397	69.2
May.....	5,875	95.6	5,379	99.6	496	86.4
June.....	5,992	97.5	5,432	97.5	560	97.6
July.....	5,143	100.0	5,569	100.0	374	100.0
August.....	6,055	98.8	5,524	99.2	531	92.5
September.....	5,117	83.3	4,060	83.7	457	79.0
October.....	1,229	20.0	861	15.5	368	64.1
November.....	438	7.1	187	3.4	251	43.7
December.....	281	4.0	50	0.9	231	40.2

**Character of ownership.**—The next table has for its purpose the presentation of conditions in respect to the character of ownership, or legal organization, of manufacturing enterprises. Comparative figures are given covering the censuses of 1909 and 1904. Comparative data for 1899 are not available.

The most important distinction shown is that between corporate and all other forms of ownership. In 1909 there were 58 establishments under corporate ownership, 1 less than in 1904. On account of the decided increase in the number of establishments operated by firms and individuals, the number owned by corporations constituted only 38.2 per cent of the total in 1909, as compared with 72 per cent in 1904. The value

of products of the latter class of establishments far exceeded the combined value for all others in both years, and increased from \$8,011,114 in 1904 to \$9,603,065 in 1909, yet the proportion which it formed of the total for all establishments decreased from 97.2 per cent in 1904 to 84.7 per cent in 1909. The fact that over 90 per cent of the value of the output of the salmon canneries was reported for establishments controlled by corporations accounts for the predominance of this class of establishments in the statistics for all industries combined.

INDUSTRY AND CHARACTER OF OWNERSHIP.	Num-ber of estab-lish-ments.	Average number of wage earners.	Value of products.	Value added by manu-facture.
<b>ALL INDUSTRIES:</b>				
1909.....	152	3,099	\$11,340,105	\$6,220,492
1904.....	82	1,938	8,244,524	4,502,578
Individual:				
1909.....	65	303	879,038	544,025
1904.....	15	49	150,154	92,380
Firm:				
1909.....	29	121	858,002	361,235
1904.....	8	35	53,309	55,399
Corporation:				
1909 <sup>1</sup> .....	58	2,675	9,603,065	5,314,629
1904.....	59	1,851	8,011,114	4,354,799
Per cent of total:				
1909.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0
Individual:				
1909.....	42.8	9.8	7.8	8.8
1904.....	18.3	2.5	1.8	2.1
Firm:				
1909.....	19.1	3.9	7.6	5.8
1904.....	9.8	2.0	1.0	1.2
Corporation:				
1909 <sup>1</sup> .....	38.2	86.3	84.7	85.4
1904.....	72.0	95.5	97.2	96.7

<sup>1</sup> Includes one establishment under a form of ownership other than those named.

**Size of establishment.**—The next table groups the establishments according to the value of their products in 1909 and 1904. The table also shows the average size of establishments.

INDUSTRY AND VALUE OF PRODUCTS.	Num-ber of estab-lish-ments.	Average number of wage earners.	Value of products.	Value added by manu-facture.
<b>ALL INDUSTRIES:</b>				
1909.....	152	3,099	\$11,340,105	\$6,220,492
1904.....	82	1,938	8,244,524	4,502,578
Less than \$5,000:				
1909.....	50	56	130,141	86,025
1904.....	15	13	30,915	17,859
\$5,000 and less than \$20,000:				
1909.....	41	127	441,851	277,259
1904.....	15	100	188,922	108,748
\$20,000 and less than \$100,000:				
1909.....	34	507	1,632,783	917,042
1904.....	17	460	669,208	468,200
\$100,000 and less than \$1,000,000: <sup>1</sup>				
1909.....	27	2,498	9,126,330	4,940,169
1904.....	35	1,365	7,065,479	3,917,796
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.....	32.9	1.8	1.2	1.4
1904.....	18.3	0.7	0.4	0.4
\$5,000 and less than \$20,000:				
1909.....	27.0	4.1	3.9	4.5
1904.....	18.3	5.2	2.3	2.4
\$20,000 and less than \$100,000:				
1909.....	22.4	16.4	14.4	14.7
1904.....	20.7	23.7	11.5	10.2
\$100,000 and less than \$1,000,000: <sup>1</sup>				
1909.....	17.8	77.7	80.5	79.4
1904.....	42.7	70.4	85.6	87.0
Average per establishment:				
1909.....		20	\$74,606	\$40,924
1904.....		24	100,543	54,909

<sup>1</sup> Includes one establishment with products valued at more than \$1,000,000.

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In 1909, of the 152 manufacturing establishments in the territory, 27, or 17.8 per cent, had a value of products exceeding \$100,000, of which only 1 reported products exceeding \$1,000,000 in value. These establishments, however, notwithstanding their small number, employed an average of 2,409 wage earners, or 77.7 per cent of the total number in all establishments, and reported 80.5 per cent of the total value of products, and 79.4 per cent of the total value added by manufacture.

On the other hand, the small establishments—that is, those having a value of products of less than \$5,000—constituted a considerable proportion (32.9 per cent) of the total number of establishments, but the value of their products amounted to only 1.2 per cent of the total. The great bulk of the manufacturing was done in establishments having products valued at not less than \$100,000.

The average value of products per establishment decreased from \$100,543 in 1904 to \$74,606 in 1909, owing to the large increase in the number of small establishments. The average number of wage earners per establishment decreased from 24 in 1904 to 20 in 1909.

Engines and power.—The primary power employed in manufacturing industries increased from 1,071 horsepower in 1899 to 2,946 in 1904 and to 3,975 in 1909. The increase during the later five-year period was mostly in power generated by gas engines, the horsepower of which increased from 91 in 1904 to 628 in 1909. The amount of horsepower generated by steam in 1909 was practically the same as that in 1904, but much greater than that in 1899. The practice of renting power is on the increase, 4.2 per cent of the total power being rented in 1909, as against one-tenth of 1 per cent in 1904 and none in 1899.

TABLE I.—DETAIL STATEMENT FOR THE TERRITORY, BY INDUSTRIES: 1909.

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.							WAGE EARNERS—NUMBER FOR THE REPRESENTATIVE DAY.					Primary horse-power.	Capital.	
		Total.	Proprietors and firm members.	Salaried officers, supts. and managers.	Clerks.		Wage earners.			Total.	16 and over.		Under 16.			
					Male.	Female.	Average number.	Number.			Male.	Female.	Male.			Female.
								Maximum month.	Minimum month.							
1 All industries.....	152	3,478	135	143	96	6	3,099	Jy 6,143	Ja 242	20	11	8	1	5	13,060, 116	
2 Bread and other bakery products....	8	35	0	2			24	Jy 35	Ja 18	5,003	5,448	82	73	1,555	60,550	
3 Canning and preserving.....	46	2,922	21	88	90	6	2,717	Jy 5,569	Ja 30	14	14			30,008		
4 Copper, tin, and sheet-iron products...	7	20	8				12	Oc 18	Ja 9	30	30			195,556		
5 Foundry and machine-shop products...	10	48	12	4			32	Jy 42	Ja 25	3	2			65,300		
6 Jewelry.....	3	5	3				2	Au 3	Ja 2	16	16			213,420		
7 Liquors, malt.....	5	24	6	6	1		11	De 16	Ja 8	239	239			658,468		
8 Lumber and timber products.....	22	178	28	17	2		131	Jy 264	Ja 15	62	66	6		140,609		
9 Printing and publishing.....	16	89	14	11			84	Ja 70	Ja 56	12	12			11,150		
10 Shipbuilding, including boat building.	6	16	8				8	Ap 17	Au 4					467		
11 All other industries <sup>1</sup> .....	29	142	26	15	3		98							854,237		

INDUSTRY.	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 All industries.....	\$3,453,126	\$314,953	\$64,801	\$1,948,026	\$225,016	\$4,894,597	\$22,415	\$115,319	\$89,350	\$1,768,649	\$11,340,105	\$6,220,492
2 Bread and other bakery products...	124,956	4,185		41,900	4,858	66,241	2,880	125		4,767	141,110	70,011
3 Canning and preserving.....	7,585,514	187,239	59,601	1,457,587	147,510	3,905,584	5,420	103,040	89,653	1,629,874	9,189,982	5,136,888
4 Copper, tin, and sheet-iron products...	65,103			27,860	2,080	25,110	1,740	75		4,638	81,258	50,408
5 Foundry and machine-shop products...	127,849	9,698		50,505	10,811	49,725	920	30		5,902	170,798	110,262
6 Jewelry.....	24,088			2,703	780	17,450	600	50	1,000	1,505	33,535	15,305
7 Liquors, malt.....	138,887	17,600	1,000	23,257	7,180	43,510		8,967	3,100	84,273	176,052	125,362
8 Lumber and timber products.....	336,238	33,683	2,400	108,201	3,285	165,219	1,885	936	1,757	18,872	400,272	231,768
9 Printing and publishing.....	184,095	28,400		100,403	8,723	27,669	4,430		800	13,670	228,192	101,800
10 Shipbuilding, including boat building	5,579			2,440	360	2,779					10,330	7,191
11 All other industries <sup>1</sup> .....	861,017	34,150	1,800	133,170	38,829	588,310	4,540	2,090	3,040	65,088	908,576	281,437

<sup>1</sup> All other industries embrace—

Artificial stone.....	2	Cooperage and wooden goods, not elsewhere specified.....	1	Mineral and soda waters.....	6
Belting and hose, woven and rubber.....	2	Fur goods.....	1	Oil, not elsewhere specified.....	2
Carriages and wagons and materials.....	2	Furniture and refrigerators.....	1	Pumps, not including steam pumps.....	1
Cars and general shop construction and repairs by steam-railroad companies.....	2	Leather goods.....	2	Slaughtering and meat packing.....	2
Confectionery.....	1	Mattresses and spring beds.....	2	Tobacco manufactures.....	2

## MANUFACTURES : ARIZONA

## 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 Arizona 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 Arizona, 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 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 territory. It also gives the same items for 1909 for all industries combined for Phoenix and Tucson, the two cities having a population of over 10,000 in 1910.

Table II 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, 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 other 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 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, 1904, and 1899, therefore, does not embrace all the industries shown for 1909 in Table II.

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

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

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

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

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

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

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

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

The percentage distribution by sex and age of the employees 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 employees 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 of 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 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 territory.**—Arizona, with an area of 112,920 square miles, had a population in 1910 of 204,354, as compared with 122,931 in 1900 and 88,243 in 1890. It ranked forty-sixth among the 49 states and territories as regards population in 1910 and forty-seventh in 1900. Arizona is very rich in mineral deposits, particularly in its copper mines, and the gold and silver mines are also productive of much wealth. The smelting and refining of copper is by far the largest single industry in the territory and reported 81.7 per cent of the total value of products. Thirty-one per cent of the entire population of the territory resides in incorporated cities and towns having a population of 2,500 inhabitants or over, as compared with 15.9 per cent in 1900.

One of the large industries in Arizona is the Portland cement mines at Roswell, operated in connection with the Salt River irrigation project. The totals for this

plant are not included in the statistics for the territory because it is carried on by the United States Government. In 1909 this plant's capital was about \$220,000; the average number of employees, 44; and the value of products, \$214,132.

There are but two cities in the territory having a population of over 10,000—Tucson, with a population of 13,193, and Phoenix, with 11,134. Eliminating these two cities, only 19.1 per cent of the population resides in incorporated places of 2,500 or over. The density of population for the entire territory is 1.8 per square mile, the corresponding figures for 1900 being 1.1.

**Importance and growth of manufactures.**—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, 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.....	311	169	154	84.0	9.7
Persons engaged in manufactures.....	7,202	5,217	( <sup>1</sup> )	38.0	( <sup>1</sup> )
Proprietors and firm members.....	261	133	( <sup>1</sup> )	96.2	( <sup>1</sup> )
Salaried employees.....	500	291	205	71.8	42.0
Wage earners (average number).....	6,441	4,793	3,126	34.4	53.3
Primary horsepower.....	39,140	21,412	8,537	82.8	150.8
Capital.....	\$32,873,000	\$14,396,000	\$9,518,000	128.3	51.2
Expenses.....	41,131,000	20,244,000	10,843,000	103.2	86.7
Services.....	6,303,000	4,441,000	2,556,000	41.9	73.7
Salaries.....	798,000	472,000	269,000	69.1	75.5
Wages.....	5,505,000	3,969,000	2,287,000	38.7	73.5
Materials.....	33,600,000	14,595,000	7,877,000	130.2	85.3
Miscellaneous.....	1,228,000	1,208,000	410,000	1.6	194.6
Value of products.....	50,257,000	28,083,000	20,439,000	79.0	37.4
Value added by manufacture (value of products less cost of materials).....	16,657,000	13,488,000	12,562,000	23.5	7.4

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

In 1909 the territory of Arizona had 311 manufacturing establishments operating under the factory system, which gave employment to an average of 7,202 persons during the year and paid out \$6,303,000 in salaries and wages. Of the persons employed, 6,441 were wage earners. These establishments turned out products to the value of \$50,257,000, to produce which materials costing \$33,600,000 were consumed. The value added by manufacture was thus \$16,657,000, 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 Arizona as a whole showed a much greater development during the five-year period 1904-1909 than during the prior period 1899-1904. While the number of establishments increased 84 per cent and the value of products 79 per cent from 1904 to 1909, the average number of wage earners increased only 34.4 per cent and the value added by manufacture 23.5 per cent. The comparatively low percentage of increase in value added by manufacture is due largely to the figures reported for the copper smelting and refining industry. The manufacturing operations in this industry frequently are so closely related to those of mining that it is not

## STATISTICS OF MANUFACTURES—ARIZONA.

always practicable to separate mining and manufacturing expenses. As a result, the cost of materials used by smelters which are operated by mining companies may represent the bare cost of mining, its market value at the smelters as though purchased from other producers, or an arbitrary cost placed upon it by the bookkeeping methods of the companies.

As pointed out in the Introduction, it would be

improper to assume 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.

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>			
		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.....	311	6,441	100.0	\$50,257,000	100.0	\$16,657,000	100.0	79.0	37.4	23.5	7.4
Smelting and refining, copper.....	8	3,129	48.6	41,059,000	81.7	11,817,000	70.9	80.4	31.7	15.0	75.9
Cars and general shop construction and repairs by steam-railroad companies.....	10	1,089	16.9	2,394,000	4.8	1,003,000	6.6	80.1	49.8	5.4	118.3
Lumber and timber products.....	23	839	13.0	1,419,000	2.8	1,082,000	6.5	77.3	65.8	84.3	43.7
Flour-mill and gristmill products.....	10	54	0.8	1,317,000	2.6	188,000	1.1	66.8	.....	.....	.....
Printing and publishing.....	64	268	4.2	784,000	1.6	616,000	3.7	.....	.....	69.7	.....
Butter, cheese, and condensed milk.....	11	58	0.9	538,000	1.1	150,000	0.9	101.5	80.4	94.8	106.2
Ice, manufactured.....	23	117	1.8	501,000	1.0	357,000	2.1	93.4	94.7	77.6	120.9
Bread and other bakery products.....	40	112	1.7	478,000	1.0	204,000	1.2	95.1	124.8	80.5	91.5
All other industries.....	122	775	12.0	1,767,000	3.5	1,150,000	6.9	82.0	70.1	134.2	65.9

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

<sup>2</sup> Decrease.

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

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.

*Smelting and refining, copper.*—At the United States census of mines and quarries in 1902 Arizona ranked third in the gross value of the copper contents of the ore mined; and in 1909, according to the United States Geological Survey, there was taken from its mines 26.6 per cent of the total copper ore reported for the United States. The importance of the industry in the territory in its connection with manufactures may perhaps be understood better when it is considered that in 1909 the smelting and refining of copper gave employment to an average of 3,129 wage earners, or 48.6 per cent of the total average number for all manufactures combined, and the value of its products amounted to \$41,059,000, or 81.7 per cent of the total for the territory.

*Cars and general shop construction and repairs by steam-railroad companies.*—This industry represents the work done in the car shops operated by steam-railroad companies and is exclusive of minor repairs in roundhouses. The operations consist almost exclusively of repairs to the rolling stock and equipment. Employment was given to an average of 1,089 wage earners and products were reported amounting to \$2,394,000.

*Lumber and timber products.*—While Arizona is not important among the states and territories for its lumber products, this industry gave employment to 839 wage earners, and its products amounted to \$1,419,000. The logging plants which produce the logs and bolts, as well as the mills which manufacture lumber, shingles, cooperage materials, or carry the manufacture further, producing finished lumber, sash, doors, blinds, interior finish, etc., are included under this classification.

Measured by value added by manufacture, the three leading industries held the same relative rank as when measured by value of products. Of the five other industries, printing and publishing becomes fourth in order instead of flour-mill and gristmill products, while the latter industry and butter, cheese, and condensed milk become seventh and eighth in order, and manufactured ice and bakery products go to fifth and sixth places, respectively.

In the flour-mill and gristmill industry, owing to the comparatively simple processes involved and the extent to which these processes are carried on by machinery, the value added by manufacture is not commensurate with the gross value of products or the number of establishments.

This table shows also the percentages of increase for these industries in respect to value of products and value added by manufacture. Butter, cheese, and condensed milk showed the greatest per cent of increase (101.5) from 1904 to 1909 for value of products, and also in value added by manufacture (94.8). There are some marked variations among the several

industries specified as regards the relative increases from 1899 to 1904 and from 1904 to 1909, respectively. For four industries the percentage of increase in the value of products was greater from 1904 to 1909 than from 1899 to 1904; for two industries it was smaller. The percentage of increase in value added by manufacture was greater for two industries and smaller for four.

In addition to the eight industries presented separately there are seven other industries each of which had a value of product in 1909 in excess of \$100,000. 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 comparable statistics for the different census years can not be presented on account of change in classification; and for others, the tables showing comparable statistics are limited to industries having in 1909 a product valued at \$500,000 or over. These industries are: Beet sugar; brick and tile; copper, tin, and sheet-iron products; foundry and machine-shop products; gas, illuminating and heating; liquors, malt; and marble and stone work.

**Persons engaged in manufacturing industries.**—The following table 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.

CLASS.	PERSONS ENGAGED IN MANUFACTURES.		
	Total.	Male.	Female.
All classes.....	7,202	7,119	83
Proprietors and officials.....	427	417	10
Proprietors and firm members.....	261	253	8
Salaried officers of corporations.....	51	50	1
Superintendents and managers.....	115	114	1
Clerks.....	334	299	35
Wage earners (average number).....	6,441	6,403	38
16 years of age and over.....	6,404	6,360	38
Under 16 years of age.....	37	37	.....

The average number of persons engaged in manufactures during 1909 was 7,202. Of these, 6,441 were wage earners, the remainder being divided between proprietors and officials (427) and clerks (334). Corresponding figures for separate industries will be found in Table II.

The table following 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 eight important industries individually.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	7,202	5.9	4.6	89.4
Bread and other bakery products.....	164	28.7	3.0	68.3
Butter, cheese, and condensed milk.....	5	13.3	9.3	77.3
Cars and general shop construction and repairs by steam-railroad companies.....	41	1.5	3.1	95.4
Flour-mill and gristmill products.....	75	17.3	10.7	72.0
Ice, manufactured.....	152	16.4	6.6	77.0
Lumber and timber products.....	911	5.0	2.9	92.1
Printing and publishing.....	408	17.9	16.4	65.7
Smelting and refining, copper.....	3,268	0.7	3.5	95.7
All other industries.....	1,008	17.1	6.1	76.9

Of the total number of persons engaged in all manufacturing industries, 5.9 per cent were proprietors and officials, 4.6 per cent clerks, and 89.4 per cent wage earners. In the bakery, the manufacturing of ice, and the printing and publishing industries the majority of the establishments are small, and the work is done to a large extent 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 most other industries or all industries combined, being 28.7 per cent for bakery products, 16.4 per cent for manufactured ice, and 17.9 per cent for printing and publishing. The smallest proportion for this class (0.7 per cent) is shown for copper smelting and refining, and is due to the fact that these establishments are large and of corporate ownership, for which proprietors are not reported.

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.

INDUSTRY.	Average number. <sup>1</sup>	WAGE EARNERS.		
		Per cent of total.		
		16 years of age and over.		Under 16 years of age.
		Male.	Female.	
All industries.....	6,441	98.8	0.6	0.6
Bread and other bakery products.....	112	85.4	8.0	3.6
Butter, cheese, and condensed milk.....	58	100.0	.....	.....
Cars and general shop construction and repairs by steam-railroad companies.....	1,089	99.4	.....	0.6
Flour-mill and gristmill products.....	54	100.0	.....	.....
Ice, manufactured.....	117	100.0	.....	.....
Lumber and timber products.....	839	99.6	0.1	0.2
Printing and publishing.....	268	89.9	5.2	4.8
Smelting and refining, copper.....	3,128	99.8	.....	0.2
All other industries.....	775	97.5	1.8	0.6

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

always practicable to separate mining and manufacturing expenses. As a result, the cost of materials used by smelters which are operated by mining companies may represent the bare cost of mining, its market value at the smelters as though purchased from other producers, or an arbitrary cost placed upon it by the bookkeeping methods of the companies.

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		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>311</b>	<b>6,441</b>	<b>100.0</b>	<b>\$50,257,000</b>	<b>100.0</b>	<b>\$16,657,000</b>	<b>100.0</b>	<b>79.0</b>	<b>37.4</b>	<b>23.5</b>	<b>7.4</b>
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Wage earners (average number).....	6,441	6,403	38
16 years of age and over.....	6,404	6,366	38
Under 16 years of age.....	37	37	.....

The average number of persons engaged in manufactures during 1909 was 7,202. Of these, 6,441 were wage earners, the remainder being divided between proprietors and officials (427) and clerks (334). Corresponding figures for separate industries will be found in Table II.

The table following 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 eight important industries individually.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	7,202	5.9	4.6	89.4
Bread and other bakery products.....	164	28.7	3.0	68.3
Butter, cheese, and condensed milk.....	5	13.3	9.3	77.3
Cars and general shop construction and repairs by steam-railroad companies.....	41	1.5	3.1	95.4
Flour-mill and gristmill products.....	75	17.3	10.7	72.0
Ice, manufactured.....	162	16.4	6.6	77.0
Lumber and timber products.....	911	5.0	2.9	92.1
Printing and publishing.....	408	17.9	16.4	65.7
Smelting and refining, copper.....	3,268	0.7	3.5	95.7
All other industries.....	1,008	17.1	6.1	76.9

Of the total number of persons engaged in all manufacturing industries, 5.9 per cent were proprietors and officials, 4.6 per cent clerks, and 89.4 per cent wage earners. In the bakery, the manufacturing of ice, and the printing and publishing industries the majority of the establishments are small, and the work is done to a large extent 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 most other industries or all industries combined, being 28.7 per cent for bakery products, 16.4 per cent for manufactured ice, and 17.9 per cent for printing and publishing. The smallest proportion for this class (0.7 per cent) is shown for copper smelting and refining, and is due to the fact that these establishments are large and of corporate ownership, for which proprietors are not reported.

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.

INDUSTRY.	Average number. <sup>1</sup>	WAGE EARNERS.		
		Per cent of total.		
		16 years of age and over.		Under 16 years of age.
		Male.	Female.	
All industries.....	6,441	98.8	0.6	0.6
Bread and other bakery products.....	112	88.4	8.0	3.6
Butter, cheese, and condensed milk.....	58	100.0	.....	.....
Cars and general shop construction and repairs by steam-railroad companies.....	1,089	99.4	.....	0.6
Flour-mill and gristmill products.....	54	100.0	.....	.....
Ice, manufactured.....	117	100.0	.....	.....
Lumber and timber products.....	839	99.6	0.1	0.2
Printing and publishing.....	268	89.9	5.2	4.8
Smelting and refining, copper.....	3,129	99.8	.....	0.2
All other industries.....	776	97.5	1.8	0.6

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

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For all industries combined, 98.8 per cent of the average number of wage earners were males over 16 years of age. The proportion of females over 16 years and of persons of both sexes under that age was the same, six-tenths of one per cent. The largest proportion of women and children were employed in the bakery and printing industries.

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. It will be noticed that there was a much greater per cent of increase in the proprietors and firm members and the salaried employees than in the number of wage earners.

CLASS.	PERSONS ENGAGED IN MANUFACTURES.				
	1909		1904		Per cent of increase, 1904-1909.
	Number.	Per cent distribution.	Number.	Per cent distribution.	
Total.....	7,302	100.0	5,217	100.0	38.0
Proprietors and firm members.....	261	3.6	133	2.5	99.2
Salaried employees.....	500	6.9	291	5.6	71.8
Wage earners (average number).....	6,441	89.4	4,793	91.9	34.4

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.)

This table indicates that for all industries combined the proportion of children employed under 16 years of age, though smaller than it was in 1899, has increased slightly since 1904. 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 98.8 per cent of all wage earners, as compared with 98.9 per cent in 1904 and 98 per cent in 1899.

CLASS.	AVERAGE NUMBER OF WAGE EARNERS.					
	1909		1904		1899	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
Total.....	6,441	100.0	4,793	100.0	3,126	100.0
16 years of age and over..	6,404	99.4	4,775	99.6	3,091	98.9
Male.....	6,360	98.8	4,742	98.9	3,064	98.0
Female.....	38	0.6	33	0.7	27	0.9
Under 16 years of age....	37	0.6	18	0.4	35	1.1

**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 percentage which the number reported for each month is of the greatest number reported for any month. In Table II, page 14, is shown, for each industry in the 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.	
	Number.	Per cent of maximum.	Total.		In mills.		In logging operations.		Number.	Per cent of maximum.
			Number.	Per cent of maximum.	Number.	Per cent of maximum.	Number.	Per cent of maximum.		
January.....	6,093	88.5	556	53.3	392	55.6	164	46.1	5,537	94.5
February.....	6,024	87.5	545	52.3	402	57.0	143	40.2	5,479	93.5
March.....	6,003	87.2	547	52.4	431	61.1	116	32.6	5,456	93.1
April.....	6,048	87.8	592	56.8	450	63.8	142	39.9	5,456	93.1
May.....	6,439	93.5	846	81.1	552	78.3	294	82.6	5,593	95.5
June.....	6,869	99.7	1,018	97.6	670	95.0	348	97.8	5,851	99.9
July.....	6,888	100.0	1,043	100.0	687	97.4	356	100.0	5,845	99.8
August.....	6,845	99.4	986	94.5	705	100.0	281	78.9	5,859	100.0
September.....	6,640	96.4	997	95.6	693	98.3	304	85.4	5,643	96.3
October.....	6,634	96.3	1,018	97.4	705	100.0	311	87.4	5,618	95.9
November.....	6,452	93.7	993	95.2	686	97.3	307	86.2	5,459	93.2
December.....	6,360	92.3	985	89.6	664	94.2	271	76.1	5,425	92.6

For all industries combined, the month of lowest reported employment, March, showed 87.2 per cent as many wage earners as the month of the maximum number, July. Excluding the lumber industry, in

which employment is more or less seasonal, the minimum is 92.6 per cent of the maximum.

**Prevailing hours of labor.**—In the table following, wage earners have been classified according to 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 these figures that for the great majority of wage earners employed in the manufacturing industries of Arizona the prevailing hours of

labor range from 54 to 60 a week, or from 9 to 10 hours a day. Only 10.5 per cent of the total were employed in establishments working less than 9 hours a day and 6.6 per cent were employed in establishments working more than 10 hours a day. This condition is due chiefly to the fact that 4,709, or 73.1 per cent of the total average number of wage earners and 88.1 per cent of those employed from 54 to 60 hours, were reported by steam-railroad repair shops, the copper smelters and refineries, and the lumber industry.

INDUSTRY.	AVERAGE NUMBER OF WAGE EARNERS IN ESTABLISHMENTS GROUPED ACCORDING TO PREVAILING HOURS OF WORK PER WEEK.								
	Total.	48 and under.	Between 48 and 54.	54.	Between 54 and 60.	60.	Between 60 and 72.	72.	Over 72.
All industries.....	6,441	579	95	749	3,441	1,165	260	12	150
Bread and other bakery products.....	112	14	.....	22	.....	28	29	3	16
Butter, cheese, and condensed milk.....	58	2	3	.....	6	1	46	.....	.....
Cars and general shop construction and repairs by steam-railroad companies.....	1,089	133	92	528	13	211	112	.....	.....
Flour-mill and gristmill products.....	54	9	.....	16	.....	21	5	3	.....
Ice, manufactured.....	117	2	.....	6	16	1	47	6	39
Lumber and timber products.....	830	11	.....	7	.....	321	.....	.....	.....
Printing and publishing.....	268	212	.....	55	1	.....	.....	.....	.....
Smelting and refining, copper.....	3,129	.....	.....	.....	3,129	.....	.....	.....	.....
All other industries.....	775	196	.....	115	276	72	21	.....	95

**Location of establishments.**<sup>1</sup>—The next table shows to what extent manufacturing in the territory of Arizona is centralized in the two cities of Phoenix and Tucson, the only cities in the territory having a population of 10,000 and over.

ITEM.	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.....	204,354	24,327	180,027	11.9	88.1
Number of establishments.....	311	92	219	29.6	70.4
Average number of wage earners.....	6,441	859	5,582	13.3	86.7
Value of products.....	50,256,604	3,503,762	46,752,842	7.0	93.0
Value added by manufacture.....	16,656,454	1,370,224	15,286,230	8.2	91.8

In 1909 only 7 per cent of the total value of products was made in these two cities, and of the total average number of wage earners but 13.3 per cent was employed in them.

<sup>1</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. 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 table following.

The most important distinction shown is that between corporate and all other forms of ownership. For all industries combined, 39.2 per cent of the total number of establishments were in 1909 under corporate ownership, as against 60.7 per cent under all other forms. The corresponding figures for 1904 were 42 per cent and 58 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 relatively, as compared with individuals and firms.

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last two censuses, while for certain important industries figures are given for 1909 only.

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.....	311	6,441	\$50,256,694	\$16,656,454
1904.....	169	4,793	28,083,192	13,488,135
Individual:				
1909.....	141	306	1,055,203	548,537
1904.....	70	182	581,552	326,508
Firm:				
1909.....	48	388	895,816	645,625
1904.....	28	114	365,856	237,934
Corporation:				
1909.....	122	5,747	48,305,675	15,462,292
1904.....	71	4,497	27,135,784	12,923,693
Per cent of total:				
1909.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0
Individual:				
1909.....	45.3	4.8	2.1	3.3
1904.....	41.4	3.8	2.1	2.4
Firm:				
1909.....	15.4	6.0	1.8	3.9
1904.....	16.6	2.4	1.3	1.8
Corporation:				
1909.....	39.2	89.2	96.1	92.8
1904.....	42.0	93.8	96.6	98.8
<b>Bread and other bakery products, 1909</b>	40	112	\$478,289	\$203,800
Individual.....	33	94	414,184	171,850
Firm.....	7	18	64,105	31,950
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	82.5	83.9	86.6	84.3
Firm.....	17.5	16.1	13.4	15.7
<b>Flour-mill and gristmill products, 1909</b>	10	54	\$1,316,757	\$188,158
Individual.....	3	6	131,068	20,008
Corporation.....	7	48	1,185,689	162,150
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	30.0	11.1	10.0	13.8
Corporation.....	70.0	88.9	90.0	86.2
<b>Ice, manufactured, 1909</b>	23	117	\$501,228	\$367,642
Individual.....	3	6	34,636	29,443
Firm.....	3	13	50,115	30,281
Corporation.....	17	98	416,477	297,908
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	13.0	5.1	6.9	8.2
Firm.....	13.0	11.1	10.0	8.5
Corporation.....	73.9	83.8	83.1	83.3
<b>Lumber and timber products, 1909</b>	23	839	\$1,419,114	\$1,082,074
Individual.....	10	15	57,144	28,939
Firm.....	3	5	23,144	10,158
Corporation.....	10	819	1,338,826	1,042,977
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	43.5	1.8	4.0	2.7
Firm.....	13.0	0.6	1.6	0.9
Corporation.....	43.5	97.6	94.3	96.4
<b>Printing and publishing, 1909</b>	64	268	\$784,487	\$616,420
Individual.....	35	74	149,209	120,733
Firm.....	8	40	192,844	166,860
Corporation.....	21	154	442,334	328,827
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	54.7	27.6	19.0	19.6
Firm.....	12.5	14.9	24.6	27.1
Corporation.....	32.8	57.5	56.4	53.3

<sup>1</sup> Includes the group "other" to avoid disclosure of individual operations.  
<sup>2</sup> Includes the group "corporation."  
<sup>3</sup> Includes the group "firm."

**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

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.....	311	6,441	\$50,256,694	\$16,656,454
1904.....	169	4,793	28,083,192	13,488,135
Less than \$5,000:				
1909.....	117	129	273,045	186,124
1904.....	53	55	131,553	101,003
\$5,000 and less than \$20,000:				
1909.....	113	309	1,139,895	689,082
1904.....	65	252	702,212	461,652
\$20,000 and less than \$100,000:				
1909.....	55	675	2,519,424	1,424,581
1904.....	34	499	1,658,579	843,931
\$100,000 and less than \$1,000,000:				
1909.....	17	1,712	4,047,420	2,099,212
1904.....	10	1,638	2,828,867	1,806,350
\$1,000,000 and over:				
1909.....	9	3,556	42,276,901	12,256,555
1904.....	7	2,349	22,761,981	10,275,199
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.....	37.6	2.0	0.5	1.1
1904.....	31.4	1.1	0.5	0.7
\$5,000 and less than \$20,000:				
1909.....	36.3	5.7	2.3	4.1
1904.....	38.5	5.3	2.5	3.4
\$20,000 and less than \$100,000:				
1909.....	17.7	10.5	5.0	8.6
1904.....	20.1	10.4	5.9	6.3
\$100,000 and less than \$1,000,000:				
1909.....	5.5	26.6	8.1	12.6
1904.....	5.9	34.2	10.1	13.4
\$1,000,000 and over:				
1909.....	2.9	55.2	84.1	73.6
1904.....	4.1	49.0	81.1	76.2
Average per establishment:				
1909.....	21	\$161,597	\$53,558	
1904.....	28	106,173	79,811	
<b>Bread and other bakery products, 1909</b>	40	112	\$478,289	\$203,800
Less than \$5,000.....	11	3	21,972	7,907
\$5,000 and less than \$20,000.....	23	53	240,410	101,026
\$20,000 and less than \$100,000.....	6	56	215,907	94,777
Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	27.5	2.7	4.6	3.9
\$5,000 and less than \$20,000.....	57.5	47.3	50.3	49.6
\$20,000 and less than \$100,000.....	15.0	50.0	45.1	46.5
Average per establishment.....	3	\$11,957	\$5,095	
<b>Flour-mill and gristmill products, 1909</b>	10	54	\$1,316,757	\$188,158
\$20,000 and less than \$100,000.....	5	12	210,911	39,487
\$100,000 and less than \$1,000,000.....	5	42	1,105,846	148,671
Per cent of total.....	100.0	100.0	100.0	100.0
\$20,000 and less than \$100,000.....	50.0	22.2	16.0	21.0
\$100,000 and less than \$1,000,000.....	50.0	77.8	84.0	79.0
Average per establishment.....	5	\$131,676	\$18,816	
<b>Ice, manufactured, 1909</b>	23	117	\$501,228	\$367,642
Less than \$5,000.....	3	4	10,984	6,286
\$5,000 and less than \$20,000.....	10	28	105,204	74,100
\$20,000 and less than \$100,000.....	10	85	385,040	277,256
Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	13.0	3.4	2.2	1.8
\$5,000 and less than \$20,000.....	43.5	23.9	21.0	20.7
\$20,000 and less than \$100,000.....	43.5	72.6	76.8	77.5
Average per establishment.....	5	\$21,793	\$15,550	
<b>Lumber and timber products, 1909</b>	23	839	\$1,419,114	\$1,082,074
Less than \$5,000.....	10	14	19,054	13,747
\$5,000 and less than \$20,000.....	7	19	86,455	43,768
\$100,000 and less than \$1,000,000.....	6	806	1,313,605	1,024,569
Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	43.5	1.7	1.3	1.3
\$5,000 and less than \$20,000.....	30.4	2.3	6.1	4.0
\$100,000 and less than \$1,000,000.....	26.1	96.1	92.6	94.7
Average per establishment.....	36	\$61,701	\$47,047	
<b>Printing and publishing, 1909</b>	64	268	\$784,487	\$616,420
Less than \$5,000.....	30	42	74,431	63,048
\$5,000 and less than \$20,000.....	26	108	263,424	210,516
\$20,000 and less than \$100,000.....	8	118	446,632	342,856
Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	46.9	15.7	9.5	10.2
\$5,000 and less than \$20,000.....	40.6	40.3	33.6	34.2
\$20,000 and less than \$100,000.....	12.5	44.0	56.9	55.6
Average per establishment.....	4	\$12,288	\$9,632	

<sup>1</sup> Includes the group "less than \$5,000."  
<sup>2</sup> Includes the group "\$20,000 and less than \$100,000."

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This table shows that in 1909, of the 311 establishments, only 9, or 2.9 per cent, had a value of product exceeding \$1,000,000. Of this number, 8 were establishments engaged in copper smelting and refining. These establishments, however, had an average number of wage earners of 3,556, or 55.2 per cent of the total number in all establishments reported, 84.1 per cent of the total value of products, and 73.6 per cent of the total value added by manufacture.

On the other hand, small establishments—that is, those having a value of product of less than \$5,000—constituted a very considerable proportion (37.6 per cent) of the total number of establishments, but the value of their product amounted to only 0.5 per cent of the total.

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 table shows, however, that when the size of establishment is measured by value of product the flour-mill and gristmill industry is conducted chiefly in large establishments, while the bakery, printing and publishing, manufactured ice, and lumber industries are conducted in smaller 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 average number of wage earners employed. The next table shows such a classification for all industries combined and for eight important industries, 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.
NUMBER OF ESTABLISHMENTS.									
All industries.....	311	36	202	43	10	6	6	6	2
Bread and other bakery products.....	40	7	29	4	1				
Butter, cheese, and condensed milk.....	11		7	3	1				
Cars and general shop construction and repairs by steam-railroad companies.....	10			2	2	3	2	1	
Flour-mill and gristmill products.....	10		6	4					
Ice, manufactured.....	23		18	4	1				
Lumber and timber products.....	23	3	14	1	1	2		2	
Printing and publishing.....	64	9	41	13	1				
Smelting and refining, copper.....	8						3	3	2
All other industries.....	122	17	87	12	4	1	1		
AVERAGE NUMBER OF WAGE EARNERS.									
All industries.....	6,441		470	470	302	484	1,049	2,133	1,543
Bread and other bakery products.....	112		64	48					
Butter, cheese, and condensed milk.....	58		9	22	27				
Cars and general shop construction and repairs by steam-railroad companies.....	1,089			31	81	280	270	427	
Flour-mill and gristmill products.....	54		16	38					
Ice, manufactured.....	117		54	40	23				
Lumber and timber products.....	839		33	13	30	117		646	
Printing and publishing.....	268		106	137	25				
Smelting and refining, copper.....	3,129						536	1,050	1,543
All other industries.....	775		188	141	116	87	243		
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.									
All industries.....	100.0		7.3	7.3	4.7	7.5	16.3	33.0	24.0
Bread and other bakery products.....	100.0		57.1	42.9					
Butter, cheese, and condensed milk.....	100.0		15.5	37.9	46.6				
Cars and general shop construction and repairs by steam-railroad companies.....	100.0			2.8	7.4	25.7	24.8	39.2	
Flour-mill and gristmill products.....	100.0		29.6	70.4					
Ice, manufactured.....	100.0		46.2	34.2	19.7				
Lumber and timber products.....	100.0		3.9	1.5	3.6	13.9		77.0	
Printing and publishing.....	100.0		39.0	51.1	9.3				
Smelting and refining, copper.....	100.0						17.1	33.6	49.3
All other industries.....	100.0		24.3	18.2	15.0	11.2	31.4		

The per cent distribution of the number of establishments is not shown in this table; of the 311 establishments reported for all industries, 11.6 per cent employed no wage earners, 65 per cent 1 to 5, and 13.8 per cent 6 to 20. The most numerous single group

consists of the 202 establishments employing from 1 to 5 wage earners, and the next of the 43 establishments employing from 6 to 20 wage earners. There were 8 establishments that employed over 250 wage earners, and 2 employed over 500.

Of the total number of wage earners, 57 per cent were in establishments employing over 250 wage earners. The single group having the largest number of employees was the group employing from 251 to 500 wage earners. This group employed 2,123, or 33 per cent of the total. Two of the individual industries listed in this table but not in the preceding one, namely, cars and general shop construction and repairs by steam-railroad companies and copper smelting and refining, are industries in which 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 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.
All industries.....	1.9	13.4	81.7	3.0
Bread and other bakery products.....	1.4	23.7	68.1	6.7
Butter, cheese, and condensed milk.....	4.3	10.1	76.7	8.9
Cars and general shop construction and repairs by steam-railroad companies.....	3.2	40.8	54.3	1.7
Flour-mill and gristmill products.....	2.1	3.4	91.1	3.4
Ice, manufactured.....	7.9	31.8	40.9	19.3
Lumber and timber products.....	7.9	47.5	25.0	19.6
Printing and publishing.....	16.0	35.7	25.8	22.5
Smelting and refining, copper.....	0.9	8.5	89.3	1.3
All other industries.....	8.0	39.1	41.5	11.4

This table shows that, for all industries combined, 81.7 per cent of the total expenses was incurred for materials, 15.3 per cent for services; i. e., salaries and wages, and but 3 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries, the expense for materials, for example, falling from 91.1 per cent in the flour-mill and gristmill industry to 25 per cent and 25.8 per cent in the lumber and timber products and printing and publishing industries, respectively.

**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 manufacturing establishments.

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899 <sup>1</sup>	1909	1904	1899 <sup>1</sup>	1909	1904	1899
Primary power, total.....	445	184	158	39,140	21,412	8,537	100.0	100.0	100.0
Owued.....	209	184	158	35,026	20,997	8,499	91.0	98.1	99.6
Steam.....	174	148	131	34,193	18,828	7,653	87.4	87.9	89.6
Gas.....	31	28	19	1,285	1,392	371	3.3	6.5	4.3
Water wheels.....	4	8	8	129	267	400	0.3	1.2	4.7
Other.....				19	510	75	( <sup>2</sup> )	2.4	0.9
Rented.....	236	( <sup>3</sup> )	( <sup>3</sup> )	3,514	415	38	9.0	1.9	0.4
Electric.....	236	( <sup>3</sup> )	( <sup>3</sup> )	3,314	165	38	8.5	0.8	0.4
Other.....				200	250		0.5	1.2	
Electric motors.....	496	120	30	15,100	4,821	534	100.0	100.0	100.0
Run by current generated by establishment.....	260	120	30	11,786	4,656	496	78.1	96.6	92.9
Run by rented.....	236	( <sup>3</sup> )	( <sup>3</sup> )	3,314	165	38	21.9	3.4	7.1

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

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

<sup>3</sup> Not reported.

The table indicates that the increase in owned primary power from 1904 to 1909 was in power generated by steam engines, since both water power and power generated by gas engines showed a decrease. However, a slight increase in the number of gas engines is shown, there being 31 such engines in 1909, as compared with 28 in 1904, although the total horsepower developed by them decreased from 1,392 in 1904 to 1,285 in 1909. The figures also show that the practice of renting electric power is on the increase, 8.5 per cent of the total power being rented electric in 1909, as compared with eight-tenths of 1 per cent in 1904, and four-tenths of 1 per cent in 1899. The use of electric motors for the purpose of applying the power generated within the establishments is also shown to be increasing rapidly, the horsepower of such motors increasing from 496 in 1899 to 4,656 in 1904 and to 11,786 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 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).
All industries.....	7,561	60,266	463,233	14,558	610,594	1,865	20
Bread and other bakery products.....		197	10	1,426	29	120	
Butter, cheese, and condensed milk.....		107		112	7,113		
Cars and general shop construction and repairs by steam-railroad companies.....		11,114	48		50,114		
Flour-mill and gristmill products.....		790		170	2,349		
Ice, manufactured.....		5,848		99	41,800		
Lumber and timber products.....		127			4,089		
Printing and publishing.....		55		54	41	1,000	
Smelting and refining, copper.....	7,450	40,543	463,016	1,494	420,148		
All other industries.....	102	1,475	150	11,203	84,911	745	20

SUPPLEMENTARY DATA REGARDING IMPORTANT INDUSTRIES.

(With statistics for laundries and custom 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 schedules. Data for three important industries in Arizona are here presented.

**Flour-mill and gristmill products.**—This industry has increased 77.3 per cent in value of products since 1904, the total value for 1909 being \$1,316,757.

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

PRODUCT.	QUANTITY.		VALUE.	
	1909	1904	1909	1904
All products.....			\$1,316,757	\$743,124
Wheat flour:				
White..... barrels..	79,275	72,459	528,648	410,209
Graham..... barrels..	251	439	1,596	2,812
Corn meal..... barrels..	1,002	913	9,121	4,225
Barley meal..... pounds..	8,892,033	8,773,000	159,570	136,846
Feed..... tons..	14,550	3,380	507,506	102,012
Offal..... tons..	3,586	3,435	105,159	77,930
All other.....			14,157	

Measured by value of products white flour and feed together constituted 78.7 per cent of the total value of products in 1909, the proportion for white flour alone being 40.1 per cent. Barley meal constituted 11.4 per cent of the total value of products and offal 8 per cent.

While white flour increased only 9.4 per cent in quantity from 1904 to 1909, it increased 26.1 per cent in value.

Feed shows the largest rate of increase both in quantity and in value, 330.5 per cent and 397.5 per cent, respectively. Graham flour was the only item showing a decrease from 1904 to 1909.

**Lumber and timber products.**—This industry was the second largest in the territory as regards capital invested, and third in average number of wage earners and value of products.

The following is a statement of the quantity of products of the sawmills, by classes, reported at the censuses of 1909 and 1899:

	QUANTITY.	
	1909	1899
Rough lumber..... M feet, b. m. . . . .	62,731	36,182
Laths..... thousands..	7,816	2,040
Shingles..... thousands..	583	350

The rough lumber sawed in 1909 amounted to 62,731,000 feet, as compared with 36,182,000 in 1899, a gain of 26,549,000 feet, or 73.4 per cent. The lath output increased, in 1909, 5,776,000 over 1899, a gain of 283.1 per cent; and as reported for the same years shingles gained 233,000, or 66.6 per cent.

**Laundries.**—Statistics for steam laundries are not included in the general tables. In 1909 there were 13 such establishments in the territory of Arizona, 3 of which were in Phoenix and 2 in Tucson.

The following statement summarizes the statistics:

Number of establishments.....	13
Persons engaged in the industry.....	309
Proprietors and firm members.....	11
Salaried employees.....	15
Wage earners (average number).....	283
Primary horsepower.....	298
Capital.....	\$193,351
Expenses.....	303,206
Services.....	169,747
Materials.....	74,153
Miscellaneous.....	59,306
Amount received for work done.....	369,282

The most common form of organization was the individual with seven establishments, the general partnership having two and the incorporated company four establishments. Five establishments had receipts for the year's business of \$5,000 but less than \$20,000; eight, of \$20,000 but less than \$100,000.

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.....	280	95.2	July.....	280	96.2
February.....	290	99.7	August.....	266	91.4
March.....	286	98.3	September.....	268	92.1
April.....	291	100.0	October.....	283	97.3
May.....	290	99.7	November.....	285	97.9
June.....	282	96.9	December.....	291	100.0

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

KIND.	Number of engines.	Horse-power.
<b>Primary power, total</b> .....		<b>298</b>
Owned—Steam.....	12	283
Rented—Electric.....	2	15

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

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	620
Bituminous coal.....	Tons.....	1,357
Wood.....	Cords.....	1,282
Oil.....	Barrels.....	3,782
Gas.....	1,000 feet.....	1,000

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

Number of establishments.....	4
Persons engaged in industry.....	8
Proprietors and firm members.....	5
Wage earners (average number).....	3
Primary horsepower.....	108
Capital.....	\$22,400
Expenses.....	41,018
Services.....	1,660
Materials.....	138,879
Miscellaneous.....	479
Value of products.....	46,159

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

STATISTICS OF MANUFACTURES—ARIZONA.

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).							
<b>TERRITORY—All industries.....</b>	1909	311	7,202	261	500	6,441	39,140	\$32,873	\$798	\$5,505	\$33,600	\$50,257	\$16,657
	1904	160	5,217	133	291	4,793	21,412	14,396	472	3,969	14,595	28,083	13,488
	1899	154	( <sup>1</sup> )	( <sup>1</sup> )	205	3,126	8,537	9,518	269	2,287	7,377	20,439	12,562
Bread and other bakery products.....	1909	40	164	45	7	112	19	133	6	90	274	478	204
	1904	16	91	24	1	60	-----	85	( <sup>2</sup> )	53	132	245	113
	1899	8	47	10	2	35	( <sup>1</sup> )	34	2	23	50	109	59
Butter, cheese, and condensed milk.....	1909	11	75	1	16	58	350	240	22	51	388	538	150
	1904	5	39	2	7	30	263	180	7	22	190	207	77
	1899	7	33	4	14	15	101	73	6	9	122	148	26
Cars and general shop construction and repairs by steam-railroad companies.....	1909	10	1,141	-----	52	1,089	892	677	77	970	1,301	2,394	1,093
	1904	7	1,108	-----	39	1,159	481	523	54	901	292	1,329	1,037
	1899	7	590	-----	14	576	215	430	21	437	412	887	475
Flour-mill and gristmill products.....	1909	10	75	4	17	54	784	674	26	42	1,129	1,317	188
	1904	9	50	-----	14	39	465	404	18	24	641	743	102
	1899	9	( <sup>1</sup> )	( <sup>1</sup> )	11	36	527	210	9	20	377	448	71
Ice, manufactured.....	1909	23	152	9	26	117	2,569	1,080	28	112	144	501	357
	1904	13	97	12	13	72	1,190	420	12	55	58	259	201
	1899	9	67	11	12	44	609	229	10	31	42	133	91
Lumber and timber products.....	1909	23	911	30	42	839	2,953	2,342	106	639	337	1,419	1,082
	1904	9	576	8	26	542	2,338	1,469	56	412	208	1,037	829
	1899	17	( <sup>1</sup> )	( <sup>1</sup> )	23	381	( <sup>1</sup> )	632	34	267	182	619	437
Printing and publishing.....	1909	64	408	51	89	268	221	680	104	232	168	784	616
	1904	50	260	37	43	189	94	397	51	161	107	470	363
	1899	32	182	28	15	139	70	187	18	74	46	237	101
Smelting and refining, copper.....	1909	8	3,268	-----	139	3,129	29,042	21,487	310	2,776	29,242	41,059	11,817
	1904	7	2,456	-----	107	2,349	15,649	9,341	218	2,050	12,487	22,762	10,275
	1899	9	1,728	-----	80	1,648	5,731	7,266	141	1,277	6,371	17,287	10,916
All other industries.....	1909	122	1,008	121	112	775	2,310	5,560	119	581	617	1,767	1,150
	1904	53	441	50	41	350	932	1,577	56	231	480	971	491
	1899	56	( <sup>1</sup> )	( <sup>1</sup> )	34	252	( <sup>1</sup> )	457	28	149	275	571	296

THE CITIES OF PHOENIX AND TUCSON—ALL INDUSTRIES COMBINED.

PHOENIX.....	1909	57	432	58	70	304	969	\$1,258	\$69	\$242	\$964	\$1,467	\$603
TUCSON.....	1909	35	625	28	42	555	1,403	902	57	512	1,270	2,037	767

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

<sup>2</sup> Less than \$500.

<sup>3</sup> Does not include statistics for two establishments, to avoid disclosure of individual operations.

STATISTICS OF MANUFACTURES—ARIZONA.

TABLE II.—DETAIL STATEMENT FOR

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.				Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners.				Total.	16 and over.		Under 16.		
					Male.	Female.	Average number.	Number.		Male.		Female.	Male.	Female.		
								Maximum month.	Minimum month.							
1 All industries.....	311	7,202	261	166	299	35	6,441	Jy 6,888	Mh 6,003							39,140
2 Artificial stone.....	14	48	19	4			25	No 36	Ja <sup>1</sup> 17	42	42					2
3 Bread and other bakery products.....	40	164	45	2	1	4	112	De 115	Ja <sup>1</sup> 112	116	103	9	4			19
4 Brick and tile.....	21	126	28				98	Oc 141	Au 59	178	178					100
5 Butter, cheese, and condensed milk.....	11	75	1	5	4	3	58	Je 67	Ja 52	56	56					350
6 Cars and general shop construction and repairs by steam-railroad companies.....	10	1,141		17	34	1	1,089	Au 1,140	Fe 958	1,100	1,094		6			892
7 Cars and general shop construction and repairs by street-railroad companies.....	4	10					10	Ja <sup>1</sup> 11	Ap <sup>1</sup> 9	10	10					5
8 Confectionery.....	3	21	3	1	4	4	9	Se <sup>1</sup> 10	Ja <sup>1</sup> 8	14	11	3				7
9 Copper, tin, and sheet-iron products.....	7	43	8			1	34	No <sup>1</sup> 37	Jy <sup>1</sup> 30	37	37					4
10 Flour-mill and gristmill products.....	10	75	4	9	7	1	54	Au 62	My <sup>1</sup> 50	53	53					784
11 Foundry and machine-shop products.....	19	80	7	6	3		64	Ja 78	Au <sup>1</sup> 59	65	65					136
12 Gas, illuminating and heating.....	8	33		6	5	2	20	Ja <sup>1</sup> 20	Fe <sup>1</sup> 19	20	20					153
13 Ice, manufactured.....	23	152	9	16	9	1	117	Jy 165	Ja 76	100	100					2,569
14 Leather goods.....	4	21	5	1			15	Jy <sup>1</sup> 18	Fe <sup>1</sup> 12	18	18					2
15 Lumber and timber products.....	23	911	30	16	20	6	839	Jy 1,043	Fe 545	997	994	1	2			2,953
16 Marble and stone work.....	4	275	8	2	18		247	Mh 290	De 213	229	229					1,300
17 Printing and publishing.....	64	408	51	22	58	9	268	De 287	Mh 250	285	256	15	14			221
18 Smelting and refining, copper.....	8	3,268		24	112	3	3,129	Fe 3,252	No 3,018	3,057	3,050		7			29,042
19 Tobacco manufactures.....	11	58	10	2	7		39	Ja 47	Jy 4	45	35	10				
20 All other industries <sup>2</sup> .....	36	293	33	29	17		214									601

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

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

Beet sugar.....	1	Furniture and refrigerators.....	1	Models and patterns, not including paper patterns.....	1
Carriages and wagons and materials.....	1	Gas and electric fixtures and lamps and reflectors.....	1	Patent medicines and compounds and druggists' preparations.....	1
Canning and preserving.....	2	Hand stamps and stencils and brands.....	1	Pottery, terra-cotta, and fire-clay products.....	1
Electrical machinery, apparatus, and supplies.....	1	Lime.....	2	Soap.....	1
Fancy articles, not elsewhere specified.....	1	Liquors, malt.....	2		
Food preparations.....	1	Mineral and soda waters.....	18		

STATISTICS OF MANUFACTURES—ARIZONA.

THE TERRITORY, 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 \$32,872,935	\$41,131,324	\$398,348	\$399,793	\$5,505,183	\$5,788,487	\$27,811,753	\$58,757	\$214,427	\$18,796	\$935,780	\$50,256,694	\$16,656,454
2 19,086	33,247	450	10,658	30	19,553	420	51	1,400	685	42,816	23,233	
3 133,057	402,879	2,450	3,220	95,674	12,106	262,383	12,174	2,058	12,814	478,289	203,800	
4 129,620	92,779	55,983	23,382	55,983	3,504	600	588	8,722	117,448	90,562		
5 240,469	505,740	15,440	6,470	50,929	16,748	371,342	260	1,068	42,496	538,427	150,337	
6 677,180	2,393,930	35,662	41,305	976,289	50,859	1,249,859	4,409	35,487	2,393,930	1,093,212		
7 32,643	18,630	9,430	308	7,906	176	700	50	18,630	10,356			
8 23,698	25,650	1,000	1,200	5,430	1,118	14,190	1,040	160	1,512	28,050	12,742	
9 61,050	120,764	520	31,980	888	81,300	2,028	511	2,937	143,516	61,328		
10 673,985	1,238,428	18,000	8,149	41,964	20,163	1,108,436	4,800	4,595	32,321	1,316,757	183,158	
11 252,051	116,459	8,570	3,080	46,554	7,161	39,723	2,310	2,391	6,670	119,632	72,748	
12 577,982	101,117	7,562	4,765	19,658	40,526	6,579	4,538	17,469	137,400	90,295		
13 1,079,907	350,758	21,060	6,692	111,711	118,965	24,621	10,243	67,466	501,228	357,642		
14 29,303	63,552	1,200	13,273	35	45,693	1,630	280	1,441	73,854	28,126		
15 2,342,117	1,345,679	63,100	43,158	638,857	15,782	321,258	820	16,628	8,061	238,015	1,419,114	
16 210,358	265,883	6,000	15,000	214,818	8,227	19,835	120	774	335,050	306,988		
17 679,943	650,948	32,921	71,463	232,246	18,094	149,973	25,457	5,006	7,431	107,757	784,487	
18 21,486,563	32,755,170	130,020	180,171	2,775,523	5,387,323	23,854,232	128,416	209,480	41,059,240	11,817,680		
19 47,489	57,263	3,120	5,300	15,047	100	23,260	1,029	4,764	817	3,826	72,211	
20 4,176,434	592,448	51,793	8,640	159,159	66,667	208,046	5,469	26,816	65,858	676,615	401,902	

## MANUFACTURES : ARKANSAS

## 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 Arkansas 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 Arkansas, 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 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 in 1909, 1904, and 1899. It also gives the same items for all industries combined for every city and town having in 1910 a population of over 10,000.

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

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

The census of 1909, like that of 1904, was confined to manufacturing establishments conducted under the factory system, as distinguished from the neighborhood, hand, and building industries. Where statistics for 1899 are given they have been reduced to a comparable basis by eliminating the latter classes of industries.

The census does not include establishments which were idle during the entire year or had a value of products of less than \$500, or the *manufacturing done in educational, eleemosynary, and penal institutions, or in governmental establishments, except those of the Federal Government.*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Prevailing hours of labor.**—The census made no attempt to ascertain the number of employees working a given number of hours per week. The inquiry called merely for the prevailing practice followed in each establishment. Occasional variations in hours in

an establishment from one period to another are disregarded, and no attention is given to the fact that a limited number of employees may have hours differing from those of the majority. In the tables all the wage earners of each establishment are counted in the class within which the establishment itself falls. In most establishments, however, all or practically all the employees work the same number of hours, so that these figures give a substantially correct picture of the hours of labor in manufacturing industries.

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

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

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

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

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

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

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

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

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

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

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

**Laundries.**—The census of 1909 was the first to include statistics of laundries. The reports are confined to establishments using mechanical power. The data are presented separately and are not

included in the general total for manufacturing industries, in order to avoid interference with comparisons with prior censuses.

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

**INDUSTRIES IN GENERAL.**

**General character of the state.**—Arkansas, with a gross area of 53,335 square miles, of which 810 represent water surface, ranks twenty-sixth in size among the 49 states and territories of continental United States. Its population in 1910 was 1,574,449, as compared with 1,311,564 in 1900 and 1,128,211 in 1890. It ranked twenty-fifth in population both in 1910 and in 1900. The density of population of the state was 30 per square mile in 1910, the corresponding figure for 1900 being 25.

No city in the state has a population of over 50,000, although five cities, Little Rock, Fort Smith, Pine Bluff, Hot Springs, and Argenta, each had a population exceeding 10,000 in 1910. Of the entire population of the state, 12.9 per cent resided in cities and incorporated towns having a population of 2,500 or over in 1910, as against 8.5 per cent in 1900.

The railroad facilities of Arkansas are good, except in the mountainous regions of the north central and west central sections. In general, the principal railroads traversing the state are those connecting the Gulf cities on the south with the large cities of the North Central states. The state has a number of navigable

rivers which have been important factors in its industrial development. Arkansas contains large deposits of bituminous and semianthracite coal, which are accessible for industrial purposes, and its extensive timber areas provide abundant material for the lumber and timber products industry, which is by far the most important branch of manufactures in the state.

**Importance and growth of manufactures.**—Although Arkansas is comparatively unimportant as a manufacturing state, its manufactures have shown marked increases in recent years. In 1849-50 the 261 manufacturing establishments reported gave employment to an average of 842 wage earners, representing four-tenths of 1 per cent of the total population of the state. In 1909 an average of 44,982 wage earners were employed, representing 2.9 per cent of the total population. During this period of 60 years the gross value of products per capita of the entire population increased from \$2.56 to \$47.58.

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, with the percentages of increase.

	NUMBER OR AMOUNT.			PER CENT OF INCREASE.	
	1909	1904	1899	1904-1909	1899-1904
Number of establishments.....	2,925	1,907	1,746	53.4	9.2
Persons engaged in manufactures.....	51,730	37,557	( <sup>1</sup> )	37.7	( <sup>1</sup> )
Proprietors and firm members.....	3,455	2,140	( <sup>1</sup> )	61.4	( <sup>1</sup> )
Salaried employees.....	3,293	2,328	1,549	41.5	50.3
Wage earners (average number).....	44,982	33,089	31,525	35.9	5.0
Primary horsepower.....	173,088	109,509	79,560	58.1	37.6
Capital.....	\$70,174,000	\$46,306,000	\$25,335,000	51.5	82.4
Expenses.....	64,830,000	45,301,000	32,116,000	43.1	41.1
Services.....	22,574,000	16,854,000	11,446,000	33.9	47.2
Salaries.....	3,461,000	2,310,000	1,262,000	49.8	83.0
Wages.....	19,113,000	14,544,000	10,184,000	31.4	42.8
Materials.....	34,935,000	21,799,000	18,288,000	60.3	19.2
Miscellaneous.....	7,321,000	6,648,000	2,332,000	10.1	179.1
Value of products.....	74,916,000	53,865,000	39,888,000	39.1	35.0
Value added by manufacture (value of products less cost of materials).....	39,981,000	32,066,000	21,600,000	24.7	48.4

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

In 1909 the state of Arkansas had 2,925 manufacturing establishments, which gave employment to an average of 51,730 persons during the year and paid out \$22,574,000 in salaries and wages. Of the persons employed, 44,982 were wage earners.

These establishments turned out products to the value of \$74,916,000, to produce which materials costing \$34,935,000 were used. The value added by manufacture was thus \$39,981,000, which figure, as explained in the Introduction, best represents the net

wealth created by manufacturing operations during the year.

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 the returns presented in 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.

## MANUFACTURES—ARKANSAS.

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> .....	2,925	44,982	100.0	\$74,916,000	100.0	\$39,981,000	100.0	39.1	35.0	24.7	48.5
Lumber and timber products.....	1,697	32,932	73.2	40,640,000	54.2	26,340,000	65.9	27.0	20.2	16.7	48.2
Oil, cottonseed, and cake.....	44	1,086	2.4	7,789,000	10.4	1,781,000	4.5	57.7	54.9	141.1	-38.0
Flour-mill and gristmill products.....	113	312	0.7	5,615,000	7.5	756,000	1.9	51.7	34.2	38.7	7.1
Cars and general shop construction and repairs by steam-railroad companies.....	16	3,249	7.2	4,154,000	5.5	2,395,000	6.0	35.0	46.9	39.4	20.2
Printing and publishing.....	295	981	2.2	2,082,000	2.8	1,540,000	3.9	44.3	42.3	37.7	44.5
Carriages and wagons and materials.....	58	973	2.2	1,664,000	2.2	844,000	2.1	115.5	30.1	98.1	74.6
Bread and other bakery products.....	133	310	0.7	1,177,000	1.6	500,000	1.3	68.9	436.2	31.6	484.6
Foundry and machine-shop products.....	42	447	1.0	1,051,000	1.4	620,000	1.6	58.3	48.2	38.7	52.6
Furniture and refrigerators.....	20	680	1.5	975,000	1.3	496,000	1.2	16.5	259.2	-2.2	242.6
Ice, manufactured.....	49	352	0.8	820,000	1.1	613,000	1.5	68.0	127.0	60.5	126.0
Cooperage and wooden goods, not elsewhere specified.....	9	504	1.1	761,000	1.0	411,000	1.0	14.8	177.4	70.5	197.5
Wood, turned and carved.....	25	383	0.9	612,000	0.8	289,000	0.7	14.6	685.3	-13.2	825.0
Brick and tile.....	42	585	1.3	601,000	0.8	433,000	1.1	-24.1	185.9	-27.2	164.4
Leather goods.....	14	92	0.2	456,000	0.6	173,000	0.4				
Copper, tin, and sheet-iron products.....	18	113	0.3	404,000	0.5	186,000	0.5	231.1		135.4	
Marble and stone work.....	28	148	0.3	354,000	0.5	227,000	0.6	45.1	18.4	30.5	41.5
Canning and preserving.....	44	292	0.6	279,000	0.4	98,000	0.2				
Mattresses and spring beds.....	6	94	0.2	263,000	0.4	107,000	0.3	220.7	67.3	174.4	44.4
Gas, illuminating and heating.....	5	48	0.1	219,000	0.3	120,000	0.3	-22.1	102.2	-38.3	106.9
Confectionery.....	11	107	0.2	217,000	0.3	102,000	0.3	-22.5	124.0	14.6	107.0
All other industries.....	256	1,294	2.9	4,783,000	6.4	1,932,000	4.8				

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

Although one industry greatly predominates in importance, it will be seen from Table II that there is, on the whole, considerable diversity in the manufacturing activities of the state. The most important industries listed in the table given above, in which they are arranged in the order of the value of products, call for brief consideration.

*Lumber and timber products.*—This industry includes logging operations, sawmills, planing mills, and establishments manufacturing wooden packing boxes, and gave employment in 1909 to an average of 32,932 wage earners, representing 73.2 per cent of the total number of wage earners employed in all the manufacturing industries of the state. It comprised 1,697 establishments, or 58 per cent of the total number of manufacturing establishments, and reported products valued at \$40,640,000, or 54.2 per cent of the total value of all manufactured products of the state. This classification does not include the operations of custom sawmills, which are usually small, the statistics for which are shown separately on page 15. Many of the mills of Arkansas are small portable outfits used at certain seasons of the year for sawing logs cut in the process of clearing land for agricultural purposes.

If the number of establishments engaged in industries such as cooperage, the turning and carving of wood, and the furniture industry are added to the number reported for the lumber industry, the total number of woodworking establishments in 1909 becomes 1,751, representing 59.9 per cent of the total number of manufacturing establishments for the state. These combined industries gave employment to an average

of 34,499 wage earners, or 76.7 per cent of the total number employed in all manufacturing industries, and reported products amounting to \$42,988,000, or 57.4 per cent of the total value of the manufactured products of the state.

*Oil, cottonseed, and cake.*—The statistics presented include those for all establishments engaged primarily in extracting oil from cotton seed. This industry was second in importance among the industries of the state in each of the three census years, 1909, 1904, and 1899. In 1909 the industry gave employment to 1,086 wage earners and reported products valued at \$7,789,000. The total value of products increased 55.9 per cent from 1899 to 1904 and 57.7 per cent from 1904 to 1909, while the number of establishments increased from 20 to 42 during the earlier period and from 42 to 44 during the later period. In 1909 Arkansas occupied sixth place among the states in the value of its crude cottonseed products, and seventh place in 1904. At both censuses it ranked sixth in the quantity of seed crushed.

*Flour-mill and gristmill products.*—This industry ranked third in the state in 1909 when measured by value of products. In that year it gave employment to 312 wage earners, and its products were valued at \$5,615,000. Because of the comparatively simple processes involved in this industry, 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.

This classification does not include custom flour mills and gristmills, statistics for which are shown separately on page 15.

*Cars and general shop construction and repairs by steam-railroad companies.*—This branch of manufactures represents the work done in the car shops of steam-railroad companies, and is practically confined to repairs to the rolling stock and equipment. The statistics do not include minor repairs made in round-houses. This industry gave employment to an average of 3,249 wage earners, holding second place in this respect in the state.

*Printing and publishing.*—Under this classification are included in Arkansas all establishments engaged in job printing and the printing and publishing of books, newspapers, and periodicals. This industry, which included 295 establishments, the second largest number reported for any manufacturing industry in the state, employed an average of 981 wage earners in 1909, and reported products valued at \$2,082,000.

*Carriages and wagons and materials.*—This industry shows an increase of \$892,000, or 115.5 per cent, in value of products from 1904 to 1909.

This table shows also the percentages of increase for these leading industries in value of products and value added by manufacture where these statistics are comparable. The manufacture of copper, tin, and sheet-iron products, the carriage and wagon, and the mattress and spring-bed industries showed remarkable increases both in gross value of products and in value added by manufacture during the period 1904 to 1909. For the same period the brick and tile and manufactured-gas industries decreased both in value of products and in value added by manufacture, while the confectionery industry decreased in value of products and the furniture and the wood turning and carving industries decreased in value added by manufacture.

For the period 1899 to 1904 the cottonseed-products industry decreased in value added by manufacture, whereas the bakery products, furniture, manufactured-ice, cooperage, wood turning and carving, brick and tile, manufactured-gas, and confectionery industries increased largely both in value of products and in value added by manufacture.

In addition to the 20 industries separately presented in the table, there are 13 other industries in the state each of which reported in 1909 a value of products in excess of \$100,000. These 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 other cases, 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; and in still other cases, because comparable statistics for the different census years can not be presented either on account of changes in classification or because the figures are not available. These industries are: Awnings, tents, and sails; butter, cheese, and condensed milk; clothing, men's, including

shirts; cotton goods, including cotton small wares; explosives; fertilizers; lime; liquors, malt; mineral and soda waters; patent medicines and compounds and druggists' preparations; coffee and spice, roasting and grinding; rice, cleaning and polishing; and wood preserving. Figures for 1909, however, for the following industries may be found in Table II: Butter, cheese, and condensed milk; clothing, men's, including shirts; lime; patent medicines and compounds and druggists' preparations; and rice, cleaning and polishing.

**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.....	51,730	50,701	1,029
Proprietors and officials.....	4,922	4,849	73
Proprietors and firm members.....	3,455	3,389	66
Salaried officers of corporations.....	438	432	6
Superintendents and managers.....	1,029	1,028	1
Clerks.....	1,826	1,620	206
Wage earners (average number).....	44,982	44,232	750
16 years of age and over.....	44,457	43,763	694
Under 16 years of age.....	525	469	56

The average number of persons engaged in manufactures during 1909 was 51,730, of whom 44,982 were wage earners. Of the remainder, 4,922 were proprietors and officials and 1,826 were clerks. Corresponding figures for individual industries will be found in Table II, page 18.

The following table shows for 1909 the percentages of proprietors and officials, clerks, and wage earners, respectively, among the total number of persons employed in manufactures. It covers all industries combined and 10 important industries individually.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	51,730	9.5	3.5	87.0
Bread and other bakery products.....	491	33.2	3.7	63.1
Carriages and wagons and materials.....	1,126	10.5	3.1	86.4
Cars and general shop construction and repairs by steam-railroad companies.....	3,464	2.5	3.7	93.8
Flour-mill and gristmill products.....	549	31.7	11.5	56.8
Foundry and machine-shop products.....	563	13.3	7.3	79.4
Furniture and refrigerators.....	766	5.4	5.9	88.8
Ice, manufactured.....	458	15.3	7.9	76.9
Lumber and timber products.....	36,602	7.9	2.3	89.8
Oil, cottonseed, and cake.....	1,350	7.9	11.6	80.4
Printing and publishing.....	1,672	29.1	12.3	58.7
All other industries.....	4,629	15.0	5.9	79.1

Of the total number of persons engaged in all manufacturing industries, 9.5 per cent were proprietors and officials, 3.5 per cent clerks, and 87 per cent wage earners. The highest percentage of proprietors and officials shown for any individual industry (33.2) is that for the bakeries. In this industry and in the flour-mill and gristmill and the printing and publishing 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 who fall into the class of proprietors and officials is very much higher than in most other industries or in all industries combined.

On account of the large average number of wage earners to an individual establishment in the furniture and refrigerator, lumber and timber products, steam-railroad repair shop and cottonseed-oil industries, these industries show the smallest proportion of proprietors and officials.

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 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>44,982</b>	<b>97.3</b>	<b>1.5</b>	<b>1.2</b>
Bread and other bakery products.....	310	82.6	12.3	5.2
Carrriages and wagons and materials.....	973	98.9		1.1
Cars and general shop construction and repairs by steam-railroad companies.....	3,249	100.0		
Flour-mill and gristmill products.....	312	98.7	0.3	1.0
Foundry and machine-shop products.....	447	99.6		0.4
Furniture and refrigerators.....	640	93.1	2.8	4.1
Ice, manufactured.....	352	100.0		
Lumber and timber products.....	32,932	99.0	0.1	0.9
Oil, cottonseed, and cake.....	1,086	100.0		
Printing and publishing.....	981	75.9	20.8	3.3
All other industries.....	3,660	85.2	10.9	4.0

<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, 97.3 per cent of the average number of wage earners were males 16 years of age and over; 1.5 per cent females 16 years of age and over; and 1.2 per cent children under 16 years of age. The largest proportions of female wage earners reported for any of the industries shown separately in the above table, 20.8 per cent and 12.3 per cent, were

for printing and publishing and for the bakeries, respectively. Children formed 5.2 per cent of the total number of wage earners in the bakeries, and 4.1 per cent in the furniture industry.

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

CLASS.	PERSONS ENGAGED IN MANUFACTURES.				Per cent of increase, 1904-1909.
	1909		1904		
	Number.	Percent distribution.	Number.	Percent distribution.	
<b>Total.....</b>	<b>51,730</b>	<b>100.0</b>	<b>37,557</b>	<b>100.0</b>	<b>37.7</b>
Proprietors and firm members.....	3,455	6.7	2,140	5.7	61.4
Salaried employees.....	3,293	6.4	2,328	6.2	41.5
Wage earners (average number).....	44,982	87.0	33,089	88.1	35.9

Comparable figures are not obtainable for 1899. The table shows a greater percentage of increase in the number of proprietors and firm members than in the other two classes. The proportion of proprietors and firm members and of salaried employees was slightly larger in 1909 than in 1904, while that of wage earners was slightly smaller. The increased percentage of proprietors is due to the increase in the number of small establishments under individual and firm ownership.

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>44,982</b>	<b>100.0</b>	<b>33,089</b>	<b>100.0</b>	<b>31,525</b>	<b>100.0</b>
16 years of age and over.....	44,457	98.8	32,567	98.4	30,907	98.0
Male.....	43,763	97.3	32,066	96.9	30,483	96.7
Female.....	694	1.5	501	1.5	424	1.3
Under 16 years of age.....	525	1.2	522	1.6	618	2.0

This table indicates that for all industries combined there has been both an actual and a proportional decrease during the last 10 years in the employment of children under 16 years of age. Little change is shown in the proportions of adult male and female wage earners, both classes having made actual increases during the decade. In 1909 males 16 years of age and over formed

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97.3 per cent of all wage earners, as compared with 96.9 per cent in 1904 and 96.7 per cent in 1899.

**Wage earners employed by months.**—The next table gives the number of wage earners employed on the 15th of each month during the year 1909, for all industries combined, and also the percentage which the number reported for each month is of the greatest number reported for any month. In Table II, page 18, are shown, for practically all the important industries of 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.

There was comparatively little fluctuation in employment from month to month. The number of wage earners in such seasonal industries as canning and preserving and the manufacture of cottonseed oil are not sufficiently large to greatly influence the totals for the state.

MONTH.	WAGE EARNERS, ALL INDUSTRIES.		MONTH.	WAGE EARNERS, ALL INDUSTRIES.	
	Number.	Per cent of maxi- mum.		Number.	Per cent of maxi- mum.
January.....	41,295	82.9	July.....	44,840	90.0
February.....	41,500	83.3	August.....	47,500	95.4
March.....	42,845	86.0	September.....	49,582	99.6
April.....	42,391	85.1	October.....	49,802	100.0
May.....	41,416	83.2	November.....	48,550	97.5
June.....	42,384	85.1	December.....	47,683	95.7

**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>44,982</b>	<b>1,249</b>	<b>1,320</b>	<b>3,401</b>	<b>1,039</b>	<b>34,931</b>	<b>1,556</b>	<b>1,166</b>	<b>320</b>
Bread and other bakery products.....	310	27	.....	16	.....	157	66	31	13
Brick and tile.....	585	.....	2	37	.....	546	.....	.....	.....
Canning and preserving.....	202	18	.....	.....	.....	236	5	18	15
Carriages and wagons and materials.....	973	10	.....	34	180	746	3	.....	.....
Cars and general shop construction and repairs by steam-railroad companies.....	3,249	.....	.....	2,304	02	643	186	.....	24
Confectionery.....	107	3	.....	1	.....	96	7	.....	.....
Cooperage and wooden goods, not elsewhere specified.....	504	.....	.....	.....	.....	504	.....	.....	.....
Copper, tin, and sheet-iron products.....	113	58	19	18	3	15	.....	.....	.....
Flour-mill and gristmill products.....	312	71	2	4	3	129	24	79	.....
Foundry and machine-shop products.....	447	2	.....	145	16	284	.....	.....	.....
Furniture and refrigerators.....	680	3	46	3	61	567	.....	.....	.....
Ice, manufactured.....	352	.....	5	.....	.....	12	74	47	214
Leather goods.....	92	4	.....	42	14	32	.....	.....	.....
Lumber and timber products.....	32,932	484	1,130	382	515	29,329	925	167	.....
Marble and stone work.....	148	16	.....	33	.....	94	.....	.....	.....
Mattresses and spring beds.....	94	8	.....	25	7	54	.....	.....	.....
Oil, cottonseed, and cake.....	1,036	.....	.....	.....	.....	130	82	802	22
Printing and publishing.....	981	419	40	182	87	237	3	4	.....
Wood, turned and carved.....	383	.....	.....	7	39	337	.....	.....	.....
All other industries.....	1,342	126	67	163	22	733	181	18	32

It is evident from these figures that for the great majority of wage earners employed in the manufacturing industries of Arkansas the prevailing hours of labor were 60 a week, 15.5 per cent of the total being employed in establishments where the hours are less than 60 a week, and only 6.8 per cent being employed in establishments where they are more than 60 hours a week.

It will be noted that in most of the industries the employment is mainly confined to a week of 60 hours. Practically all the wage earners in the cottonseed-oil and manufactured-ice industries, however, are employed in establishments where the prevailing hours are more than 60 hours a week, while for a large number of the wage earners in the printing and publishing industry and the manufacture of copper, tin, and sheet-iron products the prevailing hours of labor were less than 54 per week.

**Location of establishments.**—The next table shows the extent to which the manufactures of Arkansas are carried on 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 for that year, from which to determine the cities that came within the group having 10,000 inhabitants and over.

ITEM.	Year.	Total.	LOCATION OF ESTABLISHMENTS.		PER CENT OF TOTAL.	
			In cities with popu- lation of 10,000 and over.	Outside districts.	In cities with popu- lation of 10,000 and over.	Out- side dis- tricts.
Population.....	1910	1,574,449	110,590	1,463,859	7.0	93.0
	1900	1,311,564	61,390	1,250,174	4.7	95.3
Number of establish- ments.....	1909	2,925	339	2,586	11.6	88.4
	1899	1,746	105	1,581	9.4	90.5
Average number of wage earners.....	1909	44,982	7,082	37,900	15.7	84.3
	1899	31,525	3,064	28,461	9.7	90.3
Value of products....	1909	\$74,916,367	\$18,693,769	\$56,222,598	25.0	75.0
	1899	\$39,887,578	\$6,320,887	\$33,566,691	15.8	84.2
Value added by man- ufacture.....	1909	\$9,981,455	\$8,331,722	\$1,649,733	20.8	79.2
	1899	\$21,599,533	\$3,102,228	\$18,497,305	14.4	85.6

In 1909, 25 per cent of the total value of products was reported from cities having over 10,000 inhabitants, and 15.7 per cent of the average number of wage earners were employed in such cities. The figures indicate that during the past 10 years this class of cities has gained decidedly, relatively speaking, in industrial importance, as compared with the remainder of the state. This change is due largely to the difference between the composition of the group in 1909 and in 1899. In 1910 the group of cities having 10,000 inhabitants and over consisted of Argenta, Fort Smith, Hot Springs, Little Rock, and Pine Bluff. In 1900 Hot Springs had less than 10,000 inhabitants, and Argenta had not been incorporated, so that for 1899 these cities are not included among the cities for which a special presentation is made. Much of the industrial activity outside of this group of cities is the result of the development of the lumber industry of the state.

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

CITY.	1910	1900
Little Rock.....	45,941	38,307
Fort Smith.....	23,975	11,587
Pine Bluff.....	15,102	11,496
Hot Springs.....	14,434	9,973
Argenta.....	11,138	.....

The relative importance in manufactures of each of the five cities having a population of 10,000 and 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:

CITY.	AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS.		
	1909	1904	1899	1909	1904	1899
Little Rock.....	2,017	1,971	1,397	\$6,881,662	\$4,689,787	\$3,379,030
Argenta.....	2,157	( <sup>1</sup> )	( <sup>1</sup> )	4,841,661	( <sup>1</sup> )	( <sup>1</sup> )
Fort Smith.....	1,455	1,049	677	3,739,246	2,329,454	1,401,320
Pine Bluff <sup>2</sup> .....	1,118	1,425	990	2,386,630	2,499,814	1,540,537
Hot Springs.....	335	239	94	844,570	597,029	190,667

<sup>1</sup> Not incorporated in 1900.

<sup>2</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.

The cities of Little Rock, Fort Smith, and Hot Springs showed increases in the average number of wage earners and in value of products, both from 1899 to 1904 and from 1904 to 1909. Pine Bluff increased in both respects from 1899 to 1904, but decreased from 1904 to 1909. The percentages of increase were generally greater from 1899 to 1904 than from 1904 to 1909. The city of Argenta was not incorporated in 1900, and since the totals for the city are shown in 1909 for the first time, comparative figures are not available.

The largest percentage of increase in value of products and average number of wage earners from 1899 to 1904, 213.1 per cent and 154.3 per cent, is shown for Hot Springs. This city also shows the greatest percentage of increase in number of wage earners from 1904 to 1909, 40.2, but Fort Smith shows the greatest percentage of increase in value of products, 60.5, due chiefly to the establishment of such new industries as the manufacture of brick and tile, carriages and wagons and materials, refrigerators, and canning and preserving. From 1904 to 1909 the value of the manufactured products of Fort Smith increased 60.5 per cent, and the average number of wage earners employed there 38.7 per cent. During this latter period Little Rock, the largest and most important city in the state, showed an increase of 46.7 per cent in value of products and of 2.3 per cent in the average number of wage earners, while Pine Bluff showed a decrease of 4.5 per cent in value of products and of 21.5 per cent in number of wage earners.

In Little Rock in 1909 the cottonseed-oil mills, the lumber industry, and printing and publishing were the most important; in Argenta, the steam-railroad repair shops and flour mills and gristmills; in Fort Smith, the manufacture of furniture and refrigerators and the manufacture of carriages and wagons; in Pine Bluff, the lumber industry and cottonseed-oil mills; and in Hot Springs, the lumber industry and bakeries.

The statistics for that part of Texarkana which lies in Arkansas are included with those for the outside district in the table on page 7. The following statement presents the totals for the entire city and for the parts situated in Arkansas and in Texas, respectively.

	Total for city.	Texarkana, Ark.	Texarkana, Tex.
Population.....	15,445	5,655	9,790
Number of establishments.....	47	21	26
Persons engaged in manufactures.....	1,063	240	823
Proprietors and firm members.....	40	22	18
Salaried employees.....	148	45	103
Wage earners (average number).....	875	173	702
Primary horsepower.....	2,902	1,335	1,567
Capital.....	\$1,792,436	\$398,387	\$1,394,049
Expenses.....	2,405,671	983,468	1,422,203
Services.....	575,548	109,173	466,375
Salaries.....	150,519	34,593	121,926
Wages.....	419,029	74,580	344,449
Materials.....	1,671,127	822,017	849,110
Miscellaneous.....	158,996	52,278	106,718
Value of products.....	2,646,521	1,052,087	1,594,434
Value added by manufacture (value of products less cost of materials).....	975,394	230,070	745,324

The leading industries of Texarkana, Ark., are the manufacture of flour-mill and gristmill products and of cottonseed oil and cake, and of Texarkana, Tex., the cooperage shops and the steam-railroad repair shops.

**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 cen-

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suses 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.

The most important distinction shown is that between corporate and all other forms of ownership. For all industries combined, 21.9 per cent of the total number of establishments were in 1909 under corporate ownership, as against 78.1 per cent under all other forms. The corresponding figures for 1904 were 27.2 per cent and 72.8 per cent, respectively. In 1909 the establishments operated by corporations, however, reported 74.2 per cent of the total value of products, as against 25.8 per cent for those under all other forms of

ownership, while in 1904 the corresponding figures were 71.9 per cent and 28.1 per cent, respectively. The greatest decrease in relative numerical importance from 1904 to 1909 is shown for the establishments operated by corporations, while the largest decrease in relative importance as measured by value of products is shown for establishments operated by firms, which reported 13.8 per cent of the total value of products in 1904 and 11.7 per cent in 1909.

The 15 establishments in 1909 reported under other forms of ownership, consisted of 2 wooden-box factories, 3 butter factories, 1 canning factory, 1 planing mill, and 2 printing and publishing establishments, reported as cooperative, and 6 printing and publishing establishments which were operated by fraternal and religious societies.

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.....	2,925	44,982	\$74,816,367	\$39,981,455	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	1,907	33,089	53,864,394	32,065,048	Individual.....	46.0	23.4	11.4	16.8
Individual:					Firm.....	29.2	16.3	14.3	14.9
1909.....	1,466	7,453	10,472,470	6,422,606	Corporation.....	24.8	60.3	74.3	68.3
1904.....	846	4,277	7,684,593	4,523,514	<b>Foundry and machine-shop products, 1909.</b>				
Firm:					Individual.....	42	447	\$1,050,906	\$620,211
1909.....	804	5,835	8,773,033	5,368,602	Individual.....	14	74	157,350	93,737
1904.....	534	4,460	7,410,491	4,695,112	Firm.....	12	38	73,745	56,502
Corporation:					Corporation.....	16	395	\$14,811	469,912
1909.....	640	31,637	55,585,992	28,142,542	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	518	24,335	38,724,917	22,819,709	Individual.....	33.3	15.6	15.0	15.1
Other:					Firm.....	28.0	8.5	7.5	9.1
1909.....	15	57	84,872	47,705	Corporation.....	38.1	74.9	77.5	75.8
1904.....	9	17	44,483	22,413	<b>Lumber and timber products, 1909.</b>				
Per cent of total:					Individual.....	1,697	32,932	\$40,640,327	\$26,340,660
1909.....	100.0	100.0	100.0	100.0	Individual.....	854	5,798	5,502,457	4,002,419
1904.....	100.0	100.0	100.0	100.0	Firm.....	536	4,737	5,842,431	4,045,088
Individual:					Corporation.....	304	22,303	20,280,463	18,280,502
1909.....	50.1	16.6	14.0	16.1	Other.....	3	4	5,976	2,651
1904.....	44.4	12.9	14.3	14.1	Per cent of total.....	100.0	100.0	100.0	100.0
Firm:					Individual.....	50.3	17.6	13.5	15.2
1909.....	27.5	13.0	11.7	13.4	Firm.....	31.0	14.4	14.4	15.4
1904.....	28.0	13.5	13.8	14.6	Corporation.....	17.9	68.0	72.1	69.4
Corporation:					Other.....	0.2	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
1909.....	21.9	70.3	74.2	70.4	<b>Oil, cottonseed, and cake, 1909.</b>				
1904.....	27.2	73.5	71.9	71.2	Individual.....	44	1,086	\$7,788,885	\$1,783,911
Other:					Individual.....	3	90	921,443	273,054
1909.....	0.5	0.1	0.1	0.1	Corporation.....	41	996	6,867,442	1,510,857
1904.....	0.5	0.1	0.1	0.1	Per cent of total.....	100.0	100.0	100.0	100.0
<b>Carriages and wagons and materials, 1909.</b>					Individual.....	6.8	8.3	11.8	15.3
Individual.....	58	973	\$1,664,467	\$844,811	Corporation.....	93.2	91.7	88.2	84.7
Individual.....	19	119	155,646	105,785	<b>Printing and publishing, 1909.</b>				
Firm.....	18	164	277,761	165,027	Individual.....	295	981	\$2,082,365	\$1,546,742
Corporation.....	21	690	1,231,000	573,999	Individual.....	194	412	697,547	545,070
Per cent of total.....	100.0	100.0	100.0	100.0	Firm.....	66	193	398,252	294,601
Individual.....	32.8	12.2	9.4	12.5	Corporation.....	27	354	952,061	676,669
Firm.....	31.0	16.9	16.7	19.5	Other.....	8	22	34,565	29,772
Corporation.....	36.2	70.9	74.0	67.9	Per cent of total.....	100.0	100.0	100.0	100.0
<b>Flour-mill and gristmill products, 1909.</b>					Individual.....	65.8	42.0	33.5	35.3
Individual.....	113	312	\$5,615,486	\$756,634	Firm.....	22.4	19.7	19.1	19.0
Individual.....	52	73	638,499	127,157	Corporation.....	9.2	36.1	45.7	43.7
Firm.....	33	51	804,086	112,602	Other.....	2.7	2.2	1.7	1.9
Firm.....	33	51	804,086	112,602					
Corporation.....	28	188	4,172,901	516,875					

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

Size of establishment.—The tendency for manufacturing to become concentrated in large establishments, or the reverse, is a matter of interest from the standpoint of industrial organization. In order to throw some light upon it the next table groups the establishments according to the value of their products. The table also shows the average size of establishments for all industries combined and for certain important industries separately as measured by number of wage earners, value of products, and value added by manu-

facture. The totals for all industries are shown for the last two censuses, while for individual industries figures are given for 1909 only.

This table shows that in 1909 of the 2,925 manufacturing establishments only four, or one-tenth of 1 per cent, had products exceeding \$1,000,000 in value. The four establishments belonging to this group, however, employed an average of 3,362 wage earners, or 7.5 per cent of the total number in all establishments, and reported 7.3 per cent of the total value of products

and 6.4 per cent of the total value added by manufacture. On the other hand, the very small establishments—that is, those having products valued at less than \$5,000—constituted a considerable proportion (47.5 per cent) of the total number of establishments, but the value of their products amounted to only 4.1 per cent of the total. More than one-half of the total value of products was reported by establishments having a product valued at not less than \$100,000.

The decreases between 1904 and 1909 in the average value of products per establishment from \$28,246 to \$25,612, in the average value added by manufacture from \$16,814 to \$13,669, and in the average number of wage earners per establishment from 17 to 15 seems to indicate a tendency toward the establishment of small plants in the state, but may be the result of a more thorough canvass of the smaller establishments in 1909 than in 1904.

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.....	2,925	44,982	\$74,916,367	\$39,981,455	<b>Flour-mill and gristmill products, 1909—Continued.</b>				
1904.....	1,907	33,089	53,864,394	32,065,048	Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000:					Less than \$5,000.....	18.6	7.1	1.2	1.5
1909.....	1,390	3,501	3,056,457	2,169,126	\$5,000 and less than \$20,000.....	46.0	22.8	8.8	12.9
1904.....	741	1,301	1,732,050	1,248,236	\$20,000 and less than \$100,000.....	26.5	25.0	21.2	26.0
\$5,000 and less than \$20,000:					\$100,000 and less than \$1,000,000.....	8.8	45.2	68.8	59.6
1909.....	943	7,315	9,579,083	6,326,701	Average per establishment.....		3	\$49,695	\$6,096
1904.....	628	4,242	6,541,347	4,301,842	<b>Foundry and machine-shop products, 1909.....</b>	42	447	\$1,050,906	\$620,211
\$20,000 and less than \$100,000:					Less than \$5,000.....	11	11	23,500	16,671
1909.....	418	10,832	18,400,828	10,127,304	\$5,000 and less than \$20,000.....	22	136	229,995	168,110
1904.....	412	10,490	18,053,803	10,357,168	\$20,000 and less than \$100,000.....	6	85	284,868	159,866
\$100,000 and less than \$1,000,000:					\$100,000 and less than \$1,000,000.....	3	215	512,543	285,564
1909.....	170	19,972	38,436,426	18,786,422	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	126	17,056	27,477,194	16,157,802	Less than \$5,000.....	26.2	2.5	2.2	2.7
\$1,000,000 and over:					\$5,000 and less than \$20,000.....	52.4	30.4	21.9	25.5
1909.....	4	3,362	5,443,573	2,571,902	\$20,000 and less than \$100,000.....	14.3	19.0	27.1	25.8
1904.....					\$100,000 and less than \$1,000,000.....	7.1	48.1	48.8	46.0
Per cent of total:					Average per establishment.....		11	\$25,022	\$14,767
1909.....	100.0	100.0	100.0	100.0	<b>Lumber and timber products, 1909.....</b>	1,697	32,932	\$40,640,327	\$26,340,660
1904.....	100.0	100.0	100.0	100.0	Less than \$5,000.....	840	2,761	1,760,550	1,334,797
Less than \$5,000:					\$5,000 and less than \$20,000.....	521	5,195	5,360,761	3,877,493
1909.....	47.5	7.8	4.1	5.4	\$20,000 and less than \$100,000.....	239	7,676	10,670,030	6,715,275
1904.....	38.9	3.9	3.3	3.9	\$100,000 and less than \$1,000,000.....	97	17,300	22,848,986	14,413,125
\$5,000 and less than \$20,000:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	32.2	16.3	12.8	15.8	Less than \$5,000.....	49.5	8.4	4.3	5.1
1904.....	32.9	12.8	12.1	13.4	\$5,000 and less than \$20,000.....	30.7	15.8	13.2	14.7
\$20,000 and less than \$100,000:					\$20,000 and less than \$100,000.....	14.1	23.3	26.3	25.5
1909.....	14.3	24.1	24.6	25.3	\$100,000 and less than \$1,000,000.....	5.7	52.5	56.2	54.7
1904.....	21.6	31.7	33.5	32.3	Average per establishment.....		19	\$23,948	\$16,522
\$100,000 and less than \$1,000,000:					<b>Oil, cottonseed, and cake, 1909.....</b>	44	1,086	\$7,788,885	\$1,783,911
1909.....	5.8	44.4	51.3	47.0	\$20,000 and less than \$100,000.....	14	160	969,285	205,169
1904.....	6.6	51.5	51.0	50.4	\$100,000 and less than \$1,000,000.....	30	920	6,819,600	1,578,742
\$1,000,000 and over:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	0.1	7.5	7.3	6.4	\$20,000 and less than \$100,000.....	31.8	15.3	12.4	11.5
1904.....					\$100,000 and less than \$1,000,000.....	68.2	84.7	87.6	88.5
Average per establishment:					Average per establishment.....		25	\$177,020	\$40,543
1909.....		15	\$25,612	\$13,669	<b>Printing and publishing, 1909.....</b>	295	981	\$2,082,365	\$1,546,742
1904.....		17	28,246	16,814	Less than \$5,000.....	214	294	481,536	379,580
<b>Carriages and wagons and materials, 1909.....</b>	58	973	\$1,664,467	\$844,811	\$5,000 and less than \$20,000.....	64	300	519,071	403,089
Less than \$5,000.....	15	19	45,562	27,811	\$20,000 and less than \$100,000.....	13	190	451,994	343,708
\$5,000 and less than \$20,000.....	24	193	266,346	171,206	\$100,000 and less than \$1,000,000.....	4	191	620,764	420,365
\$20,000 and less than \$100,000.....	19	761	1,352,559	645,794	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.....	72.5	30.0	23.1	24.5
1909.....	25.9	2.0	2.7	3.3	\$5,000 and less than \$20,000.....	21.7	30.6	24.9	26.1
1904.....	41.4	19.8	16.0	20.3	\$20,000 and less than \$100,000.....	4.4	20.0	21.7	22.2
\$5,000 and less than \$20,000.....	32.8	78.2	81.3	76.4	\$100,000 and less than \$1,000,000.....	1.4	19.5	30.2	27.2
\$20,000 and less than \$100,000.....					Average per establishment.....		3	\$7,059	\$5,243
Average per establishment.....		17	\$28,698	\$14,566					
<b>Flour-mill and gristmill products, 1909.....</b>	113	312	\$5,615,486	\$756,634					
Less than \$5,000.....	21	22	65,125	11,350					
\$5,000 and less than \$20,000.....	52	71	496,186	97,678					
\$20,000 and less than \$100,000.....	30	78	1,189,176	196,496					
\$100,000 and less than \$1,000,000.....	10	141	3,864,999	451,110					

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

<sup>2</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 for 1909 such a

classification for all industries combined and for 10 important industries individually, and gives not only the number of establishments falling into each group, but also the average number of wage earners employed.

Of the 2,925 establishments reported for all industries, 5.8 per cent employed no wage earners;

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53.8 per cent, from 1 to 5; 27.2 per cent, from 6 to 20; and 7.8 per cent, from 21 to 50. The most numerous single group consists of the 1,573 establishments employing from 1 to 5 wage earners, and the next, of the 795 establishments employing from 6 to 20 wage earners. There were 26 establishments that employed over 250 wage earners, 2 of which, a steam-railroad repair shop and a lumber mill, employed 1,000 each.

Of the total number of wage earners, 26.5 per cent

were in establishments employing over 250 wage earners. The single group having the largest number of employees was the group made up of establishments employing from 6 to 20 wage earners. This group employed 8,580 wage earners, or 19.1 per cent of the total. Eighty-four and four-tenths per cent of the employees in the steam-railroad repair shops and 27 per cent of those in the lumber industry worked in establishments employing over 250 wage earners.

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.....	2,925	169	1,573	795	229	79	54	19	5	2
Bread and other bakery products.....	133	23	98	10	2					
Carriages and wagons and materials.....	58	2	23	18	11	2	2			
Cars and general shop construction and repairs by steam-railroad companies.....	16		3	4	3	1	2	1	1	1
Flour-mill and gristmill products.....	113	17	87	8	1					
Foundry and machine-shop products.....	42	4	16	18	2	1	1			
Furniture and refrigerators.....	20		4	6	4	6				
Ice, manufactured.....	49		31	15	3					
Lumber and timber products.....	1,607	28	829	563	149	61	45	17	4	1
Oil, cottonseed, and cake.....	44		1	20	21	2				
Printing and publishing.....	295	53	205	31	5		1			
All other industries.....	458	42	276	102	28	6	3	1		
AVERAGE NUMBER OF WAGE EARNERS.										
All Industries.....	44,982		3,913	8,580	7,221	5,622	7,702	6,385	3,116	2,443
Bread and other bakery products.....	310		158	89	63					
Carriages and wagons and materials.....	973		52	199	341	122	249			
Cars and general shop construction and repairs by steam-railroad companies.....	3,249		7	60	117	92	229	440	874	1,430
Flour-mill and gristmill products.....	312		174	93	45					
Foundry and machine-shop products.....	447		39	168	60	73	107			
Furniture and refrigerators.....	680		15	76	146	443				
Ice, manufactured.....	352		97	149	106					
Lumber and timber products.....	32,932		2,310	6,103	4,703	4,334	6,583	5,644	2,242	1,013
Oil, cottonseed, and cake.....	1,086		5	266	674	141				
Printing and publishing.....	981		444	291	131		115			
All other industries.....	3,660		612	1,086	835	407	419	301		
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All Industries.....	100.0		8.7	19.1	16.1	12.5	17.1	14.2	6.9	5.4
Bread and other bakery products.....	100.0		51.0	28.7	20.3					
Carriages and wagons and materials.....	100.0		5.3	20.5	35.0	13.6	25.6			
Cars and general shop construction and repairs by steam-railroad companies.....	100.0		0.2	1.8	3.6	2.8	7.1	13.5	26.9	44.0
Flour-mill and gristmill products.....	100.0		55.8	29.8	14.4					
Foundry and machine-shop products.....	100.0		8.7	37.6	13.4	16.3	23.9			
Furniture and refrigerators.....	100.0		2.2	11.2	21.5	65.1				
Ice, manufactured.....	100.0		27.6	42.3	30.1					
Lumber and timber products.....	100.0		7.0	18.5	14.3	13.2	20.0	17.1	6.8	3.1
Oil, cottonseed, and cake.....	100.0		0.5	24.5	62.1	13.0				
Printing and publishing.....	100.0		45.3	29.7	13.4		11.7			
All other industries.....	100.0		16.7	29.7	22.8	11.1	11.4	8.2		

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 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.

This table shows that, for all industries combined, 53.9 per cent of the total expense was incurred for materials, 34.8 per cent for services—that is, salaries and wages—and 11.3 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries. The flour mills and gristmills and the cottonseed-oil mills show the smallest labor cost and the highest cost of materials, relatively. The largest proportion for wages is shown for the steam-railroad repair shops, the lumber industry being second.

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INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
<b>All industries</b> .....	5.3	29.5	53.9	11.3
Bread and other bakery products.....	1.2	17.4	72.8	8.6
Carriages and wagons and materials.....	6.4	28.3	57.2	8.1
Cars and general shop construction and repairs by steam-railroad companies.....	6.3	49.7	42.4	1.7
Flour-mill and gristmill products.....	1.9	2.3	93.4	2.4
Foundry and machine-shop products.....	9.8	33.2	47.0	10.0
Furniture and refrigerators.....	8.4	32.9	50.6	8.1
Ice, manufactured.....	12.7	31.8	34.2	21.3
Lumber and timber products.....	5.2	38.1	41.7	15.0
Oil, cottonseed, and cake.....	3.9	6.1	83.5	6.5
Printing and publishing.....	13.5	34.2	34.1	18.2
All other industries.....	6.2	20.1	64.2	9.5

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

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899 <sup>1</sup>	1909	1904	1899 <sup>1</sup>	1909	1904	1899
<b>Primary power, total</b> .....	3,648	1,911	1,649	173,088	109,509	79,560	100.0	100.0	100.0
Owned.....	3,124	1,911	1,649	170,252	108,924	79,304	98.4	99.5	99.7
Steam.....	2,858	1,781	1,584	168,152	107,699	78,016	97.2	98.4	98.1
Gas.....	245	114	39	1,374	482	326	0.8	0.4	0.4
Water wheels.....	20	14	26	630	576	734	0.4	0.5	0.9
Water motors.....	1	2	( <sup>2</sup> )	35	8	( <sup>2</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>2</sup> )
Other.....				52	159	228	( <sup>3</sup> )	0.2	0.3
Rented.....	524	( <sup>2</sup> )	( <sup>2</sup> )	2,836	585	256	1.6	0.5	0.3
Electric.....	524	( <sup>2</sup> )	( <sup>2</sup> )	2,581	484	201	1.5	0.4	0.2
Other.....				255	101	55	0.1	0.1	0.1
<b>Electric motors</b> .....	838	88	17	7,417	2,191	480	100.0	100.0	100.0
Run by current generated by establishment	314	88	17	4,836	1,707	279	65.2	77.9	58.1
Run by rented power.....	524	( <sup>2</sup> )	( <sup>2</sup> )	2,581	484	201	34.8	22.1	41.9

<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.

In 1909, of the total primary power, 98.4 per cent was owned and 1.6 per cent, mostly electric power, was rented. In 1899 the proportions were 99.7 per cent and three-tenths of 1 per cent, respectively. The figures show a gain in the per cent of rented power during the decade, and yet of the actual gain, 93,528 horsepower, 90,948, or 97.2 per cent, was in power owned, and but 2,580, or 2.8 per cent, in rented power. In 1909, of the owned power, 98.8 per cent was steam. The use of water power in manufactures was very small.

The practice by manufacturing establishments of transforming power generated in their establishments into electric power and of utilizing the same in manufactures by means of motors is shown to be rapidly increasing. The horsepower of motors of this character increased from 279 in 1899, to 4,836 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 next table shows the quantity of each kind of fuel used in 1909 for all industries combined and for certain selected industries.

INDUSTRY.	An-thra-cite coal (tons).	Bitu-minous coal (tons).	Coke (tons).	Wood (cords).	Oil, including gasoline (barrels).	Gas (1,000 feet).
<b>All industries</b> <sup>1</sup> .....	884	877,017	6,327	73,857	26,766	886,794
Bread and other bakery products.....	25	891	58	5,055	34	11,518
Brick and tile.....		22,445		10,894	1	289,500
Carriages and wagons and materials.....	70	1,130		78	70	38,381
Cars and general shop construction and repairs by steam-railroad companies.....	80	36,510	1,488	660	11,151	
Flour-mill and gristmill products.....	53	11,047	140	7,277	374	11,956
Foundry and machine-shop products.....	4	2,614	823	319	323	9,143
Furniture and refrigerators.....	350	3,580		3	2	34,513
Gas, illuminating and heating.....		4,894	2,238		11,114	
Ice, manufactured.....	86	49,455	1,500	5,733		148,523
Lumber and timber products.....	150	24,469		3,155	712	5,006
Oil, cottonseed, and cake.....		62,692		6,227	2,632	57,980
Printing and publishing.....	49	686	27	601	621	4,257
All other industries.....	17	656,604	53	24,855	323	275,927

<sup>1</sup> In addition there were 1,386 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 four important industries in Arkansas are here presented.

**Lumber and timber products.**—The following table shows the quantities of lumber, lath, and shingles produced in the sawmill branch of the industry for 1909 and 1899:

PRODUCT.	QUANTITY.	
	1909	1899
Rough lumber.....M feet b. m. . . . .	2,111,300	1,623,987
Lath.....thousands..	78,362	21,164
Shingles.....thousands..	208,080	349,522

The production of rough lumber, already large in 1899, increased 30 per cent during the decade, and the production of lath increased 270.3 per cent, while that of shingles decreased 40.5 per cent. The total cut of rough lumber in Arkansas, 2,111,300 M feet board measure, represented 4.7 per cent of the total for all states in 1909, while in 1899 the 1,623,987 M feet reported represented 4.6 per cent of the total. At both censuses the state occupied fifth place among the lumber-producing states.

In 1909 Arkansas ranked first among the states in the production of red-gum lumber, reporting 28.4 per cent of the total amount cut in the United States. In the same year it ranked first in the output of cottonwood lumber, with 20.5 per cent of the total; first in that of ash, with 11.4 per cent of the total; and second in that of hickory, with 13.5 per cent of the total. In 1909 yellow pine was the principal timber cut in the state. In that year the output of this timber amounted to 1,313,668 M feet board measure, representing 62.2 per cent of the total rough-lumber cut in the state.

**Oil, cottonseed, and cake.**—The following table, which shows the quantity of the cotton seed crushed and the quantities of the principal products, indicates the steady growth of this important industry in Arkansas.

MATERIAL OR PRODUCT.	1909	1904	1899
Cotton seed, crushed..... tons..	278,337	238,227	190,015
Crude products, manufactured:			
Oil.....gallons..	11,435,430	9,557,688	7,224,971
Meal and cake..... tons..	116,709	94,263	65,459
Hulls..... tons..	94,200	84,374	90,083
Linters.....pounds..	12,880,498	8,572,572	4,613,519

The quantity of cotton seed crushed increased 48,212 tons, or 25.4 per cent, from 1899 to 1904, and 40,110 tons, or 16.8 per cent, from 1904 to 1909. There was an increase in the quantity of each of the crude products manufactured, that for oil, the most important, being 32.3 per cent from 1899 to 1904, and 19.6 per cent from 1904 to 1909. During the decade the production of oil, meal and cake, and linters per ton of seed crushed increased, while that of hulls decreased.

The reduction in the weight of hulls may be accounted for by the closer delinting of the seed, which permits a better segregation of the meats from the hulls, and by the introduction of cold-process mills which extract the oil from the seed without hulling.

**Flour-mill and gristmill products.**—The following table shows the quantities and values of the products of the flour mills and gristmills for 1909 and 1904:

PRODUCT.	QUANTITY.		VALUE.	
	1909	1904	1909	1904
All products.....			\$5,615,486	\$3,702,495
Wheat flour:				
White.....barrels..	238,878	377,760	1,302,167	1,869,206
Graham.....barrels..	125	270	750	1,320
Corn meal and flour.....barrels..	514,502	353,628	1,666,670	831,938
Hominy and grits.....pounds..	2,498,700	222,800	41,024	4,452
Feed.....tons..	84,129	31,389	2,376,401	687,760
Offal.....tons..	10,132	18,396	223,180	299,544
All other.....			5,294	8,275

The wheat products, shown in the above table, decreased in quantity and value from 1904 to 1909, while the corn products increased. These fluctuations are probably due to changes in crop conditions and in the demand of local markets. The output of white flour decreased from 377,760 barrels in 1904 to 238,878 in 1909. Corn meal and corn flour, on the other hand, increased from 353,628 barrels in 1904 to 514,502 barrels in 1909; that of hominy and grits from 222,800 pounds to 2,498,700 pounds; and that of feed from 31,389 tons to 84,129 tons. In 1909 the merchant mills of the state were equipped with 507 pairs of rolls and 106 runs of stone, as compared with 601 pairs of rolls and 50 runs of stone reported in 1904. During the last census year five mills in the state manufactured barrels and one manufactured sacks.

**Printing and publishing.**—Although the printing and publishing industry in Arkansas shows considerable growth as a whole during the last five years when measured by its financial statistics, the number of publications has decreased slightly, as shown by the next table, which gives the number of publications and their aggregate circulation per issue for the last three census years.

Of the six different classes of publications, two show small increases in number in 1909 as compared with 1904, for two the number is the same, and two show decreases. There were decided increases in the total aggregate circulation during each five-year period, the largest increase being shown for the monthly publications. The semiweeklies, however, and the publications included under the head of "All other classes" decreased in circulation throughout the decade. All publications were in the English language excepting three weeklies, which were printed in German.

PERIOD OF ISSUE.	NUMBER OF PUBLICATIONS.			AGGREGATE CIRCULATION PER ISSUE.		
	1909	1904	1899	1909	1904	1899
Total.....	288	291	246	496,299	365,957	262,903
Daily.....	29	27	20	60,175	39,942	38,140
Sunday.....	7	7	10	50,593	24,337	(3)
Semiweekly.....	5	5	5	5,868	6,200	12,285
Weekly.....	234	232	199	241,413	246,118	187,578
Monthly.....	12	14	8	136,750	45,330	18,900
All other classes.....	1	6	4	1,500	4,030	6,000

<sup>1</sup> Included with circulation of daily.

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

Carriages and wagons and materials.—The following table shows the number and value of carriages and wagons manufactured in 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
Total value.....	\$1,664,467	\$771,563	\$555,049
Carriages (family and pleasure):			
Number.....	20	35	800
Value.....	\$1,765	\$2,045	\$55,828
Wagons:			
Number.....	7,415	1,625	1,149
Value.....	\$436,663	\$102,736	\$71,355
Business—			
Number.....	461	547	(1)
Value.....	\$41,409	(1)	(1)
Farm—			
Number.....	6,954	1,078	(1)
Value.....	\$395,254	(1)	(1)
All other products, including parts, and amount received for repair work.....	\$1,226,039	\$666,782	\$427,866

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

The total value of products increased from \$555,049 in 1899 to \$1,664,467 in 1909, or nearly 200 per cent. During this period the number of wagons manufactured increased from 1,149 to 7,415 and their value from \$71,355 to \$436,663. Of the total value of products in 1909, the value of wagons formed 26.2 per cent, that of carriages one-tenth of 1 per cent, and that of all other products, which includes the value of carriage and wagon materials and the amount received for repair work, 73.7 per cent.

**Laundries.**—Statistics for steam laundries are not included in the general tables or in the totals for manufacturing industries. There were 45 such establishments in the state, of which 6 were in Little Rock, 3 in Fort Smith, 3 in Hot Springs, and 2 in Pine Bluff.

The following statement summarizes the statistics:

Number of establishments.....	45
Persons engaged in the industry.....	850
Proprietors and firm members.....	53
Salaried employees.....	56
Wage earners (average number).....	741
Primary horsepower.....	900
Capital.....	\$568,411
Expenses.....	523,658
Services.....	316,811
Materials.....	122,806
Miscellaneous.....	84,041
Amount received for work done.....	684,036

Twenty-two of the 45 establishments were under individual ownership, 14 under firm ownership, and 9 under corporate ownership. Twelve establishments had receipts for the year's business in excess of \$20,000; 17 had receipts of between \$5,000 and \$20,000; and 16 had receipts of less than \$5,000 each.

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.....	681	85.7	July.....	795	100.0
February.....	703	88.4	August.....	771	97.0
March.....	726	91.3	September.....	703	88.0
April.....	733	92.2	October.....	754	94.8
May.....	752	94.6	November.....	721	90.7
June.....	765	96.4	December.....	724	91.1

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

KIND.	Number of engines or motors.	Horsepower.
Primary power, total.....		900
Owned:		
Steam.....	37	837
Gas.....	2	18
Rented:		
Electric.....	7	30
Other.....		15

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

KIND.	Unit.	Quantity.
Bituminous coal.....	Tons.....	9,091
Coke.....	Tons.....	6
Wood.....	Cords.....	1,682
Oil.....	Barrels.....	138
Gas.....	1,000 feet.....	129,582

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.....	39	769
Persons engaged in industry.....	156	1,832
Proprietors and firm members.....	51	1,086
Salaried employees.....		19
Wage earners (average number).....	105	727
Primary horsepower.....	970	18,523
Capital.....	\$46,700	\$696,441
Expenses.....	20,003	1,496,243
Services.....	16,434	39,784
Materials.....	918	1,435,982
Miscellaneous.....	2,651	20,477
Value of products.....	39,439	1,709,189

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

## MANUFACTURES—ARKANSAS.

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).							
<b>STATE—All industries</b> .....	1909	2,925	51,730	3,455	3,293	44,982	173,088	\$70,174	\$3,461	\$19,113	\$34,935	\$74,916	\$39,981
	1904	1,907	37,557	2,140	2,328	33,089	109,509	46,306	2,310	14,544	21,799	53,804	32,065
	1899	1,746	.....	.....	1,549	31,525	79,660	25,385	1,262	10,184	18,288	39,888	21,600
Bread and other bakery products.....	1909	133	491	161	20	310	174	421	12	161	677	1,177	500
	1904	63	257	68	18	171	87	180	18	85	317	697	380
	1899	23	90	25	4	61	.....	74	2	24	65	130	65
Brick and tile.....	1909	42	697	55	57	585	2,178	1,300	60	219	168	601	433
	1904	55	629	68	36	525	1,851	943	38	186	197	792	595
	1899	55	491	66	23	402	.....	310	18	100	52	277	225
Canning and preserving.....	1909	44	379	65	22	292	428	255	9	54	181	270	98
	1904	67	302	100	8	194	202	124	2	38	104	180	76
	1899	34	182	44	2	136	.....	33	(?)	22	51	101	50
Carriages and wagons and materials.....	1909	58	1,126	63	90	973	3,740	1,823	92	405	820	1,664	844
	1904	33	541	31	50	460	1,632	747	39	174	346	772	426
	1899	40	.....	.....	30	348	.....	400	16	111	311	555	244
Cars and general shop construction and repairs by steam-railroad companies.	1909	16	3,464	.....	215	3,240	2,500	1,561	261	2,061	1,759	4,154	2,395
	1904	13	2,643	.....	135	2,508	1,161	561	152	1,545	1,360	3,078	1,718
	1899	21	2,030	.....	103	1,927	.....	721	98	1,204	705	2,095	1,330
Confectionery.....	1909	11	139	13	19	107	42	120	12	32	115	217	102
	1904	5	128	5	11	112	60	164	13	33	101	280	89
	1899	3	.....	.....	13	66	.....	93	8	16	82	125	43
Cooperage and wooden goods, not elsewhere specified.	1909	9	531	5	22	504	2,400	1,471	39	210	350	761	411
	1904	26	356	30	22	295	812	625	22	119	422	663	241
	1899	10	145	11	8	126	.....	151	5	35	158	230	81
Copper, tin, and sheet-iron products.....	1909	18	150	25	12	113	20	191	10	77	218	404	186
	1904	8	69	9	1	59	.....	65	1	41	43	122	79
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Flour-mill and gristmill products.....	1909	113	549	133	104	312	5,946	1,599	97	122	4,859	5,615	756
	1904	91	434	116	55	263	4,430	1,353	45	104	3,167	3,702	545
	1899	79	.....	.....	33	277	.....	828	21	94	2,249	2,758	509
Foundry and machine-shop products.....	1909	42	553	42	74	447	824	1,418	90	304	431	1,051	620
	1904	33	418	27	28	363	641	762	31	200	217	664	447
	1899	36	336	34	27	275	1,029	432	25	132	155	448	293
Furniture and refrigerators.....	1909	20	766	9	77	680	1,985	1,873	79	311	479	975	496
	1904	14	733	4	43	686	1,164	846	43	256	330	837	507
	1899	8	219	9	4	206	.....	150	3	65	85	233	148
Gas, illuminating and heating.....	1909	5	71	.....	23	48	189	1,651	16	24	90	219	129
	1904	10	147	1	29	117	465	1,438	23	51	72	281	209
	1899	7	57	.....	23	34	.....	829	16	22	38	139	101
Ice, manufactured.....	1909	49	458	17	89	352	8,281	1,905	77	192	207	820	613
	1904	38	333	7	65	261	4,622	1,317	45	123	106	488	382
	1899	15	178	8	21	149	.....	509	22	56	46	215	169
Leather goods.....	1909	14	132	11	29	92	83	375	32	60	283	456	173
	1904	7	78	7	9	62	27	174	10	37	105	210	105
	1899	14	.....	.....	13	.....	.....	26	.....	7	18	37	19
Lumber and timber products.....	1909	1,697	36,662	2,135	1,595	32,932	122,387	42,346	1,793	13,060	14,300	40,040	26,340
	1904	929	26,348	1,079	1,300	23,905	77,570	29,619	1,415	10,265	9,235	31,993	22,758
	1899	965	.....	.....	974	25,072	.....	16,261	771	7,482	11,271	26,624	15,353
Marble and stone work.....	1909	28	202	38	16	148	494	151	15	91	127	354	227
	1904	21	155	24	10	115	402	251	15	73	70	244	174
	1899	23	.....	.....	24	105	.....	74	8	56	83	206	123
Mattresses and spring beds.....	1909	6	113	5	14	94	193	117	19	43	156	263	107
	1904	4	49	1	3	45	152	80	3	18	43	82	39
	1899	3	.....	.....	2	31	.....	14	2	11	22	49	27
Oil, cottonseed, and cake.....	1909	44	1,350	3	261	1,086	13,029	5,239	281	441	6,005	7,789	1,784
	1904	42	1,135	3	210	922	9,988	4,106	197	329	4,200	4,940	740
	1899	20	792	1	94	667	.....	2,485	116	233	1,996	3,189	1,193
Printing and publishing.....	1909	295	1,672	417	274	981	846	1,610	212	538	536	2,082	1,546
	1904	277	1,360	361	104	895	538	1,315	93	438	320	1,443	1,123
	1899	230	1,038	261	73	704	.....	778	57	265	237	1,014	777
Wood, turned and carved.....	1909	25	431	13	35	383	1,850	419	34	168	323	612	289
	1904	21	451	22	26	403	1,355	264	21	154	201	534	333
	1899	5	.....	.....	3	61	.....	27	3	21	32	68	36
All other industries.....	1909	256	1,784	245	245	1,294	5,430	4,029	221	540	2,851	4,783	1,932
	1904	150	991	168	99	724	2,350	1,472	84	275	763	1,862	1,099
	1899	165	.....	.....	88	865	.....	1,130	71	228	572	1,386	814

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

<sup>2</sup> Less than \$500.

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

<sup>4</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.

MANUFACTURES—ARKANSAS.

TABLE I.—COMPARATIVE SUMMARY FOR 1909, 1904, AND 1899.  
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.	Salaries employed.	Wage earners (average number).							
Expressed in thousands.													
Argenta .....	1909	18	2,357	12	188	2,157	2,885	\$2,240	\$212	\$1,400	\$2,685	\$4,842	\$2,157
	<sup>1</sup> 1904												
	<sup>1</sup> 1899												
Fort Smith .....	1909	83	1,793	87	251	1,455	4,202	3,206	278	741	2,006	3,739	1,733
	1904	63	1,198	43	106	1,049		1,726	113	481	1,113	2,329	1,216
	1899	66			63	677		897	56	256	650	1,401	751
Hot Springs.....	1909	71	430	69	26	335	1,644	770	28	210	303	845	542
	1904	22	299	25	35	239		549	28	115	288	597	309
	1899	21			9	94		149	6	34	85	191	106
Little Rock .....	1909	125	2,566	119	430	2,017	6,619	6,045	445	1,080	4,014	6,882	2,868
	1904	104	2,305	97	237	1,971		4,493	249	938	2,559	4,690	2,131
	1899	62			209	1,397		2,928	181	544	1,779	3,379	1,600
Pine Bluff .....	1909	42	1,265	32	115	1,118	4,584	2,585	126	605	1,354	2,387	1,033
	<sup>2</sup> 1904	34	1,526	17	84	1,425		2,696	99	574	1,421	2,500	1,079
	1899	37			91	990		1,644	77	443	789	1,541	752

<sup>1</sup> Not incorporated in 1900

<sup>2</sup> Figures do not agree with those published in 1904, because it was necessary to revise the totals in order to include data only for those establishments located within the corporate limits of the city.

TABLE II.—DETAIL STATEMENT FOR

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners			Total.	16 and over.		Under 16.				
					Male.	Female.	Average number.	Number.			Male.	Female.	Male.	Female.			
								Maximum month.	Minimum month.								
1 All industries.....	2,925	51,730	3,455	1,467	1,620	206	44,982	Oc 49,802	Ja 41,205	(1)	(1)	(1)	(1)	(1)	178,088		
2 Artificial stone.....	17	58	19				39	Se 54	Fe 24	52	51		1		2		
3 Bread and other bakery products.....	133	491	161	2	11	7	310	No 345	Mh 282	338	270	41	15	3	174		
4 Brick and tile.....	42	697	55	30	24	3	585	Jy 790	Ja 284	713	689		24		2,178		
5 Brooms.....	9	40	7	4	2		27	Oc 2	Ap 17	37	32	4	1		43		
6 Butter, cheese, and condensed milk.....	9	28	4	10	1		13	Jy 2	Ja 2	11	15	13	1	1	103		
7 Canning and preserving.....	44	379	65	14	6	2	292	Se 1,057	Mh 4	1,354	456	789	22	87	428		
8 Carriages and wagons and materials.....	58	1,126	63	55	28	7	973	Se 1,006	Ja 837	1,114	1,101		13		3,749		
9 Cars and general shop construction and repairs by steam-railroad companies.....	16	3,464		88	123	4	3,249	Se 3,539	Ap 2,930	3,443	3,442	1			2,660		
10 Cars and general shop construction and repairs by street-railroad companies.....	6	67		4	2		61	Ap 65	Se 2	57	63	63			103		
11 Clothing, men's, including shirts.....	3	90	3	4	9		74	De 78	Ja 2	72	78	16	62		25		
12 Confectionery.....	11	139	13	1	12	6	107	De 114	Se 102	114	69	31	3	11	42		
13 Cooperage and wooden goods, not elsewhere specified.....	9	531	5	8	13	1	504	No 640	Ja 490	609	609				2,400		
14 Copper, tin, and sheet-iron products.....	18	150	25	5	4	3	113	Se 119	Ja 106	112	108		4		20		
15 Flour-mill and gristmill products.....	113	549	133	41	49	14	312	Mh 346	De 261	342	338	1	3		5,946		
16 Foundry and machine-shop products.....	42	563	42	33	34	7	447	De 518	Fe 404	519	517		2		824		
17 Furniture and refrigerators.....	20	766	9	32	39	6	680	Fe 2	759	874	813	25	36		1,985		
18 Gas, illuminating and heating.....	5	71		7	9	7	48	Ap 55	Ja 42	43	43				189		
19 Ice, manufactured.....	49	458	17	53	34	2	352	Jy 575	Ja 158	364	364				8,281		
20 Jewelry.....	6	17	7				10	Se 2	11	11	9	2			4		
21 Kaolin and ground earths.....	3	7		1			5	Ja 2	8	11	11				145		
22 Leather goods.....	14	132	11	13	13	3	92	Ja 2	97	97	87	5	5		83		
23 Lime.....	9	174	6	6	5		157	Se 191	Ja 105	199	199				137		
24 Liquors, distilled.....	7	15	8				6	No 2	12	12	12				150		
25 Lumber and timber products.....	1,697	36,662	2,135	769	758	68	32,932	Oc 36,172	My 30,252	39,769	39,381	40	338	10	122,337		
26 Marble and stone work.....	28	202	38	4	10	2	148	Oc 187	Ja 95	162	162				494		
27 Mattresses and spring beds.....	6	113	5	9	4	1	94	No 128	My 2	71	106	89	16	1	163		
28 Oil, cottonseed, and cake.....	44	1,350	3	104	155	2	1,086	No 1,996	Jy 325	1,969	1,969				13,029		
29 Patent medicines and compounds and druggists' preparations.....	25	88	24	13	10	2	39	De 46	Jy 31	46	26	17	3		3		
30 Pottery, terra-cotta, and fire-clay products.....	5	54	6	2	1		45	Mh 49	De 39	49	40		9		31		
31 Printing and publishing.....	295	1,672	417	60	167	38	981	De 1,018	Je 952	1,041	791	216	34		846		
32 Rice, cleaning and polishing.....	5	64		8	19		37	Oc 117	Ap 3	96	96				1,610		
33 Tobacco manufactures.....	19	76	25	1	1		49	De 58	Se 43	61	41	13	7		1,850		
34 Wood, turned and carved.....	25	431	13	23	5	7	383	Jy 410	Je 325	406	464		(2)		3,034		
35 All other industries 4.....	133	1,006	135	53	72	14	732										

1 No figures given, for reasons explained in the Introduction, page 2. See also discussion of wage earners on page 6.  
 2 Same number reported for one or more other months.  
 3 None reported for one or more other months.  
 4 All other industries embrace—

Agricultural implements.....	1	Electrical machinery, apparatus, and supplies.....	1	Looking-glass and picture frames.....	1
Awnings, tents, and sails.....	5	Explosives.....	1	Mineral and soda waters.....	78
Baskets, and rattan and willow ware.....	1	Fancy articles, not elsewhere specified.....	1	Paint and varnish.....	1
Brass and bronze products.....	1	Fertilizers.....	1	Paper goods, not elsewhere specified.....	1
Buttons.....	3	Food preparations.....	1	Photo-engraving.....	1
Carpets, rag.....	1	Furnishing goods, men's.....	1	Pumps, not including steam pumps.....	1
Charcoal.....	1	Gas and electric fixtures and lamps and reflectors.....	1	Shipbuilding, including boat building.....	1
Coffee and spice, roasting and grinding.....	1	Grease and tallow.....	2	Sporting and athletic goods.....	1
Coffins, burial cases, and undertakers' goods.....	3	Hair work.....	1	Surgical appliances and artificial limbs.....	1
Corsets.....	1	Hand stamps and stencils and brands.....	2	Upholstering materials.....	2
Cotton goods, including cotton small wares.....	2	Hones and whetstones.....	2	Vinegar and cider.....	3
Cutlery and tools, not elsewhere specified.....	1	Leather, tanned, curried, and finished.....	1	Wood preserving.....	1
Dairymen's, poulterers', and apartists' supplies.....	2	Liquors, malt.....	1	Woolen, worsted, and felt goods, and wool hats.....	2

MANUFACTURES—ARKANSAS.

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 \$70,174,345	\$64,829,785	\$2,044,841	\$1,415,935	\$19,112,896	\$980,371	\$33,954,541	\$193,497	\$643,753	\$2,034,264	\$4,449,587	\$74,916,367	\$39,981,455
2 32,096	48,774	2,800	8,765	18,418	63	27,247	675	141	370	2,230	65,781	38,471
3 421,063	930,636	33,365	26,843	161,477	22,411	654,932	24,824	3,061	4,240	51,996	1,176,979	499,636
4 1,300,259	502,346	2,225	668	219,252	11,053	35,749	650	212	309	49,015	601,034	432,953
5 39,344	46,243	4,364	100	6,526	3,535	101,841	100	809	125	2,906	55,528	27,879
6 96,640	119,842	7,191	1,680	54,172	6,416	174,414	614	1,030	5,547	3,067	131,235	25,859
7 255,452	252,631	63,679	28,142	404,881	9,146	810,510	6,837	10,301	971	6,989	278,903	98,073
8 1,823,299	1,433,090	155,570	105,182	2,060,608	76,327	1,682,409	.....	5,283	.....	94,047	1,664,467	844,811
9 1,561,456	4,148,926	2,545	1,179	36,396	1,941	39,705	.....	607	.....	62,576	4,153,926	2,395,190
10 76,642	86,349	7,800	24,218	25,359	177	121,360	2,400	432	.....	3,970	86,349	44,703
11 94,684	185,182	1,800	10,617	31,792	3,498	111,197	4,290	884	.....	3,436	190,706	75,169
12 120,470	176,929	25,580	13,440	209,983	913	348,614	470	2,295	.....	12,851	217,153	102,464
13 1,470,817	704,525	5,344	4,968	77,466	1,396	216,547	5,876	1,073	75	103,230	760,720	411,193
14 191,063	331,013	51,666	45,544	121,677	38,984	4,819,868	6,185	8,663	5,050	18,268	403,736	185,793
15 1,598,556	5,201,732	55,176	34,893	304,223	24,932	495,763	5,976	5,707	16,087	104,095	5,615,486	766,634
16 1,418,366	916,633	46,586	32,639	311,236	11,168	467,599	2,610	4,972	.....	63,876	1,050,906	620,211
17 1,872,638	945,021	9,103	7,288	24,371	53,781	36,660	.....	8,636	.....	68,811	974,715	465,948
18 1,651,368	157,320	2,391	1,057	9,929	1,057	9,929	.....	10,971	405	17,541	218,891	128,510
19 1,964,571	604,048	191,800	168,526	191,800	168,526	48,060	17,617	16,971	.....	93,849	819,938	613,352
20 19,752	31,313	3,136	311	25,960	311	25,960	663	157	.....	1,146	46,075	19,864
21 34,500	12,029	1,444	1,184	8,681	1,184	8,681	.....	95	.....	505	17,340	7,475
22 374,995	400,825	18,680	13,194	60,350	2,758	280,217	7,277	2,768	.....	15,581	455,949	172,074
23 231,222	142,836	5,850	3,680	51,017	33,948	44,215	189	742	.....	3,165	161,039	82,876
24 45,902	49,732	200	2,391	2,391	1,057	9,929	.....	33,525	.....	2,630	71,130	60,144
25 42,346,234	34,312,349	1,007,191	695,625	13,059,689	108,338	14,191,329	23,884	440,993	1,977,704	2,717,026	40,640,327	26,340,660
26 151,160	279,435	8,500	6,932	90,737	10,688	116,650	2,120	1,315	856	41,638	354,190	226,861
27 116,705	240,050	13,411	5,278	43,407	5,087	150,807	2,875	362	.....	18,823	262,551	106,657
28 5,239,091	7,195,329	102,531	117,991	440,626	175,100	5,829,814	4,000	40,000	.....	424,607	7,788,885	1,783,911
29 103,586	103,381	8,610	10,428	14,160	461	49,012	4,868	612	300	14,940	144,364	94,891
30 50,043	32,023	1,600	100	17,162	5,839	2,568	56	78	300	4,290	41,624	33,187
31 1,910,317	1,570,254	88,745	123,125	537,646	29,980	505,643	49,510	10,202	23,540	201,863	2,082,365	1,546,742
32 575,312	940,524	11,975	11,311	22,848	2,446	840,247	.....	421	.....	42,276	944,726	93,033
33 24,386	69,583	250	900	22,985	191	31,610	2,755	7,568	.....	3,324	84,201	52,400
34 419,224	564,120	20,779	7,532	167,601	16,575	306,511	630	2,223	2,300	33,975	612,387	289,301
35 2,003,132	2,095,156	71,320	51,238	307,007	40,183	1,422,933	15,086	27,365	675	159,449	2,736,746	1,273,630

## MANUFACTURES : ALABAMA

## 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 Alabama 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 Alabama, 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 Birmingham and Mobile. It also gives the same items for all industries combined for every city and town having in 1910 a population of over 10,000 but less than 50,000.

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

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

The census of 1909, like that of 1904, was confined to manufacturing establishments conducted under the factory system, as distinguished from the neighborhood, hand, and building industries. Where statistics for 1899 are given they have been reduced

to a comparable basis by eliminating the latter classes of industries. The census does not include establishments which were idle during the entire year, or had a value of products of less than \$500, or the manufacturing done in educational, eleemosynary, and penal institutions, or in governmental establishments, except those of the Federal Government.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Prevailing hours of labor.**—The census made no attempt to ascertain the number of employees working a given number of hours per week. The inquiry called merely for the prevailing practice

followed in each establishment. Occasional variations in hours in an establishment from one period to another are disregarded, and no attention is given to the fact that a limited number of employees may have hours differing from those of the majority. In the tables all the wage earners of each establishment are counted in the class within which the establishment itself falls. In most establishments, however, all or practically all the employees work the same number of hours, so that these figures give a substantially correct picture of the hours of labor in manufacturing industries.

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

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

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

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

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

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

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

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

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

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

# STATISTICS OF MANUFACTURES—ALABAMA.

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.**—Alabama, with a gross area of 51,998 square miles, of which 719 represent water surface, had a population of 2,138,093 in 1910, as compared with 1,828,697 in 1900 and 1,513,401 in 1890. It ranked eighteenth among the 49 states and territories of continental United States as regards population both in 1910 and in 1900. The density of population for the entire state is 41.7 per square mile, the corresponding figure for 1900 being 35.7. The population is mostly rural. In 1910 only 17.3 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 compared with 11.3 per cent in 1900.

The state has seven cities and towns having a population of over 10,000: Anniston, Bessemer, Birmingham, Gadsden, Mobile, Montgomery, and Selma. These cities contain 12.6 per cent of the total population of the state, and are credited with 33.8 per cent of the total value of its manufactures. Eliminating these cities, only 4.7 per cent of the population resides in cities and towns of 2,500 inhabitants or over.

The state is traversed by nearly all the trunk line railroads of the South, and most of these pass through Birmingham, the principal manufacturing center of the state. The Alabama and Tombigbee Rivers with their tributaries furnish facilities for navigation. Mobile is one of the most important seaports on the Gulf of Mexico. In addition, the two ports of New Orleans

and Pensacola in the adjoining states are easily accessible by rail.

**Importance and growth of manufactures.**—The rapid growth of manufactures in Alabama during the last 30 years has been due largely to the development of rich mineral resources, particularly in the northern part of the state in what is known as the "Birmingham district." The close proximity of the coal fields to the iron mines has made the iron industry very prosperous. At the same time the great abundance of available coal and extensive forest resources have given a marked impetus to other manufacturing industries. During 1879-80 an average of 10,019 wage earners, representing eight-tenths of 1 per cent of the total population, were employed in manufactures, while in 1909 an average of 72,148 wage earners, or 3.4 per cent of the total population, were so engaged. During this period the value of products per capita of the total population of the state increased from \$11 to \$68. The total value of manufactured products increased during this time from \$13,566,000 to \$145,962,000, or nearly tenfold, while the proportion which the value of the manufactures of the state represents of the total value of the manufactures of the United States increased from three-tenths of 1 per cent in 1879-80 to seven-tenths of 1 per cent in 1909.

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

	NUMBER OR AMOUNT.			PER CENT OF INCREASE. <sup>1</sup>	
	1909	1904	1899	1904-1909	1899-1904
	Number of establishments.....	3,398	1,882	2,000	80.6
Persons engaged in manufactures.....	81,972	67,884	(2)	20.8	(2)
Proprietors and firm members.....	3,769	1,948	(2)	93.5	(2)
Salaried employees.....	6,055	3,763	2,259	60.9	66.6
Wage earners (average number).....	72,148	62,173	52,711	16.0	18.0
Primary horsepower.....	357,837	293,185	173,208	22.1	69.3
Capital.....	\$173,180,000	\$105,383,000	\$60,166,000	64.3	75.2
Expenses.....	129,153,000	94,252,000	59,097,000	37.0	59.5
Services.....	33,849,000	25,745,000	16,971,000	31.5	51.7
Salaries.....	6,565,000	3,867,000	2,059,000	69.8	87.8
Wages.....	27,284,000	21,878,000	14,912,000	24.7	46.7
Materials.....	83,443,000	60,458,000	37,998,000	38.0	59.1
Miscellaneous.....	11,861,000	8,049,000	4,128,000	47.4	95.0
Value of products.....	145,962,000	109,170,000	72,110,000	33.7	51.4
Value added by manufacture (value of products less cost of materials).....	62,519,000	48,712,000	34,112,000	28.3	42.8

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

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

In 1909 the state of Alabama had 3,398 manufacturing establishments operating under the factory sys-

tem, which gave employment to an average of 81,972 persons during the year and paid out \$33,849,000

## STATISTICS OF MANUFACTURES—ALABAMA.

in salaries and wages. Of the persons employed, 72,148 were wage earners. These establishments turned out products to the value of \$145,962,000, to produce which materials costing \$83,443,000 were consumed. The value added by manufacture was thus \$62,519,000, which figure, as explained in the Introduction, best represents the net wealth created by manufacturing operations during the year.

In general this table shows a remarkable development in the manufactures of the state during the 10-year period 1899-1909. During the earlier five-year period 1899-1904, the number of establishments decreased 5.9 per cent, but every other item showed a large increase. From 1904 to 1909, the number of establishments increased greatly. The percentages of increase for other items were not, however, as great as

those for the earlier period, although a substantial increase is indicated. The large increase in the number of establishments from 1904 to 1909 is due almost entirely to the gain in the number of sawmills and timber plants, for of the total increase of 1,516 establishments during the five years there was a gain of 1,153 in the number of this class of establishments.

As pointed out in the Introduction, it would be improper to infer that manufactures increased in volume to the full extent indicated by these figures regarding values, since the increase shown is certainly due, in part, to the increase that has taken place in the price of commodities.

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

INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		PER CENT OF INCREASE. <sup>1</sup>			
		Average number.	Per cent distribution.	Amount.	Per cent distribution.	Amount.	Per cent distribution.	Value of products.		Value added by manufacture.	
								1904-1909	1899-1904	1904-1909	1899-1904
<b>All industries</b> .....	<b>3,398</b>	<b>72,148</b>	<b>100.0</b>	<b>\$145,962,000</b>	<b>100.0</b>	<b>\$62,519,000</b>	<b>100.0</b>	<b>33.7</b>	<b>51.4</b>	<b>28.3</b>	<b>42.8</b>
Lumber and timber products.....	1,819	22,409	31.1	26,058,000	17.9	16,913,000	27.1	42.6	37.6	29.3	57.0
Cotton goods, including cotton small wares.....	51	12,731	17.6	22,212,000	15.2	7,839,000	12.5	32.5	105.6	65.1	42.7
Iron and steel, blast furnaces.....	19	3,783	5.2	21,236,000	14.5	5,759,000	9.2	27.6	23.4	2.2	-4.2
Foundry and machine-shop products.....	102	5,898	8.2	11,550,000	7.9	5,323,000	8.5	30.7	61.3	25.2	50.0
Oil, cottonseed, and cake.....	71	1,618	2.2	9,178,000	6.3	2,103,000	3.4	59.1	93.2	73.1	37.8
Coke.....	35	2,580	3.6	8,843,000	6.1	2,472,000	4.0	43.2	65.7	13.5	107.0
Cars and general shop construction and repairs by steam-railroad companies.....	21	6,308	8.7	7,528,000	5.2	3,753,000	6.0	12.7	60.1	11.2	57.7
Fertilizers.....	42	1,233	1.7	6,423,000	4.4	2,159,000	3.5	174.4	13.2	193.7	7.9
Flour-mill and gristmill products.....	72	168	0.2	2,779,000	1.9	374,000	0.6	58.8	11.3	92.8	-5.8
Printing and publishing.....	274	1,117	1.5	2,768,000	1.9	2,102,000	3.4	42.2	67.8	38.7	70.8
Turpentine and resin.....	175	3,519	4.9	2,472,000	1.7	1,986,000	2.2	1.6	19.7	3.3	39.0
Bread and other bakery products.....	83	574	0.8	1,725,000	1.2	652,000	1.0	55.4	62.8	46.8	60.5
Brick and tile.....	71	1,353	1.9	1,135,000	0.8	847,000	1.4	34.0	28.7	31.7	24.9
Ice, manufactured.....	45	343	0.5	777,000	0.5	576,000	0.9	46.1	119.8	40.5	114.7
Copper, tin, and sheet-iron products.....	23	236	0.3	733,000	0.5	322,000	0.5	124.8	-0.3	133.3	-5.5
Cordage and twine and jute and linen goods.....	5	427	0.6	696,000	0.5	217,000	0.3	39.5	96.5	83.0	34.1
Gas, illuminating and heating.....	13	259	0.4	687,000	0.5	473,000	0.8	93.5	52.4	76.5	47.3
Carriages and wagons and materials.....	35	424	0.6	684,000	0.5	381,000	0.6	-7.6	23.3	5.0	4.3
Hosiery and knit goods.....	6	611	0.8	591,000	0.4	277,000	0.4	28.5	.....	34.5	.....
Pottery, terra-cotta, and fire-clay products.....	21	425	0.6	559,000	0.4	389,000	0.6	104.8	21.3	99.5	18.2
Stoves and furnaces, including gas and oil stoves.....	10	361	0.5	501,000	0.3	329,000	0.5	77.0	.....	61.3	.....
Marble and stone work.....	25	358	0.5	493,000	0.3	310,000	0.5	119.1	-11.8	100.0	-4.9
Confectionery.....	9	138	0.2	490,000	0.3	141,000	0.2	31.7	80.8	-7.2	76.7
Lime.....	15	411	0.6	426,000	0.3	244,000	0.4	30.3	.....	6.6	.....
Mattresses and spring beds.....	9	82	0.1	347,000	0.2	133,000	0.2	34.5	136.7	43.0	153.3
Clothing, men's, including shirts.....	5	194	0.3	333,000	0.2	130,000	0.2	150.4	-40.2	165.3	-55.5
Leather goods.....	11	80	0.1	220,000	0.2	103,000	0.2	.....	.....	.....	.....
Tobacco manufactures.....	27	153	0.2	194,000	0.1	127,000	0.2	-20.5	-12.2	-25.3	-7.6
Patent medicines and compounds and druggists' preparations.....	18	32	( <sup>2</sup> )	123,000	0.1	85,000	0.1	-6.1	125.9	-4.5	147.2
All other industries.....	286	4,323	6.0	14,201,000	9.7	6,000,000	9.6	-0.4	49.9	2.2	44.0

<sup>1</sup> Per cent of increase is based on figures in Table I, and a minus sign (-) denotes decrease.

<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.

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

*Iron and steel.*—In Alabama the importance of the iron industry as a whole is due to the exploitation of the rich mineral deposits of iron ore, coal, and lime-

stone, which are found in close proximity in the northern part of the state. These favorable conditions are conducive to the production of pig iron at a relatively low cost. The combined iron and steel industry, including blast furnaces and rolling mills and steel works, exceeded in value of products any of the other industries of the state. The value of products of the blast furnaces alone, as shown in the above table, amounted to \$21,236,000, being exceeded only by that reported for the lumber and the cotton industries.

The statistics for the rolling mills and steel works could not be shown without disclosing individual operations and are therefore included under the head of "All other industries." Prior to 1897 the manufacture of steel was not extensive in Alabama, but since that date the continued improvements in the basic open-hearth process have caused a remarkable development in the industry.

*Lumber and timber products.*—In addition to saw-mills and timber camps, this classification includes planing mills and wooden packing-box factories. In 1909 the lumber industry was the most important single industry in the state from the standpoint of value of products, value added by manufacture, and number of wage earners. This industry alone employed 31.1 per cent of the total average number of wage earners engaged in all industries combined. The value of products represented 17.9 per cent and the value added by manufacture 27.1 per cent of the respective totals for the state.

*Cotton goods, including cotton small wares.*—During the period from 1899 to 1904 the growth of this industry was remarkable, the number of establishments increased 48.4 per cent and the value of products 105.6 per cent. Although the percentages of increase were less during the period from 1904 to 1909, the figures indicate a decided development. It is interesting to note, moreover, that from 1899 to 1904 the percentage of increase in value of products was higher than that in value added by manufacture, while from 1904 to 1909 the rate of increase in value added by manufacture was far greater than that shown for value of products. This was due partly to the enormous rise in the price of cotton during the former period, and partly to the manufacture of a better grade of goods during the latter period. The other textile industries for which separate statistics are shown are cordage and twine and hosiery and knit goods, which are closely allied to the cotton-goods industry, the output of these mills being almost entirely manufactured from cotton materials.

*Foundry and machine-shop products.*—This class of manufacture is, in a measure, allied with the iron and steel industry and to a certain extent stimulated by it. More than one-half of the total value of its products represented the output of cast-iron pipe works. The industry includes also allied industries, such as the manufacture of hardware, steam fittings, and structural ironwork. It 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.

*Oil, cottonseed, and cake.*—The statistics presented include those for all establishments engaged primarily in extracting oil from cotton seed or in refining cottonseed oil. Since 1899, when 28 cottonseed-oil mills, with products valued at \$2,986,000, were reported

in the state, this industry has grown rapidly; in 1909 there were 71 mills in operation and their products amounted to \$9,178,000.

*Coke.*—The importance of this industry is due to the abundant supply of coal suitable for coking purposes and to the demand for coke for fuel in the manufacture of iron and steel.

The first four industries listed in the preceding table held the same relative rank when measured by value added by manufacture as when measured by value of products. Considerable change is noted, however, in the order of the other industries when ranked according to value added by manufacture, the most prominent being in the case of the flour-mill and gristmill industry, which falls from the ninth to the seventeenth place. In this industry, owing to the comparatively simple manufacturing 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. This is true to a varying degree in some of the other industries.

This table also shows the percentages of increase for the leading industries in respect to value of products and value added by manufacture where the statistics are comparable. The fertilizer industry showed a greater rate of increase from 1904 to 1909 both in value of products and in value added by manufacture than any other of the specified industries, namely, 174.4 per cent and 193.7 per cent, respectively. The men's clothing industry, the manufacture of copper, tin, and sheet-iron products, the marble and stone work industry, and the manufacture of pottery, terra-cotta, and fire-clay products also showed remarkable increases both in gross value of products and in value added by manufacture. From 1904 to 1909 three of the industries presented separately in the table, namely, the carriage and wagon industry, tobacco manufactures, and the manufacture of patent medicines showed a decrease in value of products, while the two last named also showed a decrease in value added by manufacture. From 1899 to 1904 four industries showed a decrease in value of products and six a decrease in value added by manufacture.

In addition to the industries shown separately in the above table, and the steel works and rolling mills, there are 18 industries which had a value of products in 1909 in excess of \$100,000. 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 other cases because the returns do not properly represent the true condition of the industry, for the reason that it is more or less interwoven with one or more other industries; while for others because comparable statistics for the different census years can not be presented without disclosing the operations of individual establishments, or on account of changes in classification. These industries are: Agricultural implements; brass and bronze products; cars and general

shop construction and repairs by street-railroad companies; cars, steam-railroad, not including operations of railroad companies; cement; charcoal; coffee and spice, roasting and grinding; cooperage and wooden goods, not elsewhere specified; cordials and sirups; explosives; food preparations; iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills; mineral and soda waters; oils, not elsewhere specified; roofing materials; shipbuilding, including boat building; slaughtering and meat packing; and wood preserving. The statistics, however, for street-railroad repair shops and cooperage and wooden goods are presented in Table II for 1909.

**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>81,972</b>	<b>75,066</b>	<b>6,906</b>
Proprietors and officials.....	6,598	6,544	54
Proprietors and firm members.....	3,769	3,727	42
Salaried officers of corporations.....	862	853	9
Superintendents and managers.....	1,967	1,964	3
Clerks.....	3,226	2,836	390
Wage earners (average number).....	72,148	65,686	6,462
16 years of age and over.....	68,495	63,413	5,082
Under 16 years of age.....	3,653	2,273	1,380

The average number of persons engaged in manufactures during 1909 was 81,972, of whom 72,148 were wage earners. Of the remainder, 6,598 were proprietors and officials and 3,226 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 11 important industries individually.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
<b>All industries</b> .....	<b>81,972</b>	<b>8.0</b>	<b>3.9</b>	<b>88.0</b>
Cars and general shop construction and repairs by steam-railroad companies.....	6,610	1.1	3.5	95.4
Coke.....	2,800	3.0	4.9	92.1
Cotton goods, including cotton small wares.....	13,041	1.4	1.0	97.6
Fertilizers.....	1,473	6.9	9.4	83.7
Flour-mill and gristmill products.....	315	34.9	11.7	53.3
Foundry and machine-shop products.....	6,462	4.0	4.7	91.3
Iron and steel, blast furnaces.....	4,325	4.8	7.7	87.5
Lumber and timber products.....	25,927	11.7	1.8	86.4
Oil, cottonseed, and cake.....	1,984	9.7	8.7	81.6
Printing and publishing.....	1,955	23.6	19.2	57.1
Turpentine and rosin.....	3,965	9.7	1.6	88.8
All other industries.....	13,115	11.5	6.3	82.2

Of the total number of persons engaged in all manufacturing industries, 8 per cent were proprietors and officials, 3.9 per cent clerks, and 88 per cent wage earners. In the flour-mill and gristmill and printing and publishing 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 in the class of proprietors and officials is very much higher than for most other industries or for all industries combined. Similar conditions prevail to some extent in the lumber industry in which the proprietors and officials form 11.7 per cent of the total number of persons engaged. The smallest proportion for this class is shown for steam-railroad repair shops and is due to the fact that these establishments are operated by corporations which report no proprietors and whose general officials are not, as a rule, assigned to the supervision of this particular branch of the work.

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.	Male.	Female.
<b>All industries</b> .....	<b>72,148</b>	<b>87.9</b>	<b>7.0</b>	<b>5.1</b>
Cars and general shop construction and repairs by steam-railroad companies.....	6,308	99.8	0.1	0.1
Coke.....	2,580	97.4	.....	2.6
Cotton goods, including cotton small wares.....	12,731	50.2	31.1	18.7
Fertilizers.....	1,233	99.4	.....	0.6
Flour-mill and gristmill products.....	168	99.4	.....	0.6
Foundry and machine-shop products.....	5,898	98.3	( <sup>2</sup> )	1.7
Iron and steel, blast furnaces.....	3,783	99.3	.....	0.7
Lumber and timber products.....	22,409	97.9	0.5	1.6
Oil, cotton seed, and cake.....	1,618	98.6	0.1	1.3
Printing and publishing.....	1,117	79.7	13.8	6.5
Turpentine and rosin.....	3,519	99.0	.....	1.0
All other industries.....	10,784	86.7	8.0	5.3

<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.

For all industries combined, 87.9 per cent of the average number of wage earners were males 16 years of age and over; 7 per cent females 16 years of age and over; and 5.1 per cent persons under the age of 16. Nearly four-fifths of the total number of female wage earners 16 years of age and over were employed in cotton mills, and of the total number of wage earners under 16 about two-thirds were employed in this industry. The only other industry listed in the table which em-

ployed women and children to any considerable extent was printing and publishing, the proportions being 13.8 and 6.5 per cent, 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.....	81,973	100.0	67,884	100.0	20.8
Proprietors and firm members.....	3,769	4.6	1,948	2.9	93.5
Salaried employees.....	6,055	7.4	3,763	5.5	60.9
Wage earners (average number).....	72,148	88.0	62,173	91.6	16.0

Comparable figures are not obtainable for 1899. The table shows a greater percentage of increase in proprietors and firm members than in either of the other two classes. This is probably due to the fact that there has been a large increase in the number of small establishments in which the proprietors or their immediate representatives do a large part of the work. The percentage of increase in salaried employees is also greatly in excess of that shown for 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. 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.....	72,148	100.0	62,173	100.0	52,711	100.0
16 years of age and over.....	68,495	94.9	58,043	93.4	49,302	93.5
Male.....	63,413	87.9	53,406	86.0	45,837	87.0
Female.....	5,082	7.0	4,547	7.3	3,465	6.6
Under 16 years of age.....	3,653	5.1	4,130	6.6	3,409	6.5

The table indicates that there has not been much change at the last three censuses in the proportion of male and female wage earners. There was, however, an actual decrease from 1904 to 1909 in the employment of children under 16 years of age, which is in contrast with the increase shown for the preceding five-year period. In 1909 males 16 years of age and over formed 87.9 per cent of all wage earners, as compared with 86 per cent in 1904 and 87 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 fertilizer, the lumber and timber, the cottonseed-oil, and the turpentine and rosin 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 20, is shown for practically all of the important industries in the state, the largest number and also the smallest number of wage earners reported for any month. The figures are for the 15th day, or the nearest representative day of the month. The wage earners for the lumber industry are divided in the table in such a manner as to show separately the number engaged in the mills and in the logging operations.

MONTH.	NUMBER OF WAGE EARNERS.															
	All industries.		Fertilizers.		Lumber and timber products.						Oil, cottonseed, and cake.		Turpentine and rosin.		All other industries.	
	Number.	Per cent of maximum.	Number.	Per cent of maximum.	Total.		In mills.		In logging operations.		Number.	Per cent of maximum.	Number.	Per cent of maximum.	Number.	Per cent of maximum.
					Number.	Per cent of maximum.	Number.	Per cent of maximum.	Number.	Per cent of maximum.						
January.....	70,620	90.7	1,446	51.9	21,367	87.6	8,192	87.2	13,175	87.3	2,565	90.5	2,831	73.3	42,411	91.2
February.....	70,394	90.4	2,316	83.2	21,571	88.4	8,158	86.9	13,413	88.9	2,048	72.2	2,951	76.4	41,508	89.3
March.....	71,048	91.3	2,785	100.0	21,450	88.1	8,192	87.2	13,258	88.1	1,635	57.7	3,215	83.3	41,933	90.2
April.....	69,168	88.8	1,844	66.2	21,505	88.2	8,248	87.8	13,257	87.9	930	32.8	3,682	95.4	41,207	88.6
May.....	67,641	86.9	1,083	38.0	21,127	86.6	8,202	87.3	12,925	85.7	600	21.2	3,793	98.3	41,038	88.2
June.....	67,561	86.8	771	27.7	20,803	85.3	8,046	85.7	12,757	84.6	524	18.5	3,860	100.0	41,603	89.5
July.....	68,902	88.5	667	23.9	21,667	88.8	8,505	90.5	13,162	87.2	430	15.2	3,840	99.5	42,298	91.0
August.....	72,193	92.7	658	23.6	23,296	95.5	9,023	96.1	14,273	94.6	459	16.2	3,841	99.5	43,939	94.5
September.....	75,507	97.0	793	28.5	23,708	97.2	9,234	98.3	14,474	95.9	1,877	66.2	3,775	97.8	45,354	97.5
October.....	77,196	99.2	700	25.1	23,793	97.6	9,155	97.5	14,638	97.0	2,835	100.0	3,733	96.7	46,135	99.2
November.....	77,854	100.0	821	29.5	24,203	99.2	9,393	100.0	14,810	98.2	2,827	99.7	3,505	90.8	46,498	99.9
December.....	77,686	99.8	911	32.7	24,390	100.0	9,304	99.1	15,086	100.0	2,682	94.6	3,198	82.8	46,505	100.0

The table indicates that for all industries combined the months of least activity were in the spring and summer. The minimum number were employed in

June and the maximum in November. The lumber industry, in which a large percentage of the total number of wage earners were employed, had 3,587

less wage earners in June than in December. The variation in the number of wage earners employed was almost exactly the same in logging operations as in saw and planing mills and box factories. The remaining seasonal industries shown separately in the table employed comparatively few wage earners, and consequently do not greatly affect the total for all industries combined. One of the more important of these industries is the cottonseed-oil industry, in which the months of greatest employment largely depend upon the time of maturity of the cotton crop. From 430 wage earners in this industry in July the number increased to 2,835 in October, the month of greatest activity. From April to August, the months of least activity, the mills were employed chiefly in the making of refined cottonseed products, fertilizers, feed, etc. In the manufacture of fertilizers, in which cottonseed

meal and cake forms an important ingredient, the month of maximum employment is five months later than in the cottonseed-oil industry, namely, in March. In the turpentine and rosin industry the greatest number of wage earners were employed in June; the month of least activity in the lumber industry.

**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 1909 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>72,148</b>	<b>4,083</b>	<b>1,312</b>	<b>7,423</b>	<b>2,267</b>	<b>32,109</b>	<b>19,874</b>	<b>1,719</b>	<b>3,381</b>
Bread and other bakery products.....	574	15	8	45	171	268	21	32	11
Brick and tile.....	1,353	140	13	16	64	1,006	97	11	1
Carriages and wagons and materials.....	424		113	15	15	26	18		
Cars and general shop construction and repairs by steam-railroad companies.....	6,305	123		4,657		283	1,243		
Clothing, men's, including shirts.....	194	97	83		14				
Coke.....	2,580	57	15	185		825	1,007	49	46
Confectionery.....	138	8				121	9		
Copper, tin, and sheet-iron products.....	236	147	9	51	11	18			
Cordage and twine and jute and linen goods.....	427					207	220		
Cotton goods, including cotton small wares.....	12,731		36		477	7,320	4,814	84	
Fertilizers.....	1,233	4		16		997	175	41	
Flour-mill and gristmill products.....	168	20	3	5	9	77	5	45	1
Foundry and machine-shop products.....	5,898	82	86	1,033	572	4,108	17		
Gas, illuminating and heating.....	259				10	7	128		11
Hosiery and knit goods.....	611								
Ice, manufactured.....	343					493	118		
Iron and steel, blast furnaces.....	3,783					40	31	59	20
Leather goods.....	80			13	2	108	1,454		2,221
Lime.....	411				15	111	171	57	5
Lumber and timber products.....	22,409	1,262	681	446	385	10,351	9,152	132	
Marble and stone work.....	358	26	6	13	40	273			
Mattresses and spring beds.....	82			13	30	30			
Oil, cottonseed, and cake.....	1,618					108	547	841	12
Pottery, terra-cotta and fire-clay products.....	425	10		4		364	47		
Printing and publishing.....	1,117	447	32	351	99	188			
Stoves and furnaces, including gas and oil stoves.....	361	39				322			
Tobacco manufactures.....	153	55		32		6	30		
Turpentine and rosin.....	3,519	1,243	187	248	24	1,393	359	65	
All other industries.....	4,355	278	40	280	329	2,748	211	303	16

It is evident from these figures that for the majority of wage earners employed in the manufacturing industries of Alabama the prevailing hours of labor are 60 or over but less than 72 hours a week, or 10 or over but less than 12 hours a day, 20.9 per cent of the total number being employed in establishments where the prevailing hours are less than 60 per week, and 7 per cent being employed in establishments where they are 72 or more per week. Considering the single groups, by far the largest proportion of wage earners, 44.5 per cent, work 60 hours a week; the next largest proportion, 27.5 per cent, work more than 60 and less than 72 hours a week; while 10.3 per cent work 54 hours a week, or 9 hours a day. Cottonseed-oil mills, blast

furnaces, and ice factories are the only establishments in which more than half of the wage earners work 72 hours or more a week, and the last two classes of factories are in operation seven days in the week.

**Location of establishments.**—The next table shows that the manufacturing industries of the state are carried on chiefly in districts outside cities and towns of 10,000 inhabitants or over. (See Introduction.) The statistics for 1904 are omitted from this table, because there was no Federal census of population for that year, and it was impossible to determine the cities or towns which came within the group having over 10,000 inhabitants.

shop products; lumber and timber products; and printing and publishing, none of which had a value of products in 1909 exceeding \$1,000,000. In Anniston the foundry and machine shops, which include the large cast-iron and steel pipe industry, constituted by far the most important branch of manufacturing, while in Bessemer the manufactures are centered in the iron and steel industry.

Gadsden and Selma are of less importance as manufacturing cities and towns. The principal industry of Selma was the manufacture of cottonseed-oil products, while Gadsden had no one predominating 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 following table:

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.....	3,398	72,148	\$145,961,638	\$82,519,120
1904.....	1,882	62,173	109,169,922	48,711,554
Individual:				
1909.....	1,695	9,869	12,452,801	7,648,628
1904.....	816	6,902	9,266,408	5,805,446
Firm:				
1909.....	906	7,380	9,968,801	5,941,525
1904.....	480	5,503	7,140,059	4,512,108
Corporation:				
1909.....	788	54,879	123,502,394	48,898,098
1904.....	578	49,740	92,725,327	38,363,338
Other:				
1909.....	9	20	37,642	30,869
1904.....	8	28	38,128	30,662
Per cent of total:				
1909.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0
Individual:				
1909.....	49.9	13.7	8.5	12.2
1904.....	43.4	11.1	8.5	11.9
Firm:				
1909.....	26.7	10.2	6.8	9.5
1904.....	25.5	8.9	6.5	9.3
Corporation:				
1909.....	23.2	76.1	84.6	78.2
1904.....	30.7	80.0	84.9	78.8
Other:				
1909.....	0.3	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
1904.....	0.4	( <sup>1</sup> )	( <sup>1</sup> )	0.1
<b>Flour-mill and gristmill products, 1909.</b>				
Individual.....	72	168	\$2,779,274	\$373,834
Firm.....	45	68	1,010,719	136,063
Corporation.....	17	38	638,784	111,477
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	62.5	40.5	36.4	36.4
Firm.....	23.6	22.6	23.0	29.8
Corporation.....	13.9	36.9	40.6	33.8

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>Foundry and machine-shop products, 1909.</b>				
Individual.....	102	5,898	\$11,550,217	\$5,323,199
Firm.....	32	269	480,513	289,666
Corporation.....	15	237	601,393	383,001
Per cent of total.....	55	5,392	10,468,311	4,670,632
Individual.....	100.0	100.0	100.0	100.0
Firm.....	31.4	4.6	4.2	5.4
Corporation.....	14.7	4.0	5.2	6.8
Per cent of total.....	53.9	91.4	90.6	87.7
<b>Lumber and timber products, 1909.</b>				
Individual.....	1,819	22,409	\$26,057,662	\$16,913,023
Firm.....	1,064	6,256	6,517,093	4,466,673
Corporation.....	583	4,133	4,456,608	3,126,690
Per cent of total.....	172	12,020	15,083,961	9,319,719
Individual.....	100.0	100.0	100.0	100.0
Firm.....	58.5	27.9	25.0	26.4
Corporation.....	32.0	18.4	17.1	18.5
Per cent of total.....	9.5	53.6	57.9	55.1
<b>Printing and publishing, 1909.</b>				
Individual.....	274	1,117	\$2,768,247	\$2,102,254
Firm.....	163	410	683,299	548,473
Corporation.....	52	137	229,582	179,810
Other.....	53	568	1,837,175	1,355,922
Per cent of total.....	6	2	18,191	18,049
Individual.....	100.0	100.0	100.0	100.0
Firm.....	59.5	36.7	24.7	26.1
Corporation.....	19.6	12.3	8.3	8.6
Other.....	19.3	50.8	66.4	64.5
Per cent of total.....	2.2	0.2	0.7	0.9
<b>Turpentine and rosin, 1909.</b>				
Individual.....	175	3,519	\$2,471,999	\$1,966,207
Firm.....	72	1,073	727,984	565,496
Corporation.....	78	1,683	1,193,848	965,891
Per cent of total.....	25	763	550,167	454,820
Individual.....	100.0	100.0	100.0	100.0
Firm.....	41.1	30.5	29.4	28.5
Corporation.....	44.6	47.8	48.3	48.6
Per cent of total.....	14.3	21.7	22.3	22.9

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

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

The most important distinction shown is that between corporate and all other forms of ownership. For all industries combined, 23.2 per cent of the total number of establishments were, in 1909, under corporate ownership, as against 76.9 per cent under all other forms. The corresponding figures for 1904 were 30.7 per cent and 69.3 per cent, respectively. For all industries combined the proportion of the total value of products which the establishments under each form of ownership contributed remained about the same at each census. Among the important industries not shown in this table, all of the steam-railroad repair shops, the coke establishments, the cotton mills, and the blast furnaces, and all but six of the fertilizer factories and seven of the cottonseed-oil mills were under corporate ownership.

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.

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	3,398	73,148	\$145,961,638	\$62,519,120
1904	1,882	62,173	109,169,922	48,711,554
Less than \$5,000:				
1909	1,614	4,226	3,484,496	2,493,709
1904	577	1,246	1,438,922	1,054,455
\$5,000 and less than \$20,000:				
1909	1,002	9,128	10,232,102	7,048,024
1904	677	6,313	7,191,803	5,051,673
\$20,000 and less than \$100,000:				
1909	493	12,983	21,920,233	11,275,069
1904	395	12,506	18,213,703	10,203,718
\$100,000 and less than \$1,000,000:				
1909	267	31,993	68,275,808	26,824,753
1904	219	31,631	57,254,914	23,306,568
\$1,000,000 and over:				
1909	22	13,818	42,048,999	14,877,565
1904	14	10,417	25,070,580	8,975,140
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	47.5	5.9	2.4	4.0
1904	30.7	2.0	1.3	2.2
\$5,000 and less than \$20,000:				
1909	29.5	12.7	7.0	11.3
1904	36.0	10.2	6.6	10.4
\$20,000 and less than \$100,000:				
1909	14.5	18.0	15.0	18.0
1904	21.0	20.2	16.7	20.9
\$100,000 and less than \$1,000,000:				
1909	7.9	44.3	46.8	42.9
1904	11.6	50.9	52.4	48.0
\$1,000,000 and over:				
1909	0.6	19.2	28.8	23.8
1904	0.7	16.8	23.0	18.4
Average per establishment:				
1909	21	\$42,955	\$18,399	
1904	33	\$58,007	\$25,883	
<b>Flour-mill and gristmill products, 1909.</b>	72	168	\$2,779,274	\$373,834
Less than \$5,000	18	14	51,415	9,275
\$5,000 and less than \$20,000	29	43	318,630	57,549
\$20,000 and less than \$100,000	18	51	701,830	79,518
\$100,000 and less than \$1,000,000	7	60	1,647,393	227,498
Per cent of total:	100.0	100.0	100.0	100.0
Less than \$5,000	25.0	8.3	1.8	2.5
\$5,000 and less than \$20,000	40.3	25.6	11.5	15.4
\$20,000 and less than \$100,000	25.0	30.4	27.4	21.3
\$100,000 and less than \$1,000,000	9.7	35.7	59.3	60.9
Average per establishment	2		\$38,601	\$5,192
<b>Foundry and machine-shop products, 1909.</b>	102	5,898	\$11,550,217	\$5,323,199
Less than \$5,000	17	32	46,825	33,496
\$5,000 and less than \$20,000	25	198	277,885	177,954
\$20,000 and less than \$100,000	29	813	1,350,282	751,123
\$100,000 and less than \$1,000,000	27	3,000	5,442,238	2,770,751
\$1,000,000 and over	4	1,855	4,432,987	1,683,875
Per cent of total:	100.0	100.0	100.0	100.0
Less than \$5,000	16.7	0.5	0.4	0.6
\$5,000 and less than \$20,000	24.5	3.4	2.4	3.3
\$20,000 and less than \$100,000	28.4	13.8	11.7	14.1
\$100,000 and less than \$1,000,000	26.5	50.9	47.1	52.2
\$1,000,000 and over	3.9	31.5	38.4	29.8
Average per establishment	58		\$113,237	\$52,188
<b>Lumber and timber products, 1909.</b>	1,819	22,409	\$26,057,662	\$16,913,023
Less than \$5,000	1,120	3,193	2,174,628	1,619,371
\$5,000 and less than \$20,000	481	4,746	4,790,814	3,517,960
\$20,000 and less than \$100,000	167	5,250	6,872,217	4,302,348
\$100,000 and less than \$1,000,000	51	9,220	12,220,003	7,413,344
Per cent of total:	100.0	100.0	100.0	100.0
Less than \$5,000	61.6	14.2	8.3	9.6
\$5,000 and less than \$20,000	26.4	21.2	18.4	20.8
\$20,000 and less than \$100,000	9.2	23.4	26.4	25.8
\$100,000 and less than \$1,000,000	2.8	41.1	46.9	43.8
Average per establishment	12		\$14,325	\$9,298

INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>Printing and publishing, 1909.</b>	274	1,117	\$2,768,247	\$2,102,254
Less than \$5,000	182	301	460,291	371,120
\$5,000 and less than \$20,000	69	308	615,850	500,276
\$20,000 and less than \$100,000	17	286	669,290	460,893
\$100,000 and less than \$1,000,000	6	222	1,022,816	769,965
Per cent of total:	100.0	100.0	100.0	100.0
Less than \$5,000	66.4	26.9	16.6	17.7
\$5,000 and less than \$20,000	25.2	27.6	22.2	23.8
\$20,000 and less than \$100,000	6.2	25.6	24.2	21.9
\$100,000 and less than \$1,000,000	2.2	19.9	36.9	36.6
Average per establishment	4		\$10,103	\$7,672
<b>Turpentine and rosin, 1909.</b>	175	3,519	\$2,471,999	\$1,986,207
Less than \$5,000	35	179	108,631	77,593
\$5,000 and less than \$20,000	105	1,909	1,175,753	933,589
\$20,000 and less than \$100,000	35	1,431	1,187,615	975,020
Per cent of total:	100.0	100.0	100.0	100.0
Less than \$5,000	20.0	5.1	4.4	3.9
\$5,000 and less than \$20,000	60.0	54.2	47.6	47.0
\$20,000 and less than \$100,000	20.0	40.7	38.0	49.1
Average per establishment	20		\$14,126	\$11,350

This table shows that in 1909, of the 3,398 establishments only 22, or six-tenths of 1 per cent, had a value of products exceeding \$1,000,000. These establishments, however, employed an average of 13,818 wage earners, or 19.2 per cent of the total number in all establishments, and reported 28.8 per cent of the total value of products and 23.8 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, 47.5 per cent, of the total number of establishments, but the value of their products amounted to only 2.4 per cent of the total. Measured by number of wage earners and value of products, the largest group consisted of those establishments having products of \$100,000 but less than \$1,000,000 in value, the wage earners in these establishments forming 44.3 per cent of the total number and the value of their products amounting to 46.8 per cent of the total. About three-fourths of the total value of products was reported by establishments having products valued at not less than \$100,000.

The fact that the average number of wage earners per establishment decreased from 33 to 21, the average value of products from \$58,007 to \$42,955, and the value added by manufacture from \$25,883 to \$18,399 is due to the increase in the number of small establishments, largely in the lumber industry.

In some respects, and especially from the standpoint of conditions under which persons engaged in manufactures work, the best classification of establishments to bring out the feature of size is a classification according to the number of wage earners employed. The next table shows for 1909 such a classification for all industries combined and for 11 important industries individually, and gives not only the number of establishments falling in each group, but also the average number of wage earners employed.

# STATISTICS OF MANUFACTURES—ALABAMA.

INDUSTRY.	ESTABLISHMENTS EMPLOYING—									
	Total.	No wage earners.	1 to 5 wage earners.	6 to 20 wage earners.	21 to 50 wage earners.	51 to 100 wage earners.	101 to 250 wage earners.	251 to 500 wage earners.	501 to 1,000 wage earners.	Over 1,000 wage earners.
	NUMBER OF ESTABLISHMENTS.									
All industries.....	3,398	131	1,790	924	288	123	93	34	11	4
Cars and general shop construction and repairs by steam-railroad companies.....	21		2	2	2	10	4	6	4	1
Coke.....	51		16	11	5	11	20	7	4	2
Cotton goods, including cotton small wares.....	42		11	3	1	7	3			
Fertilizers.....	72	11	57	26	14	17	12	5	2	2
Flour-mill and gristmill products.....	102	2	26	26	2	3	10	2	2	2
Foundry and machine-shop products.....	19		8	32	27	3	1			
Iron and steel, blast furnaces.....	1,819	39	1,079	546	84	33	26	11	1	1
Lumber and timber products.....	71		8	32	9	1				
Oil, cottonseed, and cake.....	274	47	185	32	9	3				
Printing and publishing.....	175	2	29	81	57	5	1			
Turpentine and rosin.....	717	30	387	183	72	33	10	1		1
All other industries.....										
AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	72,148		4,560	10,327	9,119	8,570	14,468	12,037	7,968	5,148
Cars and general shop construction and repairs by steam-railroad companies.....	6,308		9	14	47	758	487	1,937	2,425	1,391
Coke.....	2,580		4	100	272	776	3,439	2,599	3,467	2,118
Cotton goods, including cotton small wares.....	12,731		58	88	163	532	392			
Fertilizers.....	1,233		113	25	30	1,103	1,730	2,189		
Flour-mill and gristmill products.....	168		76	324	476	214	1,529	727	1,243	827
Foundry and machine-shop products.....	5,898				73	178	115			
Iron and steel, blast furnaces.....	3,783		2,721	5,886	2,652	2,332	4,196	3,795		
Lumber and timber products.....	22,409		23	453	844	70				
Oil, cottonseed, and cake.....	1,618		400	322	265	70				
Printing and publishing.....	1,117		92	1,147	1,824	306	150			
Turpentine and rosin.....	3,519		989	1,959	2,181	2,313	1,528	260		159
All other industries.....	10,784									
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	100.0		6.3	14.3	12.6	11.9	20.1	16.7	11.0	7.8
Cars and general shop construction and repairs by steam-railroad companies.....	100.0		0.1	0.2	0.7	7.7	30.7	38.4	21.0	2.1
Coke.....	100.0		0.3	4.2	19.5	29.4	35.0	20.5	27.2	11.0
Cotton goods, including cotton small wares.....	100.0				2.3	6.1	31.8	20.4	27.2	11.0
Fertilizers.....	100.0		4.7	7.1	13.2	43.1	31.8			
Flour-mill and gristmill products.....	100.0		67.3	14.9	17.9	18.7	29.3	37.1		
Foundry and machine-shop products.....	100.0		1.3	5.5	8.1	18.7	40.4	10.2	32.9	3.7
Iron and steel, blast furnaces.....	100.0		12.1	26.3	11.9	5.6	18.7	16.9		
Lumber and timber products.....	100.0		1.7	28.0	52.2	11.0	7.1			
Oil, cottonseed, and cake.....	100.0		41.2	28.8	23.7	6.3				
Printing and publishing.....	100.0		2.6	32.6	51.8	8.7	4.3			
Turpentine and rosin.....	100.0		9.2	18.2	20.2	21.4	14.2	2.4		14.1
All other industries.....	100.0									

The per cent distribution of the number of establishments is not shown in this table; of the 3,398 establishments reported for all industries, 3.9 per cent employed no wage earners; 52.7 per cent, from 1 to 5; 27.2 per cent, 6 to 20; and only 16.3 per cent, 21 and over. The most numerous single group consists of the 1,790 establishments employing from 1 to 5 wage earners and the next of the 924 establishments employing from 6 to 20 wage earners. There were 49 establishments that employed over 250 wage earners, while 4 employed over 1,000.

Of the total number of wage earners, 54.9 per cent were in establishments employing over 100 wage earners. The single group having the largest number of employees was the group comprising the establishments employing from 101 to 250 wage earners. This group employed 14,468 wage earners, or 20.1 per cent of the total. The individual industries listed in this

table, but not in the preceding one, namely, coke, cotton goods, blast furnaces, and steam-railroad repair shops, are industries in which comparatively large establishments do most of the business, as appears from the classification according to the number of wage earners. The fertilizer and cottonseed-oil establishments appear to be somewhat smaller.

**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.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
All industries.....	5.1	21.1	64.6	9.2
Cars and general shop construction and repairs by steam-railroad companies.....	4.2	44.8	50.1	0.9
Coke.....	2.7	15.6	77.4	4.3
Cotton goods, including cotton small wares.....	2.3	17.4	72.5	7.8
Fertilizers.....	5.4	6.9	75.4	12.3
Flour-mill and gristmill products.....	2.0	2.2	93.8	2.0
Foundry and machine-shop products.....	6.2	27.7	58.2	7.9
Iron and steel, blast furnaces.....	3.9	10.9	81.0	4.2
Lumber and timber products.....	5.4	33.5	42.6	18.2
Oil, cottonseed, and cake.....	4.0	5.2	84.0	6.8
Printing and publishing.....	20.7	29.2	29.9	20.3
Turpentine and rosin.....	6.9	49.8	26.7	16.6
All other industries.....	8.0	20.6	61.0	10.4

This table shows that, for all industries combined, 64.6 per cent of the total expenses was incurred for materials, 26.2 per cent for services—that is, salaries and wages—and but 9.2 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries.

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

The table indicates that the absolute increase in primary power was mainly in steam and electric power. In 1909, as in 1904, steam formed the major part of the power, but notwithstanding an increase during this period of 47,805 horsepower, the proportion of this kind of power decreased from 95.7 per cent in 1904 to 91.7 per cent in 1909. The more general use of the gas engine is shown, the number of such engines being 248 in 1909, as against 77 in 1904 and 38 in 1899. The figures also show that the practice of renting power is on the increase, 2.9 per cent of the total power being rented in 1909, as against but five-tenths of 1 per cent in 1904 and four-tenths of 1 per cent in 1899. The use of electric motors for the purpose of applying the power generated within the establishments is also shown to be rapidly becoming more common, the horsepower of such motors increasing from 3,062 in 1899 to 8,666 in 1904 and 29,824 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>	<b>4,909</b>	<b>2,279</b>	<b>2,016</b>	<b>357,837</b>	<b>293,185</b>	<b>173,208</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Owned.....	3,879	2,279	2,016	347,546	291,643	172,487	97.1	90.5	99.6
Steam.....	3,463	2,129	1,828	328,275	280,470	162,453	91.7	95.7	93.8
Gas.....	248	77	38	4,616	472	376	1.3	0.2	0.2
Water wheels.....	147	63	150	13,812	9,483	9,421	3.9	3.2	5.4
Water motors.....	21	10	( <sup>2</sup> )	111	35	( <sup>2</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>2</sup> )
Other.....	.....	.....	.....	732	1,193	237	0.2	0.4	0.1
Rented.....	1,030	( <sup>2</sup> )	( <sup>2</sup> )	10,291	1,542	721	2.9	0.5	0.4
Electric.....	1,030	( <sup>2</sup> )	( <sup>2</sup> )	10,104	1,448	350	2.8	0.5	0.2
Other.....	.....	.....	.....	187	94	362	0.1	( <sup>3</sup> )	0.2
Electric motors.....	2,500	206	69	39,928	10,114	3,421	100.0	100.0	100.0
Run by current generated by establishment	1,470	206	69	29,824	8,666	3,062	74.7	85.7	89.5
Run by rented power.....	1,030	( <sup>2</sup> )	( <sup>2</sup> )	10,104	1,448	350	25.3	14.3	10.5

<sup>1</sup> Includes the neighborhood industries and hand trades, omitted in 1904 and 1899.  
<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, by totals for all industries combined and for certain selected industries.

INDUSTRY.	Anthracite coal (tons).	Bituminous coal (tons).	Coke (tons).	Wood (cords).	Oil, including gasoline (barrels).	Gas (1,000 feet).
All industries <sup>1</sup> .....	17,903	6,080,090	3,900,661	186,077	11,370	18,715
Brick and tile.....	.....	113,766	946	24,224	29	.....
Cars and general shop construction and repairs by steam-railroad companies.....	.....	61,210	2,333	1,202	652	.....
Coke.....	.....	4,884,295	859,335	.....	.....	.....
Cotton goods, including cotton small wares.....	.....	190,686	.....	3,812	40	.....
Fertilizers.....	.....	33,549	.....	420	85	.....
Flour-mill and gristmill products.....	.....	5,773	100	1,712	313	.....
Foundry and machine-shop products.....	.....	65,783	107,547	6,043	809	12
Gas, illuminating and heating.....	.....	53,595	1,894	.....	4,000	.....
Iron and steel, blast furnaces.....	.....	142,649	2,007,745	91	.....	6,000
Lime.....	.....	21,412	250	22,967	5	.....
Lumber and timber products.....	10	16,816	.....	7,972	470	.....
Oil, cottonseed, and cake.....	5	81,733	.....	8,553	45	.....
Pottery, terra-cotta, and fire-clay products.....	.....	43,192	.....	1,668	36	.....
Printing and publishing.....	2	1,522	10	343	334	1,799
Turpentine and rosin.....	.....	225	18,310	3	3	.....
All other industries.....	17,886	364,109	20,276	90,762	4,549	10,904

<sup>1</sup> In addition, there were 41,068 tons of other varieties of fuel reported.

## STATISTICS OF MANUFACTURES—ALABAMA.

## 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, and the number and kind of machines used in manufactures, which do not appear on the general schedules. Certain data of this character for seven important industries in Alabama are here presented.

**Lumber and timber products.**—The lumber industry is an important one in Alabama. The total quantity of lumber sawed has increased from year to year, a total of 1,691,001,000 feet representing the cut for 1909, as compared with 1,101,386,000 feet in 1899. Yellow pine formed 89.1 per cent of the total cut of the state in 1909.

The following is a statement of the quantity of products, by classes, of the sawmill branch of the lumber industry for 1909 and 1899:

PRODUCT.	1909	1899 <sup>1</sup>
Rough lumber.....M feet, b. m.	1,691,001	1,101,386
Lath.....thousands.	50,979	28,721
Shingles.....thousands.	245,871	267,273

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

**Cotton goods, including cotton small wares.**—This industry was first reported for the state of Alabama at the census of 1839-40, when the value of cotton products reported was \$17,547. The industry increased but slowly up to the census of 1889-90, when it began to grow more rapidly, until in 1909 the value of products amounted to \$22,211,748. In the latter year Alabama held eighth place among the cotton manufacturing states in respect to number of establishments, and ninth place in respect to both number of producing spindles and value of products.

The table following shows in detail for the cotton-goods industry the quantity and cost of materials, the quantity and value of products, and the number of the principal kinds of machinery used, as reported at the last three censuses.

The principal material used was domestic cotton, which was largely obtained directly from the plantations of the state. No Egyptian or other foreign cotton was reported used in 1899 and only a small amount in 1904 and 1909. The cotton consumed in this industry in 1909 amounted to 116,232,495 pounds, and cost \$12,616,233, the increase since 1904 being 17,131,817 pounds, or 17.3 per cent, in quantity, and \$1,530,470, or 13.8 per cent, in cost.

Increases both in quantity and value were shown for every class of products from 1899 to 1904, except drills, which showed a decrease in quantity. Increases were also shown for every class of products from 1904 to 1909, except brown or bleached sheetings or shirtings, which showed decreases in both quantity and

value. The latter class of products, which was the most important in 1899 and 1904 when measured by value, became second in importance in 1909, being exceeded by yarns for sale. It continued, however, to lead all other products in respect to quantity. Plain cloths for printing or converting, which show an increase from 1904 to 1909 of 7,882,560 square yards in quantity, and \$641,134 in value, ranked second in quantity and fourth in value. The partly manufactured articles, yarns manufactured for sale and cotton waste, represent a certain amount of duplication, because, although they are the products of one set of mills, they become the materials of other establishments.

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Material used, total cost.....</b>	<b>\$14,373,247</b>	<b>\$12,010,798</b>	<b>\$4,835,981</b>
Cotton:			
Pounds.....	116,232,495	99,100,078	67,967,599
Cost.....	\$12,616,233	\$11,085,768	\$4,206,721
Starch.....	\$101,218	\$91,304	\$38,537
Chemicals and dyestuffs.....	\$71,114	\$86,472	\$21,062
Fuel and rent of power and heat.....	\$445,568	\$303,192	\$141,867
All other materials.....	\$1,130,114	\$443,867	\$417,791
<b>Product, total value.....</b>	<b>\$22,211,748</b>	<b>\$16,760,332</b>	<b>\$8,163,136</b>
Plain cloths for printing or converting:			
Square yards.....	48,108,666	40,226,106	10,460,620
Value.....	\$2,187,301	\$1,546,167	\$312,600
Brown or bleached sheetings or shirtings:			
Square yards.....	75,130,788	108,518,564	72,432,173
Value.....	\$4,818,284	\$5,195,880	\$2,841,006
Duck:			
Square yards.....	29,435,832	25,645,853	15,614,255
Value.....	\$1,234,703	\$3,066,062	\$1,709,200
Drills:			
Square yards.....	21,790,867	11,602,266	14,867,091
Value.....	\$1,865,822	\$680,891	\$607,927
Yarns for sale:			
Pounds.....	25,560,583	18,413,437	14,432,026
Value.....	\$5,100,971	\$3,552,319	\$1,905,139
Cotton waste for sale:			
Pounds.....	10,405,707	6,873,474	6,764,400
Value.....	\$219,872	\$208,143	\$101,006
All other products.....	\$3,784,735	\$2,510,870	\$585,476
Machinery:			
Producing spindles, number.....	885,803	758,087	411,833
Looms, number.....	16,014	15,659	8,549

**Oil, cottonseed, and cake.**—Alabama holds sixth place among the states in the value of its cottonseed-oil products and shows a continuous growth from 1899 to 1909. The following table shows the quantity of cotton seed crushed and the quantity of crude products, by kinds, in 1909, 1904, and 1899.

MATERIAL OR PRODUCT.	QUANTITY.		
	1909	1904	1899
Cotton seed crushed.....tons..	310,754	265,053	172,099
Crude products manufactured:			
Oil.....gallons..	13,061,384	10,634,364	6,704,651
Meal and cake.....tons..	141,162	107,229	60,339
Hulls.....tons..	95,351	95,517	80,167
Linters.....pounds..	13,770,427	8,420,399	4,331,016

The statistics in this table include all the cotton seed crushed during the year, regardless of the extent to which the establishments are engaged in other industries. Furthermore, the crude products reported represent the total product derived from crushing cotton seed, whether sold as such or used as intermedi-

ate products in further processes of manufacture, such as the refining of oil and the mixing of fertilizer and feed. The average crush per mill has fallen off during the past five years, but not to the same extent as during the previous five years. The high price of cotton seed has resulted in recent years in the crushing of a large percentage of the seed produced. Of the 71 mills reported in 1909 as crushing seed, 8 crushed less than 1,000 tons each during the census year, 15 crushed 1,000 but less than 2,000 tons, 27 crushed 2,000 but less than 5,000 tons, 15 crushed 5,000 but less than 10,000 tons, 5 crushed 10,000 but less than 20,000 tons, and 1 crushed more than 20,000 tons. The ratios which the several crude products in 1909 bore to the total weight of the seed when received at the mill were as follows: Crude oil, 15.8 per cent; meal and cake, 45.4 per cent; hulls, 30.7 per cent; and linters, 2.2 per cent. It will be observed that hulls represented a considerably smaller proportion of the total product in 1909 than in 1904 or 1899.

Fertilizers.—This industry has shown the most rapid growth of any in the state during the past five years. In 1909 Alabama held seventh place among the states in the manufacture of fertilizer. The following table shows in detail the quantity and value of the different kinds of products reported for the years 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
<b>Total value</b> .....	<b>\$6,423,233</b>	<b>\$2,341,132</b>	<b>\$2,068,162</b>
Superphosphates:			
From minerals, bones, etc.—			
Tons.....	109,519	58,190	33,246
Value.....	\$1,147,201	\$457,478	\$309,587
Ammoniated—			
Tons.....	87,353	11,681	2,000
Value.....	\$1,581,800	\$219,874	\$35,000
Complete fertilizers:			
Tons.....	121,824	83,642	92,253
Value.....	\$2,292,445	\$1,557,133	\$1,433,355
All other fertilizers:			
Tons.....	92,481	7,128	6,670
Value.....	\$932,357	\$90,173	\$104,766
All other products, value.....	\$419,340	\$16,474	\$125,454

The statistics in this table are for establishments whose chief products are fertilizers. In addition to the 42 establishments the products of which are given in this table, there were 20 establishments, 19 of which were primarily engaged in the manufacture of cottonseed oil and 1 in slaughtering and meat packing, which produced as by-products 25,959 tons of fertilizer, valued at \$503,503.

Complete fertilizer was the product of chief value reported at each census, showing an increase of \$859,090, or 59.9 per cent, from 1899 to 1909. The quantity in 1909 exceeded that for 1899 by 32.1 per cent, although there was a small decrease from 1904 to 1909. The greatest absolute increase in value from 1904 to 1909 was in ammoniated superphosphates, which increased \$1,361,926. The increase in value of "superphosphates from minerals, bones, etc.," during the same period was nearly equal to that in com-

plete fertilizers, the former being \$689,813 and the latter \$735,312.

Flour-mill and gristmill products.—Gristmills predominate in this industry. All of the 72 establishments reported corn products, 12 reported wheat products, and only 1 reported flour as its chief product. The following is a tabular statement of the quantity and value of the different kinds of these products for 1909 and 1904:

PRODUCT.	QUANTITY.		VALUE.	
	1909	1904	1909	1904
<b>Total value</b> .....			<b>\$2,779,274</b>	<b>\$1,750,452</b>
Wheat flour:				
White.....barrels..	15,629	28,483	92,790	158,320
Graham.....barrels..	667		4,560	
Rye flour.....barrels..		100		562
Corn meal.....barrels..	534,288	364,992	1,856,501	941,779
Hominy and grits.....pounds..	4,889,356	2,579,356	90,579	44,234
Feed.....tons.....	22,776	25,720	699,041	571,179
Offal.....tons.....	976	1,445	20,004	28,950
All other products.....			15,799	5,398

Printing and publishing.—This industry embraces the printing and publishing of books, and of newspapers and periodicals, job printing, bookbinding, and the engraving of steel and copper plate, including plate printing. The following table shows the number and circulation of the different classes of newspapers and periodicals for 1909, 1904, and 1899:

PERIOD OF ISSUE.	NUMBER OF PUBLICATIONS.			AGGREGATE CIRCULATION PER ISSUE.		
	1909	1904	1899	1909	1904	1899
<b>Total</b> .....	<b>227</b>	<b>213</b>	<b>186</b>	<b>518,074</b>	<b>399,005</b>	<b>230,079</b>
Daily.....	26	21	19	139,345	99,853	48,645
Sunday.....	9	10	11	78,679	52,756 (1)	
Semiweekly.....	6	1	2 3	9,305	3,783	5,040
Weekly.....	179	171	143	278,245	213,543	155,244
Monthly.....	4	7	4	8,700	11,820	6,800
All other classes.....	3	3	6	3,800	17,250	14,350

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

The weekly publications are the most important class, measured by both number of publications and aggregate circulation per issue. The daily, weekly, and semiweekly publications increased in number from 1904 to 1909, the monthly and Sunday publications decreased, and those included under the head of "All other classes" showed the same number for both years. Each class of publications, with the exception of monthlies and those included under the head of "All other classes," showed considerable increases in aggregate circulation per issue in 1909, as compared with 1904. Of the dailies, 11 were morning and 15 evening editions in 1909 and 8 morning and 13 evening editions in 1904. All of the publications were in the English language, except three weeklies, two of which were in German and one in Italian.

Turpentine and rosin.—This industry, which is dependent upon the long-leaf pine forests, is carried on principally in the southern part of the state. Alabama holds third place among all the states in the

quantity and value of its turpentine and rosin products. The following table shows the quantity and value of the products distilled from crude turpentine in 1909 and 1904:

PRODUCT.	1909	1904
Total value.....	\$2,471,999	\$2,434,365
Turpentine:		
Gallons.....	2,840,242	3,108,118
Value.....	\$1,253,737	\$1,501,563
Rosin:		
Barrels (280 pounds).....	309,763	360,469
Value.....	\$1,214,054	\$930,053
All other products, value.....	\$4,208	\$2,749

All products combined showed an increase of 1.5 per cent in value, but turpentine showed a decrease of 8.6 per cent in quantity and of 16.5 per cent in value; rosin a decrease of 14.1 per cent in quantity, with an increase of 30.5 per cent in value; and all other products an increase of 53.1 per cent in value. The working unit in turpentine operations is called a crop, which consists of 10,500 boxes or cups. In 1909 there were 1,948 crops worked, of which 468 were from virgin trees, 504 from yearlings, 497 from third-year trees, and 479 from older trees. Of the total number of trees worked in Alabama during 1909, 16 per cent were treated through the cup system.

**Laundries.**—Statistics for steam laundries are not included in the general tables or in the totals for manufacturing industries.

There were 38 such establishments in Alabama in 1909, 23 of which were in cities of over 10,000 population. The following table summarizes the statistics:

Number of establishments.....	38
Persons engaged in the industry.....	1,274
Proprietors and firm members.....	26
Salaried employees.....	140
Wage earners (average number).....	1,108
Primary horsepower.....	1,041
Capital.....	\$545,892
Expenses.....	789,656
Services.....	469,762
Materials.....	146,657
Miscellaneous.....	173,237
Amount received for work done.....	909,130

The most common form of ownership was the corporate, with 18 establishments. The individual and partnership forms of ownership were represented by 15 and 5 establishments, respectively. Five establishments had receipts for the year's business of less than \$5,000; 19, \$5,000 but less than \$20,000; 13, \$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.....	988	83.2	July.....	1,158	97.6
February.....	1,043	87.9	August.....	1,175	98.0
March.....	1,062	89.5	September.....	1,187	100.0
April.....	1,093	92.1	October.....	1,134	95.5
May.....	1,107	93.3	November.....	1,106	93.2
June.....	1,137	95.8	December.....	1,103	92.9

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

KIND.	Number of engines or motors.	Horsepower.
Primary power, total.....		1,041
Owned.....	92	838
Steam.....	30	834
Gas.....	2	4
Rented—Electric.....	81	203

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

KIND.	Unit.	Quantity.
Bituminous coal.....	Tons.....	14,317
Coke.....	Tons.....	1,215
Wood.....	Cords.....	360
Oil.....	Barrels.....	48
Gas.....	1,000 feet.....	3,006

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

	Custom sawmills.	Custom gristmills.
Number of establishments.....	55	964
Persons engaged in the industry.....	237	1,887
Proprietors and firm members.....	113	1,303
Salaried employees.....	1	3
Wage earners (average number).....	123	581
Primary horsepower.....	1,302	18,305
Capital.....	\$52,807	\$894,078
Expenses.....	22,715	2,050,076
Services.....	18,525	58,363
Materials.....	1,385	1,067,022
Miscellaneous.....	2,805	24,691
Value of products.....	55,271	12,326,156

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

STATISTICS OF MANUFACTURES—ALABAMA.

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

INDUSTRY.	Cen- sus.	Num- ber of estab- lish- ments.	PERSONS ENGAGED IN INDUSTRY.				Pri- mary horse- power.	Capital.	Sala- ries.	Wages.	Cost of mater- ials.	Value of prod- ucts.	Value added by manu- facture.
			Total.	Pro- pri- etors and firm mem- bers.	Sala- ried em- ploy- ees.	Wage earn- ers (aver- age num- ber).							
STATE—All industries.....	1909 1904 1899	3,398 1,882 2,000	81,972 67,884 .....	3,769 1,948 .....	6,055 3,763 2,269	72,148 62,173 52,711	357,837 293,186 173,208	\$173,180 105,383 60,186	\$6,565 3,887 2,059	\$27,284 21,878 14,912	\$63,443 60,458 37,998	\$145,962 109,170 72,110	\$62,519 48,712 34,112
Bread and other bakery products.....	1909 1904 1899	83 52 51	773 585 391	94 59 54	105 51 55	574 475 282	334 251 161	898 473 261	93 42 29	248 161 87	1,073 666 387	1,725 1,110 682	652 444 295
Brick and tile.....	1909 1904 1899	71 63 72	1,500 1,178 1,259	56 60 93	91 74 44	1,353 1,044 1,122	5,127 3,360 1,501	1,942 1,033 432	100 72 25	434 301 257	288 204 143	1,135 847 658	847 643 515
Carriages and wagons and materials.....	1909 1904 1899	35 26 47	568 439 .....	40 30 .....	44 29 29	424 380 461	991 554 .....	752 581 436	45 29 19	194 165 140	393 377 252	684 740 600	381 363 348
Cars and general shop construction and repairs by steam-railroad companies.....	1909 1904 1899	21 16 19	6,610 5,740 1,148	..... ..... .....	302 239 118	6,308 5,501 4,030	4,928 3,125 1,588	4,732 2,104 2,019	313 235 113	3,372 2,993 1,941	3,775 3,306 2,632	7,528 6,681 4,172	3,753 3,375 2,140
Clothing, men's, including shirts.....	1909 1904 1899	5 3 7	220 128 213	6 5 9	20 6 13	194 117 191	38 16 25	216 67 96	20 5 11	48 27 47	203 84 152	333 133 202	130 49 110
Coke.....	1909 1904 1899	35 24 15	2,800 2,272 1,637	..... ..... .....	220 107 43	2,580 2,165 1,592	5,766 3,075 692	17,770 3,425 3,855	226 96 40	1,283 924 536	6,371 6,175 2,674	8,843 6,175 3,726	2,472 2,178 1,052
Confectionery.....	1909 1904 1899	9 10 11	166 194 .....	10 9 .....	18 23 19	138 162 124	174 189 .....	121 169 88	17 13 10	41 39 16	349 229 110	490 372 196	141 152 86
Copper, tin, and sheet-iron products.....	1909 1904 1899	23 10 11	312 146 .....	22 10 .....	54 18 9	236 118 101	33 3 .....	438 152 127	51 17 11	132 61 42	411 188 181	733 326 327	322 138 146
Cordage and twine and jute and linen goods.....	1909 1904 1899	5 4 4	452 365 292	..... ..... .....	25 12 10	427 293 282	1,700 625 625	749 336 298	27 13 11	117 64 48	479 381 166	696 490 254	217 118 88
Cotton goods, including cotton small wares.....	1909 1904 1899	51 46 31	13,041 11,740 8,491	..... ..... .....	310 259 159	12,731 11,480 8,332	42,637 27,505 22,997	30,954 24,758 11,639	460 343 198	3,454 2,458 1,482	14,373 12,011 4,826	22,212 16,760 8,153	7,839 4,749 3,927
Fertilizers.....	1909 1904 1899	42 19 17	1,473 630 531	12 6 32	228 79 69	1,233 551 439	4,484 1,485 1,450	8,507 3,051 1,407	305 68 62	392 153 95	4,264 1,606 1,387	6,423 2,341 2,068	2,150 735 681
Flour-mill and gristmill products.....	1909 1904 1899	72 40 37	315 230 .....	84 42 .....	63 29 24	168 159 138	3,559 2,124 .....	1,080 372 365	51 20 20	57 54 41	2,405 1,556 1,367	2,779 1,750 1,573	374 194 206
Foundry and machine-shop products.....	1909 1904 1899	102 71 74	6,462 4,943 3,752	67 43 60	497 311 231	5,808 4,580 3,461	9,859 5,376 4,400	11,984 6,192 4,827	662 126 251	2,958 2,133 1,330	4,588 4,588 2,756	11,550 8,849 5,482	5,323 4,252 2,726
Gas, illuminating and heating.....	1909 1904 1899	13 13 11	403 193 115	4 ..... .....	140 57 40	259 136 75	509 1,379 124	4,730 926 1,121	74 38 31	133 52 32	214 87 51	687 355 233	473 268 182
Hosiery and knit goods.....	1909 1904 1899	6 8 .....	634 531 .....	..... ..... .....	23 22 .....	611 505 .....	750 805 .....	627 563 .....	28 18 .....	124 93 .....	314 254 .....	591 460 .....	277 206 .....
Ice, manufactured.....	1909 1904 1899	45 39 21	469 336 212	26 32 11	100 61 41	343 243 160	6,117 3,784 1,792	2,281 1,480 611	85 52 33	138 104 53	201 122 51	777 532 242	576 410 191
Iron and steel, blast furnaces.....	1909 1904 1899	19 19 19	4,325 5,216 5,182	..... ..... .....	542 262 148	3,783 4,954 5,034	106,189 101,048 58,844	23,816 19,326 11,587	740 321 237	2,077 1,939 1,382	15,477 11,012 7,610	21,236 16,646 13,488	5,759 5,634 5,878
Leather goods.....	1909 1904 1899	11 6 9	112 50 .....	7 6 .....	25 4 .....	80 40 33	97 7 .....	132 64 47	14 2 4	37 17 13	117 106 43	220 170 85	103 64 42
Lime.....	1909 1904 1899	15 10 .....	458 540 .....	7 12 .....	40 25 .....	411 503 .....	723 918 .....	849 825 .....	39 24 .....	136 143 .....	182 98 .....	426 327 .....	244 229 .....
Lumber and timber products.....	1909 1904 1899	1,819 666 1,846	25,927 17,751 .....	2,387 836 .....	1,131 780 523	22,409 16,135 14,882	102,527 55,512 .....	24,442 14,164 8,202	1,168 814 392	7,259 5,546 3,619	9,145 5,195 4,998	26,058 18,279 13,286	16,913 13,084 8,288
Marble and stone work.....	1909 1904 1899	25 11 16	427 226 .....	29 11 .....	40 17 .....	358 198 267	787 344 .....	680 273 264	52 16 17	168 75 84	183 70 92	493 225 255	310 155 163

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

STATISTICS OF MANUFACTURES—ALABAMA.

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

INDUSTRY.	Cen- sus.	Num- ber of estab- lish- ments.	PERSONS ENGAGED IN INDUSTRY.				Pri- mary horse- power.	Capital.	Sal- aries.	Wages.	Cost of mater- ials.	Value of prod- ucts.	Value added by manu- facture.
			Total.	Pro- pri- etors and firm mem- bers.	Sal- aried em- ploy- ees.	Wage earn- ers (aver- age num- ber).							
Expressed in thousands.													
<b>STATE—Continued.</b>													
Mattresses and spring beds.....	1909	9	105	5	18	82	111	\$239	\$21	\$36	\$214	\$347	\$133
	1904	8	115	7	12	96	70	137	10	30	165	258	93
	1899	6	53	5	12	36	44	50	6	14	73	109	36
Oil, cottonseed, and cake.....	1909	71	1,984	13	353	1,618	17,215	7,202	334	437	7,075	9,178	2,103
	1904	58	1,693	17	281	1,400	12,883	5,169	254	381	4,554	5,769	1,215
	1899	28	886	21	166	759	5,657	1,610	99	197	2,104	2,986	882
Patent medicines and compounds and druggists' preparations.....	1909	18	72	19	21	32	.....	116	16	17	38	123	85
	1904	14	56	10	19	27	6	127	12	7	42	131	89
	1899	5	.....	.....	8	20	.....	15	3	7	22	58	36
Pottery, terra-cotta, and fire-clay products.....	1909	21	478	19	34	425	1,193	1,016	46	144	170	550	389
	1904	16	305	19	21	265	805	445	20	87	78	273	165
	1899	21	270	28	15	227	425	200	8	67	60	225	165
Printing and publishing.....	1909	274	1,955	299	539	1,117	1,092	2,010	462	650	666	2,768	2,102
	1904	241	1,462	269	278	915	712	1,469	245	469	432	1,947	1,515
	1899	196	1,127	232	96	799	443	847	97	342	273	1,160	887
Stoves and furnaces, including gas and oil stoves.....	1909	10	407	2	44	361	542	568	56	170	172	501	329
	1904	7	194	1	18	175	261	184	17	125	79	283	204
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tobacco manufactures.....	1909	27	192	31	8	153	.....	98	9	66	67	194	127
	1904	32	219	37	13	169	.....	128	10	77	74	244	170
	1899	26	233	29	18	186	.....	116	14	88	94	278	184
Turpentine and rosin.....	1909	175	3,965	255	191	3,519	384	1,397	125	906	486	2,472	1,956
	1904	144	3,342	229	194	2,919	151	767	99	745	511	2,434	1,923
	1899	152	4,114	236	162	3,716	50	1,176	67	781	651	2,434	1,353
All other industries.....	1909	286	5,427	275	829	4,323	39,881	22,834	926	2,056	8,201	14,201	6,000
	1904	266	7,114	193	462	6,459	65,812	16,573	536	2,455	8,395	14,263	5,868
	1899	248	.....	.....	251	5,962	.....	8,470	251	2,171	5,443	9,518	4,075

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

<b>BIRMINGHAM—All industries.....</b>	1909	248	10,412	152	1,261	8,999	55,311	\$23,718	\$1,435	\$4,392	\$14,010	\$24,128	\$10,118
	1904	122	4,551	97	467	3,987	.....	5,739	485	1,709	3,949	7,593	3,644
	1899	109	.....	.....	284	3,490	.....	4,314	321	1,359	3,980	8,599	4,619
Bread and other bakery products.....	1909	14	400	12	55	333	162	613	61	142	561	912	351
	1904	8	287	5	36	246	.....	224	32	75	314	534	190
	1899	8	121	7	27	87	.....	67	17	27	145	253	108
Carriages and wagons and materials.....	1909	7	100	8	8	84	59	78	7	53	51	133	82
	1904	4	37	5	4	28	.....	21	2	14	14	36	22
	1899	6	61	7	.....	54	.....	23	.....	23	28	70	42
Foundry and machine-shop products.....	1909	41	2,955	25	249	2,681	3,932	7,029	351	1,328	2,962	5,479	2,517
	1904	13	914	7	78	829	.....	1,315	115	351	871	1,624	753
	1899	15	.....	.....	63	723	.....	1,018	75	287	613	1,260	656
Lumber and timber products.....	1909	15	297	2	53	242	1,020	379	33	112	596	815	210
	1904	3	158	1	14	143	.....	235	16	55	149	232	83
	1899	4	100	4	6	90	.....	49	5	35	77	140	63
Marble and stone work.....	1909	4	48	5	5	38	87	36	6	23	48	98	50
	1904	3	44	5	4	35	.....	46	3	14	16	48	32
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Patent medicines and compounds and druggists' preparations.....	1909	8	31	10	9	12	.....	22	7	8	13	61	45
	1904	4	20	2	12	6	.....	30	8	1	13	65	52
	1899	3	.....	.....	8	11	.....	12	3	5	11	32	21
Printing and publishing.....	1909	49	649	36	266	347	322	707	234	248	300	1,154	851
	1904	32	400	34	125	241	.....	471	111	166	185	731	546
	1899	18	278	11	64	203	.....	233	66	115	125	435	310
All other industries.....	1909	110	5,932	54	616	5,262	49,129	14,854	736	2,478	9,479	15,476	5,997
	1904	55	2,691	38	194	2,459	.....	3,397	198	1,033	2,357	4,323	1,966
	1899	55	.....	.....	116	2,322	.....	2,912	155	867	2,981	6,400	3,419
<b>MOBILE—All industries.....</b>	1909	126	2,828	109	357	2,362	5,845	5,250	366	1,199	2,939	5,429	2,490
	1904	139	2,862	128	238	2,496	.....	3,824	285	1,199	2,322	4,942	2,620
	1899	113	.....	.....	161	2,371	.....	2,508	146	948	1,542	3,486	1,944
Bread and other bakery products.....	1909	12	122	15	18	89	88	80	9	45	205	306	101
	1904	14	116	15	5	96	.....	94	3	41	140	248	108
	1899	17	101	18	8	75	.....	62	3	29	93	162	69
Carriages and wagons and materials.....	1909	4	46	5	2	39	38	43	2	25	19	57	38
	1904	4	37	4	.....	33	.....	21	.....	19	11	49	35
	1899	5	26	4	1	21	.....	6	1	9	12	35	23
Confectionery.....	1909	3	14	2	4	8	.....	9	3	3	18	31	13
	1904	4	15	2	2	11	.....	20	(3)	5	14	35	21
	1899	6	.....	.....	4	8	.....	6	2	3	11	21	10

<sup>1</sup> Does not include statistics for one establishment, to avoid disclosure of individual operations.  
<sup>2</sup> Figures can not be shown without disclosing individual operations.  
<sup>3</sup> Less than \$500.

STATISTICS OF MANUFACTURES—ALABAMA.

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

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

INDUSTRY.	Cen- sus.	Num- ber of estab- lish- ments.	PERSONS ENGAGED IN INDUSTRY.				Pri- mary horse- power.	Capital.	Sala- ries.	Wages.	Cost of mater- ials.	Value of prod- ucts.	Value added by manu- fac- ture.
			Total.	Pro- pri- ators and firm mem- bers.	Sala- ried em- ploy- ees.	Wage earn- ers (aver- age num- ber).							
Expressed in thousands.													
<b>MOBILE—Continued.</b>													
Flour-mill and gristmill products.....	1909	5	44	5	15	24	258	\$266	\$16	\$12	\$786	\$300	\$114
	1904	6	51	7	14	30	30	83	7	13	614	677	93
	1899	3	33	3	7	23	.....	62	6	9	404	454	50
Foundry and machine-shop products.....	1909	6	230	1	32	107	471	401	35	118	114	316	202
	1904	9	351	3	30	318	.....	500	39	193	92	446	354
	1899	7	273	10	11	252	.....	185	11	121	108	304	196
Ice, manufactured.....	1909	5	45	2	7	36	834	280	8	15	26	90	64
	1904	7	76	7	14	55	.....	302	10	28	36	144	108
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lumber and timber products.....	1909	18	558	13	40	505	2,310	1,032	48	202	492	936	444
	1904	13	414	10	26	378	.....	572	30	152	360	761	401
	1899	<sup>2</sup> 4	.....	.....	18	383	.....	228	23	128	281	567	286
Marble and stone work.....	1909	3	33	1	6	20	103	52	6	16	21	53	32
	1904	4	45	3	3	39	.....	68	2	26	30	84	54
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Printing and publishing.....	1909	20	278	21	72	185	218	271	78	115	105	414	309
	1904	<sup>3</sup> 18	242	19	35	188	.....	272	37	104	72	345	273
	1899	<sup>3</sup> 15	180	25	15	140	.....	176	17	69	38	200	162
Tobacco manufactures.....	1909	10	122	11	6	105	.....	68	7	45	42	129	87
	1904	16	158	18	12	128	.....	111	9	58	53	178	125
	1899	11	172	11	16	145	.....	92	12	71	66	200	134
All other industries.....	1909	40	1,336	33	155	1,148	1,516	2,742	154	603	1,111	2,197	1,086
	1904	44	1,367	40	97	1,220	.....	1,691	98	560	900	1,975	1,054
	1899	47	.....	.....	81	1,324	.....	1,689	71	509	329	1,543	1,017

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

Anniston.....	1909	39	2,352	23	162	2,167	9,310	\$4,345	\$210	\$870	\$2,824	\$4,333	\$1,509
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bessemer.....	1909	31	2,111	23	272	1,816	15,120	7,812	310	991	4,239	6,106	1,867
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gadsden.....	1909	27	871	16	69	786	1,524	987	66	355	904	1,525	621
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montgomery.....	1909	73	2,723	46	393	2,284	6,355	5,234	353	1,003	3,024	5,442	2,418
	1904	59	2,236	54	242	1,940	.....	3,212	247	640	2,189	3,878	1,689
	1899	52	.....	.....	120	1,528	.....	2,020	109	500	1,715	2,944	1,229
Selma.....	1909	35	974	28	133	813	2,686	1,722	115	349	1,595	2,382	787
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

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

STATISTICS OF MANUFACTURES—ALABAMA.

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.				16 and over.		Under 16.			
					Male.	Female.	Average number.	Number.		Male.	Female.	Male.	Female.			
								Maximum month.	Minimum month.							
1 All industries.....	3,398	81,972	3,769	2,829	2,836	390	72,148	No 77,854	Je 67,561	(1)	(1)	(1)	(1)	(1)	357,837	
2 Artificial stone.....	16	85	17	8	1	2	57	Oc 72	Mh 45	83	83				35	
3 Baskets, and rattan and willow ware.....	3	102	4	1		1	96	Je 181	Au 17	134	84	11	35	4	199	
4 Bread and other bakery products.....	83	773	94	18	59	28	574	No 634	Fe 527	618	464	122	26	6	334	
5 Brick and tile.....	71	1,500	56	67	19	5	1,353	Se 1,089	Fe 808	1,657	1,589		68		5,127	
6 Brooms.....	6	32	8	2	1		21	De 24	Au 18	23	21		2		13	
7 Canning and preserving.....	10	67	19	1		1	46	Au 136	Ja 4	195	33	112	22	28	51	
8 Carriages and wagons and materials.....	35	508	40	22	18	4	424	Oc 441	Au 402	431	421		10		991	
9 Cars and general shop construction and repairs by steam-railroad companies.....	21	6,610		70	219	13	6,308	Je 6,751	Je 6,007	6,751	6,737	6	8		4,928	
10 Cars and general shop construction and repairs by street-railroad companies.....	6	165		9	3	1	152	Ja 164	Jy 2	144	144				298	
11 Clothing, men's, including shirts.....	5	220	6	7	11	2	194	Mh 220	Jy 171	211	14	194	1	2	33	
12 Coke.....	35	2,800		83	120	17	2,580	No 2,899	Je 2,254	3,019	2,941		78		5,766	
13 Confectionery.....	9	166	10	5	9	4	133	Oc 173	Mh 123	157	129	21	7		174	
14 Cooperage and wooden goods, not elsewhere specified.....	4	100	3	6	2	3	86	Ja 93	Jy 2	91	88		3		240	
15 Copper, tin, and sheet-iron products.....	23	312	22	32	16	6	236	Se 268	Ja 202	236	225		11		33	
16 Cordage and twine and jute and linen goods.....	5	452		11	7	7	427	Ja 502	No 390	402	198	102	47	55	1,700	
17 Cotton goods, including cotton smallwares.....	51	13,041		184	110	16	12,731	De 13,061	My 12,539	13,282	6,668	4,125	1,281	1,208	42,637	
18 Fertilizers.....	42	1,473	12	89	129	10	1,233	Mh 2,785	Au 658	1,421	1,413		8		4,484	
19 Flour-mill and gristmill products.....	72	315	84	26	32	5	168	Ja 159	Ja 159	193	192		1		3,559	
20 Foundry and machine-shop products.....	102	6,462	67	191	269	37	5,898	No 6,529	Ap 5,234	6,580	6,470	1	109		9,859	
21 Furniture and refrigerators.....	5	69	4	4	3		58	De 67	Au 2	71	67		4		197	
22 Gas, illuminating and heating.....	13	403	4	40	90	10	259	Au 292	Fe 215	265	268				599	
23 Hosiery and knit goods.....	6	634		15	6	2	611	De 667	Je 560	645	156	312	60	117	750	
24 Ice, manufactured.....	45	469	26	67	27	6	343	Jy 517	De 193	339	333		6		6,117	
25 Iron and steel, blast furnaces.....	19	4,325		208	300	34	3,783	No 4,699	Je 3,318	4,513	4,483		30		106,189	
26 Leather goods.....	11	112	7	12	11	2	80	No 2	Je 83	84	76	3	4	1	97	
27 Lime.....	15	458	7	24	13	3	411	Se 427	Mh 391	444	436		8		723	
28 Lumber and timber products.....	1,819	25,927	2,387	654	440	37	22,409	De 24,390	Je 20,803	27,224	26,661	126	406	31	102,527	
29 Marble and stone work.....	25	427	29	21	18	1	358	Ja 414	Jy 329	352	352				787	
30 Mattresses and spring beds.....	9	105	5	9	6	3	82	De 99	Ap 2	99	78	15	6		111	
31 Oil, cottonseed, and cake.....	71	1,984	13	180	164	9	1,618	Oc 2,835	Jy 430	2,798	2,761	1	36		17,215	
32 Patent medicines and compounds and druggists' preparations.....	18	72	19	10	9	2	32	Se 36	Se 29	39	28	8	3			
33 Pottery, terra-cotta and fire-clay products.....	21	478	19	18	14	2	425	Oc 583	My 333	565	540		25		1,193	
34 Printing and publishing.....	274	1,955	299	163	307	69	1,117	De 1,162	Au 1,098	1,175	936	162	72	5	1,092	
35 Stoves and furnaces, including gas and oil stoves.....	10	407	2	31	9	4	361	Oc 397	Ja 329	375	368		7		542	
36 Tobacco manufactures.....	27	192	31	6	2		153	Je 160	Se 146	162	146	11	5			
37 Turpentine and rosin.....	175	3,965	255	128	62	1	3,519	Je 3,890	Ja 2,831	3,693	3,655		38		384	
38 All other industries 1.....	236	4,807	220	407	330	43	3,807								38,947	

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 None reported for one or more other months.

4 All other industries embrace—

Agricultural implements.....	3	Flavoring extracts.....	1	Photo-engraving.....	2
Awnings, tents, and sails.....	3	Food preparations.....	3	Roofing materials.....	4
Baking powders and yeast.....	1	Foundry supplies.....	1	Saws.....	4
Blacking and cleansing and polishing preparations.....	1	Glass, cutting, staining, and ornamenting.....	1	Shipbuilding, including boat building.....	4
Boxes, fancy and paper.....	2	Grease and tallow.....	1	Show cases.....	1
Brass and bronze products.....	3	Hand stamps and stencils and brands.....	1	Slaughtering and meat packing.....	4
Butter, cheese, and condensed milk.....	1	Hats and caps, other than felt, straw, and wool.....	1	Stationery goods, not elsewhere specified.....	1
Cars, steam-railroad, not including operations of railroad companies.....	1	Ink, writing.....	1	Surgical appliances and artificial limbs.....	1
Cement.....	2	Instruments, professional and scientific.....	1	Toys and games.....	1
Charcoal.....	17	Iron and steel, steel works and rolling mills.....	6	Upholstering materials.....	1
Coffee and spice, roasting and grinding.....	9	Iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills.....	1	Wall plaster.....	1
Coffins, burial cases, and undertakers' goods.....	3	Iron and steel forgings.....	1	Wire-work, including wire rope and cable.....	1
Cordials and sirups.....	4	Jewelry.....	1	Wood distillation, not including turpentine and rosin.....	2
Dyeing and finishing textiles.....	1	Leather, tanned, curried, and finished.....	1	Wood preserving.....	1
Electrical machinery, apparatus, and supplies.....	1	Looking-glass and picture frames.....	1	Wood, turned and carved.....	11
Explosives.....	2	Mineral and soda waters.....	114	Woolen, worsted, and felt goods, and wool hats.....	2
Flags and banners, regalia, society badges, and emblems.....	1	Models and patterns, not including paper patterns.....	2		
		Oil, not elsewhere specified.....	2		
		Paint and varnish.....	3		

STATISTICS OF MANUFACTURES—ALABAMA.

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.		
\$178,180,038	\$129,163,148	\$4,108,956	\$2,456,013	\$27,284,266	\$17,299,231	\$66,143,287	\$330,141	\$909,513	\$1,469,883	\$9,151,858	\$145,961,638	\$62,519,120
51,397	62,301	4,445	1,000	21,422	198	29,220	1,312	450	2,000	1,654	88,907	59,489
56,069	43,748	1,200	140	27,135	240	11,064		219		3,150	50,080	38,776
898,413	1,527,364	34,923	58,028	247,653	24,065	1,048,712	20,154	6,527		87,302	1,725,407	652,630
1,942,486	950,014	81,391	18,698	434,341	244,237	43,752	2,931	7,614		117,020	1,135,134	847,145
21,108	50,633	1,560	300	9,755	307	35,454	1,336	146		1,775	59,178	23,417
21,715	23,799	300	90	5,443	231	16,262	500	160		753	24,867	8,374
751,944	605,045	26,324	18,469	194,087	10,422	292,609	12,718	5,120	1,456	43,840	683,880	380,849
4,732,077	7,528,405	105,582	207,064	3,372,284	104,239	3,670,318	225	7,215	17,261	44,217	7,528,405	3,753,848
266,247	195,126	7,976	1,325	96,192	4,468	78,131		591		6,443	195,126	112,527
216,494	295,182	10,696	9,544	47,615	1,848	201,107	4,118	1,243		19,012	333,035	130,080
17,770,498	8,233,965	133,597	92,697	1,282,594	6,100,324	271,153	16,345	33,831		303,424	8,842,512	2,471,035
121,499	430,417	6,900	10,564	40,585	4,211	345,263	7,875	1,631		13,388	489,667	140,193
191,942	96,298	6,444	1,901	23,110	185	52,987	200	808		10,657	100,358	47,183
438,054	639,502	37,792	13,131	132,364	1,974	408,828	8,947	3,840		32,626	733,361	322,559
749,281	689,661	21,647	5,647	117,307	15,900	462,705	1,047	4,314		61,094	695,910	217,305
30,954,016	19,829,579	362,070	97,488	3,454,147	445,568	13,927,679		126,745	13,176	1,402,716	22,211,748	7,838,501
8,507,461	5,658,019	150,423	148,931	392,413	93,177	4,171,188	3,154	64,429	1,491	626,813	6,423,233	2,158,868
1,079,602	2,565,247	28,590	22,066	57,424	27,377	2,378,063	12,739	4,547	579	33,862	2,773,274	373,834
11,984,188	10,698,218	308,617	293,482	2,958,407	450,145	5,776,873	18,462	53,421	11,065	762,746	11,650,217	5,323,199
90,932	64,995	3,936	3,324	21,936	1,197	26,030	300	795	1,000	5,877	75,984	48,157
4,729,593	557,160	35,354	38,593	133,344	141,910	72,172		34,869	278	100,640	687,145	473,063
627,282	508,184	22,150	6,020	124,096	10,653	303,002	622	1,818		39,793	591,000	277,345
2,281,453	536,562	68,242	16,981	138,189	130,687	70,451	6,816	18,841	15	80,340	776,645	575,507
23,816,400	19,108,561	479,804	260,088	2,077,477	8,383,340	7,094,021	11,613	133,068	3,225	660,973	21,235,984	5,758,023
181,544	184,401	8,000	5,845	37,355	961	115,641	6,912	708	50	8,869	220,123	103,521
848,535	383,816	27,477	11,500	145,659	58,324	123,437	216	1,839		25,364	425,692	243,031
24,442,461	21,486,599	806,903	361,403	7,288,751	59,067	9,085,572	52,586	183,396	1,236,890	2,441,941	26,057,662	16,913,023
679,631	441,666	36,872	15,026	168,424	19,850	163,073	5,607	3,696	1,800	27,318	492,979	310,056
238,785	296,375	12,636	8,140	35,681	2,804	211,271	3,873	840		21,130	346,992	132,917
7,201,840	8,418,248	219,777	114,530	436,761	229,656	6,845,738	8,450	57,097	2,493	504,676	9,178,016	2,103,222
115,685	90,781	8,784	6,830	16,818	199	37,672	3,677	865	550	15,386	122,849	84,978
1,015,974	454,363	32,135	13,823	143,841	71,316	98,680		3,190		91,378	558,840	388,844
2,010,310	2,230,542	227,287	235,057	650,472	38,471	627,522	49,242	17,269	60,800	324,422	2,768,247	2,102,254
568,369	463,900	45,631	10,100	169,688	17,281	154,064		2,706	23,500	40,330	501,348	329,403
98,447	172,355	6,900	1,720	65,541	332	66,400	5,328	15,856	49	10,130	194,259	127,437
1,396,587	1,818,802	90,793	34,697	905,855	668	485,224		14,536	78,126	209,163	2,471,990	1,986,207
22,131,569	11,823,345	579,709	311,381	1,850,094	604,090	7,340,059	69,074	95,223	14,079	965,627	13,604,075	5,660,817

## MANUFACTURES : CALIFORNIA

## 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 California 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 California, 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 Los Angeles, Oakland, and San Francisco. 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 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 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 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. Statistics for custom gristmills are given in a separate table at the end of this report. Statistics can not be shown for custom sawmills without disclosing the operations of the one establishment reported.

### INDUSTRIES IN GENERAL.

**General character of the state.**—California, with a gross area of 158,297 square miles, of which 2,645 represent water surface, ranks second in size among the states of the Union. Its population in 1910 was 2,377,549, as compared with 1,485,053 in 1900 and 1,213,398 in 1890. In 1910 the density of population for the entire state was 15.3 per square mile, the corresponding figure for 1900 being 9.5. It ranked twelfth among the 49 states and territories as regards population in 1910 and twenty-first in 1900. Sixty-one and eight-tenths per cent of the entire population of the state resided in 1910 in cities and incorporated towns having a population of 2,500 or over, as against 52.4 per cent in 1900.

San Francisco, with a population of 416,912, Los Angeles, with 319,198, and Oakland, with 150,174, were the only cities in the state having over 50,000 inhabitants in 1910, but there were 18 other cities having a population of 10,000 or over. (See table on page 12.) These 21 cities contained 53.3 per cent of the total population of the state in 1910, and were credited with 55.7 per cent of the total value of its manufactured products in 1909. Only 8.5 per cent of the population of the state resided in incorporated places of between 2,500 and 10,000 inhabitants.

San Francisco Bay, which has an area of about 450 square miles, is by far the most important harbor of the state. On this bay are located the cities of San Francisco and Oakland, the former being the most important port on the Pacific coast. Los Angeles and San Diego, in southern California, are the ports of the state next in importance. Several trunk lines and local railways, which operated 7,529 miles of track in 1909,<sup>1</sup> furnish excellent transportation facilities by land, and the lower courses of the Sacramento and San Joaquin Rivers are available for transportation by water. These two rivers, together with numerous smaller rivers and many mountain streams in various parts of the state, afford abundant water power, some of which is transformed into electric energy which in some instances is transmitted over exceptionally long distances.

The natural resources of the state give rise to several of its leading industries, such as the lumber industry, canning and preserving, flour milling and gristmilling,

petroleum refining, the refining of beet sugar, the wine industry, and the manufacture of cement. The high cost of fuel, the greater part of which had to be brought from outside the state, retarded the early development of manufactures, but the discovery of an abundance of oil in the state, the development of the oil fields, and the utilization during recent years of electricity generated by water power have given a decided impetus to manufactures in California.

**Importance and growth of manufactures.**—Although agriculture and mining are the principal industries in California, the state shows a marked growth in manufactures during the last 40 years. The gross value of products per capita of the total population increased from \$119 in 1869 to \$223 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 advanced from 1.6 per cent to 2.6 per cent during the same time. California ranked sixteenth among the states in 1869 in gross value of manufactured products, but had advanced to eleventh place in 1909.

The table on page 4 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 California had 7,659 manufacturing establishments, which gave employment to an average of 141,576 persons during the year and paid out \$107,097,000 in salaries and wages. Of the persons employed, 115,296 were wage earners. These establishments turned out products to the value of \$529,761,000, to produce which materials costing \$325,238,000 were utilized. The value added by manufacture was thus \$204,523,000, which figure, as explained in the Introduction, best represents the net wealth created by manufacturing operations during the year.

The totals presented in this bulletin do not include the statistics for an establishment operated by the Federal Government—the United States navy yard, located at Mare Island. In 1909 this plant employed an average of 1,917 wage earners and the value of the work performed was \$4,335,000.

In general, this table brings out the fact that the manufacturing industries of California, in most respects, showed a higher rate of development during the

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

five-year period 1899-1904 than during the succeeding five-year period 1904-1909. During the period 1899-1904 the average number of wage earners increased 30 per cent, the value of products 42.7 per cent, and the value added by manufacture 63.8 per cent. For the later period, 1904-1909, the corresponding percent-

ages were 14.9, 44.3, and 35, respectively. 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 relating to 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	1904	1899	1904-1909	1899-1904
Number of establishments.....	7, 659	6, 839	4, 997	12.0	36.9
Persons engaged in manufactures.....	141, 576	120, 040	(1)	17.9	.....
Proprietors and firm members.....	8, 077	7, 402	(1)	9.1	.....
Salaried employees.....	18, 203	12, 283	6, 877	48.2	78.6
Wage earners (average number).....	115, 296	100, 355	77, 224	14.9	30.0
Primary horsepower.....	329, 100	210, 359	126, 953	56.4	65.7
Capital.....	\$537, 134, 000	\$282, 647, 000	\$175, 468, 000	90.0	61.1
Expenses.....	476, 154, 000	321, 928, 000	225, 404, 000	47.9	42.8
Services.....	107, 097, 000	79, 056, 000	47, 385, 000	35.5	66.8
Salaries.....	22, 955, 000	14, 399, 000	7, 495, 000	59.4	92.1
Wages.....	84, 142, 000	64, 657, 000	39, 890, 000	30.1	62.1
Materials.....	325, 238, 000	215, 726, 000	164, 894, 000	50.8	30.8
Miscellaneous.....	43, 819, 000	27, 146, 000	13, 125, 000	61.4	106.8
Value of products.....	529, 761, 000	367, 218, 000	257, 386, 000	44.3	42.7
Value added by manufacture (value of products less cost of materials).....	204, 523, 000	151, 492, 000	92, 492, 000	35.0	63.8

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

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

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

In addition to the 56 industries presented separately in the table, there are 24 other industries in the state which had a value of products in 1909 exceeding \$500,000.<sup>1</sup> These 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 interwoven with one or more other industries, and in still others because comparable statistics for prior census years are not available, or can not be presented on account of changes in classification. Of these 24 industries, those of special importance are the smelting and refining of lead, the refining of cane sugar, the smelting and refining of copper, the manufacture of beet sugar, the manufacture of explosives, and shipbuilding, including boat

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

Artificial flowers and feathers and plumes.  
Awnings, tents, and sails.  
Bags, other than paper.  
Baking powders and yeast.  
Beet sugar.  
Chocolate and cocoa products.  
Cordage and twine and jute and linen goods.  
Explosives.  
Glass.  
Glass, cutting, staining, and ornamenting.  
Iron and steel pipe, wrought.  
Lead, bar, pipe, and sheet.

Malt.  
Matches.  
Mineral and soda waters.  
Oil, not elsewhere specified.  
Roofing materials.  
Shipbuilding, including boat building.  
Smelting and refining, copper.  
Smelting and refining, lead.  
Soap.  
Sugar refining, not including beet sugar.  
Wirework, including wire rope and cable.  
Woolen, worsted, and felt goods, and wool hats.

building. The 1909 statistics, however, for the shipbuilding industry are given in Table II, page 34.

The most important industries listed in the table on page 5, in which they are arranged in the order of value of products, call for brief discussion in order to show the scope of the classifications where these are not on their face entirely clear, or to point out important facts in relation to the growth of the industries in the state.

*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 in custom sawing. The industry is the leading one in the state, giving employment in 1909 to 22,935 wage earners, or 19.9 per cent of the total for all manufacturing industries, and the value of its products amounted to \$45,000,000, or 8.5 per cent of the total. While the growth of the industry during the five-year period 1904-1909 was considerable, its development was much less rapid than during the earlier period, 1899-1904.

*Slaughtering and meat packing.*—This classification includes the wholesale slaughtering and meat-packing establishments and those engaged in the manufacture of sausage only. The animals slaughtered are largely cattle and sheep from the foothills and lower mountain slopes and from the plateau region of the northeastern part of the state and southeastern Oregon, conditions in these sections being very favorable to stock raising. About half of the stock slaughtered is raised within the state.<sup>1</sup> The fact that within recent years the meat packers have been able to overcome, through refrigera-

<sup>1</sup> California: Its Products, Resources, Industries, and Attractions, 1909, p. 95.

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tion, climatic difficulties which required the excessive use of salt in preserving meats has been an important factor in the growth of this industry. The total value of

products reported for the industry in 1909, \$34,280,000, represents an increase of \$18,463,000, or 116.7 per cent, as compared with the amount reported for 1899.

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.	A min t.	Per cent distribution.	Value of products.		Value added by manufacture.	
								1904-1909	1899-1904	1904-1909	1899-1904
All industries.....	7,659	115,296	100.0	\$529,761,000	100.0	\$204,523,000	100.0	44.3	42.7	35.0	63.8
Lumber and timber products.....	644	22,935	19.9	45,000,000	8.5	26,631,000	13.0	30.0	70.5	15.4	80.0
Slaughtering and meat packing.....	94	1,641	1.4	34,280,000	6.5	5,832,000	2.9	55.7	39.2	78.8	48.2
Canning and preserving.....	196	7,757	6.7	32,915,000	6.2	8,906,000	4.4	26.2	74.6	19.9	54.9
Foundry and machine-shop products.....	543	8,377	7.3	26,731,000	5.1	13,850,000	6.8	51.9	35.1	43.7	43.7
Flour-mill and gristmill products.....	125	948	0.8	25,188,000	4.8	3,296,000	1.6	24.7	54.9	7.3	51.9
Printing and publishing.....	1,240	7,556	6.6	25,032,000	4.7	18,705,000	9.1	30.9	80.7	28.1	83.0
Cars and general shop construction and repairs by steam-railroad companies.....	42	9,342	8.1	18,719,000	3.5	9,170,000	4.5	90.3	30.2	30.3	76.6
Petroleum, refining.....	29	930	0.8	17,878,000	3.4	3,980,000	1.9	211.0	723.6	146.0	677.0
Bread and other bakery products.....	864	4,018	3.5	17,710,000	3.3	7,333,000	3.6	66.8	117.7	50.8	115.8
Butter, cheese, and condensed milk.....	161	597	0.5	12,761,000	2.4	1,621,000	0.8	63.2	118.3	19.1	126.1
Leather, tanned, curried, and finished.....	40	1,398	1.2	9,367,000	1.8	2,328,000	1.1	16.0	9.0	7.8	35.3
Liquors, malt.....	83	1,296	1.1	9,319,000	1.8	6,760,000	3.3	24.1	47.7	28.5	38.2
Liquors, vinous.....	181	1,287	1.1	8,937,000	1.7	4,263,000	2.1	33.6	69.9	41.2	114.0
Gas, illuminating and heating.....	74	1,666	1.4	8,927,000	1.7	6,323,000	3.1	64.9	71.2	49.6	86.6
Copper, tin, and sheet-iron products.....	233	1,938	1.7	6,804,000	1.3	3,239,000	1.6	14.6	12.4	22.2	49.1
Cement.....	8	2,407	2.1	6,504,000	1.2	4,322,000	2.1	306.2	.....	361.3	.....
Coffee and spice, roasting and grinding.....	44	352	0.3	3,758,000	0.7	1,875,000	0.9	38.6	49.3	30.9	74.4
Food preparations.....	129	716	0.6	5,508,000	1.0	1,538,000	0.8	247.1	37.9	137.0	37.2
Liquors, distilled.....	33	1,093	0.2	5,353,000	1.0	4,518,000	2.2	359.5	389.5	471.9	1,580.9
Clothing, men's, including shirts.....	74	2,385	2.1	5,121,000	1.0	2,226,000	1.1	-2.2	11.0	-10.1	23.1
Furniture and refrigerators.....	129	1,653	1.4	4,496,000	0.9	2,638,000	1.3	58.6	123.5	70.9	125.7
Paint and varnish.....	35	396	0.3	3,758,000	0.7	1,106,000	0.5	58.6	88.2	59.8	118.3
Confectionery.....	89	1,002	0.9	3,624,000	0.7	1,486,000	0.7	3.4	95.9	-20.1	109.8
Iron and steel, steel works and rolling mills.....	5	1,035	0.9	3,520,000	0.7	1,172,000	0.6	136.4	65.3	65.1	80.2
Marble and stone work.....	128	1,415	1.2	3,380,000	0.6	2,197,000	1.1	41.1	113.5	58.1	84.4
Tobacco manufactures.....	332	1,465	1.3	3,360,000	0.6	2,143,000	1.0	5.3	69.1	2.3	82.7
Cars and general shop construction and repairs by street-railroad companies.....	21	1,962	1.6	3,069,000	0.6	1,857,000	0.9	145.0	.....	142.1	.....
Brick and tile.....	78	1,763	1.5	2,756,000	0.5	1,804,000	0.9	43.8	129.7	14.1	136.7
Agricultural implements.....	25	622	0.5	2,670,000	0.5	1,229,000	0.6	79.9	9.3	61.7	-7.2
Ice, manufactured.....	77	666	0.6	2,331,000	0.4	1,767,000	0.9	78.3	155.8	75.3	157.8
Fertilizers.....	15	226	0.2	2,313,000	0.4	517,000	0.3	158.7	33.2	37.9	99.5
Leather goods.....	88	710	0.6	2,294,000	0.4	1,148,000	0.6	5.6	24.8	3.1	40.7
Cooperage and wooden goods, not elsewhere specified.....	38	416	0.4	2,167,000	0.4	588,000	0.3	26.1	21.6	0.7	25.6
Mattresses and spring beds.....	35	528	0.5	2,164,000	0.4	921,000	0.4	114.3	144.0	72.1	190.8
Carriages and wagons and materials.....	155	760	0.7	2,052,000	0.4	1,203,000	0.6	-12.8	19.0	-19.8	25.0
Boots and shoes, including cut stock and findings.....	18	695	0.6	1,924,000	0.4	804,000	0.4	11.0	-6.9	9.5	-3.3
Pottery, terra-cotta, and fire-clay products.....	26	1,027	0.9	1,797,000	0.3	1,292,000	0.6	2.0	134.5	-5.4	178.6
Gas and electric fixtures and lamps and reflectors.....	41	559	0.5	1,715,000	0.3	965,000	0.5	.....	.....	.....	.....
Clothing, women's.....	64	791	0.7	1,672,000	0.3	799,000	0.4	-4.2	-11.9	-9.8	-9.4
Electrical machinery, apparatus, and supplies.....	27	435	0.4	1,613,000	0.3	685,000	0.3	60.7	80.0	20.2	189.3
Firearms and ammunition.....	5	156	0.1	1,577,000	0.3	410,000	0.2	102.2	19.6	51.9	67.7
Jewelry.....	58	574	0.5	1,557,000	0.3	893,000	0.4	7.6	108.8	16.7	161.1
Patent medicines and compounds and druggists' preparations.....	80	310	0.3	1,549,000	0.3	910,000	0.4	7.2	-7.5	-0.2	12.9
Automobiles, including bodies and parts.....	41	478	0.4	1,470,000	0.3	770,000	0.4	3,933.3	.....	3,247.8	.....
Chemicals.....	13	244	0.2	1,366,000	0.3	544,000	0.3	16.2	-45.5	28.3	-35.3
Gloves and mittens, leather.....	23	570	0.5	1,231,000	0.2	673,000	0.3	35.1	-1.1	48.9	-6.6
Sulphuric, nitric, and mixed acids.....	6	217	0.2	1,161,000	0.2	421,000	0.2	26.9	.....	32.0	.....
Babbitt metal and solder.....	5	52	(?)	1,120,000	0.2	273,000	0.1	55.3	30.9	108.4	50.6
Paper and wood pulp.....	4	312	0.3	969,000	0.2	529,000	0.3	51.2	.....	44.5	.....
Boxes, fancy and paper.....	19	624	0.5	965,000	0.2	523,000	0.3	84.2	59.3	84.8	45.1
Salt.....	19	402	0.3	746,000	0.1	504,000	0.2	73.9	12.9	63.1	17.5
Furnishing goods, men's.....	11	134	0.1	721,000	0.1	264,000	0.1	163.1	-58.2	146.7	-63.7
Brass and bronze products.....	29	195	0.2	679,000	0.1	384,000	0.2	-27.8	15.9	-38.0	50.6
Artificial stone.....	66	320	0.3	643,000	0.1	423,000	0.2	95.4	.....	112.6	.....
Lime.....	15	410	0.4	609,000	0.1	397,000	0.2	6.5	.....	3.4	.....
Stoves and furnaces, including gas and oil stoves.....	17	215	0.2	514,000	0.1	308,000	0.2	84.2	.....	70.2	.....
All other industries.....	976	14,341	12.4	131,833,000	24.9	33,285,000	16.3	.....	.....	.....	.....

<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.

*Canning and preserving.*—This classification includes the canning of fruits and vegetables, fish, oysters, clams, etc., the preparation of pickled, smoked, and dried fish, the packing of dried fruits by packing houses which make a specialty of such business, and the manufacture of pickles, preserves, jellies, sauces, etc., but

it does not include the drying and packing of fruits by the grower on the farm, nor does it include the canning of meats, soups, and similar products in meat-packing establishments (the statistics for which are included with those for the slaughtering and meat-packing industry). The climate of the state is especially

favorable to the growth of fruits of all kinds, and large quantities are canned, dried, and preserved for sale in the eastern and foreign markets. The canning, pickling, smoking, and drying of fish and the canning of oysters form comparatively unimportant branches of the industry. California far exceeds any other state in the value of products for this industry, the amount reported for 1909 being \$32,915,000, or 21 per cent of the total for the United States.

*Foundry and machine-shop products.*—This industry embraces, in addition to the general class of foundries and machine shops, establishments engaged in such special lines as the manufacture of gas machines and gas and water meters, hardware, plumbers' supplies, steam fittings and heating apparatus, and structural ironwork. It does not, however, include establishments which manufacture distinctive products covered by other classifications, such as cash registers and calculating machines, or electrical machinery, apparatus, and supplies. This industry ranked third among the manufacturing industries of the state in 1909 in number of wage earners, giving employment to 8,377, or 7.3 per cent of the total for all industries.

*Flour-mill and gristmill products.*—The statistics for all merchant mills grinding wheat, rye, buckwheat, corn, or other grains are included in this classification. It does not, however, include factories making fancy cereals or other food preparations as a chief product, or mills doing custom grinding exclusively, the statistics for the latter mills are presented separately on page 25. The industry shows an increase of \$12,143,000, or 93.1 per cent, in value of products during the decade 1899-1909.

*Printing and publishing.*—This classification includes job printing, the printing and publishing of books, newspapers and periodicals, and music, bookbinding, steel engraving, and lithographing. More establishments were reported for this industry in 1909 than for any other in the state. The 1,240 establishments reporting included 705 publishing newspapers and periodicals and 481 doing book and job work exclusively. The average number of wage earners employed in the newspaper and periodical branch of the industry was 3,650, and the value of products \$15,239,000; the average number of wage earners engaged in book and job work was 2,907, and the value of products \$7,438,000. These two branches of the industry together employed 86.8 per cent of the average number of wage earners and reported 90.6 per cent of the total value of products for the entire industry in 1909.

*Cars and general shop construction and repairs by steam-railroad companies.*—This industry represents the work done in the car shops operated by steam-railroad companies, but does not cover minor repairs in roundhouses. The operations consist almost exclusively of repairs to the rolling stock and equipment. It is seventh in importance, as measured by value of products, among the industries given in the table and

shows a remarkable development for the 10-year period. In 1909 the industry gave employment to an average of 9,342 wage earners, the second largest number reported for any manufacturing industry in the state, and the value of the work done amounted to \$18,719,000.

*Petroleum, refining.*—The recent development of the extensive oil fields of the state has made California the leading state of the Union in the production of crude petroleum. The refining of petroleum has made remarkable progress in the state during the last few years, the value of the products of the industry in 1909 being \$17,878,000, or over twenty-five times as great as in 1899, when it was only \$698,000.

*Butter, cheese, and condensed milk.*—This industry, which in California is confined chiefly to the manufacture of butter, has made marked progress during the past decade, the value of products increasing from \$3,583,000 in 1899 to \$12,761,000 in 1909, a gain of 256.2 per cent. The manufacture of cheese and condensed milk decreased materially during the period 1904-1909.

*Leather, tanned, curried, and finished.*—The tanning, currying, and finishing of leather did not become prominent in California until about 1861. From that time, however, it grew rapidly and since 1877 the local supply of hides and skins has not been large enough to satisfy the requirements of the industry, so that it has been necessary to supplement it by hides and skins brought in from other states or imported from foreign countries.<sup>1</sup> In 1879 there were 142 establishments in the state engaged in the leather industry, their total output being valued at \$6,193,573. Since that time the number of establishments has decreased, but, with the exception of a slight decrease during the first decade following 1879, the value of products has shown a substantial increase from census to census.

*Liquors, malt.*—This industry shows considerable growth for the decade, the gain both in value of products and in value added by manufacture being greater, however, for the five-year period 1899-1904 than for the following five-year period.

*Liquors, vinous.*—The extensive vineyards of California have placed this state far ahead of any other in the wine industry. In 1909 the value of products for the industry in the state, \$8,937,000, represented 68.1 per cent of the total for the United States, as compared with \$6,689,000, or 60.3 per cent, in 1904 and \$3,938,000, or 60.1 per cent, in 1899.

*Gas, illuminating and heating.*—The manufacture of gas is notable in California because of the extensive use of petroleum. On account of the lack of coal in the state, the product of the gas plants has been limited to the manufacture of carbureted water gas and oil gas. According to the statistics for 1909, the production of oil gas greatly exceeded that of carbureted water gas.

<sup>1</sup> The Commerce and Industries of the Pacific Coast, p. 189. History of California, Vol. VII, p. 91.

The total value of products reported for the industry in 1909 was \$8,927,000, an increase of \$5,765,000, or 182.3 per cent, over that for 1899.

*Cement.*—California has numerous beds of soft limestones and clay which are relatively low in magnesia and which are being utilized to a considerable extent for the manufacture of Portland cement. In 1904 there were four establishments engaged in the industry, employing 596 wage earners and reported products valued at \$1,601,000, while in 1909 the industry had increased to eight establishments, giving employment to an average of 2,407 wage earners and reporting a product valued at \$6,504,000. The counties in which the industry is most extensively carried on, named in order of importance, are Solano, Santa Cruz, and San Bernardino.

With the exception of the lumber industry, which holds first place on either basis, the rank of the industries shown separately in the preceding table in respect to value added by manufacture, differs considerably from their rank in value of products, which is the order in which they are arranged in the table. The printing and publishing industry ranks second among these industries in value added by manufacture, instead of slaughtering and meat packing, which falls to ninth place, while the foundry and machine-shop industry becomes third, instead of canning and preserving, which drops to fifth place. The steam-railroad repair shops rise from seventh place to fourth, the bakery industry from ninth to sixth, the brewery industry from twelfth to seventh, and the gas industry from fourteenth to eighth. On the other hand, the flour-mill and gristmill industry drops from fifth place to fourteenth, petroleum-refining from eighth to thirteenth, and the butter, cheese, and condensed-milk industry from tenth to twenty-fifth.

A number of industries, particularly the butter, cheese, and condensed-milk, flour-mill and gristmill, slaughtering and meat-packing, and petroleum-refining industries, have a much lower rank in value added by manufacture and in average number of wage earners than in value of products. This condition is due mainly to the comparatively simple processes of manufacture existing in these industries, as a result of which by far the greater proportion of the gross value of products represents the cost of materials, while the proportion representing wages, which usually constitute the principal factor in value added by manufacture, is relatively small.

The percentages of increase or decrease in value of products and value added by manufacture for the five-year periods 1904-1909 and 1899-1904 are given for each industry presented separately in the preceding table for which comparable statistics are shown separately in Table I, page 26.

The automobile industry, which in California had its beginning but a short time prior to the census of 1904, shows a much higher rate of increase in both respects

from 1904 to 1909 than any other of these industries, the value of products in 1909 being more than forty times as great and the value added by manufacture more than thirty-three times as great as in 1904. The distillery, cement, food-preparation, and petroleum-refining industries also show remarkable increases in both value of products and value added by manufacture during the same period.

The making of women's clothing is the only industry shown separately in the table for which decreases in both value of products and value added by manufacture are shown for both five-year periods. The manufacture of men's clothing, of carriages and wagons, and of brass and bronze products show decreases in both respects for the later five-year period, 1904 to 1909, while for the confectionery industry and the manufacture of pottery, terra-cotta, and fire-clay products and of patent medicines and compounds and druggists' preparations decreases in value added by manufacture only are shown for that period. In addition to the women's clothing industry, four others show decreases in both value of products and value added by manufacture for the earlier five-year period, 1899-1904, while one shows a decrease in value of products only and one a decrease in value added by manufacture only.

The value of products of the breweries and the distilleries includes a very large amount of Federal internal-revenue tax, and is, therefore, misleading as an indication of the importance of these industries from a purely manufacturing standpoint. In the case of the wine industry the amount of internal-revenue tax included is much smaller relatively than in the other two liquor industries, as no internal-revenue tax is imposed upon wine made from grapes grown by the manufacturer himself, or upon wine made from purchased grapes when it is sold at the place where it is made or at the general business office of the manufacturer. The establishments included in this industry also make considerable quantities of brandy, some of which is sold, in which case it is subject to the regular internal-revenue tax on distilled liquors; most of the brandy made, however, is used in fortifying the wine produced in the same establishment and is not subject to tax.

**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 141,576, of whom 115,296 were wage earners. Of the remainder, 13,640 were proprietors and officials, and 12,640 were clerks. Corresponding figures for individual industries will be found in Table II, page 34.

## MANUFACTURES—CALIFORNIA.

CLASS.	PERSONS ENGAGED IN MANUFACTURES.		
	Total.	Male.	Female.
All classes.....	141,576	123,929	17,647
Proprietors and officials.....	13,640	13,293	347
Proprietors and firm members.....	8,077	7,826	251
Salaries officers of corporations.....	2,103	2,036	67
Superintendents and managers.....	3,460	3,431	29
Clerks.....	12,040	9,672	2,368
Wage earners (average number).....	115,296	100,964	14,332
16 years of age and over.....	114,236	100,218	14,018
Under 16 years of age.....	1,000	746	314

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 20 important industries individually.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	141,576	9.6	8.9	81.4
Bread and other bakery products.....	5,801	21.2	9.6	69.3
Butter, cheese, and condensed milk.....	918	22.8	12.2	65.0
Canning and preserving.....	8,714	5.0	6.0	89.0
Cars and general shop construction and repairs by steam-railroad companies.....	9,688	0.7	2.8	96.4
Cement.....	2,521	1.0	3.6	95.5
Clothing, men's, including shirts.....	2,859	11.3	5.3	83.4
Coffee and spice, roasting and grinding.....	707	11.0	39.2	49.8
Copper, tin, and sheet-iron products.....	2,511	17.0	5.8	77.2
Flour-mill and gristmill products.....	1,392	14.9	17.0	68.1
Food preparations.....	1,108	23.1	12.3	64.6
Foundry and machine-shop products.....	10,218	9.8	8.2	82.0
Gas, illuminating and heating.....	2,538	6.7	27.7	65.6
Leather, tanned, curried, and finished.....	1,547	5.8	3.8	90.4
Liquors, distilled.....	264	17.8	9.1	73.1
Liquors, malt.....	1,626	10.5	7.0	79.7
Liquors, vinous.....	1,631	16.9	3.8	76.1
Lumber and timber products.....	25,079	4.8	3.8	91.5
Petroleum, refining.....	1,146	6.1	12.7	81.2
Printing and publishing.....	12,235	14.8	23.4	61.0
Slaughtering and meat packing.....	2,135	10.1	13.0	76.0
All other industries.....	46,898	11.4	8.5	80.1

Of the total number of persons engaged in all manufacturing industries, 9.6 per cent were proprietors and officials, 8.9 per cent clerks, and 81.4 per cent wage earners. In the bakery and the butter, cheese, and condensed-milk industries, and in the manufacture of food preparations, the majority of the establishments are comparatively small and the work is to a large extent done by the proprietors or their immediate representatives, so that the proportion of the 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. The smallest proportions shown for this class are for the steam-railroad repair shops and the cement industry, owing principally to the large number of wage earners employed per establishment in these industries.

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

INDUSTRY.	Average number.	WAGE EARNERS.		
		Per cent of total.		Under 16 years of age.
		16 years of age and over.	Male.	
All industries.....	115,296	86.9	12.2	0.9
Bread and other bakery products.....	4,018	80.3	18.8	0.9
Butter, cheese, and condensed milk.....	597	93.8	6.2	.....
Canning and preserving.....	7,757	41.4	56.3	2.2
Cars and general shop construction and repairs by steam-railroad companies.....	9,342	100.0	.....	(?)
Cement.....	2,407	99.9	.....	0.1
Clothing, men's, including shirts.....	2,385	17.4	82.4	0.2
Coffee and spice, roasting and grinding.....	352	62.8	36.6	0.6
Copper, tin, and sheet-iron products.....	1,538	94.4	5.2	0.4
Flour-mill and gristmill products.....	948	97.9	2.1	.....
Food preparations.....	716	68.0	31.7	0.3
Foundry and machine-shop products.....	8,377	90.3	0.2	0.3
Gas, illuminating and heating.....	1,666	100.0	.....	.....
Leather, tanned, curried, and finished.....	1,398	99.7	.....	0.3
Liquors, distilled.....	193	86.5	13.5	.....
Liquors, malt.....	1,296	100.0	.....	.....
Liquors, vinous.....	1,287	98.8	1.2	.....
Lumber and timber products.....	22,935	99.2	0.6	0.2
Petroleum, refining.....	930	99.9	0.1	.....
Printing and publishing.....	7,556	81.9	15.7	2.4
Slaughtering and meat packing.....	1,641	97.4	1.8	0.8
All other industries.....	37,557	85.2	13.3	1.4

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

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

For all industries combined, 86.9 per cent of the average number of wage earners were males 16 years of age and over; 12.2 per cent females 16 years of age and over; and nine-tenths of 1 per cent children under the age of 16. A majority of the adult female wage earners were employed in the canning and preserving, men's clothing, and printing and publishing industries. Females 16 years of age or over formed a larger proportion (82.4 per cent) of the wage earners in the men's clothing industry than in any other important industry in the state. In the women's clothing industry slightly more than two-thirds of the wage earners belonged to this class, while in the manufacture of fancy and paper boxes and the confectionery industry the proportion exceeded three-fifths, and in the canning and preserving industry and the manufacture of leather gloves and mittens it exceeded one-half.

The canning and preserving and the printing and publishing industries, which were the only ones giving employment to an average of more than 100 wage earners under 16 years of age, together employed about one-third of the total number of such wage earners in all manufacturing industries of the state. The proportions which children formed of the total number of wage earners in these industries were also relatively high (2.2 per cent and 2.4 per cent, respec-

tively), although both were exceeded by that in the boot and shoe industry (5.6 per cent) and by those in other industries in which the actual number of children employed was small.

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.....	141,576	100.0	120,040	100.0	17.9
Proprietors and firm members.....	8,077	5.7	7,402	6.2	9.1
Salaried employees.....	18,203	12.9	12,283	10.2	48.2
Wage earners (average number).....	115,296	81.4	100,355	83.6	14.9

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

The table in the next column 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.)

The table shows that for all industries combined the proportion of wage earners under 16 years of age was decidedly less in 1909 than in 1899, the actual number

of such employees having decreased 42.5 per cent during this period. The proportion of adult female wage earners was less in 1904 than in 1899, and in 1909 than in 1904, although the actual number increased from 1899 to 1904 and was practically the same in 1909 as in 1904. Males 16 years of age and over formed 86.9 per cent of all wage earners in 1909, as compared with 84.4 per cent in 1904 and 79.7 per cent in 1899.

CLASS.	AVERAGE NUMBER OF WAGE EARNERS.					
	1909		1904		1899	
	Number.	Percent distribution.	Number.	Percent distribution.	Number.	Percent distribution.
Total.....	115,296	100.0	100,355	100.0	77,224	100.0
16 years of age and over.....	114,236	99.1	98,772	98.4	75,382	97.6
Male.....	100,218	86.9	84,688	84.4	61,574	79.7
Female.....	14,018	12.2	14,034	14.0	13,803	17.9
Under 16 years of age.....	1,060	0.9	1,583	1.6	1,842	2.4

Wage earners employed, by months.—The following table gives the number of wage earners employed on the 15th of each month during the year 1909, for all industries combined, for the canning and preserving and lumber industries, and for all other industries combined; it gives also the percentage which the number reported for each month is of the greatest number reported for any month. In Table II, page 34, are shown, for the majority of the important industries in the state, the largest number and also the smallest number of wage earners reported for any month. The figures are for the 15th day, or the nearest representative day, of the month. The wage earners for the lumber industry are divided in the table below in such a manner as to show separately the number engaged in the mills and in the logging operations.

MONTH.	WAGE EARNERS.											
	All industries.		Canning and preserving.		Lumber and timber products.					All other industries.		
	Number.	Per cent of maximum.	Number.	Per cent of maximum.	Total.		In mills.		In logging operations.		Number.	Per cent of maximum.
January.....	94,747	71.6	2,854	17.8	14,401	49.7	12,150	63.5	2,251	22.8	77,492	85.1
February.....	94,252	71.3	2,781	17.3	14,441	49.8	12,074	63.1	2,367	24.0	77,030	84.6
March.....	100,372	75.9	2,870	17.9	16,825	58.0	12,793	66.8	4,032	40.9	80,677	88.6
April.....	108,437	82.0	3,878	24.2	21,853	75.4	15,014	78.4	6,839	69.4	82,706	90.8
May.....	115,839	87.6	5,063	31.6	26,755	92.3	17,525	91.5	9,230	93.7	84,021	92.3
June.....	119,911	90.6	6,808	42.4	28,533	98.4	18,681	97.6	9,852	99.9	84,570	92.9
July.....	124,886	94.4	11,567	72.1	28,986	100.0	19,131	99.9	9,855	100.0	84,333	92.6
August.....	131,202	99.2	16,047	100.0	28,961	99.9	19,148	100.0	9,813	99.6	86,104	94.6
September.....	132,280	100.0	14,781	92.1	27,932	96.4	18,833	98.4	9,099	92.3	89,567	98.3
October.....	129,864	98.2	12,952	80.7	25,835	89.1	17,990	94.0	7,845	79.6	91,077	100.0
November.....	121,480	91.8	8,951	55.8	23,807	78.7	16,897	88.2	5,910	60.0	89,728	98.5
December.....	110,281	83.4	4,542	28.3	17,894	61.7	14,795	77.3	3,099	31.4	87,845	96.5

Canning and preserving is a seasonal industry, giving employment to a large number of persons in July, August, September, and October, and to a comparatively small number during most of the other months of the year. The number of wage earners

employed in the industry varied from 2,781 in February to 16,047 in August. The variation of employment in the lumber industry was not so great, but as this industry employed a much larger average number of wage earners than the canning and preserving indus-

try it exerted a greater influence upon the total number of wage earners employed in all manufacturing industries in the state. The number reported for this industry in January, the month of minimum employment, was 14,585 less than the number shown for July, the month of maximum employment, the variation in this one industry representing nearly one-half of the total variation between the numbers employed during these months in all industries combined. There are other seasonal industries in the state not shown in the table, because the numbers of wage earners employed are too small to affect the totals materially. In the manufacture of beet sugar the maximum, 3,420, was reported for September and

the minimum, 772, for February, while in the production of vinous liquors the greatest number, 2,868, was employed in October and the smallest, 793, in June.

**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.....	115,296	22,765	9,652	34,674	6,068	31,167	7,125	386	2,919
Agricultural implements.....	622	2		584		20	16		
Artificial stone.....	320	191	19	110					
Automobiles, including bodies and parts.....	478	42	8	261		166	1		
Babbitt metal and solder.....	52		13	15		24			
Boots and shoes, including cut stock and findings.....	695			641		35	19		
Boxes, fancy and paper.....	624	50	171	397					
Brass and bronze products.....	195	19	113	25	35	3			
Bread and other bakery products.....	4,018	413	55	1,652	644	1,011	278	33	
Brick and tile.....	1,703	186		1,410		72	10		
Butter, cheese, and condensed milk.....	597	58	11	56	85	120	244	5	
Canning and preserving.....	7,757	332	53	428	147	6,083	514	46	14
Carriages and wagons and materials.....	760	270	48	327	40	72		3	
Cars and general shop construction and repairs by steam-railroad companies.....	9,342	76		7,761	12	1,461	32		
Cars and general shop construction and repairs by street-railroad companies.....	1,902	36	291	1,187	311	49	28		
Cement.....	2,407	1			212		1,986		28
Chemicals.....	244	1		24		160			59
Clothing, men's, including shirts.....	2,385	1,327	721	178		124	35		
Clothing, women's.....	791	328	109	187	1	143	23		
Coffee and spice, roasting and grinding.....	352	53	63	183	10	43			
Confectionery.....	1,002	119	156	489	147	74	17		
Cooperage and wooden goods, not elsewhere specified.....	416	36	37	301		22	20		
Copper, tin, and sheet-iron products.....	1,038	1,138	100	256	366	18			
Electrical machinery, apparatus, and supplies.....	435	133	75	109	27	1			
Fertilizers.....	226	8	1	97	12	84	24		
Firearms and ammunition.....	156	9		46	101				
Flour-mill and gristmill products.....	948	117	71	77	53	371	255	4	
Food preparations.....	716	100	45	137	100	307	27		
Foundry and machine-shop products.....	8,377	1,326	2,774	2,536	1,218	414	59		
Furnishing goods, men's.....	134	58	43	33					
Furniture and refrigerators.....	1,653	835	30	662	89	37			
Gas and electric fixtures and lamps and reflectors.....	553	246	23	284					
Gas, illuminating and heating.....	1,666	127	7		965	4	533	8	
Gloves and mittens, leather.....	570	188	340						
Ice, manufactured.....	666	32		42	102	256	131	1	
Iron and steel, steel works and rolling mills.....	1,038		348	69	170	442			
Jewelry.....	574	35	80	379	25	12	25		
Leather goods.....	710	36	68	584	5	17		25	
Leather, tanned, curried, and finished.....	1,398	2	67	1,193	116	20			
Limewater.....	410	6		94	1	127	182		
Liquors, distilled.....	193			111	5	67	8	2	
Liquors, malt.....	1,296	1,215		21	41	10	3	4	
Liquors, vinous.....	1,287	33	4	306	215	387	318	23	
Lumber and timber products.....	22,935	3,859	68	2,709	228	14,732	1,324	15	
Marble and stone work.....	1,415	1,022	23	93	223	34	20		
Mattresses and spring beds.....	528	249	75	204					
Paint and varnish.....	366	28	27	285	55	1			
Paper and wood pulp.....	312					181	116	15	
Patent medicines and compounds and druggists' preparations.....	310	118	117	66		9			
Petroleum, refining.....	930	25		485	31	18	64	22	
Pottery, terra-cotta, and fire-clay products.....	1,027	18		660		250	99		
Printing and publishing.....	7,555	5,485	1,038	778	119	119	17		
Salt.....	402			64		289	1	48	
Slaughtering and meat packing.....	1,641	55	37	455		1,029	47	6	
Stoves and furnaces, including gas and oil stoves.....	215	81	42	92					
Sulphuric, nitric, and mixed acids.....	217			100		35	82	2	
Tobacco manufactures.....	1,465	1,018	152	87		182	25	1	
All other industries.....	14,341	1,617	2,069	5,276	1,048	1,974	542	148	1,660

It is evident from these figures that for the majority of wage earners employed in the manufacturing industries of California the usual hours of labor ranged from 54 to 60 a week; 28.1 per cent of the total were, however, employed in establishments where a week of less than 54 hours prevailed, and 8.8 per cent in establishments where the prevailing hours were more than 60 a week.

In a number of industries, conspicuous among which are the tanning, currying, and finishing of leather, the brick and tile industry, and the steam-railroad repair shops, the employment was mainly confined to a week of 54 hours. More than three-fourths of the wage earners

in the canning and preserving industry and more than three-fifths of those in the lumber and slaughtering and meat-packing industries, however, were employed in plants where 60 hours constitute a week's work, while over nine-tenths of the wage earners employed in the breweries and nearly three-fourths of those employed in the printing and publishing industry and in marble and stone work were in establishments where the prevailing hours were 48 or less per week.

**Location of establishments.**—The following table shows the extent to which the manufactures of California are centralized in cities of 10,000 inhabitants or over. (see Introduction.)

ITEM.	Year.	Aggregate.	CITIES HAVING A POPULATION OF 10,000 AND OVER.								DISTRICTS OUTSIDE OF CITIES HAVING A POPULATION OF 10,000 AND OVER.	
			Total.		10,000 to 25,000.		25,000 to 100,000.		100,000 and over.		Number or amount.	Per cent of total.
			Number or amount.	Per cent of total.	Number or amount.	Per cent of total.	Number or amount.	Per cent of total.	Number or amount.	Per cent of total.		
Population.....	1910	2,377,549	1,266,930	53.3	196,701	8.3	183,945	7.7	886,284	37.3	1,110,619	46.7
	1900	1,485,053	640,357	43.1	98,854	6.7	96,242	6.5	445,261	30.0	844,096	56.9
Number of establishments.....	1909	7,659	4,881	63.7	666	8.7	653	8.5	3,562	46.5	2,778	36.3
	1899	4,997	2,967	59.4	379	7.6	306	6.1	2,282	45.7	2,030	40.6
Average number of wage earners.	1909	115,206	69,599	60.4	8,525	7.4	8,508	7.5	52,476	45.5	45,697	39.6
	1899	77,224	47,953	62.1	4,063	5.3	6,162	8.0	37,728	48.9	29,271	37.9
Value of products.....	1909	\$529,760,528	\$294,851,479	55.7	\$40,393,144	7.6	\$30,488,066	5.8	\$223,970,269	42.3	\$234,909,049	44.3
	1899	257,385,521	151,245,681	58.8	14,225,927	5.5	14,862,891	5.8	122,157,263	47.5	108,139,840	41.2
Value added by manufacture....	1909	204,522,454	125,929,111	61.6	14,791,657	7.2	14,144,347	6.9	96,933,107	47.4	78,593,343	38.4
	1899	92,491,252	60,571,549	65.5	5,223,451	5.6	6,814,012	7.4	48,534,086	52.5	31,919,703	34.5

In 1909, 55.7 per cent of the total value of manufactured products was reported from cities having over 10,000 inhabitants, and 60.4 per cent of the average number of wage earners in manufacturing industries were employed in such cities. The figures indicate that there has been a considerable decrease during the last 10 years in the relative industrial importance of this class of cities, largely on account of the rapid growth of the lumber and petroleum-refining industries, which are mainly carried on outside of cities of this size, and also in part because of the setback given to the manufacturing industries of San Francisco by the earthquake and fire of 1906.

As a result of the increase during the decade in the population of certain cities, the composition of the groups shown in the table differs considerably for the two censuses. For 1909 the group of cities having over 100,000 inhabitants comprises San Francisco, Los Angeles, and Oakland; in 1900, however, the population of Oakland was less than 100,000, so that for 1899 it is included in the group made up of cities having between 25,000 and 100,000 inhabitants. Berkeley, San Diego, and San Jose, which for 1909 are included in this latter group, had less than 25,000 inhabitants in 1900, and for 1899, therefore, their statistics are included with those for the cities having between 10,000 and 25,000 inhabitants. Pasadena, which for 1909 is included in the group of cities having between 25,000 and 100,000 inhabitants, and Long Beach, Riverside, San Bernardino, Bakersfield,

Eureka, Santa Barbara, Vallejo, Santa Cruz, Redlands, and Pomona, which are included in the group comprising cities having between 10,000 and 25,000 inhabitants, all had less than 10,000 inhabitants in 1900, so that for 1899 their statistics are not included with those for incorporated places of this size. The total value of products in 1909 for the 11 cities last mentioned was \$16,623,644, representing 3.1 per cent of the total for the state. The cities having a population of over 10,000 in 1900 thus reported only 52.6 per cent of the total value of manufactured products in 1909, as compared with 58.8 per cent in 1899, showing that the growth of the manufacturing industries in these cities has not kept pace with that of the industries in the remainder of the state.

A somewhat larger proportion of the total number of wage earners in manufacturing industries, value of manufactured products, and value added by manufacture was reported in 1909 from cities having between 10,000 and 25,000 inhabitants than in 1899. The proportions of the total number of wage earners and value added by manufacture reported from cities having between 25,000 and 100,000 inhabitants, on the other hand, were slightly smaller, while the proportion of the total value of manufactured products reported from such cities was the same in both years. The cities having a population of over 100,000 show a considerable decrease in their proportion of the totals for each of these three items, which was doubtless due in considerable measure to the disastrous

effects of the earthquake and fire of 1906 in San Francisco. The addition of Oakland to these cities in 1909 and the rapid growth of the manufacturing industries of Los Angeles were, however, sufficient to counterbalance the actual losses sustained by San Francisco between 1904 and 1909, so that the absolute figures for this class of cities show marked increases in 1909 as compared with 1899. Of the total value of products shown for the state in 1909, 7.6 per cent was reported from the 13 cities having between 10,000 and 25,000 inhabitants; 5.8 per cent from the 5 cities having between 25,000 and 100,000 inhabitants; and 42.3 per cent from the 3 cities having over 100,000 inhabitants.

The population in 1910 and 1900 of the 21 cities which had 10,000 inhabitants or over in 1910 is given in the following tabular statement:

CITY.	1910	1900	CITY.	1910	1900
San Francisco.....	416,912	342,782	Long Beach.....	17,809	2,252
Los Angeles.....	319,198	102,479	Riverside.....	15,212	7,973
Oakland.....	150,174	66,960	San Bernardino...	12,779	6,150
Sacramento.....	44,696	29,282	Bakersfield.....	12,727	4,836
Berkeley.....	40,434	13,214	Eureka.....	11,845	7,327
San Diego.....	39,578	17,700	Santa Barbara...	11,659	9,587
Pasadena.....	30,291	9,117	Vallejo.....	11,340	7,965
San Jose.....	25,940	21,500	Santa Cruz.....	11,146	5,659
Fresno.....	21,892	12,470	Redlands.....	10,449	4,797
Alameda.....	23,383	16,464	Pomona.....	10,207	5,526
Stockton.....	23,253	17,506			

The relative industrial importance of each of the foregoing cities is shown in the following table, in which the value of products and the average number of wage earners are shown separately for 1909, 1904, and 1899, so far as comparative figures are available:

CITY.	AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS.		
	1909	1904	1899	1909	1904	1899
San Francisco.....	28,244	38,429	32,555	\$133,041,069	\$137,788,233	\$107,023,567
Los Angeles.....	17,327	10,424	5,173	68,586,274	34,814,475	15,139,696
Oakland <sup>1</sup> .....	6,905	3,353	2,476	22,342,926	9,014,705	5,369,258
Sacramento.....	4,514	4,203	3,686	13,976,911	10,072,893	9,494,533
Stockton.....	1,594	1,333	1,185	11,849,252	8,029,490	5,525,391
Fresno <sup>1</sup> .....	1,938	1,915	819	11,090,195	9,753,632	2,752,201
San Jose <sup>1</sup> .....	1,430	1,200	1,221	5,610,427	4,298,216	3,293,641
San Diego.....	1,071	541	255	4,740,990	1,974,430	869,682
Berkeley.....	1,084	398	311	4,435,374	1,473,888	651,286
Eureka.....	946	(2)	(2)	3,011,682	(2)	(2)
Bakersfield.....	746	(2)	(2)	2,818,744	(2)	(2)
Alameda.....	915	279	372	2,554,417	696,761	1,335,326
Vallejo.....	203	(2)	(2)	1,895,562	(2)	(2)
Pasadena.....	499	318	177	1,724,364	966,695	330,578
San Bernardino...	729	(2)	(2)	1,659,705	(2)	(2)
Riverside.....	267	(2)	(2)	1,177,962	(2)	(2)
Santa Barbara...	265	(2)	(2)	1,169,195	(2)	(2)
Santa Cruz.....	274	(2)	(2)	1,161,269	(2)	(2)
Long Beach.....	277	(2)	(2)	927,180	(2)	(2)
Pomona.....	224	(2)	(2)	559,661	(2)	(2)
Redlands.....	147	(2)	(2)	518,320	(2)	(2)

<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.

With the single exception of San Francisco, every city for which comparative statistics are presented shows an increase in value of products from 1904 to 1909, while all except Alameda show an increase from 1899 to 1904. The greatest relative gain from 1904 to 1909, 266.6 per cent, was made by Alameda, and was due in part to the establishment there of foundries and machine shops as a new industry, to the increased output of the planing mills, and to greater activity in

the shipbuilding industry. The next largest relative increase, 200.9 per cent, is that reported for Berkeley, which was the result mainly of the increased output of its foundries and machine shops, bakeries, and planing mills, the increased production of coconut oil and the establishment of new industries, such as the manufacture of fertilizers, the refining of petroleum, and the canning and preserving industry. The remarkable increases shown for Alameda and Berkeley and also for Oakland are doubtless due largely to the influx of population and business from San Francisco following the earthquake in 1906. The greatest gains shown for the decade 1899-1909 are those of 607.9 per cent for San Diego and 581 per cent for Berkeley. San Francisco shows a decrease of 3.4 per cent in 1909 as compared with 1904, indicating that the city had not yet recovered from the effects of the earthquake and fire of April, 1906; owing, however, to the gain from 1899 to 1904, the figures for 1909 represent an increase of 24.3 per cent as compared with 1899.

In 1909 San Francisco reported 25.1 per cent of the total value of products and 24.5 per cent of the average number of wage earners for all manufacturing industries in the state. The corresponding proportions for 1899 were 41.6 per cent and 42.2 per cent, respectively. Measured by value of products, San Francisco held sixteenth place among the manufacturing cities of the United States in 1909, thirteenth in 1904, and twelfth in 1899. The effect of the earthquake and fire of 1906 upon the manufacturing industries of the city is indicated to some extent by the next table, which shows for the 15 leading industries presented separately in Table I the value of products in 1909 and 1904, with the percentage which it formed of the total for the industry in the state, the percentage of increase or decrease in 1909 as compared with 1904, and the rank of the industry in the city in value of products in each year.

Six of the 15 industries included in the table show decreases in value of products in 1909 as compared with 1904, the largest decrease, 23.4 per cent, or nearly one-fourth, being in the men's clothing industry, although an even larger decrease, 65.5 per cent, was reported for the paint and varnish industry, which is not shown in the table. The roasting and grinding of coffee and spice, the tanning, currying, and finishing of leather, the furniture and refrigerator industry, and the manufacture of food preparations are the only industries showing any considerable increase. In the case of all of the industries shown in the table, with the exception of the tanning, currying, and finishing of leather and the furniture and refrigerator industry, the value of products reported from San Francisco represented a smaller proportion of the state total in 1909 than in 1904, the difference in some cases being considerable. Of the total value of products for the men's clothing industry, for example,

only 71.9 per cent was reported from this city in 1909, as compared with 91.7 per cent in 1904. Changes have also occurred in the ranking of the different industries shown in the table, on the basis of value of products, although the printing and publishing industry was first in both years. The foundry and machine-shop and the slaughtering and meat-packing industries, which ranked second and third, respectively, in 1904, had changed places in 1909, mainly as the result of the decrease shown for the former industry. The men's clothing industry, which ranked fifth in 1904, had dropped to eighth place in 1909, while the manufacture of copper, tin, and sheet-iron products dropped from seventh place in 1904 to ninth in 1909, and the brewery industry from eighth in 1904 to eleventh in 1909. On the other hand, the rank of the roasting and grinding of coffee and spice, the lumber industry, the tanning, currying, and finishing of leather, and the manufacture of furniture and refrigerators was higher in 1909 than in 1904.

reflected in the increases in value of products reported for such industries as the manufacture of artificial stone (268.3 per cent), the structural-ironwork branch of the foundry and machine-shop industry (129.8 per cent), and the planing-mill branch of the lumber industry (18.7 per cent).

The value of products of the manufacturing industries of Los Angeles increased \$33,771,799, or 97 per cent, from 1904 to 1909, the absolute increase being greater than that reported for any other city in the state. The increase for the decade as a whole was 353.2 per cent. Of the total value of manufactures for the state in 1909, 12.9 per cent was reported from this city. The average number of wage earners in the manufacturing industries of the city shows an increase of 66.2 per cent from 1904 to 1909 and 235 per cent for the decade. The leading industries of the city are shown in the following table, which gives the value of products reported for each industry in 1909, together with the percentage which it formed of the total for the industry in the state and the percentage of increase as compared with 1904:

INDUSTRY.	VALUE OF PRODUCTS.					BANK. <sup>1</sup>	
	1909		1904		Per cent of increase, 1904-1909. <sup>2</sup>	1909	1904
	Amount.	Per cent of total for state.	Amount.	Per cent of total for state.			
Printing and publishing.....	\$12,201,000	48.7	\$10,847,000	56.7	12.5	1	1
Slaughtering and meat packing.....	10,270,000	30.0	9,209,000	41.8	11.5	2	3
Foundry and machine-shop products.....	9,622,000	36.0	10,525,000	59.8	-8.6	3	2
Bread and other bakery products.....	5,268,000	29.7	4,882,000	46.0	7.9	4	4
Coffee and spice, roasting and grinding.....	4,973,000	70.6	3,980,000	85.0	24.9	5	10
Canning and preserving.....	4,776,000	14.5	4,636,000	17.8	3.0	6	6
Lumber and timber products.....	4,378,000	9.7	3,980,000	11.5	10.0	7	9
Clothing, men's, including shirts.....	3,682,000	71.9	4,804,000	91.7	-23.4	8	5
Copper, tin, and sheet-iron products.....	3,645,000	53.6	4,529,000	76.3	-19.5	9	7
Leather, tanned, curried, and finished.....	3,622,000	38.7	2,718,000	33.7	33.3	10	12
Liquors, malt.....	3,482,000	37.4	4,106,000	54.7	-15.2	11	8
Furniture and refrigerators.....	3,057,000	68.0	1,836,000	64.8	66.5	12	14
Flour-mill and gristmill products.....	2,781,000	11.0	3,423,000	16.9	-18.8	13	11
Food preparations.....	2,436,000	44.2	990,000	62.9	143.8	14	15
Tobacco manufactures.....	1,833,000	54.6	2,028,000	63.5	-9.6	15	13

INDUSTRY.	VALUE OF PRODUCTS.		
	Amount.	Per cent of state total.	Per cent of increase over 1904.
Foundry and machine-shop products.....	\$7,777,000	29.1	118.0
Slaughtering and meat packing.....	7,464,000	21.8	84.8
Lumber and timber products.....	5,684,000	12.6	110.5
Flour-mill and gristmill products.....	5,347,000	21.2	91.0
Printing and publishing.....	5,192,000	20.7	48.0
Bread and other bakery products.....	4,670,000	26.4	167.8
Cars and general shop construction and repairs by steam-railroad companies.....	3,362,000	18.0	116.0
Liquors, malt.....	1,457,000	15.6	82.6
Butter, cheese, and condensed milk.....	1,417,000	11.1	109.3
Petroleum, refining.....	1,406,000	7.9	205.0
Canning and preserving.....	1,255,000	3.8	52.9
Coffee and spice, roasting and grinding.....	1,150,000	17.7	131.4
Copper, tin, and sheet-iron products.....	1,124,000	16.5	118.2

The rapid growth of the manufacturing industries of the city is brought out clearly by the fact that in eight out of the thirteen industries included in the table the value of products more than doubled during the five-year period.

Oakland ranks third among the cities of the state in value of manufactured products, showing an increase in that respect of \$13,328,221, or 147.8 per cent, from 1904 to 1909 and \$16,974,668, or 316.2 per cent, from 1899 to 1909. The leading industries of the city were bakeries, canning and preserving, the manufacture of cordage and twine, foundries and machine shops, the gas industry, the lumber industry, printing and publishing, steam-railroad repair shops, and steel works and rolling mills. The increase in the industrial importance of the city during the five-year period 1904-1909 was due largely to the growth of the brewery, lumber, foundry and machine-shop, bakery, printing and publishing, and canning and preserving industries, these six industries contributing 37.4 per cent of the total increase in value of products for all manufacturing industries

<sup>1</sup> Excluding from consideration industries not shown separately in Table I.  
<sup>2</sup> A minus sign (-) denotes decrease.

In addition to the industries included in the preceding table, sugar refining was one of the more important industries in San Francisco during 1909, but the statistics for this industry can not be shown separately without disclosing the operations of individual establishments. There were eight other industries in the city reporting products valued at more than \$1,000,000 in 1909 for which separate statistics can not be presented for the same reason.<sup>1</sup>

There was a remarkable growth in the building operations of the city from 1904 to 1909, which is

<sup>1</sup> These industries are:  
 Rabbitt metal and solder.  
 Bags, other than paper.  
 Baking powder and yeast.  
 Cars and general shop construction and repairs by steam-railroad companies.  
 Chocolate and cocoa products.  
 Gas, illuminating and heating.  
 Shipbuilding, including boat building.  
 Wirework, including wire rope and cable.

of the city during that period. The increase in the canning and preserving industry was particularly marked, the value of products for this industry in 1909 being more than fifteen times as great as in 1904.

In Sacramento, the capital of the state, steam-railroad repair shops constituted the most important industry, with steel works and rolling mills next in rank. The brewing of malt liquors, the flour-mill and gristmill industry, canning and preserving, and printing and publishing were other important industries. In Stockton the flour-mill and gristmill industry led all others, the value of its products representing nearly one-half of the total value of manufactures reported for the city. The manufacture of agricultural implements was also an important industry, 66.5 per cent of the total value of products for this industry in California being reported from Stockton.

In Fresno the canning and preserving industry, which is there confined largely to the drying of fruits, especially of raisins, was the leading industry in 1909, contributing 69.6 per cent of the total value of all manufactured products of the city. The city is one of the principal centers of the canning and preserving industry of the state, reporting nearly one-fourth of the total value of products for this industry in California and a much larger proportion of the total value of dried fruits. Canning and preserving was also the leading industry in San Jose, the output of the industry representing 31.4 per cent of the total value of all manufactured products for that city. Other important industries were printing and publishing, foundries and machine shops, and bakeries. The most important industries in San Diego were the lumber industry, flour mills and gristmills, slaughtering and meat packing, printing and publishing, and bakeries.

The foundry and machine-shop industry outranked all others in Berkeley in 1909, the value of its products in that year being nearly one hundred and twenty-one times that in 1904. Other leading industries, named in order of their relative importance, were the manufacture of cocoanut oil included under "Oil, not elsewhere specified," the fertilizer industry, and bakeries. The chief industry in Alameda was ship-building, this city reporting nearly one-fourth of the total value of products for this industry in the state. The lumber and the foundry and machine-shop industries, and the manufacture of pottery, terra-cotta, and fire-clay products were other important industries. In Eureka the lumber industry was the leading branch of

manufacture in 1909, contributing nearly one-half of the total value of manufactured products reported for the city. This city also reported a considerable output of factory-made butter.

In the remaining cities shown in the table the chief industries were as follows: In Bakersfield and San Bernardino, steam-railroad repair shops; in Vallejo and Long Beach, flour mills and gristmills; in Pasadena, the planing-mill branch of the lumber industry; in Riverside and Santa Barbara, slaughtering and meat packing; in Santa Cruz, the tanning, currying, and finishing of leather; and in Pomona and Redlands, canning and preserving.

**Character of ownership.**—The table on page 15 has for its purpose the presentation of conditions in respect to the character of ownership, or legal organization, of manufacturing enterprises. For all industries combined comparative figures are given covering the censuses of 1909 and 1904. Comparative data for 1899 are not available. Figures for 1909 only are presented for several important industries individually. In order to avoid disclosing the operations of individual concerns it is necessary to omit the statistics for several important industries from this table and the one following.

The most important distinction shown is that between corporate and all other forms of ownership. In all industries combined, 32.1 per cent of the total number of establishments were in 1909 under corporate ownership, as against 67.9 per cent under all other forms. The corresponding figures for 1904 were 28 per cent and 72 per cent, respectively. The establishments operated by corporations, however, reported 82.9 per cent of the total value of products in 1909, as against 17.1 per cent for those under all other forms of ownership, while in 1904 the corresponding figures were 76.5 per cent and 23.5 per cent, respectively. The greatest decrease in relative importance from 1904 to 1909 is shown for the establishments operated by individuals, which represented 45.9 per cent of the total number of establishments in 1909, as compared with 49.3 per cent in 1904, although the actual number increased from 3,375 to 3,516 during the same five-year period.

Establishments under corporate ownership reported more than one-half of the total value of products for each industry shown separately in the table, with the exception of the bakery industry, although in all but three of the industries such establishments constituted less than one-half of the total number.

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.</b>				
1909	7,659	115,296	\$529,760,528	\$204,522,454	Individual	125	948	\$25,188,133	\$3,286,182
1904	6,839	100,355	367,218,494	151,492,080	Firm	33	109	2,471,416	275,909
Individual:					Firm	21	51	951,061	114,929
1909	3,516	12,704	40,969,595	23,760,907	Corporation <sup>1</sup>	71	788	21,765,656	2,905,284
1904	3,375	15,257	47,300,887	24,693,085	Per cent of total	100.0	100.0	100.0	100.0
Firm:					Individual	26.4	11.5	9.8	8.4
1909	1,597	9,342	36,539,405	15,624,296	Firm	16.8	5.4	3.8	3.5
1904	1,472	10,527	37,343,541	16,371,024	Corporation <sup>1</sup>	56.8	83.1	86.4	88.1
Corporation:					Food preparations, 1909.	129	716	\$5,508,097	\$1,537,799
1909	2,459	92,757	439,064,967	164,048,735	Individual	41	165	366,491	245,077
1904	1,917	74,284	280,742,589	109,966,122	Firm	42	147	491,645	289,221
Other:					Corporation	36	392	3,361,175	983,829
1909	87	433	4,186,471	1,088,516	Other	7	12	558,785	18,672
1904	75	287	1,831,477	461,849	Per cent of total	100.0	100.0	100.0	100.0
Per cent of total:					Individual	34.1	23.0	10.8	16.0
1909	100.0	100.0	100.0	100.0	Firm	32.6	20.5	18.0	18.8
1904	100.0	100.0	100.0	100.0	Corporation	27.9	54.7	61.0	64.0
Individual:					Other	5.4	1.7	10.1	1.2
1909	45.9	11.1	9.4	11.6	Foundry and machine-shop products, 1909.	543	8,377	\$26,730,891	\$13,830,000
1904	49.3	15.2	12.9	16.3	Individual	207	995	2,794,223	1,647,244
Firm:					Firm	118	694	2,017,447	1,201,107
1909	20.9	8.1	6.9	7.6	Corporation	218	6,688	21,919,218	10,981,649
1904	21.5	10.5	10.2	10.8	Per cent of total	100.0	100.0	100.0	100.0
Corporation:					Individual	38.1	11.9	10.5	11.9
1909	32.1	80.5	82.9	80.2	Firm	21.7	8.3	7.5	8.7
1904	28.0	74.0	75.5	72.6	Corporation	40.1	79.8	82.0	79.4
Other:					Liquors, malt, 1909.	83	1,296	\$9,319,041	\$6,759,580
1909	1.1	0.4	0.8	0.5	Individual	34	92	471,784	330,680
1904	1.1	0.3	0.5	0.3	Firm	5	11	85,518	51,606
Bread and other bakery products, 1909.	864	4,018	\$17,709,633	\$7,332,268	Corporation	44	1,193	8,761,739	6,377,274
Individual	624	1,633	7,526,828	3,164,475	Per cent of total	100.0	100.0	100.0	100.0
Firm	189	952	4,103,140	1,746,388	Individual	41.0	7.1	5.1	4.9
Corporation <sup>1</sup>	51	1,433	6,079,665	2,421,405	Firm	6.0	0.8	0.9	0.8
Per cent of total	100.0	100.0	100.0	100.0	Corporation	53.0	92.1	94.0	83.3
Individual	72.2	40.6	42.5	43.2	Liquors, vinous, 1909.	181	1,267	\$8,936,848	\$4,202,907
Firm	21.9	23.7	23.2	23.8	Individual	85	232	1,245,037	566,841
Corporation <sup>1</sup>	5.9	35.7	31.3	33.0	Firm	26	95	561,933	272,714
Butter, cheese, and condensed milk, 1909.	161	597	\$12,760,670	\$1,620,970	Corporation <sup>1</sup>	70	960	7,130,478	3,423,352
Individual	52	155	2,263,798	351,602	Per cent of total	100.0	100.0	100.0	100.0
Firm	28	51	994,872	153,344	Individual	47.0	18.0	13.9	13.3
Corporation	55	313	7,356,944	852,541	Firm	14.4	7.4	6.3	6.4
Other	26	78	2,145,056	263,483	Corporation <sup>1</sup>	38.7	74.6	79.8	80.3
Per cent of total	100.0	100.0	100.0	100.0	Lumber and timber products, 1909.	644	22,935	\$45,000,276	\$26,631,376
Individual	32.3	26.0	17.7	21.7	Individual	199	1,412	3,453,706	1,842,575
Firm	17.4	8.5	7.8	9.5	Firm	149	1,118	3,029,374	1,748,532
Corporation	34.2	52.4	57.7	52.6	Corporation <sup>1</sup>	296	20,405	38,517,196	23,040,269
Other	16.1	13.1	16.8	16.3	Per cent of total	100.0	100.0	100.0	100.0
Canning and preserving, 1909.	196	7,757	\$32,914,829	\$8,905,607	Individual	30.9	6.2	7.7	6.9
Individual	43	578	1,660,264	601,530	Firm	23.1	4.9	6.7	6.6
Firm	34	383	1,613,248	428,489	Corporation <sup>1</sup>	46.0	89.0	85.6	86.5
Corporation <sup>1</sup>	119	6,796	29,641,317	7,875,588	Printing and publishing, 1909.	1,240	7,556	\$25,031,877	\$18,704,574
Per cent of total	100.0	100.0	100.0	100.0	Individual	709	1,885	6,762,762	5,142,337
Individual	21.9	7.5	5.0	6.8	Firm	194	719	1,812,749	1,398,227
Firm	17.3	4.9	4.9	4.8	Corporation	296	4,874	15,871,045	11,718,276
Corporation <sup>1</sup>	60.7	87.6	90.1	88.4	Other	41	78	585,321	445,734
Clothing, men's, including shirts, 1909.	74	2,385	\$5,120,509	\$2,225,613	Per cent of total	100.0	100.0	100.0	100.0
Individual	29	164	380,038	193,383	Individual	57.2	24.9	27.0	27.5
Firm	24	559	1,187,147	500,814	Firm	15.6	9.5	7.2	7.5
Corporation	21	1,662	3,553,294	1,531,416	Corporation	23.9	64.5	63.4	62.6
Per cent of total	100.0	100.0	100.0	100.0	Other	3.3	1.0	2.3	2.4
Individual	39.2	6.9	7.4	8.7	Slaughtering and meat packing, 1909.	94	1,641	\$34,280,003	\$5,831,946
Firm	32.4	23.4	23.2	22.5	Individual	31	155	4,276,592	611,509
Corporation	28.4	69.7	69.4	68.8	Firm	34	171	4,444,852	546,152
Copper, tin, and sheet-iron products, 1909.	233	1,938	\$6,803,761	\$3,238,905	Corporation	27	1,315	25,558,559	4,674,285
Individual	103	403	1,425,547	768,283	Per cent of total	100.0	100.0	100.0	100.0
Firm	74	236	958,869	530,745	Individual	35.1	9.4	12.5	10.5
Corporation	53	1,266	4,419,345	1,939,877	Firm	36.2	10.4	13.0	9.4
Per cent of total	100.0	100.0	100.0	100.0	Corporation	28.7	80.1	74.6	80.1
Individual	45.5	20.9	21.0	23.7					
Firm	31.8	13.7	14.1	16.4					
Corporation	22.7	65.3	65.0	59.9					

<sup>1</sup> Includes the group "Other," 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 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 combined and for certain important industries separately as measured by number of wage earners, value of products, and value added by manufacture. The totals for all industries are shown for the last two censuses, while for the individual industries figures are given for 1909 only.

INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>					<b>Copper, tin, and sheet-iron products, 1909.</b>				
1909.....	7,659	115,296	\$529,760,528	\$204,522,454	Less than \$5,000.....	233	1,038	\$6,803,761	\$3,228,426
1904.....	6,839	100,355	367,218,494	151,492,080	\$5,000 and less than \$20,000.....	61	27	182,734	120,650
Less than \$5,000:					\$20,000 and less than \$100,000.....	107	318	1,050,415	607,141
1909.....	2,169	2,067	5,610,748	3,705,464	\$100,000 and less than \$1,000,000.....	50	619	2,174,242	1,114,653
1904.....	2,088	2,242	5,306,470	3,634,462	Average per establishment.....	12	924	3,396,360	1,367,638
\$5,000 and less than \$20,000:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	2,785	10,279	29,208,047	17,546,524	Less than \$5,000.....	27.5	2.9	2.7	10.0
1904.....	2,507	10,574	26,190,138	15,902,855	\$5,000 and less than \$20,000.....	45.9	17.4	15.4	15.7
\$20,000 and less than \$100,000:					\$20,000 and less than \$100,000.....	21.5	31.9	32.0	31.4
1909.....	1,867	24,913	82,114,420	40,743,591	\$100,000 and less than \$1,000,000.....	5.2	47.7	49.0	41.4
1904.....	1,615	25,111	72,176,276	37,594,307	Average per establishment.....		8	\$29,201	\$13,971
\$100,000 and less than \$1,000,000:					<b>Flour-mill and gristmill products, 1909.</b>				
1909.....	767	53,128	210,723,384	86,922,761	Less than \$5,000.....	125	948	\$25,188,133	\$3,266,161
1904.....	598	47,912	158,273,161	69,162,483	\$5,000 and less than \$20,000.....	5	7	47,973	27,562
\$1,000,000 and over:					\$20,000 and less than \$100,000.....	24	37	297,193	150,560
1909.....	71	24,909	202,103,929	55,514,114	\$100,000 and less than \$1,000,000.....	46	167	1,980,546	289,401
1904.....	31	14,516	105,272,449	25,197,973	\$1,000,000 and over.....	45	531	13,925,443	1,753,621
Per cent of total:					Average per establishment.....	5	296	8,965,078	1,188,653
1909.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0	Less than \$5,000.....	4.0	0.7	0.1	0.4
Less than \$5,000:					\$5,000 and less than \$20,000.....	19.2	3.9	1.2	1.7
1909.....	28.3	1.8	1.1	1.9	\$20,000 and less than \$100,000.....	36.8	11.3	7.9	6.5
1904.....	30.5	2.2	1.4	2.4	\$100,000 and less than \$1,000,000.....	36.0	56.0	55.3	51.3
\$5,000 and less than \$20,000:					\$1,000,000 and over.....	4.0	28.1	35.6	32.1
1909.....	36.4	8.9	5.5	8.6	Average per establishment.....		8	\$201,505	\$29,391
1904.....	36.7	10.5	7.1	10.5	<b>Food preparations, 1909.</b>				
\$20,000 and less than \$100,000:					Less than \$5,000.....	129	716	\$5,508,097	\$1,537,761
1909.....	24.4	21.6	15.5	19.9	\$5,000 and less than \$20,000.....	31	26	73,436	39,436
1904.....	24.6	25.0	19.7	24.8	\$20,000 and less than \$100,000.....	46	142	471,000	235,546
\$100,000 and less than \$1,000,000:					\$20,000 and less than \$100,000.....	39	280	1,741,164	543,449
1909.....	10.0	40.1	39.8	42.5	\$100,000 and less than \$1,000,000.....	13	268	3,222,417	718,621
1904.....	8.7	47.7	43.1	45.7	Per cent of total.....	100.0	100.0	100.0	100.0
\$1,000,000 and over:					Less than \$5,000.....	24.0	3.6	1.3	2.0
1909.....	0.9	21.6	38.2	27.1	\$5,000 and less than \$20,000.....	35.7	19.8	8.6	13.3
1904.....	0.5	14.6	28.7	16.6	\$20,000 and less than \$100,000.....	30.2	39.1	31.6	35.0
Average per establishment:					\$100,000 and less than \$1,000,000.....	10.1	37.4	58.5	46.4
1909.....		15	\$69,168	\$26,704	Average per establishment.....		6	\$42,698	\$11,651
1904.....		15	53,693	22,151	<b>Foundry and machine-shop products, 1909.</b>				
<b>Bread and other bakery products, 1909.</b>					Less than \$5,000.....	543	8,377	\$20,730,891	\$13,630,000
Less than \$5,000.....	864	4,018	\$17,700,633	\$7,332,268	\$5,000 and less than \$20,000.....	113	127	303,583	201,466
\$5,000 and less than \$20,000.....	224	119	648,234	302,401	\$20,000 and less than \$100,000.....	220	998	2,302,406	1,361,076
\$20,000 and less than \$100,000.....	456	1,038	4,761,929	2,104,134	\$100,000 and less than \$1,000,000.....	154	2,402	6,850,000	3,960,112
\$100,000 and less than \$1,000,000.....	193	1,305	6,119,284	2,608,133	\$1,000,000 and over.....	3	3,627	13,248,300	6,130,691
Per cent of total.....	100.0	100.0	100.0	100.0	Average per establishment.....	5	1,323	3,920,649	2,049,171
Less than \$5,000.....	25.9	3.0	3.7	4.1	Per cent of total.....	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000.....	52.8	25.8	20.9	23.7	Less than \$5,000.....	20.8	1.6	1.1	1.5
\$20,000 and less than \$100,000.....	18.9	34.7	34.6	34.1	\$5,000 and less than \$20,000.....	40.5	11.9	8.9	11.1
\$100,000 and less than \$1,000,000.....	2.4	36.5	34.9	33.0	\$20,000 and less than \$100,000.....	28.4	27.5	25.7	21.1
Average per establishment.....		5	\$20,497	\$8,486	\$100,000 and less than \$1,000,000.....	9.8	43.3	49.6	41.1
<b>Butter, cheese, and condensed milk, 1909.</b>					\$1,000,000 and over.....	0.6	15.8	14.7	19.1
Less than \$5,000.....	161	597	\$12,760,670	\$1,620,970	Average per establishment.....		15	\$49,228	\$5,471
\$5,000 and less than \$20,000.....	17	8	59,438	23,657	<b>Liquors, malt, 1909.</b>				
\$20,000 and less than \$100,000.....	35	30	425,101	79,942	Less than \$5,000.....	83	1,290	\$9,310,041	\$6,759,569
\$100,000 and less than \$1,000,000.....	34	365	8,800,181	1,045,462	\$5,000 and less than \$20,000.....	20	16	47,023	31,421
Per cent of total.....	100.0	100.0	100.0	100.0	\$20,000 and less than \$100,000.....	18	50	202,988	144,000
Less than \$5,000.....	10.6	1.3	0.5	0.8	\$100,000 and less than \$1,000,000.....	19	183	1,094,025	761,400
\$5,000 and less than \$20,000.....	21.7	6.5	3.3	4.0	\$1,000,000 and over.....	26	1,047	7,975,055	5,222,666
\$20,000 and less than \$100,000.....	46.6	31.0	27.2	29.7	Per cent of total.....	100.0	100.0	100.0	100.0
\$100,000 and less than \$1,000,000.....	21.1	61.1	69.0	64.5	Less than \$5,000.....	24.1	1.2	0.5	0.8
Average per establishment.....		4	\$70,259	\$10,068	\$5,000 and less than \$20,000.....	21.7	3.9	2.2	2.1
<b>Canning and preserving, 1909.</b>					\$20,000 and less than \$100,000.....	22.9	14.1	11.7	11.3
Less than \$5,000.....	196	7,757	\$32,914,829	\$8,905,607	\$100,000 and less than \$1,000,000.....	31.3	80.8	85.6	81.1
\$5,000 and less than \$20,000.....	18	31	49,825	23,657	Average per establishment.....		16	\$112,278	\$31,491
\$20,000 and less than \$100,000.....	34	189	358,142	160,354	<b>Liquors, vinous, 1909.</b>				
\$100,000 and less than \$1,000,000.....	58	1,188	3,207,177	1,183,515	Less than \$5,000.....	181	1,287	\$8,936,848	\$4,849,467
\$1,000,000 and over.....	82	5,527	22,614,604	6,138,032	\$5,000 and less than \$20,000.....	19	14	47,018	25,401
Per cent of total.....	100.0	100.0	100.0	100.0	\$20,000 and less than \$100,000.....	75	216	820,277	490,221
Less than \$5,000.....	9.2	0.4	0.2	0.3	\$100,000 and less than \$1,000,000.....	69	390	2,005,549	1,294,571
\$5,000 and less than \$20,000.....	17.3	2.4	1.1	1.9	\$1,000,000 and over.....	18	667	5,163,404	2,639,226
\$20,000 and less than \$100,000.....	29.6	15.3	9.7	13.3	Per cent of total.....	100.0	100.0	100.0	100.0
\$100,000 and less than \$1,000,000.....	41.8	71.3	68.7	68.9	Less than \$5,000.....	10.5	1.1	0.5	0.8
\$1,000,000 and over.....	2.0	10.6	20.3	15.6	\$5,000 and less than \$20,000.....	41.4	16.8	9.2	11.1
Average per establishment.....		40	\$167,933	\$45,437	\$20,000 and less than \$100,000.....	38.1	30.3	32.5	23.1
<b>Clothing, men's, including shirts, 1909.</b>					\$100,000 and less than \$1,000,000.....	9.9	51.8	57.8	43.3
Less than \$5,000.....	74	2,385	\$5,120,509	\$2,225,613	Average per establishment.....		7	\$49,375	\$23,621
\$5,000 and less than \$20,000.....	12	20	28,564	21,135	<b>Lumber and timber products, 1909.</b>				
\$20,000 and less than \$100,000.....	26	191	270,318	163,543	Less than \$5,000.....	644	22,935	\$45,000,276	\$26,631,151
\$100,000 and less than \$1,000,000.....	22	427	924,998	388,300	\$5,000 and less than \$20,000.....	137	210	362,018	270,461
\$1,000,000 and over.....	14	1,747	3,896,629	1,652,635	\$20,000 and less than \$100,000.....	190	954	2,001,127	1,310,521
Per cent of total.....	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000.....	215	4,006	9,894,778	5,336,221
Less than \$5,000.....	16.2	0.8	0.6	0.9	\$1,000,000 and over.....	98	13,684	27,603,841	16,183,121
\$5,000 and less than \$20,000.....	35.1	8.0	5.3	7.3	Average per establishment.....	4	3,091	4,958,112	3,510,151
\$20,000 and less than \$100,000.....	29.7	17.9	18.1	17.4	Per cent of total.....	100.0	100.0	100.0	100.0
\$100,000 and less than \$1,000,000.....	18.9	78.2	76.1	74.3	Less than \$5,000.....	21.3	0.9	0.8	0.9
Average per establishment.....		32	\$69,196	\$30,076	\$5,000 and less than \$20,000.....	29.5	4.2	4.6	4.1
					\$20,000 and less than \$100,000.....	33.4	17.9	22.0	20.1
					\$100,000 and less than \$1,000,000.....	15.2	50.7	61.5	61.1
					\$1,000,000 and over.....	0.6	17.4	11.0	11.0
					Average per establishment.....		36	\$69,870	\$11,571

<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>Printing and publishing, 1909</b> ..	<b>1,240</b>	<b>7,556</b>	<b>\$25,031,877</b>	<b>\$18,704,574</b>	<b>Slaughtering and meat packing, 1909</b> ..	<b>94</b>	<b>1,641</b>	<b>\$34,280,003</b>	<b>\$5,831,946</b>
Less than \$5,000 ..	584	510	1,491,046	1,292,496	Less than \$5,000 ..	4	5	13,204	4,824
\$5,000 and less than \$20,000 ..	451	1,532	4,420,462	3,526,771	\$5,000 and less than \$20,000 ..	14	28	140,663	68,781
\$20,000 and less than \$100,000 ..	164	2,465	6,672,722	5,026,255	\$20,000 and less than \$100,000 ..	34	100	1,749,518	343,754
\$100,000 and less than \$1,000,000 ..	41	3,049	12,447,647	8,949,052	\$100,000 and less than \$1,000,000 ..	33	374	10,328,186	1,431,046
					\$1,000,000 and over ..	9	1,134	22,039,432	3,983,541
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 ..	47.1	6.7	6.0	6.4	Less than \$5,000 ..	4.3	0.3	( <sup>2</sup> )	0.1
\$5,000 and less than \$20,000 ..	36.4	20.3	17.7	18.9	\$5,000 and less than \$20,000 ..	14.9	1.7	0.4	1.2
\$20,000 and less than \$100,000 ..	13.2	32.6	26.7	26.9	\$20,000 and less than \$100,000 ..	36.2	6.1	5.1	5.9
\$100,000 and less than \$1,000,000 ..	3.3	40.4	49.7	47.8	\$100,000 and less than \$1,000,000 ..	35.1	22.8	30.1	24.5
Average per establishment ..		6	\$20,187	\$15,084	\$1,000,000 and over ..	9.6	63.1	64.3	68.3
					Average per establishment ..		17	\$304,081	\$62,042

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

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

This table shows that of the 7,659 manufacturing establishments in the state in 1909 only 71, or nine-tenths of 1 per cent, had a value of products exceeding \$1,000,000. These establishments, however, employed an average of 24,909 wage earners, or 21.6 per cent of the total number in all establishments, and reported 38.2 per cent of the total value of products and 27.1 per cent of the total value added by manufacture.

On the other hand, the very small establishments—that is, those having products valued at less than \$5,000—constituted a considerable proportion (28.3 per cent) of the total number of establishments, but the value of their products amounted to only 1.1 per cent of the total. The bulk of the manufacturing was done in establishments having products valued at not less than \$100,000.

During the five years from 1904 to 1909 there was a considerable increase in the relative importance, as measured by value of products, of the largest establishments—those reporting products of not less than \$1,000,000 in value—and a decrease in that of the remaining classes.

The fact that between 1904 and 1909 the average value of products per establishment increased from \$53,695 to \$69,168, and the value added by manufacture from \$22,151 to \$26,704, can not be taken as in itself indicating a tendency toward concentration. The increased values shown may be, and probably are, due in part at least to the general rise that has taken place in the prices of commodities. The average number of wage earners per establishment was 15 both in 1909 and in 1904.

The table shows further that when the size of establishments is measured by the average value of products per establishment the bakery industry, the manufacture of copper, tin, and sheet-iron products, and printing and publishing are conducted chiefly in rather small establishments, while the canning and

preserving, flour-mill and gristmill, brewery, and slaughtering and meat-packing industries are conducted mainly in comparatively large 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 table on page 18 shows for 1909 such a classification for all industries combined and for 20 important industries individually, and gives not only the number of establishments falling in each group but also the average number of wage earners employed.

Of the 7,659 establishments reported for all manufacturing industries, 11.5 per cent employed no wage earners; 53.8 per cent employed from 1 to 5; 22.3 per cent, from 6 to 20; and 6.9 per cent, from 21 to 50. The most numerous single group consists of the 4,123 establishments employing from 1 to 5 wage earners, and the next of the 1,708 establishments employing from 6 to 20. There were 74 establishments that employed over 250 wage earners; 4 of these establishments, of which 2 were lumber mills and 2 steam-railroad repair shops, employed over 1,000 each.

Of the total number of wage earners, 60.6 per cent were in establishments employing over 50 wage earners each. The single group having the largest number of wage earners was the group comprising the establishments employing from 251 to 500. This group employed an aggregate of 20,103 wage earners, or 17.4 per cent of the total. Of the individual industries listed in the table but not in the preceding one, the steam-railroad repair shops, the manufacture of cement, the gas industry, the tanning, currying, and finishing of leather, and the refining of petroleum are industries in which comparatively large establishments do most of the business, as appears from the classification according to the number of wage earners employed.

MANUFACTURES—CALIFORNIA.

INDUSTRY.	ESTABLISHMENTS EMPLOYING—									
	Total.	No wage earners.	1 to 5 wage earners.	6 to 20 wage earners.	21 to 50 wage earners.	51 to 100 wage earners.	101 to 250 wage earners.	251 to 500 wage earners.	501 to 1,000 wage earners.	Over 1,000 wage earners.
<b>All industries.</b>	7,059	882	4,123	1,708	526	212	134	50	14	4
Bread and other bakery products.	864	130	585	124	16	4	4	1		
Butter, cheese, and condensed milk.	161	14	118	26	3					
Canning and preserving.	196	4	37	58	51	29	13	4		
Cars and general shop construction and repairs by steam-railroad companies.	42		2	10	5	4	9	7	3	2
Cement.	8		26	23	8	6	3	2		
Clothing, men's, including shirts.	74	5	27	13	3	1	4			
Coffee and spice, roasting and grinding.	44		27	13	3	1				
Copper, tin, and sheet-iron products.	233	21	143	52	9			1		
Flour-mill and gristmill products.	125	6	78	28	11	2				
Food preparations.	129	11	80	25	7					
Foundry and machine-shop products.	543	33	260	174	44	24	0	2	1	
Gas, illuminating and heating.	74		38	27	3	3	1	2		
Leather, tanned, curried, and finished.	40		10	5	1	1	3			
Liquors, distilled.	33	5	21	8	10	6	3			
Liquors, malt.	83	6	38	23	10	5	1			
Liquors, vinous.	181	2	138	33	5	1	2			
Lumber and timber products.	644	13	270	170	95	35	26	15	3	2
Petroleum, refining.	29		6	18	3			2		
Printing and publishing.	1,240	343	648	180	42	16	10	1	3	
Slaughtering and meat packing.	94	5	51	25	6	4	1	2		
All other industries.	2,822	294	1,527	674	194	64	48	17	4	

  

INDUSTRY.	AVERAGE NUMBER OF WAGE EARNERS.									
	Total.	No wage earners.	1 to 5 wage earners.	6 to 20 wage earners.	21 to 50 wage earners.	51 to 100 wage earners.	101 to 250 wage earners.	251 to 500 wage earners.	501 to 1,000 wage earners.	Over 1,000 wage earners.
<b>All industries.</b>	115,296	9,844	18,672	16,854	15,374	19,873	20,103	9,092	5,941	
Bread and other bakery products.	4,018	1,278	1,148	515	252	504	321			
Butter, cheese, and condensed milk.	597	227	290	80						
Canning and preserving.	7,757	96	701	1,798	2,069	1,918	1,175			
Cars and general shop construction and repairs by steam-railroad companies.	9,342	7	123	218	201	1,396	2,444	2,028	2,935	
Cement.	2,407	6				650	1,745			
Clothing, men's, including shirts.	2,385	70	277	241	451	572	705			
Coffee and spice, roasting and grinding.	352	72	141	80	59					
Copper, tin, and sheet-iron products.	1,938	329	535	277	512		285			
Flour-mill and gristmill products.	948	174	283	333	158					
Food preparations.	716	202	256	258						
Foundry and machine-shop products.	8,377	713	1,069	1,445	1,740	1,178	808	515		
Gas, illuminating and heating.	1,066	106	299	87	252	171	751			
Leather, tanned, curried, and finished.	1,398	27	163	328	424	456				
Liquors, distilled.	193	41	54	27	71					
Liquors, malt.	1,296	90	296	332	453	125				
Liquors, vinous.	1,287	352	321	164	60	390				
Lumber and timber products.	22,935	689	1,973	2,957	2,645	4,001	5,911	2,200	2,559	
Petroleum, refining.	930	16	211	76			627			
Printing and publishing.	7,556	1,505	1,961	1,347	1,113	1,309	261			
Slaughtering and meat packing.	1,641	128	277	157	306	111	602			
All other industries.	37,557	3,707	7,394	6,134	4,599	7,026	6,093	2,004		

  

INDUSTRY.	PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.									
	Total.	No wage earners.	1 to 5 wage earners.	6 to 20 wage earners.	21 to 50 wage earners.	51 to 100 wage earners.	101 to 250 wage earners.	251 to 500 wage earners.	501 to 1,000 wage earners.	Over 1,000 wage earners.
<b>All industries.</b>	100.0	8.5	16.2	14.6	13.3	17.2	17.4	7.9	4.9	
Bread and other bakery products.	100.0	31.8	28.6	12.8	6.3	12.5	8.0			
Butter, cheese, and condensed milk.	100.0	38.0	48.6	13.4						
Canning and preserving.	100.0	1.2	9.0	23.2	26.7	24.7	15.1			
Cars and general shop construction and repairs by steam-railroad companies.	100.0	0.1	1.3	2.3	2.2	14.9	20.2	31.3		
Cement.	100.0	0.2				27.3	72.5			
Clothing, men's, including shirts.	100.0	3.3	11.6	10.1	18.9	24.0	32.1			
Coffee and spice, roasting and grinding.	100.0	20.5	40.1	22.7	16.8					
Copper, tin, and sheet-iron products.	100.0	17.0	27.6	14.3	26.4		14.7			
Flour-mill and gristmill products.	100.0	18.4	29.9	35.1	16.7					
Food preparations.	100.0	28.2	35.8	36.0						
Foundry and machine-shop products.	100.0	8.5	23.5	17.2	20.9	14.1	6.6	6.1		
Gas, illuminating and heating.	100.0	6.4	17.9	5.2	15.1	10.3	45.1			
Leather, tanned, curried, and finished.	100.0	1.9	11.7	23.5	30.3	32.0				
Liquors, distilled.	100.0	21.2	28.0	14.0	36.8					
Liquors, malt.	100.0	6.9	22.8	25.6	35.0	9.6				
Liquors, vinous.	100.0	27.4	24.9	12.7	4.7	30.3				
Lumber and timber products.	100.0	3.0	8.6	12.9	11.5	17.4	25.8	9.6	11.2	
Petroleum, refining.	100.0	1.7	22.7	8.2			67.4			
Printing and publishing.	100.0	19.9	26.0	17.8	14.7	18.1	3.5			
Slaughtering and meat packing.	100.0	7.8	16.9	9.6	18.6	6.8	40.3			
All other industries.	100.0	9.9	19.7	16.3	12.2	18.7	16.2	6.9		

**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 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, page 34. The table shows that, for all industries combined, 68.3 per cent of the total expenses were incurred for materials, 22.5 per cent for services—that is, salaries and wages—and but 9.2 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries. The flour-mill and grist-mill industry shows a higher percentage for materials

(92.2) and the distillery industry a lower percentage (16.7) than any other industry presented separately. The printing and publishing industry shows the highest percentage for services (48.8), while in the case of this item also the lowest percentage is that shown for the distillery industry (3.7). The high proportions which "miscellaneous expenses" represent of the total in the case of the distillery and brewery industries are due to the inclusion under this head of the internal-revenue tax. This tax, particularly in the case of the distillery industry, swells the item of "miscellaneous expenses" to such an extent as to cause abnormally small proportions to be shown for the other items of expense.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
<b>All industries.....</b>	<b>4.8</b>	<b>17.7</b>	<b>68.3</b>	<b>9.2</b>
Bread and other bakery products.....	4.3	20.0	67.5	8.2
Butter, cheese, and condensed milk.....	1.7	3.8	91.3	3.2
Canning and preserving.....	3.5	11.1	77.4	7.9
Cars and general shop construction and repairs by steam-railroad companies.....	2.0	44.8	51.0	2.1
Cement.....	4.4	37.4	49.5	8.7
Clothing, men's, including shirts.....	4.4	22.8	62.7	10.2
Coffee and spice, roasting and grinding.....	8.8	4.1	76.5	10.6
Copper, tin, and sheet-iron products.....	3.3	27.0	59.4	7.7
Flour-mill and gristmill products.....	2.2	3.1	92.2	2.6
Food preparations.....	4.0	8.1	79.6	7.7
Foundry and machine-shop products.....	7.5	29.9	52.7	10.0
Gas illuminating and heating.....	12.0	21.6	30.9	26.0
Leather, tanned, curried, and finished.....	2.4	11.2	80.2	6.1
Liquors, distilled.....	1.1	2.6	16.7	78.6
Liquors, malt.....	7.2	18.3	33.6	40.9
Liquors, vinous.....	5.8	9.2	63.3	21.7
Lumber and timber products.....	5.5	38.5	45.2	10.7
Petroleum, refining.....	2.9	5.1	87.0	4.7
Printing and publishing.....	18.2	30.6	30.1	21.1
Slaughtering and meat packing.....	1.7	4.1	90.2	3.0
All other industries.....	4.3	14.9	74.0	6.8

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

The table indicates that from 1904 to 1909 there was an increase of 118,741 horsepower, or 56.4 per cent, in the total power used in manufactures, while from 1899 to 1904 the increase was 83,406 horsepower, or 65.7 per cent. Of the total increase from 1904 to 1909, 40,348 horsepower was in that generated by steam engines and 77,174 horsepower in rented electric power. The more general use of gas engines is shown, there being 765 such engines, with an indicated capacity of 10,115 horsepower, reported in 1909, as against 689 engines, with 6,292 horsepower, in 1904, and 545 engines, with 3,244 horsepower, in 1899. Water wheels showed a decrease in number but an increase in total horsepower. The figures also show that the practice of renting electric power is increasing rapidly, 35.4 per cent of the total power being rented electric power in 1909, as against 18.7 per cent in 1904

and but 7.6 per cent in 1899. The proportion for 1909 is larger than for any other state in the Union.

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>14,249</b>	<b>3,313</b>	<b>2,874</b>	<b>328,100</b>	<b>210,359</b>	<b>126,953</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Owned.....	3,447	3,313	2,874	211,341	168,474	114,723	64.2	80.1	90.4
Steam.....	2,520	2,408	2,158	193,526	153,178	105,190	58.8	72.8	82.9
Gas.....	765	689	545	10,115	6,292	3,244	3.1	3.0	2.6
Water wheels.....	115	137	171	7,390	6,965	4,680	2.2	3.3	3.7
Water motors.....	47	79	( <sup>2</sup> )	280	295	( <sup>2</sup> )	0.1	0.1	( <sup>2</sup> )
Other.....	.....	.....	.....	30	1,744	1,609	( <sup>3</sup> )	0.8	1.3
Rented.....	10,802	( <sup>2</sup> )	( <sup>2</sup> )	117,759	41,885	12,230	35.8	19.9	9.6
Electric.....	10,802	( <sup>2</sup> )	( <sup>2</sup> )	116,537	39,363	9,624	35.4	18.7	7.6
Other.....	.....	.....	.....	1,222	2,522	2,606	0.4	1.2	2.1
<b>Electric motors</b>	<b>12,393</b>	<b>658</b>	<b>281</b>	<b>143,684</b>	<b>49,575</b>	<b>15,762</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Run by current generated by establishment.....	1,591	658	281	27,147	10,212	6,138	18.9	20.6	38.9
Run by rented power.....	10,802	( <sup>2</sup> )	( <sup>2</sup> )	116,537	39,363	9,624	81.1	79.4	61.1

<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 the power generated within the establishments is shown to be rapidly becoming more common, the horsepower of such motors having increased from 6,138 in 1899 to 10,212 in 1904 and 27,147 in 1909.

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

INDUSTRY.	Anthracite coal (tons).	Bituminous coal (tons).	Coke (tons).	Wood (cords).	Oil, including gasoline (barrels).	Gas (1,000 feet).
<b>All industries.....</b>	<b>4,421</b>	<b>43,165</b>	<b>113,665</b>	<b>76,323</b>	<b>8,883,015</b>	<b>302,548</b>
Bread and other bakery products.....	54	692	137	8,900	92,650	39,421
Butter, cheese, and condensed milk.....	65	347	.....	7,263	27,119	820
Canning and preserving.....	83	1,797	.....	3,529	141,958	12,816
Cars and general shop construction and repairs by steam-railroad companies.....	14	4,706	17	1,257	316,874	23,620
Cement.....	.....	.....	.....	.....	891,130	.....
Clothing, men's, including shirts.....	4	24	.....	3	1,321	1,900
Coffee and spice, roasting and grinding.....	.....	17	132	.....	2,912	18,445
Copper, tin, and sheet-iron products.....	15	154	207	107	1,180	5,644
Flour-mill and gristmill products.....	55	471	.....	871	150,634	.....
Food preparations.....	65	322	311	521	13,309	5,526
Foundry and machine-shop products.....	1,178	3,915	15,629	1,066	75,852	20,032
Gas, illuminating and heating.....	.....	300	.....	.....	9,205,901	600
Leather, tanned, curried, and finished.....	232	2,297	.....	717	45,322	.....
Liquors, distilled.....	.....	21	.....	590	48,019	.....
Liquors, malt.....	50	430	204	2,121	179,276	330
Liquors, vinous.....	95	268	.....	3,875	68,500	.....
Lumber and timber products.....	26	389	.....	13,285	46,216	23,607
Petroleum, refining.....	.....	.....	.....	.....	1,286,666	.....
Printing and publishing.....	98	751	.....	482	3,018	33,586
Slaughtering and meat packing.....	108	204	32	1,601	153,290	990
All other industries.....	2,279	25,971	96,996	30,220	3,131,799	115,702

NOTE.—In addition there were 15,164 tons of other varieties of fuel reported.

The most notable fact shown by the table is the large amount of oil and the small amounts of nearly all the other kinds of fuel used. The larger part of this oil is crude oil used as fuel in the generation of steam power, but increasing quantities of refined oil are being used in internal-combustion engines.

## SUPPLEMENTARY DATA REGARDING IMPORTANT INDUSTRIES.

(With statistics for laundries and custom 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 eight important industries in California are here presented.

**Lumber and timber products.**—In the following tabular statement is shown the production of rough lumber, lath, and shingles in California for the census years 1909 and 1899:

PRODUCT.	QUANTITY.	
	1909	1899
Rough lumber..... M feet b. m. . . . .	1,143,507	737,035
Lath..... thousands. . . . .	32,615	11,507
Shingles..... thousands. . . . .	574,342	650,090

During the decade from 1899 to 1909 the output of rough lumber in California increased 55.1 per cent and that of lath 183.4 per cent, while the production of shingles decreased 11.7 per cent. The period of most rapid growth in the industry was from 1899 to 1904, when the output of lumber increased 46.2 per cent. The woods which supply the raw material are almost exclusively conifers, the hardwood cut in 1909, practically all of which was California or tan-bark oak, forming only one-fifth of 1 per cent of the total lumber production during the year. A total of 521,630 M feet board measure, or more than 45.6 per cent of the lumber output in 1909, was California redwood, a species of timber which does not occur in saw-log size outside of California. Chief among the other species sawed into lumber in 1909 were western pine, with a production of 364,748 M feet board measure, Douglas fir, with a production of 88,852 M feet, and sugar pine, with a production of 88,822 M feet.

A noteworthy peculiarity of the lumber industry in the state is the fact that the manufacture of shingles, while carried on to some extent in connection with that of lumber, nevertheless amounts practically to a separate and distinct industry. Over 88 per cent of the shingle output of the state for 1909 was manufactured from redwood, which timber possesses in very high degree the qualities most desirable in shingle material.

**Slaughtering and meat packing.**—The next tabular statement gives the quantity and cost of the various materials used in this industry and the quantity and value of the various products, for 1909, 1904, and 1899.

From 1904 to 1909 the number of beeves slaughtered increased 81,901, or 31.5 per cent; that of calves, 38,244, or 88.7 per cent; that of sheep, 81,484, or 8.2 per cent; and that of hogs, 30,234, or 9.6 per cent. The rate of increase in the cost of the animals slaugh-

tered was much higher than that in the number slaughtered.

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost. . . . .</b>	<b>\$28,448,057</b>	<b>\$18,751,744</b>	<b>\$13,016,305</b>
Beeves slaughtered:			
Number. . . . .	341,617	259,716	174,115
Cost. . . . .	\$14,348,274	\$9,735,012	\$6,017,702
Calves slaughtered:			
Number. . . . .	81,344	43,100	28,551
Cost. . . . .	\$930,781	\$412,644	\$260,651
Sheep slaughtered:			
Number. . . . .	1,071,998	990,514	665,655
Cost. . . . .	\$4,436,865	\$3,284,003	\$2,167,361
Hogs slaughtered:			
Number. . . . .	344,319	314,085	228,655
Cost. . . . .	\$4,339,254	\$2,891,457	\$1,959,285
Dressed meat, purchased. . . . .	\$2,088,065	\$1,439,004	\$1,867,567
Fuel and rent of power. . . . .	\$184,764	\$85,889	\$75,112
All other materials. . . . .	\$2,120,054	\$903,735	\$1,167,855
<b>Products, total value. . . . .</b>	<b>\$34,280,003</b>	<b>\$22,012,756</b>	<b>\$15,817,622</b>
Beef, fresh:			
Pounds. . . . .	186,315,779	140,301,999	93,818,621
Value. . . . .	\$13,820,710	\$9,135,302	\$5,972,469
Beef, salted or cured:			
Pounds. . . . .	1,455,480	2,386,927	2,612,762
Value. . . . .	\$137,792	\$171,352	\$173,391
Veal, fresh:			
Pounds. . . . .	12,077,330	6,470,074	3,964,555
Value. . . . .	\$1,104,753	\$451,602	\$236,755
Mutton, fresh:			
Pounds. . . . .	44,220,813	38,021,994	20,605,865
Value. . . . .	\$4,215,524	\$3,089,546	\$2,173,594
Pork, fresh:			
Pounds. . . . .	32,204,886	22,796,029	18,915,363
Value. . . . .	\$3,472,610	\$1,821,101	\$1,424,794
Pork, salted or cured:			
Pounds. . . . .	13,964,304	23,183,338	28,785,331
Value. . . . .	\$2,305,753	\$2,732,575	\$2,878,533
Sausage, fresh or cured. . . . .	\$935,408	\$666,125	\$215,625
All other fresh meat:			
Pounds. . . . .	3,435,527	350,000	2,285,075
Value. . . . .	\$216,755	\$19,900	\$191,293
Lard:			
Pounds. . . . .	6,644,167	8,312,662	4,181,112
Value. . . . .	\$839,623	\$635,500	\$399,625
Tallow, oleo stearin, and stearin:			
Pounds. . . . .	11,363,156	(1)	(1)
Value. . . . .	\$604,712	(1)	(1)
Fertilizers and fertilizer materials:			
Tons. . . . .	6,062	3,325	1,570
Value. . . . .	\$162,509	\$67,609	\$37,235
Hides:			
Number. . . . .	374,278	272,042	201,444
Pounds. . . . .	21,134,504	14,875,503	10,221,833
Value. . . . .	\$2,710,097	\$1,465,939	\$660,331
Pelts:			
Number. . . . .	1,070,801	990,514	(1)
Value. . . . .	\$742,698	\$742,499	(1)
Wool:			
Pounds. . . . .	1,707,577	180,000	117,791
Value. . . . .	\$430,967	\$51,100	\$22,741
All other products, including amount received for custom or contract work.	\$2,580,592	\$964,886	\$1,108,725

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

With the exception of salted and cured beef and salted and cured pork, all the meat products show increases in value and, so far as figures are given, in quantity from 1904 to 1909, as well as from 1899 to 1904. The largest absolute gain in quantity during the more recent five-year period, 46,013,780 pounds, is shown for fresh beef, while the largest relative gain, 881.6 per cent, was in "All other fresh meat." The percentages of increase in value were generally greater than those in quantity, owing to the higher prices of meats that prevailed in 1909. One of the most interesting facts brought out by the table is the increasing production of fresh pork and the decreasing production of salted and cured pork. In 1899 the output of salted and cured pork was over one and one-half times that of fresh pork, while in 1909 the output of the latter was nearly two and one-third times that of the former.

The output of lard decreased in quantity, but increased in value from 1904 to 1909, while the value in 1909 of the products included under the head of "All other products" was nearly three times that in 1904, owing in a measure to the increased production of lard substitutes. The number of hides reported increased 102,236, or 37.6 per cent, from 1904 to 1909, and their value \$1,244,158, or 84.9 per cent.

**Canning and preserving.**—Although this industry in California dates from about 1875, its real importance and development did not commence until several years later. The value of its products, which in 1889 was \$6,621,931, more than doubled during each of the two following decades, amounting in 1909 to \$32,914,829. The quantity and value of the products, by classes, are given in the table in the next column for 1909, 1904, and 1899.

The case, which is used as the unit of measure for canned fruits and canned vegetables in the table, consists of 24 standard-size cans—No. 2 (also called 2-pound cans) for beans, peas, berries, cherries, and plums, and No. 3 (also called 3-pound cans) for all other fruits and vegetables. Where the output of fruits and vegetables has been reported in other forms by the canneries, the quantities so reported have been reduced to standard cases, as above specified.

California ranks first among the states in the production of canned asparagus, apricots, peaches, and pears, and of dried peaches and prunes; second in the production of canned sardines; and sixth in that of canned tomatoes. The state had a complete monopoly of the production of dried apricots and of raisins in the United States in 1909, neither of these products being reported from any other state.

The value of dried fruits constituted 55.3 per cent of the total value of products of the industry in 1909, as compared with 52.9 per cent in 1904 and 17.2 per cent in 1899. The increase in the value of the dried-fruit products during the decade 1899-1909 was 608.8 per cent, the greatest advance being from 1899 to 1904, when the gain was 437.1 per cent. The most important of the dried-fruit products, both in point of quantity and of value, were raisins and prunes. California reported the total output of raisins in the United States in 1909, as already stated, and 85.7 per cent of the total value of dried prunes produced.

Canned fruits, the second group of products in importance in respect to value, decreased in relative importance during both five-year periods, although the value of the output has remained approximately the same. The proportion which the value of this class of products formed of the total for the industry was 22 per cent in 1909, 26.8 per cent in 1904, and 49.1 per cent in 1899. The value of the output in 1909 shows an increase of \$270,259, or 3.9 per cent, as compared with 1904; this increase, however, was not sufficient to make up for the decrease from 1899 to

1904, so that a decrease of \$91,717, or 1.2 per cent, is shown for the decade as a whole. The fruit most largely canned in 1909 was peaches, the value of which constituted 9.2 per cent of the total reported for the canning and preserving industry.

The value of the vegetables canned increased throughout the period covered by the table, the rate of increase from 1904 to 1909 being much higher than that during the preceding five-year period. The value of canned asparagus formed over half of the value of all canned vegetables reported for the state in 1909.

PRODUCT.	1909	1904	1899
<b>Total value</b> .....	<b>\$32,914,829</b>	<b>\$26,083,226</b>	<b>\$14,940,882</b>
<b>Canned vegetables</b> .....	<b>\$3,470,621</b>	<b>\$2,306,661</b>	<b>\$2,274,037</b>
Asparagus—			
Cases.....	108,123		
Value.....	\$1,794,346		
Beans—			
Cases.....	47,525	65,641	34,209
Value.....	\$87,059	\$133,494	\$66,797
Peas—			
Cases.....	123,349	68,142	72,760
Value.....	\$250,624	\$144,033	\$145,987
Pumpkins—			
Cases.....	11,694	18,852	1,033
Value.....	\$15,165	\$30,156	\$1,860
Tomatoes—			
Cases.....	545,131	541,776	794,566
Value.....	\$1,120,632	\$845,805	\$2,068,997
All other—			
Cases.....	65,812	286,172	148
Value.....	\$202,796	\$1,213,173	\$396
<b>Canned fruits</b> .....	<b>\$7,248,342</b>	<b>\$6,978,083</b>	<b>\$7,340,050</b>
Apples—			
Cases.....	67,697	31,286	25,287
Value.....	\$136,855	\$67,591	\$71,427
Apricots—			
Cases.....	560,186	592,038	531,568
Value.....	\$1,819,558	\$1,619,757	\$1,582,927
Berries—			
Cases.....	108,672	67,467	87,564
Value.....	\$200,094	\$168,640	\$218,733
Cherries—			
Cases.....	213,518	171,298	49,375
Value.....	\$463,476	\$457,109	\$155,813
Peaches—			
Cases.....	1,166,627	744,715	903,076
Value.....	\$3,013,203	\$2,640,524	\$3,103,775
Pears—			
Cases.....	436,272	524,197	444,343
Value.....	\$1,316,022	\$1,577,823	\$1,610,900
Plums—			
Cases.....	138,477	196,379	358,298
Value.....	\$230,384	\$349,307	\$596,484
All other—			
Cases.....	19,900	54,215	
Value.....	\$68,750	\$97,272	
<b>Dried fruits:</b>			
Pounds.....	423,726,550	300,308,919	49,337,883
Value.....	\$18,212,316	\$13,800,601	\$2,569,520
Apples—			
Pounds.....	6,860,170	811,254	3,087,220
Value.....	\$481,173	\$40,659	\$155,893
Apricots—			
Pounds.....	29,205,509	19,559,573	5,310,217
Value.....	\$2,277,177	\$1,410,838	\$442,544
Peaches—			
Pounds.....	46,827,391	25,845,364	5,502,300
Value.....	\$2,422,043	\$1,701,105	\$301,495
Prunes—			
Pounds.....	118,917,876	114,580,431	24,102,329
Value.....	\$4,394,922	\$3,169,878	\$907,041
Raisins—			
Pounds.....	195,774,767	121,409,881	10,734,221
Value.....	\$6,912,533	\$6,349,381	\$729,268
All other—			
Pounds.....	26,140,777	18,102,416	601,506
Value.....	\$1,724,468	\$1,128,740	\$42,279
<b>Fish and oysters:</b>			
Pounds.....	12,657,233	16,582,300	11,238,460
Value.....	\$1,156,881	\$1,011,222	\$796,637
<b>Canned fish—</b>			
Sardines—			
Pounds.....	1,980,364	860,000	388,708
Value.....	\$238,607	\$78,000	\$78,860
All other—			
Pounds.....	2,286,610	5,300,923	3,480,416
Value.....	\$387,601	\$378,524	\$262,808
<b>Smoked fish—</b>			
Pounds.....	100,900	789,537	225,000
Value.....	\$14,680	\$71,088	\$9,000
<b>Salted fish—</b>			
Pounds.....	8,289,359	9,681,840	7,144,336
Value.....	\$515,993	\$483,610	\$445,969
<b>All other products</b> .....	<b>\$2,826,669</b>	<b>\$1,926,659</b>	<b>\$1,960,629</b>

The canning and curing of fish and the canning of oysters and clams, constitute, in California, a minor branch of the canning and preserving industry. Of the 196 establishments reported for the industry in 1909, 15 canned or cured fish and canned oysters; 2 others canned oysters; and 1 canned clams. Sardines were the chief kind of fish canned, salmon was the leading variety smoked, and cod was the principal species salted.

It is worthy of note that over half of the value of products reported for the industry in the state in 1909 was returned by eight corporations having 38 plants which were reported as 33 establishments.

**Flour-mill and gristmill products.**—The following tabular statement gives the quantity and value of the various products of this industry for 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
<b>Total value</b> .....	\$25,188,133	\$20,202,542	\$13,045,260
Wheat flour:			
White—			
Barrels.....	1,774,958	2,408,358	2,653,935
Value.....	\$10,209,567	\$10,479,131	
Graham—			\$7,928,449
Barrels.....	30,290	31,141	
Value.....	\$166,134	\$132,540	
Corn meal and corn flour:			
Barrels.....	50,969	52,254	92,356
Value.....	\$222,399	\$215,845	\$215,213
Rye flour:			
Barrels.....	9,214	22,733	14,582
Value.....	\$45,145	\$105,046	\$43,041
Buckwheat flour:			
Pounds.....	133,328	352,382	552,000
Value.....	\$4,514	\$12,753	\$19,572
Hominy and grits:			
Pounds.....	736,669	987,983	3,097,500
Value.....	\$20,937	\$33,905	\$36,835
Feeds:			
Tons.....	336,431	228,069	111,944
Value.....	\$10,462,069	\$5,979,376	\$2,242,136
Offal:			
Tons.....	79,643	99,070	84,107
Value.....	\$2,056,372	\$2,057,448	\$1,155,775
All other products.....	\$2,000,996	\$1,185,598	\$1,403,639

Measured by value, the most important single product in 1909 was feed, the output of which more than trebled in quantity and considerably more than quadrupled in value during the decade 1899–1909. The greatest relative gains in both quantity and value, and the largest absolute gain in quantity, were from 1899 to 1904, but the largest absolute increase in value was from 1904 to 1909. Much of the feed made in California was from barley, the crop of which in 1909 was over four times as great as the wheat crop and exceeded the combined yield of all other cereals in the state.

Wheat flour was the second product in importance in 1909, having been displaced from first place since 1904 by feed. The output of this product decreased during both five-year periods, while its value increased from 1899 to 1904 and decreased slightly from 1904 to 1909. The proportion which the value of wheat flour formed of the total for all flour-mill and gristmill products in the state decreased from 60.8 per cent in 1899 to 52.5 per cent in 1904 and 41.2 per cent in 1909. These decreases are in a measure due to the in-

creasing quantities of wheat used in the manufacture of food preparations, the total value of which was \$5,508,000 in 1909, or nearly three and one-half times that in 1904.

The output of all other products shown separately in the table decreased in both quantity and value between 1904 and 1909, with the exception of corn meal and corn flour, for which a slight increase in value was reported.

The following tabular statement classifies the mills reporting wheat flour in 1909 and 1904 according to their output:

OUTPUT.	NUMBER OF MILLS.	
	1909	1904
<b>Total</b> .....	66	83
Less than 1,000 barrels.....	12	8
1,000 barrels but less than 5,000.....	22	31
5,000 barrels but less than 20,000.....	19	22
20,000 barrels but less than 100,000.....	9	18
100,000 barrels and over.....	4	4

The number of pairs of rolls in use in the industry increased from 1,146 in 1899 to 1,415 in 1904, but decreased to 1,215 in 1909. The number of runs of stone and steel burrs decreased from 148 in 1899 to 88 in 1904 and 57 in 1909.

**Printing and publishing.**—The number and the aggregate circulation of the different classes of newspapers and periodicals reported in 1909, 1904, and 1899 are shown in the following tabular statement:

PERIOD OF ISSUE.	NUMBER OF PUBLICATIONS.			AGGREGATE CIRCULATION PER ISSUE.		
	1909	1904	1899	1909	1904	1899
<b>Total</b> .....	854	845	656	3,025,250	2,627,234	1,448,656
Daily.....	166	148	117	902,752	669,556	475,506
Sunday.....	30	36	34	616,916	598,167	(1)
Semiweekly.....	237	228	23	44,856	28,000	25,822
Weekly.....	495	487	397	730,424	769,155	618,146
Monthly.....	105	124	71	619,900	522,526	194,702
All other classes.....	15	22	14	110,402	39,230	136,300

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

<sup>2</sup> Includes six triweekly publications.

<sup>3</sup> Includes two triweekly publications.

The total number of publications and their aggregate circulation increased much more rapidly from 1899 to 1904 than from 1904 to 1909. The gain in number during the earlier five-year period, 1899–1904, was 189, and that in circulation 1,178,578, while during the five-year period following the corresponding increases were 9 and 398,016, respectively. The class of publications having the largest circulation in 1909 was the dailies, while in 1904 and in 1899 the weeklies had the largest circulation. The dailies also show the most pronounced absolute increase in circulation from 1904 to 1909, while the circulation of the weeklies decreased slightly during the same period. Of the 166 daily newspapers published in 1909, 65, with an aggregate circulation of 457,289, were morning papers.

The increase shown for the more recent five-year period in the circulation of the publications included under the head of "All other classes," was due to the fact that a religious periodical of large circulation which was not classed as a periodical in 1904 was reported as a quarterly in 1909, and to the inclusion in 1909 of a semimonthly agricultural magazine which was not reported in 1904. This class, in 1909, included six semimonthly, five bimonthly, and four quarterly publications.

The number and aggregate circulation of the different classes of newspapers and periodicals printed respectively in English and in foreign languages are shown in the following table:

PERIOD OF ISSUE.	TOTAL.		IN ENGLISH.		IN FOREIGN LANGUAGES. <sup>1</sup>	
	Number.	Aggregate circulation per issue.	Number.	Aggregate circulation per issue.	Number.	Aggregate circulation per issue.
Total.....	854	3,025,250	800	2,890,686	54	134,564
Daily.....	166	902,752	153	854,119	13	48,633
Sunday.....	30	616,916	32	592,913	4	24,003
Semiweekly and triweekly..	37	44,850	35	40,156	2	4,700
Weekly.....	495	730,424	465	694,246	30	36,178
Monthly.....	105	619,900	101	599,000	4	21,050
Quarterly.....	4	60,277	4	60,277	4	21,050
All other classes.....	11	50,125	10	49,375	1	750

<sup>1</sup> Including those publications which were printed in English and also in one or more foreign languages.

Of the 13 dailies printed in foreign languages, 6 were printed in Japanese, 3 in Chinese, 2 in Italian, and 1 each in German and in French, while 3 of the 4 Sunday editions were in Japanese, and the other was in German. Both the semiweekly and the triweekly were in Italian, 3 of the 4 monthlies were in Portuguese, and the other in Swedish, while the bimonthly periodical shown under the head of "All other classes" was in Armenian and English. Of the 30 weekly publications in foreign languages, 8 were printed in German, 6 in Italian, 5 in Portuguese, 3 in Spanish, 2 each in French and in Greek, and 1 each in Danish, Swedish, Croatian, and Servian. Of the 16 newspapers and periodicals in Japanese reported for the United States in 1909, 9 were published in California.

**Petroleum, refining.**—In the production of crude petroleum, California leads all other states in the Union, and its refineries were supplied entirely from the native product. In 1909 the output of crude oil in the state was reported as 54,433,010 barrels, valued at \$30,675,267, these figures representing 29.9 per cent of the total quantity and 23.9 per cent of the total value of crude oil produced in the United States. A large part of the California oils are heavy and useful mainly for the production of asphalt, as they have an asphaltum rather than a paraffin basis. The total number of refineries in the state increased from 4 in 1899 to 19 in 1904 and 29 in 1909.

The following table shows the quantity and cost of materials used in the refineries of the state, the quantity and value of the principal products, and the main equipment reported for 1909, 1904, and 1899:

MATERIAL, PRODUCT, AND EQUIPMENT.	1909	1904	1899
<b>Materials used, total cost.....</b>	<b>\$13,897,721</b>	<b>\$4,130,809</b>	<b>\$489,989</b>
Crude petroleum:			
Barrels (42 gallons).....	13,481,085	4,369,600	339,863
Cost.....	\$10,105,341	\$3,431,754	\$405,150
Containers.....	\$850,894	\$131,404	\$9,400
All other materials.....	\$2,935,486	\$567,651	\$75,439
<b>Products, total value.....</b>	<b>\$17,878,006</b>	<b>\$5,748,598</b>	<b>\$697,877</b>
Oils:			
Illuminating—			
Barrels (50 gallons).....	1,728,863	647,934	45,840
Value.....	\$5,047,759	\$2,023,738	\$170,066
Fuel (including gas oils)—			
Barrels.....	3,931,366	731,215	84,240
Value.....	\$3,862,603	\$618,178	\$98,237
Lubricating—			
Barrels.....	186,672	54,018	2,052
Value.....	\$1,137,661	\$221,760	\$10,262
Naphtha and gasoline (including gas naphtha)—			
Barrels.....	628,804	238,015	57,995
Value.....	\$3,256,209	\$926,063	\$201,209
All other products.....	\$4,573,774	\$1,958,859	\$218,103
<b>Equipment:</b>			
Stills, number.....	237	106	37
Heated by steam—			
Number.....	28	14	9
Capacity (barrels of 42 gallons).....	4,934	( <sup>1</sup> )	( <sup>1</sup> )
Heated by superheated steam—			
Number.....	1		6
Capacity (barrels of 42 gallons).....	200		( <sup>1</sup> )
Heated by fire—			
Number.....	208	92	22
Capacity (barrels of 42 gallons).....	156,939	( <sup>1</sup> )	( <sup>1</sup> )
Agitators, number.....	56	47	7
Hydraulic or other presses, number.....	7	2	2
Storage tanks:			
For crude petroleum—			
Number.....	165	43	12
Capacity, gallons.....	29,037,397	12,439,724	( <sup>1</sup> )
For refined petroleum—			
Number.....	636	375	62
Capacity, gallons.....	55,413,966	49,410,353	( <sup>1</sup> )
Cooper shops, number.....	8	11	2
Tin shops, number.....	1	2	1

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

The output of fuel oils (including gas oils) refined in 1909 was greater than the combined output of all other products shown separately, forming 60.7 per cent of the total output of oils. The corresponding proportion for 1904 was 43.8 per cent and for 1899, 44.3 per cent. The fuel oils produced in California represented 11.6 per cent of the total output of fuel oils in the United States in 1909. Illuminating oils, the next product in importance, show a decided increase from census to census. The proportion which this latter class of oils formed of the total output of oils increased from 24.1 per cent in 1899 to 38.8 per cent in 1904, but decreased to 26.7 per cent in 1909.

In addition to the products shown separately in the table, a number of other products were reported, the most important being oil asphaltum, the output of which in 1909 was 139,473 tons of 2,000 pounds. No comparative figures, however, are available, as prior to 1909 this product was not reported separately. There was a great increase from 1899 to 1904 in the quantity of residuum or tar reported, but in 1909 the amount was very much reduced. Considerable quantities of

fuel and other distillates and some liquid asphalt were also reported in 1909.

The great increase in the industry is also reflected in the increase in equipment, such as stills, storage tanks, and agitators.

**Butter, cheese, and condensed milk.**—While this industry shows a decided increase in value of products for each of the five-year periods covered by the table, the number of establishments, as shown in Table I, page 26, though increasing considerably from 1899 to 1904, decreased 42.7 per cent from 1904 to 1909. The decrease is due entirely to a change in the manner of conducting the industry. In 1904 there were a number of local creameries which have since been abandoned or else are now used simply as collecting depots, from which the milk and cream are shipped to large central plants. In 1909 only one establishment in the industry was engaged primarily in the manufacture of condensed milk, whereas six were reported as so engaged in 1904 and two in 1899.

The following table gives the quantity and value of the chief products for 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
<b>Total value.....</b>	<b>\$12,760,670</b>	<b>\$7,820,937</b>	<b>\$3,582,942</b>
<b>Butter:</b>			
Pounds.....	37,283,450	26,837,386	13,147,137
Value.....	\$11,644,453	\$6,640,845	\$2,854,632
<b>Packed solid—</b>			
Pounds.....	7,764,690	3,070,637	2,983,262
Value.....	\$2,388,205	\$742,920	\$584,478
<b>Prints or rolls—</b>			
Pounds.....	29,518,754	23,706,749	10,163,875
Value.....	\$9,256,188	\$5,897,916	\$2,270,154
<b>Cream sold:</b>			
Pounds.....	2,674,825	921,334	1,036,600
Value.....	\$411,473	\$132,277	\$120,283
<b>Cheese, full cream:<sup>1</sup></b>			
Pounds.....	1,567,640	3,601,051	2,676,543
Value.....	\$252,582	\$425,231	\$279,125
<b>All other products.....</b>	<b>\$452,162</b>	<b>\$622,584</b>	<b>\$328,902</b>

<sup>1</sup> Includes, in 1909, 123,000 pounds of part-cream cheese, valued at \$13,296; in 1904, 174,005 pounds of "other kinds," valued at \$26,375; and, in 1899, 251,838 pounds of "other kinds," valued at \$34,615.

The total quantity of butter manufactured in the state during 1909 was 37,283,450 pounds, an increase of 38.9 per cent as compared with 1904 and of 183.6 per cent as compared with 1899. The value of butter represented 91.3 per cent of the total value of all products reported for the industry in 1909, as compared with 84.9 per cent in 1904 and 79.7 per cent in 1899. Although by far the largest part of the butter manufactured was in prints and rolls, there were large relative increases from 1904 to 1909 in the quantity and value of butter packed solid, amounting to 152.9 per cent and 221.5 per cent, respectively.

The output of cheese increased decidedly in both quantity and value from 1899 to 1904, but the totals shown for 1909 were less than those presented for 1899. These decreases are no doubt due in part to the increasing practice of separating the cream on the farm, as it is now more profitable to sell the separated

cream to the butter factories. The greater profit resulting from the sale of milk to the dealers in the cities may also have been a factor in the decrease referred to.

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

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost.....</b>	<b>\$7,039,453</b>	<b>\$5,912,140</b>	<b>\$5,899,422</b>
<b>Cattle hides:</b>			
Number.....	611,421	634,417	553,356
Cost.....	\$4,300,834	\$3,528,424	\$3,207,522
<b>Calf and kip skins:</b>			
Number.....	113,449	107,834	122,167
Cost.....	\$302,613	\$138,172	\$138,507
<b>Goatskins:</b>			
Number.....	20,724	20,022	27,692
Cost.....	\$10,501	\$13,814	\$12,600
<b>Sheepskins:</b>			
Number.....	1,328,712	1,510,067	1,381,529
Cost.....	\$926,139	\$829,275	\$890,011
<b>All other skins:</b>			
Number.....	82,047	112,720	106,319
Cost.....	\$77,921	\$82,774	\$147,590
<b>Rough leather, purchased.....</b>	<b>\$14,020</b>	<b>\$13,160</b>	<b>\$13,211</b>
<b>All other materials.....</b>	<b>\$1,377,425</b>	<b>\$1,206,521</b>	<b>\$979,581</b>
<b>Products, total value.....</b>	<b>\$9,366,545</b>	<b>8,079,257</b>	<b>\$7,405,941</b>
<b>Leather.....</b>	<b>\$8,237,323</b>	<b>\$7,196,516</b>	<b>\$6,559,482</b>
<b>Sole—</b>			
Sides.....	472,236	575,393	556,066
Value.....	\$1,100,226	\$2,971,579	\$2,532,986
<b>Oak—</b>			
Sides.....	429,716	575,393	556,066
Value.....	\$2,940,734	\$2,971,579	\$2,532,986
<b>Chrome—</b>			
Sides.....	42,520		
Value.....	\$150,492		
<b>Upper, other than calf or kip skins.....</b>	<b>\$112,601</b>	<b>\$102,303</b>	<b>\$160,403</b>
Grain, satin, pebble, etc. (side leather)—			
Sides.....	24,268	22,780	60,601
Value.....	\$83,776	\$69,680	\$130,352
<b>Finished splits—</b>			
Number.....	42,600	83,832	7,891
Value.....	\$28,825	\$32,623	\$10,991
<b>Horsehides—</b>			
Number.....	9,427	3,600	
Value.....	\$34,757	\$12,600	
<b>Calf and kip skins, tanned and finished—</b>			
Number.....	127,852	106,571	122,167
Value.....	\$408,957	\$241,728	\$195,111
<b>Flesh—</b>			
Number.....	5,583	68,688	85,000
Value.....	\$16,084	\$142,740	\$141,529
<b>Grain—</b>			
Number.....	122,269	37,883	37,133
Value.....	\$392,873	\$98,079	\$53,555
<b>Goatskins—</b>			
Number.....	10,360	3,000	6,490
Value.....	\$24,294	\$12,000	\$6,090
<b>Sheepskins, tanned and finished—</b>			
Number.....	601,802	1,012,816	1,135,290
Value.....	\$237,476	\$341,262	\$338,490
<b>Harness—</b>			
Sides.....	383,264	330,011	379,225
Value.....	\$2,571,122	\$1,004,647	\$1,676,733
<b>Glove.....</b>	<b>\$733,587</b>	<b>\$530,480</b>	<b>\$535,307</b>
<b>Rough leather sold.....</b>	<b>\$210,051</b>	<b>\$352,709</b>	<b>\$36,456</b>
<b>All other.....</b>	<b>\$804,252</b>	<b>\$727,118</b>	<b>\$54,290</b>
<b>All other products.....</b>	<b>\$1,090,436</b>	<b>\$867,855</b>	<b>\$84,770</b>
<b>Amount received for work on materials for others.....</b>	<b>\$38,786</b>	<b>\$7,886</b>	<b>\$2,590</b>

Untanned cattle hides constituted the principal material at each census, their value forming 61.1 per cent of the total reported for all materials in 1909, as against 59.7 per cent in 1904 and 55.2 per cent in 1899. The number of hides used increased 8.4 per cent from 1899 to 1904, but decreased slightly from 1904 to 1909. The number of calf and kip skins used

in 1909 was somewhat larger than in 1904, and the number of goatskins also shows a slight increase; large decreases were, however, reported in the number of sheepskins and of the skins included under the head of "All other skins." Each kind of skins used shows a decrease in 1909 as compared with 1899. There was also a pronounced decrease during the decade in both the quantity and cost of leather purchased in the rough for currying.

Measured by value, the most important individual class of products at each of the three censuses was oak sole leather, the output of which increased slightly in both quantity and value from 1899 to 1904, but decreased in both respects during the period from 1904 to 1909. The product next in importance was harness leather, which shows a decrease in both quantity and value of output from 1899 to 1904, but an increase in both respects during the next five years. Pronounced increases from 1904 to 1909 are shown for tanned and finished grain calf and kip skins, while decided decreases during the same period are shown for tanned and finished sheepskins and in the value of rough leather sold.

**Laundries.**—Statistics for steam laundries are not included in the general tables, or in the totals for manufacturing industries. In 1909 there were 321 such establishments in California, 87 of which were in San Francisco, 41 in Oakland, 31 in Los Angeles, and 10 in Sacramento.

The following statement summarizes the statistics:

Number of establishments.....	321
Persons engaged in the industry.....	9,060
Proprietors and firm members.....	308
Salaried employees.....	714
Wage earners (average number).....	8,038
Primary horsepower.....	8,961
Capital.....	\$6,295,915
Expenses.....	8,177,759
Services.....	5,260,743
Materials.....	1,612,112
Miscellaneous.....	1,304,904
Amount received for work done.....	9,541,795

Of the 321 establishments reporting, 146 were operated by individuals, 66 by firms, and 109 by corporations. Sixty-five establishments had receipts for the year's business of less than \$5,000; 130, receipts of \$5,000 but less than \$20,000; 107, receipts of \$20,000 but less than \$100,000; and 19, receipts of \$100,000 but less than \$1,000,000.

The number of wage earners employed each month and the percentage which this number represented of

the greatest number employed in any month were as follows:

MONTH.	WAGE EARNERS.		MONTH.	WAGE EARNERS.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	7,632	91.2	July.....	8,366	100.0
February.....	7,560	90.4	August.....	8,277	98.9
March.....	7,828	93.6	September.....	8,350	99.8
April.....	7,911	94.6	October.....	8,209	98.1
May.....	7,985	95.4	November.....	8,118	97.0
June.....	8,107	96.9	December.....	8,116	97.0

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

KIND.	Number of engines or motors.	Horsepower.
<b>Primary power, total.....</b>		<b>8,961</b>
<b>Owned:</b>		
Steam.....	202	7,504
Gas.....	3	15
Water wheels.....	5	150
Water motor.....	1	10
<b>Rented:</b>		
Electric.....	235	1,224
Other.....		58

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

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	222
Bituminous coal.....	Tons.....	2,646
Coke.....	Tons.....	19
Wood.....	Cords.....	3,496
Oil.....	Barrels.....	270,910
Gas.....	1,000 feet.....	50,267

**Custom sawmills and gristmills.**—Statistics for custom gristmills are not included in the general tables or in the totals for manufacturing industries, but are presented in the following summary. Statistics can not be shown for custom sawmills without disclosing the operations of the one establishment reported.

	Custom gristmills.
Number of establishments.....	12
Persons engaged in the industry.....	28
Proprietors and firm members.....	9
Salaried employees.....	4
Wage earners (average number).....	15
Primary horsepower.....	518
Capital.....	\$65,411
Expenses.....	525,697
Services.....	11,663
Materials.....	1,503,559
Miscellaneous.....	10,475
Value of products.....	1,572,597

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

MANUFACTURES—CALIFORNIA.

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
			Expressed in thousands.										
<b>STATE—All industries</b>	1909	7,659	141,576	8,077	18,203	115,296	329,100	\$537,134	\$22,955	\$84,142	\$325,238	\$529,761	\$204,523
	1904	6,839	120,040	7,402	12,283	100,355	210,359	282,647	14,399	64,557	215,726	367,218	151,492
	1899	4,997			6,877	77,224	126,953	176,468	7,495	39,890	164,894	257,386	92,492
Agricultural implements.....	1909	25	749	19	108	622	1,186	2,350	123	451	1,441	2,670	1,229
	1904	25	585	19	87	479	583	2,240	99	349	724	1,484	760
	1899	20	659	12	81	562	689	1,852	75	322	530	1,358	819
Artificial stone.....	1909	66	434	71	43	320	247	448	36	239	229	643	423
	1904	22	227	19	28	180	87	262	20	122	130	329	199
Automobiles, including bodies and parts.	1909	41	589	50	61	478	305	701	71	368	700	1,470	770
	1904	6	21	4	3	14	32	49	5	10	13	36	29
Babbitt metal and solder.....	1909	5	81		29	52	91	547	67	40	847	1,120	273
	1904	4	57	3	17	37	72	256	29	27	590	721	131
	1899	4	46	4	8	34		176	11	23	464	551	87
Boots and shoes, including cut stock and findings.	1909	18	840	76	69	695	369	1,192	89	402	1,120	1,924	804
	1904	24	817	59	50	708	246	1,157	51	389	1,000	1,734	734
	1899	24	1,151	88	63	1,000		1,202	56	460	1,103	1,862	759
Boxes, fancy and paper.....	1909	19	703	10	69	624	405	731	86	271	442	965	523
	1904	16	478	12	33	433	105	420	36	152	241	524	253
	1899	13	330	20	14	296		153	11	96	134	329	195
Brass and bronze products.....	1909	29	259	28	36	195	201	338	42	181	295	679	354
	1904	22	465	21	56	388	223	780	76	260	321	940	610
	1899	16	391	19	27	345		779	34	219	400	811	411
Bread and other bakery products.....	1909	864	5,801	1,077	706	4,018	2,517	8,056	663	3,075	10,377	17,710	7,333
	1904	615	3,808	737	293	2,778	898	3,327	214	1,991	5,756	10,619	4,863
	1899	359	2,165	423	194	1,548		1,665	110	836	2,624	4,877	2,253
Brick and tile.....	1909	78	1,879	35	141	1,703	8,972	9,160	162	1,146	952	2,756	1,801
	1904	69	1,504	46	101	1,357	5,067	3,929	102	825	335	1,916	1,581
	1899	56	825	60	45	720	1,468	1,205	43	333	166	834	668
Butter, cheese, and condensed milk.....	1909	161	918	119	202	597	2,496	2,820	202	466	11,140	12,761	1,621
	1904	281	997	269	125	693	3,026	2,107	78	414	6,469	7,821	1,261
	1899	178	629	137	90	402		1,157	47	203	2,981	3,583	662
Canning and preserving.....	1909	196	8,714	148	809	7,757	7,453	18,316	1,080	3,454	24,009	32,915	8,906
	1904	236	8,510	160	611	7,739	4,635	11,187	797	2,800	18,655	26,083	7,423
	1899	183			349	8,200		5,511	344	2,257	10,145	14,041	4,796
Carriages and wagons and materials.....	1909	155	1,015	185	70	760	957	1,635	74	610	849	2,052	1,263
	1904	198	1,277	248	49	980	782	1,730	51	715	852	2,352	1,509
	1899	193			37	923		1,603	44	502	776	1,976	1,209
Cars and general shop construction and repairs by steam-railroad companies.	1909	42	9,688		346	9,342	7,877	4,721	379	8,394	9,549	18,719	9,179
	1904	28	8,522		271	8,251	4,753	4,047	313	6,068	3,251	9,836	6,585
	1899	29	5,039		119	4,920	3,102	4,430	142	3,597	3,825	7,554	3,729
Cars and general shop construction and repairs by street-railroad companies.	1909	21	2,002		100	1,902	2,055	2,130	97	1,676	1,152	3,009	1,857
	1904	3	943		61	852	235	144	94	672	461	1,228	767
Cement.....	1909	8	2,521		114	2,407	28,892	24,014	195	1,650	2,182	6,504	4,322
	1904	4	628		32	596	5,351	4,856	89	236	664	1,601	937
Chemicals.....	1909	13	294	2	48	244	1,308	2,788	66	168	762	1,306	544
	1904	15	303	3	41	259	1,060	1,969	44	189	700	1,124	424
	1899	21	463	11	62	390	984	1,845	70	230	1,406	2,061	655
Clothing, men's, including shirts.....	1909	74	2,859	272	292	2,385	540	2,258	201	1,050	2,895	5,121	2,226
	1904	98	3,199	287	144	2,768	371	1,540	129	1,146	2,763	5,238	2,475
	1899	108			102	2,938		1,293	97	945	2,710	4,721	2,011
Clothing, women's.....	1909	64	1,197	313	93	791	137	643	100	350	876	1,672	796
	1904	55	1,275	231	67	977	96	537	58	424	863	1,745	882
	1899	50	1,560	182	67	1,311		692	51	437	1,068	1,981	973
Coffee and spice, roasting and grinding.	1909	44	707	27	328	352	1,123	3,324	532	245	4,617	6,492	1,875
	1904	45	627	42	254	331	816	2,221	343	196	3,251	4,683	1,432
	1899	40	483	48	168	267		1,057	212	158	2,315	3,136	821
Confectionery.....	1909	89	1,410	192	306	1,002	582	2,123	271	459	2,138	3,624	1,456
	1904	93	1,564	105	225	1,234	567	1,810	216	533	1,647	3,566	1,839
	1899	36			157	711		811	106	220	904	1,790	856
Cooperage and wooden goods, not elsewhere specified.	1909	38	502	40	46	416	1,192	1,547	67	323	1,579	2,167	585
	1904	23	527	28	32	467	526	798	47	347	1,134	1,718	581
	1899	23	434	36	13	385		471	15	247	948	1,413	465
Copper, tin, and sheet-iron products.....	1909	233	2,511	317	256	1,938	1,367	7,180	319	1,659	3,565	6,804	3,239
	1904	123	2,279	147	132	2,000	628	9,657	238	1,299	3,288	5,938	2,659
	1899	53			78	1,780		2,669	84	876	3,508	5,285	1,777
Electrical machinery, apparatus, and supplies.	1909	27	540	11	94	435	442	779	102	240	928	1,613	685
	1904	24	521	6	112	403	278	716	113	244	434	1,004	570
	1899	11	272	5	29	238	406	181	29	130	359	556	197

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

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

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

MANUFACTURES—CALIFORNIA.

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
<b>STATE—Continued.</b>													
Fertilizers.....	1909	15	278	1	51	226	1,579	\$2,097	872	\$155	\$1,796	\$2,313	\$517
	1904	14	168	10	35	123	852	904	39	69	519	894	375
	1899	8	89	3	16	70	415	648	20	40	483	671	188
Firearms and ammunition.....	1909	5	192	.....	36	156	327	2,169	52	83	1,167	1,577	410
	1904	4	141	.....	24	117	235	499	24	58	510	780	270
	1899	5	142	1	11	130	.....	415	18	61	491	652	161
Flour-mill and gristmill products.....	1909	125	1,392	82	362	948	11,545	13,424	514	732	21,892	25,188	3,296
	1904	122	1,300	94	317	889	11,094	11,467	443	659	17,132	20,203	3,071
	1899	107	.....	.....	195	857	10,015	6,403	269	525	11,023	13,045	2,022
Food preparations.....	1909	120	1,108	171	221	716	1,959	3,332	227	406	3,970	5,508	1,538
	1904	75	661	122	110	429	659	846	87	190	938	1,587	649
	1899	58	.....	.....	39	392	.....	469	30	138	678	1,151	473
Foundry and machine-shop products.....	1909	543	10,218	470	1,371	8,377	17,253	28,693	1,832	7,312	12,901	26,731	13,830
	1904	388	7,770	368	814	6,588	7,849	16,125	1,001	4,913	7,382	17,505	10,213
	1899	298	.....	.....	527	5,173	.....	8,471	602	3,332	5,915	13,023	7,108
Furnishing goods, men's.....	1909	11	187	14	39	134	16	318	35	67	457	721	264
	1904	6	114	10	12	92	8	60	10	37	167	274	107
	1899	14	.....	.....	53	578	.....	271	38	129	361	656	295
Furniture and refrigerators.....	1909	129	1,978	124	201	1,653	2,333	3,002	226	1,507	1,858	4,496	2,638
	1904	90	1,381	85	102	1,194	1,748	2,451	114	887	1,290	2,834	1,544
	1899	40	791	50	57	684	.....	543	43	365	584	1,268	684
Gas and electric fixtures and lamps and reflectors.....	1909	41	785	31	201	553	540	1,743	232	446	750	1,715	965
	1904	12	307	11	52	244	156	408	49	169	193	500	307
	1899	14	281	13	51	217	.....	442	61	128	185	499	314
Gas, illuminating and heating.....	1909	74	2,538	1	871	1,666	7,502	47,075	824	1,408	2,604	8,927	6,323
	1904	53	1,303	1	454	848	3,606	31,286	391	650	1,184	5,412	3,071
	1899	41	910	.....	203	707	.....	20,487	229	497	896	3,162	2,266
Gloves and mittens, leather.....	1909	23	717	21	126	570	58	1,039	120	237	558	1,231	673
	1904	22	588	21	51	516	43	604	47	223	459	911	452
	1899	23	717	30	65	622	.....	433	53	272	437	921	484
Ice, manufactured.....	1909	77	854	35	153	666	9,971	7,781	212	572	564	2,331	1,767
	1904	54	517	35	67	415	5,788	3,550	71	335	209	1,307	1,008
	1899	20	261	7	64	190	1,983	1,306	63	132	120	511	391
Iron and steel, steel works and rolling mills.....	1909	5	1,085	.....	47	1,038	3,945	2,646	81	829	2,348	3,520	1,726
	1904	4	808	.....	35	773	2,618	1,110	53	492	779	1,489	710
	1899	3	573	.....	18	555	2,056	1,499	22	327	507	901	394
Jewelry.....	1909	58	797	165	58	574	324	462	65	477	664	1,557	893
	1904	49	606	127	34	445	161	331	38	375	682	1,447	765
	1899	21	.....	.....	16	221	.....	186	17	160	400	693	293
Leather goods.....	1909	88	946	79	157	710	321	1,945	148	458	1,101	2,244	1,143
	1904	107	973	99	99	775	357	2,075	112	488	1,016	2,125	1,109
	1899	64	.....	.....	87	764	.....	1,256	74	366	915	1,703	788
Leather, tanned, curried, and finished.....	1909	40	1,547	20	129	1,398	3,534	8,535	215	988	7,039	9,367	2,328
	1904	49	1,670	39	116	1,515	3,291	6,368	184	945	5,912	8,072	2,160
	1899	45	1,577	48	75	1,454	.....	4,820	106	871	5,809	7,406	1,597
Lime.....	1909	15	459	12	37	410	558	1,381	55	234	212	609	397
	1904	13	392	4	32	356	95	1,253	43	173	161	572	411
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Liquors, distilled.....	1909	33	264	26	45	193	1,300	2,476	56	128	835	5,353	4,518
	1904	28	131	18	37	76	683	1,028	36	50	375	1,165	790
	1899	8	29	9	.....	20	.....	77	.....	6	191	238	47
Liquors, malt.....	1909	83	1,626	48	282	1,296	8,867	18,804	545	1,391	2,559	9,319	6,760
	1904	97	1,511	92	214	1,205	5,924	10,925	355	1,145	2,250	7,511	5,261
	1899	99	1,180	105	125	505	.....	8,183	213	753	1,277	5,085	3,808
Liquors, vinous.....	1909	181	1,691	157	247	1,287	5,314	20,189	429	682	4,674	8,937	4,263
	1904	273	1,588	240	202	1,146	5,067	10,181	230	656	3,609	6,689	3,020
	1899	187	804	172	106	526	.....	4,659	124	225	2,527	3,938	1,411
Lumber and timber products.....	1909	644	25,079	547	1,697	22,935	94,914	55,165	2,237	15,651	18,369	45,000	26,631
	1904	582	20,612	545	1,148	18,919	71,011	37,904	1,432	12,789	11,529	34,615	23,080
	1899	455	.....	.....	599	13,285	44,129	19,280	666	6,643	8,092	20,304	12,212
Marble and stone work.....	1909	128	1,724	155	154	1,415	3,562	3,145	210	1,241	1,183	3,380	2,107
	1904	69	992	84	71	837	1,324	1,814	83	807	1,005	2,395	1,390
	1899	48	.....	.....	39	566	.....	1,009	44	413	368	1,122	754
Mattresses and spring beds.....	1909	35	671	25	118	528	727	1,351	149	361	1,243	2,164	921
	1904	31	520	34	63	423	336	592	65	237	475	1,010	535
	1899	10	.....	.....	16	128	.....	129	20	54	230	414	184
Paint and varnish.....	1909	35	530	14	120	396	1,387	2,675	158	275	2,652	3,758	1,106
	1904	22	395	13	89	293	614	1,617	86	201	1,678	2,370	892
	1899	14	227	11	39	177	614	1,022	48	108	942	1,259	317

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

MANUFACTURES—CALIFORNIA.

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>STATE—Continued.</b>													
Paper and wood pulp .....	1909 1904 1899	4 3	340 273	2 2	26 12	312 259	7,163 3,808	\$2,068 1,176	\$36 20	\$207 181	\$440 274	\$960 640	\$529 366
Patent medicine and compounds and druggists' preparations.	1909 1904 1899	89 89 52	574 548	56 64	208 140	310 344	347 124	994 905	212 162	148 175	639 533	1,549 1,445	910 912 808
Petroleum, refining .....	1909 1904 1899	29 19 4	1,146 840 72	4	212 162 19	930 678 53	5,630 1,283 180	13,881 5,453 478	367 212 40	801 477 42	13,898 4,131 490	17,878 5,749 698	3,060 1,618 298
Pottery, terra-cotta, and fire-clay products.	1909 1904 1899	26 22 18	1,167 941 448	12 10 16	128 71 41	1,027 860 391	2,856 2,195 1,084	3,545 3,484 1,307	184 99 59	641 396 246	505 396 261	1,797 1,761 751	1,292 1,365 490
Printing and publishing .....	1909 1904 1899	1,240 1,081 783	12,215 10,444	1,151 1,052	3,508 2,312	7,556 7,080	7,674 5,238	17,198 11,746 7,037	3,829 2,315 1,000	6,432 5,182 3,001	6,327 4,525 2,606	25,032 19,127 10,586	18,705 14,602 7,860
Salt .....	1909 1904 1899	19 26 24	469 376 332	22 25 28	45 38 37	402 313 267	1,228 756	2,023 1,277 758	50 34 37	212 138 110	242 20 117	746 429 380	504 309 263
Slaughtering and meat packing .....	1909 1904 1899	94 76 64	2,135 1,659	111 84	383 288	1,641 1,287	3,867 2,093	11,463 4,879 3,952	550 351 255	1,307 914 553	28,448 18,752 13,616	34,280 22,013 15,817	5,832 3,261 2,201
Stoves and furnaces, including gas and oil stoves.	1909 1904 1899	17 7	266 189	11 7	40 15	215 167	152 138	413 156	43 13	174 90	206 98	514 270	308 181
Sulphuric, nitric, and mixed acids .....	1909 1904 1899	6 4	247 258		30 21	217 237	735 616	2,614 1,525	57 44	173 158	740 506	1,101 915	421 319
Tobacco manufactures .....	1909 1904 1899	332 4379 231	2,189 2,552 1,028	613 695 346	111 72 47	1,465 1,785 1,235	71 22	1,622 1,245 756	133 66 55	857 823 493	1,217 1,007 741	3,360 3,192 1,888	2,143 2,065 1,147
All other industries .....	1909 1904 1899	976 932 813	17,949 18,378	995 965	2,613 2,120	14,341 15,293	50,707 40,220	153,969 51,664 48,720	3,761 2,758 1,553	10,603 10,008 7,778	98,545 72,067 67,563	131,833 97,731 87,463	33,288 25,664 19,900

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

<b>LOS ANGELES—All industries.</b>	1909 1904 1899	1,325 814 634	21,875 13,189	1,181 761	3,367 2,004	17,327 10,424	33,166 5,173	\$59,518 28,181 10,045	\$3,912 1,997 671	\$12,588 7,088 2,600	\$38,913 18,689 8,088	\$68,586 34,814 15,134	\$29,673 16,125 7,046
Artificial stone .....	1909 1904 1899	8 3	97 78	11	6 9	80 69	15	70 100	9 9	66 43	31 52	147 129	116 77
Boots and shoes, including cut stock and findings.	1909 1904 1899	4 3	38 10	3 3	4	31 7	44	62 4	6 3	24 3	35 5	75 14	40 9
Brass and bronze products .....	1909 1904 1899	8 4	70 58	7 5	8 6	55 47	99	86 34	12 6	46 28	60 39	192 106	132 67
Bread and other bakery products .....	1909 1904 1899	159 75 51	1,445 558 307	176 88 60	163 58 40	1,106 412 208	901	1,887 531 239	200 50 21	702 272 111	2,870 1,027 331	4,670 1,744 660	1,800 717 329
Brick and tile .....	1909 1904 1899	8 7 6	412 411 123		21 21 8	391 383 110	1,451	1,433 713 169	32 23 7	215 202 43	233 103 21	658 477 111	425 374 90
Brooms and brushes .....	1909 1904 1899	8 4 4	63 46 38	8 3 3	3	52 43 32	26	116 43 25	2 3	28 12	86 44 34	151 84 57	65 49 23
Butter, cheese, and condensed milk .....	1909 1904 1899	4 5 3	61 66 35		17 5 8	44 53 24	168	172 202 37	20 6 6	36 42 13	1,307 558 206	1,417 677 250	110 119 44
Canning and preserving .....	1909 1904 1899	21 14 7	479 368	20 7	50 47	409 314	471	963 639 224	64 51 14	175 117 88	771 521 382	1,255 821 556	484 300 174
Carriages and wagons and materials .....	1909 1904 1899	23 16 10	195 144	24 19	11 5	160 120	102	305 73 49	8 3	119 84 36	252 104 55	481 305 126	229 201 71
Cars and general shop construction and repairs by steam-railroad companies.	1909 1904 1899	4 3 3	1,938 1,437 558		51 33 21	1,887 1,404 537	1,083	741 957 349	58 40 28	1,632 1,159 392	1,601 334 280	3,362 1,560 715	1,761 1,216 452

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 Excluding statistics for two establishments, to avoid disclosure of individual operations.

MANUFACTURES—CALIFORNIA.

29

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>LOS ANGELES—Continued.</b>													
Clothing, men's, including shirts.....	1909	15	505	19	34	452	99	\$229	\$32	\$186	\$486	\$822	\$336
	1904	19	258	12	8	238	.....	29	6	89	165	290	134
	1899	19	178	17	6	155	.....	20	4	40	215	322	107
Clothing, women's.....	1909	12	199	15	23	161	42	131	26	72	154	321	167
	1904	4	59	7	10	42	.....	16	7	24	41	88	47
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Coffee and spice, roasting and grinding ..	1909	11	164	6	68	90	241	700	85	67	802	1,150	348
	1904	9	62	11	10	41	.....	200	12	29	347	497	150
	1899	8	38	9	8	21	.....	112	7	9	181	245	64
Confectionery.....	1909	11	163	11	32	120	30	158	29	48	204	343	139
	1904	13	394	17	39	338	.....	568	55	150	533	954	421
	1899	13	.....	41	215	.....	.....	290	37	71	361	667	306
Cooperage and wooden goods, not elsewhere specified.	1909	6	44	7	4	33	89	113	6	25	106	139	33
	1904	3	55	1	4	50	.....	64	5	28	171	232	61
	1899	3	30	4	1	31	.....	48	1	19	71	133	62
Copper, tin, and sheet-iron products....	1909	53	439	59	28	352	147	688	38	250	611	1,124	513
	1904	24	243	30	12	201	.....	269	12	150	244	515	271
	1899	14	.....	12	293	.....	.....	411	15	115	434	707	273
Electrical machinery, apparatus, and supplies.	1909	12	104	4	21	79	104	138	25	52	97	211	114
	1904	6	167	2	44	121	.....	265	43	84	174	400	226
	1899	3	47	1	11	35	.....	56	13	29	16	67	51
Fancy articles, not elsewhere specified..	1909	9	36	11	2	23	50	32	1	14	9	43	34
	1904	9	61	14	4	43	.....	39	2	22	17	71	54
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Flour-mill and gristmill products.....	1909	7	104	.....	59	135	1,260	2,676	99	95	4,830	5,347	517
	1904	8	165	2	53	116	.....	1,809	75	81	2,364	2,799	435
	1899	10	113	5	29	79	.....	607	41	41	1,022	1,223	201
Food preparations.....	1909	22	187	26	30	131	236	338	28	63	376	580	204
	1904	10	80	18	7	55	.....	66	6	24	50	118	68
	1899	7	27	10	3	14	.....	31	.....	4	36	56	20
Foundry and machine-shop products...	1909	113	2,849	84	343	2,422	3,852	7,263	437	1,897	3,755	7,777	4,022
	1904	58	1,489	56	152	1,281	.....	2,911	188	968	1,600	3,557	1,951
	1899	37	.....	78	560	.....	.....	1,032	71	364	779	1,565	786
Furniture and refrigerators.....	1909	42	469	42	47	380	584	586	51	310	354	941	587
	1904	28	386	27	34	325	.....	547	41	222	494	880	386
	1899	8	133	9	19	105	.....	106	7	47	126	230	104
Gas and electric fixtures and lamps and reflectors.	1909	15	288	7	85	190	230	510	105	162	267	670	403
	1904	4	21	4	4	13	.....	19	3	9	16	40	24
	1899	5	63	3	8	52	.....	66	10	34	38	123	85
Hand stamps and stencils and brands...	1909	3	41	3	10	22	18	55	18	17	22	92	70
	1904	5	29	3	8	18	.....	30	7	9	5	40	35
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ice, manufactured.....	1909	6	321	.....	49	272	2,206	2,702	81	224	142	765	623
	1904	5	164	.....	20	144	.....	1,272	23	114	91	470	379
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jewelry.....	1909	16	112	21	19	72	37	153	21	55	162	246	144
	1904	9	77	10	10	57	.....	55	8	47	44	151	107
	1899	3	.....	2	7	.....	.....	46	2	7	30	61	31
Leather goods.....	1909	32	322	28	79	215	70	602	70	117	402	757	355
	1904	24	236	19	42	175	.....	371	45	101	296	584	288
	1899	11	125	13	10	102	.....	66	10	33	32	126	94
Liquors, malt.....	1909	4	290	.....	48	242	1,082	3,846	97	258	362	1,457	1,095
	1904	3	217	.....	37	180	.....	1,867	64	141	227	798	571
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Liquors, vinous.....	1909	13	40	15	2	23	116	270	1	13	42	136	94
	1904	10	55	10	4	41	.....	391	3	22	80	164	84
	1899	16	67	17	4	46	.....	197	2	18	89	136	47
Lumber and timber products.....	1909	61	1,816	45	213	1,558	6,207	3,791	226	1,108	3,529	5,684	2,155
	1904	40	1,024	34	102	888	.....	1,756	122	584	1,597	2,700	1,103
	1899	24	416	21	46	349	.....	826	45	173	490	912	422
Marble and stone work.....	1909	14	108	22	11	75	258	222	9	72	116	257	141
	1904	10	46	8	4	34	.....	40	6	36	26	96	70
	1899	6	36	7	3	26	.....	27	4	15	27	62	35
Mattresses and spring beds.....	1909	11	214	9	37	168	187	399	46	115	495	787	292
	1904	8	100	12	17	71	.....	100	11	47	159	267	108
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Models and patterns, not including paper patterns.	1909	6	20	7	.....	13	33	8	.....	7	6	28	22
	1904	9	26	11	.....	15	.....	9	.....	10	5	31	20
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Paint and varnish.....	1909	6	67	3	29	35	158	305	33	30	358	494	136
	1904	3	22	3	9	10	.....	116	8	9	81	120	39
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

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

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

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

MANUFACTURES—CALIFORNIA.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaries employ-ees.	Wage earners (average number).							
Expressed in thousands.													
<b>LOS ANGELES—Continued.</b>													
Patent medicines and compounds and druggists' preparations.	1909	35	144	26	27	91	62	\$140	\$26	\$43	\$140	\$937	\$167
	1904	25	77	15	23	39	.....	68	17	16	56	153	57
	1899	21	97	27	17	53	.....	79	12	23	54	154	100
Petroleum, refining.....	1909	10	133	.....	33	100	430	1,312	66	82	1,135	1,406	271
	1904	6	82	.....	23	59	.....	529	34	49	321	401	140
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pottery, terra-cotta, and fire-clay products.	1909	8	122	7	17	98	315	536	26	61	86	235	149
	1904	9	174	4	20	150	.....	940	24	99	128	352	224
	1899	7	72	6	9	57	.....	295	11	32	48	105	57
Printing and publishing.....	1909	234	2,545	196	812	1,537	1,220	3,036	879	1,188	1,619	5,192	3,573
	1904	154	2,061	136	743	1,182	.....	2,272	591	905	950	3,598	2,553
	1899	93	.....	.....	114	538	.....	1,022	116	286	326	1,353	1,027
Slaughtering and meat packing.....	1909	6	605	3	95	507	747	3,509	148	324	5,946	7,464	1,518
	1904	4	407	3	51	353	.....	1,062	69	231	3,068	4,040	372
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Surgical appliances and artificial limbs.....	1909	6	31	4	6	21	8	18	6	14	15	40	31
	1904	3	37	4	11	22	.....	61	7	13	14	46	32
	1899	3	.....	.....	.....	7	.....	4	.....	4	2	14	12
Tobacco manufactures.....	1909	33	225	38	11	176	.....	174	20	91	134	344	210
	1904	32	146	33	8	105	.....	54	9	69	82	298	126
	1899	13	49	13	1	35	.....	24	1	22	18	59	41
All other industries.....	1909	246	4,280	214	753	3,313	8,088	18,983	766	2,485	4,965	10,080	6,015
	1904	140	1,593	118	304	1,171	.....	7,090	306	734	1,850	4,268	2,418
	1899	136	.....	.....	201	1,031	.....	3,588	183	518	2,384	4,339	1,955
<b>OAKLAND—All industries.</b>													
	1909	441	8,538	554	1,079	6,905	13,683	\$19,113	\$1,300	\$5,317	\$11,847	\$22,343	\$10,498
	1904	248	3,980	237	390	3,353	.....	9,126	409	2,068	4,307	9,015	4,705
	1899	195	.....	.....	264	2,476	.....	5,173	246	1,210	2,704	5,368	2,664
Bread and other bakery products.....	1909	57	447	69	66	312	203	599	54	254	835	1,420	555
	1904	36	238	39	23	176	.....	146	11	139	368	608	300
	1899	32	191	39	16	136	.....	111	8	78	197	362	165
Butter, cheese, and condensed milk.....	1909	4	73	1	19	53	56	166	28	36	637	742	165
	1904	7	36	5	8	23	.....	51	8	18	272	334	62
	1899	4	8	4	.....	4	.....	5	.....	.....	42	52	10
Canning and preserving.....	1909	9	469	11	33	425	166	974	44	173	674	1,040	366
	1904	5	35	7	6	22	.....	53	5	8	43	67	24
	1899	3	14	6	1	7	.....	8	.....	.....	10	18	8
Carriages and wagons and materials.....	1909	10	65	10	10	45	191	110	9	36	68	168	100
	1904	10	49	11	.....	38	.....	51	.....	27	41	101	60
	1899	10	.....	.....	.....	45	.....	71	.....	27	26	86	60
Confectionery.....	1909	6	127	6	49	72	8	146	33	36	107	222	115
	1904	7	142	10	15	117	.....	80	13	48	103	214	111
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Copper, tin, and sheet-iron products.....	1909	12	85	19	11	55	52	98	14	52	81	180	99
	1904	4	70	5	5	60	.....	102	7	62	107	240	133
	1899	3	.....	.....	.....	14	.....	19	.....	12	10	28	18
Flour-mill and gristmill products.....	1909	3	52	.....	16	36	228	326	20	39	613	691	75
	1904	4	47	1	9	37	.....	293	12	30	376	429	53
	1899	3	36	1	4	31	.....	76	2	23	144	208	64
Food preparations.....	1909	6	53	8	17	28	41	70	18	19	133	214	81
	1904	5	11	7	.....	4	.....	3	.....	2	13	25	12
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Foundry and machine-shop products.....	1909	44	891	39	105	747	993	2,358	132	681	666	1,824	1,155
	1904	13	265	9	20	236	.....	449	26	148	160	417	237
	1899	16	.....	.....	28	271	.....	491	31	148	248	516	267
Liquors, malt.....	1909	4	95	1	16	78	652	734	35	84	158	668	510
	1904	3	27	1	3	23	.....	687	4	26	40	170	130
	1899	3	26	3	6	17	.....	133	8	17	36	133	97
Lumber and timber products.....	1909	31	914	21	85	808	3,421	1,716	126	702	1,198	2,183	985
	1904	21	700	19	57	624	.....	1,217	69	441	787	1,537	750
	1899	13	362	19	20	342	.....	561	25	195	424	733	309
Pottery, terra-cotta, and fire-clay products.	1909	3	45	2	6	37	210	172	0	27	17	66	49
	1904	3	63	3	6	54	.....	111	6	34	19	98	79
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Printing and publishing.....	1909	70	612	65	216	331	540	1,120	229	357	255	1,292	1,037
	1904	39	377	33	82	262	.....	396	63	174	116	580	464
	1899	26	367	26	67	274	.....	593	51	128	117	550	433
Tobacco manufactures.....	1909	27	183	78	4	101	2	86	7	50	74	183	109
	1904	17	58	18	1	39	.....	39	2	23	51	101	59
	1899	12	29	13	.....	16	.....	19	.....	9	13	40	27
All other industries.....	1909	155	4,427	224	426	3,777	6,920	10,438	542	2,771	6,331	11,450	5,119
	1904	74	1,862	69	155	1,638	.....	5,448	183	888	1,811	4,034	2,223
	1899	70	.....	.....	122	1,319	.....	3,086	120	568	1,437	2,643	1,206

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

MANUFACTURES—CALIFORNIA.

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

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

INDUSTRY.	Census.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.	
		Number of establishments.	Total.	Proprietors and firm members.	Salaried employes.								Wage earners (average number).
Expressed in thousands.													
<b>SAN FRANCISCO—All industries.</b>	1909 1904 1899	1,796 2,251 1,748	36,910 46,666	2,544 3,047	6,122 5,190 3,413	23,244 33,429 32,556	49,934	\$133,824 102,362 69,643	\$8,086 6,630 3,920	\$22,381 25,015 17,259	\$70,217 75,946 65,535	\$133,041 137,788 107,024	\$56,824 61,842 41,483
Artificial stone.....	1909 1904 1899	10 5	89 31	12 6	9 1	65 21	26	78 12	0 1	61 23	50 12	151 41	101 20
Baskets, and raffan and willow ware.....	1909 1904 1899	7 7 8	129 40 102	7 8 7	5 1 2	117 31 93	23	107 11 81	11 1 3	49 13 27	118 22 70	211 37 145	93 15 75
Bolting and hose, leather.....	1909 1904 1899	5 5 5	52 60	1 4	18 20 12	33 36 40	37	173 190 181	26 23 11	26 26 26	182 121 182	291 234 288	109 113 106
Boots and shoes, including cat stock and findings.....	1909 1904 1899	8 15 20	423 613 987	73 64 79	31 41 48	321 548 560	131	672 1,002 1,181	36 41 46	204 313 403	553 731 949	976 1,288 1,627	423 557 678
Boxes, fancy and paper.....	1909 1904 1899	10 12 8	321 393 258	6 10 13	34 27 22	281 356 233	225	311 372 132	41 29 10	141 127 79	221 210 114	496 448 274	275 238 160
Brass and bronze products.....	1909 1904 1899	13 15 11	154 354 364	13 14 13	20 46 24	121 324 327	131	183 725 743	22 65 32	116 223 210	164 275 384	356 806 768	192 531 384
Bread and other bakery products.....	1909 1904 1899	167 184 137	1,665 1,722 1,658	263 233 161	199 121 93	1,263 1,306 797	786	3,513 1,688 976	238 100	1,003 982	2,965 2,548 1,508	5,268 4,882 2,601	2,303 2,333 1,033
Brooms and brushes.....	1909 1904 1899	9 11 15	138 136	45 45	8 3	85 88 144	18	82 56 113	4 2	46 47	120 83	206 169	77 86 135
Butter, cheese, and condensed milk.....	1909 1904 1899	3 7 5	8 20 18	3 7 8	5 3	10 10	4	11 79 31	3 4	35 6	47 333 53	12 63 67	
Canning and preserving.....	1909 1904 1899	17 33 34	1,011 1,735	7 33	101 109 85	903 1,538 1,600	666	3,443 2,719 1,080	171 177 135	382 554 480	3,482 3,080 2,377	4,776 4,636 3,513	1,294 1,356 1,136
Carriages and wagons and materials.....	1909 1904 1899	37 63 47	311 502	43 74	31 23 21	237 465 351	248	457 782 574	36 29	204 304	191 319	552 912	361 593
Chemicals.....	1909 1904 1899	4 4 10	133 159 188	5 5 7	19 21 37	121 126 144	729	1,425 875 890	24 27	93 86	628 517 653	938 704	310 217 302
Clothing, men's, including shirts.....	1909 1904 1899	53 84 91	1,905 2,831	251 271	132 122 72	1,522 2,338 2,604	335	1,637 1,436 1,158	126 116	727 1,028	2,106 2,530 2,371	3,682 4,894 4,138	1,576 2,274 1,707
Clothing, women's.....	1909 1904 1899	41 48 49	835 1,191 1,464	190 212	66 57 46	570 922 1,256	83	493 518 659	71 52	252 393	647 810	1,225 1,633	578 823
Coffee and spice, roasting and grinding.....	1909 1904 1899	19 25 22	492 532 412	13 21 23	254 236 158	295 275 231	775	2,440 1,941 1,438	427 325	153 157	3,549 2,730	4,073 3,980	1,424 1,236
Coffins, burial cases, and undertakers' goods.....	1909 1904 1899	4 5 4	78 68 66	2 1 2	15 6 9	61 61 55	151	432 182 205	16 9	39 34	152 106	272 212	120 106
Confectionery.....	1909 1904 1899	27 37 14	680 761	36 43	114 133	539 585 378	299	1,151 850 424	138 115	249 776	930 1,778	1,718 1,778	788 1,002
Cooperage and wooden goods, not elsewhere specified.....	1909 1904 1899	11 15 23	321 416 370	8 14 23	31 28 12	242 374 335	861	1,197 671 386	53 41	220 287	1,194 874	1,604 1,340	410 466
Copper, tin, and sheet-iron products.....	1909 1904 1899	71 50 27	1,336 1,614	130 63	138 85 68	1,098 1,466 1,420	681	5,191 8,924 2,170	202 193	947 901	1,872 2,641	3,645 4,529	1,774 1,888
Electrical machinery, apparatus, and supplies.....	1909 1904 1899	10 13 5	160 294 212	7 2	24 59	129 233	114	133 302	30 59	77 134	143 149	322 420	179 277
Electroplating.....	1909 1904 1899	5 4	42 38	5 5	13 3	27 30	59	34 18	7 3	24 25	23 18	70 81	47 63
Flour-mill and gristmill products.....	1909 1904 1899	9 9 8	172 314	6 6	56 97	107 211	1,225	1,532 2,409	84 150	89 153	2,403 2,780	2,781 3,423	643 638
Food preparations.....	1909 1904 1899	31 38 28	499 379	61 65	108 53	330 261	900	1,956 339	129 47	192 114	1,679 637	2,436 999	757 362

1 Not reported separately.

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—CALIFORNIA.

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>SAN FRANCISCO—Continued.</b>													
Foundry and machine-shop products...	1909	157	3,456	129	504	2,823	6,714	\$10,840	\$735	\$2,690	\$4,901	\$9,022	\$4,721
	1904	172	4,552	153	514	3,885		10,038	731	2,919	4,273	10,525	6,232
	1899	130				300			5,616	444	2,324	4,107	9,137
Furnishing goods, men's.....	1909	3	109	4	28	77	3	242	21	43	308	564	166
	1904	4	85	6	8	71		45	7	31	144	231	87
	1899	14			53	578		271	38	129	301	656	26
Furniture and refrigerators.....	1909	51	1,223	51	124	1,048	1,237	2,180	142	1,017	1,336	3,057	1,721
	1904	45	890	40	62	788		1,534	68	616	743	1,836	1,000
	1899	22	555	26	33	496		948	33	270	306	880	49
Gas and electric fixtures and lamps and reflectors.	1909	15	428	7	100	321	271	1,129	114	257	430	917	457
	1904	18	285	7	48	231		389	40	160	177	401	26
	1899	5	190	3	38	149		361	45	80	127	330	20
Gloves and mittens, leather.....	1909	9	165	10	27	128	16	324	19	79	148	301	133
	1904	15	356	16	28	312		399	26	148	305	613	36
	1899	15	469	19	50	400		298	40	158	319	664	345
Hand stamps and stencils and brands.....	1909	7	94	8	32	54	55	110	37	52	44	101	117
	1904	8	46	9	7	30		35	6	21	18	90	72
	1899	12	60	10	9	41		48	9	24	24	80	56
Ice, manufactured.....	1909	3	80		13	67	1,485	1,650	23	69	73	302	229
	1904	4	93		9	84		816	11	76	68	278	210
	1899	3	80		30	50		510	28	40	44	134	91
Jewelry.....	1909	24	587	125	32	430	248	221	37	367	562	1,121	609
	1904	36	510	113	24	373		260	30	310	630	1,264	604
	1899	18			14	214		141	15	153	370	631	261
Leather goods.....	1909	20	357	17	50	290	165	725	55	204	348	843	45
	1904	34	497	38	41	418		1,264	47	272	535	1,103	56
	1899	30			59	468		899	53	243	542	1,055	613
Leather, tanned, curried, and finished...	1909	17	619	15	46	558	1,260	2,479	89	415	2,655	3,622	95
	1904	21	667	30	42	595		1,788	70	378	1,910	2,718	86
	1899	21	624	29	25	570		1,232	37	365	2,210	2,795	576
Liquors, malt.....	1909	20	551	6	108	437	1,701	7,567	220	508	895	3,482	2,531
	1904	22	693	13	106	574		4,946	190	591	1,147	4,106	2,891
	1899	25	530	23	64	443		4,722	128	398	710	2,872	2,162
Liquors, vinous.....	1909	4	36	5	10	21	31	138	18	14	135	237	10
	1904	5	17	8	1	4		23		4	15	54	3
	1899	6			1			20	1	2	12	27	1
Lumber and timber products.....	1909	68	1,667	47	181	1,439	6,485	2,833	275	1,347	2,133	4,378	2,25
	1904	62	1,584	45	119	1,420		1,787	155	1,105	2,005	3,980	1,915
	1899	33	1,001	31	74	896		920	80	555	1,126	2,187	1,061
Marble and stone work.....	1909	18	598	16	94	488	1,227	1,221	133	413	797	1,635	38
	1904	18	628	18	49	561		1,205	62	524	778	1,665	38
	1899	14			17	155		557	21	98	229	452	23
Mattresses and spring beds.....	1909	12	320	6	58	256	365	783	78	173	576	1,036	46
	1904	16	386	13	44	329		469	52	179	294	686	32
	1899	4			16	80		98	20	39	180	300	15
Millinery and lace goods.....	1909	12	140	12	22	106	97	212	21	61	148	269	12
	1904	11	193	9	11	173		92	8	63	96	223	12
	1899	8	117	8	7	102		31	6	30	33	103	7
Models and patterns, not including paper patterns.	1909	14	101	26	6	75	131	58	3	66	45	153	16
	1904	13	100	17	8	75		80	8	60	28	139	11
	1899	8	64	10		54		31		31	10	76	6
Musical instruments, pianos and organs and materials.	1909	7	27	8	4	15	6	60	3	18	14	54	49
	1904	9	33	8	4	21		79	4	10	19	53	24
	1899	4				18		40		14	11	47	5
Paint and varnish.....	1909	13	142	8	49	85	352	729	57	60	456	758	30
	1904	13	355	8	77	270		1,305	75	184	1,564	2,197	66
	1899	9	71	4	31	36		284	34	22	308	448	14
Patent medicines and compounds and druggists' preparations.	1909	28	330	11	151	168	131	644	154	82	380	689	69
	1904	47	420	32	104	234		728	135	148	435	1,170	155
	1899	26			77	279		629	70	131	690	1,346	63
Photo-engraving.....	1909	9	140	4	41	95	41	108	38	105	34	228	191
	1904	16	192	18	26	118		101	26	103	50	265	215
	1899	8	80	8	8	64		16	10	30	9	76	6
Printing and publishing.....	1909	307	5,180	280	1,588	3,332	3,386	7,101	1,895	3,094	3,156	12,201	9,045
	1904	361	4,898	318	977	3,603		5,548	1,237	2,788	2,680	10,847	8,185
	1899	250			634	2,688		3,364	676	1,827	1,769	6,334	4,663

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

MANUFACTURES—CALIFORNIA.

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

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

INDUSTRY AND CITY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>SAN FRANCISCO—Continued.</b>													
Show cases.....	1909	4	27	5	3	19	23	\$34	\$3	\$21	\$28	\$63	\$35
	1904	4	16	6	4	10	.....	15	.....	10	12	35	24
	1899	3	23	4	.....	19	.....	8	.....	11	10	32	22
Slaughtering and meat packing.....	1909	31	471	47	83	341	1,083	2,056	135	337	8,904	10,270	1,366
	1904	44	464	58	90	316	.....	1,278	111	272	7,088	9,209	1,521
	1899	30	.....	.....	80	200	.....	1,385	112	211	6,715	7,590	875
Tobacco manufactures.....	1909	91	1,111	286	75	750	69	855	85	424	614	1,833	1,219
	1904	172	1,758	459	46	1,253	.....	777	45	481	652	2,028	1,370
	1899	105	1,222	208	37	977	.....	504	49	350	542	1,366	824
All other industries.....	1909	284	7,980	246	1,267	6,467	14,904	62,926	1,795	5,168	23,681	37,949	14,268
	1904	410	12,723	410	1,449	10,864	.....	41,110	1,872	7,373	27,319	44,199	16,880
	1899	308	.....	.....	818	8,484	.....	33,619	1,051	4,936	25,943	37,621	11,678

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

Alameda.....	1909	51	1,076	50	111	915	1,526	\$3,002	\$171	\$797	\$929	\$2,554	\$1,025
	1904	30	326	32	15	279	.....	541	20	241	233	697	404
	1899	23	.....	.....	23	372	.....	749	43	216	788	1,335	547
Bakersfield.....	1909	27	844	20	78	746	910	1,791	94	604	1,700	2,819	1,119
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Berkeley.....	1909	84	1,420	115	221	1,084	2,433	3,465	254	840	2,087	4,435	1,748
	1904	44	453	28	87	338	.....	1,429	86	230	782	1,474	692
	1899	22	.....	.....	19	211	.....	456	14	99	392	651	259
Eureka.....	1909	48	1,075	30	99	946	3,901	3,306	124	673	1,494	3,012	1,518
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fresno.....	1909	76	2,262	43	281	1,938	3,403	4,933	328	1,103	7,092	11,000	3,608
	1904	80	2,169	51	203	1,915	.....	3,430	264	1,062	6,828	9,754	2,926
	1899	62	.....	.....	87	819	.....	1,435	86	396	1,703	2,752	1,049
Long Beach.....	1909	51	413	49	87	277	1,450	1,326	87	207	498	927	429
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pasadena.....	1909	88	708	92	117	499	969	1,347	118	380	853	1,724	871
	1904	46	451	49	84	518	.....	766	80	229	421	967	546
	1899	28	.....	.....	22	177	.....	313	15	77	127	331	204
Pomona.....	1909	30	285	32	29	224	334	630	22	152	230	560	330
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Redlands.....	1909	37	260	36	77	147	439	1,104	47	100	239	518	279
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Riverside.....	1909	53	399	56	76	267	700	1,102	50	214	667	1,178	511
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sacramento.....	1909	211	5,266	219	533	4,514	8,517	10,097	616	3,018	6,893	13,977	7,084
	1904	156	4,742	164	375	4,203	.....	7,359	419	2,952	5,144	10,073	4,929
	1899	111	.....	.....	170	3,686	.....	6,856	202	2,519	5,345	9,495	4,150
San Bernardino.....	1909	41	883	38	116	729	1,411	1,242	94	639	763	1,660	897
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Diego.....	1909	117	1,440	99	270	1,071	3,269	5,326	263	806	2,667	4,741	2,074
	1904	69	703	97	65	541	.....	1,991	60	392	1,136	1,974	838
	1899	57	.....	.....	43	255	.....	990	42	148	281	670	389
San José.....	1909	153	1,828	134	264	1,430	2,078	3,815	249	903	3,243	5,610	2,367
	1904	153	1,625	145	220	1,260	.....	3,083	190	682	2,512	4,208	1,786
	1899	124	.....	.....	189	1,221	.....	2,980	146	587	1,850	3,292	1,442
Santa Barbara.....	1909	51	382	43	74	265	491	895	63	197	696	1,169	473
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Santa Cruz.....	1909	34	388	31	83	274	1,827	2,605	77	211	668	1,161	493
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stockton.....	1909	144	2,039	141	304	1,594	5,016	8,250	376	1,306	8,320	11,849	3,529
	1904	110	1,582	105	144	1,333	.....	5,220	105	904	5,850	8,029	2,179
	1899	91	.....	.....	137	1,185	.....	4,454	151	650	3,987	5,525	1,538
Vallejo.....	1909	23	271	22	46	203	1,616	1,559	75	184	1,404	1,896	492
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

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

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

<sup>3</sup> Figures do not agree with those published in 1904, because it was necessary to revise the totals in order to include data only for those establishments located within the corporate limits of the city.

TABLE II.—DETAIL STATEMENT FOR

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, supts. and managers.	Clerks.		Average number.	Wage earners.		Total.	16 and over.		Under 16.				
					Male.	Female.		Number.			Male.	Female.	Male.	Female.			
								Maximum month.	Minimum month.								
All industries.....	7,659	141,576	8,077	5,563	9,672	2,068	115,296	Se 132,280	Fe 94,252	(1)	(1)	(1)	(1)	(1)	329,100		
1 Agricultural implements.....	25	740	19	24	66	18	622	Ap 702	Au 513	668	668				1,156		
2 Artificial stone.....	66	434	71	31	8	4	320	Do 347	Ja 278	363	361		2		247		
3 Automobiles, including bodies and parts.....	41	559	50	27	21	13	478	Jy 534	Ja 418	471	451		17	3	305		
4 Babbitt metal and solder.....	5	81		11	11	7	52	My 50	Ja 48	52	52				91		
5 Baskets, and rattan and willow ware.....	14	242	11	7	3	2	219	My 207	Au 171	203	63	140			104		
6 Belting and hose, leather.....	5	52	1	8	8	2	33	Je 35	Ja 31	32	31		1		37		
7 Bicycles, motorcycles, and parts.....	5	19	6	1	1		11	No 13	Ja 10	13	12		1		12		
8 Blacking and cleansing and polishing preparations.....	9	40	5	6	7	1	21	De 27	Ja 18	27	18		6	3	36		
9 Boots and shoes, including cut stock and findings.....	18	840	76	18	37	14	695	No 754	Jy 542	791	547	190	38	7	369		
10 Boxes, cigar.....	3	57	3	3	1	1	49	Oc 52	Jy 45	52	29	23			29		
11 Boxes, fancy and paper.....	19	703	10	27	28	14	624	No 707	Ja 532	692	217	437	5	33	405		
12 Brass and bronze products.....	29	259	28	20	13	3	195	De 203	Ap 184	206	202				201		
13 Bread and other bakery products.....	864	5,801	1,077	150	268	288	4,018	Oc 4,154	Ja 3,003	4,359	3,501	818	2	18	2,517		
14 Brick and tile.....	78	1,879	35	85	46	10	1,703	Jy 2,223	Fe 941	1,801	1,778		1	22	8,072		
15 Brooms.....	16	219	54	4	5	1	155	Ja 164	Se 147	101	100				52		
16 Brushes.....	8	22	9	1	1	1	11	No 17	Jy 9	17	16		1		14		
17 Butter, cheese, and condensed milk.....	161	918	119	90	70	42	597	My 632	Ja 525	635	596	39			2,496		
18 Buttons.....	7	21	8				13	Ap 15	Fe 11	13	4		1				
19 Canning and preserving.....	196	8,714	148	285	382	142	7,757	Au 16,047	Fe 2,781	15,034	6,231	8,472	117	214	7,453		
20 Carpets, rag.....	17	109	25	3	3	2	76	Oc 87	Ja 94	92	79				35		
21 Carriages and wagons and materials.....	155	1,015	185	42	12	16	700	Je 821	Ja 677	741	733		8		957		
22 Cars and general shop construction and repairs by steam-railroad companies.....	42	9,688		70	271	5	9,342	Oc 10,057	Fe 7,623	9,059	9,657		2		7,877		
23 Cars and general shop construction and repairs by street-railroad companies.....	21	2,002		35	59	6	1,902	Jy 1,985	Ja 1,835	1,911	1,911				2,055		
24 Cars, steam-railroad, not including operations of railroad companies.....	5	165		8	10	1	146	Je 172	Au 124	140	139		1		493		
25 Cement.....	8	2,521		24	83	7	2,407	No 2,843	Ja 1,481	2,841	2,837		4		28,892		
26 Chemicals.....	13	294	2	22	19	7	244	No 361	Mh 195	360	350				1,368		
27 Clothing, men's, including shirts.....	74	2,859	272	51	111	40	2,385	Mh 2,455	Ja 2,268	2,403	418	1,981		3	540		
28 Clothing, women's.....	64	1,197	313	27	41	25	791	No 842	Je 684	882	275	584		1	137		
29 Coffee and spice, roasting and grinding.....	44	707	27	51	226	51	352	No 373	Fe 330	374	235		1	1	1,123		
30 Coffins, burial cases, and undertakers' goods.....	7	133	2	10	15	4	102	Ap 107	Jy 96	104	74	29		1	221		
31 Confectionery.....	89	1,410	102	60	116	130	1,002	De 1,269	Ja 850	1,285	475	785	9	16	582		
32 Cooperage and wooden goods, not elsewhere specified.....	38	502	40	21	15	10	416	Oc 400	Fe 336	492	489	2		1	1,192		
33 Copper, tin, and sheet-iron products.....	233	2,511	317	111	100	45	1,938	Jy 2,129	Ja 1,712	2,054	1,939	107		2	1,367		
34 Cutlery and tools, not elsewhere specified.....	16	58	15	1			42	No 52	Fe 35	51	49		8		71		
35 Dairymen's, poultryers', and apiarists' supplies.....	11	113	10	14	15	11	63	Mh 87	Se 42	87	84	3			76		
36 Electrical machinery, apparatus, and supplies.....	27	540	11	32	37	25	435	No 487	Se 407	489	366	121	2		442		
37 Electroplating.....	12	66	14	6	5		41	De 45	My 37	45	45				56		
38 Fancy articles, not elsewhere specified.....	13	54	17	3	3	1	30	My 33	Ja 23	36	21		3	1	56		
39 Fertilizers.....	15	278	1	19	28	4	226	Mh 263	Au 203	230	229	1			1,579		
40 Firearms and ammunition.....	5	192		19	14	3	156	Je 168	Fe 144	161	120	41			327		
41 Flags, banners, regalia, society badges and emblems.....	6	54	3	5	4	2	40	Jy 44	Ja 38	43	26	16		1	23		
42 Flour-mill and gristmill products.....	125	1,392	82	125	203	34	948	No 1,069	Ap 889	1,087	1,064	23			11,545		
43 Food preparations.....	129	1,108	171	85	107	29	716	No 894	Ap 594	977	664	310	3		1,959		
44 Foundry and machine-shop products.....	543	10,218	470	536	652	183	8,377	De 8,723	Ja 7,517	8,875	8,817	16	42		17,253		
45 Fur goods.....	8	105	7	3	5	6	84	No 114	My 57	112	41	71			12		
46 Furnishing goods, men's.....	11	187	14	4	22	13	134	De 161	Ja 117	163	26	132	1	4	16		
47 Furniture and refrigerators.....	129	1,978	124	70	110	21	1,653	Mh 1,750	Jy 1,538	1,750	1,717	36	5	1	2,333		
48 Gas and electric fixtures and lamps and reflectors.....	41	785	31	59	102	40	553	De 665	Ap 485	665	626	15	22	2	540		
49 Gas, illuminating and heating.....	74	2,538	1	169	612	90	1,666	No 1,786	My 1,593	1,783	1,783				7,592		
50 Gloves and mittens, leather.....	23	717	21	29	64	33	570	De 644	Ja 501	578	256	386	6	4	58		
51 Hand stamps and stencils and brands.....	18	152	18	13	33	4	84	No 90	Jy 79	90	81	8	1		74		
52 Hats and caps, other than felt, straw, and wool.....	8	60	11	2	3	1	43	My 48	Ja 35	42	26	15		1	7		
53 Hosiery and knit goods.....	6	316	2	11	26	9	268	Au 280	My 248	284	40	242		2	44		
54 Ice, manufactured.....	77	854	35	79	60	14	666	Jy 807	Fe 524	645	635	1	9		9,971		
55 Iron and steel, steel works and rolling mills.....	5	1,085		15	28	4	1,038	No 1,175	Jy 716	1,176	1,173	3			3,945		
56 Jewelry.....	58	707	165	22	25	11	574	De 655	Jy 526	656	600	35	19	2	324		
57 Lapidary work.....	14	103	14	8	9	5	67	Ja 94	Au 54	62	54	6	2		53		
58 Leather goods.....	88	946	79	50	89	18	710	No 772	Mh 638	775	635	129	10	1	321		
59 Leather, tanned, curried, and finished.....	40	1,547	29	70	42	17	1,398	Se 1,457	My 1,352	1,441	1,437		4		3,534		
60 Lime.....	15	459	12	14	17	6	410	Ap 475	Do 303	319	310				558		
61 Liqueurs, distilled.....	33	264	26	21	18	6	193	Oc 273	My 180	305	264	41			1,359		
62 Liqueurs, malt.....	83	1,626	48	122	138	22	1,296	Jy 1,373	Fe 1,215	1,300	1,300				8,897		
63 Liqueurs, vinous.....	181	1,661	157	129	80	38	1,287	Oc 2,868	Je 798	1,721	1,701	20			5,314		
64 Lumber and timber products.....	644	25,079	547	647	799	151	22,935	Jy 28,986	Ja 14,401	24,795	24,588	148	59		94,914		

1 No figures given for reasons explained in the Introduction, page 2.

See also discussion of wage earners on page 9.

MANUFACTURES—CALIFORNIA.

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	\$637,134,359	\$476,154,254	\$11,166,478	\$11,788,939	\$84,141,477	\$13,077,882	\$312,160,192	\$3,651,151	\$8,121,203	\$2,195,153	\$29,851,779	\$529,760,528	\$204,522,454
2	2,359,158	2,245,031	58,490	64,088	451,083	31,830	1,409,348	870	17,508	3,703	207,511	2,669,651	1,228,478
3	447,025	532,973	31,381	4,252	239,178	2,748	216,708	9,218	1,609	.....	27,729	643,246	429,750
4	700,812	1,247,820	41,647	20,071	398,308	10,070	689,058	35,037	5,410	9,520	57,905	1,470,169	770,441
5	547,052	1,093,329	45,550	21,547	39,778	9,451	837,408	11,462	1,537	.....	78,596	1,120,293	273,494
6	241,702	317,844	13,131	4,183	94,070	2,156	178,188	7,998	1,415	126	15,977	357,376	177,031
7	172,973	253,045	15,000	10,785	26,392	2,016	170,334	4,920	658	.....	13,040	201,449	109,190
8	22,797	25,370	1,525	603	9,208	463	9,613	2,015	95	145	1,654	31,367	21,201
9	26,834	57,124	5,605	0,160	11,016	586	21,125	3,844	109	.....	7,779	90,820	69,100
10	1,192,217	1,718,523	42,450	46,801	402,488	12,422	1,107,402	18,000	3,788	.....	85,082	1,924,278	804,454
11	42,843	81,290	5,400	2,040	20,309	900	46,046	1,440	481	.....	4,083	84,653	37,107
12	730,934	903,590	47,310	30,121	271,420	8,875	433,158	30,893	2,218	1,369	69,426	964,983	523,150
13	338,380	554,302	32,301	10,121	181,242	22,051	273,374	17,382	1,059	100	10,732	670,154	383,729
14	8,055,019	15,381,414	272,597	390,830	3,074,802	323,288	10,054,077	394,406	42,043	185	858,098	17,700,638	7,332,208
15	0,108,834	2,601,355	124,379	37,249	1,145,064	607,308	284,451	20,179	23,893	21,040	268,222	2,750,808	1,804,489
16	211,870	342,823	2,930	2,388	84,133	1,801	228,372	3,932	824	36	17,907	388,117	157,444
17	20,055	29,330	993	300	7,480	251	17,521	1,285	129	72	1,332	35,508	17,736
18	2,829,359	12,198,671	113,755	88,040	496,252	93,542	11,049,158	40,123	12,268	23,031	315,502	12,760,670	1,620,970
19	11,000	16,051	.....	.....	5,504	150	7,174	2,592	100	.....	1,065	27,381	20,051
20	18,310,474	31,003,217	593,052	487,351	3,453,555	251,413	23,757,809	85,505	70,857	59,247	2,244,368	32,914,829	8,905,007
21	58,990	70,166	5,400	3,092	40,772	1,061	9,470	2,890	.....	.....	5,877	99,050	83,325
22	1,035,359	1,081,714	57,312	10,502	609,720	45,033	805,433	61,348	9,068	11,303	67,305	2,052,434	1,203,308
23	4,720,024	18,718,805	129,257	249,487	8,393,722	264,391	9,285,020	350	29,890	2,714	363,968	18,718,805	9,169,388
24	2,138,833	3,009,473	50,831	46,553	1,075,985	32,830	1,110,008	900	19,070	200	63,196	3,009,473	1,857,635
25	143,408	260,921	12,540	8,382	97,742	5,233	130,184	2,400	917	.....	12,523	299,967	164,550
26	24,013,715	4,408,806	89,453	106,031	1,649,738	1,511,850	670,021	120	29,843	6,074	344,776	6,504,127	4,322,256
27	2,788,028	1,153,870	40,190	26,505	108,190	71,461	690,134	720	12,873	.....	146,837	1,306,378	544,788
28	2,257,530	4,015,767	83,232	118,113	1,650,366	21,915	2,873,081	80,753	9,980	112,189	266,241	5,120,509	2,225,618
29	642,890	1,457,059	32,482	97,119	350,266	11,223	855,041	44,728	2,078	13,644	70,480	1,072,318	706,049
30	3,323,698	6,035,341	120,094	406,014	244,771	37,308	4,570,856	74,968	14,818	.....	551,512	6,492,091	1,874,927
31	736,204	390,900	15,291	17,148	67,134	3,053	237,399	4,800	3,938	4,170	37,067	436,826	195,474
32	2,122,501	3,245,399	106,654	104,310	459,354	50,140	2,058,307	93,018	9,669	50	272,997	3,624,045	1,485,598
33	1,540,578	2,076,259	41,804	25,478	323,367	8,603	1,570,518	13,548	9,025	2,224	83,712	2,167,222	588,011
34	7,179,573	6,003,265	201,696	117,400	1,658,737	46,105	3,518,601	91,985	25,052	4,964	338,515	6,893,761	3,238,905
35	81,892	72,321	375	.....	34,090	3,105	28,022	3,370	356	.....	2,943	93,647	62,460
36	256,615	380,009	21,408	16,009	45,450	2,300	255,058	3,284	973	.....	35,137	414,519	157,161
37	770,137	1,407,142	54,422	47,810	240,320	13,254	614,862	20,800	2,583	900	112,191	1,612,983	684,867
38	47,387	80,290	4,270	3,857	33,922	5,302	22,852	4,989	210	.....	4,822	97,522	69,308
39	63,740	44,718	2,711	3,080	17,448	1,794	11,035	3,944	312	.....	5,794	64,250	51,421
40	2,090,654	2,167,719	38,000	34,109	154,802	28,746	1,797,032	16,041	10,235	.....	118,628	2,312,555	516,777
41	2,168,680	1,350,874	37,214	14,899	83,409	14,899	1,152,093	.....	1,873	.....	46,487	1,570,798	409,806
42	74,035	102,841	6,900	4,923	27,242	554	49,941	8,955	376	.....	4,250	122,019	71,524
43	13,423,522	23,747,093	253,919	259,478	731,700	179,419	21,712,532	13,835	65,157	7,714	523,139	25,188,133	3,290,152
44	3,332,479	4,988,655	119,344	107,973	495,925	55,356	3,014,942	46,455	10,730	10,814	317,116	5,308,097	1,537,799
45	28,093,493	24,487,555	1,028,734	803,406	7,311,782	600,977	12,299,914	281,159	113,840	216,253	1,831,430	26,730,891	13,890,000
46	91,932	221,205	5,025	3,990	74,800	1,587	115,140	13,025	515	.....	3,727	361,910	185,177
47	318,183	629,180	7,010	6,830	60,908	1,342	455,807	9,051	2,200	619	57,723	721,251	264,102
48	3,001,691	3,958,800	133,806	91,737	1,507,077	50,145	1,897,906	119,840	10,010	34,430	203,789	4,496,007	2,687,956
49	1,742,854	1,562,221	102,220	130,210	446,350	21,797	727,004	28,020	6,281	.....	89,358	1,714,685	904,922
50	47,074,650	6,530,387	311,713	512,005	1,407,704	2,288,476	315,353	6,487	324,840	207	1,363,602	8,926,544	6,322,715
51	1,030,420	1,031,751	68,270	60,871	267,240	3,166	554,764	7,113	2,838	900	66,589	1,230,852	672,922
52	184,504	230,832	21,069	34,936	74,355	1,993	71,180	17,729	384	130	9,136	280,928	207,785
53	36,673	82,049	3,300	1,832	24,822	915	45,253	3,156	99	.....	3,572	109,493	57,325
54	515,170	430,259	30,720	32,703	112,261	1,819	197,813	5,443	903	.....	54,597	451,970	252,338
55	7,781,176	1,724,332	145,324	60,788	572,460	430,375	133,237	7,250	46,466	8,618	313,784	2,331,302	1,767,660
56	2,645,625	3,467,491	44,601	30,020	828,522	150,207	2,188,571	225	6,072	.....	204,174	3,510,824	1,172,046
57	462,289	1,345,503	37,700	27,175	477,003	12,282	651,239	47,536	1,416	1,660	89,492	1,550,839	893,318
58	249,020	292,717	13,385	8,475	54,152	3,031	165,783	8,266	787	.....	8,838	297,436	128,622
59	1,044,810	1,918,141	63,705	84,418	457,714	7,543	1,093,808	54,439	5,973	176	150,365	2,244,489	1,143,138
60	8,535,102	8,780,949	100,059	55,000	987,550	74,336	6,965,117	2,260	20,397	1,651	514,573	9,366,545	2,327,092
61	1,380,670	553,856	29,000	25,860	233,505	113,843	98,200	667	7,585	95	45,092	909,145	397,102
62	2,476,095	4,996,241	33,872	22,463	123,245	63,985	770,942	34,489	3,796,362	788	145,065	5,352,051	4,517,724
63	18,804,353	7,613,093	337,142	208,305	1,390,880	204,052	2,294,529	15,790	1,278,531	.....	1,822,964	9,319,041	6,759,560
64	20,188,855	7,380,897	211,281	217,422	681,824	181,030	4,542,905	80,700	709,622	43,703	759,344	8,936,848	4,262,907
65	55,165,260	40,609,463	1,343,978	893,347	15,051,040	281,095	18,087,805	211,804	445,890	317,009	3,377,465	45,000,276	26,631,376

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

TABLE II.—DETAIL STATEMENT FOR THE

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.	
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Average number.	Wage earners.		Total.	16 and over.		Under 16.					
					Male.	Female.		Number.			Male.	Female.	Male.	Female.				
								Maximum month.	Minimum month.									
1 Marble and stone work.....	128	1,724	155	65	75	14	1,415	Ja	1,501	No	1,344	1,442	1,440		2			
2 Mattresses and spring beds.....	35	671	25	45	45	28	528	No	588	Ap	495	589	517		62	9	1	3,602
3 Millinery and lace goods.....	23	227	24	13	16	8	166	De	214	Je	91	238	83		150		5	72
4 Mirrors.....	6	56	7	1		2	46	Oc <sup>1</sup>	47	Ja	43	45	45					119
5 Models and patterns, not including paper patterns.	26	135	36		5	1	93	No	100	Jy	87	93	74		13	6		119
6 Musical instruments and materials, not specified.	5	14	6				8	Ja <sup>2</sup>	8	Jy <sup>2</sup>	8	9	9					
7 Musical instruments, pianos and organs and materials.	11	78	9	8	2	2	57	Ja	74	Se	49	55	55					55
8 Optical goods.....	6	59	7	4	10	6	32	My <sup>1</sup>	33	Ap <sup>1</sup>	31	32	31			1		11
9 Paint and varnish.....	35	530	14	54	51	15	396	Jy	440	Ja	357	478	354		21	4		1,337
10 Paper and wood pulp.....	4	340	2	10	11	5	312	De	330	Oc	285	330	324		6			7,163
11 Paper goods, not elsewhere specified.	8	127	3	10	6	7	101	De	111	Se	94	117	52		65			56
12 Patent medicines and compounds and druggists' preparations.	89	574	56	61	55	92	310	My <sup>1</sup>	315	Je	304	329	159		160	6	4	347
13 Petroleum, refining.....	29	1,146	4	66	119	27	930	No	974	Mh	862	948	947		5			5,630
14 Pottery, terra-cotta, and fire-clay products.	20	274	21	25	22	16	190	Fe <sup>1</sup>	199	Jy	150	200	190		5	5		119
15	26	1,167	12	46	71	11	1,027	Au	1,120	Ja	879	1,133	1,124		6	3		2,835
16 Printing and publishing.....	1,240	12,215	1,151	652	2,209	647	7,556	De	7,925	Ja	7,350	7,967	6,525		1,253	178	11	7,654
17 Pumps, not including steam pumps.....	6	66	4	5	6	1	50	Se	56	Ja	47	48	48					128
18 Rubber goods, not elsewhere specified.	5	103		9	15	5	74	Oc	88	De	81	91	42		19			209
19 Salt.....	19	469	22	23	18	4	402	No	519	Fe	313	468	464		4			1,228
20 Shipbuilding, including boat building.....	43	2,006	39	48	67	8	1,844	No.	2,553	My	1,512	2,386	2,378		2	6		3,119
21 Show cases.....	11	66	15	2	1	1	47	Ja <sup>1</sup>	56	Au	39	54	54					8
22 Signs and advertising novelties.....	8	67	7	4	9		47	De	56	Oc	44	56	54			2		21
23 Silverware and plated ware.....	3	16	4		1		11	Ja <sup>2</sup>	11	Jy <sup>2</sup>	11	11	11					9
24 Slaughtering and meat packing.....	94	2,135	111	105	249	29	1,641	De	1,709	Je	1,586	1,723	1,678		31	13	1	3,551
25 Stereotyping and electrotyping.....	3	29	6	4	1	2	16	Se <sup>1</sup>	17	Ja <sup>1</sup>	16	16	16					41
26 Stoves and furnaces, including gas and oil stoves.	17	266	11	11	25	4	215	No	248	Je	185	244	242			2		153
27 Sulphuric, nitric, and mixed acids.....	6	247		11	16	3	217	Fe	230	Au	203	210	210					75
28 Surgical appliances and artificial limbs.....	13	62	12	4	4		42	Ja <sup>1</sup>	45	Au <sup>1</sup>	39	39	33					26
29 Tobacco manufactures.....	332	2,183	613	41	62	8	1,465	Mb	1,499	Au	1,423	1,511	1,489		5	1		71
30 Type founding and printing materials.....	3	21		4	4	1	12	De	14	Ja <sup>1</sup>	10	13	11		1	1		21
31 Umbrellas and canes.....	4	10	5				5	De	6	Ja <sup>1</sup>	5	6	6					5
32 Wall plaster.....	7	78	1	11	10	2	54	Au	63	Mh	36	68	68		4			70
33 Whips.....	3	13	3		1		9	Ja <sup>2</sup>	9	Jy <sup>2</sup>	9	9	9					20
34 All other industries <sup>3</sup> .....	554	12,282	551	506	1,080	306	9,830											44,111

<sup>1</sup> Same number reported for one or more other months.  
<sup>2</sup> Same number reported throughout the year.  
<sup>3</sup> All other industries embrace—

Artificial flowers and feathers and plumes.....	2	Cordage and twine and jute and linen goods.....	2	Glue.....	3
Awnings, tents, and sails.....	27	Cordials and sirups.....	7	Gold and silver, leaf and foil.....	2
Axle grease.....	1	Corsets.....	1	Gold and silver, reducing and refining, not from the ore.....	1
Bags, other than paper.....	7	Dyestuffs and extracts.....	2	Grease and tallow.....	2
Bags, paper.....	2	Engraving and diesinking.....	1	Hair work.....	10
Baking powders and yeast.....	4	Explosives.....	5	Hat and cap materials.....	1
Beet sugar.....	4	Files.....	2	Hats, fur-felt.....	1
Belting and hose, woven and rubber.....	9	Fireworks.....	1	House-furnishing goods, not elsewhere specified.....	2
Bluing.....	1	Flavoring extracts.....	1	Ink, printing.....	2
Candles.....	1	Foundry supplies.....	17	Ink, writing.....	1
Carriages and sleds, children's.....	2	Fuel, manufactured.....	2	Instruments, professional and scientific.....	3
Cash registers and calculating machines.....	1	Galvanizing.....	3	Iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills.....	1
Charcoal.....	1	Glass.....	2	Iron and steel forgings.....	3
Chocolate and cocoa products.....	2	Glass, cutting, staining, and ornamenting.....	28		
Clocks and watches, including cases and materials.....	2	Glucose and starch.....	1		

MANUFACTURES—CALIFORNIA.

STATE, BY INDUSTRIES: 1909—Continued.

	Capital.	EXPENSES.									Value of products.	Value added by manufacture.	
		Total.	Services.			Materials.		Miscellaneous.					
			Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.			Other.
1	\$3,144,882	\$2,890,227	\$125,548	\$84,740	\$1,241,205	\$66,234	\$1,116,301	\$27,376	\$15,804	\$113,842	\$99,177	\$3,379,715	\$2,197,180
2	1,351,331	2,001,328	82,788	66,034	360,638	16,333	1,227,112	42,396	4,406	135	201,486	2,163,014	920,469
3	268,883	374,585	17,180	16,551	89,916	3,077	215,338	15,625	349	.....	16,549	412,582	194,167
4	133,746	163,710	2,400	635	44,990	4,406	100,057	1,380	2,318	1,020	6,504	185,806	81,343
5	72,426	151,422	.....	3,460	77,876	3,836	48,342	10,597	254	254	6,803	194,805	142,627
6	10,220	10,897	.....	.....	6,534	36	2,965	812	109	.....	441	16,108	13,107
7	189,183	135,999	12,301	1,485	60,403	2,194	38,776	4,976	845	.....	15,019	150,308	109,338
8	79,622	114,354	6,200	12,800	23,846	1,219	59,092	4,776	375	.....	5,956	137,595	77,284
9	2,674,666	3,244,074	104,140	54,041	275,177	35,566	2,616,528	16,188	8,785	267	133,382	3,758,090	1,105,996
10	2,068,048	757,198	25,840	10,410	200,622	99,432	340,993	2,505	6,554	.....	64,872	969,172	628,777
11	185,920	204,860	9,093	5,749	58,176	6,138	94,975	6,193	415	.....	24,121	223,528	122,415
12	993,937	1,254,317	113,832	97,751	147,931	10,066	628,885	36,888	6,954	430	211,580	1,548,977	910,026
13	13,880,760	15,812,573	211,843	155,643	800,504	1,180,787	12,716,934	20,406	62,137	280	664,039	17,878,066	3,680,285
14	224,601	373,661	39,445	27,560	195,569	7,577	55,892	18,835	593	1,970	25,920	444,933	381,464
15	3,645,162	1,534,081	104,303	80,012	641,237	248,443	256,746	2,209	21,144	8,316	171,081	1,797,129	1,291,940
16	17,197,899	21,017,808	1,253,999	2,575,235	6,432,161	249,418	6,077,885	595,771	72,468	807,294	2,953,577	25,031,877	18,704,674
17	171,082	137,019	10,206	5,500	43,407	2,444	39,391	3,512	532	21,080	10,953	167,233	125,398
18	235,320	294,365	15,000	21,441	60,600	4,990	103,975	4,234	812	.....	23,313	322,727	153,762
19	2,022,063	579,661	34,960	20,670	211,672	26,925	215,420	21,675	3,650	950	43,733	746,211	503,860
20	8,329,206	3,948,413	122,450	93,167	1,592,211	73,400	1,193,589	23,662	24,315	273,169	582,390	4,132,176	2,895,127
21	119,155	135,146	2,916	900	46,626	2,797	72,476	3,733	626	.....	5,672	154,418	79,145
22	51,533	103,745	7,278	9,585	40,041	2,698	29,186	3,776	208	600	4,373	118,850	86,060
23	12,839	20,085	1,640	8,200	464	6,145	2,775	26	.....	.....	535	25,190	18,581
24	11,403,407	31,633,926	246,164	303,557	1,300,846	184,764	28,293,293	40,849	41,875	3,743	1,133,835	34,280,093	5,831,646
25	50,981	60,679	5,880	1,952	11,647	2,258	19,699	3,036	114	.....	16,093	72,021	50,064
26	412,835	400,368	15,745	26,926	173,501	9,070	196,806	7,782	1,450	2,605	26,483	514,187	308,311
27	2,614,500	1,112,402	38,020	19,205	172,864	105,811	634,504	.....	8,889	.....	133,109	1,160,937	420,622
28	40,241	94,082	3,915	3,060	31,541	995	31,290	6,379	309	.....	16,653	114,251	82,026
29	1,022,147	2,820,358	65,669	67,005	857,260	4,026	1,212,923	77,765	280,465	10,107	245,148	3,360,495	2,143,546
30	43,698	40,450	3,120	1,070	9,709	619	20,243	2,080	137	.....	3,412	44,695	28,833
1	5,560	8,980	.....	.....	2,974	27	3,151	2,524	28	.....	276	12,174	8,966
2	342,301	212,544	16,992	6,670	57,533	13,642	95,613	1,566	1,100	.....	19,479	186,655	77,400
3	55,625	13,343	.....	576	5,504	43	5,215	300	187	.....	1,518	18,850	13,592
4	140,057,235	108,682,968	1,357,803	1,556,609	7,166,537	2,334,923	61,740,404	399,922	317,510	26,423	3,782,837	120,325,916	26,250,589

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

Iron and steel pipe, wrought.....	4	Photographic apparatus and materials.....	4	Stationery goods, not elsewhere specified.....	1
Jewelry and instrument cases.....	3	Pipes, tobacco.....	1	Statuary and art goods.....	17
Loam and ground earths.....	2	Roofing materials.....	5	Steam packing.....	2
Labels and tags.....	5	Safes and vaults.....	2	Sugar, refining, not including beet sugar.....	2
Lead, bar, pipe, and sheet.....	1	Saws.....	1	Typewriters and supplies.....	2
Looking-glass and picture frames.....	16	Scales and balances.....	1	Upholstering materials.....	5
Paint.....	4	Shoddy.....	1	Vault lights and ventilators.....	1
Patches.....	4	Silk and silk goods, including throwsters.....	3	Vinogar and cider.....	14
Mineral and soda waters.....	154	Smelting and refining, copper.....	3	Washing machines and clothes wringers.....	2
Mucilage and paste.....	3	Smelting and refining, lead.....	2	Window shades and fixtures.....	16
Nakum.....	2	Smelting and refining, lead.....	1	Wirework, including wire rope and cable.....	20
Oil, essential.....	1	Smelting and refining, not from the ore.....	2	Wood, turned and carved.....	15
Oil, not elsewhere specified.....	8	Soda-water apparatus.....	23	Wool pulling.....	1
Painting materials.....	1	Sporting and athletic goods.....	3	Wool scouring.....	3
Pens, fountain, stylographic, and gold.....	1	Springs, steel, car and carriage.....	1	Woolen, worsted, and felt goods, and wool hats... 5	

## MANUFACTURES : COLORADO

## 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 Colorado 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 Colorado, 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 Denver. 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 indus-

tries. 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 different 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 when practicable are given in a separate table at the end of the report.

INDUSTRIES IN GENERAL.

General character of the state.—Colorado, situated partly within the Great Western Plain and partly in the wooded region of the Rocky Mountain section, with a land area of 103,658 square miles, is seventh in size among the states and territories of continental United States. Its population in 1910 was 799,024, as compared with 539,700 in 1900 and 413,249 in 1890. It ranked thirty-second among the 49 states and territories as regards population in 1910, which position it also held in 1900. The density of population for the state in 1910 was 7.7 persons per square mile, the corresponding figures for 1900 and 1890 being 5.2 and 4, respectively. Of the entire population of the state 50.7 per cent reside in incorporated cities and towns having a population of 2,500 inhabitants or over, as against 48.3 per cent in 1900.

Denver, with a population of 213,381, is the only city in the state having over 50,000 inhabitants. There are three cities, Pueblo, Colorado Springs, and Trinidad, each having a population of less than 50,000 but exceeding 10,000. Eliminating the four cities mentioned, only 13.5 per cent of the population resided in incorporated places of 2,500 and over in 1910, and only 10.5 per cent in 1900. The transportation facilities of the state are good, Denver being a terminal and radial point for most of the main lines of the Rocky Mountain region.

Importance and growth of manufactures.—Colorado is preeminently a mining state, but at each census from 1869 to 1899 the proportion which the value of its manufactures formed of the total value of the manufac-

tures of the United States increased steadily. Since 1899, however, this proportion has decreased, being to eight-tenths of 1 per cent in that year, seven-tenths of 1 per cent in 1904, and six-tenths of 1 per cent in 1909. During this period of 40 years the gross value of products per capita of the entire population of the state increased from \$72 in 1869 to \$163 in 1909.

Much of the manufacturing activity of the state, such as smelting, iron and steel operations, cement manufacture, and marble and stone work, is dependent upon the development of its extensive mineral resources. Furthermore, many manufacturing establishments owe their existence to the needs of the mining industry.

Irrigation of the fertile valleys of the Platte and Arkansas Rivers and other streams has made the beet-sugar production of Colorado greater than that of any other state. The canning industry is also the outgrowth of the development of irrigation in the state. Coal and timber as fuel for industrial consumption and timber as manufacturing material are abundant, and in general accessible.

The fact that Colorado is a natural grazing country has been responsible for the development of such industries as slaughtering and meat packing, the manufacture of butter, cheese, and condensed milk, the rendering of grease and tallow, and wool scouring.

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.....	2,034	1,606	1,323	26.6	21.4
Persons engaged in manufactures.....	34,115	25,888	( <sup>1</sup> )	31.8	( <sup>1</sup> )
Proprietors and firm members.....	1,722	1,398	( <sup>1</sup> )	23.2	( <sup>1</sup> )
Salaried employees.....	4,326	2,677	1,870	61.6	43.2
Wage earners (average number).....	28,067	21,813	19,498	28.7	11.9
Primary horsepower.....	154,615	124,907	43,434	23.8	187.6
Capital.....	\$162,668,000	\$107,664,000	\$58,173,000	51.1	85.1
Expenses.....	114,690,000	88,282,000	77,748,000	29.9	13.5
Services.....	25,560,000	18,649,000	13,767,000	37.1	35.5
Salaries.....	5,648,000	3,549,000	2,059,000	59.1	72.4
Wages.....	19,912,000	15,100,000	11,708,000	31.9	29.0
Materials.....	80,491,000	63,114,000	60,751,000	27.5	3.9
Miscellaneous.....	8,639,000	6,519,000	3,230,000	32.5	101.8
Value of products.....	130,044,000	100,144,000	89,068,000	29.9	12.4
Value added by manufacture (value of products less cost of materials).....	49,553,000	37,030,000	28,317,000	33.8	30.8

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

In 1909 the state of Colorado had 2,034 manufacturing establishments operating under the factory system,

which gave employment to an average of 34,115 persons during the year and paid out \$25,560,000 in sala-

## STATISTICS OF MANUFACTURES—COLORADO.

ies and wages. Of the persons employed, 28,067 were wage earners. These establishments turned out products to the value of \$130,044,000, to produce which materials costing \$80,491,000 were consumed. The value added by manufacture was thus \$49,553,000, 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 Colorado as a whole showed a greater development during the more recent five-year period 1904-1909, than during the preceding five-year period, 1899-1904. During the later period the number of establishments increased 26.7 per cent and

the average number of wage earners 28.6 per cent, while the value of products increased 29.9 per cent and the value added by manufacture 33.8 per cent. It is interesting to note that the percentage of increase for total expenses from 1904 to 1909, 29.9, is exactly the same as that shown for value of products and that the percentages of increase for number of establishments, average number of wage earners, and cost of materials vary but little from that percentage. No decreases are shown for either five-year period.

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.....	2,094	28,067	100.0	\$130,044,000	100.0	\$49,553,000	100.0	29.9	12.4	33.8	30.3
Slaughtering and meat packing.....	13	659	2.3	9,657,000	7.4	1,362,000	2.7	190.5	-23.5	151.3	-12.3
Flour-mill and gristmill products.....	77	282	1.0	7,808,000	6.1	1,196,000	2.4	36.1	30.2	21.3	46.7
Printing and publishing.....	439	2,366	8.4	6,962,000	5.4	5,156,000	10.4	27.3	47.9	24.1	44.6
Cars and general shop construction and repairs by steam-railroad companies.....	29	3,993	14.2	6,559,000	5.0	3,955,000	8.0	24.7	67.4	52.3	39.3
Foundry and machine-shop products.....	111	1,813	6.5	5,907,000	4.5	3,103,000	6.3				
Lumber and timber products.....	263	2,190	7.8	4,185,000	3.2	2,789,000	5.6	67.6	-5.3	64.9	9.9
Bread and other bakery products.....	250	889	3.2	3,969,000	3.1	1,672,000	3.4	49.4	65.3	42.3	57.1
Liquors, malt.....	11	424	1.5	3,311,000	2.5	2,404,000	4.9	56.2	3.8	44.0	-0.3
Butter, cheese, and condensed milk.....	39	210	0.7	2,340,000	1.8	416,000	0.8				
Brick and tile.....	69	922	3.3	1,670,000	1.3	1,159,000	2.3	104.4	64.4	77.5	58.9
Canning and preserving.....	30	518	1.8	1,528,000	1.2	856,000	1.7	86.1	102.2	118.4	161.3
Leather goods.....	30	269	1.0	1,054,000	0.8	515,000	1.0	82.7	30.5	61.4	57.1
Confectionery.....	85	349	1.2	1,023,000	0.8	492,000	1.0	49.3	63.1	25.3	100.5
Tobacco manufactures.....	99	427	1.5	1,021,000	0.8	663,000	1.3	4.3	44.0	3.1	44.2
Marble and stone work.....	44	267	1.0	626,000	0.5	406,000	0.8		-10.1	2.8	-16.3
Ice, manufactured.....	30	251	0.9	570,000	0.4	444,000	0.9	51.6	84.3	45.6	76.3
Furniture and refrigerators.....	14	176	0.6	542,000	0.4	285,000	0.6	25.5		12.2	
Pottery, terra-cotta and fire-clay products.....	6	214	0.8	436,000	0.3	323,000	0.7	-44.0	37.1	-33.2	18.9
All other industries.....	445	11,848	42.2	70,816,000	54.5	22,352,000	45.1				

<sup>1</sup> Per cent of increase is based on figures in Table I, and a minus sign (-) denotes decrease.

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

In addition to the 18 industries presented separately, there are 18 others which had a value of products in 1909 in excess of \$400,000. 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, while for others comparable statistics for the different census years can not be presented without disclosing the operations of individual establishments, or on account of changes in classification. These industries are: Awnings, tents,

and sails; beet sugar; cars, steam-railroad, not including operations of railroad companies; cement; clothing, men's, including shirts; coffee and spice, roasting and grinding; coke; explosives; food preparations; iron and steel, blast furnaces; iron and steel, steel works and rolling mills; mineral and soda waters; paint and varnish; petroleum, refining; smelting and refining, copper; smelting and refining, lead; smelting and refining, zinc; and sulphuric, nitric, and mixed acids.

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

*Slaughtering and meat packing.*—This industry is the most important for which figures can be shown separately. It includes wholesale slaughtering and meat-packing establishments and those engaged in the manufacture of sausage only. In 1904 it was fifth and

in 1909 fourth in importance among the industries of the state when measured by value of products. In view of the fact that this industry showed a decrease of 23.5 per cent in value of products from 1899 to 1904, its growth from 1904 to 1909, 190.5 per cent, has been remarkable. In 1909 the industry gave employment to an average of 659 wage earners, or 2.3 per cent of the total for all manufacturing industries, and the value of products, \$9,657,000, was 7.4 per cent of the total value of products for the state. The industry is largely confined to Denver and Colorado Springs.

*Flour-mill and gristmill products.*—In 1909 there were 77 establishments, an increase since 1904 of 25, or 48.1 per cent; and the increase in value of products was \$2,085,000, or 36.1 per cent. From 1899 to 1904 the number of establishments increased 3, or 6.1 per cent, and the value of products, \$1,342,000, or 30.2 per cent. Although these two periods show great variation in percentage of increase in the number of establishments, the increases in value of products are nearly the same. As a rule, the mills are small and located in the rural districts. Because of the comparatively simple processes involved and the extent to which these processes are carried on by machinery, the value added by manufacture is not commensurate with the gross value of products or the number of establishments.

*Printing and publishing.*—This classification includes bookbinding and blank-book making; engraving, steel and copper plate; lithographing; printing and publishing, book and job or music; and the printing and publishing of newspapers and periodicals. In 1909 there were 439 establishments reported under the combined classification, with a value of products of \$6,962,000, most of which was reported from the cities of over 10,000 inhabitants. Among the industries shown separately in the table, printing and publishing, measured by value of products, was third in importance in 1909, second in 1904, and fourth in 1899. Exclusive of 2 small establishments, the statistics for which can not be shown, in 1904, without divulging individual operations, the number of establishments increased 20, or 4.8 per cent, and the value of products \$1,495,000, or 27.3 per cent, from 1904 to 1909.

*Cars and general shop construction and repairs by steam-railroad companies.*—In 1909 there were 29 establishments reported, which gave employment to an average of 3,993 wage earners, or 14.2 per cent of the total for the manufacturing establishments of the state, the largest average number of wage earners reported for any of the industries shown separately. Although there was a decrease of 5, or 14.7 per cent, in the number of establishments from 1904 to 1909, there was an increase in the average number of wage earners of 941, or 30.8 per cent, and of \$1,300,000, or 24.7 per cent, in the value of products. The development of railroad repair shops in Colorado

is the result of the heavy upkeep of rolling stock in mountainous sections and of the establishment of many terminals within the state. The statistics do not include minor repairs made in roundhouses.

*Foundry and machine-shop products.*—The fact that the number of establishments in this industry increased from 84 to 111 and the value of products from \$4,159,000 to \$5,907,000 during the decade, while the average number of wage earners decreased from 1,875 to 1,813 during that time, indicates to some extent the growth of this industry in the state. 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.

*Lumber and timber products.*—Under this head are included statistics for logging and sawmill operations, for planing mills, and for establishments engaged in the manufacture of wooden packing boxes. The eastern part of the state is practically devoid of saw timber, so that the mills, which are generally small, are confined to the mountain districts. The number of establishments increased from 110 in 1904 to 263 in 1909, an increase of 153, or 139.1 per cent, and gave employment in 1909 to an average number of 2,190 wage earners. The value of products increased \$1,688,000, or 67.6 per cent.

When measured by value added by manufacture, printing and publishing is of first importance among the industries listed in the table. Railroad repair shops and foundry and machine shops rank second and third, respectively, and are followed by the lumber and timber industry, the breweries, and the bakeries, in the order named. Slaughtering and meat-packing plants and the flour and grist mills, which occupied first and second places in value of products, ranked below the foregoing industries with respect to value added by manufacture.

The table shows also the percentages of increase for these leading industries in respect to value of products and value added by manufacture. Slaughtering and meat packing showed a greater rate of increase from 1904 to 1909 in value added by manufacture than any other of the specified industries, namely, 151.3 per cent. The same industry showed also the greatest increase for value of products, 190.5 per cent. The brick and tile, canning and preserving, and leather goods industries also showed remarkable increases both in gross value of products and in value added by manufacture.

Several industries show marked fluctuations in respect to relative increases for the later five-year period, as compared with the earlier five years. None of the industries shown separately reports a decrease for both five-year periods. From 1904 to 1909 the manufacture of pottery, terra-cotta, and fire-clay products showed decreases in both value of products and value added by manufacture, this being the only

industry showing a decrease in either item during this period. During the earlier five-year period, however, slaughtering and meat-packing, and marble and stone work, decreased in both items, the lumber and timber industry showed a decrease in value of products, and the malt-liquor industry a decrease 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.....	34,115	31,381	2,734
Proprietors and officials.....	3,009	2,906	103
Proprietors and firm members.....	1,722	1,634	88
Salaried officers of corporations.....	422	413	9
Superintendents and managers.....	865	859	6
Clerks.....	3,039	2,518	521
Wage earners (average number).....	28,067	25,957	2,110
16 years of age and over.....	27,902	25,808	2,094
Under 16 years of age.....	165	149	16

The average number of persons engaged in manufactures during 1909 was 34,115, of whom 28,067 were wage earners. Of the remainder, 3,009 were proprietors and officials, and 3,039 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 gives the returns for all industries combined and for 10 important industries individually.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	34,115	8.8	8.9	82.3
Bread and other bakery products.....	1,325	22.1	10.8	67.1
Brick and tile.....	1,030	0.0	2.0	89.0
Butter, cheese, and condensed milk.....	304	14.8	16.1	69.1
Cars and general shop construction and repairs by steam-railroad companies.....	4,300	2.9	4.2	92.9
Flour-mill and gristmill products.....	429	20.5	13.8	65.7
Foundry and machine-shop products.....	2,250	9.2	10.3	80.6
Liquors, malt.....	514	7.2	10.3	82.5
Lumber and timber products.....	2,614	13.1	3.1	83.8
Printing and publishing.....	3,747	15.7	21.1	63.1
Slaughtering and meat packing.....	834	3.5	17.6	79.0
All other industries.....	16,762	6.9	7.6	85.4

Of the total number of persons engaged in all manufacturing industries, 8.8 per cent were proprietors and officials, 8.9 per cent clerks, and 82.3 per cent wage earners. In industries where the majority of the establishments are small and the work is to a large extent done by the proprietors or their immediate representatives, the proportion of persons engaged in the industries falling in the class of proprietors and officials is necessarily high. This condition is found in the bakeries, the flour and grist mills, and in the printing and publishing establishments for which the ratios of the proprietors and officials to the total number employed in the industries are 22.1 per cent, 20.5 per cent, and 15.7 per cent, respectively. Similar conditions prevail to some extent in the lumber and timber and the butter, cheese, and condensed-milk industries. The smallest proportion for this class, 2.9 per cent, is shown for railroad repair shops, and is due partly to the fact that the establishments in this industry are under corporate ownership, and so reported no proprietors; and partly to the fact that the highest officials of railroad companies, who exercise general supervision over them, are not, as a rule, assigned to this particular branch of the work.

The following table shows 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.	Male.	Female.
All industries.....	28,067	92.0	7.5	0.6
Bread and other bakery products.....	880	71.2	27.1	1.7
Brick and tile.....	922	98.4	0.1	1.3
Butter, cheese, and condensed milk.....	210	77.6	22.4	.....
Cars and general shop construction and repairs by steam-railroad companies.....	3,993	99.9	0.1	.....
Flour-mill and gristmill products.....	282	99.0	.....	0.1
Foundry and machine-shop products.....	1,513	99.1	0.2	0.7
Liquors, malt.....	424	99.3	.....	0.7
Lumber and timber products.....	2,190	98.9	1.0	0.1
Printing and publishing.....	2,366	81.7	16.0	2.4
Slaughtering and meat packing.....	659	95.9	2.1	2.0
All other industries.....	14,310	90.0	9.7	0.3

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

For all industries combined, 92 per cent of the average number of wage earners was males 16 years of age and over; 7.5 per cent females 16 years of age and over; and six-tenths of 1 per cent persons under

the age of 16. In general, the table shows a very limited employment of women and children. The largest proportions of women employees were in the bakeries, creameries, and the printing and publishing establishments, and the largest proportions of children in the printing and publishing and the slaughtering and meat-packing establishments. Of the total of 2,094 female wage earners in all industries combined, about one-ninth were employed in bakeries. Of the total number of wage earners in all industries under 16 years of age, over one-third were in printing and publishing establishments. With these two industries omitted, the females 16 years of age and over in all industries combined would represent 5.3 per cent of the total number of wage earners, and children under 16 years of age, but four-tenths of 1 per cent.

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

CLASS.	PERSONS ENGAGED IN MANUFACTURES.				
	1909		1904		Per cent of increase, 1904-1909.
	Number.	Per cent distribution.	Number.	Per cent distribution.	
Total.....	34,115	100.0	25,888	100.0	31.8
Proprietors and firm members.....	1,722	5.0	1,398	5.4	23.2
Salaried employees.....	4,326	12.7	2,677	10.3	61.6
Wage earners (average number).....	28,067	82.3	21,813	84.3	28.7

Comparable figures are not obtainable for 1899. The table shows a much greater percentage of increase in the salaried employees than in the other two classes. There was, however, no very great change from 1904 to 1909 in the proportion of persons engaged in manufactures who were in each class.

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.....	28,087	100.0	21,813	100.0	19,498	100.0
16 years of age and over.	27,902	99.4	21,507	98.6	19,295	99.0
Male.....	25,898	92.0	20,164	92.4	18,214	93.4
Female.....	2,094	7.5	1,348	6.2	1,081	5.5
Under 16 years of age.....	165	0.6	306	1.4	203	1.0

This table indicates that for all industries combined there has been a decrease during the 10 years in the employment of children under 16 years of age, although from 1899 to 1904 the total number of children employed increased. The number of female wage earners 16 years of age and over more than doubled between 1899 and 1909 and their proportion of the total number of wage earners increased. In 1909 males 16 years of age and over formed 92 per cent of all wage earners, as compared with 93.4 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 beet-sugar industry, and for all other industries combined; it gives also the percentage which the number reported for each month is of the greatest number reported for any month. In Table II, page 18, is shown, for practically all of the important industries of the state, the largest number and also the smallest number of wage earners reported for any month. The figures are for the 15th day, or the nearest representative day, of the month.

MONTH.	WAGE EARNERS.					
	All industries.		Beet sugar.		All other industries.	
	Number.	Per cent of maximum.	Number.	Per cent of maximum.	Number.	Per cent of maximum.
January.....	27,062	87.2	3,113	60.7	24,849	91.3
February.....	25,181	78.6	615	12.0	24,566	90.3
March.....	25,374	79.2	727	14.2	24,647	90.6
April.....	25,531	79.7	765	14.9	24,766	91.0
May.....	25,835	80.6	729	14.2	25,106	92.3
June.....	27,050	84.4	703	14.0	26,347	96.6
July.....	28,099	87.7	886	17.3	27,213	109.0
August.....	28,238	88.1	1,160	22.6	27,078	99.5
September.....	28,415	88.7	1,273	24.8	27,143	99.7
October.....	31,026	96.8	4,127	80.5	26,899	98.8
November.....	32,050	100.0	5,125	100.0	26,925	98.9
December.....	32,034	99.9	4,903	96.8	27,071	99.5

The beet-sugar industry is the only seasonal industry of importance in the state. The usual period during which the factories run continuously is from 60 to 100 days, during which time the industry employs a sufficiently large number of wage earners to affect considerably the total movement of employment in the state during the year. In this industry the smallest number, 615, was employed in February and the largest number, 5,125, in November. During each month from February through September the number employed represented only from 12 to 24.8 per cent of the number employed in November. Several other industries are slightly seasonal, but fluctuations in employment are not sufficient to greatly influence the steadiness of total employment for all industries. For all industries combined the number of wage earners employed changed considerably, there being a gradual increase from February until November, when the sugar factories were at the height of their production.

## STATISTICS OF MANUFACTURES—COLORADO.

Prevailing hours of labor.—In the following table wage earners have been classified according to 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.

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.....	28,067	4,587	1,787	3,463	3,588	8,211	3,213	3,198	1,020
Bread and other bakery products.....	880	88	1	83	178	505	21	11	2
Brick and tile.....	922	328		30	40	524			
Butter, cheese, and condensed milk.....	210	6		60	2	39	102		1
Canning and preserving.....	518	48		24	3	436	7		
Cars and general shop construction and repairs by steam-railroad companies.....	3,993		682	263	100	726	2,222		
Confectionery.....	349	15		19	144	160	9		2
Flour-mill and gristmill products.....	282	11		10	16	172	71	2	
Foundry and machine-shop products.....	1,813	171	353	909	8	349	23		
Furniture and refrigerators.....	176	121		35		20			
Ice, manufactured.....	251	4		0	68	2	2	29	140
Leather goods.....	260	22	4	165	20	58			
Liquors, malt.....	424	259		47	59	59			
Lumber and timber products.....	2,190	218	306	161	27	1,437	41		
Marble and stone work.....	267	202	14	1		50			
Pottery, terra-cotta, and fire-clay products.....	214	11		72		131			
Printing and publishing.....	2,366	1,769	77	173	308	39	10		
Slaughtering and meat packing.....	659			287		372			
Tobacco manufactures.....	427	400		3		24			
All other industries.....	11,848	924	350	1,115	2,615	3,108	705	2,156	875

It is evident from these figures that for more than one-half of the wage earners employed in the manufacturing industries of Colorado the prevailing hours of labor range from 54 to 60 a week. Of the total number of wage earners, 22.7 per cent are employed in establishments where the prevailing hours are less than 54 a week and 22.9 per cent are employed in establishments where the prevailing hours are more than 60 a week. It will be noticed that in the case of railroad repair shops, which report a larger number of employees than any of the other industries shown separately, most of the wage earners work where the prevailing hours range from 60 to 72 a week. In the printing and publishing industry the greater number of wage earners work 48 hours per week or less.

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

In 1909, 44.2 per cent of the total value of products was reported from the cities having over 10,000 inhabitants and 55.8 per cent from the remainder of the state. The addition of Trinidad to the group of cities in 1909, and the marked growth of the establishments located in Denver, were not sufficient to overcome the loss of Cripple Creek and Leadville, which two cities, from a population of over 10,000 each in 1900 had less than that number in 1910, thus placing their statistics with the districts outside the cities in 1909. This change has caused the city group to be overtaken by the outside districts in respect to the relative impor-

tance of their manufacturing industries, as judged by value of products, and value added by manufacture. In number of wage earners alone do the industries of the cities remain the more important; although the cities contain only 37.2 per cent of the population of the state, they employ 50.3 per cent of the wage earners. Even in this respect, however, the importance of their industries has declined as in 1899 the percentage of wage earners in cities having more than 10,000 inhabitants was 56.9. That the manufacturing industries outside of these cities show a more rapid growth than do those of the cities is also due in part to the development of the beet-sugar industry, in which all the establishments reported are located outside of the cities in question, and in part to the growth of various industries in the mining districts.

ITEM.	Year.	Total.	LOCATION OF ESTABLISHMENTS.		PER CENT OF TOTAL.	
			In cities with population of 10,000 and over.	Outside districts.	In cities with population of 10,000 and over.	Outside districts.
Population.....	1910 1900	790,024 539,700	297,058 205,703	501,966 333,997	37.2 38.1	62.8 61.9
Number of establishments.....	1909 1899	2,034 1,323	940 746	1,095 577	46.7 56.4	53.3 43.6
Average number of wage earners.....	1909 1899	28,067 19,498	14,114 11,093	13,953 8,405	50.3 56.9	49.7 43.1
Value of products.....	1909 1899	\$190,044,312 89,067,879	\$57,430,448 46,514,613	\$72,613,864 42,553,266	44.2 52.2	55.8 47.8
Value added by manufacture.....	1909 1899	40,553,408 28,317,095	23,872,383 15,989,943	25,681,025 12,327,152	48.2 56.5	51.8 43.5

The four cities in Colorado having a population of 10,000 and over in 1910 were Denver, Pueblo, Colorado Springs, and Trinidad. Prior to 1910 Trinidad had less than 10,000 inhabitants, and so was not included in the city group for 1900.

The following statement shows general statistics for 1909 and 1899 for Cripple Creek and Leadville, which had a population in 1900 in excess of 10,000 but which fell below this figure in 1910 and therefore were not included in the city group but in the districts outside for 1909 in the preceding table.

ITEM.	Year.	Leadville.	Cripple Creek.
Population.....	1910	7,508	6,206
	1900	12,455	10,147
Number of establishments.....	1909	20	9
	1899	34	35
Average number of wage earners.....	1909	650	40
	1899	1,227	167
Value of products.....	1909	\$4,477,746	\$117,723
	1899	5,882,949	440,659
Value added by manufacture.....	1909	1,065,526	74,267
	1899	1,042,783	265,491

The manufactures of both of the cities shown in this table are largely dependent upon the mining interests. In Cripple Creek each of the industries reported in 1899 and in 1909 shows a decrease at the later census, and several industries, among which is foundry and machine-shop products, disappeared altogether. During the decade the total number of establishments decreased from 35 to 9, the average number of wage earners from 167 to 40, the value of products from \$440,659 to \$117,723, and the value added by manufacture from \$265,491 to \$74,267. In Leadville the decreases in number of establishments, value of products, and average number of wage earners, although large, were less pronounced. The number of establishments decreased from 34 to 20, the average number of wage earners from 1,227 to 650, the value of products from \$5,882,949 to \$4,477,746. The value added by manufacture, however, shows a slight increase, from \$1,042,783 to \$1,065,526. The smelting and refining of lead is the chief manufacturing industry in the city.

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

CITY.	1910	1900
Denver.....	213,381	133,850
Pueblo.....	44,395	28,157
Colorado Springs.....	29,078	21,085
Trinidad.....	10,204	<sup>1</sup> 5,345
Leadville.....	<sup>2</sup> 7,508	12,455
Cripple Creek.....	<sup>2</sup> 6,206	10,147

<sup>1</sup> Population less than 10,000 in 1900, therefore, in the table on page 8, the statistics for 1899 are included with those for the districts outside cities.  
<sup>2</sup> Population less than 10,000 in 1910, therefore, in the table on page 8, the statistics for 1909 are included with those for the districts outside cities.

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

CITY.	AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS.		
	1909	1904	1899	1909	1904	1899
Denver.....	12,068	9,672	8,500	\$51,538,547	\$36,660,410	\$37,906,171
Pueblo.....	1,320	941	790	3,344,789	2,197,293	1,439,609
Colorado Springs.....	516	410	409	1,732,759	1,100,771	\$45,225
Trinidad.....	220	( <sup>1</sup> )	( <sup>1</sup> )	814,353	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Population less than 10,000 in 1900.

Denver, Pueblo, and Colorado Springs all show increases in the average number of wage earners and in the value of products both from 1899 to 1904 and from 1904 to 1909, except that the value of products manufactured in Denver decreased from 1899 to 1904. The increases were generally greater from 1904 to 1909 than during the earlier period.

Denver, the largest and most important city in the state, shows an increase in 1909, as compared with 1904, of \$14,878,137, or 40.6 per cent, in the value of products, and of 2,386, or 24.7 per cent, in the average number of wage earners. Forty-three per cent of all wage earners reported for the state were employed in this city in 1909.

The leading industries in Denver in 1909 were slaughtering and meat packing, the smelting and refining of lead and of copper, printing and publishing, foundries and machine shops, steam-railroad repair shops, bakeries, breweries, the manufacture of butter, cheese, and condensed milk, flour and grist mills, lumber and timber products, brick and tile, and gas—each of which had a value of products in excess of \$1,000,000. For many of the minor industries of the state, Denver reported all of the establishments.

The most important industries within the city limits of Pueblo are the railroad repair shops and printing and publishing; those of Colorado Springs are printing and publishing and butter making; and those of Trinidad, breweries.

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.

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.....	2,034	28,067	\$130,044,312	\$49,553,408
1904.....	1,606	21,813	100,143,999	37,029,602
Individual.....	987	2,539	8,104,923	4,499,519
1909.....	886	2,536	7,794,408	4,542,091
1904.....	333	1,355	4,772,280	2,828,216
Firm.....	236	1,046	2,896,013	1,751,143
Corporation.....	698	24,152	116,991,543	42,168,021
1909.....	478	18,109	89,377,091	30,677,368
1904.....	16	21	175,566	67,652
Other.....	6	13	76,487	59,000
Per cent of total:				
1909.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0
Individual.....	48.5	9.0	6.2	9.1
1904.....	55.2	11.9	7.8	12.3
Firm.....	16.4	4.8	3.7	5.7
1904.....	14.7	4.8	2.9	4.7
Corporation.....	34.3	86.1	90.0	85.1
1909.....	29.8	83.3	89.2	82.8
1904.....	0.8	0.1	0.1	0.1
Other.....	0.4	0.1	0.1	0.2
<b>Bread and other bakery products, 1909.....</b>				
Individual.....	250	889	\$3,968,760	\$1,671,752
Firm.....	188	313	1,521,661	680,734
Corporation.....	40	01	355,002	148,756
Per cent of total.....	22	515	2,092,107	842,262
Individual.....	100.0	100.0	100.0	100.0
Firm.....	75.2	35.2	38.3	40.7
Corporation.....	16.0	6.9	8.9	8.9
Other.....	8.8	57.9	52.7	50.4
<b>Brick and tile, 1909.....</b>				
Individual.....	69	922	\$1,670,042	\$1,158,639
Firm.....	26	126	177,726	142,580
Corporation.....	10	57	70,470	56,279
Per cent of total.....	33	730	1,421,846	959,774
Individual.....	100.0	100.0	100.0	100.0
Firm.....	37.7	13.7	10.6	12.3
Corporation.....	14.5	6.2	4.2	4.9
Other.....	47.8	80.2	85.1	82.8
<b>Butter, cheese, and condensed milk, 1909.....</b>				
Individual.....	39	210	\$2,339,765	\$416,163
Firm.....	15	48	649,221	90,724
Corporation.....	5	13	81,154	17,761
Other.....	10	138	1,514,609	292,191
Per cent of total.....	9	11	95,321	15,487
Individual.....	100.0	100.0	100.0	100.0
Firm.....	38.5	22.0	27.7	21.8
Corporation.....	12.8	6.2	3.5	4.3
Other.....	25.8	65.7	64.7	70.2
Other.....	23.1	5.2	4.1	3.7

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>				
Individual.....	77	282	\$7,867,706	\$1,185,392
Firm.....	15	12	303,675	83,129
Corporation.....	14	15	357,286	85,111
Per cent of total.....	48	255	7,200,745	1,057,149
Individual.....	100.0	100.0	100.0	100.0
Firm.....	19.5	4.3	3.9	4.4
Corporation.....	18.2	5.3	4.6	7.1
Other.....	62.3	90.4	91.6	83.4
<b>Foundry and machine-shop products, 1909.....</b>				
Individual.....	111	1,813	\$5,906,695	\$3,102,636
Firm.....	38	173	641,031	399,777
Corporation.....	17	111	303,695	176,531
Per cent of total.....	56	1,529	4,960,969	2,625,300
Individual.....	100.0	100.0	100.0	100.0
Firm.....	34.2	9.5	10.9	9.7
Corporation.....	15.3	6.1	6.1	6.7
Other.....	50.5	84.3	84.0	84.6
<b>Lumber and timber products, 1909.....</b>				
Individual.....	263	2,190	\$4,184,864	\$2,768,905
Firm.....	133	535	1,067,067	756,634
Corporation.....	50	264	434,529	334,206
Per cent of total.....	71	1,301	2,682,368	1,698,643
Individual.....	100.0	100.0	100.0	100.0
Firm.....	50.6	24.4	25.5	27.1
Corporation.....	22.4	12.1	10.4	12.0
Other.....	27.0	63.5	64.1	60.9
<b>Printing and publishing, 1909.....</b>				
Individual.....	439	2,366	\$6,061,721	\$5,155,609
Firm.....	253	480	1,275,015	1,023,225
Corporation.....	64	171	396,552	312,011
Other.....	110	1,715	5,244,551	3,774,560
Per cent of total.....	6	45,803	45,803	45,493
Individual.....	100.0	100.0	100.0	100.0
Firm.....	57.6	20.3	18.3	18.3
Corporation.....	14.6	7.2	5.7	6.1
Other.....	20.4	72.5	75.3	73.2
Other.....	1.4	0.7	0.7	0.9

The most important distinction shown is that between corporate and all other forms of ownership. In 1909, for all industries combined, 34.3 per cent of the total number of establishments were under corporate ownership, as against 65.7 per cent for all other forms. The corresponding figures for 1904 were 29.8 per cent and 70.3 per cent, respectively. In respect to value of products the corresponding proportions are reversed. In 1909 the establishments operated by corporations reported 90 per cent of the total value of products, as against 10 per cent for those under all other forms of ownership, while in 1904 the corresponding figures were 89.2 per cent and 10.8 per cent, respectively. Establishments under individual ownership decreased for all items in percentages of distribution, while those under firm ownership increased in percentages of distribution in number of establishments, value of products, and value added by manufacture.

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

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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.

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.....	2,034	28,067	\$130,044,312	\$49,653,408
1904.....	1,606	21,813	100,143,989	37,029,802
Less than \$5,000:				
1909.....	760	731	1,862,931	1,257,050
1904.....	627	644	1,029,067	1,137,197
\$5,000 and less than \$20,000:				
1909.....	748	2,885	7,504,776	4,602,917
1904.....	575	2,204	5,712,975	3,730,117
\$20,000 and less than \$100,000:				
1909.....	351	4,632	14,497,582	7,938,415
1904.....	272	3,970	11,250,852	6,322,090
\$100,000 and less than \$1,000,000:				
1909.....	155	11,914	47,533,323	20,433,582
1904.....	116	9,300	30,880,042	14,311,848
\$1,000,000 and over:				
1909.....	20	7,905	58,645,700	15,231,444
1904.....	16	5,590	50,070,463	11,027,441
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.....	37.4	2.6	1.4	2.5
1904.....	39.0	3.0	1.0	3.1
\$5,000 and less than \$20,000:				
1909.....	36.8	10.3	5.8	9.5
1904.....	35.8	10.5	5.7	10.1
\$20,000 and less than \$100,000:				
1909.....	17.3	16.5	11.1	16.0
1904.....	16.9	18.2	11.2	17.1
\$100,000 and less than \$1,000,000:				
1909.....	7.6	42.4	36.6	41.2
1904.....	7.2	42.7	30.8	40.0
\$1,000,000 and over:				
1909.....	1.0	28.2	45.1	30.7
1904.....	1.0	25.7	50.6	29.8
Average per establishment:				
1909.....	14		\$63,035	\$24,363
1904.....	14		62,356	23,057
<b>Bread and other bakery products, 1909.....</b>	<b>250</b>	<b>889</b>	<b>\$3,968,760</b>	<b>\$1,671,752</b>
Less than \$5,000.....	103	43	286,748	126,509
\$5,000 and less than \$20,000.....	117	233	1,115,805	505,074
\$20,000 and less than \$100,000.....	25	201	919,499	396,224
\$100,000 and less than \$1,000,000.....	5	412	1,046,708	643,945
Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	41.2	4.8	7.2	7.6
\$5,000 and less than \$20,000.....	46.8	26.2	28.1	30.2
\$20,000 and less than \$100,000.....	10.0	22.6	23.2	23.7
\$100,000 and less than \$1,000,000.....	2.0	46.3	41.5	38.5
Average per establishment.....		4	\$15,875	\$6,687
<b>Brick and tile, 1909.....</b>	<b>69</b>	<b>922</b>	<b>\$1,670,042</b>	<b>\$1,158,639</b>
Less than \$5,000.....	20	50	61,229	49,556
\$5,000 and less than \$20,000.....	30	207	305,851	239,287
\$20,000 and less than \$100,000.....	19	605	1,302,962	869,790
Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	29.0	5.4	3.7	4.3
\$5,000 and less than \$20,000.....	43.5	22.5	18.3	20.7
\$20,000 and less than \$100,000.....	27.5	72.1	78.0	75.1
Average per establishment.....		13	\$24,204	\$16,792
<b>Butter, cheese, and condensed milk, 1909.....</b>	<b>39</b>	<b>210</b>	<b>\$2,339,765</b>	<b>\$416,163</b>
Less than \$5,000.....	11	7	29,565	7,564
\$5,000 and less than \$20,000.....	13	20	143,860	30,151
\$20,000 and less than \$100,000.....	9	24	292,778	67,231
\$100,000 and less than \$1,000,000.....	6	150	1,873,562	321,217
Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	28.2	3.3	1.3	1.8
\$5,000 and less than \$20,000.....	33.3	9.5	6.1	7.2
\$20,000 and less than \$100,000.....	23.1	11.4	12.5	13.8
\$100,000 and less than \$1,000,000.....	15.4	75.7	80.1	77.2
Average per establishment.....		5	\$59,994	\$10,671
<b>Flour-mill and gristmill products, 1909.....</b>	<b>77</b>	<b>282</b>	<b>\$7,867,706</b>	<b>\$1,195,392</b>
Less than \$5,000.....	14	8	39,952	8,171
\$5,000 and less than \$20,000.....	21	18	239,572	46,368
\$20,000 and less than \$100,000.....	24	66	1,136,356	224,601
\$100,000 and less than \$1,000,000.....	18	190	6,451,826	916,252
Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	18.2	2.8	0.5	0.7
\$5,000 and less than \$20,000.....	27.3	6.4	3.0	3.9
\$20,000 and less than \$100,000.....	31.2	23.4	14.4	18.8
\$100,000 and less than \$1,000,000.....	23.4	67.4	82.0	76.6
Average per establishment.....		4	\$102,178	\$15,525

1 Includes the group "\$100,000 and less than \$1,000,000."

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.....</b>	<b>111</b>	<b>1,813</b>	<b>\$5,908,595</b>	<b>\$3,102,635</b>
Less than \$5,000.....	21	23	63,185	43,036
\$5,000 and less than \$20,000.....	37	146	351,719	236,204
\$20,000 and less than \$100,000.....	30	609	1,690,993	922,924
\$100,000 and less than \$1,000,000.....	17	1,075	3,800,698	1,899,871
Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	18.9	1.3	1.1	1.4
\$5,000 and less than \$20,000.....	33.3	8.1	6.0	7.6
\$20,000 and less than \$100,000.....	32.4	31.4	28.6	29.7
\$100,000 and less than \$1,000,000.....	15.3	59.3	64.3	61.2
Average per establishment.....		16	\$53,213	\$27,952
<b>Lumber and timber products, 1909.....</b>	<b>263</b>	<b>2,190</b>	<b>\$4,184,864</b>	<b>\$2,788,905</b>
Less than \$5,000.....	107	155	224,862	170,038
\$5,000 and less than \$20,000.....	111	609	1,219,195	850,591
\$20,000 and less than \$100,000.....	37	530	1,332,738	804,428
\$100,000 and less than \$1,000,000.....	8	830	1,408,069	897,248
Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	40.7	7.1	5.4	6.3
\$5,000 and less than \$20,000.....	42.2	30.5	29.1	30.5
\$20,000 and less than \$100,000.....	14.1	24.2	31.8	31.0
\$100,000 and less than \$1,000,000.....	3.0	38.2	33.6	32.2
Average per establishment.....		8	\$15,912	\$10,604
<b>Printing and publishing, 1909.....</b>	<b>499</b>	<b>2,368</b>	<b>\$6,961,721</b>	<b>\$5,155,609</b>
Less than \$5,000.....	242	245	607,125	490,769
\$5,000 and less than \$20,000.....	140	498	1,295,516	1,051,127
\$20,000 and less than \$100,000.....	44	541	1,604,825	1,302,328
\$100,000 and less than \$1,000,000.....	13	1,082	3,994,255	2,311,385
Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	55.1	10.4	8.7	9.5
\$5,000 and less than \$20,000.....	31.9	21.0	18.6	20.4
\$20,000 and less than \$100,000.....	10.0	22.9	23.9	25.3
\$100,000 and less than \$1,000,000.....	3.0	45.7	48.8	44.8
Average per establishment.....		5	\$16,858	\$11,744

This table shows that, in 1909, of the 2,034 establishments only 20, or 1 per cent, had a value of products exceeding \$1,000,000. These 20 establishments, however, employed 7,905 wage earners, or 28.2 per cent of the total for all establishments, and reported 45.1 per cent of the total value of products, and 30.7 per cent of the total value added by manufacture. The corresponding percentages for 1904 were 25.7, 50.6, and 29.8, respectively. It is interesting to note that this group, which showed increased percentages in average number of wage earners and value added by manufacture for 1909, as compared with 1904, showed a decrease in its percentage of the total value of products.

On the other hand, the very small establishments—that is, those having a value of products of less than \$5,000—constituted in 1909 a large proportion (37.4 per cent) of the total number of establishments, but the value of their products amounted to only 1.4 per cent of the total. There has been a decrease in the relative importance of this group since 1904. Approximately 82 per cent of the total value of products was reported from establishments having products valued at not less than \$100,000.

While the average number of wage earners per establishment remained constant during the five-year period, the average value of products per establishment increased from \$62,356 in 1904 to \$63,935 in 1909, and the average value added by manufacture from \$23,057 to \$24,363. 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 com-

modities. Of the industries shown separately only the flour and grist mills show an average value of products per establishment in excess of \$100,000.

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 classi-

fication 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.

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.....	2,034	324	1,116	396	84	63	33	15	2	1
Bread and other bakery products.....	250	67	161	16	2	2	2			
Brick and tile.....	69		34	26	7	1	1			
Butter, cheese, and condensed milk.....	39	4	28	5	1	1				
Cars and general shop construction and repairs by steam-railroad companies.....	29		5	5	5	3	5	5	1	
Flour-mill and gristmill products.....	77	12	50	15						
Foundry and machine-shop products.....	111	6	47	34	12	10	2			
Liquors, malt.....	11		2	3	1	5				
Lumber and timber products.....	263	15	149	85	8	3	2	1		
Printing and publishing.....	439	118	246	57	9	5	4			
Slaughtering and meat packing.....	13	2	3	3	1	2	1	1		
All other industries.....	733	100	391	147	38	31	16	8	1	
AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	28,067		2,541	4,318	2,488	4,454	5,383	5,504	1,227	2,132
Bread and other bakery products.....	889		308	148	66	100	207			
Brick and tile.....	922		108	302	214	62	236			
Butter, cheese, and condensed milk.....	210		44	68	22	76				
Cars and general shop construction and repairs by steam-railroad companies.....	3,093		12	66	165	234	848	2,001	667	
Flour-mill and gristmill products.....	282		101	181						
Foundry and machine-shop products.....	1,813		135	385	342	644	307			
Liquors, malt.....	424		3	45	47	329				
Lumber and timber products.....	2,190		349	837	222	220	231	331		
Printing and publishing.....	2,306		540	595	296	326	600			
Slaughtering and meat packing.....	659		10	40	23	120	184	282		
All other industries.....	14,319		931	1,651	1,091	2,283	2,761	2,890	500	2,152
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	100.0		9.1	15.4	8.9	15.9	19.2	19.6	4.4	7.7
Bread and other bakery products.....	100.0		34.6	16.6	7.4	18.0	23.3			
Brick and tile.....	100.0		11.7	32.8	23.2	6.7	25.6			
Butter, cheese, and condensed milk.....	100.0		21.0	32.4	10.5	36.2				
Cars and general shop construction and repairs by steam-railroad companies.....	100.0		0.3	1.7	4.1	5.9	21.2	50.1	16.7	
Flour-mill and gristmill products.....	100.0		35.8	64.2						
Foundry and machine-shop products.....	100.0		7.4	21.2	18.0	35.5	10.0			
Liquors, malt.....	100.0		0.7	10.6	11.1	77.6				
Lumber and timber products.....	100.0		15.9	38.2	10.1	10.0	10.5	15.1		
Printing and publishing.....	100.0		22.8	25.1	12.5	13.8	25.7			
Slaughtering and meat packing.....	100.0		1.5	6.1	3.5	18.2	27.9	42.8		
All other industries.....	100.0		6.5	11.5	7.6	15.9	19.3	20.2	3.9	15.0

The per cent distribution of the number of establishments is not shown in this table; of the 2,034 establishments reported for all industries 15.9 per cent employed no wage earners; 54.9 per cent, 1 to 5; 19.5 per cent, 6 to 20; and 4.1 per cent, 21 to 50. The largest single group consists of the 1,116 establishments employing from 1 to 5 wage earners, and the next of the 396 establishments employing from 6 to 20 wage earners, the two groups representing 74.4 per cent of all establishments. Only 1 establishment employed over 1,000 wage earners, and only 2 reported between 501 and 1,000.

Of the total number of wage earners, 31.7 per cent were in establishments employing over 250 wage earners. The single group having the largest number of employees was the group comprising the establish-

ments employing from 251 to 500 wage earners. This group employed 5,504 wage earners, or 19.6 per cent of the total. The group employing from 101 to 250 reported 5,383 wage earners, or 19.2 per cent of the total, and the group employing from 51 to 100 reported 4,454, or 15.9 per cent. In the railroad repair shops 2,668, or 66.8 per cent of the total average number of wage earners, and in the slaughtering and meat-packing plants, 282, or 42.8 per cent, are employed in establishments having over 250 wage earners. None of the flour and grist mills employed over 20 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 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.
All industries.....	4.9	17.4	70.2	7.5
Bread and other bakery products.....	4.3	16.6	68.2	10.4
Brick and tile.....	5.8	46.9	37.6	0.6
Butter, cheese, and condensed milk.....	3.0	5.8	85.9	5.2
Cars and general shop construction and repairs by steam-railroad companies.....	5.6	52.0	30.9	2.6
Flour-mill and gristmill products.....	1.8	3.0	91.5	3.6
Foundry and machine-shop products.....	10.4	24.6	54.0	11.0
Liquors, malt.....	7.2	12.9	33.6	46.3
Lumber and timber products.....	4.9	41.9	40.2	12.9
Printing and publishing.....	18.5	30.6	30.3	20.6
Slaughtering and meat packing.....	2.3	4.2	89.7	3.8
All other products.....	3.9	14.4	76.2	5.6

This table shows that, for all industries combined, 70.2 per cent of the total expense was incurred for materials, 22.3 per cent for services—that is, salaries and wages, and but 7.5 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries. The very large miscellaneous expense shown for the malt-liquor industry is due to the inclusion of internal-revenue taxes. The labor cost in the industries manufacturing food products is relatively low.

**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 increase in owned primary power was in that generated by steam and gas engines that generated by water wheels, water motors, and the forms of owned power included under the head of "Other" showing decreases. During the five years 1904-1909 the number of steam engines increased from 873 to 1,207, the number of gas engines from 78 to 141, and the number of water wheels from 25 to 28. In 1909, 87.7 per cent of the total primary power was generated by steam engines, a somewhat smaller proportion than is shown for either 1904 or 1899. As will be seen, the

practice of renting power is increasing, 10.3 per cent of the total power reported being rented in 1909, as compared with 3.1 per cent and 3.5 per cent in 1904 and 1899, respectively. The use of electric motors for the purpose of applying the power generated within the establishments is also becoming more common, the horsepower of such motors increasing from 709 in 1899 to 11,965 in 1904 and 20,070 in 1909. The horsepower of electric motors run by rented power increased from 1,187 in 1899 to 3,765 in 1904 and 15,874 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>	<b>3,239</b>	<b>1,059</b>	<b>919</b>	<b>154,615</b>	<b>124,907</b>	<b>43,434</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Owned.....	1,387	1,050	919	138,640	121,071	41,895	89.7	9.96	96.5
Steam.....	1,207	873	783	135,645	117,539	39,400	87.7	94.1	90.7
Gas.....	141	78	81	1,464	317	519	0.9	0.3	1.2
Water wheels.....	28	25	55	1,377	1,751	1,493	0.9	1.4	3.4
Water motors.....	11	83	( <sup>2</sup> )	49	343	( <sup>2</sup> )	( <sup>3</sup> )	0.3	.....
Other.....	.....	.....	.....	105	1,121	483	0.1	0.9	1.1
Rented.....	1,852	( <sup>2</sup> )	( <sup>2</sup> )	15,975	3,836	1,539	10.3	3.1	3.5
Electric.....	1,852	( <sup>2</sup> )	( <sup>2</sup> )	15,874	3,765	1,187	10.3	3.0	2.7
Other.....	.....	.....	.....	101	71	352	0.1	0.1	0.8
Electric motors.....	2,927	550	40	35,944	15,730	1,896	100.0	100.0	100.0
Run by current generated by establishment.....	1,075	550	40	20,070	11,965	709	55.8	76.1	37.4
Run by rented power.....	1,852	( <sup>2</sup> )	( <sup>2</sup> )	15,874	3,765	1,187	44.2	23.9	62.6

<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.

**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 table following 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).
All industries <sup>1</sup> .....	8,616	3,325,135	691,837	10,103	91,275	342,577
Beet sugar.....	.....	230,221	9,300	.....	30	.....
Brick and tile.....	2,732	110,420	195	1,682	1	.....
Cars and general shop construction and repairs by steam-railroad companies.....	77	147,291	446	3	1,184	2,033
Cement.....	.....	123,765	.....	.....	.....	.....
Foundry and machine-shop products.....	16	15,026	11,724	660	774	1,674
Gas, illuminating and heating.....	.....	99,516	223	.....	29,136	.....
Iron and steel, blast furnaces.....	.....	35,263	529,493	.....	.....	.....
Iron and steel, steel works and rolling mills.....	.....	308,968	26,007	4,539	23,341	314,313
Petroleum, refining.....	.....	17,383	.....	.....	33,350	.....
Smelting and refining, lead.....	.....	162,152	109,020	96	.....	.....
All other industries.....	6,791	2,075,130	5,429	3,123	3,459	24,557

<sup>1</sup> In addition there were 334 tons of other varieties of fuel reported.

## 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. Certain data of this character for four important industries in Colorado are here presented.

**Slaughtering and meat packing.**—The following table includes for 1909 two establishments reporting sausage as the chief product, while for previous years no establishments of this character were reported; it also shows by kind the quantities and values of products for the last three census years.

PRODUCT.	1900	1904	1899
<b>Total value</b> .....	<b>\$9,656,810</b>	<b>\$3,323,503</b>	<b>\$4,349,983</b>
Beef, fresh:			
Pounds.....	33,521,352	15,589,690	20,789,680
Value.....	\$2,548,947	\$1,091,076	\$1,501,233
Veal, fresh:			
Pounds.....	1,369,852	498,089	417,000
Value.....	\$128,314	\$41,583	\$39,940
Mutton, fresh:			
Pounds.....	2,405,106	2,790,676	3,138,745
Value.....	\$237,608	\$256,377	\$270,729
Pork, fresh:			
Pounds.....	12,191,600	3,337,911	10,454,600
Value.....	\$1,198,459	\$313,709	\$663,687
Pork, salted or cured:			
Pounds.....	20,530,615	11,087,849	17,377,000
Value.....	\$2,648,836	\$982,129	\$1,044,050
Sausage, fresh or cured:			
Value.....	\$269,058	\$117,444	\$153,806
Lard:			
Pounds.....	12,633,806	2,613,183	7,678,000
Value.....	\$1,418,794	\$181,197	\$417,960
Fertilizers and fertilizer materials:			
Tons.....	2,024	707	190
Value.....	\$64,413	\$8,303	\$2,030
Hides:			
Number.....	67,946	30,807	38,284
Pounds.....	4,071,771	1,784,820	2,128,330
Value.....	\$480,689	\$153,621	\$162,397
Pelts:			
Number.....	55,085	63,822	( <sup>1</sup> )
Value.....	\$54,505	\$62,871	
All other products, value.....	\$597,227	\$125,208	\$88,091

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

In general, the industry shows a remarkable increase in value of products from 1904 to 1909. The increases in the quantities and values of beef and pork products are very large without exception, but mutton shows decreases in both quantity and value. During the five years the production of fresh beef, veal, sausage, and hides more than doubled, that of fresh pork increased over twofold, and that of lard nearly fourfold. The output of fertilizers and the value of "all other products," which includes the amount received for custom and contract work and for a number of by-products, show marked increases.

**Flour-mill and gristmill products.**—Colorado is not an important agricultural state, but the development of dry farming has in general brought about an increase in the production of wheat, corn, oats, and barley. The following table gives the quantities and values of the different flour and grist mill products reported for the census years 1909 and 1904:

PRODUCT.	QUANTITY.		VALUE.	
	1909	1904	1909	1904
<b>Total value</b> .....			<b>\$7,867,706</b>	<b>\$5,788,421</b>
Wheat flour:				
White..... barrels..	970,448	962,862	5,136,352	4,348,518
Graham..... barrels..	7,331	7,226	36,286	28,859
Corn meal and corn flour, barrels..	21,958	18,419	74,764	47,588
Rye flour..... barrels..	1,726	2,246	7,176	7,657
Buckwheat flour..... pounds..		2,500		75
Barley meal..... pounds..	367,800	114,000	8,190	912
Hominy and grits..... pounds..		8,038		285
Feed..... tons..	54,350	25,411	1,567,745	539,499
Offal..... tons..	41,770	44,349	978,663	776,310
All other products, value.....			58,630	33,686

A comparison of quantities rather than values best indicates the growth of the industry. Wheat flour, of which 99.3 per cent is white flour, is by far the most important product of this industry. Only slight gains are shown, however, for the five years in the quantities of white and Graham flour produced. Corn meal and corn flour shows a gain of 3,539 in the number of barrels produced since 1904. The amount of barley meal produced in 1909 was more than three times the amount produced in 1904. Feed shows an increase in tonnage of 113.9 per cent, the largest increase in quantity shown in the table. The by-product, offal, decreased in quantity, and rye flour, relatively unimportant, decreased in both quantity and value. In 1909, 644 pairs of rolls, 25 runs of stone, and 3 attrition mills were reported as the equipment of the mills of the state. In the same year 8 establishments manufactured sacks.

**Printing and publishing.**—The best index of the development of this industry is the growth in the number of publications and their aggregate circulation per issue. The following table gives these details by period of issue for the years 1909, 1904, and 1899:

PERIOD OF ISSUE.	NUMBER OF PUBLICATIONS.			AGGREGATE CIRCULATION PER ISSUE.		
	1909	1904	1899	1909	1904	1899
<b>Total</b> .....	<b>382</b>	<b>381</b>	<b>265</b>	<b>1,133,964</b>	<b>1,092,697</b>	<b>521,213</b>
Daily.....	53	42	42	335,147	209,185	1,157,016
Sunday.....	13	14	17	223,008	222,854	( <sup>1</sup> )
Semiweekly.....	6	7	4	5,609	5,301	2,500
Weekly.....	278	274	179	338,092	294,242	285,435
Monthly.....	31	38	19	230,308	348,815	72,647
All other classes.....	1	6	4	1,200	12,300	3,325

<sup>1</sup> Sunday issues included with dailies.<sup>2</sup> Includes one triweekly.

As shown in the table, the aggregate circulation per issue more than doubled from 1899 to 1904, while the increase was slight from 1904 to 1909. This irregular development of the state's newspapers and periodicals as a whole is due almost entirely to the fluctuations in the circulation of the monthlies, which increased nearly

fourfold from 1899 to 1904 and fell off decidedly during the succeeding five-year period. From 1904 to 1909 the dailies and weeklies increased in number and in circulation, while Sunday publications, semiweeklies, monthlies, and all other classes decreased in number, and monthlies and all other classes in circulation.

There were published in the state, in 1909, four Italian weeklies and two semiweeklies; three Spanish weeklies; two Spanish-English weeklies; one German daily and two weeklies; one Servian, one Slavonian, and one Swedish weekly; and one Japanese semiweekly.

**Lumber and timber products.**—The state has a very extensive and largely undeveloped timber area. The following statement shows the quantities of the principal products of the sawmills of the state for 1909 and 1904:

PRODUCT.	1909	1904 <sup>1</sup>
Rough lumber.....M feet, b. m.	141,710	133,746
Shingles.....thousands..	657	5,165
Lath.....thousands..	11,494	5,558

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

**Laundries.**—Statistics for steam laundries are not included in the general tables, or in the totals for manufacturing industries. In 1909 there were 99 such establishments in the state of Colorado, 36 of which were in Denver, 5 in Pueblo, 4 in Colorado Springs, and 2 in Trinidad. The following statement summarizes the statistics:

Number of establishments.....	99
Persons engaged in the industry.....	2,076
Proprietors and firm members.....	103
Salaried employees.....	140
Wage earners (average number).....	1,833
Primary horsepower.....	1,895
Capital.....	\$1,270,656
Expenses.....	1,595,638
Services.....	1,055,461
Materials.....	290,314
Miscellaneous.....	249,863
Amount received for work done.....	1,980,693

Forty-five out of 99 establishments were under individual ownership, 28 under firm, and 26 under corporate ownership. Three establishments had receipts for the year's business amounting to between

\$100,000 and \$1,000,000, 27 had receipts of between \$20,000 and \$100,000, and 69 receipts of less than \$20,000 each.

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.....	1,696	82.9	July.....	1,996	97.6
February.....	1,684	82.3	August.....	2,040	100.0
March.....	1,707	83.4	September.....	1,962	95.9
April.....	1,756	85.8	October.....	1,855	90.7
May.....	1,763	86.2	November.....	1,850	90.4
June.....	1,844	90.1	December.....	1,835	89.7

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

KIND.	Number of engines or motors.	Horsepower.
Primary power, total.....		1,895
Owned.....		1,443
Steam.....	67	1,428
Water motors.....	1	15
Rented.....		452
Electric.....	42	272
Other.....		180

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

KIND.	Unit.	Quantity.
Coal:		
Anthracite.....	Tons.....	428
Bituminous.....	Tons.....	25,685
Wood.....	Cords.....	20
Oil.....	Barrels.....	65
Gas.....	1,000 feet.....	7,433

**Custom saw and grist mills.**—Statistics for custom saw and grist mills are not included in the general tables or in the totals for manufacturing industries and can not be separately presented here without divulging individual operations.

STATISTICS OF MANUFACTURES—COLORADO.

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 materi- als.	Value of prod- ucts.	Value added by manu- facture.
			Total.	Pro- pri- etors and firm mem- bers.	Sala- ried em- ploy- ees.	Wage earn- ers (aver- age num- ber).							
Expressed in thousands.													
STATE—All industries.....	1909 1904 1899	2,034 1,606 1,323	34,115 25,888 .....	1,722 1,398 .....	4,328 2,677 1,870	28,067 21,813 10,498	164,615 124,907 43,434	\$102,668 107,664 58,178	\$5,648 3,549 2,059	\$19,912 16,100 11,708	\$30,491 63,114 60,761	\$130,044 100,144 89,066	\$49,583 37,090 28,317
Bread and other bakery products.....	1909 1904 1899	250 186 132	1,325 934 621	272 200 135	164 64 66	889 670 420	613 231 .....	1,676 943 552	163 77 48	559 411 236	2,297 1,457 865	3,969 2,657 1,607	1,672 1,170 742
Brick and tile.....	1909 1904 1899	69 63 65	1,036 580 532	46 52 76	68 33 18	922 495 438	3,923 2,192 1,083	2,421 1,036 526	79 39 18	637 322 237	511 164 86	1,670 817 497	1,159 653 411
Butter, cheese, and condensed milk.....	1909 1904 1899	39 141 38	304 141 133	26 16 35	68 28 18	210 97 80	657 476 403	1,221 593 204	68 31 11	130 59 40	1,924 1,081 471	2,340 1,290 618	416 209 147
Canning and preserving.....	1909 1904 1899	30 15 12	630 358 .....	15 14 27	97 29 237	518 315 .....	1,340 541 312	1,486 554 312	107 39 29	250 136 76	672 429 250	1,528 821 406	856 392 156
Cars and general shop construction and repairs by steam-railroad companies.....	1909 1904 1899	29 34 29	4,300 3,267 2,824	..... ..... .....	307 215 137	3,993 3,052 2,687	3,947 2,422 1,152	4,708 1,046 1,682	363 253 148	3,393 3,322 1,677	2,604 2,063 1,278	6,569 5,250 3,142	3,955 2,590 1,864
Confectionery.....	1909 1904 1899	35 19 10	483 296 .....	32 14 70	102 43 153	349 99 .....	145 90 .....	580 341 277	92 44 46	136 105 62	531 294 225	1,023 685 420	492 391 185
Flour-mill and gristmill products.....	1909 1904 1899	77 52 49	429 362 .....	47 26 87	100 92 272	282 244 .....	6,810 5,927 .....	4,535 2,326 1,977	134 104 76	220 203 167	6,672 4,797 3,769	7,868 5,783 4,441	1,196 888 672
Foundry and machine-shop products.....	1909 1904 1899	111 88 84	2,250 1,677 .....	75 80 122	362 146 1875	1,813 1,451 .....	4,325 2,530 .....	7,056 3,241 2,009	539 211 153	1,280 1,062 1,192	2,804 1,363 1,720	5,007 4,108 4,169	3,103 2,475 2,459
Furniture and refrigerators.....	1909 1904 1899	14 11 34	224 186 60	7 10 2	41 19 7	176 157 51	258 164 24	494 167 77	45 22 8	146 178 34	257 432 90	542 432 170	285 254 89
Ice, manufactured.....	1909 1904 1899	30 16 6	315 182 117	11 9 6	53 35 18	251 138 93	4,361 2,187 202	2,415 1,240 664	65 35 21	190 93 54	126 71 31	570 376 204	444 305 173
Leather goods.....	1909 1904 1899	30 22 16	363 230 .....	29 19 97	65 36 154	269 175 .....	109 38 .....	585 364 230	68 36 22	172 258 180	539 258 239	1,054 777 442	515 319 203
Liquors, malt.....	1909 1904 1899	11 11 14	514 367 371	5 7 9	85 60 39	424 300 323	2,434 3,001 1,050	7,327 4,702 5,082	193 137 78	349 243 257	907 458 376	3,311 2,120 2,048	2,404 1,622 1,667
Lumber and timber products.....	1909 1904 1899	263 110 148	2,614 1,631 .....	261 109 90	163 92 1,507	2,190 1,430 .....	11,177 6,659 .....	3,472 1,892 1,695	172 83 80	1,458 896 790	1,396 806 1,099	4,185 2,497 2,638	2,789 1,691 1,539
Marble and stone work.....	1909 1904 1899	44 33 39	846 276 .....	52 30 12	27 28 399	207 212 .....	694 359 .....	967 285 410	32 33 14	208 200 279	220 231 224	626 626 696	406 395 472
Pottery, terra-cotta, and fire-clay products.....	1909 1904 1899	6 11 10	231 511 423	3 4 7	14 31 42	214 476 374	450 2,108 1,005	1,079 832 856	26 51 60	143 268 216	108 200 161	436 787 574	328 491 413
Printing and publishing.....	1909 1904 1899	439 419 286	3,747 2,616 .....	406 399 372	975 615 .....	2,366 1,902 1,896	2,045 1,531 .....	4,941 3,604 2,070	1,104 701 353	1,823 1,343 1,130	1,806 1,311 823	6,969 5,487 3,687	5,156 4,156 2,874
Slaughtering and meat packing.....	1909 1904 1899	13 11 14	824 303 316	5 4 7	170 52 48	659 247 261	2,450 888 .....	3,653 1,107 1,381	210 55 61	389 175 171	8,295 2,782 3,722	9,657 3,324 4,344	1,362 542 622
Tobacco manufactures.....	1909 1904 1899	99 117 86	563 632 457	104 128 97	32 23 23	427 481 337	..... ..... .....	427 299 200	59 28 20	306 308 223	358 336 234	1,021 670 680	663 643 446
All other industries.....	1909 1904 1899	445 368 281	13,607 11,039 .....	326 271 .....	1,433 1,036 577	11,848 9,732 7,941	108,868 93,554 .....	113,325 82,489 35,059	2,129 1,570 813	8,123 6,740 4,788	48,464 43,539 46,088	70,816 61,530 58,290	22,352 18,000 13,292

<sup>1</sup> Does not include statistics for one establishment, to avoid disclosure of individual operations.  
<sup>2</sup> Does not include statistics for six establishments, to avoid disclosure of individual operations.  
<sup>3</sup> Does not include statistics for two establishments, to avoid disclosure of individual operations.

# STATISTICS OF MANUFACTURES—COLORADO.

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

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

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>DENVER—All industries.....</b>	1909	766	15,037	586	2,393	12,058	25,165	\$47,534	\$3,019	\$8,405	\$30,927	\$51,539	\$20,612	
	1904	722	11,752	596	1,484	9,672		27,434	1,818	6,711	21,000	36,660	15,660	
	1899	574		1,036		8,600		31,271	1,181	5,236	24,472	37,906	13,434	
Brass and bronze products.....	1909	5	51	5	4	42	52	45	5	36	75	145	70	
	1904	1 4	35	2	1	32		58	1	22	48	92	44	
	1899	1 3	22	2		19		30	2	12	38	65	27	
Bread and other bakery products.....	1909	91	707	86	117	594	487	1,177	134	339	1,515	2,540	1,031	
	1904	75	560	72	52	442		669	68	250	931	1,656	725	
	1899	70	446	76	59	311		405	44	163	596	1,132	536	
Brick and tile.....	1909	26	627	17	34	576	1,307	908	44	376	357	1,041	684	
	1904	29	345	31	11	303		422	12	208	88	474	386	
	1899	20	237	22	7	208		295	9	128	41	262	221	
Canning and preserving.....	1909	9	152	8	30	114	300	363	37	65	202	505	303	
	1904	1 8	128	10	15	103		251	20	57	178	347	169	
	1899	1 5			9	31		35	5	13	27	63	36	
Carriages and wagons and materials.....	1909	12	105	15	6	84	64	96	6	55	45	100	115	
	1904	1 25	152	27	4	121		195	4	89	85	251	196	
	1899	1 14	99	18	4	77		112	3	55	45	142	97	
Cars and general shop construction and repairs by steam-railroad companies.	1909	5	1,845		139	1,706	1,485	2,473	154	1,477	1,226	2,800	1,740	
	1904	5	1,368		97	1,271		621	112	954	956	2,072	1,116	
	1899	5	1,075		60	1,006		905	66	623	579	1,295	716	
Confectionery.....	1909	21	338	19	65	254	97	403	65	94	407	760	353	
	1904	14	230	10	36	184		242	37	83	241	500	319	
	1899	6			40	96		169	28	39	159	290	131	
Foundry and machine-shop products.....	1909	67	1,573	38	207	1,268	3,040	5,234	403	875	2,300	4,598	2,298	
	1904	50	1,244	38	169	1,097		2,373	170	802	1,551	3,275	1,724	
	1899	51		35	85	1,221		1,971	117	759	1,134	2,534	1,400	
Leather goods.....	1909	17	254	18	59	177	70	382	60	108	318	651	333	
	1904	14	165	15	29	121		278	28	84	158	389	231	
	1899	1 9		19	95			156	16	60	158	281	123	
Liquors, malt.....	1909	4	261		51	210	1,283	4,894	126	170	432	1,675	1,243	
	1904	3	191		35	156		3,159	95	121	238	1,226	982	
	1899	4	230	3	21	206		4,954	50	168	225	1,440	1,215	
Lumber and timber products.....	1909	22	578	17	46	515	1,599	821	48	354	577	1,177	600	
	1904	1 9	331	7	17	307		321	20	229	255	603	348	
	1899	1 10	332	6	25	301		649	31	222	378	734	356	
Marble and stone work.....	1909	26	195	30	14	151	389	303	16	133	169	426	257	
	1904	30	263	32	25	206		273	31	191	214	580	375	
	1899	25		6	282			221	10	280	203	680	377	
Printing and publishing.....	1909	150	2,354	111	707	1,536	1,036	2,750	845	1,215	1,350	4,333	3,483	
	1904	155	1,818	125	440	1,253		2,018	517	896	1,018	4,336	3,818	
	1899	124		263	1,131			1,583	262	733	537	2,459	1,922	
Tobacco manufactures.....	1909	51	441	51	32	358		347	59	246	265	792	527	
	1904	1 56	435	50	19	360		212	26	232	234	711	477	
	1899	1 41		23	241			129	20	164	160	485	325	
All other industries.....	1909	260	5,466	171	322	4,473	13,986	27,329	1,017	2,856	21,689	29,264	7,575	
	1904	243	4,481	171	594	3,716		16,322	671	2,493	14,805	19,579	4,774	
	1899	178		396	3,275			19,657	518	1,867	20,192	28,144	5,952	

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

Colorado Springs.....	1909	59	694	40	138	516	907	\$2,023	\$144	\$413	\$823	\$1,733	\$910
	1904	49	547	45	92	410		1,611	84	284	412	1,101	689
	1899	34			78	409		1,127	50	225	395	845	480
Pueblo.....	1909	94	1,037	73	244	1,320	2,276	4,137	264	957	1,497	3,345	1,848
	1904	80	1,120	65	114	941		2,040	120	661	941	2,197	1,256
	1899	69		70	790			1,184	70	458	672	1,440	763
Trinidad.....	1909	30	279	20	39	220	851	809	37	170	310	814	504
	1904												
	1899												

<sup>1</sup> Does not include statistics for one establishment, to avoid disclosure of individual operations.  
<sup>2</sup> Does not include statistics for two establishments, to avoid disclosure of individual operations.  
<sup>3</sup> Does not include statistics for five establishments, to avoid disclosure of 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.								
1 All industries.....	2,034	34,115	1,722	1,287	2,518	521	28,067	No 32,050	Fe 25,181	(1)	(1)	(1)	(1)	(1)	164,618		
2 Artificial stone.....	33	112	31	8	5	68	My 95	Ja 33	85	85					35		
3 Boxes, cigar.....	3	26	4		1	21	Je <sup>2</sup> 22	Fe <sup>2</sup> 20	21	0	12				11		
4 Brass and bronze products.....	5	51	5	2	2	42	No 48	Mh 35	43	41					32		
5 Bread and other bakery products.....	250	1,325	272	21	85	58	889	Au 939	Ja 840	899	640	244	14	1	613		
6 Brick and tile.....	69	1,036	46	47	18	3	922	Jy 1,308	Ja 575	1,213	1,194	1	18		3,923		
7 Brooms.....	6	57	6	2	2	47	Au <sup>2</sup> 49	Ap <sup>2</sup> 46	48	44	4				32		
8 Brushes.....	4	10	4		1	5	No <sup>2</sup> 6	My <sup>2</sup> 5	6	5	1				11		
9 Butter, cheese, and condensed milk.....	39	304	26	19	27	22	Jy 247	Ja <sup>2</sup> 187	200	155	45				65		
10 Canning and preserving.....	30	630	15	37	42	18	518	Au 1,161	Ap <sup>2</sup> 157	1,314	436	867	5	6	1,349		
11 Carriages and wagons and materials.....	21	158	25	6	3		124	Jy 142	Ja <sup>2</sup> 108	108	108				125		
12 Cars and general shop construction and repairs by steam-railroad companies.....	20	4,300		125	180	2	3,903	De 4,373	Jy 3,572	4,230	4,237	2			3,947		
13 Cars and general shop construction and repairs by street-railroad companies.....	6	234		5	4		225	Jy 246	Mh 212	218	217			1	454		
14 Confectionery.....	35	483	32	21	47	34	349	De 419	Fe 310	423	160	254			145		
15 Copper, tin, and sheet-iron products.....	21	137	23	7	2	1	104	De 122	Ja 82	132	130			2	41		
16 Fancy articles, not elsewhere specified.....	3	16	3			3	10	Au <sup>2</sup> 14	Ja <sup>2</sup> 7	10	3						
17 Flour-mill and gristmill products.....	77	429	47	41	58	1	282	Oc 320	Jy 253	289	288			1	6,810		
18 Foundry and machine-shop products.....	111	2,250	75	131	201	30	1,813	Se 2,001	Ja 1,672	1,818	1,802	3	13		4,325		
19 Furniture and refrigerators.....	14	224	7	12	23	6	176	De 195	Ja 159	195	189	3	3		238		
20 Ice, manufactured.....	30	315	11	24	28	1	251	Au 416	De 165	181	180			1	4,351		
21 Jewelry.....	11	98	13	3	4	5	73	De 77	Fe 70	79	74	3	2		33		
22 Leather goods.....	30	363	29	19	37	0	209	No 286	Ja 254	284	243	41			109		
23 Liquors, malt.....	11	514	5	32	53		424	Jy 478	Ja 384	423	420			3	2,434		
24 Lumber and timber products.....	263	2,614	261	81	77	5	2,100	Au <sup>2</sup> 2,577	Ap 1,793	2,909	2,877	28	4		11,517		
25 Marble and stone work.....	44	346	52	15	11	1	267	Je 297	Ja 224	278	278				694		
26 Mattresses and spring beds.....	6	141	1	11	9	2	118	Oc 138	Fe 71	124	82	39	3		274		
27 Models and patterns, not including paper patterns.....	4	15	5				10	Ap 13	No <sup>2</sup> 8	8	8				29		
28 Patent medicines and compounds and druggists' preparations.....	23	72	8	11	3		50	Mh 59	Ja 43	64	41	23			99		
29 Photo-engraving.....	4	28	2	3		1	22	De 24	Fe <sup>2</sup> 20	24	23				49		
30 Pottery, terra-cotta, and fire-clay products.....	6	231	3	7	2	5	214	Jy 267	Ja 181	228	222	1	2		458		
31 Printing and publishing.....	439	3,747	406	184	625	160	2,366	De 2,483	My 2,307	2,508	2,048	401	64	5	2,045		
32 Slaughtering and meat packing.....	13	834	5	24	136	10	659	Je 692	No <sup>2</sup> 634	647	620	14	13		2,450		
33 Stoves and furnaces, including gas and oil stoves.....	6	45	3	5	5	2	30	No <sup>2</sup> 31	Ap <sup>2</sup> 28	30	30				15		
34 Tobacco manufactures.....	99	563	104	12	15	5	427	De 445	Mh 385	434	351	79	4		410		
35 Wall plaster.....	4	70		5	1		64	Oc 68	Ja <sup>2</sup> 52	61	61				410		
36 All other industries <sup>3</sup> .....	285	12,337	193	367	812	130	10,835								107,200		

<sup>1</sup> No figures given for reasons explained in the Introduction, page 2. See also discussion of wage earners on page 6.  
<sup>2</sup> Same number reported for one or more other months.  
<sup>3</sup> All other industries embrace—

Agricultural implements.....	3	Cars, street-railroad, not including operations of railroad companies.....	1	Explosives.....	1
Artificial limbs.....	2	Cement.....	2	Firearms and ammunition.....	1
Automobiles, including bodies and parts.....	4	Charcoal.....	1	Fireworks.....	1
Awnings, tents, and sails.....	7	Clothing, men's, including shirts.....	4	Flags, banners, regalia, society badges and emblems.....	1
Babbitt metal and solder.....	3	Clothing, women's.....	2	Flavoring extracts.....	1
Baking powders and yeast.....	2	Coffee and spice, roasting and grinding.....	10	Food preparations.....	22
Beet sugar.....	2	Coffins, burial cases, and undertakers' goods.....	2	Fur goods.....	2
Bicycles, motorcycles, and parts.....	16	Coke.....	12	Furnishing goods, men's.....	3
Blackening and cleansing and polishing preparations.....	4	Cooperage and wooden goods, not elsewhere specified.....	2	Furs, dressed.....	3
Boots and shoes, including cut stock and findings.....	2	Cutlery and tools, not elsewhere specified.....	1	Gas and electric fixtures, and lamps and reflectors.....	2
Boxes, fancy and paper.....	1	Dairymen's, poulterers', and apiarists' supplies.....	1	Gas, illuminating and heating.....	10
Butter, reworking.....	3	Electrical machinery, apparatus, and supplies.....	4	Glass, cutting, staining, and ornamenting.....	3
Carpets, rag.....	1	Electroplating.....	1	Gloves and mittens, leather.....	1
Cars, steam-railroad, not including operations of railroad companies.....	2			Gold and silver, reducing and refining, not from the ore.....	1

STATISTICS OF MANUFACTURES—COLORADO.

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 \$162,667,801	\$114,689,902	\$2,827,671	\$2,820,013	\$10,912,342	\$8,528,516	\$71,962,388	\$644,057	\$1,359,224	\$308,002	\$6,327,689	\$180,044,312	\$49,553,406
2 146,662	119,760	7,632	3,350	44,537	681	53,134	1,130	760	1,684	6,852	152,873	99,058
3 30,415	31,465	832	832	8,864	408	19,406	320	315	.....	1,320	41,895	22,081
4 45,267	122,394	2,800	2,144	36,116	4,463	70,585	3,660	440	.....	2,186	145,092	70,044
5 1,676,433	3,368,683	48,985	113,870	559,172	72,320	2,224,688	71,810	14,996	431	262,411	3,968,760	1,671,752
6 2,420,670	1,358,835	68,956	16,165	637,220	204,161	217,242	2,125	13,904	.....	114,962	1,670,042	1,158,639
7 70,113	99,816	1,800	1,880	26,368	1,294	65,378	1,367	543	.....	1,186	118,758	52,086
8 14,595	15,951	750	3,070	750	389	9,400	1,176	90	.....	476	19,160	9,371
9 1,220,624	2,238,279	30,000	38,097	129,712	16,225	1,907,377	5,664	6,464	224	104,516	2,339,765	416,163
10 1,486,325	1,219,959	68,835	43,385	250,241	19,978	682,449	11,277	6,561	.....	172,233	1,527,779	855,352
11 160,264	196,393	6,080	2,016	87,391	3,935	81,515	7,155	1,743	166	6,392	260,295	174,845
12 4,707,532	6,529,442	216,403	146,279	3,393,142	130,147	2,473,923	100	62,524	5,814	101,110	6,558,920	3,954,850
13 231,482	273,635	6,893	3,406	140,346	1,624	113,411	.....	5,039	.....	2,916	273,635	158,600
14 579,826	894,850	29,782	62,138	135,701	10,081	521,082	34,871	3,940	.....	97,255	1,023,073	491,910
15 201,965	249,941	8,333	2,938	88,720	1,563	131,523	6,741	818	701	.....	283,673	150,587
16 35,500	15,395	.....	3,058	4,810	115	5,348	930	35	.....	1,590	24,000	18,537
17 4,835,438	7,292,244	73,928	60,400	219,008	53,085	6,610,220	2,122	29,646	150	233,776	7,867,706	1,195,392
18 7,050,055	5,195,417	344,314	194,495	1,280,148	147,637	2,656,323	40,017	37,355	44,266	449,962	5,906,595	3,162,635
19 493,564	490,939	17,915	27,511	145,891	3,871	253,288	14,415	2,563	903	30,582	542,122	284,963
20 2,415,090	445,382	36,830	28,209	189,803	93,163	32,942	1,510	15,270	.....	47,655	569,839	443,734
21 144,475	205,572	5,460	11,100	72,295	1,399	81,687	13,271	1,142	.....	19,218	278,883	195,797
22 584,788	883,170	20,260	38,495	172,319	2,710	535,791	18,446	4,648	.....	81,501	1,054,338	515,837
23 7,320,513	2,698,504	103,652	89,350	348,926	64,325	842,655	1,500	489,119	.....	758,977	3,310,755	2,403,775
24 3,472,112	3,475,466	112,826	58,937	1,457,889	37,977	1,357,982	9,338	32,123	3,266	405,128	4,184,864	2,788,905
25 966,612	516,957	21,320	10,381	208,465	12,855	207,030	2,959	3,450	12,848	37,610	625,681	405,787
26 176,187	337,770	14,480	7,533	44,839	4,916	237,842	10,410	1,117	.....	16,633	369,371	126,613
27 7,402	12,626	.....	.....	8,055	305	2,380	1,344	68	.....	465	19,677	16,983
28 115,450	122,013	10,073	1,975	23,821	1,080	62,689	3,936	911	100	17,428	168,433	104,664
29 25,039	41,030	2,850	650	23,204	2,161	6,813	2,380	97	.....	2,875	50,180	41,206
30 1,078,694	330,267	15,545	10,550	142,741	38,041	69,330	96	4,347	.....	48,717	435,822	327,551
31 4,941,971	5,959,377	427,678	676,743	1,823,196	70,125	1,729,987	146,941	35,881	224,556	818,270	6,961,721	5,155,609
32 3,653,300	9,243,976	61,054	148,519	389,133	67,907	8,226,872	1,970	19,141	.....	329,380	9,656,810	1,362,031
33 44,545	90,072	4,840	5,825	27,011	1,158	38,740	3,310	263	4,800	4,125	98,285	58,387
34 426,817	894,727	32,840	25,759	305,661	1,440	356,683	16,958	69,819	100	85,467	1,021,241	663,118
35 152,500	109,322	5,400	1,080	36,523	11,016	44,412	.....	1,116	.....	9,775	162,469	107,041
36 111,724,570	59,604,273	1,021,807	982,193	7,446,995	7,349,061	40,053,234	208,878	492,076	7,903	2,046,226	68,351,800	20,949,505

<sup>a</sup> All other industries embrace—Continued.

Grease and tallow.....	2	Limo.....	3	Scales and balances.....	2
Hair work.....	1	Looking-glass and picture frames.....	1	Show cases.....	1
Hand stamp and stencils and brands.....	3	Malt.....	1	Signs and advertising novelties.....	1
Hats and caps, other than felt, straw, and wool.....	1	Mineral and soda waters.....	55	Silverware and plated ware.....	2
Hosiery and knit goods.....	1	Mirrors.....	1	Smelting and refining, copper.....	1
House-furnishing goods, not elsewhere specified.....	1	Mucilage and paste.....	1	Smelting and refining, lead.....	5
Ink, printing.....	1	Musical instruments and materials, not specified.....	1	Smelting and refining, zinc.....	1
Ink, writing.....	2	Musical instruments, pianos and organs, and materials.....	1	Soap.....	3
Instruments, professional and scientific.....	4	Optical goods.....	1	Soda-water apparatus.....	1
Iron and steel, blast furnaces.....	1	Paint and varnish.....	4	Starch.....	1
Iron and steel, steel works and rolling mills.....	1	Paper goods, not elsewhere specified.....	1	Statuary and art goods.....	3
Iron and steel forgings.....	1	Petroleum, refining.....	4	Steam packing.....	4
Jewelry and instrument cases.....	1	Photographic apparatus and materials.....	2	Sulphuric, nitric, and mixed acids.....	1
Kaolin and ground earths.....	1	Roofing materials.....	1	Vinegar and cider.....	3
Lapidary work.....	1	Safes and vaults.....	1	Window shades and fixtures.....	1
Lead, bar, pipe, and sheet.....	1			Wirework, including wire rope and cable.....	4
Leather, tanned, curried, and finished.....	1			Wool scouring.....	1

## MANUFACTURES : CONNECTICUT

## 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 Connecticut 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 Connecticut, 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 Bridgeport, Hartford, New Haven, and Waterbury. It also gives the same items for all industries combined for every city and borough 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.

### INDUSTRIES IN GENERAL.

**General character of the state.**—Connecticut, with a gross area of 4,965 square miles, of which 145 represent water surface, is one of the smallest of the states and territories of continental United States—only two states, Delaware and Rhode Island, having a less area. Its population in 1910 was 1,114,756, as compared with 908,420 in 1900 and 746,258 in 1890. In 1910 the density of population for the state was 231.3 per square mile, the corresponding figure for 1900 being 188.5. Only three states had a greater average number of inhabitants per square mile. It ranked thirty-first among the 49 states and territories as regards population in 1910 and twenty-ninth in 1900. Eighty-nine and seven-tenths per cent of the entire population of the state resided in places having a population of 2,500 inhabitants or over, as against 87.2 per cent in 1900.

The state has four cities having a population of over 50,000—Bridgeport, Hartford, New Haven, and Waterbury. There are also 11 cities and boroughs having a population of over 10,000 but less than 50,000—Ansonia, Danbury, Meriden, Middletown, Naugatuck, New Britain, New London, Norwich, Stamford, Torrington, and Willimantic. These 15 cities and boroughs contain 56.6 per cent of the total population of the state and are credited with 68.2 per cent of the total value of its manufactures. Apart from the cities and boroughs named, 33.1 per cent of the population of the state resided in places of 2,500 inhabitants or over.

The prominence of Connecticut as a manufacturing state is due to several causes, chief of which are the early establishment of a number of important industries in the state and the unusually large amount of capital available for investment in manufacturing industries. Additional causes are the comparatively abundant water power in the state and its geographic location near New York City, with which many of the manufacturing centers of Connecticut have direct water transportation facilities. Bridgeport, New Haven, and New London are seaports of considerable prominence, and afford ample opportunities for domestic coastwise commerce. In addition, the main line of the most important railroad system in New England traverses Connecticut and gives direct and adequate connection with all parts of the country.

**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.

**Importance and growth of manufactures.**—Connecticut is preeminently a manufacturing state, and the growth and concentration of its population have been closely related to the increase in the importance of its manufacturing industries. During 1849–50 an average of 50,731 wage earners, representing 13.7 per cent of the total population, were employed in manufactures, while in 1909 an average of 210,792 wage earners, or 18.9 per cent of the total population, were so engaged. In 1849–50 the total value of the manufactures of the state, including the products of the neighborhood and hand industries, amounted to \$47,115,000, while in 1909, exclusive of the value of products of the neighborhood and hand industries, it reached \$490,272,000. These figures represent increases of 315.5 per cent in number of wage earners and 940.6 per cent in value of products. During this period the gross value of products per capita of the total population of the state increased from \$127 to \$440. Nevertheless the state's proportion of the total value of products manufactured in the United States fell from 4.6 per cent in 1849–50 to 2.8 per cent in 1899 and 2.4 per cent in 1909.

The rank of Connecticut among the states in regard to the value of its manufactured products was twelfth in 1909, as compared with eleventh in 1899, and fifth in 1849–50.

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.

In 1909 the state of Connecticut had 4,251 manufacturing establishments, which gave employment to an average of 233,871 persons during the year and paid out \$135,756,000 in salaries and wages. Of the persons employed, 210,792 were wage earners.

These establishments turned out products to the value of \$490,272,000, to produce which materials costing \$257,259,000 were used. The value added by manufacture was thus \$233,013,000, which figure, as explained in the Introduction, best represents the net wealth created by manufacturing operations during the year.

## MANUFACTURES—CONNECTICUT.

In general, this table brings out the fact that the manufacturing industries of Connecticut as a whole showed greater development during the more recent five-year period, 1904-1909, than during the preceding five-year period, 1899-1904, although a marked increase is shown for both periods in all items, except in the number of establishments from 1899 to 1904. During the later period the number of establishments increased 22.3 per cent, the average number of wage

earners 16.1 per cent, the value of products 32.8 per cent, and the value added by manufacture 31.1 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 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	1904	1899	1904-1909	1899-1904
Number of establishments.....	4, 251	3, 477	3, 382	22. 3	2. 8
Persons engaged in manufactures.....	233, 871	198, 046	(1)	18. 1	(1)
Proprietors and firm members.....	3, 468	2, 918	(1)	18. 8	(1)
Salaried employees.....	19, 611	13, 523	9, 258	45. 0	46. 1
Wage earners (average number).....	210, 792	181, 605	159, 733	16. 1	13. 7
Primary horsepower.....	400, 275	304, 204	256, 331	31. 6	18. 7
Capital.....	\$517, 547, 000	\$373, 284, 000	\$299, 207, 000	38. 6	24. 8
Expenses.....	429, 904, 000	328, 610, 000	274, 170, 000	30. 8	19. 9
Services.....	135, 756, 000	104, 983, 000	85, 149, 000	29. 3	23. 3
Salaries.....	25, 637, 000	17, 040, 000	11, 755, 000	50. 5	45. 0
Wages.....	110, 119, 000	87, 943, 000	73, 394, 000	25. 2	19. 8
Materials.....	257, 259, 000	191, 802, 000	169, 672, 000	34. 5	12. 7
Miscellaneous.....	36, 889, 000	32, 325, 000	19, 349, 000	14. 1	67. 1
Value of products.....	490, 272, 000	369, 082, 000	315, 106, 000	32. 8	17. 1
Value added by manufacture (value of products less cost of materials).....	233, 013, 000	177, 780, 000	145, 434, 000	31. 1	22. 2

1 Figures not available.

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

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

In addition to the industries presented separately in the following table there are 20 other important industries, each of which had a value of products in 1909 in excess of \$1,000,000. They are included under "All other industries" in the table because in some cases the operations of individual establishments would be disclosed if they were shown separately; in others, because the returns do not properly present the true condition of the industry, for the reason that it is more or less interwoven with one or more other industries, or because comparable statistics for the different census years can not be presented on account of changes in classification. These industries are as follows: Belting and hose, leather; bicycles, motorcycles, and parts; boots and shoes, rubber; brick and tile; carpets and rugs, other than rag; dentists' materials; furnishing goods, men's; gas and electric fixtures and lamps and reflectors; gold and silver, reducing and refining, not

from the ore; house-furnishing goods, not elsewhere specified; iron and steel, steel works and rolling mills; iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills; iron and steel, nails and spikes, cut and wrought, not made in steel works or rolling mills; phonographs and graphophones; rubber goods, not elsewhere specified; screws, machine; screws, wood; sewing machines, cases, and attachments; soap; and wire. Statistics, however, for the manufacture of furnishing goods, men's, gas and electric fixtures and lamps and reflectors, of rubber goods, not elsewhere specified, and of sewing machines, cases, and attachments are presented in Table II for 1909.

Connecticut ranked second among the states in the production of rubber boots and shoes, measured by value of products, and the three gold and silver refineries of Connecticut turned out a greater value of products than did those of any other state.

Although a few industries predominate in importance, it will be seen from Table II that there is, on the whole, a wide diversity in the manufacturing activities of the state. The most important industries listed in the following table, in which they are arranged in the order of the value of products, are briefly considered, by classification, in the paragraphs following the table.

MANUFACTURES—CONNECTICUT.

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>4,251</b>	<b>210,792</b>	<b>100.0</b>	<b>\$490,272,000</b>	<b>100.0</b>	<b>\$233,013,000</b>	<b>100.0</b>	<b>32.3</b>	<b>17.1</b>	<b>31.1</b>	<b>22.2</b>
Brass and bronze products.....	80	16,817	8.0	66,933,000	13.7	19,069,000	8.2	24.1	9.9	19.2	28.5
Foundry and machine-shop products.....	403	37,736	17.9	65,535,000	13.4	40,715,000	17.5	46.2	12.1	38.2	21.2
Cotton goods, including cotton small wares.....	52	14,360	6.8	24,232,000	4.9	12,272,000	5.3	31.5	19.0	49.3	3.4
Silk and silk goods, including throwsters.....	47	8,703	4.1	21,063,000	4.3	9,229,000	3.9	34.8	26.2	41.4	26.0
Firearms and ammunition.....	10	8,533	4.0	19,948,000	4.1	9,882,000	4.2	12.3	57.2	4.6	63.2
Woolen, worsted, and felt goods, and wool hats.....	56	7,789	3.7	19,363,000	3.9	6,525,000	2.8	25.1	22.5	20.6	14.8
Silverware and plated ware.....	31	6,223	3.0	15,837,000	3.2	8,005,000	3.7	94.9	-14.8	91.8	-7.7
Corsets.....	17	6,643	3.2	12,815,000	2.6	6,130,000	2.6	129.2	-18.3	111.2	-20.7
Automobiles, including bodies and parts.....	28	3,815	1.8	11,008,000	2.4	6,812,000	2.9	341.3	.....	360.0	.....
Cutlery and tools, not elsewhere specified.....	82	7,547	3.6	10,717,000	2.2	7,407,000	3.2	28.6	39.5	34.5	41.5
Hats, fur-felt.....	80	5,217	2.5	10,400,000	2.1	5,551,000	2.4	20.0	14.8	17.9	22.0
Electrical machinery, apparatus, and supplies.....	41	3,505	1.7	9,824,000	2.0	4,613,000	2.0	98.9	55.9	111.0	83.1
Lumber and timber products.....	393	3,495	1.7	7,846,000	1.6	3,928,000	1.7	63.7	13.2	69.8	12.0
Clocks and watches, including cases and materials.....	16	5,851	2.8	7,390,000	1.5	5,292,000	2.3	4.7	53.6	7.0	79.1
Bread and other bakery products.....	431	1,869	0.9	7,310,000	1.5	2,847,000	1.2	23.9	13.2	16.1	6.9
Printing and publishing.....	363	2,878	1.4	6,370,000	1.3	4,601,000	2.0	25.7	23.1	21.4	23.2
Hosiery and knit goods.....	21	3,340	1.6	5,891,000	1.2	2,752,000	1.2	8.0	32.8	8.1	38.3
Musical instruments, pianos and organs, and materials.....	17	2,364	1.1	5,538,000	1.1	2,510,000	1.1	5.0	55.3	-12.4	57.2
Paper and wood pulp.....	51	1,720	0.8	5,527,000	1.1	2,224,000	1.0	9.7	41.3	-3.3	45.4
Slaughtering and meat packing.....	28	432	0.2	4,572,000	0.9	623,000	0.3	42.1	-16.1	52.3	-20.0
Liquors, malt.....	10	475	0.2	4,426,000	0.9	3,051,000	1.3	51.2	10.3	44.7	4.8
Needles, pins, and hooks and eyes.....	8	2,648	1.2	4,236,000	0.9	2,539,000	1.1	38.3	68.7	35.1	74.0
Typewriters and supplies.....	8	2,934	1.4	4,016,000	0.8	2,975,000	1.3	145.3	108.8	132.1	106.4
Copper, tin, and sheet-iron products.....	48	2,475	1.2	3,694,000	0.7	2,039,000	0.9	33.1	36.5	23.1	51.8
Dyeing and finishing textiles.....	10	1,710	0.8	3,592,000	0.7	2,082,000	0.9	60.8	-2.4	61.6	-5.5
Gas, illuminating and heating.....	28	926	0.4	3,440,000	0.7	2,441,000	1.0	34.7	80.0	40.9	63.6
Wirework, including wire rope and cable.....	28	1,420	0.7	3,345,000	0.7	1,697,000	0.7	28.7	108.7	25.6	97.8
Boxes, fancy and paper.....	38	1,849	0.9	2,911,000	0.6	1,525,000	0.7	5.2	34.6	14.1	17.7
Tobacco manufactures.....	265	1,513	0.7	2,738,000	0.6	1,674,000	0.7	16.5	32.3	11.7	35.7
Flour-mill and gristmill products.....	98	145	0.1	2,024,000	0.4	293,000	0.1	2.1	16.6	0.3	-3.0
Clothing, women's.....	17	1,382	0.7	1,716,000	0.4	918,000	0.4	56.3	78.5	62.8	44.6
Boots and shoes, including cut stock and findings.....	10	520	0.2	1,668,000	0.3	570,000	0.2	25.7	-13.1	14.2	-5.8
Buttons.....	20	1,057	0.5	1,635,000	0.3	900,000	0.4	13.1	33.0	6.3	28.9
Cars and general shop construction and repairs by steam-railroad companies.....	5	1,226	0.6	1,580,000	0.3	820,000	0.3	-26.7	-11.3	-33.4	15.8
Fertilizers.....	12	290	0.1	1,573,000	0.3	482,000	0.2	66.8	141.2	15.3	156.4
Paint and varnish.....	17	236	0.1	1,543,000	0.3	718,000	0.3	199.6	28.8	237.1	28.3
Paper goods, not elsewhere specified.....	10	632	0.3	1,521,000	0.3	638,000	0.3	-27.1	40.8	-1.7	17.6
Hat and cap materials.....	14	478	0.2	1,508,000	0.3	806,000	0.3	82.6	40.5	107.2	75.2
Clothing, men's, including shirts.....	28	751	0.4	1,362,000	0.3	636,000	0.3	-5.6	56.8	-10.4	45.8
Patent medicines and compounds and druggists' preparations.....	64	237	0.1	1,342,000	0.3	854,000	0.4	31.2	-27.0	16.5	-24.2
Marble and stone work.....	86	782	0.4	1,237,000	0.3	807,000	0.4	-17.4	76.7	-20.8	53.7
Confectionery.....	22	233	0.1	1,233,000	0.3	344,000	0.1	93.9	45.9	22.4	26.6
Carrriages and wagons and materials.....	92	578	0.3	1,077,000	0.2	694,000	0.3	-51.0	-30.6	-50.5	-27.0
Leather, tanned, curried, and finished.....	8	150	0.1	1,047,000	0.2	242,000	0.1	40.0	-16.0	18.0	-2.4
Furniture and refrigerators.....	25	208	0.1	786,000	0.2	418,000	0.2	41.1	13.9	31.0	35.7
Butter, cheese, and condensed milk.....	30	105	( <sup>2</sup> )	745,000	0.2	122,000	0.1	-8.6	-25.5	-15.9	-31.0
Fancy articles, not elsewhere specified.....	8	397	0.2	730,000	0.1	307,000	0.1	53.0	32.1	26.3	24.6
Leather goods.....	18	272	0.1	588,000	0.1	258,000	0.1	8.5	-60.3	4.0	-41.8
Cordage and twine and jute and linen goods.....	8	286	0.1	561,000	0.1	130,000	0.1	65.4	26.7	26.2	-2.8
Lime.....	10	325	0.2	533,000	0.1	278,000	0.1	86.8	3.1	87.8	7.2
All other industries.....	950	35,671	16.9	93,280,000	19.0	40,093,000	17.2	.....	.....	.....	.....

<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.

*Textiles.*—The textile manufactures of the state, consisting of cotton goods, including cotton small wares; silk and silk goods, including throwsters; woolen, worsted, and felt goods; and hosiery and knit goods, but exclusive of cordage and twine, and shoddy, form its leading manufacturing industry. Combined, these four branches gave employment to an average of 34,192 wage earners during 1909, or 16.2 per cent of the total for all manufacturing industries in the state, and the value of their products amounted to \$70,459,000, or 14.4 per cent of the total value of manufactured products. Of the total value of products for these four branches of the textile industry, 34.4 per cent was contributed by the cotton mills, 29.9 per cent by the silk mills, 27.5 per cent by the woolen and worsted mills, and 8.2 per cent by the hosiery and knitting mills;

*Brass and bronze products.*—This is the leading individual industry of the state, measured by value of products, constituting 13.7 per cent of the total value of products for the state in 1909. It includes the manufacture of rolled brass and copper, which composed the major portion of the product, and of brass ware, in the manufacture of which Connecticut is particularly prominent. Brass castings, brass finishing, and bronze castings, also included in this classification, form only a small part of the total output. At the census of 1904 Connecticut reported more than four-fifths of the total value of the output of rolled brass and copper of the country, and also led in the production of brass ware, with over one-half of the total value of output. In 1909 it ranked first among the states in the combined value of brass and bronze products, reporting 44.6 per cent of the total for the United States;

*Foundry and machine-shop products.*—This industry is 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. The most important product consists of hardware, of which more than two-fifths of the total value reported for the United States in 1909 was produced in Connecticut. Some of the largest establishments, other than those producing hardware, were engaged in the manufacture of textile and metal-working machinery and internal-combustion engines.

*Firearms and ammunition.*—This industry is now mainly centralized in New Haven and Bridgeport. The increase in the value of products was much greater from 1899 to 1904 than from 1904 to 1909, being 57.2 per cent and 12.3 per cent, respectively, for the two five-year periods. In 1904, exclusive of governmental establishments, almost four-fifths of the total value of the ammunition and over one-fourth of the total value of the firearms manufactured in the United States was reported from establishments located in this state. Connecticut was the leading state in the total value of products reported for the combined industries in 1909.

*Silverware and plated ware.*—In 1909 the combined products of this industry for the state formed over one-third of the total value for the country. The manufacture of plated ware comprises the principal part of this industry. In 1904 and 1909 over two-thirds of the total value of plated ware in the United States was produced in Connecticut.

*Corsets.*—Of the 17 establishments reported in 1909 as primarily engaged in the manufacture of corsets, 5 were located in Bridgeport and 9 in New Haven. The value of products for the industry increased from \$5,591,000 in 1904 to \$12,815,000 in 1909, a gain of \$7,224,000, or 129.2 per cent, for the five years. This increase is noteworthy in view of the fact that from 1899 to 1904 the value of products decreased 18.3 per cent. In 1904 and in 1909 Connecticut was the leading state in the production of corsets, reporting over one-third of the total value of products for the United States in both years.

*Automobiles, including bodies and parts.*—This industry includes 8 establishments reporting the manufacture of automobiles and 20 establishments (with about one-fourth of the total value of products for the whole industry) reporting automobile bodies and parts as the most important product. A marked increase is shown in value of products and in value added by manufacture from 1904 to 1909.

*Cutlery and tools, not elsewhere specified.*—Connecticut ranked second in this industry in the United States in 1909, and in 1904 it ranked first among the states in the value of its manufactures of cutlery and edge tools, and fourth in tools not elsewhere specified.

*Hats, fur-felt.*—The manufacture of hats in Connecticut was begun in 1780 at Danbury, which city is still

the leading center of the industry. In 1904 and in 1909 this state was second in importance in the industry, with 23.6 per cent of the total value of products for the United States in 1904 and 21.7 per cent in 1909.

*Electrical machinery, apparatus, and supplies.*—The exceptionally rapid progress during recent years in the use of electricity has created a demand for appliances with which to utilize this energy. The establishments engaged in this industry in Connecticut are devoted primarily to the production of insulated wires and cables and electric-light fixtures.

*Lumber and timber products.*—Under this classification are included the statistics for establishments engaged in logging, as well as for sawmills, planing mills, and wooden packing-box factories. About three-fifths of the total value of products reported for the entire industry in the state was contributed by the planing-mill branch.

*Clocks and watches, including cases and materials.*—The state ranked first in the total value of products for this industry in 1909. Nine of the 16 establishments in the state were engaged primarily in the manufacture of clocks. This branch of the industry in Connecticut dates from early in 1800, and much of its early development took place in that state, where it has been largely centralized. In 1904 nearly three-fourths of the total value of the output of clocks in the United States was reported from Connecticut factories.

Of the first 10 industries shown separately in the above table the cotton-goods industry is the only one which occupies the same position when measured by value added by manufacture as when measured by value of products. The positions of the first two, the foundry and machine-shop and the brass and bronze products industries, are reversed; the firearms and ammunition industry exchanges places with the silk industry; and the silverware and plated-ware industry takes sixth place instead of the woolen, worsted, and felt goods industry, which latter falls to ninth place. The cutlery industry becomes seventh in order, having advanced from tenth place, and the automobile industry moves from ninth to eighth place, while the manufacture of corsets drops from eighth to tenth place.

This table shows also the percentages of increase for these leading industries in respect to value of products and value added by manufacture. The automobile industry showed greater rates of increase from 1904 to 1909 in value of products and in value added by manufacture than any other of the important industries shown separately in the table, namely, 341.3 per cent and 360 per cent, respectively. Remarkable increases in both these items also are shown for the manufacture of silverware and plated ware, corsets, electrical machinery, apparatus, and supplies, typewriters and typewriter supplies, and paint and varnish.

Some striking differences appear among the several industries as respects the increase from 1899 to 1904 as compared with that from 1904 to 1909. All but six of the industries listed separately showed an increase from 1904 to 1909 in value in products, and all but eight an increase in value added by manufacture. None of the industries showing decreases are among the first 15 industries shown separately. From 1899 to 1904, 11 of the industries given separately showed losses in value of products, and 12 showed decreases in value added by manufacture. Of the 15 most important industries, measured by value of products, which are presented separately, the silverware and the corset industries were the only ones that showed decreases during this period.

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.....	233,871	176,478	57,393
Proprietors and officials.....	9,030	8,666	364
Proprietors and firm members.....	3,468	3,311	157
Salaried officers of corporations.....	2,124	2,088	36
Superintendents and managers.....	3,438	3,267	171
Clerks.....	14,040	10,153	3,886
Wage earners (average number).....	210,792	157,659	53,133
16 years of age and over.....	205,371	154,724	50,647
Under 16 years of age.....	5,421	2,935	2,486

The average number of persons engaged in manufactures during 1909 was 233,871, of whom 210,792 were wage earners. Of the remainder, 9,030 were proprietors and officials and 14,040 were clerks. Corresponding figures for individual industries will be found in Table II, page 30.

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 19 important industries individually.

Of the total number of persons engaged in all manufacturing industries, 3.9 per cent were proprietors and officials, 6 per cent clerks, and 90.1 per cent wage earners. In the bakery and the printing and publishing industries the majority of the establishments are small and the work is done to a large extent 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 much higher than for most other industries or for all industries combined. Similar conditions prevail to some extent in the manufacture of lumber and timber products, where the proprietors and officials form 13.1 per cent of the total number of persons engaged.

On account of the large average number of wage earners employed in the textile, the corset, and the brass and bronze industries, they show the smallest proportions of proprietors and officials.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	233,871	3.9	6.0	90.1
Automobiles, including bodies and parts.....	4,444	3.5	10.7	85.8
Brass and bronze products.....	17,890	1.6	4.4	94.0
Bread and other bakery products.....	2,611	19.7	8.7	71.6
Clocks and watches, including cases and materials.....	6,195	2.2	3.3	94.4
Corsets.....	7,177	1.9	5.5	92.6
Cotton goods, including cotton small wares.....	14,887	1.5	2.1	96.5
Cutlery and tools, not elsewhere specified.....	8,094	2.3	4.4	93.2
Electrical machinery, apparatus, and supplies.....	4,120	4.1	10.8	85.1
Firearms and ammunition.....	9,205	2.2	5.1	92.7
Foundry and machine-shop products.....	42,161	3.0	7.4	89.6
Hats, fur felt.....	5,877	3.9	7.3	88.8
Hosiery and knit goods.....	3,524	1.6	3.6	94.8
Lumber and timber products.....	4,219	13.1	4.1	82.8
Musical instruments, pianos and organs, and materials.....	2,460	2.6	4.0	93.3
Paper and wood pulp.....	1,920	6.2	4.2	89.6
Printing and publishing.....	4,103	12.8	17.0	70.1
Silk and silk goods, including throwsters.....	9,385	1.8	5.4	92.7
Silverware and plated ware.....	6,812	2.0	6.7	91.4
Woolen, worsted, and felt goods, and wool hats.....	8,140	2.8	1.5	95.7
All other industries.....	70,698	5.2	6.5	88.3

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

For all industries combined, 73.4 per cent of the average number of wage earners were males 16 years of age and over, 24 per cent females 16 years of age and over, and 2.6 per cent persons under the age of 16. Nearly one-third of the total number of female wage earners are employed in the textile industries. In the cotton-goods industry nearly two-fifths of the wage earners are women 16 years of age and over; in the hosiery and knit goods industry, about two-thirds; in the silk industry, nearly one-half; and in the woolen and worsted industry, over one-fourth. The manufacture of corsets shows the largest proportion of this class of female wage earners, namely, 82.1 per cent.

MANUFACTURES—CONNECTICUT.

INDUSTRY.	WAGE EARNERS.			
	Average number. <sup>1</sup>	Per cent of total.		Under 16 years of age.
		16 years of age and over.		
		Male.	Female.	
<b>All industries</b> .....	<b>210,792</b>	<b>73.4</b>	<b>24.0</b>	<b>2.8</b>
Automobiles, including bodies and parts.....	3,815	98.8	0.7	0.6
Brass and bronze products.....	16,817	88.3	10.4	1.3
Bread and other bakery products.....	1,809	87.2	12.0	0.9
Clocks and watches, including cases and materials.....	5,851	65.4	30.9	3.7
Corsets.....	6,643	14.5	82.1	3.4
Cotton goods, including cotton small wares.....	14,360	55.8	39.4	4.8
Cutlery and tools, not elsewhere specified.....	7,547	89.5	9.3	1.2
Electrical machinery, apparatus, and supplies.....	3,505	64.1	31.1	4.8
Firearms and ammunition.....	8,533	75.4	23.6	1.0
Foundry and machine-shop products.....	37,736	89.2	8.9	2.0
Hats, fur felt.....	5,217	70.2	29.1	0.7
Hosiery and knit goods.....	3,340	30.8	66.1	3.1
Lumber and timber products.....	3,495	98.7	0.9	0.3
Musical instruments, pianos and organs, and materials.....	2,304	84.2	13.5	2.4
Paper and wood pulp.....	1,730	84.2	15.1	0.7
Printing and publishing.....	2,878	77.4	19.3	3.2
Silk and silk goods, including throwsters.....	8,703	46.1	49.6	4.3
Silverware and plated ware.....	6,223	80.5	17.1	2.4
Woolen, worsted, and felt goods, and wool hats.....	7,789	66.4	28.9	4.7
All other industries.....	62,447	71.5	25.7	2.8

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

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.	
<b>Total</b> .....	<b>233,871</b>	<b>100.0</b>	<b>198,046</b>	<b>100.0</b>	<b>18.1</b>
Proprietors and firm members.....	3,468	1.5	2,918	1.5	18.8
Salaried employees.....	19,611	8.4	13,523	6.8	45.0
Wage earners (average number)....	210,792	90.1	181,605	91.7	16.1

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

The 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.)

This table indicates that for all industries combined there has been only a slight change during the 10 years in the proportion of male and female wage earners, although there has been a decided actual increase in the number of both classes of employees. In 1909 males 16 years of age and over formed 73.4 per cent of all wage earners, as compared with 73.1

in 1904 and 72.3 per cent in 1899. During the same period there has been a small actual and proportional increase in the employment of persons under 16 years of age.

CLASS.	AVERAGE NUMBER OF WAGE EARNERS.					
	1909		1904		1899	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
<b>Total</b> .....	<b>210,792</b>	<b>100.0</b>	<b>181,605</b>	<b>100.0</b>	<b>159,733</b>	<b>100.0</b>
16 years of age and over.....	205,371	97.4	177,304	97.6	156,319	97.9
Male.....	154,724	73.4	132,750	73.1	115,490	72.3
Female.....	50,647	24.0	44,554	24.5	40,820	25.6
Under 16 years of age.....	5,421	2.6	4,301	2.4	3,414	2.1

**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; it gives also the percentage which the number reported for each month is of the greatest number reported for any month. In Table II, page 30, is shown, for practically all of the important industries in the state, the largest number and also the smallest number of wage earners reported for any month. The figures are for the 15th day, or the nearest representative day of the month.

MONTH.	WAGE EARNERS, ALL INDUSTRIES.		MONTH.	WAGE EARNERS, ALL INDUSTRIES.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	201,545	89.2	July.....	206,265	91.1
February.....	199,325	88.2	August.....	211,265	91.6
March.....	202,523	89.7	September.....	218,637	93.3
April.....	203,699	90.1	October.....	222,652	95.3
May.....	205,198	90.9	November.....	224,439	96.1
June.....	208,732	92.4	December.....	225,862	96.4

There are no seasonal industries of importance in Connecticut, and few of the important industries show conditions which differ from those for all industries combined.

The number of wage earners employed in all industries combined was smallest in February. With the exception of July, the increase was steady month by month to the end of the year when the largest number was employed. During the month of least employment, 11.8 per cent fewer wage earners were employed than during the month of greatest employment.

**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.

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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>210,792</b>	<b>6,634</b>	<b>11,088</b>	<b>33,849</b>	<b>117,295</b>	<b>38,978</b>	<b>1,908</b>	<b>499</b>	<b>541</b>
Automobiles, including bodies and parts.....	3,815		72	1,398	884	1,461			
Boots and shoes, including cut stock and findings.....	520			40	480				
Boxes, fancy and paper.....	1,849	11	110	79	991	658			
Brass and bronze products.....	16,817	24	198	323	13,441	2,831			
Bread and other bakery products.....	1,899	188	80	206	80	1,298	46	27	4
Butter, cheese, and condensed milk.....	105	32		4	10	44	6	4	5
Buttons.....	1,057	1	184	19	387	466			
Carriages and wagons and materials.....	578	6	6	288	125	153			
Cars and general shop construction and repairs by steam-railroad companies.....	1,226	661	168	384			23		
Clocks and watches, including cases and materials.....	5,851			3,362	1,306	1,183			
Clothing, men's, including shirts.....	751	28	11	61	584	47	20		
Clothing, women's.....	1,382	2	678	16	681	5			
Confectionery.....	233	5	20	12	166	28	2		
Copper, tin, and sheet-iron products.....	2,475	189	145	51	1,293	411	386		
Cordage and twine and jute and linen goods.....	286				283	3			
Corsets.....	6,643		1,476		5,165	2			
Cotton goods, including cotton small wares.....	14,900		33		13,448	879			
Cutlery and tools, not elsewhere specified.....	7,847	248	342	1,022	4,716	1,219			
Dyeing and finishing textiles.....	1,719			2	351	1,366			
Electrical machinery, apparatus, and supplies.....	3,505	7		592	2,633	273			
Fancy articles, not elsewhere specified.....	397		79		22	288	13		
Fertilizers.....	295			45	96	154			
Firearms and ammunition.....	8,533			708	7,825				
Flour-mill and gristmill products.....	145	23		4	4	114			
Foundry and machine-shop products.....	37,736	187	1,235	13,500	18,682	4,126	6		
Furniture and refrigerators.....	298			82	158	58			
Gas, illuminating and heating.....	926	11		1	87	173	264		420
Hat and cap materials.....	478	4	6		97	371			
Hats, fur-felt.....	5,217	588	3,016	22	1,498	123			
Hosiery and knit goods.....	3,340	2		441	2,622	275			
Leather goods.....	272		6	160	82	24			
Leather, tanned, curried, and finished.....	150				95	55			
Lime.....	325		16	24	179	39			67
Liquors, malt.....	476	85	145	215		30			
Lumber and timber products.....	3,495	369	317	1,248	113	1,452			
Marble and stone work.....	782	519	56	69	114	24			
Musical instruments, pianos and organs, and materials.....	2,404			750	350	1,198			
Needles, pins, and hooks and eyes.....	2,648				384	2,314			
Paint and varnish.....	236	78	40	17	8	93			
Paper and wood pulp.....	1,720			220	112	542	567	270	
Paper goods, not elsewhere specified.....	632		7	225	306	4			
Patent medicines and compounds and druggists' preparations.....	237	48	32	41	108	5	3		
Printing and publishing.....	2,878	1,372	659	474	346	27			
Silk and silk goods, including throwsters.....	8,703				8,064	639			
Silverware and plated ware.....	6,223		230	525	3,561	1,907			
Slaughtering and meat packing.....	432	3	295	26	39	46	19	4	
Tobacco manufactures.....	1,513	1,442	31	10	24	6			
Typewriters and supplies.....	2,934		171	2,631	132				
Wirework, including wire rope and cable.....	1,420		26	34	881	479			
Woolen, worsted, and felt goods, and wool hats.....	7,789			87	4,741	2,661			
All other industries.....	35,671	515	1,198	4,422	19,555	9,189	553	194	45

It is evident from these figures that for the great majority of wage earners employed in the manufacturing industries of Connecticut the prevailing hours of labor range from 54 to 60 a week, only 8.4 per cent of the total number being employed in establishments where the prevailing hours are less than 54 a week, and but 1.4 per cent in establishments where more than 60 hours a week prevail.

The foundries and machine shops gave employment to 37,736 wage earners, or more than twice as many as any other single industry in the state, and 96.2 per cent of these were employed from 54 to 60 hours per week, inclusive. In most of the other industries employing large numbers of wage earners, employment was for a week of over 54 but less than 60 hours. Of those employed in the tobacco manufacturing industry, 95.3 per cent were employed 48 hours per week or less, and of those employed in railroad repair shops and

printing and publishing, 53.1 per cent and 47.7 per cent, respectively. Nearly 70 per cent of the wage earners employed in making fur-felt hats worked less than 54 hours a week. The majority of the wage earners in the bakery and flour-mill and gristmill industries and in establishments engaged in the manufacture of needles, pins, and hooks and eyes were in plants operating 60 hours a week, while for the majority of the wage earners in the gas industry the prevailing hours of labor were over 60 hours a week.

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

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ITEM.	Year.	Aggregate.	CITIES AND BOROUGHES HAVING A POPULATION OF 10,000 AND OVER.								DISTRICTS OUTSIDE OF CITIES AND BOROUGHES HAVING A POPULATION OF 10,000 AND OVER.	
			Total.		10,000 to 25,000.		25,000 to 100,000.		100,000 and over.		Number or amount.	Percent of total.
			Number or amount.	Per cent of total.	Number or amount.	Per cent of total.	Number or amount.	Per cent of total.	Number or amount.	Per cent of total.		
Population.....	1910	1,114,756	630,732	56.6	120,098	11.4	268,375	24.1	235,659	21.1	494,024	43.1
	1900	908,420	445,531	49.0	114,951	12.6	222,703	24.5	108,027	11.9	462,839	50.9
Number of establishments.....	1909	4,251	2,367	55.7	528	12.4	882	20.7	957	22.5	1,884	44.3
	1899	3,382	1,710	50.6	450	13.6	814	24.1	437	12.9	1,672	49.4
Average number of wage earners.....	1909	210,792	133,499	65.7	20,038	13.8	60,139	28.5	49,322	23.4	72,293	34.3
	1899	159,733	91,209	57.1	24,660	15.4	48,959	30.6	17,594	11.0	68,524	42.9
Value of products.....	1909	\$490,271,095	\$334,336,355	68.2	\$79,549,035	16.2	\$138,107,117	28.2	\$116,680,231	23.8	\$155,935,340	31.8
	1899	315,106,150	193,446,554	61.4	59,758,550	19.0	98,791,567	31.4	34,899,437	11.1	121,659,696	38.6
Value added by manufacture....	1909	233,012,302	158,754,210	68.1	31,797,487	13.6	72,542,476	31.1	54,414,247	23.4	74,258,092	31.9
	1899	145,434,502	89,456,068	61.5	23,354,903	16.1	47,337,239	32.5	18,703,921	12.9	55,978,434	38.5

In 1909, 68.2 per cent of the total value of products was reported from cities and boroughs having over 10,000 inhabitants, and 65.7 per cent of the average number of wage earners were employed in these places. The figures indicate that not only has a considerable change taken place during the last decade in the relative importance of the manufacturing industries of the different groups of cities and boroughs having over 10,000 inhabitants, but the combined industries of such places have gained considerably on those of the districts outside.

The increase in the population of the different places has affected the grouping in the table. In 1900 Meriden and Stamford were included in the group of cities and boroughs having from 10,000 to 25,000 inhabitants, but both now belong to the group made up of cities having between 25,000 and 100,000 inhabitants. New Haven was the only city in the state in 1900 which had over 100,000 inhabitants, but in 1910 Bridgeport had reached that group. Prior to 1910 Middletown, Torrington, and Willimantic each had less than 10,000 inhabitants, and their statistics, therefore, were included with the districts outside in 1899.

The group of cities having over 100,000 inhabitants shows a decided gain in its proportions of the total, largely as the result of the addition of Bridgeport, while the other two groups show losses. Of the total value of the products reported for the state in 1909, 16.2 per cent was reported from the eight cities and boroughs having from 10,000 to 25,000 inhabitants, 28.2 per cent from the five cities having between 25,000 and 100,000 inhabitants, and 23.8 per cent from the two cities having more than 100,000 inhabitants. The corresponding proportions for 1899 were 19 per cent, 31.4 per cent, and 11.1 per cent, respectively.

The population for 1910 and 1900 of the 15 cities and boroughs which had 10,000 inhabitants or over in 1910 is given in the following statement.

CITY OR BOROUGH.	1910	1900	CITY OR BOROUGH.	1910	1900
New Haven.....	131,605	108,027	Danbury.....	20,234	18,397
Bridgeport.....	102,054	70,090	New London.....	10,650	17,516
Hartford.....	98,015	79,850	Torrington.....	15,483	8,300
Waterbury.....	73,141	45,859	Ansonia.....	15,152	12,631
New Britain.....	63,010	25,098	Naugatuck.....	12,722	10,511
Meriden.....	57,255	24,290	Middletown.....	11,851	9,539
Stamford.....	25,138	15,987	Willimantic.....	11,230	8,911
Norwich.....	20,307	17,259			

The relative importance of each of these 15 cities and boroughs in the manufacturing industries is shown in the following table, in which the value of products and average number of wage earners are shown for each city for 1909, 1904, and 1899.

CITY OR BOROUGH.	AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS.		
	1909	1904	1899	1909	1904	1899
Bridgeport.....	25,775	19,492	17,038	\$65,608,806	\$44,589,519	\$33,336,276
New Haven.....	23,547	21,437	17,594	51,071,307	39,686,118	34,339,431
Waterbury.....	20,170	15,406	13,225	50,340,810	32,367,369	30,330,392
Hartford.....	14,627	11,221	10,677	40,679,608	25,073,651	23,328,591
New Britain.....	13,513	10,073	8,019	22,021,241	14,959,543	11,086,609
Ansonia.....	4,127	3,394	3,288	20,088,269	19,132,455	18,515,948
Meriden.....	7,845	7,281	6,689	16,316,918	13,763,548	11,780,449
Torrington.....	4,488	4,025	3,161	12,549,872	9,674,124	9,178,623
Naugatuck.....	3,464	3,628	3,160	11,032,836	11,009,573	8,886,075
Danbury.....	4,810	4,515	3,939	10,317,875	8,065,052	6,377,163
Norwich.....	4,470	3,706	3,172	9,388,060	6,022,391	5,535,169
Stamford.....	3,984	3,341	2,445	8,739,544	5,899,415	3,530,010
Willimantic.....	3,020	2,852	2,258	6,733,185	4,902,447	3,022,822
Middletown <sup>1</sup> .....	2,434	2,318	2,495	4,954,799	4,351,291	4,169,071
New London.....	2,225	2,554	1,993	4,483,230	4,709,628	4,221,033

<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.

Every city and borough for which comparable figures are available, except New London, shows an increase in value of products for the 10 years and for each of the 5-year periods. New London shows a decrease of 4.8 per cent from 1904 to 1909, due to the decline in shipbuilding. The largest relative gains in value of products during the decade were as follows: Stamford, 122.9 per cent; New Britain, 98.5 per cent; and Bridgeport, 95.6 per cent. For most of the cities shown in the table the percentages of increase in value of products were greater from 1904 to 1909 than from 1899 to 1904.

During the later period the average number of wage earners employed in the manufacturing industries of each place except New London and Ansonia increased much less, relatively, than the value of products. In New London there was an actual decrease in the number of wage earners.

Bridgeport, the foremost city of the state in manufactures, shows an increase in 1909, as compared with 1904, of 47.1 per cent in value of products and 32.2 per cent in average number of wage earners. The gain in value of products was due largely to the increases in the output of automobiles, corsets, electrical machinery, foundry and machine-shop products, and gold and silver reducing and refining. Compared with other manufacturing cities of the country, Bridgeport ranked thirty-ninth in 1899, thirty-fifth in 1904, and thirty-third in 1909 in value of products. In 1909 the foundries and machine shops of this city turned out products valued at \$9,752,000, or 14.9 per cent of the corresponding total for the state. The corset industry was also of considerable importance, with an output valued at \$6,899,000, or 53.8 per cent of the total for this industry in the state, while the establishments engaged in the manufacture of electrical machinery, apparatus, and supplies reported products valued at \$3,321,000, or 33.8 per cent of the state total. Other industries of importance in which this city produced over half of the value of products for the state are the manufacture of phonographs and graphophones and of sewing machines and attachments.

New Haven, the second city of the state in importance when measured by value of products, shows an increase from 1904 to 1909 of 28.8 per cent in value of products and 9.8 per cent in average number of wage earners. These gains were due largely to increases in the production of automobiles, firearms and ammunition, corsets, rubber goods, and foundry and machine-shop products (including hardware), and in the output of slaughtering and meat-packing establishments. The value of the clocks and watches made in New Haven during 1909 is considerable, but exact figures can not be given without disclosing individual operations. The statistics for some of the most important industries are included with "All other industries" because they can not be presented separately in Table I without disclosing the operations of individual establishments. Among these industries, each of which reported products amounting to more than \$1,000,000 in value, are automobiles, including bodies and parts; boots and shoes, including cut stock and findings; boots and shoes, rubber; boxes, fancy and paper; clocks and watches, including cases and material; confectionery; corsets; firearms and ammunition; gas, illuminating and heating; rubber goods, not elsewhere specified; and slaughtering and meat packing.

Waterbury shows an increase of 55.6 per cent in value of products and 30.9 per cent in number of wage

earners in 1909 as compared with 1904. Unlike the manufactures of the other cities of importance in the state, those of Waterbury are largely concentrated in a single industry, that of brass and bronze manufactures, which in 1909 reported products amounting to \$31,462,000, or 62.5 per cent of the total for the city. Twenty-four and three-tenths per cent of the total value of rolled brass and copper and 42.2 per cent of the total value of brass ware manufactured in the United States during 1904 were reported from this city, and in 1909, of the value of all brass and bronze products, 21 per cent was reported from this city. Over two-fifths of the total value of clocks and watches manufactured in the state during 1909 was reported from Waterbury. Other industries of importance in the city are the manufacture of foundry and machine-shop products; gas and electric fixtures, and lamps and reflectors; needles, pins, and hooks and eyes; and buttons.

Hartford shows an increase of 56.6 per cent in value of products and 30.4 per cent in number of wage earners from 1904 to 1909. These gains are due largely to the increase in the manufacture of automobiles, foundry and machine-shop products, rubber goods, and typewriters and typewriter supplies, the four leading industries in the city. The major portion of the total value of the output for the state of dentists' materials, nails and spikes not made in steel works or rolling mills, leather belting, and machine screws was reported from Hartford.

Of the other cities given separately in the above table Norwich shows the greatest relative increase from 1904 to 1909 in value of products, 55.9 per cent, and New Britain the greatest in number of wage earners, 34.2 per cent. The manufacturing interests of New Britain are so centralized in the manufacture of hardware that the output of this industry represents 52.9 per cent of the total value of products for the city. Forty-four and two-tenths per cent of the value of the cutlery and tools made in the state in 1909 was reported from New Britain. In Norwich the textile industries are of most importance.

The manufacture of brass and bronze products is the most important industry in Ansonia and in Torrington. The silverware and plated-ware industry is the most important in Meriden. In 1909 this city reported 65.9 per cent of the total value of gas and electric fixtures and lamps and reflectors manufactured in the state. The leading industries in Naugatuck are the manufacture of rubber boots and shoes and of rubber goods. The manufacture of men's furnishing goods (elastic goods) is the most important industry in Middletown. In Danbury the leading industry is the manufacture of fur-felt hats, the output of which in 1909 was valued at \$7,114,683, and formed 68.4 per cent of the total value reported for this industry in the state. The manufacture of locks makes the foundry and machine-

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shop industry the most important in Stamford; and the textile industries predominate in Willimantic and in New London.

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 com-

bined comparative figures are given covering the censuses of 1909 and 1904. Comparative data for 1899 are not available. Figures for 1909 only are presented for several important industries individually. In order to avoid disclosing the operations of individual concerns it is necessary to omit several important industries from this table and the one following.

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>					<b>Electrical machinery, etc.—</b>				
1909.....	4,251	210,782	\$480,271,695	\$233,012,302	Continued.				
1904.....	3,477	181,605	369,082,091	177,780,210	Per cent of total.....	100.0	100.0	100.0	100.0
Individual:					Individual.....	14.0	0.6	0.5	0.7
1909.....	2,119	12,944	28,436,151	14,810,245	Corporation.....	85.4	99.4	99.5	99.3
1904.....	1,737	14,691	28,550,567	14,552,596	<b>Foundry and machine-shop</b>				
Firm:					<b>products, 1909.....</b>	403	37,736	\$65,535,155	\$40,715,039
1909.....	589	8,752	19,807,920	9,793,598	Individual.....	108	875	1,912,871	1,078,623
1904.....	519	11,008	25,395,624	10,628,148	Firm.....	42	463	1,117,841	577,490
Corporation:					Corporation.....	253	36,398	62,504,443	39,062,046
1909.....	1,501	188,932	441,267,987	208,213,680	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	1,187	155,875	314,484,099	152,413,853	Individual.....	26.8	2.3	2.9	2.6
Other:					Firm.....	10.4	1.2	1.7	1.4
1909.....	42	164	759,637	194,779	Corporation.....	62.8	96.5	95.4	95.9
1904.....	34	131	651,801	185,313	<b>Hats, fur-felt, 1909.....</b>	80	5,217	\$10,369,860	\$5,550,877
Per cent of total:					Individual.....	20	248	531,682	223,714
1909.....	100.0	100.0	100.0	100.0	Firm.....	10	1,034	2,120,383	1,112,785
1904.....	100.0	100.0	100.0	100.0	Corporation.....	44	3,935	7,747,795	4,214,368
Individual:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	49.8	6.1	5.8	6.4	Individual.....	25.0	4.8	5.1	4.0
1904.....	50.0	8.0	7.7	8.2	Firm.....	20.0	19.8	20.4	20.1
Firm:					Corporation.....	55.0	75.4	74.5	75.9
1909.....	13.9	4.2	4.0	4.2	<b>Lumber and timber prod-</b>				
1904.....	14.9	6.1	6.9	6.0	<b>ucts, 1909.....</b>	393	3,495	\$7,845,521	\$3,927,069
Corporation:					Individual.....	257	1,635	2,779,579	1,065,721
1909.....	35.3	39.6	90.0	89.4	Firm.....	84	611	1,313,973	646,854
1904.....	34.1	85.8	85.2	85.7	Corporation.....	52	1,249	3,761,969	1,614,488
Other:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	1.0	0.1	0.2	0.1	Individual.....	65.4	46.8	35.4	42.4
1904.....	1.0	0.1	0.2	0.1	Firm.....	21.4	17.5	16.7	16.5
<b>Brass and bronze products,</b>					Corporation.....	13.2	35.7	47.8	41.1
1909.....	80	16,817	\$66,932,969	\$19,069,029	<b>Printing and publishing, 1909.</b>	363	2,878	\$6,970,450	\$4,601,233
Individual.....	29	279	849,884	401,766	Individual.....	211	768	1,655,722	1,188,745
Firm.....	8	57	134,988	78,757	Firm.....	40	250	407,612	310,114
Corporation.....	43	16,481	65,948,097	18,586,506	Corporation.....	94	1,823	4,208,438	3,085,501
Per cent of total.....	100.0	100.0	100.0	100.0	Other.....	18	31	98,678	66,573
Individual.....	36.2	1.7	1.3	2.1	Per cent of total.....	100.0	100.0	100.0	100.0
Firm.....	10.0	0.3	0.2	0.4	Individual.....	58.1	26.7	26.0	25.8
Corporation.....	53.8	98.0	98.5	97.5	Firm.....	11.0	8.9	6.4	6.7
<b>Bread and other bakery</b>					Corporation.....	25.9	63.3	66.1	66.0
<b>products, 1909.....</b>	431	1,869	\$7,309,817	\$2,846,908	Other.....	5.0	1.1	1.5	1.4
Individual.....	360	1,194	4,735,935	1,892,935	<b>Silk and silk goods, including</b>				
Firm.....	46	218	824,266	318,204	<b>throwsters, 1909.....</b>	47	8,703	\$21,062,087	\$9,228,342
Corporation.....	25	457	1,749,616	635,769	Individual.....	8	633	1,030,757	538,018
Per cent of total.....	100.0	100.0	100.0	100.0	Firm.....	10	623	1,109,736	512,329
Individual.....	83.5	63.9	64.8	66.5	Corporation.....	29	7,447	18,922,194	8,182,995
Firm.....	10.7	11.7	11.3	11.2	Per cent of total.....	100.0	100.0	100.0	100.0
Corporation.....	5.8	24.5	23.9	22.3	Individual.....	17.0	7.3	4.9	6.3
<b>Cotton goods, including cot-</b>					Firm.....	21.2	7.2	5.3	5.0
<b>ton small wares, 1909.....</b>	52	14,360	\$24,231,881	\$12,272,159	Corporation.....	61.7	85.6	89.8	88.1
Individual.....	7	457	1,215,338	436,251	<b>Silverware and plated ware,</b>				
Firm.....	7	367	487,231	195,691	<b>1909.....</b>	31	6,223	\$15,836,608	\$8,604,607
Corporation.....	38	13,536	22,529,312	11,640,217	Individual <sup>1</sup> .....	4	31	49,601	25,723
Per cent of total.....	100.0	100.0	100.0	100.0	Corporation.....	27	6,192	15,787,007	8,578,884
Individual.....	13.5	3.2	5.0	3.6	Per cent of total.....	100.0	100.0	100.0	100.0
Firm.....	13.5	2.6	2.0	1.6	Individual.....	12.9	0.5	0.3	0.3
Corporation.....	73.1	94.3	93.0	94.8	Corporation.....	87.1	99.5	99.7	99.7
<b>Cutlery and tools, not else-</b>					<b>Woolen, worsted, and felt</b>				
<b>where specified, 1909.....</b>	82	7,547	\$10,716,918	\$7,406,943	<b>goods, and wool hats, 1909.</b>	56	7,789	\$19,363,228	\$8,525,086
Individual.....	23	157	255,121	177,303	Individual.....	9	665	1,484,710	520,444
Firm.....	7	48	72,660	52,559	Firm.....	7	395	972,985	448,798
Corporation.....	52	7,342	10,389,137	7,177,081	Corporation.....	40	6,729	16,905,533	5,555,844
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.....	28.0	2.1	2.4	2.4	Individual.....	16.1	8.5	7.7	8.0
Firm.....	8.5	0.6	0.7	0.7	Firm.....	12.5	5.1	6.0	6.9
Corporation.....	63.4	97.3	96.9	96.9	Corporation.....	71.4	86.4	87.3	85.1
<b>Electrical machinery, appa-</b>					<b>Electrical machinery, appa-</b>				
<b>ratus, and supplies, 1909.....</b>	41	3,505	\$9,824,373	\$4,613,069	Individual <sup>1</sup> .....	6	22	49,504	30,093
Individual.....	6	22	49,504	30,093	Corporation.....	35	3,483	9,774,869	4,582,976

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

The most important distinction shown is that between corporate and all other forms of ownership. For all industries combined 35.3 per cent of the total number of establishments were in 1909 under corporate ownership, as against 64.7 per cent under all other forms. The corresponding figures for 1904 were 34.1 per cent and 65.9 per cent, respectively. In 1909 the establishments operated by corporations reported 90 per cent of the total value of manufactured products for the state, as against 10 per cent for those under all other forms of ownership, while in 1904 the corresponding figures were 85.2 per cent and 14.8 per cent, respectively. This gain in the relative importance of establishments under corporate ownership was largely due to increases in the manufacture of automobiles, brass and bronze products, corsets, cotton goods, firearms and ammunition, foundry and machine-shop products, silk and silk goods, and silverware and plated ware. All but three-tenths of 1 per cent of the value of silverware and plated ware and all but five-tenths of 1 per cent of the value of electrical machinery, apparatus, and supplies reported for 1909 were returned by establishments under corporate ownership. There are three other industries shown in the table in which over 95 per cent of the value of products was reported by this class of establishments.

**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 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 4,251 establishments only 93, or 2.2 per cent, had a value of products exceeding \$1,000,000. These 93 establishments, however, employed an average of 95,373 wage earners, or 45.2 per cent of the total number in all establishments, and reported 49.3 per cent of the total

value of products and 44.7 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 less than \$5,000—constituted a considerable proportion (30.9 per cent) of the total number of establishments, but the value of their products amounted to only six-tenths of 1 per cent of the total. The great bulk of the manufacturing was reported by establishments having a product valued at not less than \$100,000 each.

It will be seen from the table that during the five years from 1904 to 1909 there was a considerable increase, as measured by value of products, in the relative importance of the largest establishments—those reporting products of not less than \$1,000,000 in value—and a decrease in the importance of all other classes except that having a value of products of less than \$5,000, the proportion in that class remaining unchanged. Of the 93 establishments whose products in 1909 exceeded \$1,000,000 in value, 13 were engaged in the manufacture of brass and bronze products, 4 in the manufacture of cotton goods, 3 in the manufacture of cutlery and edge tools, 14 in the manufacture of foundry and machine-shop products, 6 in the manufacture of silk goods, and 5 in the manufacture of silverware and plated ware.

The fact that the average value of products per establishment increased from \$106,150 to \$115,331, and the value added by manufacture from \$51,130 to \$54,814, can not be taken as in itself indicating a tendency toward concentration. These 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 decreased from 52 to 50. The table shows further that when the size of establishments is measured by the average value of products per establishment, the bakery, the lumber, and the printing and publishing industries are conducted chiefly in rather small establishments, while the manufacture of brass and bronze products, cotton goods, cutlery, electrical machinery, foundry and machine-shop products, felt hats, silk and silk goods, silverware, and woolen and worsted goods is mainly carried on in larger establishments.

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INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>									
1909	4,251	210,792	\$490,271,695	\$233,012,302					
1904	3,477	181,605	369,082,091	177,780,310					
<b>Less than \$5,000:</b>									
1909	1,312	1,629	3,047,313	1,986,061					
1904	932	1,338	2,297,644	1,450,800					
<b>\$5,000 and less than \$20,000:</b>									
1909	1,296	6,514	13,621,192	7,700,840					
1904	1,099	5,981	11,676,232	6,871,487					
<b>\$20,000 and less than \$100,000:</b>									
1909	909	19,981	40,437,942	21,893,012					
1904	827	19,838	37,466,372	20,753,487					
<b>\$100,000 and less than \$1,000,000:</b>									
1909	641	87,295	191,603,190	97,294,219					
1904	554	88,292	159,950,425	82,214,624					
<b>\$1,000,000 and over:</b>									
1909	93	95,373	241,562,058	104,120,170					
1904	65	66,246	157,691,418	66,480,806					
<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	30.9	0.8	0.6	0.9					
1904	26.8	0.7	0.6	0.8					
<b>\$5,000 and less than \$20,000:</b>									
1909	30.5	3.1	2.8	3.3					
1904	31.6	3.3	3.2	3.9					
<b>\$20,000 and less than \$100,000:</b>									
1909	21.4	9.5	8.2	9.4					
1904	23.8	10.9	10.2	11.7					
<b>\$100,000 and less than \$1,000,000:</b>									
1909	15.1	41.4	39.1	41.8					
1904	15.9	48.6	43.3	46.2					
<b>\$1,000,000 and over:</b>									
1909	2.2	45.2	49.3	44.7					
1904	1.9	36.5	42.7	37.4					
<b>Average per establishment:</b>									
1909		50	\$115,331	\$54,814					
1904		52	106,150	51,130					
<b>Brass and bronze products, 1909</b>	89	16,817	\$66,932,969	\$19,069,029					
<b>Less than \$5,000:</b>	12	7	20,179	15,115					
<b>\$5,000 and less than \$20,000:</b>	23	82	219,529	95,094					
<b>\$20,000 and less than \$100,000:</b>	15	206	576,023	284,375					
<b>\$100,000 and less than \$1,000,000:</b>	17	1,821	5,030,577	1,997,009					
<b>\$1,000,000 and over:</b>	13	14,701	61,077,661	16,674,836					
<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>	15.0	(1)	(1)	0.0					
<b>\$5,000 and less than \$20,000:</b>	28.8	0.5	0.3	0.5					
<b>\$20,000 and less than \$100,000:</b>	18.8	1.2	0.9	1.5					
<b>\$100,000 and less than \$1,000,000:</b>	21.2	10.8	7.5	10.5					
<b>\$1,000,000 and over:</b>	16.2	87.4	31.3	87.4					
<b>Average per establishment:</b>		210	\$836,662	\$238,363					
<b>Bread and other bakery products, 1909</b>	431	1,869	\$7,809,817	\$2,846,908					
<b>Less than \$5,000:</b>	107	62	290,263	132,789					
<b>\$5,000 and less than \$20,000:</b>	219	597	2,378,743	868,914					
<b>\$20,000 and less than \$100,000:</b>	96	842	3,214,366	1,222,202					
<b>\$100,000 and less than \$1,000,000:</b>	9	368	1,426,445	532,943					
<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>	24.8	3.3	4.0	4.7					
<b>\$5,000 and less than \$20,000:</b>	50.8	31.9	32.5	33.7					
<b>\$20,000 and less than \$100,000:</b>	22.3	45.0	44.0	42.9					
<b>\$100,000 and less than \$1,000,000:</b>	2.1	19.7	19.5	18.7					
<b>Average per establishment:</b>		4	\$16,960	\$6,605					
<b>Cotton goods, including cotton small wares, 1909</b>	52	14,360	\$24,231,861	\$12,272,159					
<b>Less than \$5,000<sup>2</sup>:</b>	3	17	21,228	8,379					
<b>\$5,000 and less than \$20,000:</b>	11	364	585,736	242,105					
<b>\$20,000 and less than \$100,000:</b>	34	8,069	14,132,352	6,787,837					
<b>\$100,000 and less than \$1,000,000:</b>	4	6,010	9,492,565	5,283,338					
<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>	5.8	0.1	0.1	0.1					
<b>\$5,000 and less than \$20,000:</b>	21.2	2.5	2.4	2.0					
<b>\$20,000 and less than \$100,000:</b>	65.4	62.5	58.3	55.3					
<b>\$1,000,000 and over:</b>	7.7	34.9	30.2	42.6					
<b>Average per establishment:</b>		276	\$465,998	\$236,403					
<b>Cutlery and tools, not elsewhere specified, 1909</b>	82	7,547	\$10,716,918	\$7,406,943					
<b>Less than \$5,000:</b>	16	27	36,522	27,538					
<b>\$5,000 and less than \$20,000:</b>	19	143	177,516	114,387					
<b>\$20,000 and less than \$100,000:</b>	24	885	1,204,084	811,850					
<b>\$100,000 and less than \$1,000,000:</b>	20	2,940	3,587,704	2,584,452					
<b>\$1,000,000 and over:</b>	3	3,552	5,711,022	3,868,707					
<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>	19.5	0.4	0.3	0.4					
<b>\$5,000 and less than \$20,000:</b>	23.2	1.9	1.7	1.5					
<b>\$20,000 and less than \$100,000:</b>	29.3	11.7	11.2	11.0					
<b>\$100,000 and less than \$1,000,000:</b>	24.4	39.0	33.5	34.9					
<b>\$1,000,000 and over:</b>	3.7	47.1	53.3	52.2					
<b>Average per establishment:</b>		92	\$130,694	\$90,329					
<b>Electrical machinery, apparatus, and supplies, 1909</b>	41	3,505	\$9,824,873	\$4,613,069					
<b>Less than \$5,000:</b>	5	9	14,886	7,645					
<b>\$5,000 and less than \$20,000:</b>	10	50	132,232	64,523					
<b>\$20,000 and less than \$100,000:</b>	6	195	370,003	236,000					
<b>\$100,000 and less than \$1,000,000:</b>	20	3,251	9,307,252	4,304,901					
<b>Electrical machinery, etc.—Continued.</b>									
<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>	12.2	0.3	0.2	0.2					
<b>\$5,000 and less than \$20,000:</b>	24.4	1.4	1.3	1.4					
<b>\$20,000 and less than \$100,000:</b>	14.6	5.6	3.8	5.1					
<b>\$100,000 and less than \$1,000,000:</b>	48.8	92.8	94.7	83.3					
<b>Average per establishment:</b>		85	\$230,610	\$112,514					
<b>Foundry and machine-shop products, 1909</b>	403	37,736	\$65,515,155	\$40,716,099					
<b>Less than \$5,000:</b>	64	82	163,445	110,125					
<b>\$5,000 and less than \$20,000:</b>	100	585	1,041,209	697,373					
<b>\$20,000 and less than \$100,000:</b>	123	3,311	6,163,133	3,847,650					
<b>\$100,000 and less than \$1,000,000:</b>	192	15,500	29,772,161	18,068,882					
<b>\$1,000,000 and over:</b>	14	18,258	28,372,207	18,041,569					
<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>	15.9	0.2	0.2	0.3					
<b>\$5,000 and less than \$20,000:</b>	24.8	1.6	1.6	1.7					
<b>\$20,000 and less than \$100,000:</b>	30.5	8.8	9.4	9.5					
<b>\$100,000 and less than \$1,000,000:</b>	25.3	41.1	45.4	44.2					
<b>\$1,000,000 and over:</b>	3.5	48.4	43.3	44.3					
<b>Average per establishment:</b>		94	\$162,569	\$101,030					
<b>Hats, fur-felt, 1909</b>	80	5,217	\$10,999,860	\$5,550,877					
<b>Less than \$5,000:</b>	11	20	30,917	18,958					
<b>\$5,000 and less than \$20,000:</b>	9	46	89,849	46,759					
<b>\$20,000 and less than \$100,000:</b>	24	592	1,128,473	682,473					
<b>\$100,000 and less than \$1,000,000:</b>	36	4,559	9,134,624	4,932,684					
<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>	13.8	0.4	0.4	0.3					
<b>\$5,000 and less than \$20,000:</b>	11.2	0.9	1.0	0.8					
<b>\$20,000 and less than \$100,000:</b>	30.0	11							

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ing to the number of wage earners employed. The next table shows, for 1909, such a classification for all industries combined and for 19 important industries

individually, and gives not only the number of establishments falling in each group but also the average number of wage earners employed.

INDUSTRY.	Total.	ESTABLISHMENTS EMPLOYING—								
		No wage earners.	1 to 5 wage earners.	6 to 20 wage earners.	21 to 50 wage earners.	51 to 100 wage earners.	101 to 250 wage earners.	251 to 500 wage earners.	501 to 1,000 wage earners.	Over 1,000 wage earners.
NUMBER OF ESTABLISHMENTS.										
All industries.....	4,251	444	1,847	886	423	223	251	94	48	35
Automobiles, including bodies and parts.....	25	1	4	4	6	5	6	1	1	0
Brass and bronze products.....	80	7	28	11	10	5	4	6	3	2
Bread and other bakery products.....	431	58	272	90	9	2	1	1	2	2
Clocks and watches, including cases and materials.....	16	1	2	4	1	1	1	1	3	2
Corsets.....	17	1	3	2	2	3	3	2	5	3
Cotton goods, including cotton small wares.....	52	1	1	2	9	4	15	12	5	2
Cutlery and tools, not elsewhere specified.....	82	6	17	19	12	10	13	2	1	2
Electrical machinery, apparatus, and supplies.....	41	1	11	5	5	4	3	2	2	2
Firearms and ammunition.....	10	1	1	1	1	1	1	1	1	1
Foundry and machine-shop products.....	403	18	110	85	69	40	44	16	8	7
Hats, fur felt.....	80	2	17	12	17	13	14	5	1	1
Hosiery and knit goods.....	21	1	2	1	1	2	11	4	1	1
Lumber and timber products.....	393	10	222	129	26	3	4	2	1	1
Musical instruments, pianos and organs, and materials.....	17	1	4	4	3	3	4	1	1	1
Paper and wood pulp.....	51	6	10	19	13	4	3	2	1	1
Printing and publishing.....	363	82	169	70	25	6	11	4	2	1
Silk and silk goods, including throwsters.....	47	1	10	11	8	8	8	1	1	1
Silverware and plated ware.....	31	1	2	4	5	4	8	6	1	1
Woolen, worsted, and felt goods, and wool hats.....	56	1	2	2	11	10	25	6	10	7
All other industries.....	2,032	258	975	406	178	98	69	22	19	7
AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	210,792	4,390	9,911	14,024	15,880	36,187	32,730	34,219	61,451	1,260
Automobiles, including bodies and parts.....	3,815	9	38	188	354	1,009	2,006	2,957	10,300	3,363
Brass and bronze products.....	16,817	82	116	325	314	627	1,442	2,087	4,497	3,227
Bread and other bakery products.....	1,869	641	805	291	132	58	354	859	2,605	2,706
Clocks and watches, including cases and materials.....	5,851	5	59	22	22	112	1,442	793	3,363	3,227
Corsets.....	6,643	4	43	69	58	354	859	2,087	4,497	2,706
Cotton goods, including cotton small wares.....	14,369	2	24	287	340	2,565	4,040	2,605	4,497	2,706
Cutlery and tools, not elsewhere specified.....	7,547	48	225	413	769	1,858	683	845	6,224	13,102
Electrical machinery, apparatus, and supplies.....	3,505	39	53	158	339	1,075	371	570	1,193	6,224
Firearms and ammunition.....	8,533	1	1	30	89	492	575	5,660	13,102	13,102
Foundry and machine-shop products.....	37,736	308	1,059	2,273	2,814	6,653	5,867	1,602	1,389	358
Hats, fur felt.....	5,217	47	172	629	884	1,083	1,602	1,389	358	418
Hosiery and knit goods.....	3,340	6	15	40	141	1,749	1,389	610	611	418
Lumber and timber products.....	3,495	527	1,551	111	203	734	610	611	418	324
Musical instruments, pianos and organs, and materials.....	2,304	35	71	324	324	324	324	324	324	324
Paper and wood pulp.....	1,720	23	254	893	397	324	1,396	1,595	2,899	1,487
Printing and publishing.....	2,878	410	854	387	596	1,718	2,218	909	1,292	1,292
Silk and silk goods, including throwsters.....	8,793	7	35	177	286	1,404	1,655	8,027	13,437	11,394
Silverware and plated ware.....	6,223	7	35	177	286	1,404	1,655	8,027	13,437	11,394
Woolen, worsted, and felt goods, and wool hats.....	7,789	1	2	4	4	4	4	4	4	4
All other industries.....	62,447	2,332	4,420	5,820	6,753	10,364	8,027	13,437	11,394	11,394
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	100.0	2.1	4.7	6.7	7.5	18.1	15.5	16.2	29.2	33.0
Automobiles, including bodies and parts.....	100.0	0.2	1.0	4.9	9.3	26.4	12.5	17.6	61.2	33.0
Brass and bronze products.....	100.0	0.5	0.7	1.9	1.9	3.7	12.5	17.6	61.2	33.0
Bread and other bakery products.....	100.0	34.3	43.1	15.6	7.1	1.9	24.6	13.0	57.6	33.0
Clocks and watches, including cases and materials.....	100.0	0.1	1.0	0.4	1.0	5.3	12.9	31.4	48.6	33.0
Corsets.....	100.0	0.1	0.6	2.0	2.4	17.9	28.1	18.1	31.3	33.0
Cotton goods, including cotton small wares.....	100.0	(1)	3.0	5.5	10.2	24.6	9.0	11.2	35.9	33.0
Cutlery and tools, not elsewhere specified.....	100.0	0.6	3.0	4.5	9.7	50.3	10.0	16.3	72.9	33.0
Electrical machinery, apparatus, and supplies.....	100.0	1.1	1.5	0.4	1.0	4.9	6.7	14.0	34.7	33.0
Firearms and ammunition.....	100.0	0.8	2.8	6.0	7.7	17.4	15.5	15.0	34.7	33.0
Foundry and machine-shop products.....	100.0	0.9	3.3	12.1	16.9	38.0	28.8	10.2	34.7	33.0
Hats, fur felt.....	100.0	0.2	0.4	1.2	4.2	52.4	41.6	10.2	34.7	33.0
Hosiery and knit goods.....	100.0	0.2	0.4	1.2	4.2	52.4	41.6	10.2	34.7	33.0
Lumber and timber products.....	100.0	15.1	44.4	23.1	7.2	31.9	26.5	23.5	34.7	33.0
Musical instruments, pianos and organs, and materials.....	100.0	1.6	1.8	4.8	8.8	31.9	24.3	24.3	34.7	33.0
Paper and wood pulp.....	100.0	1.3	29.7	31.0	13.8	11.3	16.0	18.3	33.3	33.0
Printing and publishing.....	100.0	1.4	1.6	4.5	6.5	19.7	16.0	18.3	33.3	33.0
Silk and silk goods, including throwsters.....	100.0	0.1	0.6	2.8	4.6	22.6	35.6	14.6	19.1	33.0
Silverware and plated ware.....	100.0	0.1	0.6	2.8	4.6	22.6	35.6	14.6	19.1	33.0
Woolen, worsted, and felt goods, and wool hats.....	100.0	0.2	0.2	5.2	11.1	45.7	21.2	16.6	16.6	33.0
All other industries.....	100.0	3.6	7.0	9.3	10.8	18.6	12.9	21.5	18.2	33.0

† Less than one-tenth of 1 per cent.

Of the 4,251 establishments reported for all industries 9.6 per cent employed no wage earners; 44.6 per cent, from 1 to 5; 21 per cent, 6 to 20; 9.6 per cent, 21 to 50; and 15.2 per cent, over 50. The most numerous single group consists of the 1,896 establishments employing from 1 to 5 wage earners, and the next of the 893 establishments employing from 6 to 20. There were 84 establishments that employed over 500 wage earners, and 37 that employed over 1,000.

Of the total number of wage earners, 60.9 per cent were in establishments employing over 250 wage earners. The single group having the largest number of employees was the group comprising establishments employing over 1,000 wage earners. Of the 11 industries represented in this group for which separate presentation is made in the table, the foundries and machine shops reported the largest number of wage earners, 13,102. Five other industries, however, exceeded the

foundries and machine shops in the proportion of their wage earners in this group, namely, firearms and ammunition, brass and bronze products, clocks and watches, corsets, and cutlery and tools. The industries listed in this table, but not in the preceding one, namely, automobiles, clocks and watches, corsets, firearms and ammunition, hosiery and knit goods, musical instruments, and paper and wood pulp, are all 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 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 30.

This table shows that, for all industries combined, 59.8 per cent of the total expense was incurred for materials, 31.6 per cent for services—that is, salaries and wages—and but 8.6 per cent for other purposes. These proportions vary greatly in the different industries.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
<b>All industries.....</b>	<b>6.0</b>	<b>25.6</b>	<b>59.8</b>	<b>8.6</b>
Automobiles, including bodies and parts.....	6.7	30.5	51.5	11.3
Brass and bronze products.....	2.4	15.6	77.3	4.7
Bread and other bakery products.....	2.7	19.4	70.7	7.3
Clocks and watches, including cases and materials.....	6.9	50.3	34.8	7.9
Corsets.....	8.1	23.2	61.4	7.4
Cotton goods, including cotton small wares.....	3.9	28.5	60.1	7.6
Cutlery and tools, not elsewhere specified.....	8.4	44.5	37.0	10.1
Electrical machinery, apparatus, and supplies.....	9.5	18.7	60.7	11.1
Firearms and ammunition.....	0.1	28.8	58.4	6.7
Foundry and machine-shop products.....	9.0	37.5	43.7	9.8
Hats, fur felt.....	6.1	36.0	51.6	6.3
Hosiery and knit goods.....	0.2	26.1	58.3	9.4
Lumber and timber products.....	4.3	28.7	58.9	8.1
Musical instruments, pianos and organs, and materials.....	6.3	25.1	60.7	8.0
Paper and wood pulp.....	6.9	18.2	65.0	10.0
Printing and publishing.....	16.4	33.3	34.0	16.3
Silk and silk goods, including throwsters.....	5.5	20.8	65.7	8.0
Silverware and plated ware.....	7.2	25.8	54.2	12.7
Woolen, worsted, and felt goods, and wool hats.....	3.2	19.9	73.3	3.6
All other industries.....	6.0	23.1	60.8	10.1

**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.

Of the owned power in 1909, 75.9 per cent was steam, as compared with 72 per cent in 1899. Water power, although showing an actual increase during the decade of 6,723 horsepower, decreased in proportion of owned

power from 27.2 per cent in 1899 to 20.4 per cent in 1909. The more general use of gas engines is shown, the number of such engines being 460 in 1909, as against 254 in 1904 and 171 in 1899. The figures also show that the practice of renting power is on the increase, 9.5 per cent of the total power being rented in 1909, as against 4.7 per cent in 1904 and 3.6 per cent in 1899. The use of electric motors for the purpose of applying the power generated within the establishment is also shown to be rapidly increasing, the horsepower of such motors having increased from 8,710 in 1899 to 26,346 in 1904 and 64,051 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>	<b>7,357</b>	<b>3,535</b>	<b>3,967</b>	<b>400,275</b>	<b>304,204</b>	<b>256,331</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Owned.....	3,930	3,535	3,967	362,217	280,924	247,080	90.5	95.3	96.4
Steam.....	2,574	2,331	2,095	274,042	218,068	177,819	68.7	71.9	69.4
Gas.....	460	254	171	12,844	3,393	1,608	3.2	1.1	0.6
Water wheels.....	869	916	1,101	73,697	66,667	67,211	18.4	21.9	26.2
Water motors.....	27	34	( <sup>2</sup> )	4	237	141	0.1	( <sup>2</sup> )	( <sup>2</sup> )
Other.....				497	1,055	451	0.1	0.3	0.2
Rented.....	3,427	( <sup>2</sup> )	( <sup>2</sup> )	38,058	14,280	9,242	9.5	4.7	3.6
Electric.....	3,427	( <sup>2</sup> )	( <sup>2</sup> )	33,620	8,233	4,215	8.4	2.7	1.6
Other.....				4,438	6,047	5,027	1.1	2.0	2.0
<b>Electric motors.....</b>	<b>8,536</b>	<b>1,521</b>	<b>442</b>	<b>97,671</b>	<b>34,579</b>	<b>12,925</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Run by current generated by establishment.....	5,109	1,521	442	64,051	26,346	8,710	65.6	76.2	67.4
Run by rented power.....	3,427	( <sup>2</sup> )	( <sup>2</sup> )	33,620	8,233	4,215	34.4	23.8	32.6

<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.

**Fuel.**—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<sup>1</sup>.....</b>	<b>387,424</b>	<b>1,511,473</b>	<b>60,527</b>	<b>149,224</b>	<b>494,498</b>	<b>593,891</b>
Automobiles, including bodies and parts.....	820	16,115	44	4	15,749	21,782
Brass and bronze products.....	70,473	210,100	1,329	45,006	113,337	31,812
Bread and other bakery products.....	11,524	2,134	2,340	1,958	35	10,769
Clocks and watches, including cases and materials.....	366	17,320			98	4,935
Corsets.....	427	9,658		1	2	2,110
Cotton goods, including cotton small wares.....	26,603	83,617		5,100	77	36
Cutlery and tools, not elsewhere specified.....	17,449	43,852	2,335	498	6,017	9,996
Electrical machinery, apparatus, and supplies.....	485	18,771		119	257	3,229
Firearms and ammunition.....	12,284	34,092	232	25	13,280	20,665
Foundry and machine-shop products.....	47,766	197,347	40,306	5,427	43,325	402,164
Gas, illuminating and heating.....	33,925	80,977	5,691	7	192,670	1,419
Hats, fur felt.....	1,499	33,162	39		169	8,473
Hosiery and knit goods.....	110	14,414		27	88	1,515
Iron and steel, steel works and rolling mills.....	47,057	62,511	2,020	200	78,712	3,560
Liquors, malt.....	2,782	28,319			50	
Lumber and timber products.....	558	5,647	50	311	414	1,642
Musical instruments, pianos and organs, and materials.....	4,185	9,955		3		500
Paper and wood pulp.....	23,184	92,807		64	97	540
Printing and publishing.....	3,496	3,119		68	202	8,510
Silk and silk goods, including throwsters.....	2,268	30,794		557	135	481
Silverware and plated ware.....	1,464	27,363	116	216	3,750	4,742
Woolen, worsted, and felt goods, and wool hats.....	1,993	76,533		14,684	131	229
All other industries.....	70,706	394,848	6,025	74,343	25,888	55,174

<sup>1</sup> In addition there were 20,180 tons of other varieties of fuel reported.

# MANUFACTURES—CONNECTICUT.

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## SUPPLEMENTARY DATA FOR 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 classes of machines used in manufactures which do not appear on the general schedule. Certain data of this character for nine important industries in Connecticut are here presented.

**Textiles.**—The following statement shows the number of producing spindles, looms, knitting machines, sets of woolen cards, and wool-combing machines used by the four most important textile industries in Connecticut during 1909, 1904, and 1899, and indicates the progress during the decade of the four industries combined as well as each of the branches separately.

MACHINE.	Census.	Total.	Cotton goods, including cotton small wares.	Silk and silk goods, including throwsters.	Woolen, worsted, and felt goods, and wool hats. <sup>1</sup>	Hosiery and knit goods.
Producing spindles....	1900 1904 1899	1,593,418 1,510,793 1,353,157	1,241,524 1,150,915 1,001,474	118,302 106,704 96,415	179,688 166,422 176,892	53,904 86,752 78,376
Looms.....	1909 1904 1899	32,785 28,264 25,633	24,370 20,803 10,550	5,006 4,260 2,975	3,409 3,201 3,108	..... ..... .....
Knitting machines....	1909 1904 1899	2,501 2,557 2,662	..... ..... .....	..... ..... .....	..... ..... .....	2,501 2,557 2,662
Woolen cards (sets)....	1909 1904 1899	522 551 549	..... ..... .....	..... ..... .....	408 442 415	114 109 134
Wool-combing machines.	1909 1904 1899	33 25 49	..... ..... .....	..... ..... .....	33 18 40	..... 7 9

<sup>1</sup> Statistics for 1899 not available for two establishments manufacturing felt goods.

The above table shows that from 1904 to 1909 the number of producing spindles increased 82,625, or 5.5 per cent, and the number of looms 4,521, or 16 per cent, while knitting machines show a decrease of 56, or 2.2 per cent. The number of sets of woolen cards decreased 29, or 5.3 per cent, and the number of wool-combing machines increased 8, or 32 per cent. Of the total number of producing spindles reported in 1909 for these four industries combined, 1,241,524, or 77.9 per cent, were in cotton mills; 118,302, or 7.4 per cent, in silk mills; 179,688, or 11.3 per cent, in woolen, worsted, and felt mills; and 53,904, or 3.4 per cent, in hosiery and knitting mills. The cotton industry made the largest absolute gain in number of spindles during the last five years, the increase being 90,609, or 7.9 per cent. The largest relative gain in number of spindles, however, was in the silk industry, where there was an increase of 11,598, or 10.9 per cent. The falling off in the number of spindles in knitting mills is due to the tendency to purchase yarn already spun. In addition to the spindles shown in the table there were 13,756 producing spindles employed in the manufacture of cordage and twine in 1909. There were 3,567 more looms used in the cotton industry and 746 more in the silk industry in 1909 than in 1904.

Cotton goods, including cotton small wares.—Cotton manufacturing maintains the lead in the textile group, although the silk industry has grown more rapidly during the last decade.

The quantity and cost of the principal materials used in the manufacture of cotton goods and the quantity and value of the principal products reported in 1909, 1904, and 1899 are given below.

MATERIAL OR PRODUCT.	1909	1904	1899 <sup>1</sup>
<b>Materials used, total cost.....</b>	<b>\$11,959,722</b>	<b>\$10,203,269</b>	<b>\$7,535,926</b>
<b>Cotton:</b>			
Domestic—			
Pounds.....	51,664,951	49,775,004	50,910,381
Cost.....	\$6,425,319	\$6,241,393	\$3,770,503
Foreign—			
Pounds.....	6,058,409	3,503,478	5,955,428
Cost.....	\$1,058,728	\$619,173	\$656,019
<b>Yarns, purchased:</b>			
Cotton—			
Pounds.....	3,671,011	3,958,078	4,868,512
Cost.....	\$1,430,813	\$1,520,056	\$1,151,503
Other—			
Pounds.....	154,757	184,813	99,831
Cost.....	\$460,801	\$264,237	\$225,102
<b>Cotton waste, purchased:</b>			
Pounds.....	2,224,582	1,049,150	2,067,674
Cost.....	\$149,267	\$69,007	\$68,781
<b>Starch:</b>			
Pounds.....	2,044,826	2,284,291	2,073,522
Cost.....	\$111,308	\$69,456	\$70,434
<b>Chemicals and dyestuffs.....</b>	<b>\$225,354</b>	<b>\$218,077</b>	<b>\$259,129</b>
<b>Fuel and rent of power and heat.....</b>	<b>\$478,710</b>	<b>\$354,361</b>	<b>\$242,621</b>
<b>All other materials.....</b>	<b>\$1,629,362</b>	<b>\$843,519</b>	<b>\$1,091,834</b>
<b>Products, total value.....</b>	<b>\$24,331,881</b>	<b>\$18,425,384</b>	<b>\$15,489,442</b>
<b>Plain cloths for printing or converting:</b>			
Square yards.....	59,730,700	66,074,935	60,560,820
Value.....	\$4,571,087	\$3,859,725	\$3,382,225
<b>Brown or bleached sheetings and shirtings:</b>			
Square yards.....	33,411,424	20,917,468	17,367,180
Value.....	\$2,249,623	\$1,580,429	\$884,960
<b>Twills and sateens:</b>			
Square yards.....	40,827,992	24,594,276	19,724,407
Value.....	\$3,152,078	\$1,402,558	\$952,385
<b>Fancy woven fabrics:</b>			
Square yards.....	17,222,224	14,316,168	20,518,759
Value.....	\$1,747,789	\$1,278,319	\$1,495,298
<b>Ticks, denims, and stripes:</b>			
Square yards.....	14,888,985	19,479,607	7,180,813
Value.....	\$1,612,636	\$1,697,062	\$1,528,744
<b>Yarns for sale:</b>			
Pounds.....	7,914,873	6,385,473	6,010,562
Value.....	\$2,846,742	\$2,459,139	\$1,536,266
<b>Thread:</b>			
Pounds.....	5,263,776	4,038,361	3,432,159
Value.....	\$5,199,313	\$3,745,906	\$2,861,134
<b>Cotton waste for sale:</b>			
Pounds.....	11,315,800	9,923,878	10,153,771
Value.....	\$469,811	\$466,200	\$254,150
<b>All other products.....</b>	<b>\$2,382,802</b>	<b>\$1,906,037</b>	<b>\$2,594,280</b>

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

The cotton consumed in this industry in 1909 amounted to 57,723,360 pounds, costing \$7,484,047, and representing an increase over 1904 of 4,444,878 pounds, or 8.3 per cent, in quantity, and \$623,481, or 9.1 per cent, in cost. In 1909 the quantity and cost of domestic cotton represented 89.5 per cent and 85.9 per cent, respectively, of the total quantity and cost of all cotton consumed, proportions somewhat smaller than the corresponding figures for 1904, which were 93.4 per cent and 91 per cent, respectively. The consumption of foreign cotton increased considerably between 1899 and 1909, although a pronounced decrease occurred from 1899 to 1904. Cotton waste purchased increased for the decade as a whole, although a decrease is shown for the period from 1899 to 1904.

Each kind of product presented separately shows an increase in value from 1904 to 1909, with the exception of ticks, denims, and stripes. Twills and sateens made the largest gain during the period, the increase in value being \$1,749,520, or 124.7 per cent. Plain cloths for printing and converting were the most important class of fabrics manufactured in both quantity and value, although the output shows a decrease in 1909 of 7,244,235 square yards as compared with 1904 and 830,120 square yards as compared with 1899; there has, however, been an increase during the decade in the value of this class of products. Twills and sateens stand next to plain cloths in the quantity manufactured in 1909. The increase for the decade in the output of this class of goods was 21,103,585 square yards, or 107 per cent, the greater part of which occurred between 1904 and 1909. The increases in the quantity and value of sheetings and shirtings were very much less than the gains shown for twills and sateens. Fancy woven fabrics, which are made in considerable quantities, show a decrease of 3,296,535 square yards, or 16.1 per cent, for the 10-year period, and an increase in value of \$252,491, or 16.9 per cent. It will be noted that the value of the thread manufactured exceeds that reported for any other class of products.

**Silk and silk goods, including throwsters.**—The second industry of importance in respect to value of products among the textile industries of Connecticut is the manufacture of silk and silk goods. The state has one of the largest factories in the country manufacturing broad silks and other woven silk goods. Of the 47 establishments reported in 1909 a number are engaged solely in throwing silk for others on contract.

The quantity and cost of the various materials used in the silk mills and the quantity and value of the different classes of products reported for 1909, 1904, and 1899 are shown in the next table.

Cotton and mercerized yarns formed the principal material according to weight, and showed the most marked increase, while raw silk was the material of greatest value.

Three groups of products each furnished nearly an equal proportion of the total value, namely, velvets and plushes, with \$5,959,175, or 28.3 per cent of the total; broad silks, with \$5,890,233, or 28 per cent; and machine twist, sewing, embroidery, wash, fringe, and floss silks, with \$5,108,180, or 24.3 per cent.

The output of velvets and plushes increased 125.9 per cent in quantity and 114.7 per cent in value during the 10-year period, that of broad silks 108.4 per cent in quantity and 93.4 per cent in value, and that of machine twist and other sewing and embroidery silks 5.4 per cent in quantity and 12.3 per cent in value. Organzine, tram, and spun silk yarns, which ranked

next in value of output, increased 76.4 per cent in quantity and 80.2 per cent in value between 1899 and 1909. Ribbons show a gain of 71.7 per cent in value for the decade as a whole, although a decrease of 2.5 per cent occurred during the last five years.

Ribbons is the only item which shows a decrease in value between 1904 and 1909. "All other products," on the other hand, which fell off somewhat during the earlier five-year period, increased 324.2 per cent between 1904 and 1909.

In 1909, 290,253 pounds of silk were thrown on commission, 150,332 pounds into organzine, and 139,921 pounds into tram. The corresponding total for 1904 was 216,454 pounds, of which 131,038 pounds were thrown into organzine and 85,416 pounds into tram.

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Silk: Materials used, total cost.....</b>	<b>\$11,834,345</b>	<b>\$9,098,196</b>	<b>\$7,108,008</b>
Raw—			
Pounds.....	1,624,701	1,320,599	1,159,061
Cost.....	\$6,090,209	\$5,067,381	\$4,537,720
Spun—			
Pounds.....	606,379	716,607	502,538
Cost.....	\$1,425,657	\$1,609,152	\$998,566
Organzine and tram, purchased—			
Pounds.....	54,619	28,844	31,041
Cost.....	\$238,785	\$144,358	\$154,881
Yarns, purchased:			
Cotton, including mercerized—			
Pounds.....	2,439,405	1,380,581	1,189,505
Cost.....	\$870,707	\$446,362	\$390,252
Wool, mohair, and other—			
Pounds.....	832,204	120,215	3,661
Cost.....	\$826,208	\$124,434	\$6,468
Chemicals and dyestuffs.....	\$204,025	\$208,675	(1)
Fuel and rent of power.....	\$214,763	\$129,061	\$96,917
All other materials.....	\$1,864,901	\$1,308,773	\$1,013,204
<b>Products, total value.....</b>	<b>\$21,062,687</b>	<b>\$15,623,693</b>	<b>\$12,378,981</b>
Organzine, tram, and spun silk yarns for sale:			
Pounds.....	455,678	373,104	258,265
Value.....	\$1,623,722	\$1,411,685	\$901,191
Machine twist, sewing, embroidery, wash, fringe, and floss silks:			
Pounds.....	828,678	782,434	786,261
Value.....	\$5,108,180	\$4,573,582	\$4,548,802
Broad silks:			
Yards.....	11,404,011	7,562,166	5,470,874
Value.....	\$5,890,233	\$4,037,599	\$3,045,569
Velvets and plushes:			
Yards.....	11,912,758	9,048,494	5,272,665
Value.....	\$5,959,175	\$3,935,014	\$2,775,318
Ribbons.....	\$1,125,607	\$1,153,983	\$655,807
Embroideries, braids and bindings, fringes and gimps.....	\$210,427	\$80,393	\$38,685
Amount received for contract work.....	\$293,332	\$230,614	\$136,362
All other products.....	\$851,021	\$200,823	\$277,247

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

**Woolen, worsted, and felt goods.**<sup>1</sup>—Three establishments were primarily engaged in the manufacture of felt goods in 1909, one in 1904, and two in 1899. The following statement gives the details concerning the cost of the different materials used in the manufacture of woolen and worsted goods and the quantity and value of the leading kinds of products for these two industries in 1909, 1904, and 1899, the cost of materials used and the value of products for felt goods also being included for 1909.

<sup>1</sup> The title of this industry in the tables, being uniform for all states, is "Woolen, worsted, and felt goods, and wool hats," but in Connecticut no wool hats were reported.

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost</b> .....	<b>\$12,838,142</b>	<b>\$10,073,219</b>	<b>\$7,923,088</b>
<b>Wool:</b>			
Foreign (in condition purchased)—			
Pounds.....	1,088,035	934,051	1,493,925
Cost.....	\$233,687	\$321,325	\$520,433
Domestic (in condition purchased)—			
Pounds.....	9,084,587	11,831,199	9,709,648
Cost.....	\$3,474,052	\$3,523,049	\$2,718,264
Equivalent in scoured condition, pounds.....	7,045,156	8,205,794	7,271,894
<b>Cotton:</b>			
Pounds.....	558,585	1,504,567	1,697,350
Cost.....	\$82,852	\$175,622	\$150,424
<b>Shoddy:</b>			
Pounds.....	1,593,181	2,457,223	4,461,072
Cost.....	\$235,442	\$323,075	\$489,976
<b>Waste and nolls of wool, mohair, etc.:</b>			
Pounds.....	1,871,548	2,263,438	1,186,679
Cost.....	\$466,078	\$517,193	\$254,264
<b>Yarns, purchased:</b>			
Worsted—			
Pounds.....	5,113,219	2,558,669	2,352,565
Cost.....	\$5,629,603	\$2,498,109	\$2,036,573
Cotton—			
Pounds.....	1,193,956	1,689,875	1,475,188
Cost.....	\$291,770	\$387,894	\$306,802
All other—			
Pounds.....	65,573	345,239	55,681
Cost.....	\$134,628	\$300,751	\$36,161
Chemicals and dyestuffs.....	\$534,281	\$502,957	\$419,494
Fuel and rent of power.....	\$329,872	\$304,732	\$226,189
All other materials.....	\$1,365,877	\$1,217,611	\$755,508
<b>Products, total value</b> .....	<b>\$19,363,228</b>	<b>\$15,483,499</b>	<b>\$12,637,032</b>
All wool woven goods, whether woolen or worsted:			
Wool cloths, etc.—			
Square yards.....	4,371,262	4,318,678	2,201,081
Value.....	\$3,834,073	\$2,845,913	\$1,691,295
Worsted coatings, etc.—			
Square yards.....	6,993,858	3,078,079	2,975,355
Value.....	\$6,783,552	\$3,550,183	\$3,149,666
Woolen overcoatings, etc.—			
Square yards.....	2,827,661	1,905,798	2,213,987
Value.....	\$2,618,255	\$1,579,030	\$1,953,424
Wool dress goods, cashmeres, burlings, etc.—			
Square yards.....	1,610,689	4,171,561	2,301,173
Value.....	\$902,806	\$2,086,833	\$939,698
All other—			
Square yards.....	2,183,833	4,903,771	1,858,213
Value.....	\$964,942	\$1,207,707	\$236,060
Union or cotton mixed woven goods:			
Union tweeds, etc.—			
Square yards.....	860,666	2,821,517	2,001,035
Value.....	\$366,593	\$1,106,191	\$863,243
All other—			
Square yards.....	1,307,818	1,356,983	1,375,027
Value.....	\$739,074	\$707,374	\$745,918
Goods woven on cotton warp:			
Wool filling cassimeres, jeans, etc.—			
Square yards.....	2,108,671	1,766,051	1,927,154
Value.....	\$544,435	\$501,412	\$342,955
All other—			
Square yards.....	2,288,745	4,138,150	3,730,325
Value.....	\$710,849	\$982,633	\$1,086,099
Yarns, for sale:			
Pounds.....	751,185	413,581	2,801,629
Value.....	\$675,155	\$202,612	\$616,706
Waste and nolls, for sale:			
Pounds.....	487,026	213,619	369,713
Value.....	\$78,653	\$48,974	\$41,298
Amount received for contract work.....	\$32,848	\$19,185	\$13,470
All other products.....	\$1,111,983	\$465,452	\$457,110

The quantity of all-wool woven goods reported, whether woolen or worsted, was 17,987,303 square yards in 1909, 18,377,887 square yards in 1904, and 11,549,809 square yards in 1899. The combined value of these classes of goods represented 78 per cent of the total value of products for the industry in 1909, 72.8 per cent in 1904, and 63.1 per cent in 1899. The quantity and value of union tweeds increased from 1899 to 1904, but decreased from 1904 to 1909, with the result that both items were smaller in 1909 than in 1899. The output of all other union or cotton-mixed woven goods decreased steadily from 1899 to 1909, and their value was also lower in 1909 than in 1899, although somewhat higher than in 1904. For each of the two classes into which goods woven on cotton warps are divided in the table, the values declined regularly from 1899 to 1909, but the output of wool-filling cassimeres and jeans was greatest in 1909 and that of the cotton-warp goods included under the head of "All other" was greatest in 1904.

**Hosiery and knit goods.**—Twenty-one establishments—three less than in 1904 and four less than in 1899—were reported in this industry at the census of 1909. The quantity and cost of the principal materials used and the quantity and value of the products reported for the hosiery and knit-goods industry at the last three censuses were as follows:

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost</b> .....	<b>\$3,048,547</b>	<b>\$2,825,014</b>	<b>\$2,202,640</b>
<b>Cotton:</b>			
Domestic—			
Pounds.....	1,102,021	1,489,447	2,068,413
Cost.....	\$146,609	\$171,439	\$176,729
Foreign—			
Pounds.....	868,588	654,414	(1)
Cost.....	\$139,879	\$126,075	(1)
<b>Wool:</b>			
Domestic (in condition purchased)—			
Pounds.....	768,190	1,678,529	1,291,104
Cost.....	\$354,254	\$615,320	\$344,178
Foreign (in condition purchased)—			
Pounds.....	251,655	307,454	1,181,663
Cost.....	\$113,600	\$113,639	\$479,436
<b>Wool waste and nolls:</b>			
Pounds.....	2,015,712	930,683	493,216
Cost.....	\$630,130	\$225,964	\$117,935
<b>Yarns, purchased:</b>			
Cotton—			
Pounds.....	1,539,828	1,221,624	991,497
Cost.....	\$463,922	\$364,634	\$250,011
Woolen, worsted, and merino—			
Pounds.....	463,026	397,103	271,444
Cost.....	\$410,887	\$353,004	\$254,219
All other—			
Pounds.....	7,194	8,091	16,650
Cost.....	\$24,742	\$21,906	\$38,700
Chemicals and dyestuffs.....	\$52,249	\$67,964	\$40,094
Fuel and rent of power.....	\$67,643	\$73,845	\$47,603
All other materials.....	\$635,632	\$601,224	\$453,735
<b>Products, total value</b> .....	<b>\$5,800,692</b>	<b>\$5,371,452</b>	<b>\$4,043,977</b>
Hose and half hose:			
Dozen pairs.....	569,100	672,242	393,111
Value.....	\$1,109,617	\$1,018,327	\$552,145
Shirts and drawers:			
Merino or mixed—			
Dozens.....	338,589	286,049	298,148
Value.....	\$2,041,515	\$2,368,443	\$1,996,994
All wool—			
Dozens.....	19,516	42,574	62,993
Value.....	\$239,100	\$462,061	\$619,909
All cotton—			
Dozens.....	113,603	112,108	159,169
Value.....	\$475,545	\$411,793	\$446,073
Combination suits:			
Merino or mixed—			
Dozens.....	2,998	1,832	898
Value.....	\$48,253	\$27,407	\$13,450
All other—			
Dozens.....	39,615	1,630	256
Value.....	\$300,772	\$16,300	\$2,828
All other products.....	\$685,890	\$1,067,121	\$409,518

<sup>1</sup> Included with domestic cotton.

<sup>2</sup> Includes silk or silk mixed.

<sup>1</sup> Excluding statistics for one establishment in 1904 and two in 1899, to avoid disclosure of individual operations.

<sup>2</sup> Includes tapes.

The increase during the decade in the total cost of materials was proportionally greater than the increase in the value of products. Both the quantity and the cost of foreign wool consumed has decreased since 1899, although there has been a slight gain in quantity since 1904. From 1899 to 1904 there was a decided gain in the quantity and cost of domestic wool consumed, but from 1904 to 1909 a decrease occurred in both items. For the decade the quantity of domestic wool decreased slightly, although its cost shows a considerable increase. The most conspicuous gain was for worsted yarns purchased, which increased during the last five-year period, 1904-1909, 99.8 per cent in quantity and 125.4 per cent in cost.

The consumption of domestic cotton was 26 per cent less in 1909 than in 1904. Because of the demand for long fiber the quantity of foreign cotton increased 32.7 per cent from 1904 to 1909. The consumption of both domestic and foreign wool decreased, the quantity reported being 966,738 pounds less in 1909 than in 1904. Waste and noils show the largest gain, the increase during the last five years being 116.6 per cent in quantity and 178.9 per cent in cost. Both the quantity and the cost of cotton and woolen, worsted, and merino yarns purchased in 1909 were greater than in 1904.

The gain shown in both quantity and value of hose and half hose during the 10-year period is marked, although the quantity decreased considerably from 1904 to 1909. The growth in the production of merino and mixed shirts and drawers is noticeable; there was, however, a falling off in the production of all-wool underwear.

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

PRODUCT.	NUMBER.		VALUE.	
	1909	1904	1909	1904
<b>Total</b> .....	<b>2,913</b>	<b>832</b>	<b>\$11,668,228</b>	<b><sup>1</sup>\$2,644,334</b>
Passenger vehicles:				
Gasoline.....	2,913	386	7,359,652	1,125,863
Electric.....	( <sup>2</sup> )	319	( <sup>2</sup> )	747,420
Steam.....		127		85,399
All other products, including parts.....			4,107,809	331,253
Custom work and repairing.....			200,767	354,300

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

<sup>2</sup> Included with gasoline.

This table shows a remarkable increase in the number of machines manufactured and also in their value. The increase in value was, however, somewhat greater relatively than that in number, so that the average value per machine in 1909, \$2,526, was higher than in 1904, when it was \$2,354. The value of all other products reported increased even more rapidly than that of the complete machines, on account of the increased production of bodies and parts. In 1909 there were 20 establishments primarily engaged in making bodies and parts, as compared with 1 in 1904.

Although the electric machine was the type first produced in Connecticut, practically all machines built in the state in 1909 were of the gasoline type.

A detailed statement by classes of the automobiles manufactured is not presented, because to do so would disclose the operations of individual establishments. Touring cars rank first in number, runabouts second, and closed pleasure and family vehicles third. Cabs, patrol wagons, and ambulances rank in the order named. Nearly all the machines were equipped with engines of from 30 to 50 horsepower, although a few

pleasure and family vehicles exceeded that rating and a limited number fell below it.

**Hats, fur-felt.**—The manufacture of fur-felt hats has long been an important industry in the state, but the development was greater during the last five-year period. The following table shows the quantity and cost of materials used and the quantity and value of products reported for the industry at the last three censuses:

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost</b> .....	<b>\$4,848,983</b>	<b>\$3,953,693</b>	<b>\$3,685,748</b>
Hatters' fur:			
Pounds.....	1,673,332	1,385,325	1,499,767
Cost.....	\$1,909,915	\$1,535,579	\$1,463,491
Fur-felt hat bodies and hats in the rough, purchased:			
Dozens.....	87,117	30,783	61,726
Cost.....	\$491,161	\$194,207	\$381,362
Chemicals and dyestuffs.....	\$315,598	\$501,040	\$272,635
Fuel and rent of power and heat.....	\$175,076	\$162,748	\$119,834
All other materials.....	\$1,957,233	\$1,559,519	\$1,448,376
<b>Products, total value</b> .....	<b>\$10,399,860</b>	<b>\$8,662,799</b>	<b>\$7,546,882</b>
Fur-felt hats:			
Dozens.....	530,558	600,312	497,683
Value.....	\$7,858,882	\$8,198,376	\$6,543,736
Fur-felt hat bodies and hats in the rough, for sale:			
Dozens.....	335,947	63,676	153,183
Value.....	\$2,407,044	\$306,056	\$946,937
Amount received for contract work.....	\$123,273	\$50,612	\$52,371
All other products.....	\$10,661	\$17,765	\$3,816

The cost of hatters' fur, which was the principal material reported, represented 39.4 per cent of the total cost of all materials in 1909 and about the same proportion in 1904 and 1899. The quantity and cost were both highest in 1909, although the quantity decreased from 1899 to 1904. A decided increase is shown from 1904 to 1909 in the number and cost of hat bodies used, which followed a decided decrease in both items between 1899 and 1904.

The proportion that the value of finished hats represents of the total value of products for the industry has varied greatly during the last decade, being 86.7 per cent in 1899, 94.6 per cent in 1904, and 75.6 per cent in 1909. The decrease in the value of finished hats from 1904 to 1909 was more than offset by the gain in hat bodies and hats in the rough.

**Electrical machinery, apparatus, and supplies.**—This industry has developed rapidly during recent years, which may have been due, to some extent, to the fact that Connecticut is a center of the brass and bronze industry. The following tabular statement gives the quantity and value of the different products reported at the last two censuses. Comparable statistics are not available for 1899.

PRODUCT.	1909	1904
<b>Total value</b> .....	<b>\$9,824,373</b>	<b>\$4,939,831</b>
Sockets, receptacles, bases, etc.....	1,052,586	1,022,267
Electric-lighting fixtures of all kinds.....	111,654	195,668
Electric switches, signals, and attachments.....	1,382,183	( <sup>1</sup> )
Insulated wires and cables.....	3,772,881	2,156,369
All other products.....	2,905,669	1,566,077

<sup>1</sup> Included under "All other products," to avoid disclosing individual operations.

The totals for this industry do not include the electric machinery and apparatus, to the value of \$689,696 in 1909 and \$591,094 in 1904, which were manufactured by establishments primarily engaged in some other industry.

Insulated wires and cables formed the products of highest value at both censuses. The largest relative gain was in the value of the different classes of machinery and apparatus included under the head of "All other products," which consisted mainly of electric lamps, dynamos, motors, storage and primary batteries, telephones and telephone parts, and magneto-ignition apparatus.

Printing and publishing.—The following table shows the number of the several classes of publications in the state during 1909, 1904, and 1899, and their aggregate circulation per issue:

PERIOD OF ISSUE.	NUMBER OF PUBLICATIONS.			AGGREGATE CIRCULATION PER ISSUE.		
	1909	1904	1899	1909	1904	1899
Total.....	160	158	158	539,765	566,791	457,022
Daily.....	38	36	44	258,543	229,357	208,815
Sunday.....	10	5	3	80,261	59,095	(1)
Semiweekly.....	9	11	22	23,612	27,560	20,325
Weekly.....	78	80	74	134,849	165,479	155,507
Monthly.....	18	19	9	28,650	46,950	44,375
All other classes.....	7	7	0	7,850	38,350	19,000

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

An increase of 82,143, or 17.9 per cent, is shown in the total circulation per issue of all publications during the last decade, yet a decided decrease is shown for 1909 as compared with 1904. With the exception of the dailies and the Sunday papers, each class shows a loss during the five-year period, 1904-1909. The growth from 1904 to 1909 in the circulation of Sunday papers was 46 per cent, and the increase in that of the dailies was 12.7 per cent. Between 1904 and 1909 the number of Sunday papers increased by five and the number of dailies by two. The circulation of the dailies constituted 47.9 per cent of the total circulation of all publications in 1909, that of the weeklies 25 per cent, and that of the Sunday papers 16 per cent. The corresponding proportions in 1904 were 40.5 per cent, 29.2 per cent, and 10.4 per cent, respectively, while in 1899 the circulation of dailies and Sunday publications combined constituted 45.6 per cent of the total and the circulation of the weeklies 34 per cent.

The circulation of evening newspapers increased from 177,728 in 1904 to 186,601 in 1909 and that of morning papers from 51,629 to 71,942. All of the publications were in the English language except one daily, which was in Italian; 10 weeklies, 4 of which were in German, 4 in Italian, 1 in Polish, and 1 in Swedish; and 1 semimonthly included under the head of "All other classes," which was in German.

Paper and wood pulp.—The quantity and value of the various products of this industry, as reported for the censuses of 1909, 1904, and 1899, are shown in the following table:

PRODUCT.	1909	1904	1899
Total value.....	\$5,527,334	\$5,039,147	\$3,565,021
Book paper:			
Tons.....	3,180	4,425	6,076
Value.....	\$300,856	\$517,562	\$676,248
Writing and other fine paper:			
Tons.....	2,896	6,439	2,298
Value.....	\$559,954	\$804,055	\$361,412
Wrapping paper:			
Tons.....	6,316	7,056	14,219
Value.....	\$538,830	\$502,544	\$743,747
Boards:			
Tons.....	65,567	64,610	30,762
Value.....	\$2,386,945	\$2,354,053	\$1,158,499
Tissue:			
Tons.....	2,041	2,169	1,740
Value.....	\$438,097	\$400,675	\$283,378
All other paper products:			
Tons.....	12,224	4,950	4,712
Value.....	\$750,683	\$357,442	\$270,312
All other products.....	\$452,909	\$36,816	\$71,425

The output for each class of products for which statistics as to quantity are given, with the exception of boards and "All other paper products," decreased from 1904 to 1909. Book paper and writing and other fine paper also show decreases in value. Slight increases in both quantity and value are reported for paper boards, which form the chief product of the industry in the state. Book paper showed a marked decrease in both quantity and value during each five-year period. "All other paper products" comprises principally news paper and blotting paper and card and bristol boards, the first of which was made much more extensively in 1909 than in 1904 or 1899.

The paper-making machinery in the mills of the state in 1909 consisted mainly of 17 Fourdrinier and 66 cylinder machines, having a yearly capacity of 127,025 tons and in 1904 of 17 Fourdrinier and 64 cylinder machines, with an annual capacity of 110,121 tons.

Laundries.—Statistics for steam laundries are not included in the general tables or in the totals for manufacturing industries. In 1909 there were 95 such establishments in Connecticut, 15 of which were in New Haven, 12 in Hartford, 7 in Bridgeport, 7 in Waterbury, 5 in New London, 4 each in Danbury, Meriden, and Stamford, and 3 in Norwich. The following statement summarizes the statistics:

Number of establishments.....	95
Persons engaged in the industry.....	1, 638
Proprietors and firm members.....	101
Salaried employees.....	96
Wage earners (average number).....	1, 441
Primary horsepower.....	1, 852
Capital.....	\$870, 567
Expenses.....	1, 089, 900
Services.....	684, 373
Materials.....	246, 066
Miscellaneous.....	159, 461
Amount received for work done.....	1, 416, 122

Of these establishments, 53 were operated by individuals, 23 by firms, and 19 by corporations. Twenty-two establishments had receipts for the year's business of less than \$5,000; 50 of \$5,000, but less than \$20,000; and 23 of \$20,000, but less than \$100,000.

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

MONTH.	WAGE EARNERS.		MONTH.	WAGE EARNERS.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	1, 350	86. 3	July.....	1, 504	100. 0
February.....	1, 342	86. 8	August.....	1, 547	98. 9
March.....	1, 343	86. 9	September.....	1, 503	96. 1
April.....	1, 363	87. 1	October.....	1, 485	94. 9
May.....	1, 399	89. 4	November.....	1, 451	92. 8
June.....	1, 407	95. 7	December.....	1, 451	92. 8

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

KIND.	Number of engines or motors.	Horsepower.
Primary power, total.....		1, 852
Owned—Steam.....	85	1, 605
Rented:		
Electric.....	21	135
Other.....		22

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

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	3, 492
Bituminous coal.....	Tons.....	10, 448
Coke.....	Tons.....	11
Wood.....	Cords.....	39
Oil.....	Barrels.....	162
Gas.....	1,000 feet.....	12, 248

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.....	31	59
Persons engaged in industry.....	86	39
Proprietors and firm members.....	36	61
Wage earners (average number).....	50	19
Primary horsepower.....	873	1, 982
Capital.....	\$51, 408	\$122, 577
Expenses.....	23, 026	187, 152
Services.....	19, 478	5, 737
Materials.....	1, 045	178, 750
Miscellaneous.....	2, 503	2, 665
Value of products.....	46, 481	120, 775

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

MANUFACTURES—CONNECTICUT.

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-fac-ture.
			Total.	Pro-ri-ors and firm mem-bers.	Sala-ried em-ploy-ees.	Wage earn-ers (aver-age num-ber).							
Expressed in thousands.													
STATE—All industries.....	1909	4,261	233,871	3,468	10,611	210,792	400,275	\$517,547	\$25,037	\$110,119	\$257,259	\$490,272	\$233,013
	1904	3,477	198,046	2,918	13,523	181,605	304,204	373,284	17,040	87,943	191,302	369,082	177,780
	1899	3,382			9,258	159,733	256,331	299,207	11,755	73,394	169,672	315,106	145,434
Automobiles, including bodies and parts.....	1909	28	4,444	8	621	3,815	3,937	12,131	634	2,878	4,856	11,668	6,812
	1904	17	1,131	4	62	1,065	1,283	3,713	86	784	1,163	2,644	1,481
	1899												
Boots and shoes, including cut stock and find-ings.	1909	10	582	15	47	520	235	746	56	226	1,088	1,658	570
	1904	12	550	13	47	499	253	589	54	209	820	1,310	499
	1899	15	787	28	40	719	379	700	38	293	987	1,517	530
Boxes, fancy and paper.....	1909	38	2,074	20	205	1,849	1,306	2,337	262	745	1,386	2,911	1,525
	1904	37	2,186	24	130	2,032	1,149	1,837	158	764	1,432	2,768	1,336
	1899	34	1,740	16	92	1,632		1,423	100	553	922	2,057	1,135
Brass and bronze products.....	1909	80	17,800	47	1,026	16,817	50,034	47,873	1,478	9,667	47,864	66,933	19,069
	1904	61	16,400	29	1,079	15,382	38,915	40,571	1,506	8,196	37,913	53,916	16,003
	1899	62			607			25,582	916	6,754	36,603	49,059	12,456
Bread and other bakery products.....	1909	431	2,611	467	275	1,869	658	2,532	160	1,222	4,463	7,310	2,847
	1904	327	2,376	355	270	1,761	557	2,260	183	1,019	3,446	5,898	2,452
	1899	309	2,149	332	205	1,612		2,115	133	861	2,915	5,209	2,294
Butter, cheese, and condensed milk.....	1909	30	148	9	34	105	231	211	17	52	623	745	122
	1904	41	140	17	28	95	299	159	15	57	670	815	145
	1899	71	262	49	47	166	531	275	24	85	882	1,094	212
Buttons.....	1909	20	1,133	16	60	1,057	1,673	1,501	107	465	735	1,635	900
	1904	11	1,118	5	69	1,044	831	1,308	95	410	599	1,446	847
	1899	11	834	10	24	800	491	532	31	306	430	1,057	657
Carriages and wagons and materials.....	1909	92	720	99	43	578	957	1,226	41	372	383	1,077	694
	1904	109	1,730	122	101	1,507	1,329	2,326	131	767	793	2,196	1,403
	1899	135			112	1,644		3,520	136	1,632	1,245	3,166	1,921
Cars and general shop construction and repairs by steam-railroad companies.	1909	5	1,300		74	1,226	595	948	77	742	760	1,580	820
	1904	5	2,108		133	1,975	810	1,331	87	1,256	923	2,155	1,232
	1899	6	1,057		100	1,557	613	1,639	78	944	1,366	2,430	1,064
Clocks and watches, including cases and mate-rials.	1909	16	6,195	5	339	5,851	4,273	9,846	415	3,030	2,098	7,390	5,292
	1904	13	6,137	2	370	5,765	3,699	8,288	364	2,939	2,116	7,060	4,944
	1899	15	4,088	8	124	3,956		5,110	196	1,924	1,836	4,596	2,760
Clothing, men's, including shirts.....	1909	28	854	30	73	751	418	958	106	304	726	1,362	636
	1904	22	1,012	19	41	952	168	708	76	344	733	1,443	710
	1899	22			20	907		562	22	285	434	920	486
Clothing, women's.....	1909	17	1,473	13	78	1,382	461	677	102	415	798	1,716	918
	1904	17	942	19	57	806	301	435	66	246	534	1,098	564
	1899	14	523	16	13	494		194	12	182	225	615	390
Confectionery.....	1909	22	312	27	52	233	96	332	91	82	880	1,233	344
	1904	20	322	25	75	222	204	302	57	82	355	636	281
	1899	11			29	143		178	19	65	214	436	222
Copper, tin, and sheet-iron products.....	1909	48	2,655	27	153	2,475	1,526	4,091	213	949	1,565	3,604	2,039
	1904	43	2,359	37	153	2,169	1,504	3,077	192	911	1,049	2,705	1,655
	1899	26			67	1,683		1,506	96	709	890	1,981	1,091
Cordage and twine and jute and linen goods....	1909	8	314	7	21	286	1,134	481	19	85	431	561	130
	1904	15	210	3	5	202	910	280	5	56	258	361	103
	1899	7	255	6	4	245		277	3	63	179	285	166
Corsets.....	1909	17	7,177	15	519	6,643	1,586	6,931	876	2,520	6,076	12,815	6,139
	1904	13	4,784	12	360	4,412	1,507	3,925	480	1,418	2,684	5,591	2,907
	1899	24	6,124	32	337	5,765		2,979	443	1,796	3,179	6,847	3,668
Cotton goods, including cotton small wares....	1909	52	14,887	26	501	14,360	58,137	30,243	778	5,666	11,960	24,232	12,272
	1904	52	13,479	18	350	13,111	47,950	31,159	516	4,653	10,203	18,425	8,222
	1899	55	13,494	19	281	13,194	41,134	27,352	396	4,394	7,536	15,489	7,953
Cutlery and tools, not elsewhere specified.....	1909	82	8,094	45	502	7,547	14,135	13,758	751	3,980	3,310	10,717	7,407
	1904	71	6,170	43	374	5,753	8,658	8,090	479	3,098	2,830	8,336	5,506
	1899	71	4,846	54	252	4,540		6,528	311	2,315	2,085	5,977	3,892
Dyeing and finishing textiles.....	1909	10	1,817	3	95	1,719	5,851	5,375	198	872	1,480	3,562	2,082
	1904	10	1,496	2	88	1,466	4,883	4,562	162	640	927	2,215	1,288
	1899	5	1,339		39	1,300	4,724	3,244	101	579	907	2,270	1,363
Electrical machinery, apparatus, and supplies.	1909	41	4,120	7	608	3,505	4,457	9,852	813	1,603	5,211	9,824	4,613
	1904	32	1,942	10	225	1,707	2,505	4,184	278	724	2,754	4,940	2,186
	1899	17	1,111	8	142	961		2,514	170	406	1,974	3,168	1,104

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

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

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

## MANUFACTURES—CONNECTICUT.

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 mater- ials.	Value of prod- ucts.	Value added by manu- facture.	
			Total.	Pro- pri- etors and firm mem- bers.	Sala- ried em- ploy- ees.								Wage earn- ers (aver- age num- ber).
Expressed in thousands.													
<b>STATE—Continued.</b>													
Fancy articles, not elsewhere specified.....	1909	8	437	4	36	397	526	\$574	\$47	\$172	\$123	\$730	\$307
	1904	11	325	10	23	292	271	282	30	123	234	477	249
	1899	10	249	7	16	226	.....	313	35	80	166	361	195
Fertilizers.....	1909	12	374	9	70	295	1,273	1,591	78	117	1,091	1,573	492
	1904	10	348	6	32	310	607	987	37	124	525	943	418
	1899	9	171	8	30	133	.....	383	28	54	228	301	163
Firearms and ammunition.....	1909	10	9,205	1	671	8,533	9,391	21,681	1,048	4,968	10,096	19,948	9,882
	1904	13	8,049	9	347	7,693	5,125	11,776	562	4,601	11,776	17,762	9,451
	1899	13	5,473	13	182	5,278	.....	7,606	342	2,919	5,509	11,501	5,792
Flour-mill and gristmill products.....	1909	98	288	122	21	145	3,616	1,277	22	72	1,731	2,024	293
	1904	86	311	98	46	167	3,108	1,336	39	86	1,690	1,982	292
	1899	84	.....	.....	32	170	.....	1,042	23	76	1,399	1,700	301
Foundry and machine-shop products.....	1909	403	42,101	202	4,163	37,736	49,167	89,715	5,144	21,332	24,820	65,535	40,715
	1904	349	32,545	204	2,513	29,828	32,248	57,909	3,148	15,417	15,362	44,816	29,451
	1899	356	29,103	255	1,827	27,021	.....	48,691	2,312	13,751	15,657	39,992	24,365
Furniture and refrigerators.....	1909	25	383	18	67	298	803	651	79	170	368	786	418
	1904	10	328	14	31	283	537	292	30	106	238	557	319
	1899	9	241	9	24	208	.....	277	20	101	254	489	236
Gas, illuminating and heating.....	1909	28	1,211	.....	285	926	4,100	16,016	286	557	1,005	3,446	2,441
	1904	26	819	1	208	640	2,237	11,036	190	330	826	2,558	1,772
	1899	21	488	.....	134	354	.....	7,906	117	231	362	1,421	1,059
Hat and cap materials.....	1909	14	514	9	27	478	1,024	1,183	42	183	702	1,508	806
	1904	11	398	13	20	365	590	597	22	135	437	826	399
	1899	14	325	.....	6	298	.....	442	6	102	366	588	222
Hats, fur-felt.....	1909	80	5,877	59	601	5,217	5,619	7,144	574	3,384	4,849	10,490	5,551
	1904	56	5,664	57	449	5,158	3,729	3,352	427	2,696	3,954	8,693	4,769
	1899	58	5,126	85	173	4,868	.....	3,198	173	2,415	3,686	7,547	3,861
Hosiery and knit goods.....	1909	21	3,524	2	182	3,340	3,540	6,464	324	1,363	3,049	5,801	2,782
	1904	24	3,703	7	102	3,594	3,642	5,815	163	1,305	2,825	5,371	2,546
	1899	25	3,350	12	101	3,243	.....	6,149	159	1,131	2,203	4,044	1,841
Leather goods.....	1909	18	315	15	28	272	277	403	41	143	330	588	258
	1904	20	325	19	25	281	75	351	26	142	296	542	246
	1899	14	.....	14	265	.....	.....	247	10	129	267	490	223
Leather, tanned, curried, and finished.....	1909	8	176	5	21	150	356	777	35	95	805	1,047	242
	1904	9	197	7	21	169	371	894	28	82	543	748	295
	1899	7	201	10	12	179	215	639	14	90	681	891	210
Lime.....	1909	10	347	1	21	325	170	1,373	28	160	275	553	278
	1904	6	141	1	5	135	57	1,381	5	70	148	296	148
Liquors, malt.....	1909	10	588	9	104	475	2,530	5,310	218	426	1,375	4,426	3,051
	1904	22	518	17	107	394	2,171	3,956	205	315	818	2,927	2,109
	1899	20	445	20	81	344	.....	3,109	133	279	640	2,653	2,013
Lumber and timber products.....	1909	363	4,210	443	281	3,495	15,153	6,109	288	1,907	3,918	7,846	3,023
	1904	176	2,496	206	181	2,109	7,275	3,372	168	1,128	2,479	4,792	2,313
	1899	191	.....	130	2,064	.....	.....	2,776	107	899	2,169	4,234	2,065
Marble and stone work.....	1909	86	940	96	62	782	2,317	1,297	74	514	370	1,237	667
	1904	69	1,203	72	80	1,051	2,060	1,494	87	655	402	1,497	1,095
	1899	49	.....	36	845	.....	.....	832	25	411	251	847	596
Musical instruments, pianos and organs, and materials.....	1909	17	2,469	5	160	2,304	2,559	5,627	312	1,251	3,022	5,538	2,516
	1904	17	2,715	6	126	2,583	2,224	5,226	240	1,337	2,402	5,273	2,371
	1899	15	1,053	6	84	1,863	.....	3,586	146	890	1,570	3,596	1,833
Needles, pins, and hooks and eyes.....	1909	8	2,825	4	173	2,648	3,190	3,209	220	1,311	1,697	4,236	2,516
	1904	13	2,463	7	130	2,326	1,654	2,835	158	1,055	1,182	3,002	1,880
	1899	15	1,329	10	63	1,256	.....	2,289	89	543	740	1,815	1,075
Paint and varnish.....	1909	17	360	6	118	236	1,024	1,100	171	147	825	1,543	718
	1904	10	83	6	24	53	170	369	44	28	302	513	213
	1899	18	.....	17	32	32	170	374	22	19	284	400	166
Paper and wood pulp.....	1909	51	1,920	24	176	1,720	19,509	7,195	351	924	3,303	5,527	2,224
	1904	50	1,933	29	154	1,750	18,021	5,893	236	843	2,738	5,039	2,301
	1899	49	1,576	36	115	1,425	.....	3,968	152	633	1,982	3,565	1,583
Paper goods, not elsewhere specified.....	1909	10	708	4	72	632	593	2,101	72	255	683	1,521	658
	1904	10	814	5	66	743	676	1,781	80	288	1,437	2,088	619
	1899	24	633	44	44	589	.....	1,570	48	260	930	1,482	552

<sup>1</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.<sup>2</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.<sup>3</sup> Not reported separately.<sup>4</sup> Excluding statistics for four establishments, to avoid disclosure of individual operations.

MANUFACTURES—CONNECTICUT.

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.	Salaries.	Wages.	Cost of materials.	Value of prod-ucts.	Value added by manu-fac-ture.
			Total.	Pro-ri-ors and firm mem-bers.	Salar-ied em-ploy-ees.	Wage earn-ers (aver-age num-ber).							
Expressed in thousands.													
<b>STATE—Continued.</b>													
Patent medicines and compounds and drug-gists' preparations.	1909	64	432	30	156	237	381	\$808	\$217	\$88	\$488	\$1,342	\$854
	1904	52	296	37	113	146	174	632	122	57	290	1,023	733
	1899	42	206	37	150	280	174	826	165	123	435	1,402	967
Printing and publishing.....	1909	363	4,103	295	930	2,878	3,425	6,322	855	1,736	1,769	6,370	4,601
	1904	328	3,426	285	613	2,528	2,530	4,768	632	1,502	1,276	5,066	3,790
	1899	286	2,824	252	377	2,195	2,530	4,328	355	1,234	1,037	4,114	3,077
Silk and silk goods, including throwsters.....	1909	47	9,385	37	645	8,703	8,564	19,730	996	3,740	11,834	21,063	9,229
	1904	43	8,157	38	327	7,792	7,821	16,676	479	3,124	9,098	15,624	6,526
	1899	38	6,860	23	323	6,514	5,416	12,167	403	2,393	7,198	12,370	5,181
Silverware and plated ware.....	1909	31	6,812	5	584	6,223	5,751	17,247	967	3,446	7,232	15,837	8,605
	1904	22	4,161	2	305	3,854	3,500	10,560	450	2,099	3,040	8,126	4,486
	1899	26	4,747	3	253	4,491	3,500	13,067	507	2,293	4,679	9,538	4,859
Slaughtering and meat packing.....	1909	28	523	28	63	432	590	1,967	62	239	3,949	4,573	623
	1904	26	426	29	26	371	461	733	22	204	2,800	3,218	400
	1899	19	286	28	38	403	461	587	37	188	3,259	3,535	576
Tobacco manufactures.....	1909	265	1,861	289	59	1,513	48	1,370	57	908	1,064	2,738	1,674
	1904	226	1,593	253	73	1,267	24	1,174	76	766	652	2,350	1,498
	1899	216	1,296	238	26	1,032	24	864	29	571	672	1,776	1,104
Typewriters and supplies.....	1909	8	3,510	.....	576	2,934	2,034	8,468	486	1,898	1,041	4,016	2,975
	1904	6	1,611	.....	104	1,507	1,113	2,291	132	809	355	1,637	1,282
	1899	4	718	.....	23	693	.....	1,142	39	374	163	784	621
Wirework, including wire rope and cable.....	1909	28	1,557	20	117	1,420	1,517	2,487	197	684	1,648	3,345	1,697
	1904	29	1,417	20	136	1,261	2,410	2,444	210	575	1,249	2,600	1,351
	1899	21	864	22	51	791	.....	1,320	74	350	563	1,240	683
Woolen, worsted, and felt goods, and wool hats.	1909	56	8,140	31	320	7,789	17,518	20,011	564	3,485	12,838	19,363	6,525
	1904	59	7,748	39	280	7,429	14,949	15,031	416	2,998	10,073	15,483	5,410
	1899	61	7,113	47	290	6,860	15,414	14,195	313	2,608	7,923	12,637	4,714
All other industries.....	1909	950	39,967	800	3,496	35,671	82,030	97,291	4,570	18,428	53,187	93,280	40,093
	1904	798	37,112	662	2,839	33,611	66,651	78,928	3,592	16,310	42,309	77,256	34,947
	1899	788	.....	.....	2,160	31,746	.....	68,985	2,647	14,606	39,640	71,615	31,975

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

<b>BRIDGEPORT—All industries.....</b>	1909	367	28,962	243	2,934	25,775	43,387	\$62,779	\$3,709	\$13,349	\$37,947	\$65,609	\$27,692
	1904	306	21,681	234	1,955	19,492	33,387	49,381	2,511	8,480	22,335	44,587	22,252
	1899	286	.....	.....	1,057	17,038	.....	31,625	1,434	7,885	17,287	33,536	16,249
Artificial stone.....	1909	5	56	4	4	48	53	172	4	27	23	80	57
	1904	3	21	1	3	17	.....	42	3	11	8	33	25
Bread and other bakery products.....	1909	49	342	49	31	262	117	235	20	186	591	964	373
	1904	42	328	52	39	237	.....	338	26	148	453	801	348
	1899	41	264	42	36	186	.....	310	19	111	301	586	285
Carrriages and wagons and materials.....	1909	6	88	4	11	73	108	150	13	47	50	145	95
	1904	5	186	3	19	164	.....	438	26	109	128	347	219
	1899	8	.....	.....	9	169	.....	501	11	113	104	315	211
Copper, tin, and sheet-iron products.....	1909	9	320	3	30	287	253	423	42	124	263	492	220
	1904	9	188	7	25	156	.....	258	26	78	148	209	151
	1899	6	.....	.....	8	97	.....	88	7	43	48	136	88
Corsets.....	1909	5	3,889	.....	230	3,659	984	4,205	401	1,349	3,802	6,899	3,097
	1904	6	2,494	.....	203	2,289	.....	2,694	354	687	1,251	2,954	1,703
	1899	7	3,122	.....	11	2,984	.....	1,361	247	878	1,677	3,224	1,547
Cutlery and tools, not elsewhere specified.....	1909	7	814	2	44	768	843	983	88	406	295	954	659
	1904	8	744	2	65	677	.....	891	68	374	248	883	635
	1899	3	.....	.....	13	350	.....	194	16	148	105	304	259
Electrical machinery, apparatus, and supplies.....	1909	5	1,631	.....	231	1,400	1,440	3,229	217	575	1,842	3,321	1,479
	1904	3	644	.....	95	549	.....	1,064	64	196	594	1,104	510
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Foundry and machine-shop products.....	1909	48	5,657	14	739	4,904	10,555	13,426	882	2,716	4,336	9,752	5,418
	1904	36	2,214	17	198	1,999	.....	3,503	291	1,007	1,239	3,269	2,030
	1899	39	.....	.....	150	2,124	.....	3,238	291	1,102	1,371	3,427	2,056
Liquors, malt.....	1909	3	86	.....	14	72	305	810	35	59	160	518	358
	1904	4	75	.....	8	18	.....	648	26	46	104	414	310
	1899	5	76	.....	9	10	.....	611	18	52	108	521	413

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

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

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

## MANUFACTURES—CONNECTICUT.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaries employees.	Wage earners (average number).							
Expressed in thousands.													
<b>BRIDGEPORT—Continued.</b>													
Marble and stone work.....	1909	7	58	8	7	43	148	\$73	\$6	\$32	\$43	\$102	\$50
	1904	14	32	4	2	26		14	2	21	24	58	34
	1899	* 3	26	1	7	18		34	4	12	13	41	28
Models and patterns, not including paper patterns.	1909	7	47	5	4	38	27	27	5	33	10	56	46
	1904	5	23	5		18		9		11	3	24	21
	1899	3	9	3		6		4		3	1	11	10
Printing and publishing.....	1909	35	297	28	97	172	303	855	102	120	127	512	385
	1904	22	229	16	53	160		426	55	118	110	400	289
	1899	* 18	193	10	44	139		429	42	82	61	289	238
Tobacco manufactures.....	1909	16	54	19		35		41		20	21	69	48
	1904	20	61	22	5	34		41	4	19	22	76	54
	1899	17	41	18	1	22		24	1	11	17	47	30
All other industries.....	1909	165	15,613	107	1,492	14,014	28,191	38,150	1,894	7,055	26,384	41,745	15,361
	1904	139	14,442	95	1,230	13,117		39,015	1,556	6,075	18,003	33,916	15,913
	1899	136			652	10,886		24,831	868	5,390	13,481	24,675	11,694
<b>HARTFORD—All industries.....</b>													
	1909	396	17,447	320	2,500	14,627	10,410	\$48,085	\$2,710	\$9,374	\$17,863	\$40,680	\$22,817
	1904	340	12,907	303	1,383	11,221		28,359	1,693	6,562	11,487	25,974	14,487
	1899	322			1,149	10,677		29,057	1,374	6,950	11,369	23,829	12,460
Boxes, fancy and paper.....	1909	3	54	2	2	50	13	25	4	14	32	60	28
	1904	3	53	2	3	48		20	6	15	23	47	24
	1899	3	53	2	1	50		24	1	19	30	56	26
Brass and bronze products.....	1909	6	58	5	2	51	43	65	5	39	104	183	79
	1904	* 4	38	4	4	30		110	6	17	43	70	27
	1899	3	36	5	2	29		62	2	21	23	56	33
Bread and other bakery products.....	1909	37	328	37	50	241	89	423	27	172	668	1,105	437
	1904	26	268	26	43	199		324	31	124	451	843	392
	1899	34	229	36	16	177		192	11	105	298	542	244
Brick and tile.....	1909	5	57	6		51	415	80		29	15	66	51
	1904	4	50	6	1	43		66	1	23	7	42	35
	1899	7	78	8	2	68		114	1	31	11	60	49
Carriages and wagons and materials.....	1909	6	132	5	9	118	87	149	7	80	53	178	125
	1904	17	133	12	12	109		125	8	67	66	219	153
	1899	* 5			5	47		47	4	32	31	93	62
Clothing, men's, including shirts.....	1909	3	39	3	1	35	13	43	1	17	55	97	42
	1904	4	82	4	7	71		48	5	28	113	174	61
	1899	3	49	4	1	44		22	1	14	32	68	26
Clothing, women's.....	1909	6	378	8	9	361	32	90	10	103	99	269	170
	1904	6	116	10	12	94		64	10	25	63	142	70
	1899	4	63	5		58		29		18	51	77	26
Copper, tin, and sheet-iron products.....	1909	6	54	6	5	43	80	83	4	20	36	95	69
	1904	7	58	10	6	42		39	7	28	59	108	53
	* 1899												
Electrical machinery, apparatus, and supplies.	1909	10	901	1	120	780	599	1,537	192	382	622	1,704	1,083
	1904	7	591	3	40	548		769	80	244	362	1,182	779
	1899	7	373	3	29	341		586	54	129	369	672	312
Foundry and machine-shop products.....	1909	52	3,180	19	393	2,788	4,128	11,576	570	2,014	2,142	6,549	4,407
	1904	39	2,562	19	221	2,322		6,202	320	1,458	1,328	4,117	2,789
	1899	40			158	2,022		6,697	208	1,550	1,306	3,778	2,377
Leather goods.....	1909	6	199	3	20	176	203	249	29	97	201	342	141
	1904	* 3	202	3	16	183		220	16	93	181	314	133
	1899	3			9	205		204	8	95	203	366	163
Liquors, malt.....	1909	4	169	1	30	138	483	1,352	56	125	444	1,256	812
	1904	4	129	1	26	102		980	38	71	254	760	506
	1899	4	132	1	32	99		889	44	82	209	742	533
Lumber and timber products.....	1909	15	227	11	21	195	929	308	27	141	224	473	249
	1904	* 9	186	9	30	147		338	34	99	270	477	267
	1899	17	113	7	13	98		179	11	63	311	430	119
Marble and stone work.....	1909	7	67	8	16	43	154	113	17	38	84	175	91
	1904	4	88	3	10	25		74	11	17	36	101	65
	1899	* 3			7	35		38	4	25	42	87	45

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

\* Excluding statistics for two establishments, to avoid disclosure of individual operations.

\* Figures can not be shown without disclosing individual operations.

MANUFACTURES—CONNECTICUT.

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 mate- rials.	Value of prod- ucts.	Value added by manu- facture.
			Total.	Pro- pri- etors and firm mem- bers.	Sal- aried em- ploy- ees.	Wage earn- ers (aver- age num- ber).							
Expressed in thousands.													
<b>HARTFORD—Continued.</b>													
Models and patterns, not including paper pat- terns.	1909 1904 1899	6 3	67 50	6 2	5 4	56 44	63	\$35 26	\$4 4	\$17 38	\$12 7	\$90 57	\$78 50
Patent medicines and compounds and drug- gists' preparations.	1909 1904 1899	7 11 7	34 30	4 9	17 13	13 14	-----	47 28 43	13 10	5 4 8	25 32 18	79 70 83	54 38 65
Printing and publishing.....	1909 1904 1899	68 67 62	1,155 1,002	59 55	230 186	806 761	1,111	1,827 1,671 1,482	229 204	541 491	620 453	2,098 1,667	1,388 1,214 1,057
Tobacco manufactures.....	1909 1904 1899	28 24 25	316 302 269	36 30 31	8 11 3	272 261 235	2	234 205 234	7 14 3	184 167 138	213 192 164	517 494 392	304 302 228
All other industries.....	1909 1904 1899	121 108 105	10,032 7,011	100 95	1,562 738	8,370 6,178	10,957	29,849 17,050 17,215	1,508 888	5,317 3,553	12,214 7,556	25,434 15,140	13,220 7,584 7,095
<b>NEW HAVEN—All industries.....</b>													
	1909 1904 1899	590 490 437	26,874 23,711	536 455	2,791 1,819	23,547 21,437	31,382	\$52,014 31,413 27,962	\$3,462 2,026 1,443	\$12,776 11,204 8,520	\$24,319 18,521 16,136	\$51,071 39,666 34,899	\$26,752 21,145 18,769
Brass and bronze products.....	1909 1904 1899	7 7 7	75 61	5 5	9 10	61 46	71	229 243 180	19 15	32 27	250 177	354 264	104 87 70
Bread and other bakery products.....	1909 1904 1899	65 53 41	502 392 372	63 52 43	69 80	370 254	163	537 305 579	50 57	230 155	876 537	1,473 926	507 389 431
Canning and preserving.....	1909 1904 1899	3 3 3	45 38 29	2 2	12 11	31 25	45	100 66 35	12 6	14 13	50 30	127 75	77 39 28
Carriages and wagons and materials.....	1909 1904 1899	15 28 30	113 921 978	16 27 30	6 41 58	91 853 890	73	223 1,141 1,072	8 60	62 374	98 329	223 947	125 618 1,057
Clothing, men's, including shirts.....	1909 1904 1899	10 2 3	58 27 20	14 5	2 -----	42 22	6	51 26 10	1 -----	10 11	67 47	111 68	44 21 8
Cutlery and tools, not elsewhere specified.....	1909 1904 1899	6 3 3	265 124	3 8	30 15	232 101	191	516 141 131	49 27	133 56	87 53	400 196	313 143 103
Electroplating.....	1909 1904 1899	3 3 4	40 16 14	4 3	1 -----	35 13	35	11 6 5	1 -----	16 7	9 1	34 14	25 13 9
Foundry and machine-shop products.....	1909 1904 1899	55 58 52	5,770 4,569	33 38	547 355	5,100 4,176	4,393	8,861 6,266 5,938	561 410	2,885 2,050	3,005 1,818	7,806 5,395	4,801 3,677 2,074
Furniture and refrigerators.....	1909 1904 1899	10 2 4	136 81 71	8 8	27 11	101 62	254	268 41 144	27 11	57 38	133 56	252 135	119 79 104
Hats and caps, other than felt, straw, and wool.	1909 1904 1899	6 4 7	90 48 35	12 4	12 7	66 37	11	72 37 19	12 6	43 27	116 56	240 109	124 53 30
Jewelry.....	1909 1904	7 4	27 19	6 3	6 3	15 13	5	44 18	2 7	7 7	27 12	55 32	28 20
Liquors, malt.....	1909 1904 1899	4 4 4	142 131 117	3 3	25 30	114 98	607	1,362 1,177 929	54 68	100 85	326 217	1,290 905	664 688 619
Lumber and timber products.....	1909 1904 1899	20 9 5	324 174 169	16 6	29 28	279 140	1,073	584 470 632	31 28	166 82	533 404	809 404	276 194 158
Marble and stone work.....	1909 1904 1899	10 6 3	64 41	13 9	4 4	47 28	65	98 64 27	5 4	41 18	25 22	86 65	61 43

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

MANUFACTURES—CONNECTICUT.

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.	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-facture.
			Total.	Pro-pri-ators and firm mem-bers.	Sala-ried em-ploy-ees.	Wage earn-ers (aver-age num-ber).							
Expressed in thousands.													
<b>NEW HAVEN—Continued.</b>													
Patent medicines and compounds and druggists' preparations.	1909	23	99	14	28	57	24	\$130	\$17	\$14	\$70	\$145	\$75
	1904	10	24	10	8	6	.....	40	7	3	26	70	44
	1899	19	.....	.....	66	33	.....	129	31	12	62	245	153
Printing and publishing.....	1909	72	840	53	275	512	508	999	190	332	334	1,325	691
	1904	66	711	53	148	510	.....	709	147	331	234	1,101	567
	1899	53	.....	.....	90	422	.....	755	80	225	267	652	685
Shipbuilding, including boat building.....	1909	4	16	4	.....	12	16	32	.....	11	8	28	20
	1904	5	11	5	.....	6	.....	12	.....	5	4	14	10
	1899	5	16	5	.....	11	.....	17	.....	7	7	20	13
Tobacco manufactures.....	1909	61	739	70	22	647	43	564	22	388	455	1,141	686
	1904	38	512	48	19	445	.....	382	19	274	304	799	495
	1899	36	357	41	3	313	.....	160	3	183	220	558	329
All other industries.....	1909	209	17,529	197	1,687	15,645	23,799	37,303	2,392	3,226	17,850	35,172	17,322
	1904	181	15,811	166	1,043	14,602	.....	20,269	1,150	7,041	14,188	27,053	13,765
	1899	168	.....	.....	792	11,675	.....	16,300	856	5,443	11,549	23,786	12,257
<b>WATERBURY—All industries.....</b>													
	1909	169	21,600	97	1,333	20,170	37,513	\$44,658	\$1,926	\$11,244	\$28,726	\$50,950	\$21,694
	1904	143	16,671	92	1,173	15,408	.....	32,950	1,521	8,016	17,770	32,367	14,597
	1899	124	.....	.....	696	13,225	.....	21,967	912	6,691	18,202	30,386	12,123
Brass and bronze products.....	1909	15	10,031	.....	428	9,603	26,530	24,663	718	5,451	21,599	31,462	9,893
	1904	14	7,879	1	433	7,445	.....	19,985	655	3,491	13,183	19,087	6,504
	1899	11	.....	.....	253	6,404	.....	12,597	429	3,435	14,111	20,238	6,127
Bread and other bakery products.....	1909	20	182	24	25	133	40	172	15	90	325	505	180
	1904	18	158	19	2	137	.....	91	1	86	302	453	151
	1899	17	98	5	10	83	.....	99	7	51	208	332	124
Carriages and wagons and materials.....	1909	5	42	7	3	32	16	68	3	23	18	58	49
	1904	6	60	7	.....	53	.....	54	.....	36	24	75	51
	1899	3	.....	.....	2	28	.....	45	1	14	11	36	25
Copper, tin, and sheet-iron products.....	1909	5	901	.....	43	858	396	1,076	75	366	430	1,046	616
	1904	4	904	.....	53	851	.....	1,344	78	354	364	1,038	674
	1899	4	852	.....	32	820	.....	713	56	353	444	976	532
Foundry and machine-shop products.....	1909	23	2,167	4	156	2,007	2,359	3,985	231	1,282	1,306	3,558	2,252
	1904	13	899	7	71	821	.....	1,409	111	517	349	1,335	966
Lumber and timber products.....	1909	7	246	2	39	205	399	748	37	134	300	681	372
	1904	3	69	4	6	59	.....	164	6	48	77	160	83
Printing and publishing.....	1909	15	239	10	48	181	186	395	52	129	97	399	202
	1904	14	183	10	47	126	.....	294	42	82	55	269	214
	1899	10	168	7	21	140	.....	205	17	96	43	200	157
Tobacco manufactures.....	1909	18	89	19	3	67	1	49	2	36	41	115	74
	1904	9	36	10	.....	26	.....	26	.....	15	20	49	29
	1899	11	28	12	.....	16	.....	27	.....	13	14	41	27
All other industries.....	1909	61	7,703	31	588	7,084	7,591	13,497	793	3,733	4,601	12,526	7,925
	1904	62	6,483	34	561	5,888	.....	9,683	628	2,897	3,396	9,001	5,605
	1899	68	.....	.....	277	5,674	.....	8,281	402	2,729	3,371	8,507	5,136

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

MANUFACTURES—CONNECTICUT.

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

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

CITY OR BOROUGH.	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-ets and firm mem-bers.	Sala-ried em-ploy-ees.	Wage earn-ers (aver-age num-ber).							
Expressed in thousands.													
Ansonia.....	1909	53	4,488	46	315	4,127	13,209	\$9,763	\$438	\$2,384	\$14,611	\$20,088	\$5,477
	1904	49	3,739	40	305	3,394	.....	7,626	377	1,683	15,308	19,132	3,824
	1899	49	.....	.....	186	.....	.....	6,240	202	1,707	14,950	18,515	3,559
Danbury.....	1909	131	5,499	122	567	4,810	5,660	7,786	492	2,858	4,879	10,318	5,439
	1904	103	5,030	107	408	4,515	.....	4,037	346	2,264	3,695	8,065	4,371
	1899	104	.....	.....	154	3,939	.....	3,423	139	1,845	3,258	6,527	3,269
Meriden.....	1909	120	8,730	80	805	7,845	6,615	17,675	1,194	4,235	6,943	16,317	9,374
	1904	97	7,945	82	582	7,281	.....	16,442	807	3,669	5,644	13,764	8,120
	1899	92	.....	.....	374	6,680	.....	15,417	605	3,243	5,166	11,750	6,644
Middletown.....	1909	58	2,678	38	206	2,434	3,333	3,544	247	1,003	2,943	4,955	2,012
	1904	65	2,507	58	131	2,318	.....	3,583	145	977	2,563	4,351	1,788
	1899	60	.....	.....	144	2,495	.....	4,816	162	1,012	2,353	4,152	1,799
Naugatuck.....	1909	24	3,657	19	174	3,464	5,967	8,642	211	1,967	7,329	11,033	3,704
	1904	22	3,787	14	145	3,628	.....	7,900	184	1,998	7,260	11,010	3,750
	1899	22	.....	.....	82	3,160	.....	6,607	121	1,601	6,072	8,887	2,815
New Britain.....	1909	111	14,755	80	1,162	13,513	14,363	31,790	1,477	6,741	8,328	22,021	13,693
	1904	95	10,921	65	783	10,073	.....	19,980	892	4,687	5,668	14,960	9,292
	1899	82	.....	.....	439	8,019	.....	13,768	533	3,618	4,596	11,096	6,500
New London.....	1909	70	2,467	52	190	2,225	2,912	5,467	183	926	2,531	4,483	1,952
	1904	57	2,747	42	151	2,554	.....	4,590	162	1,070	2,527	4,710	2,183
	1899	54	.....	.....	130	1,963	.....	4,256	126	801	2,212	4,221	1,959
Norwich.....	1909	91	4,795	65	260	4,470	12,027	12,531	386	2,164	4,802	9,389	4,587
	1904	87	4,014	67	241	3,766	.....	8,475	310	1,694	3,043	6,022	2,979
	1899	89	.....	.....	154	3,172	.....	6,438	193	1,423	3,046	5,935	2,889
Stamford.....	1909	86	4,719	64	671	3,984	6,554	11,926	741	2,350	3,704	8,740	5,036
	1904	62	3,816	58	417	3,341	.....	7,526	439	1,722	2,330	5,860	3,560
	1899	49	.....	.....	281	2,445	.....	4,813	261	1,193	1,700	3,920	2,220
Torrington.....	1909	54	4,853	42	323	4,488	7,165	15,692	421	2,384	7,463	12,550	5,087
	1904	43	4,252	33	194	4,025	.....	9,157	270	1,953	5,015	9,074	3,759
	1899	37	.....	.....	146	3,161	.....	6,039	212	1,500	6,261	9,178	2,917
Willimantic.....	1909	47	3,278	41	217	3,020	10,566	9,010	223	1,235	3,194	6,733	3,539
	1904	35	3,005	34	119	2,852	.....	6,682	139	1,057	2,070	4,902	2,832
	1899	30	.....	.....	78	2,268	.....	5,621	87	533	1,360	3,023	1,603

TABLE II.—DETAIL STATEMENT FOR

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners.					Total.	16 and over.		Under 16.		
					Male.	Female.	Average number.	Number.		Male.	Female.		Male.	Female.			
								Maximum month.	Minimum month.								
1 All industries.....	4,251	233,871	3,468	5,562	10,153	3,896	210,792	De 225,862	Fe 199,325	(1)	(1)	(1)	(1)	(1)	400,275		
2 Agricultural implements.....	4	210	1	11	4	3	191	Mh 206	Au 172	198	198				730		
3 Artificial stone.....	43	320	40	21	2	6	251	Oc 322	Ja 152	321	321				173		
4 Automobiles, including bodies and parts.	28	4,444	8	146	362	113	3,815	De 4,586	Ja 3,320	4,966	4,936	32	28		3,937		
5 Baskets, and rattan and willow ware.....	5	12	4	2			6	Jy 10	Ja 3	8	8				31		
6 Blacking and cleansing and polishing preparations.	12	42	11	1	2	3	25	No 30	Fe 21	30	18	11	1		35		
7 Boots and shoes, including cut stock and findings.	10	582	15	20	17	10	520	Mh 536	Au 493	568	256	304	6	2	235		
8 Boxes, fancy and paper.....	38	2,074	20	107	58	40	1,849	No 2,055	Ap 1,668	2,053	812	1,057	28	156	1,306		
9 Brass and bronze products.....	80	17,890	47	245	647	134	16,817	De 18,601	Ap 15,871	18,634	16,452	1,944	138	100	59,004		
10 Bread and other bakery products.....	431	2,611	467	48	117	110	1,869	De 1,901	Ja 1,808	1,932	1,684	231	12	5	658		
11 Brooms.....	7	43	7	1		1	34	Ja 34	Jy 34	34	22	10	2		16		
12 Brushes.....	12	157	14	8	5	1	129	De 135	Ja 122	135	87	48			138		
13 Butter, cheese, and condensed milk.....	30	148	9	31	3		105	Je 108	De 104	104	103				231		
14 Buttons.....	20	1,133	16	27	23	10	1,057	Ap 1,144	Au 982	1,093	404	567	18	14	1,073		
15 Canning and preserving.....	12	166	8	7	16	7	128	Se 300	Ap 62	306	143	163			199		
16 Carpets, rag.....	7	23	8				15	Ap 20	Au 12	13	9	4			20		
17 Carriages and wagons and materials.....	92	720	99	23	12	8	578	My 641	Ja 521	547	545	2			957		
18 Cars and general shop construction and repairs by steam-railroad companies.	5	1,300		7	66	1	1,226	De 1,268	Ja 1,137	1,268	1,267		1		595		
19 Cars and general shop construction and repairs by street-railroad companies.	15	533		6	2	1	524	De 535	My 515	527	526	1			388		
20 Clocks and watches, including cases and materials.	16	6,195	5	132	126	81	5,851	De 6,569	Jy 4,251	6,610	4,320	2,042	172	70	4,273		
21 Clothing, men's, including shirts.....	28	854	30	19	43	11	751	De 803	My 664	930	214	709		7	418		
22 Clothing, women's.....	17	1,473	13	35	21	22	1,382	Mh 1,533	Au 1,052	1,485	119	1,314	8	44	461		
23 Coffins, burial cases, and undertakers' goods.	5	165	3	6	35	8	113	De 117	No 106	117	106	10	1		237		
24 Confectionery.....	22	312	27	4	41	7	233	Je 267	Fe 192	216	99	107		10	96		
25 Cooperage and wooden goods, not elsewhere specified.	8	52	10	1	2		39	Au 41	De 37	37	37				78		
26 Copper, tin, and sheet-iron products.....	48	2,655	27	74	42	37	2,475	Oc 2,501	Ja 2,299	2,575	1,712	759	51	53	1,526		
27 Cordage and twine and jute and linen goods.	8	314	7	13	3	5	286	Au 315	No 114	297	148	140	7	2	1,134		
28 Corsets.....	17	7,177	15	122	270	127	6,643	No 7,044	Ja 6,239	7,111	1,034	5,835	31	211	1,566		
29 Cotton goods, including cotton small wares.	52	14,887	26	193	202	106	14,360	De 14,556	Jy 14,199	14,760	8,238	5,810	331	381	58,137		
30 Cutlery and tools, not elsewhere specified.	82	8,094	45	145	260	97	7,547	De 8,007	Jy 7,288	8,028	7,189	743	77	19	14,135		
31 Dyeing and finishing textiles.....	10	1,817	3	36	46	13	1,719	Ap 1,768	Se 1,679	1,730	1,474	211	33	12	5,851		
32 Electrical machinery, apparatus, and supplies.	41	4,120	7	161	294	153	3,505	De 4,062	My 3,215	4,149	2,059	1,200	102	98	4,457		
33 Electroplating.....	14	135	17	7	6	2	103	No 116	Ja 92	118	108	4	6		172		
34 Fancy articles, not elsewhere specified.	8	437	4	17	10	9	397	No 438	Je 351	448	284	153	2	9	525		
35 Fertilizers.....	12	374	9	18	41	11	295	My 394	Ja 185	224	202	20	2		1,273		
36 Firearms and ammunition.....	10	9,205	1	198	341	132	8,533	Ap 8,703	De 8,213	8,213	6,192	1,038	25	58	9,391		
37 Flour-mill and gristmill products.....	98	288	122	11	6	4	145	De 153	Je 140	155	152	2	1		3,616		
38 Foundry and machine-shop products.....	403	42,101	202	1,049	2,223	891	37,736	De 41,560	Ja 35,670	41,657	37,141	3,704	582	230	49,167		
39 Fur goods.....	6	30	6		2	2	20	No 30	Iv 13	25	10	15			1		
40 Furnishing goods, men's.....	16	2,392	4	46	47	13	2,282	De 2,346	Jy 2,227	2,370	1,083	1,252	23	13	1,674		
41 Furniture and refrigerators.....	25	383	18	25	33	9	298	Se 317	Ja 279	298	275	20	3		803		
42 Gas and electric fixtures and lamps and reflectors.	12	2,512	3	50	154	47	2,240	No 2,350	Ja 2,169	2,336	1,788	511	27	12	1,946		
43 Gas, illuminating and heating.....	28	1,211		78	145	62	926	Au 1,069	Fe 738	916	909	3	4		4,100		
44 Hand stamps and stencils and brands.....	7	35	7	4			22	De 24	Au 20	24	23	1			24		
45 Hat and cap materials.....	14	514	9	17	8	2	478	Ja 545	My 441	484	397	85	1	1	1,024		
46 Hats and caps, other than felt, straw, and wool.....	8	100	13	4	7	2	74	No 79	My 60	78	63	15			11		
47 Hats, fur-felt.....	80	5,877	59	170	343	88	5,217	Se 7,289	Fe 1,940	7,656	5,373	2,231	42	10	5,619		
48 Hosiery and knit goods.....	21	3,524	2	56	98	28	3,340	Je 3,501	Au 2,918	3,493	1,076	2,398	24	85	3,540		
49 Ice, manufactured.....	7	89	5	10	5	3	66	Jy 84	Ja 44	63	63				1,029		
50 Jewelry.....	15	319	12	16	13	14	264	No 281	Jy 195	274	202	69	1	2	83		
51 Kaolin and ground earths.....	6	135	3	6	2	2	122	My 157	Au 94	155	155				1,240		
52 Leather goods.....	18	315	15	15	9	4	272	De 295	Ap 245	299	249	41	8	1	277		
53 Leather, tanned, curried, and finished.....	8	176	5	14	4	3	150	De 167	Ap 126	167	148	19			356		
54 Lime.....	10	347	1	16	3	2	325	My 370	Ja 249	321	320		1		170		
55 Liquors, distilled.....	10	33	6	5	2	1	19	No 25	Au 15	24	24				111		
56 Liquors, malt.....	19	588	9	37	63	4	475	Au 488	My 408	469	469				2,530		
57 Lumber and timber products.....	393	4,219	443	110	109	62	3,495	De 4,039	Jy 2,850	4,400	4,344	41	15		15,153		
58 Marble and stone work.....	86	940	96	21	35	6	782	Se 944	Fe 499	794	794				2,317		
59 Mattresses and spring beds.....	16	187	16	9	5	5	152	Oc 163	Au 145	164	130	25	9		116		
60 Millinery and lace goods.....	7	142	11	4	1	2	124	De 143	Ja 97	143	37	101	3	2	69		

<sup>1</sup> No figures given for reasons explained in the Introduction, page 2. See also discussion of wage earners on page 8.

MANUFACTURES—CONNECTICUT.

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.			
\$517,548,554	\$429,904,944	\$13,052,310	\$12,584,996	\$110,119,045	\$9,751,797	\$247,507,596	\$1,353,244	\$3,265,744	\$1,279,258	\$30,990,954	\$490,271,605	\$233,012,302	
2	307,996	200,505	18,640	5,528	76,379	10,237	125,778		2,239	21,704	331,542	195,527	
3	408,634	312,118	21,738	3,294	138,101	4,812	114,530	6,445	1,333	20,415	424,301	304,959	
4	12,131,142	9,430,363	343,540	290,013	2,878,187	126,719	4,729,585	25,007	51,291	4,700	11,668,228	6,811,924	
5	11,613	7,708	400	2,803	227	3,750	136	10	200	182	13,151	9,174	
6	74,204	98,075	225	2,900	11,296	1,106	60,995	750	272	20,531	125,234	63,133	
7	746,109	1,466,375	26,740	29,427	225,924	5,418	1,082,829	5,532	2,066	12,116	76,323	1,657,578	569,331
8	2,337,205	2,521,858	199,373	62,375	747,778	29,946	1,356,103	21,443	10,922	75	63,843	2,910,697	1,524,648
9	47,872,781	61,941,189	689,757	788,473	9,006,530	1,542,851	46,321,089	20,604	198,815	18,681	2,685,383	66,932,969	19,069,029
10	2,532,067	6,311,870	53,725	114,842	1,221,770	136,945	4,325,964	100,968	17,444	1,707	338,504	7,309,817	2,846,908
11	23,274	53,513	1,200	100	9,002	848	40,803	100	72	1,328	70,007	28,416	
12	106,907	184,536	8,370	4,830	53,621	2,087	107,127	1,793	520		6,179	210,496	101,282
13	210,618	709,495	14,781	1,800	52,409	6,039	617,013	482	718		16,193	745,450	122,338
14	1,500,680	1,423,920	66,030	49,919	405,457	23,776	711,470	3,370	9,097	350	103,457	1,635,153	899,943
15	329,344	275,430	12,020	13,582	45,127	3,924	171,097	8,656	1,657		19,367	345,740	170,719
16	27,143	15,481		6,655	411	4,553		516	73		3,273	27,479	22,515
17	1,225,850	873,724	28,664	12,780	371,838	19,018	363,623	15,758	6,661	15,655	39,727	1,076,582	693,941
18	948,151	1,580,285	13,736	63,006	742,377	45,407	714,992		430		337	1,580,285	819,886
19	2,061,913	994,698	8,489	1,242	368,044	6,817	595,700		302		14,104	994,700	392,183
20	9,845,089	6,021,599	236,623	178,729	3,029,903	65,736	2,032,744	2,120	48,597	17,431	409,716	7,390,051	5,291,571
21	958,219	1,270,957	48,508	67,984	304,008	10,066	716,406	10,412	2,581	20,078	100,314	1,362,312	685,840
22	677,973	1,576,017	65,767	35,803	415,175	12,999	784,527	10,261	5,367		246,718	1,715,700	918,174
23	429,992	342,773	14,496	45,376	74,549	5,791	161,828	4,990	1,751		33,992	400,717	233,098
24	331,514	1,125,068	55,000	35,592	81,994	6,418	882,853	20,803	1,198	921	40,889	1,233,308	344,037
25	65,821	95,363	1,500	5,200	21,358	720	61,273	1,735	454		3,063	111,576	49,583
26	4,090,948	3,100,610	162,451	50,247	1,049,364	61,027	1,603,775	21,847	16,558	389	234,952	3,693,706	2,038,804
27	480,582	555,743	13,570	5,224	84,737	4,003	427,208	3,065	2,368		15,508	561,264	129,993
28	6,931,145	10,872,871	355,186	521,117	2,519,982	37,178	6,638,893	21,146	22,297	85,219	671,853	12,814,736	6,138,665
29	39,243,161	19,908,236	530,394	247,309	5,665,836	478,710	11,481,612	37,286	180,927	2,208	1,284,404	24,231,881	12,272,159
30	13,757,976	8,940,306	374,828	376,379	3,979,723	237,126	3,072,849	11,665	80,085	6,754	800,897	10,716,918	7,406,943
31	5,375,233	2,828,323	122,880	75,404	872,202	199,458	1,290,610	1,000	32,326		244,443	3,561,927	2,081,859
32	9,852,232	8,578,600	446,001	367,246	1,602,987	100,409	5,110,835	32,181	23,318	1,278	594,225	9,824,373	4,613,069
33	90,717	117,925	4,535	4,981	53,307	4,693	38,705	4,824	338		6,452	152,002	109,414
34	573,071	630,345	33,055	14,039	171,879	13,239	409,744	540	1,914		45,635	720,605	306,712
35	1,500,640	1,413,764	39,823	37,930	136,893	25,788	1,065,273		5,137		102,020	1,572,575	481,514
36	21,681,237	17,230,426	496,356	551,695	4,967,511	204,715	9,861,534	2,563	88,176		1,057,876	19,948,235	9,881,956
37	1,276,512	1,855,389	16,321	5,628	72,008	16,837	1,714,192	4,840	6,322	300	18,941	2,023,909	292,850
38	89,715,440	56,855,031	2,514,151	2,630,215	21,332,185	1,513,006	23,306,450	114,542	417,935	178,888	4,847,050	65,535,155	40,715,099
39	42,276	60,776	1,600	13,178	489	38,947	2,280	145	4,237		74,922	35,486	
40	3,104,620	3,586,029	111,320	58,022	930,193	50,950	2,156,701	5,120	11,651	480	261,592	3,938,702	1,731,051
41	650,797	738,115	52,641	26,588	178,732	8,034	360,283	11,492	4,619	18,059	77,757	786,258	417,941
42	3,001,731	3,191,468	137,471	247,000	1,189,312	54,216	1,276,038	5,564	26,919	454	254,424	4,023,027	2,692,773
43	16,016,121	2,297,645	127,122	159,016	557,271	827,511	177,429	34,650	114,015	19,394	280,937	3,445,961	2,441,021
44	49,319	32,300	4,609	572	11,157	832	11,513	924	353	214	2,035	40,580	28,235
45	1,182,503	1,319,347	28,461	12,635	182,963	26,471	675,463	8,046	4,747		380,561	1,507,928	805,994
46	75,346	206,276	4,830	7,509	46,566	1,097	124,305	3,524	347	2,065	15,133	259,123	132,821
47	7,143,713	9,395,293	297,723	276,613	3,384,364	175,076	4,673,907	42,680	21,796	28,013	495,022	10,399,860	5,550,877
48	6,463,632	5,225,820	165,412	165,825	1,363,148	67,643	2,980,964	13,372	44,370	31,518	400,628	5,800,692	2,752,145
49	558,152	121,168	13,537	4,762	42,264	27,740	15,770	1,000	2,980		13,115	159,346	115,836
50	395,058	393,457	31,556	38,128	142,755	3,299	105,155	4,415	5,873	1,996	60,260	457,430	348,956
51	330,771	172,677	7,770	2,960	67,172	16,723	59,952	2,081	1,933		14,086	184,118	107,443
52	402,902	540,505	20,671	11,465	143,053	6,043	323,712	5,144	3,224		18,793	588,098	268,343
53	776,708	975,971	29,534	5,271	94,538	10,494	794,414	3,700	2,936		35,084	1,047,543	242,435
54	1,372,785	484,582	24,305	3,848	160,195	131,052	144,318	3,405	2,048		15,411	553,200	277,830
55	219,771	249,793	14,450	3,684	11,564	5,014	65,721	428	141,420		7,512	365,784	205,049
56	5,309,840	3,489,683	127,828	89,677	425,838	109,536	1,264,996		715,700		756,108	4,426,061	3,051,529
57	6,108,887	6,649,538	159,279	128,491	1,907,220	43,561	3,874,807	45,377	28,296	98,078	364,339	7,845,521	3,927,063
58	1,297,095	1,028,281	38,919	35,343	54,419	26,114	344,146	8,125	6,132	2,993	52,090	1,236,654	866,394
59	296,764	389,121	15,164	2,836	68,378	3,643	270,347	5,936	1,253		18,564	422,646	148,656
60	164,314	255,131	6,504	2,295	49,101	1,661	184,254	1,695	226		9,395	293,383	107,408

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

TABLE II.—DETAILED 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.		Maximum month.	Minimum month.		Male.	Female.	Male.	Female.		
															Number.	
61 Models and patterns, not including paper patterns.	25	153	22	10	.....	1	120	De 141	Ja 102	142	138	4	.....	.....	141	
62 Musical instruments and materials, not specified.	3	5	3	.....	.....	.....	2	Ja <sup>1</sup> 2	Jy <sup>1</sup> 2	2	2	.....	.....	.....	4	
63 Musical instruments, pianos and organs, and materials.	17	2,469	5	60	72	28	2,304	Oc 2,378	Jy 2,188	2,207	1,933	309	34	21	2,559	
64 Needles, pins, and hooks and eyes.	8	2,825	4	48	80	45	2,648	De 2,864	Ja 2,491	2,879	1,447	1,271	66	95	3,160	
65 Paint and varnish.	17	360	6	20	68	21	236	My 244	No 229	230	222	8	.....	.....	1,024	
66 Paper and wood pulp.	51	1,920	24	95	51	30	1,720	De 1,861	Ja 1,638	1,868	1,573	282	7	6	19,500	
67 Paper goods, not elsewhere specified.	10	708	4	17	37	18	632	No 692	Au 574	657	280	346	10	21	593	
68 Patent medicines and compounds and druggists' preparations.	64	432	39	46	69	41	237	De 261	Au 210	276	138	138	.....	.....	381	
69 Photo-engraving.	7	95	8	15	4	5	63	Je 70	Oc 52	65	59	4	2	.....	54	
70 Printing and publishing.	363	4,103	295	232	506	192	2,878	Fe 2,944	Au 2,793	2,951	2,285	570	88	8	3,425	
71 Rubber goods, not elsewhere specified.	13	2,397	2	42	165	73	2,115	De 2,534	Fe 1,648	2,534	2,010	497	13	14	6,138	
72 Sewing machines, cases, and attachments.	6	2,865	.....	51	98	20	2,096	Ja 2,872	Ja 2,323	2,773	2,469	196	101	17	1,870	
73 Shipbuilding, including boat building.	43	502	37	15	18	5	427	Je 550	Fe 347	428	428	.....	.....	.....	1,454	
74 Shoddy.	6	114	5	5	6	.....	98	De 107	Se 88	106	97	9	.....	.....	1,170	
75 Silk and silk goods, including throwsters.	47	9,385	37	135	418	92	8,703	Se 9,248	Ja 8,370	9,296	4,283	4,614	145	254	8,564	
76 Silverware and plated ware.	31	6,812	5	129	326	129	6,223	No 7,077	Jy 5,385	6,842	5,507	1,171	115	49	5,751	
77 Slaughtering and meat packing.	28	523	28	11	37	15	432	Ja 465	My 397	456	450	3	3	.....	560	
78 Stereotyping and electrotyping.	5	81	5	4	4	2	66	Ap 68	Jy 63	68	68	.....	.....	.....	82	
79 Stoves and furnaces, including gas and oil stoves.	5	126	4	7	12	4	99	Oc 110	De 90	90	89	.....	1	.....	82	
80 Surgical appliances and artificial limbs.	6	8	4	.....	.....	.....	4	De <sup>2</sup> 5	Au <sup>2</sup> 4	5	3	2	.....	.....	4	
81 Tobacco manufactures.	265	1,861	289	19	32	8	1,513	De 1,557	Ap 1,453	1,579	1,241	317	21	.....	18	
82 Typewriters and supplies.	8	3,510	.....	46	391	139	2,934	Mh 3,118	Au 2,446	3,097	2,574	444	66	13	2,034	
83 Wall plaster.	3	37	4	4	3	2	24	De 27	Fe <sup>2</sup> 22	27	27	.....	.....	.....	235	
84 Wirework, including wire rope and cable.	28	1,557	20	36	52	29	1,420	De 1,580	My 1,307	1,551	969	542	39	31	1,517	
85 Woolen, worsted, and felt goods, and wool hats.	56	8,140	31	196	96	28	7,789	De 8,071	Ja 7,110	8,179	5,434	2,361	178	206	17,518	
86 All other industries <sup>3</sup> .	574	25,752	497	630	1,172	442	23,005	.....	.....	.....	.....	.....	.....	.....	62,388	

<sup>1</sup> Same number reported for entire year.  
<sup>2</sup> Same number reported for one or more other months.  
<sup>3</sup> All other industries embrace—

Artificial flowers and feathers and plumes.	1	Charcoal.	1	Flags, banners, regatta, society badges and emblems.	2
Artists' materials.	1	Chemicals.	3	Flavoring extracts.	8
Awnings, tents, and sails.	10	Chocolate and cocoa products.	1	Food preparations.	13
Babbitt metal and solder.	3	Coffee and spice, roasting and grinding.	9	Foundry supplies.	2
Bags, other than paper.	1	Cordials and syrups.	1	Galvanizing.	1
Bags, paper.	1	Crucibles.	2	Glass, cutting, staining, and ornamenting.	15
Belted and hose, leather.	4	Dairymen's, poulticers', and apiarists' supplies.	1	Gloves and mittens, leather.	2
Belted and hose, woven and rubber.	1	Dentists' materials.	3	Glucose and starch.	3
Bicycles, motorcycles, and parts.	4	Dyestuffs and extracts.	1	Glue.	2
Billiard tables and materials.	1	Emery and other abrasive wheels.	2	Gold and silver, leaf and foil.	2
Boots and shoes, rubber.	5	Enameling and japanning.	1	Gold and silver, reducing and refining, not from the ore.	3
Boxes, cigar.	4	Engravers' materials.	1	Grease and tallow.	8
Brick and tile.	36	Engraving and diesinking.	3	Hair work.	2
Card cutting and designing.	1	Engraving, wood.	6	Hats, straw.	3
Carpets and rugs, other than rag.	3	Explosives.	1	Hones and whetstones.	1
Carriages and sleds, children's.	1	Flies.	1	Horseshoes, not made in steel works or rolling mills.	2
Cash registers and calculating machines.	2	Fire extinguishers, chemical.	1		
Cement.	1	Fireworks.	2		

MANUFACTURES—CONNECTICUT.

33

THE STATE, BY INDUSTRIES: 1909—Continued.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.	
	Total.	Services.			Materials.		Miscellaneous.						
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.			
61	\$90,293	\$152,672	\$11,401	\$200	\$96,882	\$3,637	\$27,692	\$6,681	\$411	\$230	\$5,538	\$192,515	\$161,186
62	5,100	4,976			1,092	122	3,194	96	31		441	10,850	7,534
63	5,626,585	4,984,149	201,612	110,483	1,251,393	56,768	2,064,983	16,546	22,189	7,731	352,444	5,538,018	2,516,267
64	3,208,740	3,674,067	110,792	109,260	1,311,227	38,406	1,658,591	110,192	15,991		319,608	4,236,036	2,539,039
65	1,109,131	1,404,872	69,322	101,821	146,891	23,468	801,995	2,364	3,605	2,063	253,343	1,543,010	717,547
66	7,194,953	5,085,020	208,589	82,111	923,600	407,218	2,806,198	2,412	31,003	9,314	464,575	5,527,334	2,223,918
67	2,101,082	1,397,152	37,095	34,879	255,476	12,277	870,245	4,452	10,305		172,423	1,521,158	638,636
68	898,166	1,166,977	138,014	79,044	87,755	8,078	479,919	10,665	3,148	983	359,371	1,341,567	853,570
69	85,694	108,837	23,751	6,381	38,541	1,976	24,442	3,184	376	3,411	6,775	123,790	97,372
70	6,322,398	5,207,118	415,042	439,701	1,736,499	89,985	1,679,232	110,508	29,168	195,105	502,878	6,370,450	4,601,233
71	8,723,880	10,000,816	118,625	225,685	1,115,725	116,130	7,010,351	10,708	16,276	2,777	1,384,539	11,004,556	3,878,075
72	3,182,483	2,377,062	91,228	118,326	1,505,186	51,224	487,364	16,115	18,840		88,779	2,119,768	1,581,180
73	1,467,617	669,723	22,576	11,799	253,664	12,856	302,351	2,791	2,600	1,012	60,074	742,254	427,047
74	450,459	267,170	5,760	5,970	45,305	9,049	188,151	150	1,781		11,004	324,251	127,051
75	10,730,268	18,022,348	404,230	591,920	3,749,186	214,763	11,619,582	47,287	84,964	369,832	940,584	21,062,687	9,228,342
76	17,247,495	13,339,995	353,467	613,386	3,445,571	127,263	7,164,738	15,911	61,640	5,375	1,612,654	15,836,608	8,604,607
77	1,966,531	4,341,420	18,920	43,453	239,172	29,948	3,918,985	6,000	9,960		74,982	4,572,225	623,292
78	136,318	87,683	6,320	3,594	39,953	2,449	24,217	3,022	857		7,271	112,529	85,863
79	188,537	183,230	8,101	11,278	69,984	2,563	65,297	1,980	1,585	7,178	24,264	219,962	152,102
80	11,793	7,517			2,584	95	2,684	549	53	358	1,194	16,674	13,895
81	1,370,270	2,348,175	20,576	36,165	907,718	7,677	1,055,963	38,588	203,839	1,125	76,524	2,738,330	1,674,690
82	8,468,310	3,940,161	160,859	325,513	1,898,184	41,720	999,427	2,282	25,310	10	486,865	4,016,028	2,074,881
83	114,849	65,790	6,500	1,462	12,016	2,598	38,526	4	480		4,204	81,708	40,584
84	2,486,530	2,828,683	130,351	66,597	684,249	26,973	1,621,405	18,749	9,723	27,550	243,686	3,345,118	1,699,740
85	20,011,122	17,514,379	417,619	145,959	3,485,157	329,872	12,508,270	42,873	68,044	5,782	510,803	19,363,228	6,525,086
86	69,667,043	58,080,537	1,552,088	1,451,670	11,822,689	1,571,362	37,232,740	134,578	261,002	67,088	3,987,320	64,933,965	26,129,863

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

House-furnishing goods, not elsewhere specified	6	Oakum	1	Soap	9
Ink, printing	1	Oil, essential	11	Sporting and athletic goods	3
Ink, writing	1	Optical goods	4	Springs, steel, car and carriage	3
Instruments, professional and scientific	2	Paving materials	1	Stationery goods, not elsewhere specified	3
Iron and steel, blast furnaces	2	Pens, fountain, stylographic, and gold	1	Statuary and art goods	5
Iron and steel, steel works and rolling mills	5	Pens, steel	1	Steam packing	3
Iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills	13	Photographs and graphophones	3	Sulphuric, nitric, and mixed acids	3
Iron and steel forgings	13	Photographic apparatus and materials	2	Toys and games	13
Iron and steel, nails and spikes, cut and wrought, including wire nails, not made in steel works or rolling mills	3	Pottery, terra-cotta, and fire-clay products	5	Typo founding and printing materials	3
Labels and tags	1	Pumps, not including steam pumps	1	Umbrellas and canes	2
Lapidary work	1	Roofing materials	1	Upholstering materials	3
Looking-glass and picture frames	7	Rules, ivory and wood	1	Vinegar and cider	72
Mineral and soda waters	96	Saws	4	Wall paper	1
Mirrors	1	Scales and balances	1	Window shades and fixtures	3
Moving pictures	1	Seraws, machine	7	Wire	3
Muchage and paste	3	Seraws, wood	3	Wood, turned and carved	43
		Show cases	1	Wool scouring	1
		Signs and advertising novelties	2		
		Smelting and refining, not from the ore	4		