

# PENNSYLVANIA.

## INDUSTRIES IN GENERAL.

**General character of the state.**—Pennsylvania, with a gross area of 45,126 square miles, of which 294 represent water surface, ranks thirty-second in size among the states of the Union. Its population in 1910 was 7,665,111, as compared with 6,302,115 in 1900 and 5,258,113 in 1890. In 1910 the density of population for the state was 171 per square mile, the corresponding figure for 1900 being 140.6. It ranked second among the states as regards population in each of the census years named and at all prior censuses since the first in 1790, except two, those of 1810 and 1820, when it was third. Sixty and four-tenths per cent of the entire population of the state in 1910 resided in incorporated places having a population of 2,500 or over, as against 54.7 per cent in 1900.

In 1910, 10 cities in the state had a population of over 50,000, as follows: Philadelphia, 1,549,008, ranking third among the cities of the country; Pittsburgh, 533,905, ranking eighth; Scranton, 129,867; Reading, 96,071; Wilkes-Barre, 67,105; Erie, 66,525; Harrisburg, 64,186; Johnstown, 55,482; Altoona, 52,127; and Allentown, 51,913. There were also 53 cities and boroughs having a population of over 10,000 but less than 50,000. (See table on p. 1051.) These 63 cities and boroughs contained 47.7 per cent of the total population of the state and were credited in 1909 with 63.3 per cent of the total value of its manufactures. Apart from these places, only 12.7 per cent of the population resided in places of 2,500 inhabitants or over.

The transportation facilities of the state, both by rail and by water, are excellent. The state is traversed by numerous lines of railway, some of which are the main lines of the most important systems in the United States. The total trackage within its borders in 1909 was 11,206 miles,<sup>1</sup> an amount which was exceeded by only two states, Texas and Illinois. Philadelphia is one of the most important ports of the country, Erie has one of the best harbors on the Great Lakes, and Pittsburgh has the advantages of river transportation via the Monongahela, Allegheny, and Ohio to the Mississippi River.

The natural resources of the state, which are varied and of great importance, have had a marked influence in the establishment and growth of many industries in the state. Some of the materials used in manu-

facture, such as petroleum, natural gas, bituminous coal, anthracite coal, iron ore, limestone, clay, glass sand, timber, and tobacco, are produced in large quantities. The accessibility and supply of these raw materials determine, in a large measure, the location of many manufacturing establishments, especially in the iron, coke, lumber, wood pulp, and glass industries.

**Importance and growth of manufactures.**—From the colonial period until the present time Pennsylvania has been among the leading states in manufactures, holding third place as measured by gross value of manufactured products in 1849, when the first authoritative census of manufactures was taken, but advancing to second place in 1859, a position which it has since retained. During the census year 1849 an average of 146,766 wage earners, representing 6.3 per cent of the total population, were employed in manufactures, while in 1909 an average of 877,543, or 11.4 per cent of the total population, were so engaged. During this period the gross value of products per capita of the total population of the state increased from \$67 to \$343. With the rapid development of manufactures in other sections, however, Pennsylvania's proportion of the total value of manufactures in the country declined from 15.2 per cent in 1849 to 12.7 per cent in 1909.

The first table on page 1040 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 Pennsylvania had 27,563 manufacturing establishments, which gave employment to an average of 1,002,171 persons during the year and paid out \$566,524,000 in salaries and wages. Of the persons employed, 877,543 were wage earners. These establishments turned out products to the value of \$2,626,742,000, to produce which materials costing \$1,582,560,000 were utilized. The value added by manufacture was thus \$1,044,182,000, 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 Pennsylvania, 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 five years

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

from 1904 to 1909 the number of establishments increased 17.3 per cent and the average number of wage earners 15 per cent, while the value of products increased 34.3 per cent and the value added by manufacture 28.5 per cent. As pointed out in the Introduc-

tion, 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 which has taken place in the prices of commodities.

	NUMBER OR AMOUNT.			PER CENT OF INCREASE.	
	1909	1904	1899	1904-1909	1899-1904
	Number of establishments.....	27, 563	23, 495	23, 462	17. 3
Persons engaged in manufactures.....	1, 002, 171	855, 392	(1)	17. 2	.....
Proprietors and firm members.....	29, 743	26, 029	(1)	14. 3	.....
Salaried employees.....	94, 885	66, 081	43, 935	43. 6	50. 4
Wage earners (average number).....	877, 543	763, 282	663, 960	15. 0	15. 0
Primary horsepower.....	2, 921, 547	2, 302, 398	1, 716, 694	26. 9	34. 1
Capital.....	\$2, 749, 006, 000	\$1, 995, 837, 000	\$1, 449, 815, 000	37. 7	37. 7
Expenses.....	2, 355, 385, 000	1, 751, 440, 000	1, 412, 796, 000	34. 5	24. 0
Services.....	566, 524, 000	441, 230, 000	343, 021, 000	28. 4	28. 6
Salaries.....	110, 897, 000	73, 269, 000	46, 145, 000	51. 4	58. 8
Wages.....	455, 627, 000	367, 961, 000	296, 876, 000	23. 8	23. 9
Materials.....	1, 582, 560, 000	1, 142, 943, 000	958, 301, 000	38. 5	19. 3
Miscellaneous.....	206, 301, 000	167, 267, 000	111, 474, 000	23. 3	50. 1
Value of products.....	2, 626, 742, 000	1, 955, 551, 000	1, 649, 882, 000	34. 3	18. 5
Value added by manufacture (value of products less cost of materials).....	1, 044, 182, 000	812, 608, 000	691, 581, 000	28. 5	17. 5

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

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

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

This table specifies 94 industries or industry groups which had in 1909 a product in excess of \$700,000 in value. Of the industries listed in the table

there are 3 whose product exceeds \$100,000,000 in value; 10, with a product between \$50,000,000 and \$100,000,000 in value; 11, with a product between \$25,000,000 and \$50,000,000 in value; and 19, with a product between \$10,000,000 and \$25,000,000 in value, making an aggregate of 43 industries which had a value of products in excess of \$10,000,000 each. Mention is also made of 14 other industries, with a product between \$5,000,000 and \$10,000,000 in value; 36, with a product of \$1,000,000 to \$5,000,000 in value; and 1, with a product less than \$1,000,000 in value.

INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		PER CENT OF INCREASE.			
		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>27, 563</b>	<b>877, 543</b>	<b>100. 0</b>	<b>\$2, 626, 742, 000</b>	<b>100. 0</b>	<b>\$1, 044, 182, 000</b>	<b>100. 0</b>	<b>34. 3</b>	<b>18. 5</b>	<b>28. 5</b>	<b>17. 5</b>
Iron and steel, steel works and rolling mills.....	189	126, 911	14. 5	500, 344, 000	19. 0	171, 331, 000	16. 4	37. 5	9. 3	36. 1	10. 6
Foundry and machine-shop products.....	1, 695	86, 821	9. 9	210, 746, 000	8. 0	109, 735, 000	10. 5	37. 4	.....	30. 1	.....
Iron and steel, blast furnaces.....	66	14, 521	1. 7	168, 578, 000	6. 4	26, 504, 000	2. 5	56. 9	5. 8	25. 4	-48. 6
Leather, tanned, curried, and finished.....	163	14, 008	1. 6	77, 926, 000	3. 0	18, 813, 000	1. 8	12. 2	24. 8	34. 2	6. 1
Woolen, worsted, and felt goods, and wool hats.....	217	27, 409	3. 1	77, 447, 000	2. 9	22, 813, 000	2. 2	38. 5	14. 7	22. 1	7. 4
Cars and general shop construction and repairs by steam-railroad companies.....	132	46, 645	5. 3	76, 035, 000	2. 9	34, 634, 000	3. 3	24. 6	41. 7	20. 8	43. 9
Printing and publishing.....	2, 461	24, 690	2. 8	70, 584, 000	2. 7	47, 831, 000	4. 6	28. 2	36. 4	22. 7	33. 7
Silk and silk goods, including throwsters.....	226	36, 489	4. 2	62, 061, 000	2. 4	26, 895, 000	2. 6	57. 8	26. 6	78. 5	24. 7
Lumber and timber products.....	2, 667	26, 873	3. 1	57, 454, 000	2. 2	30, 140, 000	2. 9	1. 3	5. 2	-7. 1	12. 1
Petroleum, refining.....	41	2, 900	0. 3	53, 088, 000	2. 0	5, 648, 000	0. 5	11. 9	35. 7	33. 8	14. 4
Slaughtering and meat packing.....	180	3, 050	0. 3	51, 851, 000	2. 0	7, 006, 000	0. 7	56. 6	29. 6	47. 2	27. 6
Coke.....	146	15, 331	1. 7	51, 816, 000	2. 0	18, 054, 000	1. 7	79. 1	29. 8	29. 5	31. 5
Tobacco manufactures.....	2, 432	33, 188	3. 8	50, 161, 000	1. 9	29, 448, 000	2. 8	22. 7	24. 9	18. 0	20. 4
Hosiery and knit goods.....	464	38, 206	4. 4	49, 658, 000	1. 9	22, 440, 000	2. 1	61. 2	40. 5	51. 9	34. 4
Liquors, malt.....	237	7, 234	0. 8	47, 713, 000	1. 8	35, 103, 000	3. 4	36. 9	19. 5	37. 2	13. 5
Bread and other bakery products.....	3, 185	12, 221	1. 4	45, 850, 000	1. 7	18, 520, 000	1. 8	37. 4	60. 6	31. 6	44. 6
Flour-mill and gristmill products.....	1, 450	2, 432	0. 3	44, 788, 000	1. 7	6, 613, 000	0. 6	16. 3	30. 3	24. 4	12. 9
Clothing, men's, including shirts.....	696	23, 623	2. 7	39, 062, 000	1. 5	19, 819, 000	1. 9	25. 1	5. 5	31. 3	3. 1
Cotton goods, including cotton small wares.....	175	16, 293	1. 9	33, 917, 000	1. 3	15, 180, 000	1. 4	29. 0	3. 3	26. 6	2. 4
Clothing, women's.....	401	15, 701	1. 8	32, 837, 000	1. 3	14, 081, 000	1. 4	117. 7	29. 0	104. 4	32. 4
Glass.....	112	23, 710	2. 7	32, 818, 000	1. 2	20, 184, 000	1. 9	18. 6	25. 7	10. 0	17. 8
Electrical machinery, apparatus, and supplies.....	84	11, 025	1. 3	31, 351, 000	1. 2	17, 816, 000	1. 7	19. 4	37. 4	19. 6	32. 4
Cars, steam-railroad, not including operations of railroad companies.....	13	7, 766	0. 9	27, 510, 000	1. 0	8, 508, 000	0. 8	41. 6	0. 9	51. 7	-20. 7
Tin plate and terneplate.....	17	2, 346	0. 3	25, 234, 000	1. 0	2, 336, 000	0. 2	30. 5	54. 4	33. 3	-19. 2
Carpets and rugs, other than rag.....	93	11, 510	1. 3	24, 879, 000	0. 9	10, 231, 000	1. 0	-8. 3	17. 3	-1. 8	11. 5

<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.

MANUFACTURES—PENNSYLVANIA.

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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
Boots and shoes, including out stock and findings.....	140	10,822	1.2	20,219,000	0.8	8,155,000	0.8	35.8	7.6	36.4	16.1
Paper and wood pulp.....	62	6,656	0.8	19,873,000	0.8	8,475,000	0.8	29.0	25.6	22.8	17.1
Furniture and refrigerators.....	304	9,924	1.1	18,952,000	0.7	9,913,000	0.9	48.3	26.9	35.1	32.3
Cement.....	27	8,080	0.9	18,855,000	0.7	8,747,000	0.8	84.2	.....	48.9	.....
Iron and steel pipe, wrought.....	11	3,873	0.4	18,291,000	0.7	4,209,000	0.4	90.1	-37.5	74.3	-35.5
Copper, tin, and sheet-iron products.....	339	6,815	0.8	17,197,000	0.7	8,346,000	0.8	77.5	35.6	76.2	35.3
Chemicals.....	37	3,185	0.4	15,978,000	0.6	5,778,000	0.6	35.7	.....	28.1	.....
Gas, illuminating and heating.....	99	3,119	0.4	15,840,000	0.6	11,741,000	1.1	46.5	37.3	53.2	62.4
Liquors, distilled.....	88	724	0.1	14,367,000	0.5	11,255,000	1.1	193.1	-8.5	330.6	-31.0
Paint and varnish.....	114	1,992	0.2	14,020,000	0.5	4,819,000	0.5	20.5	3.0	34.9	-24.1
Butter, cheese, and condensed milk.....	530	1,177	0.1	13,544,000	0.5	1,870,000	0.2	17.0	12.5	-2.9	22.0
Confectionery.....	251	5,408	0.6	13,542,000	0.5	5,399,000	0.5	34.4	34.6	27.4	31.5
Pottery, terra-cotta, and fire-clay products.....	139	9,003	1.0	13,072,000	0.5	8,903,000	0.9	21.5	32.4	14.2	38.3
Hats, fur-felt.....	38	7,220	0.8	13,023,000	0.5	8,010,000	0.8	77.2	73.2	73.3	94.5
Carriages and wagons and materials.....	665	7,498	0.9	12,745,000	0.5	7,041,000	0.7	10.9	9.9	6.8	6.2
Patent medicines and compounds and druggists' preparations.....	367	2,761	0.3	12,650,000	0.5	7,346,000	0.7	33.8	5.8	36.7	3.9
Dyeing and finishing textiles.....	135	6,086	0.7	12,059,000	0.5	6,728,000	0.6	77.7	-3.6	64.7	5.7
Marble and stone work.....	596	9,264	1.1	11,570,000	0.4	7,850,000	0.7	72.4	24.9	67.8	45.3
Canning and preserving.....	83	2,753	0.3	9,484,000	0.4	4,819,000	0.5	17.6	33.5	19.5	29.6
Brick and tile.....	326	8,058	0.9	9,225,000	0.4	6,772,000	0.6	26.7	22.3	19.2	18.0
Soap.....	59	1,197	0.1	9,124,000	0.3	3,177,000	0.3	31.1	92.6	0.4	91.1
Brass and bronze products.....	104	2,080	0.2	8,455,000	0.3	2,850,000	0.3	.....	.....	.....	.....
Cutlery and tools, not elsewhere specified.....	129	4,250	0.5	8,022,000	0.3	4,591,000	0.4	37.9	55.5	23.2	67.9
Stoves and furnaces, including gas and oil stoves.....	74	4,193	0.5	7,409,000	0.3	4,937,000	0.5	-3.7	.....	-8.5	.....
Millinery and lace goods.....	105	4,235	0.5	6,770,000	0.3	3,016,000	0.3	145.4	76.4	136.4	65.3
Fertilizers.....	48	1,224	0.1	6,543,000	0.3	1,930,000	0.2	59.8	12.4	60.3	13.6
Automobiles, including bodies and parts.....	44	3,199	0.4	6,532,000	0.3	2,481,000	0.2	432.8	1,138.4	297.0	819.1
Explosives.....	27	1,033	0.1	6,388,000	0.2	2,300,000	0.2	59.2	54.6	53.6	36.7
Shipbuilding, including boat building.....	31	3,558	0.4	6,178,000	0.2	3,408,000	0.3	-40.2	-28.7	-32.6	-29.7
Leather goods.....	166	2,524	0.3	5,824,000	0.2	2,671,000	0.3	13.0	28.9	0.4	18.4
Boxes, fancy and paper.....	118	4,604	0.5	5,184,000	0.2	2,894,000	0.3	32.7	30.8	29.8	29.2
Umbrellas and canes.....	45	2,315	0.3	5,090,000	0.2	1,912,000	0.2	-1.4	-12.6	5.4	-25.2
Steam packing.....	31	1,077	0.2	4,987,000	0.2	2,006,000	0.2	22.9	119.0	-15.7	132.0
Ice, manufactured.....	170	1,606	0.2	4,825,000	0.2	3,598,000	0.3	64.3	44.0	61.7	35.1
Chocolate and cocoa products.....	6	863	0.1	4,811,000	0.2	1,856,000	0.2	125.4	105.4	149.5	340.2
Cordage and twine and jute and linen goods.....	18	2,119	0.2	4,805,000	0.2	1,804,000	0.2	-6.5	-29.2	21.1	-17.6
Agricultural implements.....	36	2,401	0.3	4,805,000	0.2	2,723,000	0.3	-4.2	59.9	-7.4	49.6
Copperage and wooden goods, not elsewhere specified.....	133	1,630	0.2	4,630,000	0.2	1,641,000	0.2	16.5	23.7	5.6	31.4
Saws.....	15	1,876	0.2	3,794,000	0.1	2,358,000	0.2	14.2	32.9	22.1	30.1
Paper goods, not elsewhere specified.....	34	1,357	0.2	3,719,000	0.1	1,494,000	0.1	.....	.....	.....	.....
Wall paper.....	11	1,056	0.1	3,695,000	0.1	1,380,000	0.1	22.2	4.5	11.2	19.1
Smelting and refining, not from the ore.....	24	206	( <sup>2</sup> )	3,577,000	0.1	599,000	0.1	29.8	9.3	26.1	4.2
Lime.....	348	3,258	0.4	3,342,000	0.1	2,304,000	0.2	32.9	.....	31.6	.....
Cork, cutting.....	10	1,727	0.2	2,965,000	0.1	1,296,000	0.1	-6.8	45.2	-5.7	28.7
Gas and electric fixtures and lamps and reflectors.....	75	1,482	0.2	2,962,000	0.1	1,723,000	0.2	16.5	1.2	0.9	17.2
Wood distillation, not including turpentine and rosin.....	50	933	0.1	2,960,000	0.1	1,276,000	0.1	.....	.....	-7.8	.....
Clocks and watches, including cases and materials.....	8	1,395	0.2	2,873,000	0.1	1,701,000	0.2	.....	.....	.....	.....
Coffins, burial cases, and undertakers' goods.....	36	1,103	0.1	2,757,000	0.1	1,182,000	0.1	38.6	63.8	20.1	36.4
Cars and general shop construction and repairs by street-railroad companies.....	65	2,442	0.3	2,747,000	0.1	1,653,000	0.2	118.2	1.1	113.0	19.6
Dentists' materials.....	23	1,072	0.1	2,745,000	0.1	1,420,000	0.1	17.5	27.8	53.2	9.3
Musical instruments, pianos and organs and materials.....	30	1,182	0.1	2,382,000	0.1	1,134,000	0.1	35.6	18.1	2.1	27.0
Boxes, cigar.....	77	1,801	0.2	2,328,000	0.1	1,076,000	0.1	23.9	21.0	25.7	33.1
Brooms and brushes.....	139	860	0.1	2,304,000	0.1	1,049,000	0.1	34.9	-3.4	17.2	8.1
Mattresses and spring beds.....	83	745	0.1	2,223,000	0.1	890,000	0.1	11.0	6.7	-0.2	21.9
Shoddy.....	20	450	( <sup>2</sup> )	2,061,000	0.1	588,000	0.1	-6.9	52.1	19.8	29.6
Buttons.....	24	1,123	0.1	1,565,000	0.1	819,000	0.1	73.9	-9.9	51.7	-9.4
Filcs.....	7	1,217	0.1	1,540,000	0.1	1,113,000	0.1	36.6	-8.8	52.0	-5.9
Fancy articles, not elsewhere specified.....	52	828	0.1	1,385,000	0.1	793,000	0.1	54.9	0.9	50.2	11.9
Belting and hose, leather.....	17	156	( <sup>2</sup> )	1,379,000	0.1	368,000	( <sup>2</sup> )	59.4	29.9	13.6	65.3
Safes and vaults.....	7	695	0.1	1,338,000	0.1	695,000	0.1	0.4	36.4	13.3	63.3
Artificial flowers and feathers and plumes.....	30	805	0.1	1,310,000	0.1	644,000	0.1	.....	.....	.....	.....
Jewelry.....	75	456	( <sup>2</sup> )	1,275,000	0.1	678,000	0.1	22.6	50.1	21.7	26.6
Fur goods.....	58	227	( <sup>2</sup> )	1,217,000	( <sup>2</sup> )	673,000	0.1	69.5	-8.5	95.1	-17.3
Photo-engraving.....	81	489	0.1	1,132,000	( <sup>2</sup> )	901,000	0.1	41.1	111.6	33.7	110.6
Hats and caps, other than felt, straw, and wool.....	53	744	0.1	1,097,000	( <sup>2</sup> )	554,000	0.1	3.2	.....	3.2	.....
Optical goods.....	24	579	0.1	1,063,000	( <sup>2</sup> )	602,000	0.1	125.7	-8.0	90.5	-0.3
Ink, printing.....	8	165	( <sup>2</sup> )	1,050,000	( <sup>2</sup> )	427,000	( <sup>2</sup> )	53.5	67.6	52.0	37.7
Typewriters and supplies.....	8	555	0.1	1,017,000	( <sup>2</sup> )	828,000	0.1	403.5	-54.4	483.1	-61.4
Crucibles.....	5	106	( <sup>2</sup> )	728,000	( <sup>2</sup> )	298,000	( <sup>2</sup> )	-7.1	-31.6	19.2	2.0
All other industries.....	2,893	56,433	6.4	211,025,000	8.0	75,276,000	7.2	.....	.....	.....	.....

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

In addition to the industries presented separately in the above table, there were 42 other industries in the state which reported products in 1909 to the value of \$1,000,000 or over, distributed as follows: 35, with products valued at \$1,000,000 but less than \$5,000,000; 4, with products valued at \$5,000,000 but less than

\$10,000,000; 2, with products valued at \$10,000,000 but less than \$25,000,000; and 1, with products valued at \$25,000,000 and over. These industries are included under the head of "All other industries" in the table in some instances, because the operations of individual establishments would be disclosed if they

were shown separately; in others, because the returns do not present properly the true condition of the industry, for the reason that it is more or less interwoven with one or more other industries of similar character; and in still others, because comparative statistics can not be presented for either 1904 or 1899, on account of changes in classification or because such figures would disclose the operations of individual establishments.<sup>1</sup> The 1909 statistics, however, for 9 of these industries, namely, the manufacture of babbitt metal and solder; belting and hose, woven and rubber; dairymen's, poulterers', and apiarists' supplies; men's furnishing goods; haircloth; models and patterns, not including paper patterns; rubber goods, "not elsewhere specified;" sand and emery paper and cloth; and signs and advertising novelties are presented separately in Table II, page 1096.

While a few industries predominate in the state, there are, as already noted, a very large number which are of considerable importance. Furthermore, it will be seen from Table II, that there is a wide diversity in the manufacturing activities of the state, since 245 of the 264 classifications used in compiling the 1909 statistics for manufactures in the United States were represented in Pennsylvania. The leading products of the state are from steel works and rolling mills, textile mills, foundries and machine shops, blast furnaces, and tanneries, which, with other important industries, call for special consideration.

*Iron and steel.*—Steel works and rolling mills, and blast furnaces ranked, respectively, first and third among the industries of the state. For convenience these two industries, together with the manufacture of tin plate and terneplate, may be considered as one group. The three allied industries gave employment in 1909 to an average of 143,778 wage earners, and turned out products valued at \$694,156,000, or 16.4 per cent and 26.4 per cent of the respective totals for all manufactures. These figures also represent an increase in number of wage earners over 1904 of 16,586, or 13 per cent, and in the value of products of \$203,585,000, or 41.5 per cent.

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

Babbitt metal and solder.	Mineral and soda waters.
Bags, other than paper.	Models and patterns, not including paper patterns.
Belting and hose, woven and rubber.	Oil, linseed.
Boots and shoes, rubber.	Oil, not elsewhere specified.
Cars, street-railroad, not including operations of railroad companies.	Oilcloth and linoleum.
Coffee and spice, roasting and grinding.	Roofing materials.
Dairymen's, poulterers', and apiarists' supplies.	Rubber goods, not elsewhere specified.
Dyestuffs and extracts.	Sand and emery paper and cloth.
Food preparations.	Signs and advertising novelties.
Furnishing goods, men's.	Smelting and refining, lead.
Glass, cutting, staining, and ornamenting.	Smelting and refining, zinc.
Glue.	Sporting and athletic goods.
Grease and tallow.	Springs, steel, car and carriage.
Haircloth.	Stationery goods, not elsewhere specified.
House-furnishing goods, not elsewhere specified.	Sugar, refining, not including beet sugar.
Instruments, professional and scientific.	Surgical appliances and artificial limbs.
Iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills.	Upholstering materials.
Iron and steel forgings.	Washing machines and clothes wringers.
Locomotives, not made by railroad companies.	Waste.
	Window shades and fixtures.
	Wire.
	Wirework, including wire rope and cable.
	Wood, turned and carved.

The classification "Steel works and rolling mills," includes establishments engaged in the manufacture of steel and the hot rolling of iron and steel. It also includes the making of forgings and castings and the manufacture of rolled iron and steel into more highly finished forms, when conducted as a part of the rolling-mill operations. The blast furnaces include the establishments engaged in the manufacture of pig iron from the ore. The plating of sheet metal with tin or with terne (a mixture of lead and tin) is treated as a separate industry, notwithstanding the fact that nearly all of the establishments so engaged roll all or a portion of the plates dipped. The tin-plate and terneplate departments of the steel works and rolling mills, however, have been treated as separate establishments. Measured by value of products, Pennsylvania not only led all other states in the Union in the combined industries but also in each of the three branches, contributing \$500,344,000, or 50.8 per cent, of the total value of products reported in 1909 for all steel works and rolling mills in the United States; \$168,578,000, or 43.1 per cent, of the total value of products for all blast furnaces; and \$25,234,000, or 52.6 per cent, of the total value of products for all tin-plate and terneplate mills. Each of the three industries shows substantial gains in the value of products from 1904 to 1909, the largest percentage of increase, 56.9 per cent, being shown for blast furnaces.

*Textiles.*—Several of the industries listed separately in the table belong to the textile group and may be considered together. They are the manufacture of woolen, worsted, and felt goods, and wool hats; silk and silk goods, including throwsters; hosiery and knit goods; cotton goods, including cotton small wares; carpets and rugs, other than rag; fur-felt hats; cordage and twine and jute and linen goods; and shoddy. The eight allied industries gave employment in 1909 to an average of 139,676 wage earners, and turned out products valued at \$267,841,000. These figures represent an increase over 1904 of 24,149, or 20.9 per cent, in number of wage earners and \$73,649,000, or 37.9 per cent, in value of products. It is noteworthy that although in the iron and steel group of industries, considered in the preceding paragraph, the value of the product is more than double that for the textile group, the former employs only 4,102 more wage earners than the latter group. Of the totals reported for all manufacturing industries in the state in 1909, the textile industries employed 15.9 per cent of the wage earners and contributed 10.2 per cent of the value of products. The corresponding proportions for 1904 were 15.1 per cent and 9.9 per cent, respectively. Pennsylvania is not only the second state in the Union in the production of all textiles combined, but is second in four of the important branches—woolen, worsted, and felt goods, and wool hats; silk

and silk goods, including throwsters; hosiery and knit goods; and carpets and rugs, other than rag. It ranks sixth in the production of cotton goods, including cotton small wares; fifth in that of cordage and twine and jute and linen goods; and first in that of fur-felt hats and of shoddy. With the exception of a slight decrease in carpets and rugs, in cordage and twine, and in shoddy, each of these eight textile industries show decided development during the five-year period 1904-1909, the percentages of increase in the value of products being especially high in the manufacture of fur-felt hats and of hosiery and knit goods.

*Foundry and machine-shop products.*—This classification covers in Pennsylvania products of great diversity, embracing not only the output of general foundries and machine shops, but also that of establishments engaged in the manufacture of bells, gas and water meters, hardware, plumbers' supplies, steam fittings and heating apparatus, structural ironwork, and cast-iron and cast-steel pipe. The foundry and machine-shop industry in its broadest sense is of greater importance than is indicated by the statistics reported under this specific title, for the reason that some machine shops manufacture special products, such as locomotives, electrical machinery, adding machines, cash registers, and sewing machines, which are assigned to other classifications. A number of the most important establishments included under this head were engaged in the manufacture of air brakes and friction draft gear, interlocking and signaling appliances, frogs, switches, crossings, and other specialties for steam and street railroads, structural steel, enameled iron plumbing supplies, apparatus for handling coal and for rolling steel, and other power machinery. Foundries and machine shops gave employment to an average of 86,821 wage earners in 1909, which was 9.9 per cent of the total reported for all manufactures in the state. The total value of their products, \$210,746,000, in 1909, was \$57,353,000, or 37.4 per cent, more than that reported in 1904. In this class of products Pennsylvania led all other states of the Union at each of the last three censuses.

*Leather, tanned, curried, and finished.*—The statistics of leather include not only establishments which were engaged primarily in the manufacture of leather, but also those which treated hides or skins for others. Neither the cost of materials nor the value of products stated, however, include the value of the hides or skins treated under contract. In 1849 Pennsylvania was the second state of the Union in this industry with respect to value of products, reporting 1,134 establishments, which employed 4,146 wage earners and turned out products valued at \$7,575,000. The state ranked first in 1909, in which year, although the establishments engaged in the industry numbered only 163, there were 14,008 wage earners employed, while the

value of products was \$77,926,000, the wage earners being over three times as numerous, and the value of the product over ten times as great as in 1849.

*Cars and general shop construction and repairs by steam-railroad companies.*—The statistics for this industry represent the work done in car shops by steam-railroad companies and exclude minor repairs in roundhouses. The operations consist almost exclusively of repairs to rolling stock and equipment. The number of establishments decreased from 144 in 1899 to 132 in 1909, chiefly through the elimination of a number of roundhouses which were included in the prior census, but the value of the work performed increased from \$43,065,000 to \$76,035,000. Employment was given to 46,645 wage earners in 1909, which was the third largest number reported by any of the industries specified in the table. This number represents an increase over that reported in 1899 of 18,091, or 63.4 per cent.

*Clothing.*—The manufacture of men's clothing ranks eighteenth among the industries specified in the table and that of women's clothing twentieth. The two industries considered together had a combined output for 1909 valued at \$72,519,000. The increase in the value of products from 1904 to 1909 was \$25,719,000, or 55 per cent, and that from 1899 to 1904 was \$5,050,000, or 12.1 per cent. In 1849 Pennsylvania was the third state in the Union in the manufacture of clothing, with products valued at \$6,988,000. This figure included the value of the output for custom tailoring and repairing establishments. At the census of 1889, when the first attempt was made to segregate the statistics in order to show separately those for establishments manufacturing clothing under the factory system, Pennsylvania, with an output valued at \$34,020,000, was the third state in the combined industries, and has retained this position at each subsequent census. The proportions which this state contributed of the total value of products for the industries in the United States were small because New York, the first state, manufactured a product so large as to dwarf by comparison all others in the industry. The proportion which Pennsylvania furnished dropped from 9.6 per cent in 1889 to 7.6 per cent in 1909. The value of men's clothing has represented the major part of the total value shown for the combined industries at each census. This branch decreased in value of products from \$30,116,000 in 1889 to \$30,055,000 in 1899, but increased to \$39,682,000 in 1909. In the manufacture of women's clothing, the total value increased from \$3,904,000 in 1889 to \$11,695,000 in 1899 and \$32,837,000 in 1909.

*Printing and publishing.*—Under "Printing and publishing" are included job-printing establishments, the printing and publishing of books, of newspapers and periodicals, and of music, bookbinding, and blank-book making, steel engraving, and lithographing. Pennsylvania was the third state in the industry as a whole,

with combined products valued at \$70,584,000 in 1909, this amount representing 9.6 per cent of the total value of products for the industry in the United States. In value of products the industry shows an increase from 1904 to 1909 of \$15,521,000, or 28.2 per cent, compared with a gain from 1899 to 1904 of \$14,709,000, or 36.4 per cent.

*Lumber and timber products.*—This industry includes the logging plants whose chief products are logs and bolts; the sawmills, shingle mills, and planing mills, which produce rough and dressed lumber, shingles, lath, cooperage stock, sash, doors, blinds, interior finish, and other millwork; and also wooden packing-box factories. In 1909 this industry in the state was represented by 1,924 sawmills and logging plants, 668 independent planing mills, and 75 packing-box factories, which reported, respectively, 50.5, 41.1, and 8.4 per cent of the total value of products for the industry. The corresponding percentages of the total value of lumber and timber products in 1899 contributed by these three branches were 65, 31.1, and 3.9, respectively. Although the industry as a whole shows only a slight increase during the decade, there was a loss in the value of the output of sawmills and logging plants, which was more than offset, however, by the growth in that of the planing mills and box factories. With \$57,454,000 as the total value of products for all branches in 1909, Pennsylvania ranked sixth among the states of the Union in this industry; in 1904, with \$56,713,000, it held the same position; and in 1899, with \$53,886,000, it held the fourth place.

*Petroleum, refining.*—Although the production of crude oil in Pennsylvania decreased gradually from 1891 to 1909, in the refining of petroleum the state retained a high place among the states, being third in 1889, first in 1899 and 1904, and second in 1909. The value of products for the industry in the state was \$53,088,000, which represented 22.4 per cent of the total for the entire industry in 1909, compared with \$47,460,000, or 27.1 per cent, in 1904, and \$34,978,000, or 28.2 per cent, in 1899. This falling off in the proportion from 1904 to 1909 despite the increase in value was due to the remarkable increase during the five-year period in the production of crude oil in Oklahoma and California and the sudden development of the Illinois fields.

*Slaughtering and meat packing.*—This classification includes establishments doing wholesale slaughtering and meat packing and those engaged in the manufacture of sausage only. It does not include the numerous slaughterhouses killing for the retail trade which in the aggregate slaughter a large number of animals. The value of products for this industry in Pennsylvania increased from \$25,537,000 in 1899 to \$33,101,000 in 1904 and \$51,851,000 in 1909, a gain of \$26,314,000, or 103 per cent, for the decade. The

percentage of increase during the five-year period 1904–1909 in value of products was nearly twice as great as during the preceding five-year period, 1899–1904. Of the 180 establishments reported for the industry as a whole in 1909, 80 were engaged in both wholesale slaughtering and wholesale meat packing, 75 were engaged in wholesale slaughtering only, and 25 in the manufacture of sausage only, the value of the products of these three branches representing 75.8 per cent, 22.7 per cent, and 1.4 per cent, respectively, of the total for the combined industry. The industry as a whole is centered largely in Philadelphia, the value of the output of such establishments in that city representing 42.6 per cent of the total for the state in 1909, 39 per cent in 1904, and 47.4 per cent in 1899. For the last two censuses Pennsylvania has ranked seventh among the states in this industry, having risen from ninth place in 1899.

*Coke.*—The abundant supply of coal, which is easily accessible and suitable for coking, as well as the demand for coke for fuel in the manufacture of iron and steel, has made Pennsylvania the leading state of the Union in the coke industry, a position which it has held in this class of manufacture for a number of decades. The \$51,816,000 reported as the value of products in 1909 represents an increase of \$22,892,000 over 1904 and was 54.1 per cent of the total for the industry in all states combined. The absolute increase from 1899 to 1904 in the value of coke manufactured in the state was less than one-third as great as for the following five-year period.

*Tobacco manufactures.*—This industry includes establishments engaged in the manufacture of chewing and smoking tobacco and of snuff, and cigar and cigarette factories. The industry in the state is confined largely to the latter class of establishments, as they numbered 2,379 of the 2,432 reported for the entire industry in 1909, and had an output valued at \$46,124,000, or 92 per cent of the total. Pennsylvania ranked second among the states in 1909 in the value of tobacco manufactures, its product being valued at \$50,161,000, which represented nearly one-eighth of the total for the industry in the United States.

*Liquors, malt.*—The statistics for establishments in which such beverages as lager beer, porter, ale, and weiss beer are brewed are included under this head. Since 1849, when 102 establishments, with products valued at \$1,173,000, were reported, the brewery industry has developed rapidly. Pennsylvania ranked second in importance among the states in 1849 and has retained the same position at each succeeding census. In 1899 the value of products was \$29,163,000, and in 1909 it was \$47,713,000, an increase for the decade of \$18,550,000, or 63.6 per cent. The state's proportion of the total value of malt liquors brewed in the United States was in 1849, 20.5 per cent, but in 1909 it was only 12.7 per cent.

*Flour-mill and gristmill products.*—The statistics for merchant mills grinding wheat, rye, buckwheat, corn, or other grains are included in this classification. It does not, however, include the factories making fancy cereals or other food preparations as a chief product, or small mills doing custom grinding exclusively, the statistics for the latter mills being presented separately on page 1079. This is one of the oldest industries in the state and as early as 1849 there were 2,512 flour mills and gristmills in Pennsylvania, which reported an output for that year valued at \$24,116,000. In 1899 the value of such products reached \$29,571,000, an increase for the 50 years of only \$5,455,000, or 22.6 per cent. In 1909, however, it was \$44,783,000, an increase for the decade 1899–1909 of \$15,212,000, or 51.4 per cent. Measured by value of products Pennsylvania ranked sixth among the states of the Union in this industry at each of the last two censuses, having dropped from fourth place in 1899.

*Glass.*—Pennsylvania ranks first among the states in the manufacture of glass and owes this position largely to the great supply of fuel, of glass sand, and of fire clay suitable for furnaces. As early as 1849 there were 28 establishments in the state, which reported glass products amounting to \$1,179,000, or nearly one-fourth of the total for all states, and in 1909, 112 plants were in operation with an output valued at \$32,818,000, which was over one-third of the total for the entire country.

*Electrical machinery, apparatus, and supplies.*—The exceptionally rapid extension, during recent years, of the uses of electricity in science and industry has created an increasing demand for electrical appliances of all sorts. It was to be expected, therefore, that this industry would show remarkable development during the last decade, especially in Pennsylvania, where all the materials required are immediately available, and where there is a demand for the most modern types of electrical appliances. Measured by value of products, Pennsylvania, with \$19,113,000 in 1899 and \$31,351,000 in 1909, held second place among the states of the Union at both censuses. The increase in the value of products for the decade was \$12,238,000, or 64 per cent.

*Cars, steam-railroad, not including operations of railroad companies.*—The products of these plants in Pennsylvania include mail, express, and baggage cars, and refrigerator cars, as well as passenger coaches and many kinds of freight cars. While the number of establishments increased from 11 in 1899 to only 13 in 1909, the average number of wage earners showed a gain from 5,840 to 7,766, or 33 per cent, and the value of products a gain from \$19,261,000 to \$27,510,000, or 42.8 per cent, during the decade. Practically all of this increase was during the later five-year period, 1904–1909. In 1909 the largest establishments were located at Berwick and at Butler and in Stowe township. In 1899 and 1904 Pennsylvania held second place in value of products for this industry in the

United States, but in 1909 it became first, having displaced Illinois. The proportion which this state contributed of the total value of products for the industry in the United States decreased from 21.3 per cent in 1899 to 17.5 per cent in 1904, but increased 22.2 per cent in 1909.

In addition to the statistics given for this industry, several thousand pressed-steel freight and industrial cars were manufactured in the state in 1909 as a secondary product of a steel works and rolling mill. The exact number and value of these cars, however, can not be given without disclosing the operations of this establishment.

*Boots and shoes, including cut stock and findings.*—Under this head are included factories making boots and shoes and those whose chief products are cut stock and findings, as well as shops especially engaged in stitching, crimping, fitting, and bottoming or performing special operations in connection with the manufacture of boots and shoes. Footwear not coming strictly under the head of boots and shoes, such as overgaiters, moccasins, and leggings, is also covered by this designation. The industry was carried on in the state as early as 1698, the workers being known as cordwainers.<sup>1</sup> In 1849 there were 2,136 establishments in the state, which gave employment to 10,785 wage earners and reported products valued at \$5,637,000. With products valued at \$13,830,000 in 1899, Pennsylvania held fifth place among the states in this respect, and sixth place in 1904 and 1909, with products valued at \$14,884,000 and \$20,219,000, respectively. The state's proportion of the total value of products for the industry in the United States was less at each of these censuses, being 4.8 per cent, 4.2 per cent, and 3.9 per cent, respectively. From 1904 to 1909 there was an increase of 1,832, or 20.4 per cent, in the average number of wage earners and of \$5,335,000, or 35.8 per cent, in the value of products, whereas from 1899 to 1904 there was a decrease in the average number of wage earners of 257, or 2.8 per cent, but an increase in value of products of \$1,054,000, or 7.6 per cent.

*Paper and wood pulp.*—Mills which manufacture paper exclusively, pulp exclusively, or both paper and pulp are included in this classification. The mills engaged in the production of paper largely predominated in Pennsylvania in 1909. The first paper mill in the United States was established in Germantown in 1693. In 1816 the first steam paper mill in the United States began operations in Pittsburgh, with an engine of 16 horsepower, and 40 employees. In 1849 there were 61 establishments reported for the state, which employed an average of 625 wage earners and manufactured products valued at \$1,037,000. The growth of the industry since that time has been rapid, and during the decade 1899–1909 it was particularly

<sup>1</sup> Eighth Census of the United States, 1860.. Manufactures, Introduction, pp. lxix, lxx, and lxxii.

noteworthy, the value of products having increased from \$12,268,000 to \$19,873,000, a gain of \$7,605,000, or 62 per cent. The percentage of increase in value of products for the decade was about the same for both five-year periods. Pennsylvania ranked third in the industry in both 1879 and 1889, fourth in 1899, and fifth in both 1904 and 1909. The principal products in 1909 were book and cover paper, valued at \$6,442,043; wrapping paper, valued at \$3,954,578; and writing and other fine paper, valued at \$3,508,067. Practically all of the news paper used in the state is manufactured beyond its borders, the pulp produced being almost entirely chemical.

*Furniture and refrigerators.*—This industry embraces the manufacture of wood and metal furniture of all kinds, refrigerators and ice boxes, and store and office fixtures with the exception of products, such as show cases, which are provided for by a distinct classification. This industry ranked twenty-first among those shown separately in the preceding table in average number of wage earners, twenty-third in value added by manufacture, and twenty-eighth in value of products. The value of the output of the furniture and refrigerator factories in Pennsylvania increased from \$10,069,000 in 1899 to \$12,776,000 in 1904 and \$18,952,000 in 1909; these figures representing 7.7 per cent, 7.2 per cent, and 7.9 per cent of the respective totals for the United States.

There are 10 industries presented separately in the table on pages 1040 and 1041 which are not among the leading ones in the state as measured by value of products, in which Pennsylvania leads all other states of the Union. In five of these industries the state contributed 30 per cent or more of the total value of products for the United States in 1909, as follows: The manufacture of wrought-iron pipe, 59.2 per cent; steam packing, 41 per cent; saws, 32.9 per cent; cork cutting, 49.9 per cent; and crucibles, 39.4 per cent. The remainder of these industries are the manufacture of cement, ice, lime, cigar boxes, and files.

The rank of industries or groups of industries when measured by the value added by manufacture differs considerably from the rank by value of products, which is the order of presentation in the table. Of all the industries listed in this table, nine only hold the same position when ranked according to value added by manufacture. Noticeable changes in rank are found in the case of the tin-plate and terneplate industry, which drops from twenty-fourth place in gross value to the fifty-sixth place in value added by manufacture; in refining petroleum, which falls from tenth to thirty-ninth place; in the manufacture of butter, cheese, and condensed milk, which drops from thirty-sixth to sixty-second place; and in slaughtering and meat packing, which falls from eleventh to thirty-fourth place. On the other hand, the manufacture of pottery, terra-cotta, and fire-clay products advances from thirty-eighth to twenty-fourth place; the gas

industry, from thirty-third to twentieth; the distilled-liquor industry, from thirty-fourth to twenty-first; marble and stone work, from forty-third to thirty-first; and the malt-liquor industry, from fifteenth to fourth.

The table on pages 1040 and 1041 also shows the percentages of increase or decrease for these industries in respect to value of products and value added by manufacture in all cases where comparative figures are presented in Table I, page 1080. Exceptionally large relative increases are shown for several of the industries during each of the five-year periods, while others show marked relative decreases. From 1904 to 1909 large increases in both items are shown by the manufacture of automobiles, the manufacture of typewriters and supplies, the distillation of liquors, the manufacture of millinery and lace goods, that of chocolate and cocoa products, the operations of street-railroad repair shops, and the manufacture of women's clothing. From 1899 to 1904 large gains in both items are shown by the manufacture of automobiles, for photo-engraving, the manufacture of steam packing and that of chocolate and cocoa products. Women's clothing is the only one of the industries just mentioned, however, which is among the first 27 industries shown in the table. For the more important industries the percentages in both items are generally larger for the five-year period 1904-1909 than for the preceding five-year period.

In value of products 10 of the 94 industries presented separately in the table showed a decrease from 1904 to 1909, and 13 a decrease from 1899 to 1904, while in value added by manufacture decreases were reported for 10 industries from 1904 to 1909 and 14 industries from 1899 to 1904. The largest percentage of decrease in the value of products from 1904 to 1909 was in the shipbuilding industry (40.2 per cent), but 9 other industries showed a decrease of less than 10 per cent in the value of products during the same 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.....	1,002,171	802,548	199,623
Proprietors and officials.....	54,696	52,951	1,745
Proprietors and firm members.....	29,743	28,550	1,193
Salaried officers of corporations.....	8,410	8,280	124
Superintendents and managers.....	16,543	16,115	428
Clerks.....	69,032	55,703	14,229
Wage earners (average number).....	877,543	693,894	183,649
16 years of age and over.....	848,436	679,831	168,605
Under 16 years of age.....	29,107	14,063	15,044



The average number of persons engaged in manufactures during 1909 was 1,002,171, of whom 877,543 were wage earners. Of the remainder, 54,696 were proprietors and officials and 69,932 were clerks. Corresponding figures for individual industries will be found in Table II, page 1096.

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 43 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> .....	1,002,171	5.5	7.0	87.6
Boots and shoes, including cut stock and findings.....	11,829	3.4	5.1	91.5
Bread and other bakery products.....	17,838	20.2	11.3	68.5
Butter, cheese, and condensed milk.....	2,093	37.9	5.9	56.2
Carpets and rugs, other than rag.....	12,078	2.1	2.6	95.3
Carriages and wagons and materials.....	8,757	11.1	3.3	85.6
Cars and general shop construction and repairs by steam-railroad companies.....	50,545	3.8	3.9	92.3
Cars, steam-railroad, not including operations of railroad companies.....	8,799	2.7	9.0	88.3
Cement.....	8,902	1.2	8.1	90.8
Chemicals.....	3,573	2.9	8.0	89.1
Clothing, men's, including shirts.....	26,405	5.4	5.2	89.5
Clothing, women's.....	18,080	5.1	8.1	86.8
Coke.....	16,219	2.8	2.7	94.5
Confectionery.....	6,436	6.4	9.6	84.0
Copper, tin, and sheet-iron products.....	7,992	7.8	6.9	85.3
Cotton goods, including cotton small wares.....	17,386	2.9	3.4	93.7
Dyeing and finishing textiles.....	6,688	4.6	4.4	91.0
Electrical machinery, apparatus, and supplies.....	14,641	3.8	20.9	75.3
Flour-mill and gristmill products.....	4,696	43.2	5.0	51.8
Foundry and machine-shop products.....	100,505	4.5	9.1	86.4
Furniture and refrigerators.....	11,338	6.5	5.9	87.5
Gas, illuminating and heating.....	4,584	4.8	27.1	68.0
Glass.....	24,924	1.8	3.0	95.1
Hats, fur-felt.....	7,537	1.5	2.7	95.8
Hosiery and knit goods.....	40,248	2.9	2.2	94.9
Iron and steel, blast furnaces.....	10,215	2.4	8.0	89.6
Iron and steel, steel works and rolling mills.....	137,433	1.5	0.2	92.3
Iron and steel pipe, wrought.....	4,143	2.2	4.3	93.5
Leather, tanned, curried, and finished.....	14,970	3.3	3.1	93.6
Liquors, distilled.....	1,144	22.0	14.7	63.3
Liquors, malt.....	9,007	7.1	12.6	80.3
Lumber and timber products.....	32,073	13.3	3.0	83.8
Marble and stone work.....	10,639	10.2	2.8	87.1
Paint and varnish.....	2,747	10.2	17.3	72.5
Paper and wood pulp.....	7,196	2.8	4.7	92.5
Patent medicines and compounds and druggists' preparations.....	4,299	12.6	23.1	64.2
Petroleum, refining.....	3,423	4.6	10.6	84.7
Pottery, terra-cotta, and fire-clay products.....	9,784	4.1	3.0	92.0
Printing and publishing.....	36,783	11.9	21.1	67.1
Silk and silk goods, including throwsters.....	35,178	1.7	2.8	95.5
Slaughtering and meat packing.....	3,957	8.6	14.4	77.1
Tin plate and ternoplate.....	2,548	1.8	6.1	92.1
Tobacco manufactures.....	37,680	8.4	3.3	88.3
Woolen, worsted, and felt goods, and wool hats.....	28,692	2.3	2.1	95.5
All other industries.....	169,267	7.0	8.5	84.5

ditions are also found in the following industries: The manufacture of carriages and wagons, distilled liquors, and lumber and timber products; marble and stone work; the manufacture of paint and varnish and of patent medicines; and printing and publishing. Certain industries require the employment of large numbers of wage earners and show, as a consequence, a small proportion of proprietors and officials. Among these are the textile, cement, glass, coke, and iron and steel industries.

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.

INDUSTRY.	WAGE EARNERS.			
	Average number.	Per cent of total.		
		16 years of age and over.		Under 16 years of age.
Male.	Female.			
<b>All Industries</b> .....	877,543	77.5	19.2	3.3
Boots and shoes, including cut stock and findings.....	10,822	58.5	34.4	7.1
Bread and other bakery products.....	12,221	81.6	14.6	3.8
Butter, cheese, and condensed milk.....	1,177	93.5	5.8	0.7
Carpets and rugs, other than rag.....	11,510	59.9	35.0	5.1
Carriages and wagons and materials.....	7,498	98.4	0.4	1.1
Cars and general shop construction and repairs by steam-railroad companies.....	46,645	99.8	0.2	0.1
Cars, steam-railroad, not including operations of railroad companies.....	7,766	99.9	0.1	0.1
Cement.....	8,080	99.6	(2)	0.4
Chemicals.....	3,185	96.6	3.4	0.1
Clothing, men's, including shirts.....	23,623	33.1	62.5	4.4
Clothing, women's.....	15,701	30.1	68.2	1.7
Coke.....	15,331	100.0	(2)	(2)
Confectionery.....	5,408	34.3	57.9	7.8
Copper, tin, and sheet-iron products.....	6,815	89.7	7.1	3.1
Cotton goods, including cotton small wares.....	16,293	43.9	49.3	6.8
Dyeing and finishing textiles.....	6,086	84.1	12.1	3.8
Electrical machinery, apparatus, and supplies.....	11,025	84.9	14.5	0.6
Flour-mill and gristmill products.....	2,432	99.5	0.1	0.4
Foundry and machine-shop products.....	86,821	97.9	1.1	1.0
Furniture and refrigerators.....	9,924	96.0	2.1	1.9
Gas, illuminating and heating.....	3,119	99.6	0.4	.....
Glass.....	23,710	88.2	5.3	6.5
Hats, fur-felt.....	7,220	69.5	25.3	5.2
Hosiery and knit goods.....	38,206	19.3	69.5	11.2
Iron and steel, blast furnaces.....	14,521	99.9	.....	0.1
Iron and steel, steel works and rolling mills.....	126,911	98.9	0.2	0.8
Iron and steel pipe, wrought.....	3,873	99.8	.....	0.2
Leather, tanned, curried, and finished.....	14,008	94.0	4.6	1.4
Liquors, distilled.....	724	76.8	23.2	.....
Liquors, malt.....	7,234	99.7	0.2	0.1
Lumber and timber products.....	26,873	98.5	0.4	1.1
Marble and stone work.....	9,264	99.2	0.1	0.7
Paint and varnish.....	1,992	96.3	3.1	0.6
Paper and wood pulp.....	6,656	88.6	10.9	0.5
Patent medicines and compounds and druggists' preparations.....	2,761	43.9	53.7	2.3
Petroleum, refining.....	2,900	99.0	0.4	0.6
Pottery, terra-cotta, and fire-clay products.....	9,003	91.2	5.8	3.0
Printing and publishing.....	24,696	73.7	22.8	3.6
Silk and silk goods, including throwsters.....	36,469	26.2	60.0	13.8
Slaughtering and meat packing.....	3,050	99.1	0.7	0.2
Tin plate and ternoplate.....	2,348	69.0	10.1	6.9
Tobacco manufactures.....	33,188	45.0	52.4	2.6
Woolen, worsted, and felt goods, and wool hats.....	27,409	44.3	46.2	9.5
All other industries.....	143,047	77.8	18.6	3.6

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

Of the total number of persons engaged in all manufacturing industries, 5.5 per cent were proprietors and officials, 7 per cent clerks, and 87.6 per cent wage earners. In some industries, such as flour mills and gristmills; butter, cheese, and condensed-milk factories; and bakeries, a majority of the establishments are small and the work is done to a large extent by the proprietors or their immediate representatives. Hence proprietors and officials form in such industries a much larger proportion of the total number of persons engaged in the industry than in most other industries or in all industries combined. Similar con-

For all industries combined, 77.5 per cent of the average number of wage earners were males 16 years of age and over; 19.2 per cent, females 16 years of age and over; and 3.3 per cent, children under the age of 16. The larger part of the total number of female wage earners was made up of those employed in the textile, clothing, and boot and shoe industries and in tobacco manufactures. In the manufacture of hosiery and knit goods and of women's clothing over two-thirds of the employees were women 16 years of age and over; in the silk goods and men's clothing industries the proportion was three-fifths; in tobacco manufactures and in the cotton goods and woolen and worsted goods industries, about one-half; and in the boot and shoe and the carpet industries, over one-third. The confectionery and the patent-medicine industries also showed a large proportion of female wage earners, 57.9 per cent and 53.7 per cent, respectively.

The four leading textile industries—silk goods, hosiery and knit goods, woolen and worsted goods, and cotton goods—and the manufacture of glass and of men's clothing include the larger part of the total number of wage earners under 16 years of age. The proportion of such wage earners engaged in each industry was as follows: Silk goods, 13.8 per cent; hosiery and knit goods, 11.2 per cent; woolen and worsted goods, 9.5 per cent; cotton goods, 6.8 per cent; glass, 6.5 per cent; and men's clothing, 4.4 per cent. The boot and shoe and the confectionery industries also showed a large proportion of children among the wage earners, 7.1 per cent and 7.8 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.				Per cent of increase, 1904-1909.
	1909		1904		
	Number.	Per cent distribution.	Number.	Per cent distribution.	
Total.....	1,002,171	100.0	855,392	100.0	17.2
Proprietors and firm members.....	29,743	3.0	26,029	3.0	14.3
Salaried employees.....	94,885	9.5	66,081	7.7	43.6
Wage earners (average number)....	877,543	87.6	763,282	89.2	15.0

Comparable figures are not obtainable for 1899. The table shows a greater percentage of gain for the five years in the number of salaried employees than for either of the other classes of persons engaged.

The next table shows the average number of wage earners, distributed according to age periods, and for 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.....	877,543	100.0	763,282	100.0	663,960	100.0
16 years of age and over.....	848,436	96.7	728,831	95.5	631,658	95.1
Male.....	679,831	77.5	594,457	77.9	516,101	77.7
Female.....	168,605	19.2	134,344	17.6	115,557	17.4
Under 16 years of age.....	29,107	3.3	34,451	4.5	32,302	4.9

This table indicates that for all industries combined there has been little variation from census to census in the proportions of men, women, and children employed. The number of children under 16 years of age and the proportion which they formed of the total number of wage earners employed was less in 1909 than in 1899, although from 1899 to 1904 the absolute number of such employees increased. The falling off in the proportion of children was more than made up by a larger proportion of women. In 1909 males 16 years of age and over formed 77.5 per cent of all wage earners, as compared with 77.9 per cent in 1904 and 77.7 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. 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 1096, is shown, for practically all of 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.

MONTH.	WAGE EARNERS.		MONTH.	WAGE EARNERS.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	819,927	85.3	July.....	860,485	89.6
February.....	825,082	85.9	August.....	878,308	90.9
March.....	835,617	87.0	September.....	911,802	94.9
April.....	844,230	87.9	October.....	933,862	97.2
May.....	850,373	88.5	November.....	947,698	98.6
June.....	867,526	90.3	December.....	960,666	100.0

There were no seasonal industries of importance in Pennsylvania, nor did any of the more important industries show very great fluctuations from month to month in the number of wage earners employed. Of the more important industries, the greatest variation is in the glass industry, in which the minimum number, 16,242, was employed in July, and the maximum number, 26,711, in December, the minimum figure being 60.8 per cent of the maximum. In the foundry and machine-shop industry the difference between the maximum and minimum months was a larger number, but on account of the larger average number em-

ployed the proportion of minimum to maximum was 78.8 per cent. For all industries combined the smallest number, 819,927, were employed in the month of January. The number increased steadily month by month, with the exception of a slight decrease from June to July, until in December 960,666 wage earners were employed, the largest number reported for any month. The difference between the months of greatest and least employment was thus 140,739, or 14.6 per cent of the maximum.

Prevailing hours of labor.—In the table following wage earners have been classified according to the hours of labor prevailing in the establishments in which they are employed. In making this classification the average number of wage earners employed during the year is used, and the number employed in each establishment is classified as a total according to the hours prevailing in that establishment, even though 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.....	877,543	61,599	46,263	109,826	301,893	258,257	45,703	27,203	26,799
Agricultural implements.....	2,401	1		452	850	1,097		1	
Artificial flowers and feathers and plumes.....	805	185	501	160	9				
Automobiles, including bodies and parts.....	3,199	1		746	2,257	195			
Belting and hose, leather.....	156		2	16	110	28			
Boots and shoes, including cut stock and findings.....	10,822	21	462	514	8,568	1,140	117		
Boxes, cigar.....	1,801	25	239	114	1,074	349			
Boxes, fancy and paper.....	4,004	56	456	286	2,952	854			
Brass and bronze products.....	2,080	36	44	493	1,396	111			
Bread and other bakery products.....	12,221	577	207	813	2,812	5,423	1,188	553	648
Brick and tile.....	8,058	662	383	781	1,206	5,084		32	
Brooms and brushes.....	860	47	80	124	502	107			
Butter, cheese, and condensed milk.....	1,177	131	49	75	156	337	411	13	5
Buttons.....	1,123	4		110	915	94			
Canning and preserving.....	2,753	9	7	23	832	1,806	73	3	
Carpets and rugs, other than rag.....	11,510	129		615	3,267	7,499			
Carrriages and wagons and materials.....	7,498	44	165	826	3,686	2,752	19	1	5
Cars and general shop construction and repairs by steam-railroad companies.....	46,645	5,209	2,581	1,200	27,629	8,002	1,511		423
Cars and general shop construction and repairs by street-railroad companies.....	2,442			42	553	1,576	209	32	30
Cars, steam-railroad, not including operations of railroad companies.....	7,766		60	286	5,504	500	1,416		
Cement.....	8,080					2,276	2,788		3,016
Chemicals.....	3,185	5	98		68	2,130	177	13	694
Chocolate and cocoa products.....	863	1		3	748	114			
Clocks and watches, including cases and materials.....	1,395		36	3	1,356				
Clothing, men's, including shirts.....	23,623	570	2,204	6,823	11,508	2,440	67	4	7
Clothing, women's.....	15,701	689	6,631	3,439	4,401	451			
Coffins, burial cases, and undertakers' goods.....	1,103	22	14	108	355	603			
Coke.....	15,331	1,508		7,397	100	4,575	658		1,093
Confectionery.....	5,408	122	362	290	2,632	1,919	16	5	2
Cooperage and wooden goods, not elsewhere specified.....	1,630	245	132	432	352	409			
Copper, tin, and sheet-iron products.....	6,815	1,327	345	1,034	2,752	1,357			
Cordage and twine and jute and linen goods.....	2,119	49	111		1,110	849			
Cork, cutting.....	1,727		11	21	1,496	8	191		
Cotton goods, including cotton small wares.....	16,293		1,112		8,294	6,887			
Crucibles.....	106		10		10	86			
Cutlery and tools, not elsewhere specified.....	4,250	1,156	245	205	1,360	1,205	70		
Dentists' materials.....	1,072	17	130	50	875				
Dyeing and finishing textiles.....	5,080	10	39	33	2,078	3,874	52		
Electrical machinery, apparatus, and supplies.....	11,025	12	705	7,853	1,772	633			
Explosives.....	1,033	39		57	72	865			
Fancy articles, not elsewhere specified.....	828	32	83	60	544	109			
Fertilizers.....	1,224	6	8		197	425	169	419	
Files.....	1,217		1		1,216				
Flour-mill and gristmill products.....	2,432	273	49	147	211	1,088	377	263	24
Foundry and machine-shop products.....	86,821	2,630	1,442	22,360	31,874	26,079	2,157	.87	186
Fur goods.....	227	12	82	111	9	13			
Furniture and refrigerators.....	9,024	175	560	563	3,742	4,884			
Gas and electric fixtures and lamps and reflectors.....	1,482	43	98	151	1,126	65			
Gas, illuminating and heating.....	3,119	16	3		24	1,780	705	15	576
Glass.....	23,710	3,049	4,406	1,645	6,235	5,408	1,257		1,650
Hats and caps, other than felt, straw, and wool.....	744	17	78	47	462	137	3		
Hats, fur-felt.....	7,220	65	370	4,919	1,533	333			
Hosiery and knit goods.....	38,206	275	381	496	24,508	12,472	74		
Ice, manufactured.....	1,606	38		69	19	229	138	271	842
Ink, printing.....	165	11		0	148				
Iron and steel, blast furnaces.....	14,521				117	601	166	467	13,170
Iron and steel, steel works and rolling mills.....	126,911	12,245	3,237	11,014	12,292	45,527	17,921	21,840	2,826
Iron and steel pipe, wrought.....	3,873	6				3,777	90		
Jewelry.....	456	20	110	170	89	67			
Leather goods.....	2,524	22	199	392	1,123	780	8		
Leather, tanned, curried, and finished.....	14,008	65	139	708	5,187	7,904		5	
Lime.....	3,258	5	75	135	515	2,010	425		93
Liquors, distilled.....	724	88	43	141	52	386		10	4
Liquors, malt.....	7,234	2,645	306	2,513	336	1,118	203	109	4
Lumber and timber products.....	26,873	790	995	4,105	3,984	12,975	3,822	41	161
Marble and stone work.....	9,264	1,896	2,032	1,870	2,188	1,262	26		
Mattresses and spring beds.....	745	52	63	70	442	118			
Millinery and lace goods.....	4,235	209	747	1,190	2,057	32			
Musical instruments, pianos and organs and materials.....	1,182		32	395	492	263			
Optical goods.....	579	28	43	30	475	3			

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.
Paint and varnish.....	1,992	40	90	326	1,127	345	38	17	
Paper and wood pulp.....	6,656	122		100	168	3,643	91	2,532	
Paper goods, not elsewhere specified.....	1,357	28	749	48	514	13			
Patent medicines and compounds and druggists' preparations.....	2,761	288	460	1,603	291	110		6	3
Petroleum, refining.....	2,900			1,506		418	270	68	548
Photo-engraving.....	489	479		9	1				
Pottery, terra-cotta, and fire-clay products.....	9,003	579	404	1,739	1,464	4,389	66	156	206
Printing and publishing.....	24,696	14,412	3,297	4,267	1,965	730	25		
Safes and vaults.....	695	30	26	69	185	385			
Saws.....	1,876	7	41	95	1,728	5			
Shipbuilding, including boat building.....	3,558	378	156	143	2,842	39			
Shoddy.....	450			3	88	359			
Silk and silk goods, including throwsters.....	36,409	31	490	490	27,859	7,599			
Slaughtering and meat packing.....	3,050	63	125	44	271	2,331	160	56	
Smelting and refining, not from the ore.....	206	22	7	7	100	54		16	
Soap.....	1,197	520	16	19	396	235	11		
Steam packing.....	1,677	8	18	52	936	663			
Stoves and furnaces, including gas and oil stoves.....	4,198	187	226	773	1,303	1,709			
Tin plate and terneplate.....	2,346	206		1,539	400	201			
Tobacco manufactures.....	33,188	3,954	3,497	2,614	18,295	4,721	102	5	
Typewriters and supplies.....	555	5	18		532				
Umbrellas and canes.....	2,315	122	6	54	807	1,326			
Wall paper.....	1,056				1,056				
Wood distillation, not including turpentine and rosin.....	933	51		39		444	237	83	79
Woolen, worsted, and felt goods, and wool hats.....	27,409	2		77	14,819	12,511			
All other industries.....	56,433	2,578	3,634	5,202	18,832	17,323	8,199	71	604

It is evident from these figures that for the great majority of wage earners employed in the manufacturing industries of Pennsylvania the prevailing hours of labor ranged from 54 to 60 a week, only 12.3 per cent of the total being employed in establishments where less than 54 hours per week were the prevailing hours, and only 11.4 per cent being employed in establishments where the hours of labor were more than 60 per week. The largest single group shown in the table is that "between 54 and 60" with 301,893, or 34.4 per cent of the total number of wage earners of the state.

Of the 99,705 wage earners who worked in establishments where over 60 hours per week were the prevailing hours of labor, 56,399, or 56.6 per cent, were employed in the blast furnaces and steel works and rolling mills. This number represents 39.9 per cent

of the total average number employed in these two industries combined. In three industries shown in the table—cement, ice, and blast furnaces—the greater proportion of wage earners worked more than 60 hours per week. While there were 108,120 wage earners in establishments where less than 54 hours per week were the prevailing hours, in only four industries presented in the table—the manufacture of artificial flowers and feathers and plumes, that of paper goods, photo-engraving, and printing and publishing—was the greater proportion of the total for the industry employed by such establishments.

**Location of establishments.**—The following table shows the extent to which the manufactures of Pennsylvania are centralized in cities and boroughs of 10,000 population or over. (See Introduction.)

ITEM.	Year.	Aggregate.	INCORPORATED PLACES HAVING A POPULATION OF 10,000 AND OVER.								DISTRICTS OUTSIDE OF INCORPORATED PLACES HAVING A POPULATION OF 10,000 AND OVER.	
			Total.		10,000 to 25,000.		25,000 to 100,000.		100,000 and over.			
			Number or amount.	Percent of total.	Number or amount.	Percent of total.	Number or amount.	Percent of total.	Number or amount.	Percent of total.		
Population.....	1910	7,665,111	3,653,461	47.7	638,300	8.3	802,381	10.5	2,212,780	28.9	4,011,650	52.3
	1900	6,302,115	2,767,261	43.9	350,403	5.6	569,623	9.0	1,847,235	29.3	3,534,854	56.1
Number of establishments.....	1909	27,563	15,036	54.6	1,738	6.3	2,967	10.8	10,331	37.5	12,527	45.4
	1899	23,462	12,388	52.8	990	4.2	2,347	10.0	9,051	38.6	11,074	47.2
Average number of wage earners.	1909	877,543	552,134	62.9	83,433	9.5	136,492	15.6	332,209	37.9	325,409	37.1
	1899	663,960	431,181	64.9	36,845	5.5	96,623	14.6	297,708	44.8	232,770	35.1
Value of products.....	1909	\$2,626,742,034	\$1,662,897,973	63.3	\$276,462,645	10.5	\$370,521,221	14.1	\$1,015,914,107	38.7	\$963,844,061	36.7
	1899	1,649,882,380	1,074,530,373	65.1	81,717,638	5.0	229,891,021	13.9	762,921,714	46.2	575,352,007	34.9
Value added by manufacture..	1909	1,044,182,046	666,386,130	63.8	95,711,824	9.2	146,681,104	14.0	423,993,202	40.6	377,795,916	36.2
	1899	691,581,108	451,733,907	65.3	32,318,824	4.7	97,346,042	14.1	322,069,041	46.6	239,847,201	34.7

In 1909, 63.3 per cent of the total value of products for all manufacturing industries was reported from cities and boroughs having over 10,000 inhabitants, and 62.9 per cent of the average number of wage earners were employed in such places. The figures indicate

that on the whole the manufactures of the districts outside the cities and boroughs have gained slightly on the totals for the places having 10,000 inhabitants or over during the last decade. This is due in part to the size and rapid growth of the three classes of iron

and steel mills, the foundries and machine shops, and the glass works located outside the cities. The fact that 21 boroughs (see the next table) were parts of the outside territory in 1899 and became a part of the group of cities and boroughs having 10,000 inhabitants or more in 1909 makes the gain in the outside districts more conspicuous. The value of products reported in 1909 for all these places combined was \$140,470,215, and 35,885 wage earners were employed there. These figures represent 5.3 per cent and 4.1 per cent of the respective totals for the state. The increase in the population of different places has also affected the grouping of cities and boroughs in the table. In 1900 Norristown, Shenandoah, and Hazleton were in the first group, 10,000 to 25,000; but during the following decade the population of each increased so that all advanced to the second group, 25,000 to 100,000.

Although a decided absolute gain is shown for all items of the three groups of cities and boroughs, the cities included in the group 100,000 and over show substantial decreases in relative importance. The largest gains in the proportions are shown for the first group, due mainly to the shifting of the 21 boroughs above referred to. There was scarcely any change during the decade in the proportions of the totals for the cities and boroughs of 25,000 to 100,000 inhabitants. Of the total value of products reported for the state in 1909, 10.5 per cent was reported from the 43 places having from 10,000 to 25,000 inhabitants, 14.1 per cent from the 17 places having from 25,000 to 100,000 inhabitants, and 38.7 per cent from the 3 cities having 100,000 inhabitants and over.

The population for 1910 and 1900 of the 63 places 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
Philadelphia.....	1,549,008	1,293,697	Mount Carmel...	17,532	13,179
Pittsburgh.....	533,905	451,512	Carbondale.....	17,040	13,536
Scranton.....	129,867	102,026	Plymouth.....	16,998	13,649
Reading.....	96,071	78,961	Pittston.....	16,267	12,556
Wilkes-Barre.....	67,105	51,721	Mahanoy City...	15,936	13,504
Erie.....	66,525	52,733	Duquesne.....	15,727	9,036
Harrisburg.....	64,186	50,167	Oil City.....	15,067	13,264
Johnstown.....	55,482	35,936	Pottstown.....	15,509	13,696
Altoona.....	52,127	38,973	Sharon.....	15,270	8,916
Allentown.....	51,913	35,416	McKees Rocks...	14,702	6,352
Lancaster.....	47,227	41,459	Bradford.....	14,544	15,029
York.....	44,750	33,703	Steelton.....	14,246	12,086
McKeesport.....	42,944	34,227	Sunbury.....	13,770	9,810
Chester.....	38,537	33,988	Uniontown.....	13,344	7,844
New Castle.....	36,280	28,339	Greensburg.....	13,012	6,608
Williamsport.....	31,860	28,757	Connellsville...	12,845	7,100
Easton.....	28,523	25,258	Bethlehem.....	12,837	10,758
Norristown.....	27,875	22,265	Meadville.....	12,780	10,291
Shenandoah.....	25,774	20,321	Dubois.....	12,623	9,375
Hazleton.....	25,452	14,230	Beaver Falls...	12,191	10,054
Butler.....	20,728	10,853	North Braddock	11,824	6,535
Pottsville.....	20,236	15,710	Chambersburg...	11,800	8,864
South Bethlehem	19,973	13,241	Monessen.....	11,775	2,197
Shamokin.....	19,588	18,202	West Chester...	11,767	6,524
Bradford.....	19,357	15,054	Columbia.....	11,454	12,316
Lebanon.....	19,240	17,628	Old Forge.....	11,324	5,630
Wilkesburg.....	18,824	11,886	Coatesville.....	11,084	5,721
Nanticoke.....	18,877	12,116	Warren.....	11,080	8,043
Washington.....	18,778	7,670	Phoenixville...	10,743	9,196
Homestead.....	18,713	12,554	Carlisle.....	10,303	9,626
Dunmore.....	17,615	12,583	South Sharon...	10,190	(*)
			Carnegie.....	10,009	7,330

\* Includes population of Allegheny, which was annexed in 1907.  
 † Includes population of West Bethlehem, which was annexed in 1904.  
 ‡ Not incorporated in 1900.

The relative importance in manufactures of 56 of these cities and boroughs is shown in the following table, in which they are presented according to value of products in 1909. Both the value of products and the average number of wage earners for these places are shown separately for 1909, 1904, and 1899 so far as comparative figures can be given. The other 7 boroughs having a population of 10,000 or over in 1910—Coatesville, Duquesne, Monessen, North Braddock, Old Forge, South Sharon, and Steelton—are not shown separately but grouped under the heading of "All other boroughs," to avoid the disclosure of individual establishments.

CITY OR BOROUGH.	AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS.		
	1909	1904	1899	1909	1904	1899
Philadelphia.....	251,834	228,899	214,775	\$746,075,659	\$591,388,078	\$519,981,812
Pittsburgh.....	67,474	71,618	71,794	243,463,693	211,259,153	218,198,066
Reading.....	24,145	18,063	16,892	61,134,967	30,490,942	32,682,061
Johnstown.....	10,574	6,914	5,600	48,105,776	28,891,806	21,394,745
McKeesport.....	8,246	8,848	7,213	42,494,567	23,054,412	36,068,447
New Castle.....	5,339	5,433	4,529	38,037,522	28,923,234	20,016,798
South Bethlehem	7,985	5,754	4,045	26,417,103	15,275,411	9,994,054
Scranton.....	12,861	10,912	11,139	26,384,755	20,453,285	24,741,837
Allentown.....	11,481	8,984	7,355	26,203,327	16,841,043	14,990,437
Erie.....	9,796	8,415	8,032	24,225,633	18,639,161	16,492,838
Harrisburg.....	9,743	7,955	6,439	22,725,328	16,570,715	14,995,827
Chester.....	6,986	7,061	6,972	19,373,314	10,644,842	14,940,165
York.....	10,492	7,922	6,351	18,622,400	13,333,359	10,559,780
Altoona.....	8,409	9,540	6,573	16,762,738	14,849,663	11,275,287
Lancaster.....	7,967	8,693	7,504	15,978,666	14,647,681	12,750,423
Wilkes-Barre.....	7,553	5,920	4,749	13,525,967	10,989,764	8,616,765
Williamsport.....	5,641	5,266	4,711	13,347,943	11,306,569	9,725,726
Pottstown.....	3,650	3,457	2,681	12,595,196	6,144,723	7,857,603
Lebanon.....	5,591	4,357	4,475	11,429,663	6,978,458	7,658,296
Butler.....	2,823	2,033	792	11,068,363	6,832,007	1,403,262
Sharon.....	3,316	1,812	1,827	9,880,672	5,670,924	3,764,983
McKees Rocks...	3,591	(*)	(*)	9,786,828	(*)	(*)
Pottsville.....	2,872	1,904	1,699	9,138,122	5,805,788	4,820,806
Norristown.....	3,818	3,517	2,944	7,413,211	5,925,243	4,166,834
Easton.....	3,388	2,720	3,202	6,915,345	5,059,064	5,424,668
Beaver Falls...	2,180	2,232	2,174	6,400,338	4,907,536	6,228,808
Phoenixville...	2,599	2,388	2,249	5,870,154	5,499,891	3,321,599
Warren.....	1,489	1,174	1,050	5,744,391	4,065,594	3,681,254
Bradford.....	1,040	1,225	815	5,094,382	4,125,479	4,090,748
Washington.....	2,126	(*)	(*)	4,837,055	(*)	(*)
Columbia.....	2,773	3,034	2,519	4,807,068	3,887,087	4,213,887
Hazleton.....	2,682	1,406	822	4,707,025	2,185,876	998,822
Sunbury.....	2,069	1,457	968	4,450,169	2,592,829	1,868,157
Oil City.....	1,338	1,567	1,683	4,121,892	3,082,208	5,164,059
Bradford.....	1,318	1,490	1,200	3,886,538	3,191,894	3,125,007
Bethlehem.....	1,583	(*)	(*)	3,711,602	(*)	(*)
Meadville.....	2,048	1,500	1,201	3,558,925	2,074,800	1,667,954
Shamokin.....	1,623	897	762	3,544,095	1,443,915	1,147,450
Carnegie.....	422	(*)	(*)	3,099,445	(*)	(*)
Carbondale.....	1,503	1,475	1,623	2,523,387	2,315,695	1,146,161
Carlisle.....	1,334	1,340	1,121	2,495,710	1,985,743	1,708,009
Chambersburg...	1,364	843	612	2,456,035	1,085,185	814,856
West Chester...	916	849	497	2,145,843	2,121,185	859,424
Connellsville...	1,085	(*)	(*)	1,970,936	(*)	(*)
Pittston.....	792	830	357	1,969,452	1,474,928	997,789
Dubois.....	1,015	900	817	1,890,168	1,709,360	1,767,699
Dunmore.....	1,308	1,133	614	1,850,654	1,460,445	1,132,322
Uniontown.....	335	(*)	(*)	1,346,865	(*)	(*)
Plymouth.....	908	827	755	1,178,606	869,542	532,835
Shenandoah.....	242	170	107	887,503	594,637	301,646
Mahanoy City...	590	238	301	867,576	431,529	401,103
Mount Carmel.....	600	197	109	785,391	620,396	393,378
Greensburg.....	310	(*)	(*)	726,268	(*)	(*)
Homestead.....	171	307	164	669,196	712,830	265,654
Wilkesburg.....	185	184	100	538,217	471,960	246,143
Nanticoke.....	348	229	140	423,093	358,091	309,990
All other boroughs*	18,283			103,287,937		

\* Includes statistics for Allegheny, annexed in 1907.  
 † Figures do not agree with those published in 1904, because it was necessary to revise the totals in order to include data only for these establishments located within the corporate limits of the city.  
 ‡ Figures not available.  
 § "All other boroughs," for which figures can not be shown without disclosing individual operations, embrace Coatesville, Duquesne, Monessen, North Braddock, Old Forge, South Sharon, and Steelton in 1909.

From 1904 to 1909 the value of products shows an increase for each place for which comparative figures are given except Homestead, and from 1899 to 1904 for all but Pittsburgh, Reading, McKeesport, Scranton, Lebanon, Easton, Beaver Falls, Columbia, Oil City, and Dubois. The rate of increase, however, was

generally greater from 1904 to 1909. The highest rate from 1904 to 1909, 145.4 per cent, was in Shamokin, due in a large measure to the increase in the production of silk goods and hosiery and knit goods, and the next highest, 126.3, in Chambersburg, on account of a general increase in the important manufacturing industries.

In the discussion of the larger cities—those having over 50,000 inhabitants—some important industries will be mentioned, for which the statistics are not shown separately in Table I, page 1080. They are included in the group of "All other industries" for that city, for reasons similar to those which required a like treatment of certain industries in the state figures on pages 1040 and 1041.

Philadelphia, the largest and most important city in the state, occupies a prominent position among the cities of the country as regards the variety and magnitude of its manufacturing operations. At the census of 1809, it was the only city reported separately and then showed a value of manufactured products of nearly \$10,000,000. At the census of 1879 it ranked second, being surpassed by New York only, and held this rank until 1899, when it dropped to third place, being displaced by Chicago. The total value of products reported for the city in 1909 was \$746,075,659, which represents an increase over 1904 of \$154,687,581, or 26.2 per cent, while the increase for the preceding five-year period was \$71,406,266, or 13.7 per cent. The remarkable growth of manufactures in the newer sections of the country, however, has caused most of the older manufacturing centers to show a decrease in their proportion of the total production for the United States. Accordingly, Philadelphia, while reporting 4.6 per cent of the total value of products in 1899 and 4 per cent in 1904, shows only 3.6 per cent for 1909. The leading industries in the city, measured by value of products, together with the value of the products reported in 1909, were as follows: the woolen and worsted goods industry, \$54,922,000; printing and publishing, \$45,807,000; foundries and machine shops, \$38,685,000; and the manufacture of women's clothing, \$30,133,000. The refining of cane sugar had also a value of product large enough to include it in this group of industries, but the statistics can not be presented separately without disclosing the operations of individual establishments.

Among the cities of the United States, Philadelphia is preeminent in the production of all textiles combined and in each of four prominent branches, and so far outranked all other cities in 1909 that its combined value of such products was more than double that of its nearest competitor.

Of the total values for the United States, Philadelphia reported 12 per cent of the entire output of hosiery and knit goods, 31.8 per cent of the carpets and rugs, 12.6 per cent of the woolen and worsted goods, 3.6 per cent of the cotton goods, 21.7 per cent of the fur-felt hats, and 24.8 per cent of the shoddy. Other

leading industries in which the city holds high rank are the making of men's clothing, petroleum refining, the manufacture of leather (tanned, curried, and finished), and slaughtering and meat packing. The fact that the 8,379 establishments reported for Philadelphia in 1909 represented 211 of the 264 industry classifications used at that census indicates a great diversity in manufactures.

The importance of Philadelphia in manufactures as compared with the state as a whole is indicated by the fact that it turned out 28.4 per cent of the total value of manufactured products and employed 28.7 per cent of the total number of wage earners. Furthermore, the city in 1909 manufactured all of the files and printing ink reported for the state; at least 90 per cent of the output of artificial flowers, carpets and rugs, women's clothing, fancy articles, "not elsewhere specified," paper goods, "not elsewhere specified," and shoddy; from 70 to 90 per cent of leather belting and hose, fancy and paper boxes, buttons, men's clothing, gas and electric fixtures and lamps and reflectors, fur-felt hats, millinery and lace goods, patent medicines and compounds and druggists' preparations, soap, and woolen, worsted, and felt goods, and wool hats; from 60 to 70 per cent of the chemicals, clocks and watches, including cases and materials, cordage and twine and jute and linen goods, cotton goods, fertilizers, jewelry, leather goods, printing and publishing, and signs and advertising novelties; and from 50 to 60 per cent of the confectionery, independent dyeing and finishing, optical goods, and paint and varnish.

In addition to the 71 industries presented separately for Philadelphia in Table I, page 1086, there are 140 others which, for various reasons, are included in the group of "All other industries." Some of these were among the most important in the city, 34<sup>1</sup> of them having a product valued in 1909 in excess of \$1,000,000, distributed as follows: Twenty-nine, with products valued at \$1,000,000 but less than \$5,000,000; 1, with products valued at \$5,000,000 but less than \$10,000,000; and 4, with products valued at \$10,000,000 and over.

The totals presented for Philadelphia, or for the state as a whole, do not include the statistics for three establishments located in that city and operated by the Federal Government, namely, the Frankford Arsenal, with an average of 1,920 wage earners and products valued at \$4,257,939 in 1909, the United

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

Agricultural implements.	rivets, not made in steel works or rolling mills.
Babbitt metal and solder.	Locomotives, not made by railroad companies.
Bags, other than paper.	Mineral and soda waters.
Belting and hose, woven and rubber.	Oil, linseed.
Cars and general shop construction and repairs by street-railroad companies.	Oil, not elsewhere specified.
Cars, street-railroad, not including operations of railroad companies.	Oilcloth and linoleum.
Chocolate and cocoa products.	Petroleum, refining.
Coffee and spice, roasting and grinding.	Roofing materials.
Dentists' materials.	Rubber goods, not elsewhere specified.
Food preparations.	Sand and emery paper and cloth.
Furnishing goods, men's.	Saws.
Gas, illuminating and heating.	Shipbuilding, including boat building.
Glass, cutting, staining, and ornamenting.	Signs and advertising novelties.
Gins.	Sporting and athletic goods.
Grease and tallow.	Sugar, refining, not including beet sugar.
Haircloth.	Tin plate and tereplate.
Iron and steel, bolts, nuts, washers, and	Upholstering materials.
	Waste.

States navy yard, with 1,564 wage earners and products valued at \$2,402,850, and the Philadelphia depot of the Quartermaster's Department, U. S. Army, with 168 wage earners and products valued at \$1,349,278. The three establishments combined reported 3,652 wage earners and \$8,010,067 as the value of products.

Pittsburgh is the second city in the state in population and in value of manufactured products. In population it ranked eleventh in 1900 and eighth in 1910 among the cities of the United States, but in value of manufactured products was fourth in 1899 and seventh in 1909. This loss in relative standing is more apparent than real, for in the Pittsburgh district there has been for years a steady drift of important enterprises from the city proper to the surrounding boroughs and townships, some of which showed extraordinary gains during the decade 1899-1909. In value of products the manufactures of this city decreased from \$218,198,065 in 1899 to \$211,259,153 in 1904, a loss of 3.2 per cent, but increased to \$243,453,693 in 1909, making a gain for the decade of \$25,255,628, or 11.6 per cent. The leading industries in Pittsburgh are those which use ore and metal as the principal materials, such as blast furnaces, steel works and rolling mills, and foundries and machine shops; the combined output of these three industries in 1909 formed more than 50 per cent of the total value of all manufactured products for the city. Other important industries in the city are slaughtering and meat packing, with a product of \$13,107,000 in value; printing and publishing, with a product of \$9,071,000 in value; cars and general shop construction and repairs by steam-railroad companies, with a product of \$8,556,000 in value; bread and other bakery products, with a product of \$8,054,000 in value; canning and preserving, with a product of \$6,202,000 in value; the manufacture of malt liquors, with a product of \$5,420,000 in value; and tobacco manufactures, with a product of \$3,615,000 in value. In addition to the 41 industries presented separately for Pittsburgh in Table I, page 1089, there were 9 others included in the group of "All other industries" each of which show products valued at more than \$1,000,000, namely, coke; cork, cutting; iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills; iron and steel pipe, wrought; distilled liquors; locomotives; petroleum refining; smelting and refining, not from the ore; and steel springs, car and carriage.

Reading, with \$51,134,967 in 1909, ranked third in value of products among the cities of the state. There was an increase in the value of products of the city in 1909 over 1904 of \$20,644,025, or 67.7 per cent. Among the industries for which separate statistics for the city can be presented for Reading in Table I, page 1091, steel works and rolling mills, with products valued at \$8,190,000 and giving employment to 3,011 wage earners, constitutes the leading industry in 1909, and steam-railroad repair shops, with products

valued at \$5,661,000 and employing 2,628 wage earners, came next in importance from the standpoint of value of products. The hosiery and knit-goods industry was third in value of products, with \$4,551,000, followed by foundries and machine shops, with \$3,889,000. Other industries showing a value of products exceeding \$1,000,000 were: Boots and shoes; confectionery; fur-felt hats; iron and steel pipe, wrought; malt liquors; slaughtering and meat packing; tobacco manufactures; and woolen, worsted, and felt goods, and wool hats. This city has long been one of the important wool-felt hat manufacturing centers in the United States. In 1909 Reading and its suburb, Mohnton, returned nearly 94.6 per cent of the total value reported for wool-felt hats in the state and 30.9 per cent of the total value for the United States.

Johnstown, the fourth city in the state in value of its manufactures, showed an increase in 1909 over 1904 of \$19,213,969, or 66.5 per cent. The manufacturing activities are confined largely to a single group of industries, as in 1909 the establishments engaged in metal working, which include, among others, blast furnaces, steel works and rolling mills, and foundries and machine shops, returned about 85 per cent of the total number of wage earners and almost 90 per cent of the total value of products for all manufacturing industries in the city. Detailed statistics, however, are not shown for these industries in Table I, page 1086, because a large proportion of the total output was controlled by two corporations. Other industries are coke; flour-mill and gristmill products; malt liquors; pottery, terra-cotta, and fire-clay products; and slaughtering and meat packing.

McKeesport, the fifth city of the state in 1909 in the value of manufactures, reported in 1899 manufactured products valued at \$36,058,447. In 1904 the total reported was only \$23,054,412, a decrease of \$13,004,035, or 36.1 per cent, for the five-year period, but in 1909 the total had advanced to \$42,494,567, making a net gain for the decade of \$6,436,120, or 17.8 per cent. Practically the entire manufacturing activity of the city is in the iron and steel manufactures, five steel works and rolling mills and one blast furnace being located in the city in 1909. The most important product consists of pipe and tubes, in the output of which this city outranks all others in the United States. Other industries in the city are comparatively unimportant.

New Castle was in 1909 sixth in importance among the cities and boroughs of the state as measured by value of manufactured products. The city shows an increase of \$9,114,288, or 31.5 per cent, from 1904 to 1909, and \$8,907,436, or 44.5 per cent, from 1899 to 1904. The industrial importance of New Castle is dependent upon the metal-working industries, the most important of which were steel works and rolling mills, blast furnaces, tin-plate and terneplate mills, and also on the steam-railroad car construction shops.

These four classes of establishments reported more than 90 per cent of the total value of products and gave employment to over 70 per cent of the average number of wage earners shown for the city in 1909.

South Bethlehem was the seventh city of the state in manufactures in 1909, having advanced from twelfth place in 1904 and fifteenth place in 1899. This city has shown decided gains in recent years in the value of products, the increase being \$5,311,357, or 53.3 per cent, from 1899 to 1904 and \$11,141,692, or 72.9 per cent, from 1904 to 1909. The one steel works and rolling mill represents by far the leading industry in the city, although the two blast furnaces and one zinc smelter contribute considerably to its manufacturing activity. The six establishments engaged in the manufacture of tobacco products, the four knitting mills, and one foundry and machine shop also reported a large output of manufactured products in 1909. The exact value of these different classes of products can not be presented separately without disclosing the operations of individual establishments.

Scranton, although the third city of the state in population in 1910, held only eighth place in 1909 when ranked by value of products. This discrepancy, in a great measure, may be accounted for by the fact that a considerable portion of the population of the city were employed in the coal mines in the city and its immediate vicinity, the statistics for which are not embraced with those for manufactures. The value of products decreased from \$24,741,837 in 1899 to \$20,453,285 in 1904, but increased to \$26,384,755 in 1909, making a net gain for the decade of \$1,642,918, or 6.6 per cent. The rank of this city in manufactures was fifth in 1899 and seventh in 1904. The manufacture of silk goods was the leading industry. With 15 mills in operation in 1909, this industry turned out products valued at \$6,631,000, which represented 25.1 per cent of the total for all industries in the city and 10.7 per cent of the total for the silk industry in the state. Other important industries are steam-railroad repair shops, foundry and machine-shop products, malt liquors, hosiery and knit goods, printing and publishing, and slaughtering and meat packing.

Allentown ranked as the ninth city in the state in 1909 and 1904 and tenth in 1899 in the value of its manufactured products, and showed an increase of \$9,422,284, or 55.9 per cent, during the period from 1904 to 1909, and \$1,850,606, or 12.3 per cent, for the preceding five-year period. After Philadelphia, Allentown is the most important city of the state in the manufacture of textiles. The textile industries, including the dyeing and finishing of textiles, are the most important in the city, having a combined output valued at \$9,838,000, or 37.5 per cent of the total for all industries of the city in 1909. The manufacture of silk and silk goods is the leading branch of the textile industry in this city and increased

in value of product from \$3,468,000 in 1889 to \$7,456,000 in 1909. The metal-working industries reported products valued at nearly \$7,000,000; the boot and shoe industry, products valued at \$1,302,000; and tobacco manufactures, products valued at \$1,446,000. The manufacture of automobiles, bread and other bakery products, furniture and refrigerators, and malt liquors, together with slaughtering and meat packing, are also important.

Erie shows an increase in value of products from 1904 to 1909 of \$5,586,472, or 30 per cent, and from 1899 to 1904 of \$2,146,275, or 13 per cent. The leading industry in the city is foundry and machine-shop products, which were valued at \$8,715,000 in 1909 and formed 36 per cent of the total value of manufactures in the city. Other important industries are: Flour mills and gristmills; iron and steel, blast furnaces; lumber and timber products; the brewing of malt liquors; the paper and wood-pulp industry; printing and publishing; the manufacture of rubber goods; slaughtering and meat packing; the manufacture of stoves and furnaces; and of washing machines and clothes wringers.

Harrisburg shows an increase in value of products of \$6,154,613, or 37.1 per cent, from 1904 to 1909, which is nearly four times as great as that shown from 1899 to 1904. The steel works and rolling mills form the leading industry in the city. There are a number of other important industries, but the statistics for the most of them can not be presented separately without disclosing the operations of individual establishments. These industries are: Boots and shoes, bread and other bakery products, steam-railroad repair shops, foundry and machine-shop products, blast furnaces, printing and publishing, silk and silk goods, slaughtering and meat packing, tin plate and terne-plate, tobacco manufactures, typewriters and supplies, and women's clothing.

In Chester the metal-working industries are the most important, as combined they reported more than one-third of the \$19,373,314 shown as the total value of products for the city. Next in importance are the textile industries, particularly cotton, and woolen and worsted goods, the combined output for the two classes of goods being more than one-fourth of the total value of all manufactured products reported for the city. The slaughtering and meat-packing; pottery, terracotta, and fire-clay; and leather (tanned, curried, and finished) industries rank in the order named.

York, the thirteenth city in the state in value of manufactured products, owes its industrial prominence to a number of industries, the most important being foundries and machine shops. In 1909 they employed 1,967 wage earners, and turned out products valued at \$3,985,000, representing 18.7 per cent and 21.4 per cent of the respective totals for the city. Five other industries in the city reported products valued at more than \$1,000,000, as follows: Agricultural implements, carriages and wagons, tex-



tiles (hosiery and knit goods, and silk and silk goods), tobacco manufactures, and wall paper.

Altoona, with products valued at \$16,762,738 in 1909, shows an increase, compared with 1904, of \$2,412,775, or 16.8 per cent. The leading industry is steam-railroad repair shops, but the statistics can not be shown separately for Altoona in Table I, page 1084, without disclosing the operations of individual establishments. No other industry in the city is of special importance, with the exception of silk and silk goods, which is represented by one establishment.

Lancaster dropped in rank among the cities and boroughs of the state as measured by value of products from twelfth in 1899 to thirteenth in 1904 and to fifteenth in 1909. In the manufacture of umbrellas and canes, which is the leading industry in the city, employing an average of 1,012 wage earners and turning out products valued at \$2,840,000, Lancaster ranks second among the cities of the United States. The next industry in importance is tobacco manufactures, which employed 1,453 wage earners and reported products valued at \$1,970,000 in 1909. Foundries and machine shops is another industry which reported manufactured products valued at more than \$1,000,000.

Wilkes-Barre, with manufactured products valued at \$13,525,957 in 1909, shows an increase over 1904 of \$2,526,203, or 23 per cent. The largest industry in the city for which figures are shown separately for Wilkes-Barre in Table I, page 1093, is the manufacture of silk and silk goods. The manufacture of carriages and wagons, cotton goods, malt liquors, locomotives, and wire are also important.

In Williamsport the lumber industry was the most important in the city for many years. With the depletion of the forests in northern Pennsylvania, the annual production of lumber decreased; and the importance of this industry in the manufacturing activities of the city has fallen off, until in 1909 the value of products amounted to less than \$2,000,000. The manufacture of silk and silk goods was the most important industry in 1909, followed by foundry and machine shops, lumber and timber products, the manufacture of rubber boots and shoes, the furniture and refrigerator industry, and printing and publishing. The tanning industry, which is of importance in this city, has decreased considerably during the five-year period from 1904 to 1909, but in the latter year showed products in excess of three-quarters of a million in value.

The remaining 46 cities and boroughs in the state, each of which had more than 10,000 inhabitants but less than 30,000, owe their importance in manufactures, as a rule, to a single industry. The iron and steel industries, including foundries and machine shops, predominate in the following places: Pottstown, Lebanon, Sharon, McKees Rocks, Pottsville, Beaver Falls, Phoenixville, Braddock, Columbia, Oil City, Bradford, Homestead, Chambersburg, Coatesville, Duquesne,

Monessen, South Sharon, and Steelton; silk and silk goods, in Easton, Hazleton, Sunbury, Bethlehem, Shamokin, and Old Forge; steam-railroad repair shops, in Meadville, Carbondale, Connellsville, Dubois, and Dunmore; malt liquors, in Pittston, Uniontown, Shenandoah, and Nanticoke; hosiery and knit goods, in Norristown and Plymouth; petroleum refining, in Warren; steam-railroad cars, in Butler; lead smelting and refining, in Carnegie; glass, in Washington; boots and shoes, in Carlisle; dairymen's, poulterers', and apiarists' supplies, in West Chester; shirts, in Mahanoy City; slaughtering and meat packing, in Mount Carmel; printing and publishing, in Greensburg; planing-mill products, in Wilkesburg; and brick and tile, in North Braddock.

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

The most important distinction shown is that between corporate and all other forms of ownership. Of the total number of establishments in all industries combined, 21.3 per cent were under corporate ownership in 1909, as against 78.7 per cent under all other forms. The corresponding figures for 1904 were 19.3 per cent and 80.7 per cent, respectively. In respect to value of products the corresponding proportions are reversed, but the differences are not so pronounced. In 1909 the establishments operated by corporations reported 78.2 per cent of the total value, as against 21.8 per cent for those under all other forms of ownership, while in 1904 the corresponding figures were 71.7 per cent and 28.3 per cent, respectively. The greatest relative decreases are for establishments operated by firms, which represented only 19.6 per cent of the total number of establishments and 11.5 per cent of the total value of products in 1909, as compared with 21.9 per cent and 16.5 per cent for the respective totals in 1904.

The form of ownership prevailing in the different industries presented separately in the table varied greatly. In number of establishments, those owned by individuals ranged from 14.1 per cent in silk and silk goods to 91.3 per cent in bakery products, while those owned by corporations ranged from two-tenths of 1 per cent in the latter industry to 65.5 per cent in the former. The variation in the proportions owned by firms in the different industries was considerable, but not so pronounced as in the other two principal forms.

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>Hosiery and knit goods,</b>				
1909	27,563	877,543	\$2,628,742,034	\$1,044,182,046	1909	464	38,206	\$49,657,508	\$22,439,555
1904	28,495	763,282	1,955,551,332	812,608,625	Individual	185	9,363	12,100,619	5,059,341
Individual:					Firm	130	7,714	10,952,157	4,863,638
1909	16,051	111,437	267,060,904	121,134,145	Corporation	149	21,129	26,544,730	12,511,576
1904	13,615	106,547	226,900,537	106,702,943	Per cent of total	100.0	100.0	100.0	100.0
Firm:					Individual	39.9	24.5	24.5	24.5
1909	5,408	122,625	301,405,058	131,028,704	Firm	28.0	20.2	22.1	21.7
1904	5,144	145,445	322,330,420	143,632,042	Corporation	32.1	55.3	53.5	55.8
Corporation:					Leather, tanned, curried, and finished, 1909				
1909	5,880	642,866	2,053,458,538	789,991,257	Individual	163	14,008	\$77,926,321	\$18,813,197
1904	4,540	510,711	1,403,081,857	561,519,993	Individual	39	770	2,882,720	820,070
Other:					Firm	36	2,272	13,992,835	3,080,233
1909	224	615	4,817,534	2,027,940	Corporation	88	10,957	61,050,766	14,912,294
1904	196	579	3,238,509	753,647	Per cent of total	100.0	100.0	100.0	100.0
Per cent of total:					Individual	23.9	5.6	3.7	4.4
1909	100.0	100.0	100.0	100.0	Firm	22.1	16.2	18.0	16.4
1904	100.0	100.0	100.0	100.0	Corporation	54.0	78.2	78.3	79.3
Individual:					Liquors, malt, 1909				
1909	58.2	12.7	10.2	11.6	Individual	237	7,234	\$47,712,870	\$35,102,473
1904	57.9	14.0	11.6	13.1	Individual	52	813	4,639,538	3,132,904
Firm:					Firm	31	800	4,922,083	3,561,337
1909	19.6	14.0	11.5	12.5	Corporation	154	5,612	38,150,649	28,408,232
1904	21.9	19.1	16.5	17.7	Per cent of total	100.0	100.0	100.0	100.0
Corporation:					Individual	21.9	11.2	9.7	8.9
1909	21.3	73.3	78.2	75.7	Firm	13.1	11.2	10.3	10.1
1904	19.3	66.9	71.7	69.1	Corporation	65.0	77.6	80.0	80.9
Other:					Lumber and timber products, 1909				
1909	0.8	0.1	0.2	0.2	Individual	2,667	26,873	\$57,453,583	\$30,138,347
1904	0.8	0.1	0.2	0.1	Individual	1,040	9,445	17,547,215	9,849,176
Bread and other bakery products, 1909	3,185	12,221	\$45,850,070	\$18,520,454	Firm	757	6,020	13,718,916	7,275,119
Individual	2,907	6,091	25,107,663	10,124,331	Corporation	270	10,808	26,187,452	13,015,052
Individual	206	906	3,293,151	1,325,184	Per cent of total	100.0	100.0	100.0	100.0
Firm	206	906	3,293,151	1,325,184	Individual	61.5	35.1	30.5	32.7
Corporation	72	4,324	17,449,255	7,070,939	Firm	28.4	24.4	23.9	24.1
Per cent of total	100.0	100.0	100.0	100.0	Corporation	10.1	40.2	45.6	43.2
Individual	91.3	57.2	54.8	54.7	Printing and publishing, 1909				
Firm	6.5	7.4	7.2	7.2	Individual	2,461	24,698	\$70,584,179	\$47,831,430
Corporation	2.2	35.4	38.1	38.2	Individual	1,445	6,029	14,130,129	10,199,021
Clothing, men's, including shirts, 1909	698	23,623	\$39,681,780	\$19,818,626	Firm	435	4,101	8,453,297	6,004,175
Individual	407	7,545	9,244,332	5,511,082	Corporation	471	14,257	45,791,442	29,879,644
Individual	261	13,650	26,185,628	12,367,622	Other	110	309	2,200,311	1,687,990
Firm	28	2,428	4,251,800	1,939,922	Per cent of total	100.0	100.0	100.0	100.0
Corporation	28	2,428	4,251,800	1,939,922	Individual	58.7	24.4	20.0	21.3
Per cent of total	100.0	100.0	100.0	100.0	Firm	17.7	16.0	12.0	12.7
Individual	58.5	31.9	23.3	27.8	Corporation	19.1	57.7	64.9	62.5
Individual	37.5	57.8	66.0	62.4	Other	4.5	1.3	3.1	8.5
Firm	37.5	57.8	66.0	62.4	Silk and silk goods, including throwsters, 1909				
Corporation	4.0	10.3	10.7	9.8	Individual	226	36,469	\$62,061,302	\$26,895,731
Clothing, women's, 1909	401	15,701	\$32,837,424	\$14,681,191	Individual	32	3,087	5,786,030	2,949,672
Individual	175	5,909	10,300,487	4,518,025	Firm	46	7,231	12,370,475	5,579,753
Individual	201	8,496	18,622,636	8,491,592	Corporation	148	26,141	43,924,791	18,216,406
Firm	201	8,496	18,622,636	8,491,592	Per cent of total	100.0	100.0	100.0	100.0
Corporation	25	1,896	3,914,301	1,671,574	Individual	14.1	8.5	9.3	11.0
Per cent of total	100.0	100.0	100.0	100.0	Firm	20.4	19.8	19.9	21.3
Individual	43.6	33.8	31.4	30.8	Corporation	65.5	71.7	70.8	67.7
Individual	50.1	54.1	56.7	57.8	Slaughtering and meat packing, 1909				
Firm	50.1	54.1	56.7	57.8	Individual	180	3,050	\$51,850,936	\$7,005,889
Corporation	6.2	12.1	11.9	11.4	Individual	92	693	9,406,946	1,079,096
Cotton goods, including cotton small wares, 1909	175	16,293	\$33,817,033	\$15,160,008	Firm	44	358	6,988,578	979,626
Individual	48	2,424	5,355,654	2,609,366	Corporation	44	1,999	35,458,412	4,946,967
Individual	43	3,540	6,602,563	2,672,064	Per cent of total	100.0	100.0	100.0	100.0
Firm	43	3,540	6,602,563	2,672,064	Individual	51.1	22.7	18.1	15.4
Corporation	84	10,329	21,958,816	9,878,588	Firm	24.4	12.7	13.5	14.0
Per cent of total	100.0	100.0	100.0	100.0	Corporation	24.4	64.6	68.4	70.6
Individual	27.4	14.9	15.8	17.2	Tobacco manufactures, 1909				
Individual	24.6	21.7	19.5	17.6	Individual	2,432	33,188	\$50,161,387	\$29,447,964
Corporation	48.0	63.4	64.7	65.2	Individual	2,091	10,010	14,018,961	8,404,675
Flour-mill and gristmill products, 1909	1,450	2,432	\$44,782,558	\$6,612,430	Firm	253	10,332	16,172,156	9,116,610
Individual	1,034	1,254	19,789,007	3,156,422	Corporation	88	12,846	19,970,270	11,926,679
Individual	358	686	12,723,440	1,984,217	Per cent of total	100.0	100.0	100.0	100.0
Firm	358	686	12,723,440	1,984,217	Individual	86.0	30.2	27.9	28.5
Corporation	58	492	12,270,105	1,471,791	Firm	10.4	31.1	32.2	31.0
Per cent of total	100.0	100.0	100.0	100.0	Corporation	3.6	38.7	39.8	40.5
Individual	71.3	51.6	44.2	47.7	Woolen, worsted, and felt goods, and wool hats, 1909				
Individual	24.7	28.2	28.4	30.0	Individual	217	27,409	\$77,446,998	\$22,812,911
Corporation	4.0	20.2	27.4	22.3	Individual	59	4,340	12,195,424	3,576,306
Foundry and machine-shop products, 1909	1,695	86,821	\$210,746,257	\$109,735,517	Firm	73	7,942	22,867,665	7,006,445
Individual	646	5,923	11,666,806	6,629,411	Corporation	85	15,127	42,383,907	12,230,160
Individual	292	4,083	8,578,983	5,042,513	Per cent of total	100.0	100.0	100.0	100.0
Firm	292	4,083	8,578,983	5,042,513	Individual	27.2	15.8	15.7	15.7
Corporation	757	76,815	190,500,468	98,063,593	Firm	33.6	29.0	29.5	30.7
Per cent of total	100.0	100.0	100.0	100.0	Corporation	39.2	55.2	54.7	53.6
Individual	38.1	6.8	5.5	6.0					
Individual	17.2	4.7	4.1	4.6					
Corporation	44.7	88.5	90.4	89.4					

<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 following table groups the establishments according to the value of their products. The table also shows the average size

of establishments for all industries combined and for important industries separately, as measured by number of wage earners, value of products, and value added by manufacture. The totals for all industries are shown for the last two censuses, while for the 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>Cotton goods, including cotton small wares, 1909—Continued.</b>				
1909.....	27,563	877,543	\$2,626,742,034	\$1,044,182,046	Less than \$5,000.....	100.0	100.0	100.0	100.0
1904.....	23,495	763,282	1,956,551,332	812,608,625	\$5,000 and less than \$20,000.....	2.9	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Less than \$5,000:					\$20,000 and less than \$100,000.....	12.6	1.1	0.8	1.0
1909.....	9,493	12,302	22,574,998	13,719,359	\$100,000 and less than \$1,000,000.....	36.6	11.8	11.0	10.3
1904.....	7,567	11,307	18,788,800	11,558,864	\$1,000,000 and over.....	44.6	66.3	64.6	63.0
\$5,000 and less than \$20,000:					Average per establishment.....	3.4	20.7	23.6	25.6
1909.....	8,764	46,720	90,897,695	48,251,171			93	\$193,812	\$86,629
1904.....	7,876	46,076	80,441,200	43,384,120	<b>Flour-mill and gristmill products, 1909.....</b>				
\$20,000 and less than \$100,000:					1,450	2,432	\$44,782,558	\$6,612,430	
1909.....	5,802	131,163	258,998,545	123,772,576	Less than \$5,000.....	234	94	731,608	134,652
1904.....	5,184	127,130	231,119,163	119,478,621	\$5,000 and less than \$20,000.....	676	589	7,657,933	1,355,659
\$100,000 and less than \$1,000,000:					\$20,000 and less than \$100,000.....	474	1,028	18,381,215	2,899,887
1909.....	3,104	370,082	923,150,484	412,461,925	\$100,000 and less than \$1,000,000.....	61	469	10,303,209	1,412,363
1904.....	2,584	325,475	723,662,644	326,666,667	\$1,000,000 and over.....	5	252	7,708,693	806,869
\$1,000,000 and over:					Per cent of total.....	100.0	100.0	100.0	100.0
1909.....	400	317,186	1,331,111,312	440,977,015	Less than \$5,000.....	16.1	3.9	1.6	2.0
1904.....	284	253,294	901,539,525	311,520,453	\$5,000 and less than \$20,000.....	46.6	24.2	17.1	20.5
Per cent of total:					\$20,000 and less than \$100,000.....	32.7	42.3	41.0	43.9
1909.....	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000.....	4.2	19.3	23.0	21.4
1904.....	100.0	100.0	100.0	100.0	\$1,000,000 and over.....	0.3	10.4	17.2	12.2
Less than \$5,000:					Average per establishment.....		2	\$30,885	\$4,560
1909.....	34.4	1.4	0.9	1.3	<b>Foundry and machine-shop products, 1909.....</b>				
1904.....	32.2	1.5	1.0	1.4	1,695	86,821	\$210,746,257	\$109,735,517	
\$5,000 and less than \$20,000:					Less than \$5,000.....	397	546	988,408	681,614
1909.....	31.8	5.3	3.5	4.6	\$5,000 and less than \$20,000.....	459	2,618	4,782,893	3,013,043
1904.....	33.5	6.0	4.1	5.3	\$20,000 and less than \$100,000.....	465	11,799	22,363,155	12,593,764
\$20,000 and less than \$100,000:					\$100,000 and less than \$1,000,000.....	344	46,441	107,048,955	56,358,299
1909.....	21.0	14.9	9.9	12.3	\$1,000,000 and over.....	30	25,417	74,962,846	37,088,797
1904.....	22.1	16.7	11.8	14.7	Per cent of total.....	100.0	100.0	100.0	100.0
\$100,000 and less than \$1,000,000:					Less than \$5,000.....	23.4	0.6	0.5	0.6
1909.....	11.3	42.2	35.1	39.5	\$5,000 and less than \$20,000.....	27.1	3.0	2.3	2.7
1904.....	11.0	42.6	37.0	40.2	\$20,000 and less than \$100,000.....	27.4	13.6	10.6	11.5
\$1,000,000 and over:					\$100,000 and less than \$1,000,000.....	20.3	53.5	51.1	51.4
1909.....	1.5	36.1	50.7	42.2	\$1,000,000 and over.....	1.8	29.3	35.6	33.8
1904.....	1.2	33.2	46.1	38.3	Average per establishment.....		61	\$124,334	\$64,741
Average per establishment:					<b>Hosiery and knit goods, 1909.....</b>				
1909.....	32		\$95,300	\$37,883	464	38,206	\$49,657,506	\$22,439,555	
1904.....	32		\$83,233	\$4,586	Less than \$5,000.....	84	102	82,651	42,893
<b>Bread and other bakery products, 1909.....</b>					Less than \$5,000.....	35	117	1,090,114	539,423
3,185	12,221	\$45,850,070	\$18,520,454		\$5,000 and less than \$20,000.....	86	1,175	8,991,390	4,640,294
Less than \$5,000.....	1,306	970	3,897,535	1,620,376	\$20,000 and less than \$100,000.....	204	8,981	8,991,390	4,640,294
\$5,000 and less than \$20,000.....	1,576	4,137	14,569,504	6,003,773	\$100,000 and less than \$1,000,000.....	141	27,948	38,553,371	17,216,990
\$20,000 and less than \$100,000.....	258	2,660	9,127,709	3,543,456	Per cent of total.....	100.0	100.0	100.0	100.0
\$100,000 and less than \$1,000,000.....	40	2,576	9,397,437	3,443,670	Less than \$5,000.....	7.5	0.3	0.2	0.2
\$1,000,000 and over.....	5	1,878	8,857,885	3,909,173	\$5,000 and less than \$20,000.....	18.1	3.1	2.1	2.4
Per cent of total.....	100.0	100.0	100.0	100.0	\$20,000 and less than \$100,000.....	44.0	23.5	20.1	20.7
Less than \$5,000.....	41.0	7.9	8.5	8.7	\$100,000 and less than \$1,000,000.....	30.4	73.2	77.6	76.7
\$5,000 and less than \$20,000.....	49.5	33.9	31.8	32.4	Average per establishment.....		82	\$107,020	\$43,361
\$20,000 and less than \$100,000.....	8.1	21.8	19.9	19.9	<b>Leather, tanned, curried, and finished, 1909.....</b>				
\$100,000 and less than \$1,000,000.....	1.3	21.1	20.5	18.6	163	14,008	\$77,928,321	\$18,813,197	
\$1,000,000 and over.....	0.2	15.4	19.2	21.1	Less than \$5,000.....	10	3	25,205	7,357
Average per establishment.....		4	\$14,396	\$5,815	\$5,000 and less than \$20,000.....	18	72	196,089	83,996
<b>Clothing, men's, including shirts, 1909.....</b>					\$20,000 and less than \$100,000.....	21	196	1,005,393	273,414
696	23,623	\$39,681,760	\$19,818,626		\$100,000 and less than \$1,000,000.....	91	6,505	37,931,745	8,657,290
Less than \$5,000.....	155	722	401,328	354,214	\$1,000,000 and over.....	23	27	38,767,889	9,791,140
\$5,000 and less than \$20,000.....	244	4,486	2,633,941	2,134,782	Per cent of total.....	100.0	100.0	100.0	100.0
\$20,000 and less than \$100,000.....	219	8,112	9,628,375	5,403,446	Less than \$5,000.....	6.1	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
\$100,000 and less than \$1,000,000.....	75	8,799	20,785,386	8,926,569	\$5,000 and less than \$20,000.....	11.0	0.5	0.3	0.4
\$1,000,000 and over.....	3	1,504	6,234,730	2,999,615	\$20,000 and less than \$100,000.....	12.9	1.4	1.3	1.5
Per cent of total.....	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000.....	55.8	46.4	48.7	46.0
Less than \$5,000.....	22.3	3.1	1.0	1.8	\$1,000,000 and over.....	14.1	51.6	49.7	52.0
\$5,000 and less than \$20,000.....	35.1	19.0	6.6	27.3	Average per establishment.....		86	\$478,076	\$115,418
\$20,000 and less than \$100,000.....	31.5	34.3	24.3	45.0	<b>Liquors, malt, 1909.....</b>				
\$100,000 and less than \$1,000,000.....	10.8	37.2	52.4	45.0	237	7,234	\$47,712,570	\$35,192,473	
\$1,000,000 and over.....	0.4	6.4	15.7	15.1	\$5,000 and less than \$20,000.....	15	61	175,422	105,462
Average per establishment.....		34	\$57,014	\$28,475	\$20,000 and less than \$100,000.....	68	835	3,711,359	2,488,432
<b>Clothing, women's, 1909.....</b>					\$100,000 and less than \$1,000,000.....	146	5,030	33,119,200	24,476,615
401	15,701	\$32,837,424	\$14,881,191		\$1,000,000 and over.....	8	1,308	10,706,499	8,031,064
Less than \$5,000.....	39	108	102,155	66,349	Per cent of total.....	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000.....	102	1,007	1,106,493	715,037	Less than \$5,000.....	6.3	0.3	0.4	0.3
\$20,000 and less than \$100,000.....	161	4,462	8,130,503	3,802,253	\$5,000 and less than \$20,000.....	28.7	11.5	7.8	7.1
\$100,000 and less than \$1,000,000.....	99	10,094	23,498,273	10,097,568	\$20,000 and less than \$100,000.....	61.6	69.5	69.4	69.7
Per cent of total.....	100.0	100.0	100.0	100.0	\$1,000,000 and over.....	3.4	18.1	22.4	22.9
Less than \$5,000.....	9.7	0.7	3.4	0.5	Average per establishment.....		31	\$201,319	\$148,112
\$5,000 and less than \$20,000.....	25.4	6.8	4.9	25.9	<b>Lumber and timber products, 1909.....</b>				
\$20,000 and less than \$100,000.....	40.1	28.4	24.8	25.9	2,667	26,873	\$57,453,583	\$30,139,347	
\$100,000 and less than \$1,000,000.....	24.7	64.1	71.6	68.8	Less than \$5,000.....	1,281	2,427	2,961,331	1,983,415
Average per establishment.....		39	\$81,889	\$36,611	\$5,000 and less than \$20,000.....	860	5,288	8,580,334	5,153,076
<b>Cotton goods, including cotton small wares, 1909.....</b>					\$20,000 and less than \$100,000.....	438	8,868	18,480,505	9,116,893
175	18,293	\$33,917,033	\$15,160,008		\$100,000 and less than \$1,000,000.....	93	8,491	21,876,012	10,541,809
Less than \$5,000.....	5	8	14,434	6,891	\$1,000,000 and over.....	5	2,299	5,555,401	3,343,254
\$5,000 and less than \$20,000.....	22	133	264,388	147,059	<b>Includes the group "1,000,000 and over."</b>				
\$20,000 and less than \$100,000.....	64	1,925	3,732,505	1,567,490	<b>Less than one-tenth of 1 per cent.</b>				
\$100,000 and less than \$1,000,000.....	78	10,799	21,901,149	9,550,979					
\$1,000,000 and over.....	6	3,378	8,004,557	3,887,589					

INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	INDUSTRY AND VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>Lumber and timber products, 1909—Continued.</b>					<b>Slaughtering and meat packing, 1909—Continued.</b>				
Per cent of total.....	100.0	100.0	100.0	100.0	Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	48.0	9.0	5.2	6.0	Less than \$5,000.....	5.6	0.3	0.1	0.2
\$5,000 and less than \$20,000.....	31.9	19.7	14.9	17.1	\$5,000 and less than \$20,000.....	18.7	1.7	0.7	1.1
\$20,000 and less than \$100,000.....	16.4	31.1	32.2	30.2	\$20,000 and less than \$100,000.....	33.3	7.9	5.8	6.5
\$100,000 and less than \$1,000,000.....	3.5	31.6	38.1	35.0	\$100,000 and less than \$1,000,000.....	37.8	39.0	40.4	44.9
\$1,000,000 and over.....	0.2	8.6	9.7	11.1	\$1,000,000 and over.....	6.7	51.1	53.0	47.4
Average per establishment.....		10	\$21,542	\$11,301	Average per establishment.....		17	\$288,061	\$38,922
<b>Printing and publishing, 1909.</b>					<b>Tobacco manufactures, 1909.</b>				
Less than \$5,000.....	2,461	24,696	\$70,584,179	\$47,831,430	Less than \$5,000.....	2,432	33,188	\$50,161,387	\$29,447,964
\$5,000 and less than \$20,000.....	1,171	1,466	2,864,836	2,192,369	\$5,000 and less than \$20,000.....	1,650	1,511	2,846,418	1,827,335
\$20,000 and less than \$100,000.....	829	4,286	8,146,507	6,128,908	\$20,000 and less than \$100,000.....	471	3,753	4,629,579	2,935,571
\$100,000 and less than \$1,000,000.....	353	6,806	14,394,899	10,438,229	\$100,000 and less than \$1,000,000.....	212	7,122	9,081,905	5,260,243
\$1,000,000 and over.....	101	9,975	28,944,970	19,080,054	\$1,000,000 and over.....	96	18,930	28,679,959	16,277,457
Average per establishment.....	7	2,163	16,232,967	9,991,870	Average per establishment.....	3	1,872	4,923,526	3,140,388
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.....	47.6	6.9	4.1	4.6	Less than \$5,000.....	67.8	4.6	5.7	6.2
\$5,000 and less than \$20,000.....	33.7	17.4	11.5	12.8	\$5,000 and less than \$20,000.....	19.4	11.3	9.2	10.0
\$20,000 and less than \$100,000.....	14.3	27.6	20.4	21.8	\$20,000 and less than \$100,000.....	8.7	21.5	18.1	17.9
\$100,000 and less than \$1,000,000.....	4.1	40.4	41.0	39.9	\$100,000 and less than \$1,000,000.....	3.9	57.0	57.2	55.3
\$1,000,000 and over.....	0.3	8.8	23.0	20.9	\$1,000,000 and over.....	0.1	5.6	9.8	10.7
Average per establishment.....		10	\$28,681	\$19,436	Average per establishment.....		14	\$20,626	\$12,109
<b>Silk and silk goods, including throwsters, 1909.</b>					<b>Woolen, worsted, and felt goods, and wool hats, 1909.</b>				
Less than \$5,000.....	226	36,469	\$62,061,302	\$26,895,731	Less than \$5,000.....	217	27,409	\$77,446,986	\$22,812,911
\$5,000 and less than \$20,000.....	9	96	22,456	1,500	\$5,000 and less than \$20,000.....	14	19	26,604	11,954
\$20,000 and less than \$100,000.....	23	378	271,109	174,328	\$20,000 and less than \$100,000.....	16	158	187,293	121,367
\$100,000 and less than \$1,000,000.....	84	6,941	4,518,202	3,049,315	\$100,000 and less than \$1,000,000.....	60	2,092	3,325,855	1,498,301
\$1,000,000 and over.....	97	18,250	33,362,541	15,191,962	\$1,000,000 and over.....	109	13,172	36,311,874	11,867,947
Average per establishment.....	13	10,804	23,886,904	8,478,626	Average per establishment.....	18	11,938	36,997,395	9,343,232
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.....	4.0	0.3	( <sup>1</sup> )	( <sup>1</sup> )	Less than \$5,000.....	6.5	0.1	( <sup>1</sup> )	0.1
\$5,000 and less than \$20,000.....	10.2	1.0	0.4	0.6	\$5,000 and less than \$20,000.....	7.4	0.7	0.2	0.5
\$20,000 and less than \$100,000.....	37.2	19.0	7.3	11.3	\$20,000 and less than \$100,000.....	27.6	7.6	4.3	6.4
\$100,000 and less than \$1,000,000.....	42.9	50.0	53.8	56.5	\$100,000 and less than \$1,000,000.....	50.2	48.1	47.7	52.0
\$1,000,000 and over.....	5.8	29.6	38.5	31.5	\$1,000,000 and over.....	8.3	43.6	47.8	41.0
Average per establishment.....		161	\$274,608	\$119,008	Average per establishment.....		126	\$356,899	\$105,129
<b>Slaughtering and meat packing, 1909.</b>					<b>Slaughtering and meat packing, 1909.</b>				
Less than \$5,000.....	180	3,050	\$51,850,936	\$7,005,889	Less than \$5,000.....	180	3,050	\$51,850,936	\$7,005,889
\$5,000 and less than \$20,000.....	10	8	27,407	12,777	\$5,000 and less than \$20,000.....	10	8	27,407	12,777
\$20,000 and less than \$100,000.....	30	53	374,709	77,318	\$20,000 and less than \$100,000.....	30	53	374,709	77,318
\$100,000 and less than \$1,000,000.....	60	240	2,986,686	453,074	\$100,000 and less than \$1,000,000.....	60	240	2,986,686	453,074
\$1,000,000 and over.....	68	1,190	20,962,480	3,144,826	\$1,000,000 and over.....	68	1,190	20,962,480	3,144,826
Average per establishment.....	12	1,559	27,489,674	3,317,894	Average per establishment.....	12	1,559	27,489,674	3,317,894

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

This table shows that, in 1909, of the 27,563 establishments, only 400, or 1.5 per cent, had a value of products exceeding \$1,000,000. These establishments, however, employed an average of 317,186 wage earners, or 36.1 per cent of the total number in all establishments, and reported 50.7 per cent of the total value of products and 42.2 per cent of the total value added by manufacture.

On the other hand, the very small establishments—that is, those having a value of products of less than \$5,000—constituted a considerable proportion (34.4 per cent) of the total number of establishments, but the value of their products amounted to only nine-tenths of 1 per cent of the total. The great bulk of the manufacturing was reported by establishments having products valued at not less than \$100,000.

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

The fact that the average value of products per establishment increased from \$83,233 to \$95,300 and the average value added by manufacture from \$34,586 to \$37,883 can not be taken as in itself indicating a tendency toward concentration. The increased values shown may be, and probably are,

due in part to the increase that has taken place in the prices of commodities. The average number of wage earners, 32, was the same at both censuses.

The average value of products per establishment is high in the leather, woolen and worsted goods, slaughtering and meat-packing, and silk-goods industries, while the average is low in the bakery and lumber industries and tobacco manufactures. The average value of products in the tanneries was \$478,076, and in the bakeries was \$14,396.

The largest establishments in the state, however, as measured by average value of products per establishment, were the steel works and rolling mills, with an average of \$2,647,323; the blast furnaces, with \$2,554,218; and the steam-railroad car construction shops, with \$2,116,134; but none of these industries are shown separately in the above table.

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 43 important industries individually, and gives not only the number of establishments falling into each group but also the average number of wage earners employed.

INDUSTRY.	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.										
<b>All industries</b> .....	27,563	3,539	13,040	5,313	2,610	1,356	1,051	387	178	89
Boots and shoes, including cut stock and findings.....	140	1	23	33	28	24	21	8	2	.....
Bread and other bakery products.....	3,185	542	2,209	279	40	15	6	3	1	.....
Butter, cheese, and condensed milk.....	536	79	425	25	5	2	.....	.....	.....	2
Carpets and rugs, other than rag.....	93	6	4	18	23	19	12	6	3	2
Carriages and wagons and materials.....	655	56	343	203	31	14	6	1	.....	1
Cars and general shop construction and repairs by steam-railroad companies.....	132	.....	11	15	20	17	29	12	15	13
Cars, steam-railroad, not including operations of railroad companies.....	13	.....	.....	1	2	3	3	1	.....	3
Cement.....	27	.....	9	10	10	2	12	7	2	1
Chemicals.....	37	.....	.....	10	10	1	3	.....	3	.....
Clothing, men's, including shirts.....	690	21	183	206	180	59	37	7	2	1
Clothing, women's.....	401	10	62	133	116	44	33	2	1	.....
Coke.....	146	.....	24	43	18	26	25	9	.....	1
Confectionery.....	251	30	118	57	17	11	16	2	.....	.....
Copper, tin, and sheet-iron products.....	339	13	178	93	31	10	9	3	2	.....
Cotton goods, including cotton small wares.....	175	1	15	35	48	26	36	11	2	1
Dyeing and finishing textiles.....	135	.....	29	46	32	15	9	3	1	.....
Electrical machinery, apparatus, and supplies.....	84	4	20	24	14	10	8	2	1	1
Flour-mill and gristmill products.....	1,450	359	1,033	53	4	1	.....	.....	.....	10
Foundry and machine-shop products.....	1,695	83	617	392	253	148	130	43	10	.....
Furniture and refrigerators.....	304	14	101	79	58	25	21	6	.....	1
Gas, illuminating and heating.....	99	7	50	22	12	4	2	.....	1	1
Glass.....	112	.....	1	5	11	25	37	22	9	2
Hats, fur-felt.....	38	2	7	13	6	1	3	5	.....	1
Hosiery and knit goods.....	464	7	39	90	137	95	62	25	8	1
Iron and steel, blast furnaces.....	66	.....	1	5	6	15	22	11	5	1
Iron and steel, steel works and rolling mills.....	189	.....	1	5	12	25	34	40	42	30
Iron and steel pipe, wrought.....	11	.....	1	2	1	2	2	1	.....	2
Leather, tanned, curried, and finished.....	163	7	25	22	24	50	22	10	3	.....
Liquors, distilled.....	88	7	55	17	7	1	.....	.....	.....	.....
Liquors, malt.....	237	1	18	100	88	21	8	1	.....	.....
Lumber and timber products.....	2,667	129	1,612	681	164	51	23	3	4	.....
Marble and stone work.....	596	29	333	119	75	29	9	1	1	.....
Paint and varnish.....	114	8	54	31	9	9	2	1	.....	.....
Paper and wood pulp.....	62	.....	9	15	10	8	13	5	2	.....
Patent medicines and compounds and druggists' preparations.....	367	121	190	42	7	1	3	2	1	.....
Petroleum, refining.....	41	.....	3	13	18	2	3	1	.....	1
Pottery, terra-cotta, and fire-clay products.....	139	4	19	25	33	20	25	4	.....	.....
Printing and publishing.....	2,461	548	1,211	474	137	48	36	6	1	.....
Silk and silk goods, including throwsters.....	226	.....	11	25	45	44	57	31	10	3
Slaughtering and meat packing.....	180	15	88	41	20	10	5	1	.....	.....
Tin plate and terneplate.....	17	.....	.....	2	1	5	5	4	.....	.....
Tobacco manufactures.....	2,432	832	990	352	121	63	49	18	6	1
Woolen, worsted, and felt goods, and wool hats.....	217	3	16	31	48	40	47	10	10	3
All other industries.....	6,033	600	2,812	1,434	686	297	165	59	21	9
AVERAGE NUMBER OF WAGE EARNERS.										
<b>All industries</b> .....	877,543	.....	29,230	59,872	86,704	97,089	165,376	135,522	120,456	183,294
Boots and shoes, including cut stock and findings.....	10,822	.....	56	409	1,036	1,733	3,329	2,803	1,396	.....
Bread and other bakery products.....	12,221	.....	4,638	2,661	1,171	1,151	1,036	1,092	572	.....
Butter, cheese, and condensed milk.....	1,177	.....	645	247	137	148	.....	.....	.....	.....
Carpets and rugs, other than rag.....	11,510	.....	10	247	763	1,440	1,735	2,088	1,708	3,510
Carriages and wagons and materials.....	7,498	.....	953	2,088	975	953	982	255	.....	1,342
Cars and general shop construction and repairs by steam-railroad companies.....	46,645	.....	30	188	648	1,150	4,869	4,394	11,565	23,795
Cars, steam-railroad, not including operations of railroad companies.....	7,766	.....	.....	14	57	236	521	286	.....	6,652
Cement.....	8,080	.....	.....	29	64	92	1,951	2,334	1,097	2,513
Chemicals.....	3,185	.....	28	137	374	128	496	.....	.....	.....
Clothing, men's, including shirts.....	23,623	.....	490	2,513	6,084	4,211	5,262	2,566	1,331	1,106
Clothing, women's.....	15,701	.....	192	1,631	4,066	3,233	5,113	714	752	.....
Coke.....	15,331	.....	89	556	607	1,769	3,799	3,297	.....	5,214
Confectionery.....	5,408	.....	284	635	510	755	2,516	707	.....	.....
Copper, tin, and sheet-iron products.....	6,815	.....	457	1,039	1,019	621	1,501	898	1,280	.....
Cotton goods, including cotton small wares.....	16,293	.....	51	457	1,758	1,717	5,777	3,912	1,464	1,157
Dyeing and finishing textiles.....	6,086	.....	98	630	1,019	948	1,236	1,201	894	.....
Electrical machinery, apparatus, and supplies.....	11,025	.....	59	293	444	678	1,294	637	537	7,083
Flour-mill and gristmill products.....	2,432	.....	1,709	470	188	85	.....	.....	.....	.....
Foundry and machine-shop products.....	86,821	.....	1,561	4,598	8,260	10,779	20,408	14,928	12,589	13,098
Furniture and refrigerators.....	9,924	.....	272	997	2,097	1,734	3,009	1,815	.....	.....
Gas, illuminating and heating.....	3,119	.....	124	238	455	243	510	.....	688	1,081
Glass.....	23,710	.....	3	62	442	1,938	5,895	7,811	5,295	2,354
Hats, fur-felt.....	7,220	.....	12	145	191	81	449	1,944	.....	4,398
Hosiery and knit goods.....	38,206	.....	108	1,181	4,738	6,790	9,584	9,299	4,798	1,702
Iron and steel, blast furnaces.....	14,521	.....	5	55	251	1,137	3,838	3,705	3,903	1,527
Iron and steel, steel works and rolling mills.....	126,911	.....	4	65	438	1,894	5,772	13,847	25,855	70,038
Iron and steel pipe, wrought.....	3,873	.....	5	27	24	142	410	430	.....	2,835
Leather, tanned, curried, and finished.....	14,008	.....	57	281	849	3,565	3,119	3,574	2,563	.....
Liquors, distilled.....	724	.....	83	211	226	80	118	.....	.....	.....
Liquors, malt.....	7,234	.....	70	1,440	2,803	1,425	1,193	303	.....	.....
Lumber and timber products.....	26,873	.....	3,780	7,222	5,191	3,474	3,654	979	2,573	.....
Marble and stone work.....	9,264	.....	795	1,444	2,077	2,007	1,434	278	669	.....
Paint and varnish.....	1,992	.....	133	335	207	544	316	457	.....	.....
Paper and wood pulp.....	6,556	.....	25	201	359	580	2,374	1,802	1,315	.....
Patent medicines and compounds and druggists' preparations.....	2,761	.....	352	522	247	62	384	663	541	.....
Petroleum, refining.....	2,900	.....	12	183	678	115	559	289	.....	1,164
Pottery, terra-cotta, and fire-clay products.....	9,003	.....	53	353	1,157	2,123	4,061	1,276	.....	.....
Printing and publishing.....	24,696	.....	3,066	5,012	4,411	3,467	5,663	2,256	821	.....
Silk and silk goods, including throwsters.....	36,469	.....	37	334	1,649	3,395	9,688	10,515	6,861	3,990
Slaughtering and meat packing.....	3,050	.....	222	443	535	378	760	356	.....	.....
Tin plate and terneplate.....	2,346	.....	.....	24	50	301	662	.....	.....	.....
Tobacco manufactures.....	33,188	.....	2,093	3,813	3,872	4,460	7,656	6,295	3,782	1,211
Woolen, worsted, and felt goods, and wool hats.....	27,409	.....	35	408	1,659	3,595	7,481	3,575	7,299	3,357
All other industries.....	143,047	.....	6,534	16,184	22,508	21,268	25,146	20,692	13,286	17,529

INDUSTRY.	Total.	ESTABLISHMENTS EMPLOYING—								
		No wage earners.	1 to 5 wage earners.	6 to 20 wage earners.	21 to 50 wage earners.	51 to 100 wage earners.	101 to 250 wage earners.	251 to 500 wage earners.	501 to 1,000 wage earners.	Over 1,000 wage earners.
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All industries	100.0	3.3	6.8	9.9	11.1	18.8	15.4	13.7	20.9	
Boots and shoes, including cut stock and findings	100.0	0.5	3.8	9.6	16.0	30.8	26.5	12.9		20.9
Bread and other bakery products	100.0	38.0	21.0	9.6	9.4	8.5	8.9	4.7		
Butter, cheese, and condensed milk	100.0	54.8	21.0	11.6	12.6					
Carpets and rugs, other than rag	100.0	0.1	2.1	6.6	12.6					
Carriages and wagons and materials	100.0	12.7	27.2	13.0	12.7	15.1	18.1	14.8		30.5
Cars and general shop construction and repairs by steam-railroad companies	100.0	0.1	0.4	1.4	2.5	10.4	9.4	24.8		17.9
Cars, steam-railroad, not including operations of railroad companies	100.0		0.2	0.7	3.0	6.7	3.7			51.0
Cement	100.0		0.4	0.8	1.1	24.1	28.9			85.7
Chemicals	100.0	0.9	4.3	11.7	4.0	15.6				31.1
Clothing, men's, including shirts	100.0	2.1	10.6	25.8	17.8	22.3	10.9			63.5
Clothing, women's	100.0	1.2	10.4	25.9	20.6	32.6	4.5			4.9
Coke	100.0	0.6	3.6	4.0	11.5	24.8	21.5			34.0
Confectionery	100.0	5.3	11.7	9.4	14.0	46.5	13.1			
Copper, tin, and sheet-iron products	100.0	6.7	15.2	15.0	9.1	22.0	13.2			18.8
Cotton goods, including cotton small wares	100.0	0.3	2.8	10.8	10.5	35.5	24.0			9.0
Dyeing and finishing textiles	100.0	1.6	10.4	16.7	15.6	20.3	20.7			14.7
Electrical machinery, apparatus, and supplies	100.0	0.5	2.7	4.0	6.2	11.7	5.8			4.9
Flour-mill and gristmill products	100.0	70.3	19.3	6.9	3.5					64.2
Foundry and machine-shop products	100.0	1.8	5.3	9.5	12.4	23.5	17.2			15.8
Furniture and refrigerators	100.0	2.7	10.0	21.1	17.5	30.3	18.3			
Gas, illuminating and heating	100.0	4.0	7.6	14.6	7.8	9.9				34.0
Glass	100.0	( <sup>1</sup> )	0.3	1.9	8.2	24.5	32.0			9.9
Hats, fur-felt	100.0	0.2	2.0	2.6	1.1	6.2	20.9			60.9
Hosiery and knit goods	100.0	0.3	3.1	12.4	17.8	25.1	24.3			4.5
Iron and steel, blast furnaces	100.0	( <sup>1</sup> )	0.4	1.7	7.8	27.1	25.5			10.5
Iron and steel, steel works and rolling mills	100.0	( <sup>1</sup> )	0.1	0.8	1.5	4.5	10.9			59.9
Iron and steel pipe, wrought	100.0	0.1	0.7	0.6	3.7	10.6	11.1			73.2
Leather, tanned, curried, and finished	100.0	0.4	2.0	6.1	25.4	22.3	25.5			
Liquors, distilled	100.0	11.5	29.1	31.2	11.9	16.3				
Liquors, malt	100.0	1.0	19.9	38.7	19.7	16.5	4.2			
Lumber and timber products	100.0	14.1	26.9	19.3	12.9	13.6	3.6			9.6
Marble and stone work	100.0	8.6	15.6	27.8	22.3	15.5	3.0			7.2
Paint and varnish	100.0	6.7	16.8	10.4	27.3	15.9	22.9			
Paper and wood pulp	100.0	0.4	3.0	5.4	8.7	35.7	27.1			19.8
Patent medicines and compounds and druggists' preparations	100.0	12.7	18.9	8.9	1.9	13.9	24.0			19.0
Petroleum, refining	100.0	0.4	6.3	19.9	4.0	19.3	10.0			
Pottery, terra-cotta, and fire-clay products	100.0	0.6	3.9	12.6	23.6	45.1	14.2			40.1
Printing and publishing	100.0	12.4	20.3	17.9	14.0	22.9	9.1			3.3
Silk and silk goods, including throwsters	100.0	0.1	0.9	4.5	9.3	26.6	28.8			10.9
Slaughtering and meat packing	100.0	7.3	14.5	19.2	22.2	25.1	11.7			
Tin plate and terneplate	100.0		1.0	2.1	16.7	28.2	52.0			
Tobacco manufactures	100.0	6.3	11.5	11.7	13.5	23.1	19.0			3.6
Woolen, worsted, and felt goods, and wool hats	100.0	0.1	1.5	6.1	13.1	27.3	13.0			12.2
All other industries	100.0	4.6	11.3	15.7	14.9	17.6	14.4			9.3

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

Of the 27,563 establishments reported for all industries, 12.8 per cent employed no wage earners; 47.3 per cent, from 1 to 5; 19.3 per cent, 6 to 20; and 9.5 per cent, 21 to 50. The most numerous single group consists of the 13,040 establishments employing from 1 to 5 wage earners, and the next, of the 5,313 establishments employing from 6 to 20. There were 267 establishments that employed over 500 wage earners, and of these, 89 employed over 1,000, of which 30 were steel works and rolling mills, 13 steam-railroad repair shops, and 10 foundries and machine shops.

Of the total number of wage earners, 50.1 per cent were in establishments employing over 250 wage earners. The single group having the largest number of employees was the group comprising the establishments employing over 1,000 wage earners. This group employed 183,294 wage earners, or 20.9 per cent of the total. The average per establishment in this group was 2,059. More than one-half of the total wage earners employed in the following industries were in this class of establishments: Steam-railroad repair shops; steam-railroad car construction shops; electrical machinery, apparatus, and supplies; fur-felt hats; steel works and rolling mills; and wrought iron and steel pipe.

All the individual industries listed in this table but not in the preceding one, with the exception of butter,

cheese, and condensed milk; the carriage and wagon, and the distilled-liquor industries, and marble and stone work are industries in which comparatively large establishments do most of the business, as appears from the classification according to the number of wage earners.

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

The next table shows, 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 1096.

The table shows that for all industries combined 67.2 per cent of the total expenses was incurred for materials, 24 per cent for services—that is, salaries and wages—and but 8.8 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries. The large proportions shown for miscellaneous expenses for the distilled and malt liquor and tobacco industries are due to the inclusion of internal-revenue taxes. The highest percentage

shown for materials, 93.8, and the lowest percentage shown for salaries and wages, 3.8, are for flour mills and gristmills, proportions which are due to the comparative simplicity of the mill operations.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
All industries.....	4.7	19.3	87.2	8.8
Boots and shoes, including out stock and findings.....	6.3	23.1	65.4	5.1
Bread and other bakery products.....	4.0	16.8	70.2	8.4
Butter, cheese, and condensed milk.....	1.2	4.4	92.0	2.4
Carpets and rugs, other than rag.....	3.4	22.8	64.7	9.1
Carriages and wagons and materials.....	4.6	35.5	52.4	7.5
Cars and general shop construction and repairs by steam-railroad companies.....	3.9	39.7	54.5	1.8
Cars, steam-railroad, not including operations of railroad companies.....	4.6	17.9	70.4	7.2
Cement.....	6.0	22.2	57.8	14.1
Chemicals.....	4.1	14.0	75.5	6.3
Clothing, men's, including shirts.....	4.8	25.5	56.2	13.5
Clothing, women's.....	5.8	24.9	63.3	5.9
Coke.....	2.1	19.0	75.8	3.1
Confectionery.....	6.8	14.8	69.0	9.3
Copper, tin, and sheet-iron products.....	6.2	24.1	62.0	7.6
Cotton goods, including cotton small wares.....	5.4	23.5	62.7	8.4
Dyeing and finishing textiles.....	5.9	29.6	52.9	11.5
Electrical machinery, apparatus, and supplies.....	14.6	22.4	48.7	14.3
Flour-mill and gristmill products.....	0.9	2.9	93.8	2.4
Foundry and machine-shop products.....	8.1	27.8	54.7	9.4
Furniture and refrigerators.....	7.3	28.8	53.8	10.1
Gas, illuminating and heating.....	13.5	16.3	44.6	25.6
Glass.....	5.6	43.2	40.6	10.6
Hats, fur-felt.....	4.3	37.7	50.7	7.3
Hostery and knit goods.....	3.8	26.8	62.0	7.4
Iron and steel, blast furnaces.....	1.5	6.0	89.6	2.9
Iron and steel, steel works and rolling mills.....	3.0	18.8	72.8	5.4
Iron and steel pipe, wrought.....	2.0	12.9	82.8	2.3
Leather, tanned, curried, and finished.....	1.8	9.2	80.3	8.6
Liquors, distilled.....	2.7	3.1	23.2	71.0
Liquors, malt.....	8.6	14.4	33.4	43.5
Lumber and timber products.....	3.7	28.2	56.8	11.4
Marble and stone work.....	5.9	48.9	37.4	7.8
Paint and varnish.....	7.5	8.7	73.0	10.7
Paper and wood pulp.....	4.7	18.9	65.2	11.3
Patent medicines and compounds and druggists' preparations.....	12.5	10.6	49.3	27.5
Petroleum, refining.....	1.5	3.6	92.2	2.7
Pottery, terra-cotta, and fire-clay products.....	7.9	40.3	38.0	13.8
Printing and publishing.....	15.1	24.6	39.0	21.3
Silk and silk goods, including throwsters.....	3.8	20.6	63.2	12.4
Slaughtering and meat packing.....	1.8	4.0	91.2	3.0
Tin plate and tinnerplate.....	1.1	5.4	92.2	1.3
Tobacco manufactures.....	4.1	28.4	47.0	22.6
Woolen, worsted, and felt goods, and wool hats.....	2.5	15.4	76.8	5.4
All other industries.....	6.3	19.1	65.4	9.1

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.

The table indicates that the total primary horsepower increased 585,704, or 34.1 per cent, from 1899 to 1904, and 619,149, or 26.9 per cent, from 1904 to 1909. The greater part of the increase was in owned steam and rented electric power. In 1909, as in 1904, steam power formed the major part of the total power reported, but notwithstanding an increase during the five-year period of 452,344 horsepower, the proportion which this kind of power formed of the total primary power decreased from 90.7 per cent in 1904 to 87 per cent in 1909. The more general use of gas engines in recent years is shown, there being 4,415 such engines, with an indicated capacity of 153,508 horsepower, reported in 1909, as against 2,890 engines with 68,209 horsepower in 1904, and 1,620 engines with 26,246 horsepower in 1899. The figures also show that the practice of renting electric power is increasing rapidly, 145,621 horsepower, or 5 per cent of the total, being of this character in 1909, as compared with 35,701 horsepower, or 1.6 per cent, in 1904, and 22,362 horsepower, or 1.3 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 having increased from 85,384 in 1899 to 311,096 in 1904 and 719,164 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>44,204</b>	<b>24,355</b>	<b>23,646</b>	<b>2,921,547</b>	<b>2,302,398</b>	<b>1,718,694</b>	<b>100.0</b>	<b>100.0</b>
Owned.....	27,213	24,355	23,646	2,757,792	2,243,331	1,678,485	94.4	97.4	97.8
Steam.....	20,764	19,478	19,911	2,541,117	2,088,773	1,587,706	87.0	90.7	92.5
Gas.....	4,415	2,890	1,620	153,508	68,209	26,246	5.3	3.0	1.5
Water wheels.....	1,917	1,372	2,115	53,762	50,220	54,601	1.8	2.2	3.2
Water motors.....	117	115	( <sup>2</sup> )	1,432	400	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Other.....				7,973	35,729	9,932	0.3	1.6	0.6
Rented.....	16,991	( <sup>2</sup> )	( <sup>2</sup> )	163,755	59,067	38,209	5.6	2.6	2.2
Electric.....	16,991	( <sup>2</sup> )	( <sup>2</sup> )	145,621	35,701	22,362	5.0	1.6	1.3
Other.....				18,134	23,366	15,847	0.6	1.0	0.9
<b>Electric motors.....</b>	<b>59,089</b>	<b>19,800</b>	<b>4,547</b>	<b>864,785</b>	<b>346,797</b>	<b>107,748</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Run by current generated by establishment.....	42,008	19,800	4,547	719,164	311,096	85,384	83.2	89.7	79.2
Run by rented power.....	16,991	( <sup>2</sup> )	( <sup>2</sup> )	145,621	35,701	22,362	16.8	10.3	20.8

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

<sup>2</sup> Not reported.

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

Fuel.—Closely related to the question of kind of power employed is that of the fuel 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>4,201,180</b>	<b>57,524,128</b>	<b>14,060,292</b>	<b>448,641</b>	<b>2,037,735</b>	<b>239,745,386</b>
Boots and shoes, including out stock and findings.....	9,675	8,428		12	325	3,128
Bread and other bakery products.....	77,981	20,424	21,837	10,887	602	876,768
Butter, cheese, and condensed milk.....	15,384	31,957		4,914	248	12,870
Carpets and rugs, other than rag.....	34,750	52,421		4	5	1,790
Carriages and wagons and materials.....	36,240	30,824	1,291	200	1,852	107,446
Cars and general shop construction and repairs by steam-railroad companies.....	255,490	643,881	6,982	7,576	75,081	134,888
Cars, steam-railroad, not including operations of railroad companies.....	34,516	169,365	9,763		47,966	458,802
Cement.....	155,888	1,660,750	168		11,891	
Chemicals.....	57,575	298,534	6,008		27,378	35,723
Clothing, men's, including shirts.....	15,940	5,037		13	1,805	131,776
Clothing, women's.....	3,135	1,592			26	18,125
Coke.....		36,886,592	13,668		6	348,958
Confectionery.....	16,412	11,618	312	123		92,300
Copper, tin, and sheet-iron products.....	11,376	19,276	2,010	212		600,245
Cotton goods, including cotton small wares.....	64,645	71,658			424	82
Dyeing and finishing textiles.....	69,512	166,532		228		22
Electrical machinery, apparatus, and supplies.....	3,876	116,955	946		10,223	5,756
Flour-mill and gristmill products.....	34,760	63,485	214	1,722	3,539	131,782
Foundry and machine-shop products.....	201,535	770,178	270,798	9,974	116,179	125,585
Furniture and refrigerators.....	13,168	66,582	1,295	244		4,135,580
Gas, illuminating and heating.....	99,297	348,241	79,675	4	948,620	29,552
Glass.....	6,788	453,613	4,093	2,070	34,966	44,208
Hats, fur-felt.....	27,526	13,608				22,607,776
Hosiery and knit goods.....	72,667	49,824		41	85	7,624
Iron and steel, blast furnaces.....	267,478	445,716	13,248,651	2,906	14	3,521
Iron and steel, steel works and rolling mills.....	650,587	9,447,159	238,459	25,204	520,604	940,558
Iron and steel pipe, wrought.....	64,974	155,665	4,995	75		189,123,915
Leather, tanned, curried, and finished.....	26,089	279,191	187	6,733	26	129,890
Liquors, distilled.....	5,281	56,430	95	453		363,031
Liquors, malt.....	194,562	250,475	576	5	114	1,760,589
Lumber and timber products.....	25,267	99,059	99	1,310	1,766	1,345,457
Marble and stone work.....	15,465	105,316	39	26	1,386	112,383
Paint and varnish.....	9,821	70,635	1,948	667		1,386
Paper and wood pulp.....	98,466	733,072		15,855	2,188	181,924
Patent medicines and compounds and druggists' preparations.....	8,164	4,111	7	96		58,259
Petroleum, refining.....	310,138	453,106			64,017	29,276
Pottery, terra-cotta, and fire-clay products.....	8,643	711,840	415	701		4,527,475
Printing and publishing.....	86,151	11,718	17	93	1,026	1,432,335
Silk and silk goods, including throwsters.....	143,313	41,746		43		408,160
Slaughtering and meat packing.....	25,795	68,697		3,396		637
Tin plate and terneplate.....		23,537				265
Tobacco manufactures.....	14,605	6,356	6	897		516,071
Woolen, worsted, and felt goods, and wool hats.....	53,238	210,160		25	1,448	86,234
All other industries.....	914,019	2,388,764	145,530	352,475	161,893	63,302

NOTE.—In addition, there were 18,250 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 for some of the important industries in Pennsylvania are here presented.

**Iron and steel.**—Although iron was made in several of the colonies before its manufacture was attempted in Pennsylvania, the industry had a comparatively early beginning there under the encouragement of William Penn, the founder of the colony, and as early as 1692 a small amount of iron had been made in the colony. The first successful works were established in Berks County in 1716, and in 1728–29 the colony exported 274 tons of pig iron to England. In 1756 Pennsylvania was spoken of as “the most advanced of all the American colonies in regard to its iron works,” and since that time it has been preeminent among the states in the iron and steel industry.

At the present time a great variety of products are made of iron and steel and in a census of manufactures the establishments producing them have to be divided into many classes according to the nature of their products. Among the more important classes

established for purposes of the census are: Steel works and rolling mills; blast furnaces; foundries and machine shops; and establishments manufacturing locomotives; horseshoes; wrought iron and steel pipe; forgings; bolts, nuts, washers, and rivets; steel car and carriage springs; cutlery and tools; doors and shutters; nails and spikes; and tin plate and terneplate. A given establishment may manufacture products which fall into two or more of these classes, but as the establishment itself can be placed in only one, it is classified according to its principal product. This method necessarily occasions a certain lack of precision in the figures for any class. An establishment classified as manufacturing forgings, because forgings are its principal product, may also make cutlery and tools or some other product of a different class, and hence the totals for establishments classified under the heading “Iron and steel forgings” include certain amounts which would be credited to some other class if the system was ideal; on the other hand, certain forgings made in establishments engaged primarily in some other line of manufacture are omitted from the totals for the forging industry because manufactured as secondary products by establishments engaged primarily in the manufacture



of a product of another class. In none of the classes mentioned, therefore, do the statistics deal exclusively with the manufacture of the products indicated by the industry designation nor do the data relate to the entire production of such products, owing to the overlapping of the several branches of the industry in so many particulars. Some of the establishments operating blast furnaces, or steel works and rolling mills, engaged also in further processes of manufacture and produce many of the articles made by establishments otherwise classified, and no well-defined line of demarcation exists by which any branch of the industry can be separated from the others. Detailed information regarding materials, products, and equipment is here presented for three of the industries, namely, steel works and rolling mills, blast furnaces, and tin-plate and terneplate dipping establishments.

Steel works and rolling mills.—The manufacture of steel was attempted in Pennsylvania about 1750, but the development of the industry was slow. In 1805 there were only two steel plants in the state, with a combined annual output of about 150 tons. In 1809 the number of furnaces had grown to five, and they produced 531 of the 917 tons of steel manufactured in the United States during that year. Three years later the first steel plant in Pittsburgh was erected, and from that time the quantity of steel manufactured increased rapidly, but the kind made varied considerably until 1859, when crucible cast steel was made in Pittsburgh as a regular product. This really marked the beginning of a new industry. Bessemer steel was first made in Pennsylvania in 1867 at Steelton (the third furnace of the kind in the United States). In the same year the first steel rails ever made in this country were manufactured at Johnstown, Pa.

The first rolling mill in the United States for the production of bar iron was built at Plumsock, Pa., in 1817, and in the same year the first puddling in this country was done at that mill. In 1879 the number of steel works and rolling mills was 158 and the value of their products was 48.4 per cent of the total for the United States. At each census since 1879 the mills of Pennsylvania have reported more than half of the total value of products, the proportion in 1909 being 50.8 per cent. To turn out these products the 189 establishments reported in 1909 employed an average of 126,911 wage earners, which was 52.9 per cent of the total number employed by the 446 steel works and rolling mills in the country as a whole.

The next table gives, for 1909, 1904, and 1899, the quantity and cost of the various materials used by steel works and rolling mills in Pennsylvania; the quantity and value of their different products; the principal equipment of the steel works; and the total daily capacity of the plants. The total quantity of steel is classified according to the form of the products and again according to process of manufacture. The ton of 2,240 pounds is used to show quantities.

MATERIAL, PRODUCT, OR EQUIPMENT.	1909	1904	1899
<b>Materials used, total cost.....</b>	<b>\$329,013,421</b>	<b>\$237,875,025</b>	<b>\$219,047,508</b>
Iron and steel: <sup>1</sup>			
For furnaces and hot rolls:			
Pig iron and ferroalloys—			
Tons.....	9,317,903	6,559,417	5,915,321
Cost.....	\$147,425,383	\$64,097,864	\$87,720,436
Pig iron—			
Tons.....	9,158,260	( <sup>2</sup> )	( <sup>2</sup> )
Cost.....	\$139,208,875	( <sup>2</sup> )	( <sup>2</sup> )
Ferroalloys, spiegeleisen, ferromanganese, etc.—			
Tons.....	159,643	( <sup>2</sup> )	( <sup>2</sup> )
Cost.....	\$7,926,508	( <sup>2</sup> )	( <sup>2</sup> )
Scrap, including old rails not intended for re-rolling—			
Tons.....	2,069,773	2,871,819	2,157,468
Cost.....	\$41,572,010	\$38,574,361	\$32,927,014
Ingots, blooms, billets, slabs, muck and scrap bar, re-rolling rails, and sheet and tin-plate bars—			
Tons.....	3,013,148	2,734,746	2,323,979
Cost.....	\$68,274,443	\$60,353,171	\$59,421,973
Rolled forms for further manufacture:			
Skelp—			
Tons.....	119,365	249,273	( <sup>2</sup> )
Cost.....	\$3,959,918	\$7,006,688	( <sup>2</sup> )
Wire rods—			
Tons.....	43,799	27,530	32,170
Cost.....	\$1,244,260	\$800,252	\$1,273,635
Iron ore:			
Tons.....	568,716	423,188	243,688
Cost.....	\$3,169,203	\$1,883,969	\$970,028
All other materials.....	\$63,658,204	\$34,259,700	\$36,734,422
<b>Products, total value.....</b>	<b>\$500,343,995</b>	<b>\$363,773,577</b>	<b>\$332,869,713</b>
Rails:			
Tons.....	848,924	812,691	1,218,289
Value.....	\$24,077,184	\$20,204,210	\$24,597,034
Structural shapes, not including plates used for making girders:			
Tons.....	1,597,946	824,727	766,995
Value.....	\$49,512,361	\$27,449,667	\$25,578,658
Bars and rods, not including wire rods, sheet and tin-plate bars, splice bars, and bars for reinforced concrete:			
Tons.....	1,749,220		1,039,759
Value.....	\$56,717,882		\$43,453,494
Bars for reinforced concrete:			
Tons.....	30,886	1,106,234	
Value.....	\$1,084,652	\$40,428,460	
Wire rods:			
Tons.....	861,201	596,892	276,395
Value.....	\$23,190,920	\$16,928,665	\$11,240,537
Plates and sheets, not including black plates or sheets for tinning, nail and tack plates, tie-plates, fish-plates, or armor plates:			
Tons.....	2,057,176		1,245,843
Value.....	\$78,938,259		\$56,984,914
Black plates, or sheets, for tinning:			
Tons.....	308,738	1,563,154	
Value.....	\$15,400,384	\$65,988,409	
Skelp flue and pipe:			
Tons.....	1,087,592		828,050
Value.....	\$34,273,085		\$35,898,558
Hoops, bands, and cotton ties:			
Tons.....	279,172	1,259,049	
Value.....	\$3,305,448	\$39,576,046	
Nail and tack plates:			
Tons.....	37,802	41,931	42,217
Value.....	\$1,469,504	\$1,156,739	\$1,087,103
Axles, car, locomotive, automobile, wagon, carriage, etc., rolled or forged:			
Tons.....	97,333	73,388	81,383
Value.....	\$3,603,095	\$2,415,226	\$3,569,888
Armor plates, gun forgings, and ordnance:			
Tons.....	22,553	22,643	15,302
Value.....	\$8,833,335	\$9,492,032	\$7,520,479
Blooms, billets, and slabs, produced for sale or for transfer to other works of the same company:			
Tons.....	2,069,296		
Value.....	\$47,413,864		
Rolled forging blooms and billets produced for sale or for transfer to other works of the same company:			
Tons.....	37,977	2,582,848	2,277,133
Value.....	\$1,128,594	\$58,205,781	\$51,948,174
Sheet and tin-plate bars produced for sale or for transfer to other works of the same company:			
Tons.....	778,260		
Value.....	\$17,430,702		
Muck and scrap bar produced for sale or for transfer to other works of the same company:			
Tons.....	118,759	111,992	167,165
Value.....	\$3,505,236	\$2,791,435	\$4,901,446

<sup>1</sup> Includes material purchased or transferred to the establishment reporting from other works of the same company.

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

<sup>3</sup> In addition, steel castings and rolled steel valued at \$2,175,339 were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

MATERIAL, PRODUCT, OR EQUIPMENT.	1909	1904	1899
<b>Products—Continued.</b>			
Rail fastenings, splice bars, tie-plates, fishplates, etc.:			
Tons.....	124,049		
Value.....	\$4,669,802	900,220	356,761
All other rolled steel or iron:		\$22,156,436	\$11,201,989
Tons.....	470,679		
Value.....	\$31,391,361		
Ingots for sale or for transfer to other works of the same company:			
Tons.....	32,144	94,059	84,498
Value.....	\$1,525,021	\$1,850,146	\$2,459,693
Direct steel castings:			
Tons.....	197,405	114,411	69,711
Value.....	\$14,087,422	\$8,041,419	\$5,798,302
All other products, including value added to steel or iron rolling-mill products by further manufacture.....	\$73,785,784	\$47,093,806	\$47,123,444
<i>Steel production, tons.</i>			
Total production.....	1,12,189,953	7,733,640	6,431,297
Ingots.....	11,992,548	7,618,833	6,361,586
Castings.....	197,405	114,807	69,711
Classified according to process:			
Open-hearth.....	9,281,936	4,230,657	2,437,918
Basic.....	8,536,726	3,638,986	1,746,522
Acid.....	745,210	591,671	691,396
Bessemer.....	2,846,360	3,442,312	3,911,127
Crucible and miscellaneous.....	61,657	60,671	82,252
<b>Equipment:</b>			
<i>Steel plants:</i>			
Steel furnaces and converters, daily capacity, double turn, tons.....	55,278	40,672	31,131
Open-hearth furnaces—			
Number.....	428	305	199
Daily capacity, tons of steel, double turn..	38,030	23,115	12,745
Basic—			
Number.....	332	205	106
Daily capacity, tons of steel, double turn..	33,300	17,597	8,404
Acid—			
Number.....	96	100	93
Daily capacity, tons of steel, double turn..	4,730	5,518	4,341
Converters, Bessemer or modified Bessemer—			
Number.....	31	28	33
Daily capacity, tons of steel, double turn.....	16,615	16,900	17,977
Crucible furnaces—			
Number.....	91	96	65
Number of pots that can be used at a heat.....	2,268	1,978	1,856
Daily capacity, tons of steel, double turn.....	561	585	409
All other steel furnaces—			
Number.....	14	18	( <sup>2</sup> )
Daily capacity, tons of steel, double turn.....	72	63	( <sup>2</sup> )
Metal mixers—			
Number.....	26	( <sup>2</sup> )	( <sup>2</sup> )
Capacity, tons.....	5,660	( <sup>2</sup> )	( <sup>2</sup> )
<i>Rolling mills:</i>			
Daily capacity of rolled steel and iron, double turn, tons.....	72,977	52,466	48,304

<sup>1</sup> In addition, 16,655 tons of steel castings were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

<sup>2</sup> Not reported.

Under steel production is included the total product of steel works, whether cast in ingots or in direct castings. All ingots are included, whether consumed in the works where produced, transferred to other works of the producing company, or sold.

Establishments which are classified as steel works and rolling mills make four classes of products—(1) unrolled steel; (2) those which must be subjected to further rolling before they can be regarded as finished rolling-mill products; (3) those which have passed through all the contemplated rolling processes and may be termed finished rolling-mill products; and (4) those which have been subjected to processes beyond the rolling-mill stage. In the above table products of the last class, namely, those which have been subjected to processes beyond the rolling-mill stage, are not shown separately, but those finished rolling-mill

products that were made in the establishment and were there converted into these higher forms have been included with the other finished products of the industry, and the enhanced value which they have acquired through their manufacture beyond the rolling-mill product stage has been included with "All other products."

The existence of the second and third classes of products in the industry, namely, the finished rolled products and the unfinished rolled products, results in a certain amount of duplication in the figures for cost of materials and value of products. When crude iron or steel is worked up into partially rolled products in one steel-making and rolling-mill plant and the products are then sold or transferred to a second, where they are made into finished rolling-mill products, they appear twice in the cost of materials and twice in the value of products. This duplication does not exist where one establishment makes the ingots or other similar products and then rolls them into finished rolling-mill products. In this connection it should be noted that two branches of the same company frequently constitute different establishments according to the practice of the census, and hence duplication results when the products of one branch are used as the materials of the other.

In considering the comparative figures presented in the table it should be borne in mind that 1904 was a year of partial depression in the iron and steel industry, and that neither the small increases shown in quantity and value for 1904 as compared with 1899, nor the large increases shown for 1909 as compared with 1904, are representative of the normal rate of growth for the industry.

The total cost of materials used in this industry in 1909 was \$329,013,421, which was 38.3 per cent more than the cost of materials in 1904 and 50.2 per cent more than the cost in 1899. The cost of pig and scrap iron, ore, and the partially manufactured forms of iron combined constituted 80.6 per cent of the total cost of materials in 1909, as compared with 85.6 per cent in 1904 and 83.2 per cent in 1899.

The total value of products increased from \$332,869,713 in 1899 to \$500,343,995 in 1909, or 50.3 per cent. The general business depression beginning in 1903 affected this industry also for the greater part of 1904. Consequently, a gain of only 9.3 per cent in total value of products is shown for that year as compared with 1899. Comparing the finished rolled products of 1909 with those of 1899, rails show a decrease in both quantity and value, and nail and tack plates a decrease in quantity but an increase in value. All other finished rolled products show an increase in both quantity and value.

The decrease in the production of rails in Pennsylvania for the decade was 369,365 tons, or 30.3 per cent, while the industry in the country at large shows an increase of 607,262 tons, or 27 per cent. Bars and rods, including wire rods, with an increase of 1,334,213

tons, or 101.6 per cent, made the largest absolute gain in quantity from 1899 to 1909, while plates and sheets, with an increase of \$37,353,829, or 65.6 per cent, made the largest absolute gain in value. Muck and scrap bar produced for sale or transfer decreased 29 per cent in quantity and 28.5 per cent in value. Ingots produced for sale or transfer show a decrease of 62 per cent in quantity and 38 per cent in value, while direct steel castings show large relative increases, 183.2 per cent in quantity and 143 per cent in value.

The increase for the decade of \$26,662,340, or 56.6 per cent, in the value of all other products, which includes the value added to rolling-mill products by further manufacture, indicates an extension of the practice of carrying the processes of manufacture beyond the rolling-mill stage. Included in this item was the value added to skelp in the manufacture of 654,042 tons of pipe and tubes. The value of such pipe and tubes was \$36,929,123, and the assigned value of skelp used in their production was \$20,179,114, making approximately \$16,750,000 added by further manufacture of skelp alone.

The total production of steel in the state of Pennsylvania in 1909 was 12,189,953 tons, an increase over 1899 of 5,758,656 tons, or 89.5 per cent. Of the total production in 1909, 11,992,548 tons, or 98.4 per cent, were in the form of ingots and 197,405 tons, or 1.6 per cent, in the form of direct castings. The figures classifying the steel according to process of manufacture show that open-hearth steel formed 76.1 per cent of the total; Bessemer, 23.4 per cent; and crucible and miscellaneous, five-tenths of 1 per cent. Of the open-hearth steel 92 per cent was basic and 8 per cent acid. The proportion of open-hearth steel was 54.7 per cent in 1904 and 37.9 per cent in 1899. In 1909 the quantity of Bessemer steel was 17.3 per cent less than in 1904, in which year the production was 12 per cent less than in 1899. Crucible and miscellaneous steel, although showing a slight increase in 1909 over 1904, show a considerable decrease from 1899 to 1909. The figures thus indicate a growing use of the open-hearth process.

The daily capacity of the steel plants of Pennsylvania increased from 31,131 tons in 1899 to 40,672 tons in 1904, and to 55,278 tons in 1909, an increase of 77.6 per cent for the decade. Of the total daily capacity of the steel plants in 1909, open-hearth furnaces contributed 68.8 per cent; Bessemer and modified Bessemer converters, 30 per cent; and crucible and all other furnaces, 1.1 per cent. Corresponding figures for 1899 were: Open-hearth, 40.9 per cent; Bessemer, 57.7 per cent, and crucible, 1.3 per cent. At the census of 1909, metal mixers were first reported and the number returned was 26, with an aggregate capacity of 5,660 tons. During the decade the daily capacity of the rolling mills, on double turn, increased from 48,364 tons to 72,977 tons, or 50.9 per cent.

**Blast furnaces.**—In 1791 there were 16 blast furnaces in Pennsylvania. By 1849 the number had increased to 298, of which 230 were charcoal furnaces, 57 anthracite, and 11 bituminous coal or coke. Since 1849 the manufacture of charcoal iron has declined. In 1909 the active furnaces included but 4 small charcoal furnaces, 24 anthracite furnaces, and 115 coke furnaces. In 1879, 137 establishments were reported as operating blast furnaces in Pennsylvania and they produced 1,723,492 of the 3,375,912 long tons of pig iron made in the United States. The proportion which the state contributed to the total was therefore a little more than 51 per cent. A decreasing proportion has since been shown at each census period, although up to and including the last census its output has been more than double that of its nearest competitor. During this period the total annual output for the country has increased over 650 per cent.

In the next table are shown, for 1909, 1904, and 1899, the quantity and cost of the various materials used, the quantity and value of the different products, and the principal equipment of the establishments engaged in this branch of the iron and steel industry. The total quantity of pig iron manufactured is classified in four ways—(1) according to the fuel used in its production; (2) according to the disposition made of it; (3) according to grade; and (4) according to method of delivery or of casting. The ton of 2,240 pounds is used to show quantities.

In 1909 there were charged into the blast furnaces of Pennsylvania 20,822,023 tons of iron ore, mill cinder, scrap, etc., and 5,819,912 tons of flux. To convert this material, 12,095,186 tons of fuel were consumed. The principal product was 10,911,676 tons of pig iron, valued at \$167,588,407, but other products to the value of \$990,006 were reported. This work was accomplished by 143 active furnaces, with an aggregate daily capacity of 41,557 tons.

The figures for the pig iron classified according to fuel used in the production, show that coke pig iron constituted 94 per cent of the total, anthracite 6 per cent, and charcoal less than three-hundredths of 1 per cent. This is particularly striking when it is remembered that in the beginning of the industry charcoal was used exclusively. The figures concerning method of disposition show that 69.9 per cent of the iron was used in works of the company producing it, and 30.1 per cent was made for sale. Bessemer iron constituted 34.6 per cent of the total amount produced; basic, 44.1 per cent; foundry, 14.1 per cent; and all other, 7.1 per cent. Fifty-four per cent of the total was delivered in molten condition; 26 per cent was machine cast; 17.5 per cent was sand cast; 2.5 per cent was chill cast; and less than one-tenth of 1 per cent was in the form of direct castings.

MATERIAL, PRODUCT, OR EQUIPMENT.	1909	1904	1899
<b>Materials used, total cost.....</b>	<b>\$142,074,028</b>	<b>\$86,321,875</b>	<b>\$64,095,277</b>
<b>Iron ore:</b>			
Tons.....	19,698,996	12,619,590	11,056,833
Cost.....	\$90,171,795	\$64,381,825	\$35,042,178
<b>Domestic—</b>			
Tons.....	18,421,398	12,537,891	10,641,035
Cost.....	\$82,790,018	\$51,563,986	\$32,294,561
<b>Foreign—</b>			
Tons.....	1,277,598	381,699	415,798
Cost.....	\$7,381,777	\$2,817,839	\$2,747,617
<b>Mill cinder scrap, etc.:</b>			
Tons.....	1,123,027	1,161,063	1,108,607
Cost.....	\$3,332,335	\$2,109,422	\$2,086,743
<b>Flux:</b>			
Tons.....	5,819,912	3,842,184	3,371,405
Cost.....	\$5,293,591	\$3,356,725	\$2,264,666
<b>Fuel<sup>1</sup>:</b>			
Coke—			
Tons (2,000 pounds).....	13,245,622	8,713,116	6,254,301
Cost.....	\$38,556,786	\$22,728,319	\$15,576,940
Anthracite coal—			
Tons.....	264,481	498,731	765,707
Cost.....	\$900,607	\$1,599,655	\$1,913,885
Charcoal—			
Bushels.....	476,790	410,610	787,606
Cost.....	\$48,699	\$27,225	\$47,256
Bituminous coal—			
Tons.....		300,043	257,194
Cost.....		\$466,806	\$255,313
All other materials.....	\$3,765,245	\$1,591,898	\$6,309,393
<b>Products, total value.....</b>	<b>\$168,578,413</b>	<b>\$107,455,267</b>	<b>\$101,575,487</b>
<b>Pig iron:</b>			
Tons.....	10,911,676	7,729,278	6,778,584
Value.....	\$167,588,407	\$107,395,757	\$101,555,787
All other products.....	\$990,006	\$59,510	\$19,700
<b>Pig iron, classified according to fuel used:</b>			
Coke—			
Tons.....	10,259,155		
Value.....	\$156,834,660		
All other—		7,729,278	6,778,584
Tons.....	652,521		
Value.....	\$10,753,747		
<b>Pig iron, classified according to disposition:</b>			
Produced for consumption in works of company producing—			
Tons.....	7,028,653	5,573,898	( <sup>1</sup> )
Value.....	\$115,422,575	\$77,087,537	( <sup>2</sup> )
Produced for sale—			
Tons.....	3,283,023	2,155,380	( <sup>2</sup> )
Value.....	\$52,105,838	\$30,308,220	( <sup>2</sup> )
<b>Pig iron, classified by grades (tons):</b>			
Bessemer (0.04 to 0.10 per cent in phosphorus).....	3,775,728	4,457,613	4,617,969
Low phosphorus (below 0.04 per cent in phosphorus).....			
Basic.....	137,521	139,763	
Foundry.....	4,815,840	1,827,121	600,589
Forge or mill.....	1,542,722	796,740	850,472
Malleable Bessemer.....	366,808	313,301	445,328
White, mottled, and miscellaneous.....	37,642	12,497	( <sup>2</sup> )
Direct castings.....	51,916	12,121	50,077
Spiegeleisen, ferromanganese, and ferrosilicon, including Bessemer ferrosilicon (7 per cent and over in silicon).....	4,563	2,941	4,850
<b>Pig iron, classified by method of delivery or casting (tons):</b>			
Delivered in molten condition... ..	5,887,507	3,579,501	( <sup>2</sup> )
Machine cast.....	2,837,578	2,378,870	( <sup>2</sup> )
Sand cast.....	1,907,514	1,490,312	( <sup>2</sup> )
Chill cast.....	274,510	279,654	( <sup>2</sup> )
Direct castings.....	4,563	2,941	
<b>Equipment:</b>			
<b>Furnaces in active establishments:</b>			
Completed stacks at end of year—			
Number.....	145	131	136
Daily capacity, tons.....	41,707	34,200	23,497
Active during the year—			
Number.....	143	120	127
Daily capacity, tons.....	41,557	( <sup>2</sup> )	( <sup>2</sup> )
In course of construction at end of year—			
Number.....	5	11	5
Daily capacity, tons.....	2,200	1,950	2,700
Pig casting machines, number.....	56	( <sup>2</sup> )	( <sup>2</sup> )
Granulated slag pits:			
Number.....	39	15	( <sup>2</sup> )
Annual capacity, tons.....	2,703,000	( <sup>2</sup> )	( <sup>2</sup> )
Gas engines operated with blast-furnace gas:			
Number.....	13	( <sup>2</sup> )	( <sup>2</sup> )
Horsepower.....	32,100	( <sup>2</sup> )	( <sup>2</sup> )

<sup>1</sup> In 1909 includes fuel for smelting only; in 1904 and 1899 includes coal for steam raising.  
<sup>2</sup> Not reported.

The growth of the industry for the decade covered by the table was marked, the quantity of ore used increasing 78.2 per cent; the total quantity of iron produced, 61 per cent; and the total value of products, 66 per cent. During the decade 1899-1909 the number of furnaces in active establishments increased from 136 to 145, or 6.6 per cent, and the daily capacity of the furnaces from 23,497 tons to 41,707, or 77.5 per cent, indicating the building of furnaces of much greater capacity. An interesting point to be noted in the report of equipment for 1909 is that 13 gas engines, operated with blast-furnace gas, and developing a total of 32,100 horsepower, were in use.

**Tin plate and terneplate.**—Closely allied to the operation of steel works and rolling mills is the plating of iron and steel sheets with tin or alloys of tin and lead, inasmuch as practically all the concerns engaged in this industry also roll the greater portion of the iron or steel sheets used. Prior to 1889 the industry was of minor importance, but by 1899 it had assumed such proportions that in the Twelfth Census reports it was for the first time classed as a separate industry. In the manufacture of these products Pennsylvania ranks first among the states, reporting more than 50 per cent of the total product of the United States in 1909. In the following table are given for 1909, 1904, and 1899 the quantity and cost of the various materials used and the quantity and value of the different products:

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost.....</b>	<b>\$22,898,352</b>	<b>\$17,590,077</b>	<b>\$10,364,064</b>
<b>Black plates or sheets:</b>			
Pounds.....	705,748,494	569,744,792	323,985,402
Cost.....	\$15,801,297	\$12,934,377	\$7,881,339
<b>Coating metals:</b>			
Pounds.....	20,269,205	16,809,160	12,158,400
Cost.....	\$5,305,175	\$3,933,091	\$2,025,532
Tin, including tin contents of terne mixture purchased, lbs..	17,348,711	13,796,949	8,154,969
Lead, including lead contents of terne mixture purchased, lbs..	2,920,494	3,012,247	4,003,431
<b>In condition purchased:</b>			
Pig tin—			
Pounds.....	16,858,292		
Cost.....	\$5,032,023		
Pig lead—			
Pounds.....	1,421,210	( <sup>1</sup> )	( <sup>1</sup> )
Cost.....	\$62,338		
Terne mixture—			
Pounds.....	1,989,694		
Cost.....	\$210,814		
All other materials.....	\$1,791,880	\$722,609	\$457,213
<b>Products, total value.....</b>	<b>\$25,234,066</b>	<b>\$19,341,961</b>	<b>\$12,530,991</b>
<b>Tin plate and terneplate:</b>			
Pounds.....	695,377,287	583,599,140	334,008,980
Value.....	\$23,750,750	\$18,928,397	\$12,401,252
<b>Tin plate—</b>			
Pounds.....	648,502,133	524,005,922	256,879,332
Value.....	\$21,687,492	\$16,547,120	\$9,137,483
<b>Terneplate—</b>			
Pounds.....	46,875,154	58,693,218	77,129,648
Value.....	\$2,063,288	\$2,381,277	\$3,263,709
<b>Other sheet iron or sheet steel, tinned or terneplated, taggers' tin, etc.:</b>			
Pounds.....	18,067,567	6,555,855	200,473
Value.....	\$484,211	\$217,476	\$6,492
All other products.....	\$999,105	\$196,088	\$123,247

<sup>1</sup> Figures not available.  
<sup>2</sup> Excluding the product of one establishment engaged primarily in the manufacture of products other than those of the industry designation.

The industry shows a large gain during the 10-year period covered by the table, the total cost of materials

and the total value of products practically doubling. The basic material, black plates or sheets, shows a large increase for both five-year periods, while of the coating metals, tin shows a large increase and lead a large decrease. The changes in the proportions of these two plating materials are reflected in the quantities of tin plate and of terneplate produced, the former showing a large increase and the latter a large decrease for each half of the decade. In 1899, 285 tin and terne sets were reported, with a daily capacity, on single turn, of 1,198,001 pounds, while in 1909 the number was 311 and the capacity 1,533,872 pounds. The daily capacity of the sets, as they were operated—that is, on single, double, or triple turn, as the case might be—was 3,618,308 pounds in 1909.

**Textiles.**—The relative importance of the different textile industries in Pennsylvania, as measured by value of products, is shown in the following table, which presents the total value of their products at the last three censuses.

INDUSTRY.	1909	1904	1899
<b>Total</b> .....	<b>\$287,840,879</b>	<b>\$194,214,389</b>	<b>\$183,286,938</b>
Woolen, worsted, and felt goods, and wool hats.....	77,446,996	55,934,250	48,765,445
Silk and silk goods, including throwsters.....	62,061,302	39,333,520	31,072,926
Hosiery and knit goods.....	49,687,506	30,812,211	21,929,426
Cotton goods, including cotton small wares.....	\$3,917,033	26,209,853	25,447,607
Carpets and rugs, other than rag.....	24,879,232	27,120,311	23,113,058
Hats, fur-felt.....	13,022,617	7,350,311	4,243,352
Cordage and twine and jute and linen goods.....	4,804,775	5,159,654	7,269,148
Shoddy.....	2,051,118	2,204,279	1,448,836

The progress of the textile industries in the state is reflected, to a large extent, by the increases or decreases in the number of spindles, looms, knitting machines, and other equipment. The following table shows the number of the principal machines used in the combined industries and in each of the five main branches for 1909, 1904, and 1899:

MACHINE.	Cen-sus.	Total.	Woolen, worsted, and felt goods, and wool hats.	Silk and silk goods, including throwsters.	Hosiery and knit goods.	Cotton goods, including cotton small wares.	Carpets and rugs, other than rag.
Producing spindles	1909	1,971,907	642,430	1,017,992	33,648	252,671	25,166
	1904	1,707,116	590,916	785,113	25,122	266,347	39,618
	1899	1,532,521	521,726	638,851	30,624	306,637	34,683
Looms.....	1909	63,038	11,420	26,249	.....	19,404	5,965
	1904	53,165	9,848	19,336	.....	17,250	6,731
	1899	47,838	10,681	12,949	133	17,499	6,576
Knitting machines	1909	44,960	.....	.....	44,960	.....	.....
	1904	33,816	.....	.....	33,816	.....	.....
	1899	26,120	.....	.....	26,120	.....	.....
Woolen cards (sets)	1909	947	840	.....	35	.....	72
	1904	971	856	.....	39	.....	76
	1899	1,293	1,170	.....	31	.....	92
Wool-combing machines.	1909	354	342	.....	.....	.....	12
	1904	377	349	.....	.....	.....	28
	1899	357	340	.....	.....	.....	17

The total number of producing spindles increased from 1,532,521 in 1899 to 1,707,116 in 1904 and 1,971,907 in 1909, an increase during the decade of 439,386 spindles, or 28.7 per cent. The largest gain, 379,141, was in the silk mills, and the next largest,

120,704, was in the woolen and worsted mills. The number of producing spindles in the knitting mills increased only slightly, while that in the cotton mills actually decreased 53,966, and that in the carpet and rug mills, 9,517. In addition to the spindles shown in the table, 16,788 were in active use during 1909 in establishments manufacturing cordage and twine and jute and linen goods, and 425 in establishments engaged primarily in the manufacture of shoddy. In this connection attention is called to the fact that the spindle capacity of the mills in Pennsylvania is small in comparison with that in some other states, and small in comparison with the magnitude of the industry there, because in that state the establishments are engaged principally in the final processes of manufacture. To such an extent is this the fact that the state furnishes the largest market in this country for the sale of cotton yarns.

The increase in the number of looms during the decade was 15,200, or 31.8 per cent, the major part of which (13,300) occurred in the silk mills. The number of looms in cotton mills increased 1,905, while that in woolen and worsted mills increased 739. This latter increase, however, was due entirely to an increase of 2,224 looms on worsted goods, as the number on woolen goods decreased 1,485. The number of looms engaged in the manufacture of carpets and rugs increased during the five-year period 1899-1904, but shows a decrease of 611 for the decade. The increase in the number of knitting machines from 26,120 in 1899 to 44,960 in 1909, or 72.1 per cent, corresponds with the increase in the production of hosiery and knit goods. The number of woolen cards decreased, owing to the decline in the manufacture of woolen goods. The number of combing machines increased during the five-year period 1899-1904, but a loss is shown for the following five-year period, making a slight decrease for the decade.

**Woolen, worsted, and felt goods, and wool hats.**—The woolen industry in Pennsylvania was established by the English settlers in Philadelphia soon after the founding of the colony. It was characterized for many years by the number of small independent factories and the extent of hand-loom weaving. The state, and especially that part embraced by the present limits of the city of Philadelphia, has always ranked high in this industry. The next table shows the quantity and cost of the principal materials used during 1909, 1904, and 1899.

The total cost of the materials used in this industry in 1909 was \$54,634,085, an increase over the amount reported for 1899 of \$23,270,224, or 74.2 per cent. In 1909 the cost of wool constituted 49.9 per cent of the total cost of materials used, which was practically the same as the proportion in 1899 (49.7 per cent). The total quantity of wool in condition purchased increased from 61,594,080 pounds in 1899 to 101,256,902 pounds in 1909, or 64.4 per cent, and the cost from \$15,596,216

to \$27,262,676, or 74.8 per cent. Domestic wool represented 52.9 per cent of the total quantity in 1899 and 56 per cent in 1909. The quantity of animal hair used shows a decrease of 4.7 per cent in 1909 as compared with 1899 and of 28.7 per cent in 1909 as compared with 1904. A large portion of the animal hair reported for this industry is used in the production of yarns for the carpet and rug mills, and hence the decrease may be accounted for, at least in part, by the decline in the production of ingrain carpets. The quantity of tailor's clippings and rags and of shoddy purchased decreased, owing to the decline in the woolen branch of the industry, where the main part of these materials are used. The quantities of raw cotton and of cotton yarn purchased by the woolen branch of the industry also decreased for the same reason. The consumption of cotton yarn in the worsted branch, however, increased substantially, rising from 2,685,332 pounds in 1899 to 6,973,960 pounds in 1909. Worsted yarn purchased increased in quantity 7,191,407 pounds, or 129.9 per cent, and in value \$7,970,466, or 204.5 per cent, while tops increased in quantity about 350 per cent and in value about 420 per cent. These large increases from 1899 to 1909 in tops and in worsted yarn purchased indicate not only a growth in the manufacture of worsted goods, but also an extension of the practice of conducting the different processes of this branch of the industry in separate establishments.

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

PRODUCT.	1909	1904	1899
<b>Total value.....</b>	<b>\$77,446,996</b>	<b>\$55,934,250</b>	<b>\$48,765,445</b>
All-wool woven goods:			
Square yards.....	33,149,873	26,622,510	19,498,412
Value.....	\$22,653,317	\$16,102,796	\$10,776,645
Woolen suitings and overcoatings—			
Square yards.....	1,735,118	2,341,754	3,064,746
Value.....	\$1,266,236	\$2,058,448	\$2,363,841
Worsted suitings and overcoatings—			
Square yards.....	9,191,981	7,864,728	5,092,303
Value.....	\$7,692,570	\$5,652,400	\$3,340,842
Worsted dress goods—			
Square yards.....	18,492,858	11,662,226	5,812,616
Value.....	\$11,247,377	\$6,305,829	\$2,745,199
Flannels for underwear—			
Square yards.....	796,097	436,723	633,091
Value.....	\$430,876	\$120,696	\$238,201
Blankets—			
Square yards.....	1,424,062	1,395,707	1,463,544
Value.....	\$1,153,048	\$566,609	\$564,913
All other—			
Square yards.....	1,509,757	2,021,372	3,432,212
Value.....	\$363,210	\$1,393,814	\$1,527,649
Cotton-mixed woven goods:			
Square yards.....	5,104,428	14,026,477	17,389,245
Value.....	\$2,070,669	\$5,767,114	\$3,895,384
Unions, tweeds, cassimeres, etc.—			
Square yards.....	3,344,826	3,058,592	12,040,057
Value.....	\$1,255,914	\$2,782,078	\$3,875,522
All other—			
Square yards.....	1,759,002	5,967,885	5,340,138
Value.....	\$814,755	\$3,014,436	\$2,019,862
Cotton-warp woven goods:			
Square yards.....	30,735,963	19,452,881	31,460,590
Value.....	\$10,570,357	\$4,958,927	\$7,921,126
Wool-filling cassimeres, tweeds, suitings, etc.—			
Square yards.....	10,080,033	4,813,757	8,162,477
Value.....	\$3,562,508	\$1,457,104	\$2,285,377
Worsted-filling cassimeres, tweeds, suitings, etc.—			
Square yards.....	8,347,362	3,859,898	631,181
Value.....	\$3,990,018	\$913,490	\$531,010
Cotton-warp blankets—			
Square yards.....	3,398,778	2,993,200	6,066,804
Value.....	\$633,948	\$359,682	\$991,634
All other—			
Square yards.....	8,009,700	7,786,026	16,001,178
Value.....	\$2,377,883	\$2,228,591	\$4,313,105
Felt cloths, endless belts, hair felting, and other felts			
Value.....	\$611,088	\$367,198	\$160,633
Hats, wool-felt:			
Dozens.....	303,398	158,585	279,768
Value.....	\$1,431,342	\$647,064	\$1,003,565
Partly manufactured products for sale:			
Woolen yarn—			
Pounds.....	25,211,815	37,044,638	29,161,975
Value.....	\$5,965,431	\$7,102,619	\$5,270,205
Worsted yarn—			
Pounds.....	28,656,142	23,371,803	16,813,647
Value.....	\$23,978,942	\$16,228,170	\$11,881,113
Merino yarn—			
Pounds.....	11,710,956	5,668,160	12,294,674
Value.....	\$4,180,974	\$1,292,028	\$2,691,468
Worsted tops and slubbing—			
Pounds.....	2,252,927	550,525	(1)
Value.....	\$1,401,562	\$330,798	(1)
Noils—			
Pounds.....	6,006,239	3,888,629	2,984,381
Value.....	\$1,895,601	\$1,186,447	\$793,279
Waste—			
Pounds.....	5,236,102	4,769,554	725,532
Value.....	\$590,460	\$329,505	\$109,466
Amount received for contract work.....	\$748,822	\$366,808	\$405,175
All other products.....	\$1,347,825	\$1,224,116	\$1,797,326

<sup>1</sup> Included in worsted yarn.

The total value of all products for the combined industry was \$77,446,996 in 1909, as compared with \$48,765,445 in 1899, representing a gain of \$28,681,551, or 58.8 per cent, during the decade. The value of products of the woolen branch of the industry, however, decreased about one-third, from \$25,389,344 in 1899 to \$16,033,077 in 1909, while the value of products of the worsted branch increased from \$22,109,392 in 1899 to \$59,416,106 in 1909. These figures show very forcibly the decline in the woolen branch of the industry and the marked growth in the worsted branch. The disparity between these two main branches of the industry would be greater were it not for the manufac-

MATERIAL.	1909	1904	1899
<b>Total cost.....</b>	<b>\$54,634,085</b>	<b>\$37,246,755</b>	<b>\$31,363,801</b>
Wool:			
Foreign (in condition purchased)—			
Pounds.....	44,575,267	37,637,091	28,994,095
Cost.....	\$11,027,768	\$8,180,738	\$5,779,205
Domestic (in condition purchased)—			
Pounds.....	56,081,645	52,543,138	32,599,985
Cost.....	\$15,034,908	\$12,686,241	\$9,817,011
Equivalent in scoured condition, pounds.....	65,555,136	55,790,625	48,302,782
Tailors' clippings, rags, etc.:			
Pounds.....	7,794,521	14,781,589	(1)
Cost.....	\$239,012	\$613,067	\$459,586
Shoddy:			
Pounds.....	4,645,405	5,070,444	6,136,770
Cost.....	\$499,133	\$705,280	\$704,050
Waste and noils:			
Pounds.....	5,716,904	4,360,585	5,721,017
Cost.....	\$1,448,961	\$669,216	\$1,180,286
Tops:			
Pounds.....	2,445,813	1,163,036	547,353
Cost.....	\$1,530,899	\$566,501	\$293,014
Animal hair:			
Pounds.....	18,776,578	26,329,507	19,698,817
Cost.....	\$900,431	\$1,529,873	\$1,108,649
Cotton:			
Pounds.....	5,017,601	5,659,235	12,322,020
Cost.....	\$536,262	\$625,052	\$869,462
Yarns purchased:			
Woolen—			
Pounds.....	143,834	1,303,215	2,289,016
Cost.....	\$106,540	\$587,904	\$932,498
Worsted—			
Pounds.....	12,728,111	6,605,049	5,536,704
Cost.....	\$11,868,802	\$5,012,439	\$3,898,336
Merino—			
Pounds.....	1,658,124	1,770,805	3,272,029
Cost.....	\$223,853	\$349,975	\$560,000
Cotton—			
Pounds.....	11,969,645	7,191,952	12,102,914
Cost.....	\$2,801,570	\$1,514,349	\$2,273,305
Silk and spun-silk—			
Pounds.....	50,698	50,132	49,974
Cost.....	\$273,289	\$268,495	\$215,609
All other—			
Pounds.....	998,000	335,186	1,055,824
Cost.....	\$20,729	\$6,615	\$51,100
Chemicals and dyestuffs.....	\$868,053	\$723,397	\$315,047
Fuel and rent of power.....	\$78,043	\$660,263	\$482,380
All other materials.....	\$5,970,832	\$2,547,350	\$1,924,333

<sup>1</sup> Not reported.

ture of carpet yarns, the value of which forms a considerable portion of the total value of products of the woolen branch.

One of the striking features of the table is the steady increase from census to census in the production of all-wool woven goods. The output of such goods increased from 19,498,412 square yards, valued at \$10,776,645, in 1899, to 33,149,873 square yards, valued at \$22,653,317, in 1909, a gain of 70 per cent in quantity and of 110.2 per cent in value. The largest part of this gain was in worsted dress goods, although worsted suitings and overcoatings increased substantially. The production of cotton-mixed goods, which are more generally manufactured in the woolen branch of the industry, decreased from 17,389,245 square yards in 1899 to 5,104,428 square yards in 1909, a loss of 70.6 per cent for the decade. Cotton-warp woven goods show a small decrease in quantity between 1899 and 1909, but their value increased from \$7,921,126 to \$10,570,357. Worsted-filling cassimeres, tweeds, suitings, etc., show a very large increase, from 631,131 square yards in 1899 to 8,347,362 square yards in 1909. There was also a gain in wool-filling cassimeres, tweeds, suitings, etc., but a marked decrease in all other kinds of cotton-warp goods.

During the decade there was a decline in the quantity of woolen yarn and merino yarn manufactured for sale, and a large increase in the quantity of worsted yarn, the amount of this class of products being 16,813,647 pounds in 1899 and 28,656,142 pounds in 1909. Noils and waste sold as such show great increases, due almost entirely to the growth in the manufacture of worsted goods. The manufacture of wool-felt hats in the state shows some gain during the 10-year period, but the rate of increase was greater in the value than in the quantity of the output.

**Silk and silk goods, including throwsters.**—The silk industry was established in Pennsylvania in 1793, the products manufactured being fringes, coach laces, and tassels. For many years the products were limited to these goods and to ribbons and various trimmings. In recent years, however, the manufacture of broad silks has been taken up and the industry has developed rapidly. The state leads in the throwing of silk. It should be noted that much of the throwing is done on contract for establishments engaged in weaving and only the amount of the commission is included in the value of products of the establishments in such instances. If allowance were made for the value of the silk thrown on commission, Pennsylvania would take first place in the silk industry as a whole.

The next table shows the quantity and cost of materials used and the quantity and value of products manufactured for 1909, 1904, and 1899.

Raw silk purchased was the most important material in cost, contributing about three-fifths of the total for all materials used during each year, and shows a gain of \$7,672,585, or 56.7 per cent, during the decade.

Spun silk and organzine and tram also made gains. The total value of products practically doubled during the 10-year period. Broad silks, of which plain and fancy silks formed almost two-thirds in 1909, increased in quantity from 26,853,449 yards to 65,569,386 yards, or 144.2 per cent. The increase in ribbons is notable, as the value more than doubled. In 1899, \$1,070,133 were received for contract work, but in 1909 the amount was \$4,416,978, nearly all of which represented receipts for the throwing of silk on commission. In 1909, 7,733,016 pounds of silk were thrown on commission in the state, representing 60.6 per cent of the total quantity of silk thrown on contract in the United States. Of this amount, 4,150,688 pounds were thrown into organzine and 3,582,328 pounds into tram.

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost.....</b>	<b>\$35,165,571</b>	<b>\$24,267,122</b>	<b>\$19,884,869</b>
<b>Silk:</b>			
Raw—			
Pounds.....	5,532,873	3,970,044	3,238,285
Cost.....	\$21,206,972	\$15,419,221	\$13,534,387
Spun—			
Pounds.....	695,067	454,074	477,543
Cost.....	\$1,566,914	\$276,485	\$976,506
Artificial—			
Pounds.....	127,488	127,192	526
Cost.....	\$273,640	\$394,126	\$3,115
Organzine and tram—			
Pounds.....	1,719,982	1,202,805	871,235
Cost.....	\$7,531,045	\$5,390,466	\$3,701,840
<b>Yarns, other than silk:</b>			
Cotton—			
Pounds.....	2,869,000	2,591,135	1,759,759
Cost.....	\$1,077,157	\$665,915	\$465,812
Mercerized cotton—			
Pounds.....	309,063	227,944	30,070
Cost.....	\$224,029	\$168,025	\$23,121
Wool—			
Pounds.....	83,075	48,870	8,717
Cost.....	\$98,340	\$47,969	\$5,743
Other:			
Pounds.....	186,170	53,453	78,923
Cost.....	\$157,214	\$74,292	\$59,742
Chemicals and dyestuffs.....	\$53,089	\$26,363	( <sup>1</sup> )
Fuel and rent of power.....	\$495,850	\$317,231	\$174,388
All other materials.....	\$2,481,315	\$887,029	\$937,215
<b>Products, total value.....</b>	<b>\$62,061,302</b>	<b>\$39,333,520</b>	<b>\$31,072,926</b>
<b>Organzine and tram, for sale:</b>			
Pounds.....	1,042,004	1,366,424	1,723,701
Value.....	\$7,475,327	\$6,124,717	\$8,011,155
Machine twist, sewing, embroidery, and wash silks, and fringe and floss:			
Pounds.....	174,468	183,776	246,213
Value.....	\$524,643	\$537,466	\$1,270,218
Broad silks (all silk and silk mixed):			
Plain and fancy—			
Yards.....	43,389,969	26,465,296	18,556,855
Value.....	\$26,307,799	\$16,572,901	\$10,312,848
Jacquard—			
Yards.....	2,019,365	1,300,968	959,422
Value.....	\$1,123,523	\$521,534	\$529,545
Piece-dyed—			
Yards.....	20,160,652	15,786,660	7,337,352
Value.....	\$8,280,870	\$4,427,795	\$2,149,806
Ribbons.....	\$10,008,146	\$5,573,799	\$4,368,399
Laces, embroideries, fringes, and braids..	\$780,047	\$773,847	\$293,068
Trimming.....	\$1,408,143	\$1,328,307	\$1,010,145
All other products.....	\$1,285,821	\$1,880,535	\$2,048,609
Amount received for contract work.....	\$4,416,978	\$1,994,319	\$1,070,133
<b>Silk thrown on commission, total pounds.....</b>	<b>7,733,016</b>	<b>4,116,200</b>	<b>2,259,673</b>
Into organzine, pounds.....	4,150,688	2,288,174	1,332,753
Into tram, pounds.....	3,582,328	1,828,125	926,915

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

**Hosiery and knit goods.**—The manufacture of hosiery was introduced into the United States at Germantown, now a part of the city of Philadelphia, about 1698, and this city has always been the center of this branch of the textile industry in America. The next table shows the quantity and cost of materials used and the quantity and value of products manufactured for 1909, 1904, and 1899.

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost.....</b>	<b>\$27,217,951</b>	<b>\$16,037,698</b>	<b>\$10,935,763</b>
<b>Cotton:</b>			
Pounds.....	2,506,120	1,874,685	2,218,426
Cost.....	\$302,702	\$226,907	\$180,491
<b>Wool (in condition purchased):</b>			
Pounds.....	467,877	1,168,283	1,347,914
Cost.....	\$205,403	\$432,060	\$474,260
Equivalent in scoured condition, pounds.....	436,848	1,056,052	1,069,994
<b>Shoddy and wool waste and noils:</b>			
Pounds.....	960,929	777,995	593,985
Cost.....	\$303,217	\$232,754	\$163,309
<b>Yarns purchased:</b>			
<b>Cotton</b>			
Pounds.....	59,035,958	46,895,104	38,323,301
Cost.....	\$16,283,401	\$10,305,172	\$7,183,052
<b>Woolen</b>			
Pounds.....	618,809	661,645	409,163
Cost.....	\$399,134	\$390,533	\$219,025
<b>Worsted</b>			
Pounds.....	1,084,786	1,584,717	1,115,863
Cost.....	\$1,616,975	\$1,350,076	\$861,068
<b>Merino</b>			
Pounds.....	389,296	178,619	350,011
Cost.....	\$202,453	\$104,827	\$92,478
<b>Silk and spun-silk</b>			
Pounds.....	250,467	73,608	30,397
Cost.....	\$978,071	\$204,872	\$103,169
<b>Linen, jute, and other vegetable fiber</b>			
Pounds.....	15,975	6,827	500
Cost.....	\$17,507	\$6,259	\$100
<b>Chemicals and dyestuffs</b> .....	\$804,026	\$431,402	\$271,662
<b>Fuel and rent of power</b> .....	\$421,700	\$284,194	\$177,338
<b>All other materials</b> .....	\$5,083,362	\$2,097,943	\$1,200,761
<b>Products, total value.....</b>	<b>\$49,657,506</b>	<b>\$30,812,211</b>	<b>\$21,929,426</b>
<b>Hose and half hose:</b>			
Total dozen pairs.....	27,332,601	20,327,710	15,232,324
Total value.....	\$30,847,344	\$19,182,697	\$13,189,964
<b>Cotton</b>			
Dozen pairs.....	27,139,582	19,707,227	14,858,506
Value.....	\$28,697,548	\$17,794,113	\$12,406,182
<b>Hose</b>			
Dozen pairs.....	13,876,393	11,769,534	7,863,561
Value.....	\$16,068,169	\$11,317,802	\$7,656,360
<b>Half hose</b>			
Dozen pairs.....	13,262,689	7,937,693	6,904,945
Value.....	\$12,639,379	\$6,476,311	\$4,810,822
<b>Woolen or worsted and merino</b>			
Dozen pairs.....	547,522	599,448	367,818
Value.....	\$959,391	\$1,106,325	\$633,782
<b>Hose</b>			
Dozen pairs.....	295,023	354,240	187,871
Value.....	\$501,105	\$648,033	\$379,075
<b>Half hose</b>			
Dozen pairs.....	252,499	245,208	179,947
Value.....	\$458,286	\$457,392	\$254,707
<b>Silk</b>			
Dozen pairs.....	145,497	21,035	6,000
Value.....	\$1,190,405	\$232,259	\$90,000
<b>Shirts and drawers:</b>			
<b>Cotton</b>			
Dozens.....	6,552,364	3,852,513	2,670,341
Value.....	\$8,833,761	\$4,950,879	\$3,456,695
<b>Merino</b>			
Dozens.....	161,833	150,519	114,183
Value.....	\$921,319	\$710,547	\$947,285
<b>All other</b>			
Dozens.....	7,322	26,459	90,513
Value.....	\$59,974	\$279,142	\$443,201
<b>Combination suits:</b>			
<b>Cotton</b>			
Dozens.....	412,567	271,069	374,057
Value.....	\$1,155,327	\$657,824	\$702,523
<b>Merino</b>			
Dozens.....	23,268	9,858	29,366
Value.....	\$234,855	\$76,211	\$208,844
<b>All other</b>			
Dozens.....	440	(1)	1,115
Value.....	\$4,100	(1)	\$15,120
<b>Gloves and mittens:</b>			
Dozen pairs.....	284,931	152,714	82,163
Value.....	\$1,037,894	\$442,552	\$167,545
<b>Hoods, scarfs, nubias, etc.:</b>			
Dozens.....	138,427	70,400	42,760
Value.....	\$581,203	\$202,450	\$127,785
<b>Cardigan jackets, sweaters, etc.:</b>			
Dozens.....	221,700	145,503	89,191
Value.....	\$2,986,061	\$1,858,182	\$536,707
<b>All other products.....</b>	<b>\$2,095,663</b>	<b>\$2,445,727</b>	<b>\$2,433,757</b>

<sup>1</sup> Included in "All other products."

During the decade the cost of materials increased \$16,282,188, or 148.9 per cent. Cotton yarns purchased increased in quantity from 38,323,301 pounds in 1899 to 59,035,958 pounds in 1909, a gain of 54 per cent. The quantity of wool purchased declined, while there was an increase in the quantity of raw cotton, of shoddy and wool waste and noils, and of the different kinds of yarn purchased.

The total value of products was \$21,929,426 in 1899 and \$49,657,506 in 1909, an increase of 126.4 per cent during the 10-year period. Nearly two-thirds of the total represents the value of hosiery, which increased 82.7 per cent in quantity and 133.9 per cent in value from 1899 to 1909. Almost all the hosiery produced was cotton. There was a gain of 48.9 per cent in the output of hosiery in which wool was the chief material and a large gain in silk hosiery. The production of shirts and drawers, gloves and mittens, hoods, scarfs, nubias, etc., and cardigan jackets, sweaters, etc., more than doubled during the decade, while the production of combination suits showed comparatively little increase.

**Cotton goods, including cotton small wares.**—As early as 1775 a spinning jenny, with 24 spindles, was operated in Philadelphia and in 1810, 611,481 yards of cotton goods were manufactured in the state. In the manufacture of certain kinds of cotton goods, such as lace and lace curtains and cotton tapestries, the state ranks first.

The following table shows the quantity and cost of the principal materials used and the quantity and value of the leading products for 1909, 1904, and 1899:

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost.....</b>	<b>\$18,757,025</b>	<b>\$14,321,577</b>	<b>\$13,176,718</b>
<b>Cotton:</b>			
<b>Domestic</b>			
Pounds.....	23,607,952	24,810,154	35,083,214
Cost.....	\$2,640,885	\$2,743,506	\$2,521,768
<b>Foreign</b>			
Pounds.....	2,080,645	1,063,566	1,466,319
Cost.....	\$336,765	\$175,574	\$168,764
<b>Cotton yarn:</b>			
Pounds.....	46,787,905	41,262,481	39,937,206
Cost.....	\$10,852,298	\$8,736,100	\$7,337,382
<b>Silk and spun-silk yarn:</b>			
Pounds.....	144,128	143,471	230,634
Cost.....	\$469,370	\$420,457	\$437,681
<b>Other yarns:</b>			
Pounds.....	1,709,440	1,032,762	1,715,626
Cost.....	\$965,106	\$359,136	\$694,219
<b>Cotton waste:</b>			
Pounds.....	1,310,239	2,140,344	2,266,614
Cost.....	\$80,421	\$122,785	\$108,942
<b>Starch</b> .....	\$52,359	\$60,072	\$43,184
<b>Chemicals</b> .....	\$490,367	\$417,171	\$455,106
<b>Fuel and rent of power</b> .....	\$450,989	\$375,112	\$368,398
<b>All other materials</b> .....	\$2,528,466	\$861,655	\$841,274
<b>Products, total value.....</b>	<b>\$33,917,033</b>	<b>\$26,299,853</b>	<b>\$25,447,687</b>
<b>Fancy woven fabrics:</b>			
Square yards.....	32,806,629	30,398,352	30,981,363
Value.....	\$5,119,822	\$3,983,355	\$3,906,347
<b>Cottonades:</b>			
Square yards.....	4,530,286	8,127,997	7,004,759
Value.....	\$1,150,291	\$1,471,292	\$1,134,039
<b>Corduroy, cotton velvet, and plush:</b>			
Square yards.....	3,038,945	2,044,944	3,945,504
Value.....	\$1,615,405	\$1,182,671	\$1,418,574
<b>Upholstery goods:</b>			
<b>Tapestries (piece goods and curtains)</b>			
Square yards.....	8,783,867	8,691,354	9,586,606
Value.....	\$4,163,683	\$4,070,948	\$4,048,784
<b>Lace and lace curtains</b>			
Square yards.....	66,867,709	41,374,259	30,925,198
Value.....	\$7,238,321	\$5,569,180	\$3,028,615
<b>All other, including covers</b>			
Square yards.....	2,502,062	1,448,741	2,400,425
Value.....	\$1,072,348	\$601,133	\$527,302
<b>Cotton towels and toweling:</b>			
Square yards.....	10,501,557	5,408,682	(1)
Value.....	\$1,749,813	\$1,100,601	(1)
<b>All other woven goods:</b>			
Square yards.....	3,671,270	23,511,283	41,221,811
Value.....	\$3,347,791	\$2,344,249	\$3,323,556
<b>Tape and webbing.....</b>	<b>\$2,141,821</b>	<b>\$1,742,185</b>	<b>\$984,516</b>
<b>Yarns manufactured, for sale:</b>			
Pounds.....	11,448,343	14,303,093	18,713,490
Value.....	\$2,591,458	\$2,812,445	\$2,811,123
<b>Cotton waste not used for further manufacture:</b>			
Pounds.....	3,038,771	2,277,242	5,604,528
Value.....	\$96,340	\$79,070	\$115,247
<b>All other products.....</b>	<b>\$3,729,940</b>	<b>\$1,341,824</b>	<b>\$3,845,594</b>

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



One of the striking changes in the industry in the state has been the decline in recent years in the spinning of cotton, which has been accompanied by an increased dependence upon yarns manufactured elsewhere. This is evidenced by the figures in the table, which show that the quantity of cotton used decreased from 36,549,533 pounds in 1899 to 25,688,597 pounds in 1909, while that of cotton yarn purchased increased from 39,937,206 pounds in 1899 to 46,787,905 pounds in 1909.

The most important single product manufactured was lace and lace curtains, which increased in value during the decade from \$3,028,615 to \$7,238,321, or 139 per cent. Of the total quantity of lace and lace curtains manufactured in the United States in 1909, 82.5 per cent was reported from Pennsylvania.

**Carpets and rugs, other than rag.**—In the manufacture of carpets and rugs, Pennsylvania has always held an important position among the states. As early as 1791 there was a factory in Philadelphia engaged in the manufacture of Turkey and Axminster carpets. At the census of 1849 Massachusetts led in the industry, but, at each census from 1859 to 1904, inclusive, Pennsylvania ranked first in value of products; New York took first place in 1909, but with a product only slightly greater in value than that reported for Pennsylvania. The industry in Pennsylvania is confined almost entirely to the city of Philadelphia, where the manufacture of ingrain is strongly established. With an output of 18,722,998 square yards in 1909, or 78.2 per cent of the total for the country, Philadelphia led all other cities in the production of ingrain carpets and rugs.

The next table shows the quantity and cost of the principal materials used and the quantity and value of the important products in 1909, 1904, and 1899.

The cost of materials and the value of products increased slightly during the 10-year period covered by the table, although there was a decrease in each between 1904 and 1909. The quantity of both wool and animal hair used decreased more than one-half. Tailors' clippings, rags, and shoddy increased markedly in quantity between 1899 and 1904, but from 1904 to 1909 they decreased more than one-half. Comparatively little change took place in the quantities of the other materials used.

The total output of carpet decreased from 38,373,245 square yards in 1899 to 36,953,509 square yards in 1904 and to 26,305,322 square yards in 1909, a loss for the decade of 12,067,923 square yards, or 31.4 per cent. This decrease is accounted for by the decline in the production of ingrain carpets. Axminster and Moquette, Wilton, and Brussels carpets all show marked increases in quantity, especially for the later period, 1904-1909. Velvet and tapestry Brussels, although showing a slight increase in quantity for the decade as a whole, decreased slightly between 1904 and 1909. The output of rugs woven whole more than doubled during the decade, but practically all of this increase came in the earlier five-year period.

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost.....</b>	<b>\$14,648,298</b>	<b>\$16,706,431</b>	<b>\$13,773,788</b>
Wool (in condition purchased):			
Pounds.....	5,787,409	9,126,230	11,568,721
Cost.....	\$1,047,177	\$1,722,097	\$1,713,164
Equivalent in scoured condition, pounds.....	4,309,413	4,818,741	8,189,811
Animal hair:			
Pounds.....	1,795,124	4,253,081	4,307,897
Cost.....	\$131,765	\$277,186	\$389,831
Tailors' clippings, rags, and shoddy:			
Pounds.....	1,207,642	2,645,628	737,580
Cost.....	\$71,050	\$213,130	\$43,145
Yarns purchased:			
Woolen—			
Pounds.....	22,320,073	26,077,609	24,020,087
Cost.....	\$4,306,006	\$5,144,231	\$4,218,605
Worsted—			
Pounds.....	5,360,220	6,292,815	6,504,583
Cost.....	\$2,592,410	\$2,945,955	\$2,481,729
Cotton—			
Pounds.....	14,385,059	17,290,402	13,215,750
Cost.....	\$2,674,819	\$2,937,387	\$1,939,047
Linen—			
Pounds.....	1,483,096	1,232,433	1,099,108
Cost.....	\$285,481	\$220,601	\$252,310
Jute, ramie, or other yarns of vegetable fiber—			
Pounds.....	10,646,563	17,990,828	15,784,309
Cost.....	\$1,213,413	\$1,331,559	\$1,101,507
All other—			
Pounds.....	779,528	1,112,138	418,114
Cost.....	\$404,521	\$539,285	\$331,525
Chemicals and dyestuffs.....	\$861,323	\$681,247	\$550,542
Fuel and rent of power.....	\$276,388	\$245,092	\$235,793
All other materials.....	\$783,945	\$646,601	\$510,620
<b>Products, total value.....</b>	<b>\$24,879,232</b>	<b>\$27,120,311</b>	<b>\$23,113,058</b>
Carpets and rugs of all kinds:			
Square yards.....	36,222,080	45,763,852	43,046,297
Value.....	\$21,670,318	\$23,650,927	\$19,179,041
Carpets, including rugs made by sewing strips of carpet—			
Square yards.....	26,305,322	30,953,509	38,373,245
Value.....	\$15,373,145	\$18,289,962	\$15,948,034
Axminster and Moquette—			
Square yards.....	1,249,311	226,500	.....
Value.....	\$1,375,832	\$231,510	.....
Wilton—			
Square yards.....	1,840,125	400,188	358,972
Value.....	\$2,710,739	\$682,825	\$509,637
Brussels—			
Square yards.....	1,121,788	504,095	567,261
Value.....	\$1,344,429	\$724,129	\$613,633
Velvet—			
Square yards.....	3,241,155	3,343,512	2,229,401
Value.....	\$2,041,704	\$2,850,000	\$1,880,137
Tapestry Brussels—			
Square yards.....	2,713,187	3,666,808	2,149,966
Value.....	\$1,927,863	\$2,650,686	\$1,840,973
Ingrain—			
Square yards.....	10,139,756	28,752,409	33,067,645
Value.....	\$5,972,588	\$11,160,812	\$11,603,649
Rugs woven whole—			
Square yards.....	9,916,768	8,810,343	4,673,052
Value.....	\$6,197,173	\$5,360,965	\$3,231,007
Wilton—			
Square yards.....	490,800	558,118	96,869
Value.....	\$762,534	\$1,052,671	\$138,842
Tapestry Brussels—			
Square yards.....	1,467,919	(1)	(1)
Value.....	\$1,104,682	(1)	(1)
Ingrain art squares—			
Square yards.....	5,439,266	5,747,587	2,380,126
Value.....	\$2,018,846	\$2,016,159	\$999,360
All other—			
Square yards.....	2,518,773	2,504,633	2,196,057
Value.....	\$2,311,111	\$2,292,135	\$2,092,805
All other products.....	\$3,308,914	\$3,469,384	\$3,934,017

<sup>1</sup> Included in "All other rugs."

**Fur-felt hats.**—Pennsylvania held first place among the states in the manufacture of fur-felt hats in 1909 and the city of Philadelphia reported about 80 per cent of the total value of these products for the state. The next table gives detailed statistics of materials and products for 1909, 1904, and 1899.

The industry shows a large increase for each of the five-year periods. During the decade the total cost of materials increased \$3,145,904, or 168.5 per cent. Hatters' fur increased in quantity from 817,311 pounds, costing \$933,748, to 1,976,118 pounds, costing \$2,420,635, thus more than doubling in both quantity and cost. During the same period the value of products more than trebled, increasing from \$4,243,352 to \$13,022,617, and the number of fur-felt hats produced

increased from 280,880 dozens to 668,696 dozens, or 138.1 per cent.

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost.....</b>	<b>\$5,012,770</b>	<b>\$2,728,895</b>	<b>\$1,866,866</b>
Hatters' fur:			
Pounds.....	1,976,118	1,227,951	817,311
Cost.....	\$2,420,635	\$1,807,816	\$933,748
Fur-felt hat bodies and hats in the rough:			
Dozens.....	26,984	23,512	5,045
Cost.....	\$175,642	\$156,420	\$42,341
Chemicals and dyestuffs.....	\$164,843	\$72,931	\$77,317
All other materials.....	\$2,251,650	\$1,191,728	\$813,400
<b>Products, total value.....</b>	<b>\$13,022,617</b>	<b>\$7,350,311</b>	<b>\$4,243,352</b>
Fur-felt hats:			
Dozens.....	668,696	413,506	280,880
Value.....	\$12,943,334	\$7,270,067	\$4,203,169
All other products.....	\$79,283	\$80,244	\$40,183

Leather, tanned, curried, and finished.—The following table gives for the tanning, currying, and finishing of leather the quantity and cost of the various materials and the quantity and value of the different products for 1909, 1904, and 1899:

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost.....</b>	<b>\$59,113,124</b>	<b>\$55,411,927</b>	<b>\$42,403,503</b>
Hides (all kinds):			
Number.....	5,449,826	5,447,947	4,848,759
Cost.....	\$30,118,025	\$20,416,581	\$22,955,326
Skins:			
Number.....	25,785,801	28,149,914	24,300,676
Cost.....	\$14,490,256	\$16,712,687	\$11,594,911
Calf and kip—			
Number.....	142,464	292,500	388,205
Cost.....	\$212,316	\$501,930	\$394,981
Goat—			
Number.....	23,117,712	24,220,530	21,854,197
Cost.....	\$12,909,125	\$13,646,179	\$10,566,749
Sheep—			
Number.....	2,445,024	2,402,204	1,949,730
Cost.....	\$1,160,130	\$715,166	\$492,520
All other—			
Number.....	80,401	1,234,680	108,544
Cost.....	\$208,685	\$1,849,392	\$50,661
Purchased rough leather used:			
Whole sides—			
Number.....	555,403	306,680	184,654
Cost.....	\$1,440,104	\$1,464,027	\$662,637
All other.....	\$1,252,625	\$109,002	\$220,412
All other materials.....	\$11,812,114	\$10,708,990	\$7,051,267
<b>Products, total value.....</b>	<b>\$77,928,321</b>	<b>\$89,427,852</b>	<b>\$55,615,009</b>
Leather.....	\$73,255,418	\$86,292,074	\$53,857,074
Sole.....	\$39,904,180	\$33,553,676	\$28,601,603
Hemlock—			
Sides.....	4,752,308	5,672,327	5,481,306
Value.....	\$17,194,852	\$17,829,554	\$16,779,341
Oak and chrome—			
Sides.....	779,242	331,766	335,894
Value.....	\$4,735,428	\$1,867,731	\$1,854,243
Union—			
Sides.....	3,675,802	3,472,046	2,360,322
Value.....	\$17,973,900	\$13,856,381	\$10,058,019
Upper, other than calf or kip skins..	\$1,821,432	\$642,193	\$2,032,111
Grain, satin, pebble, etc. (side leather)—			
Sides.....	315,210	70,461	632,789
Value.....	\$1,049,815	\$158,721	\$1,400,727
Finished splits—			
Number.....	588,730	64,413	635,950
Value.....	\$303,409	\$83,472	\$626,134
Patent and enameled shoe—			
Sides.....	127,952	392,000	2,500
Value.....	\$463,208	\$400,000	\$5,250
Horsehides and coltskins—			
Number.....	628,556	1,234,119	6,263
Value.....	\$2,413,861	\$3,450,950	\$25,677
Calf and kip skins, tanned and finished—			
Number.....	145,139	243,956	419,593
Value.....	\$334,602	\$621,863	\$641,955
Goatskins, tanned and finished—			
Number.....	23,822,008	22,909,407	21,602,961
Value.....	\$19,975,045	\$19,156,181	\$15,796,782
Black—			
Number.....	22,415,255	20,923,903	19,828,129
Value.....	\$18,691,232	\$17,133,227	\$14,182,422
Colored—			
Number.....	1,406,753	1,985,414	1,774,832
Value.....	\$1,283,813	\$2,022,954	\$1,614,360
Sheepskins, tanned and finished—			
Number.....	1,772,091	1,090,180	1,090,822
Value.....	\$1,267,974	\$567,879	\$600,423

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Products—Continued.</b>			
Leather—Continued.			
Harness—			
Sides.....	257,044	518,178	450,352
Value.....	\$1,960,659	\$2,989,450	\$2,491,722
Carriage, automobile, and furniture—			
Hides.....	83,836	47,418	42,000
Value.....	\$591,980	\$307,278	\$479,256
Trunk, bag, and pocketbook.....	\$1,608,576	\$751,772	\$475,039
Leather, sold in the rough.....	\$1,182,142	\$2,293,589	\$1,318,801
All other.....	\$2,104,967	\$1,952,243	\$1,802,805
All other products.....	\$1,412,742	\$1,166,686	\$592,954
Work on materials for others.....	\$3,258,161	\$1,969,092	\$1,164,981

The cost of materials was \$42,403,503 in 1899, \$55,411,927 in 1904, and \$59,113,124 in 1909, representing an increase of 30.7 per cent in the earlier five-year period and of 6.7 per cent in the later. The number of hides and skins treated increased 15.3 per cent from 1899 to 1904 and decreased 7 per cent from 1904 to 1909. Included in the cost of "All other materials" is that of bark and extracts. In 1909, 310,279 tons of tan bark were reported, costing \$2,997,026, and 124,742,847 pounds of tanning extract, costing \$3,665,942.

Of the total value of leather tanned, curried, and finished in the United States, this state reported 23.8 per cent in 1909, 27.5 per cent in 1904, and 27.3 per cent in 1899. It is especially prominent in the manufacture of sole leather and goatskins, producing in 1909 nearly one-half of the total output of each for the United States. The value of "All other products" and the amount received for work on materials for others also show large increases for both census periods. Practically all the leather was finished in the establishment tanning it, as comparatively little rough leather for currying is shown under materials or products.

Printing and publishing.—The following tabular statement shows, by period of issue, the number of publications and their aggregate average circulation 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>1,520</b>	<b>1,474</b>	<b>1,386</b>	<b>19,674,336</b>	<b>17,867,795</b>	<b>11,280,367</b>
Daily.....	223	220	196	2,924,306	2,629,537	1,917,426
Sunday.....	27	27	21	1,481,282	1,299,160	(1)
Semiweekly and tri-weekly.....	52	52	52	243,089	467,339	290,348
Weekly.....	847	837	883	5,319,021	5,282,691	3,691,954
Monthly.....	253	212	178	6,107,571	4,385,686	3,246,779
Quarterly.....	97	60	42	3,516,933	3,768,107	1,991,819
All other classes.....	21	16	14	82,134	154,225	142,041

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

The total number of publications increased from 1,386 in 1899 to 1,520 in 1909, and the aggregate average circulation increased from 11,280,367 to 19,674,336. The largest increase in circulation, 2,860,792, is shown for monthlies, while dailies also show a large gain. The aggregate average circulation of weeklies increased 44.1 per cent and of quarterlies 76.6 per cent, while semiweeklies and triweeklies and "All other classes" show decreases.

The following statement shows for 1909 and 1904 the number and circulation of the various classes of pub-

lications, classified as printed in English or printed in a foreign language. Papers printed partly in English and partly in a foreign language are classified in the foreign group.

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.....	1,520	19,674,336	1,424	19,265,581	96	408,755
Daily.....	223	2,924,306	215	2,848,657	8	75,649
Sunday.....	27	1,481,282	22	1,424,350	5	56,932
Weekly.....	847	5,319,021	778	5,132,782	69	186,239
Monthly.....	253	6,107,571	244	6,050,536	9	57,035
All other classes.....	170	3,842,156	165	3,809,256	5	32,900

<sup>1</sup> Includes those printed in English and a foreign language.

Ninety-three and seven-tenths per cent of the total number of publications, with 97.9 per cent of the total circulation, were printed in English. Of the 8 dailies printed in foreign languages, 5 were published in German and 2 in Italian, while 1 was reported as Slovak. The 69 weeklies were made up of 33 published in German, 20 in Letto-Slavic languages, 11 in Italian, 2 in Hungarian, and 1 each in French, Hebrew, and Swedish. Of the 9 monthlies, 4 each were published in German and in Letto-Slavic, and 1 in Swedish; and of the 5 publications included under the head of "All other classes," 4 were published in German and 1 in Lithuanian.

Lumber.—Although Pennsylvania is not specially prominent in the production of rough lumber, standing fourteenth among the states in this respect at the census of 1909, it ranked fourth in 1899 and was the leading state in this branch of the industry at the census of 1859. In the following tabular statement is shown the production of rough lumber, lath, and shingles in 1909 and 1899:

PRODUCT.	QUANTITY.	QUANTITY.	
		1909	1899
Lumber..... M feet b. m.		1,462,771	2,333,278
Lath..... thousands..		143,059	265,949
Shingles..... thousands..		79,336	369,858

From 1899 to 1909 there was a decrease of 37.3 per cent in the production of rough lumber, of 46.4 per cent in the production of lath, and of 78.5 per cent in the production of shingles. The decline, during recent years, in the production of lumber in this state is due, in the main, to the rapidly diminishing supply of merchantable timber. As a result of this condition the annual output was not only substantially smaller at the end than at the beginning of the decade covered, but the composition of the total was materially changed. Whereas the conifers, particularly hemlock, white pine, and spruce, were drawn upon chiefly for many decades as a source of lumber, the diminished supply of this class of timber has brought into greater relative prominence the hardwoods. In 1909 only 56.1 per cent of the total quantity of lumber

produced was softwood, whereas in 1899 the proportion was 77.2 per cent. The output of oak lumber in 1909 formed more than one-fifth of the total, and relatively large quantities were also cut from chestnut, maple, beech, birch, hickory, yellow poplar, basswood, and ash, ranking in order named. In 1909 there were 15 mills which cut from 10,000 to 25,000 M feet board measure, 4 that cut from 25,000 to 50,000 M feet, and 3 that cut over 50,000 M feet.

Petroleum refining.—The high rank of Pennsylvania in petroleum refining is due largely to the fact that petroleum was first produced on a commercial basis in this state and that the refineries were built near the source of supply. In the following table figures are presented showing the cost of materials, the quantity and value of the principal products, and details as to the main equipment reported for 1909, 1904, and 1899:

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost.....</b>	<b>\$47,440,316</b>	<b>\$38,921,919</b>	<b>\$27,513,735</b>
Crude petroleum:			
Barrels of 42 gallons.....	21,893,871	17,977,686	14,500,461
Cost.....	\$38,914,307	\$31,957,135	\$23,172,609
Containers.....	\$4,481,540	\$3,184,412	\$1,892,460
All other materials.....	\$4,044,469	\$3,780,372	\$2,443,666
<b>Products, total value.....</b>	<b>\$53,088,199</b>	<b>\$47,459,502</b>	<b>\$34,977,706</b>
Illuminating oil:			
Barrels of 50 gallons.....	8,659,488	8,328,883	7,276,712
Value.....	\$24,319,743	\$25,849,501	\$20,390,666
Fuel oils (including gas oils):			
Barrels of 50 gallons.....	2,712,073	1,648,535	1,161,435
Value.....	\$3,207,308	\$2,563,439	\$1,644,044
Lubricating oils:			
Barrels of 50 gallons.....	3,124,921	1,870,437	1,271,872
Value.....	\$12,965,591	\$7,177,818	\$4,497,470
Naphtha and gasoline (including gas naphtha):			
Barrels of 50 gallons.....	2,051,118	1,774,620	1,582,262
Value.....	\$8,063,575	\$6,402,492	\$4,687,560
Paraffin wax:			
Barrels of 50 gallons.....	326,809	279,511	255,327
Value.....	\$2,456,178	\$3,017,004	\$2,244,336
Residuum, tar, greases, oil asphaltum, coke, and black naphtha.....	\$534,180	\$809,252	\$433,981
All other products.....	\$1,541,624	\$1,639,996	\$1,079,149
<b>Equipment:</b>			
Stills, number.....	579	516	523
Heated by steam—			
Number.....	102	( <sup>1</sup> ) 112	( <sup>1</sup> ) 106
Capacity (barrels, 42 gallons).....	170,966	( <sup>1</sup> )	( <sup>1</sup> )
Heated by superheated steam—			
Number.....	6	4	8
Capacity (barrels, 42 gallons).....	1,750	( <sup>1</sup> )	( <sup>1</sup> )
Heated by fire—			
Number.....	471	400	414
Capacity (barrels, 42 gallons).....	571,234	( <sup>1</sup> )	( <sup>1</sup> )
Agitators, number.....	143	120	113
Chilling houses for paraffin, number.....	43	48	21
Hydraulic or other presses, number.....	124	124	208
Storage tanks:			
For crude petroleum—			
Number.....	118	131	152
Capacity, gallons.....	64,429,951	42,683,656	( <sup>1</sup> )
For refined petroleum—			
Number.....	2,138	1,191	1,198
Capacity, gallons.....	224,581,444	110,111,758	( <sup>1</sup> )
Cooper shops, number.....	20	30	25
Tinshops, number.....	3	3	2

<sup>1</sup> Not reported.

From 1899 to 1909 the cost of materials increased 72.4 per cent and the value of products 51.8 per cent. The quantity of crude petroleum used as material increased from 14,500,461 barrels of 42 gallons to 21,893,871 barrels of 42 gallons, or 51 per cent, and the quantity of oils produced, including naphtha and gasoline, increased from 11,291,781 barrels of 50 gallons to 16,547,600 barrels of 50 gallons, or 46.5 per cent. The value of illuminating oil constituted 45.8 per cent of the total value of products in 1909, as compared with

54.5 per cent in 1904 and 58.3 per cent in 1899. Lubricating oils, the product second in importance, show the largest absolute and relative increase in quantity from 1904 to 1909. Comparative figures for the quantities of the other products, except paraffin wax, are not available, but the value of all such products increased 20.6 per cent during the decade.

The development of the industry is also reflected in the figures for the equipment, such as stills, storage tanks, and agitators.

**Slaughtering and meat packing.**—The following table shows the quantity and cost of the principal materials used and the quantity and value of the leading products reported for 1909, 1904, and 1899:

MATERIAL OR PRODUCT.	1909	1904	1899
<b>Materials used, total cost</b> .....	\$44,845,047	\$28,339,983	\$21,805,858
<b>Beeves slaughtered:</b>			
Number.....	252,897	197,581	130,073
Cost.....	\$14,997,080	\$10,068,306	\$8,497,257
<b>Calves slaughtered:</b>			
Number.....	152,851	112,867	51,510
Cost.....	\$1,764,473	\$1,025,377	\$445,811
<b>Sheep slaughtered:</b>			
Number.....	445,471	303,494	231,556
Cost.....	\$2,322,533	\$1,570,071	\$971,583
<b>Hogs slaughtered:</b>			
Number.....	1,222,880	1,085,634	831,821
Cost.....	\$16,934,874	\$10,156,069	\$8,977,465
Dressed meat purchased.....	\$4,898,467	\$3,363,793	\$5,518,048
Fuel and rent of power.....	\$230,663	\$150,750	\$94,769
All other materials.....	\$3,677,957	\$2,005,617	\$1,300,925
<b>Products, total value</b> .....	\$51,850,936	\$33,100,878	\$25,537,390
<b>Beef, fresh:</b>			
Pounds.....	136,838,202	117,319,123	84,181,747
Value.....	\$13,072,530	\$9,436,666	\$7,059,719
<b>Beef, salted or cured:</b>			
Pounds.....	2,765,672	924,173	2,515,208
Value.....	\$448,471	\$88,394	\$191,163
<b>Veal:</b>			
Pounds.....	13,405,455	9,097,823	4,371,144
Value.....	\$1,671,022	\$937,297	\$465,386
<b>Mutton:</b>			
Pounds.....	17,316,377	15,035,808	9,604,293
Value.....	\$2,149,700	\$1,440,490	\$979,064
<b>Pork, fresh:</b>			
Pounds.....	50,210,292	37,383,942	45,896,041
Value.....	\$6,072,517	\$3,295,575	\$3,488,370
<b>Pork, salted or cured:</b>			
Pounds.....	78,559,883	78,070,082	93,425,184
Value.....	\$11,116,844	\$7,679,349	\$7,900,670
<b>Sausage, fresh or cured</b> .....	\$5,421,307	\$2,805,029	\$1,532,434
<b>All other fresh meat:</b>			
Pounds.....	3,189,364	13,493,980	1,634,720
Value.....	\$196,490	\$939,079	\$128,603
<b>Lard:</b>			
Pounds.....	36,121,032	34,129,473	26,811,272
Value.....	\$4,622,249	\$2,534,618	\$1,733,824
<b>Tallow and oleo stock:</b>			
Pounds.....	6,594,450	( <sup>1</sup> )	( <sup>1</sup> )
Value.....	\$379,411	( <sup>1</sup> )	( <sup>1</sup> )
<b>Stearin:</b>			
Pounds.....	2,371,256	( <sup>1</sup> )	( <sup>1</sup> )
Value.....	\$303,015	( <sup>1</sup> )	( <sup>1</sup> )
<b>Fertilizers and fertilizer materials:</b>			
Tons.....	9,973	8,415	3,108
Value.....	\$190,762	\$140,642	\$88,099
<b>Hides:</b>			
Number.....	397,448	296,259	181,533
Pounds.....	19,170,659	14,619,934	8,303,766
Value.....	\$2,426,372	\$1,469,705	\$725,637
<b>Pelts:</b>			
Number.....	444,480	363,494	( <sup>1</sup> )
Value.....	\$455,030	\$336,037	( <sup>1</sup> )
<b>All other products, including custom or contract work</b> .....	\$3,426,216	\$1,947,997	\$1,238,416

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

The total cost of materials and the total value of products more than doubled during the period covered by the table. An increase in the number slaughtered is shown for each class of animals. The largest absolute increase was in the number of hogs, while the largest relative increase was in the number of calves.

Fresh meat sold as such increased 75,270,845 pounds, or 51.6 per cent, in quantity, and \$11,040,117, or 91.1 per cent, in value between 1899 and 1909, while cured

meats decreased 15.2 per cent in quantity and increased 42.8 per cent in value. In this connection attention is called to the fact that in 1904 a considerable quantity of fresh pork was reported under "All other fresh meats." During the decade lard increased 34.7 per cent in quantity and 160.8 per cent in value, and fertilizers and fertilizer materials, 220.9 per cent in quantity and 116.5 per cent in value.

**Coke.**—The manufacture of coke in the United States was begun in 1841 near Connellsville, Pa. For many years the industry was confined almost entirely to the western part of Pennsylvania, because coal suited to its manufacture was abundant there and because the iron mills of the Pittsburgh district which consumed it were near. While coke is now manufactured in a number of other states, Pennsylvania still leads in its production and supplies about two-thirds of the total for the country.

The following table presents the statistics for the principal items of materials used and of products manufactured, together with the kind and number of ovens used, for 1909, 1904, 1899:

MATERIAL, PRODUCT, OR EQUIPMENT.	1909	1904	1899
<b>Materials used, total cost</b> .....	\$33,762,453	\$14,978,581	\$11,678,079
<b>Coal charged into ovens, tons:</b>			
Run of mine—			
Unwashed.....	36,983,568	23,033,044	19,490,080
Washed.....	31,712,482	20,595,557	( <sup>1</sup> )
Slack—			
Unwashed.....	2,278,627	505,527	( <sup>1</sup> )
Washed.....	1,016,576	1,079,682	( <sup>1</sup> )
Cost.....	1,975,583	902,278	( <sup>1</sup> )
Cost.....	\$32,065,729	\$14,423,048	\$10,899,322
All other materials.....	\$1,696,724	\$555,533	\$778,247
<b>Products, total value</b> .....	\$51,816,449	\$28,924,229	\$22,282,358
<b>Coke:</b>			
Tons.....	24,905,525	16,273,046	13,245,594
Value.....	\$60,377,035	\$28,593,136	\$22,039,151
Made in beehive ovens—			
Tons.....	22,966,105	15,767,652	( <sup>1</sup> )
Value.....	\$45,315,189	\$27,542,495	( <sup>1</sup> )
Made in retort or by-product ovens—			
Tons.....	1,939,420	505,394	( <sup>1</sup> )
Value.....	\$5,061,846	\$1,050,641	( <sup>1</sup> )
<b>By-products obtained from retort or by-product ovens:</b>			
Gas made, cubic feet (thousands)...	22,255,825	4,772,401	( <sup>1</sup> )
Used in process or wasted, cubic feet (thousands).....	21,520,611	4,638,367	( <sup>1</sup> )
Sold—			
Cubic feet (thousands).....	729,214	134,034	153,201
Value.....	\$10,933	\$11,569	\$32,669
Tar—			
Gallons.....	14,248,161	3,815,240	3,504,428
Value.....	\$299,600	\$84,812	\$64,429
Ammonia sulphate—			
Pounds.....	12,483,510	1,487,317	3,046,683
Value.....	\$327,554	\$38,733	\$78,999
Ammonia liquor—			
Gallons.....	5,898,883	1,334,775	890,184
Value.....	\$504,378	\$190,164	\$61,073
All other.....	\$290,899	\$5,815	\$6,037
<b>Equipment:</b>			
Ovens, number at end of year.....	54,506	37,205	26,920
Beehive ovens.....	53,210	36,675	26,565
Retort or by-product ovens.....	1,296	530	355

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

During the period covered by the table the quantity of coke produced almost doubled, while its value considerably more than doubled. Although still of minor importance, coke manufactured in retort, or by-product, ovens almost quadrupled in quantity from 1904 to 1909. The value of by-products in 1909 shows a large increase over former years. The growth in the use of by-product ovens promises an important saving through the utilization of a former waste.

**Flour-mill and gristmill products.**—The following table gives the quantity and value of the several products of the flour mills and gristmills for 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
Total value.....	\$44,782,558	\$38,518,702	\$29,570,943
Wheat flour:			
White—			
Barrels.....	3,738,812	3,952,446	
Value.....	\$20,094,935	\$19,704,264	4,450,832
Graham—			\$15,935,768
Barrels.....	11,030	16,783	
Value.....	\$50,043	\$79,805	
Corn meal and corn flour:			
Barrels.....	767,402	1,097,993	864,007
Value.....	\$2,369,701	\$2,091,670	\$1,034,721
Rye flour:			
Barrels.....	154,679	128,506	124,878
Value.....	\$628,909	\$530,570	\$385,834
Buckwheat flour:			
Pounds.....	50,760,006	45,117,852	46,144,362
Value.....	\$1,289,949	\$1,075,989	\$998,470
Barley meal:			
Pounds.....	190,800	331,000	42,240
Value.....	\$2,770	\$4,106	\$1,018
Hominy and grits:			
Pounds.....	52,105,637	33,938,974	16,308,420
Value.....	\$700,433	\$411,579	\$107,793
Feed:			
Tons.....	458,007	413,246	426,431
Value.....	\$13,290,931	\$9,900,426	\$7,985,943
Offal:			
Tons.....	191,629	185,642	162,548
Value.....	\$4,774,378	\$3,774,327	\$2,309,682
All other products.....	\$1,472,413	\$189,960	\$41,734

The value of products of the industry increased from \$29,570,943 in 1899 to \$44,782,558 in 1909, an increase which is due, to a large extent, to the advance in the prices of these commodities. The quantity of wheat flour and of corn meal and corn flour manufactured decreased during the decade, while the quantity of rye flour, buckwheat flour, hominy and grits, feed, and offal increased. Barley meal, although showing a considerable increase for the decade, decreased markedly in quantity in the five-year period 1904-1909.

**Glass.**—In 1909 Pennsylvania reported 35.6 per cent of the total value of glass products manufactured in the United States, as against 34.8 per cent in 1904 and 38.9 per cent in 1899. The next table gives detailed statistics of materials and products in 1909, 1904, and 1899.

Large increases are shown for both five-year periods covered by the table in the total cost of all materials and in the quantities of practically all the principal materials used. The increase in the total cost of materials was 44.9 per cent from 1899 to 1904 and 35.5 per cent from 1904 to 1909. During the last-named five-year period the quantity of window glass increased 50.8 per cent, while the value per 50-foot box decreased 35.6 per cent. Plate glass, both rough and polished, also increased in quantity and decreased in value per square foot. The reductions in the value per unit of these products are due largely to the more extensive use of improved machinery. The total value of pressed and blown glass increased from \$8,453,550 in 1899 to \$9,847,228 in 1909, or 16.5 per cent, and that of bottles and jars from \$4,162,990 to \$7,778,787, or 86.9 per cent. Of the 112 establishments engaged in the manufacture of glass in Pennsylvania in 1909, 44 produced building glass; 32, pressed and blown glass; and 41, bottles, jars, etc.

MATERIAL OR PRODUCT.	1909	1904	1899
Materials used, total cost.....	\$12,633,913	\$9,325,184	\$8,485,463
Glass sand, tons.....	341,319	219,958	191,859
Soda ash, tons.....	85,607	56,742	40,399
Salt cake, tons.....	40,444	28,749	64,297
Nitrate of soda, tons.....	3,616	3,451	4,530
Limestone, tons.....	72,958	45,974	38,309
Lime, bushels.....	337,726	331,816	184,970
Arsenic, pounds.....	1,540,208	996,496	890,074
Carbon, tons.....	2,701	1,598	1,926
Manganese, pounds.....	706,021	648,926	457,681
Litharge and red lead, pounds.....	4,709,539	4,030,785	3,143,727
Potash and pearl ash, pounds.....	2,176,837	1,921,380	1,938,334
Grinding sand, tons.....	485,363	273,428	182,117
Rouge, pounds.....	955,525	717,071	532,524
Products, total value.....	\$32,817,936	\$27,671,693	\$22,011,130
Building glass.....	\$14,958,649	\$12,169,013	\$9,213,545
Window glass:			
50-foot boxes.....	3,635,549	2,410,400	2,068,340
Value.....	\$5,786,591	\$5,963,374	\$5,301,131
Plate glass:			
Sold rough—			
Square feet.....	151,609	3,652	579,905
Value.....	\$26,717	\$2,045	68,032
Polished—			
Square feet.....	31,841,174	17,686,694	10,877,250
Value.....	\$8,219,104	\$5,133,509	\$3,441,734
Skylight glass:			
Square feet.....	10,792,614	7,745,349	3,036,536
Value.....	\$543,019	\$357,587	\$161,203
All other.....	\$383,218	\$706,968	\$241,445
Pressed and blown glass.....	\$9,847,228	\$9,406,183	\$8,453,550
Bottles and jars.....	\$7,778,787	\$5,951,144	\$4,162,990
All other products.....	\$233,272	\$145,353	\$181,045

**Boots and shoes, including cut stock and findings.**—The following table shows the total number of pairs of the various kinds of footwear turned out by the boot and shoe factories of Pennsylvania in 1909, 1904, and 1899:

KIND.	NUMBER OF PAIRS.		
	1909	1904	1899
Boots and shoes.....	11,631,329	9,998,580	10,078,367
Men's, boys', and youths'.....	2,048,307	2,151,742	2,082,210
Women's, misses', and children's.....	9,583,022	7,846,847	8,896,157
Slippers, all kinds.....	1,165,117	328,741	275,666
All other kinds.....	4,792,028	3,009,000	1,224,023

The total number of pairs of footwear produced in the state in 1909 was 17,588,474, a gain of 4,252,054 pairs, or 31.9 per cent, over 1904, and of 5,110,418 pairs, or 41 per cent, over 1899. Of the 11,631,329 pairs of boots and shoes made in 1909, men's, boys', and youths' formed 17.6 per cent and women's, misses', and children's 82.4 per cent. The corresponding proportions for 1904 were 21.5 per cent and 78.5 per cent, respectively.

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

KIND.	NUMBER OF PAIRS, BY METHOD OF MANUFACTURE.				
	Total.	Machine or hand welt.	Turned.	McKay.	All other methods. <sup>1</sup>
Boots and shoes.....	11,631,329	2,704,754	4,170,122	4,187,893	508,560
Men's, boys', and youths'.....	2,048,307	873,025	(?)	889,977	485,305
Women's, misses', and children's.....	9,583,022	2,091,729	4,170,122	3,297,916	23,255
Slippers, all kinds.....	1,165,117	91,739	583,741	489,637	(?)
All other kinds.....	4,792,028	579,802	3,861,208	222,738	128,375

<sup>1</sup> Includes "wooden-pegged" and "wire-screw or metal-fastened."  
<sup>2</sup> Not reported.

The greater part of the footwear manufactured in Pennsylvania, in 1909, was McKay and turned sewed, over 4,500,000 pairs of the former class and over 8,500,000 of the latter class being reported while slightly less than 3,500,000 pairs were made by the machine or hand welt method.

**Paper and wood pulp.**—Paper was manufactured in Pennsylvania as early as 1690 by William Rittenhouse at Roxboro, now a part of the city of Philadelphia. In the development of the industry, both in the use of new paper-making materials and in the improvement of machinery, the manufacturers of the state have taken a prominent part. Since the use of wood fiber in the manufacture of many kinds of paper has become general several of the states having an abundant supply of timber suited to the manufacture of pulp have outranked Pennsylvania in this industry. The state ranked first in 1810, second in 1840, fourth in 1849, third from 1859 to 1889, fourth in 1899, and fifth in 1904 and 1909.

The next table shows the quantity and cost of the principal materials used in the industry, the quantity and value of the principal products, and the principal equipment for the census years 1909, 1904, and 1899.

The total cost of the materials used, including fuel and rent of power, amounted to \$6,374,315 in 1899, \$8,509,546 in 1904, and \$11,398,311 in 1909, a gain of 78.8 per cent during the decade. The cost of pulp wood consumed almost trebled during this period, increasing from \$711,450 to \$2,111,025. The total quantity of wood used in the manufacture of pulp was 181,850 cords in 1899 and 243,420 cords in 1904. The schedule used in collecting the data regarding the operations of pulp mills for 1909 did not call for the quantity of pulp wood used, because this bureau, in collaboration with the Forest Service, now obtains information on this subject in connection with its annual compilation of statistics of forest products. These reports show that in 1909, 295,038 cords of pulp wood were used, representing an increase of 62.2 per cent for the decade. Of the wood pulp manufactured, 120,261 tons were for use in the establishments making it. Of this amount, 2,760 tons consisted of ground wood; 64,187 tons, of soda fiber; and 53,314 tons, of sulphite fiber. In addition, 41,062 tons of wood pulp were purchased, of which 30,712 tons, or nearly 75 per cent, were sulphite fiber. Thus the total quantity of wood pulp used during the year in the manufacture of paper was 161,323 tons, as compared with 96,022 tons in 1904 and 98,907 tons in 1899, making an increase of 63.1 per cent for the decade.

In this connection it should be explained that separate reports were secured for paper mills and pulp mills operating under the same ownership if they were located at different points; in such instances, pulp transferred from one plant to another and not actually sold was treated, for statistical purposes, as sold by the pulp mill and as purchased by the paper mill.

MATERIAL PRODUCT OR MACHINE.	1909	1904	1899
<b>Materials used, total cost</b> .....	\$11,398,311	\$8,509,546	\$6,374,315
Pulp wood.....	\$2,111,025	\$1,222,491	\$711,450
Wood pulp, purchased:			
Tons.....	41,062	30,045	30,303
Cost.....	\$1,773,494	\$1,181,511	\$929,066
Ground—			
Tons.....	6,942	6,747	5,340
Cost.....	\$163,187	\$125,463	\$110,993
Soda fiber—			
Tons.....	3,408	4,451	9,513
Cost.....	\$151,337	\$189,892	\$284,449
Sulphite fiber—			
Tons.....	30,712	19,747	15,450
Cost.....	\$1,468,970	\$866,156	\$527,624
Rags, including cotton and flax waste and sweepings:			
Tons.....	64,654	56,207	34,989
Cost.....	\$1,226,978	\$866,616	\$626,705
Old or waste paper:			
Tons.....	108,150	65,726	46,697
Cost.....	\$1,208,765	\$719,574	\$465,872
Manila stock, including jute bagging, rope, waste, and thread:			
Tons.....	9,544	11,971	7,851
Cost.....	\$327,212	\$290,469	\$270,466
Fuel and rent of power.....	\$1,544,116	\$1,196,885	\$627,366
All other materials.....	\$3,206,721	\$3,023,000	\$2,743,390
<b>Products, total value</b> .....	\$19,872,717	\$15,411,032	\$12,267,900
Book and cover paper:			
Tons.....	80,439	66,256	61,136
Value.....	\$6,442,043	\$4,905,068	\$4,729,821
Writing and other fine paper:			
Tons.....	39,251	22,095	19,644
Value.....	\$3,508,007	\$2,322,427	\$1,749,511
Wrapping paper:			
Tons.....	63,995	58,192	36,110
Value.....	\$3,954,578	\$3,154,938	\$2,024,486
Manila (rope, jute, tag, etc.)—			
Tons.....	5,702	5,964	6,930
Value.....	\$670,071	\$582,976	\$585,224
Heavy (mill wrappers, etc.)—			
Tons.....	36,610	31,043	5,921
Value.....	\$1,777,450	\$1,306,455	\$265,034
Bogus or wood manila—			
Tons.....	6,167	1,571	11,457
Value.....	\$278,993	\$72,898	\$557,063
All other—			
Tons.....	15,507	10,614	11,892
Value.....	\$1,228,064	\$1,131,709	\$617,235
Boards:			
Tons.....	53,963	50,398	20,486
Value.....	\$1,406,309	\$688,358	\$595,414
Building, roofing, asbestos, and sheathing paper:			
Tons.....	60,168	67,797	45,922
Value.....	\$1,937,000	\$1,847,762	\$1,313,436
All other products.....	\$2,624,720	\$2,493,379	\$1,855,132
<b>Wood pulp produced (including that used in mills where manufactured), total tons</b> .....	136,850	83,114	85,433
Ground, tons.....	2,760	19,000	4,505
Soda fiber, tons.....	80,776	53,632	61,662
Sulphite fiber, tons.....	53,314	10,482	19,266
<b>Machinery:</b>			
Paper machines:			
Total number.....	126	134	122
Capacity, yearly, tons.....	419,207	327,565	237,494
Fourdrinier—			
Number.....	68	65	59
Capacity per 24 hours, tons.....	736	580	(1)
Cylinder—			
Number.....	58	69	63
Capacity per 24 hours, tons.....	706	543	(1)
Pulp equipment:			
Grinders, number.....	5	5	20
Digesters, number.....	105	89	76
Soda fiber.....	82	73	(1)
Sulphite fiber.....	22	16	(1)
Capacity, yearly, tons of pulp.....	109,961	130,547	94,826
Ground, tons.....	16,908	4,400	(1)
Soda, tons.....	87,903	73,873	(1)
Sulphite, tons.....	65,150	52,274	(1)

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

During 1909 the industry used 64,654 tons of rags, including cotton and flax waste and sweepings, costing \$1,226,978, and 106,150 tons of old and waste paper, costing \$1,208,765. The increases in both items for the 10-year period 1899–1909 were large, being especially true of waste paper, the increased use of which reflects the scarcity of paper-making materials.

The total value of paper manufactured and of pulp manufactured for sale increased from \$12,267,900 in 1899 to \$15,411,032 in 1904, and \$19,872,717 in 1909, an increase of 62 per cent during the 10-year

period. Book and cover paper was the principal product in value and contributed about one-third of the total for all products in 1909. The product ranking next in value was wrapping paper, which had a value somewhat greater than that of writing and other fine paper.

The total amount of wood pulp produced, including 120,261 tons used in the establishments in which it was manufactured, increased from 85,433 tons in 1899 to 136,850 tons in 1909, a gain of 51,417 tons, or 60.2 per cent. Of the total production in 1909, 80,776 tons, or 59 per cent, consisted of soda fiber and 53,314 tons, or 39 per cent, of sulphite fiber.

Chemicals.—In the following table are shown the quantity and value of the principal products or groups of products reported for this industry, which does not include sulphuric, nitric, and mixed acids, in 1909 and 1904:

PRODUCT.	1909	1904
Total value.....	\$15,978,162	\$11,773,719
Acids:		
Muratic—		
Pounds.....	16,753,080	.....
Value.....	\$176,318	(1)
Citric, oxalic, lactic, and hydrofluoric.....	\$322,508	(1)
All other.....	\$1,427,442	\$1,080,023
Sodas:		
Tons.....	26,690	(2)
Value.....	\$614,935	\$1,066,134
Alums:		
Pounds.....	84,273,500	100,832,827
Value.....	\$1,139,000	\$1,249,856
Coal-tar distillery products.....	\$318,946	\$15,120
Cyanides:		
Pounds.....	2,806,326	3,137,776
Value.....	\$337,667	\$435,770
Bleaching materials.....	\$3,839	\$36,644
Electrochemicals.....	\$903,196	(2)
Compressed or liquefied gases.....	\$930,873	\$332,330
Fine chemicals:		
Gold salts—		
Ounces.....	3,059	6,435
Value.....	\$36,630	\$66,249
Silver salts—		
Ounces.....	863,128	521,161
Value.....	\$299,414	\$211,812
All other, including alkaloids, platinum salts, and ether.....	\$4,004,389	\$2,842,634
Coppers:		
Pounds.....	21,631,000	6,932,050
Value.....	\$48,062	\$18,200
Enson salts, tin salts, and zinc salts.....	\$499,756	\$416,380
All other general chemicals.....	\$4,796,557	\$1,879,840
All other products.....	\$115,685	\$1,168,727

<sup>1</sup> Included in other acids.

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

In the chemical industry proper the cost of materials increased \$2,934,676, or 40.4 per cent, from 1904 to 1909. In value of products the increase was \$4,204,443, or 35.7 per cent, during the same five-year period. In addition to the products shown in the table, chemicals valued at \$1,999,718 were manufactured by establishments included under other classifications.

Paint and varnish.—The next table shows the quantity and value of the paints and varnishes reported at the censuses of 1909, 1904, and 1899.

The largest gain reported for any product was that for white lead, both dry and in oil, which increased from 32,478,546 pounds, valued at \$1,516,121, in 1899, to 50,819,314 pounds, valued at \$2,885,786, in 1909. Paints mixed ready for use, pulp color sold moist, pyroxylin varnishes, and japans, dryers, and lacquers also show conspicuous increases.

PRODUCT.	1909	1904	1899
Total value.....	\$14,019,744	\$11,637,038	11,299,465
Pigments:			
White lead, dry—			
Pounds.....	18,418,107	3,562,796	32,478,546
Value.....	\$380,607	633,620	\$1,516,121
Oxides of lead—			
Pounds.....	21,496,303	19,602,384	27,893,478
Value.....	\$1,183,696	\$1,039,468	\$1,338,959
Iron oxides and other earth and dry colors—			
Pounds.....	78,874,244	54,337,906	70,266,323
Value.....	\$772,332	\$768,675	\$933,425
Pulp colors sold moist—			
Pounds.....	6,158,396	3,343,289	594,379
Value.....	\$209,206	\$47,772	\$12,842
Paints in oil—			
White lead in oil—			
Pounds.....	32,401,207	35,780,225	(3)
Value.....	\$1,995,179	\$1,898,758	(3)
Pasta—			
Pounds.....	29,741,101	22,061,202	59,071,523
Value.....	\$1,600,481	\$1,398,355	\$3,050,976
Already mixed for use—			
Gallons.....	3,083,523	2,190,972	2,163,259
Value.....	\$2,708,202	\$1,846,990	\$1,505,049
Varnishes and japans:			
Oleoresinous varnishes—			
Gallons.....	397,010		
Value.....	\$356,105		
Damar and similar turpentine and benzine varnishes—			
Gallons.....	502,987	1,174,352	1,408,656
Value.....	\$309,029	\$1,082,384	\$1,236,672
Spirit varnishes, not turpentine—			
Gallons.....	72,567	83,536	45,130
Value.....	\$93,945	\$136,960	\$77,653
Pyroxylin varnishes—			
Gallons.....	56,808	39,073	.....
Value.....	\$85,269	\$16,585	.....
Dryers, japans, and lacquers—			
Gallons.....	2,199,656	(4)	(4)
Value.....	\$800,082	\$257,502	\$458,936
All other.....	\$170,121	\$374,489	\$92,456
Fillers, putty, and water paints.....	\$498,517	\$360,439	(2)
All other products.....	\$2,338,073	\$1,776,012	\$1,076,377

<sup>1</sup> Includes "White lead in oil."  
<sup>2</sup> Included in "White lead, dry."

<sup>3</sup> Includes paste fillers.  
<sup>4</sup> Not reported.

Butter, cheese, and condensed milk.—In 1909 Pennsylvania ranked sixth among the states in the factory production of butter, fifth in cheese, and seventh in condensed milk. The following table shows the quantity and value of the several products for 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
Total value.....	\$13,544,065	\$11,581,115	\$10,290,008
Butter:			
Packed solid—			
Pounds.....	9,283,220	10,660,820	13,455,287
Value.....	\$2,741,957	\$2,278,140	\$2,707,190
Prints or rolls—			
Pounds.....	21,200,997	25,094,021	23,678,874
Value.....	\$6,871,342	\$6,413,222	\$5,536,722
Cheese:			
Full cream—			
Pounds.....	9,423,849		
Value.....	\$1,314,704		
Part cream—			
Pounds.....	490,685	11,453,424	10,267,443
Value.....	\$42,921	\$1,007,815	\$888,753
Other kinds—			
Pounds.....	1,319,503		
Value.....	\$57,265		
Condensed milk:			
Sweetened—			
Pounds.....	10,777,613	19,160,432	
Value.....	\$738,309	\$1,177,969	2,862,000
Unsweetened—			
Pounds.....	15,983,771	1,204,268	2,555,885
Value.....	\$743,014	\$51,633	
Cream sold:			
Pounds.....	4,754,954	1,778,703	686,316
Value.....	\$531,432	\$161,913	\$396,108
All other products.....	\$503,031	\$490,423	\$445,418

This table shows an increase in 1909, as compared with 1899, of \$3,254,059, or 31.6 per cent, in the total value of products. Butter contributed 71 per cent of the total value of products in 1909. The quantity produced decreased between 1899 and 1904 and again

between 1904 and 1909, but the value increased a little at each census. Cheese, which contributed 10.4 per cent of the total value of products of the industry in 1909, showed no very marked change in either quantity or value, while condensed milk, which contributed 10.9 per cent of the total value of products, shows enormous increases in both quantity and value. Cream sold as such also shows a very large increase during the decade.

**Brick and tile, and pottery, terra-cotta, and fire-clay products.**—Statistics for these two allied industries for 1909 were collected and compiled by the Bureau of the Census in cooperation with the Geological Survey. The quantities given for that year include the entire output of these products, whether manufactured by establishments covered by the industry designation or by establishments primarily engaged in some other industry, while the amounts for 1904 and 1899 include only the products of establishments engaged chiefly in manufacturing such products. The value of the table for comparative purposes is not appreciably affected, however, because the quantities reported by establishments not covered by the industry designation were relatively very small.

The following table presents statistics for this industry, as above described, for 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
<b>Total value</b> .....	<b>\$22,297,310</b>	<b>\$18,039,187</b>	<b>\$14,081,844</b>
Brick and tile, terra-cotta, and fire-clay products.....	\$19,463,479	\$16,516,697	\$12,917,327
Brick.....	\$17,246,388	\$13,709,909	\$11,156,544
Common—			
Thousands.....	872,658	809,154	780,387
Value.....	\$5,607,490	\$4,993,194	\$4,519,324
Fire—			
Thousands.....	1,417,836	356,666	558,016
Value.....	\$8,107,807	\$6,289,231	\$4,921,339
Vitrified paving, etc.—			
Thousands.....	116,735	91,640	89,017
Value.....	\$1,329,317	\$941,588	\$702,782
Front, including fancy colored—			
Thousands.....	194,695	121,798	88,784
Value.....	\$2,111,556	\$1,281,558	\$959,000
Fancy or ornamental.....	\$27,903	\$134,854	\$54,099
Sand lime—			
Thousands.....	10,691	7,792	.....
Value.....	\$62,255	\$69,544	.....
Drain tile.....	\$14,668	\$14,099	\$26,519
Other tile.....	\$441,243	\$215,688	\$61,036
Sewer pipe.....	\$445,594	\$809,374	\$204,400
Architectural terra-cotta.....	\$428,522	\$341,077	\$139,100
Fireproofing, terra-cotta lumber, and hollow building tile or blocks.....	\$324,800	\$198,437	\$110,210
Stove lining.....	\$97,270	( <sup>2</sup> )	\$106,851
All other.....	\$464,934	\$1,228,053	\$1,112,667
Pottery.....	\$1,624,335	\$1,325,581	\$1,164,517
White ware, including C. C. ware, white granite, semiporcelain ware, and semivitreous porcelain ware.....	\$812,338	\$547,798	\$200,757
Sanitary ware.....	\$252,951	\$86,058	\$41,727
Stoneware and yellow and Rockingham ware.....	\$297,020	\$386,423	\$174,450
China, bone china, delft, and bel-leek ware.....	\$91,757	\$30,000	.....
Red earthenware.....	\$169,796	\$136,532	\$99,786
All other.....	\$10,464	\$138,770	\$647,797
All other products.....	\$1,209,496	\$196,909	.....

<sup>1</sup> Includes refractory block or tile, boiler and locomotive tile, and tank blocks and other refractory products (9-inch equivalent).

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

Measured by value of products the industries as a whole and practically all the several branches individually show a steady increase. In 1909 products to the value of \$22,297,310 were manufactured, an increase of \$4,258,123, or 23.6 per cent, over 1904 and

of \$8,215,466, or 58.3 per cent, over 1899. Of the total value of products in 1909, brick of all kinds contributed 77.3 per cent, as compared with 76 per cent in 1904 and 79.2 per cent in 1899. Common brick increased 92,271 thousand, or 11.8 per cent, in quantity and \$1,088,166, or 24.1 per cent, in value during the decade, while fire brick shows an increase of 64.7 per cent in value. All the other kinds of brick for which quantities are given show increases in both quantity and value. Sewer pipe shows a large decrease in 1909 as compared with 1904 but an increase over 1899. Architectural terra-cotta, and fire-proofing and other miscellaneous building materials, show large increases for both 1904 and 1909.

Pottery products, as a whole, which in 1909 contributed 7.3 per cent of the total value of products for the combined industries, show considerable growth. The most important single item, white ware, etc., representing, in 1909, 50 per cent of the total value of all pottery products, shows a rapid increase in the value of the output. The value of stoneware, while showing an increase for the decade, decreased considerably from 1904 to 1909. Chinaware and the other finer grades of ware combined are relatively unimportant but show a large growth, more than trebling in value. Red earthenware also shows a steady increase in value.

**Carriages and wagons.**—The following table shows the number and value of the several products of this industry for 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
<b>Total value</b> .....	<b>\$12,748,383</b>	<b>\$11,493,128</b>	<b>\$10,455,018</b>
Carriages, family and pleasure:			
Number.....	23,395	33,467	41,490
Value.....	\$1,738,125	\$2,356,943	\$2,816,780
Wagons:			
Number.....	33,634	35,395	27,138
Value.....	\$2,996,485	\$2,839,372	\$2,161,485
Business—			
Number.....	21,414	21,722	( <sup>1</sup> )
Value.....	\$2,143,007	( <sup>1</sup> )	( <sup>1</sup> )
Farm—			
Number.....	11,964	13,321	( <sup>1</sup> )
Value.....	\$766,499	( <sup>1</sup> )	( <sup>1</sup> )
Government, municipal, etc.—			
Number.....	256	352	( <sup>1</sup> )
Value.....	\$86,979	( <sup>1</sup> )	( <sup>1</sup> )
Public conveyances:			
Number.....	492	333	141
Value.....	\$133,811	\$117,093	\$27,645
Sleighs and sleds:			
Number.....	3,210	5,551	5,509
Value.....	\$90,619	\$150,461	\$118,449
All other products, including parts and repair work.....	\$7,789,843	\$6,031,159	\$5,330,707

<sup>1</sup> Not reported.

The increase of \$2,293,367 shown in the total value of products for the decade is more than covered by the advance in the one item "All other products, including parts and repair work," the gain in the value of which was \$2,458,636. Wagons and public conveyances combined show an increase in value of \$941,216. A decided decrease is shown in the number and value of family and pleasure carriages and sleighs and sleds.

**Laundries.**—Statistics for steam laundries are not included in the general tables or in the tables for manufacturing industries. There were 385 such establishments in Pennsylvania, 92 of which were in Phila-



delphia, 26 in Pittsburgh, 9 in Harrisburg, 8 in Reading, and 7 each in Erie, Wilkes-Barre, Williamsport, and York. No other city or borough having more than 10,000 inhabitants reported as many as 7 laundries. The following statement summarizes the statistics:

Number of establishments.....	385
Persons engaged in the industry.....	10,915
Proprietors and firm members.....	436
Salaried employees.....	840
Wage earners (average number).....	9,639
Primary horsepower.....	10,730

Capital.....	\$6,685,132
Expenses.....	6,821,427
Services.....	4,167,836
Materials.....	1,449,517
Miscellaneous.....	1,204,074
Amount received for work done.....	8,331,834

The most common form of ownership was the individual, with 218 establishments. Partnership or firm ownership was represented by 100 establishments and corporate ownership by 67. Ninety-eight establishments had receipts for the year's business of less than \$5,000; 174, receipts of \$5,000 but less than \$20,000; 98, receipts of \$20,000 but less than \$100,000; and 15, 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.....	9,331	94.7	July.....	9,756	99.1
February.....	9,357	95.0	August.....	9,716	98.6
March.....	9,380	95.2	September.....	9,820	99.7
April.....	9,474	96.1	October.....	9,849	100.0
May.....	9,630	97.8	November.....	9,802	99.5
June.....	9,771	99.2	December.....	9,782	99.3

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

KIND.	Number of engines or motors.	Horsepower.
<b>Primary power, total.....</b>		<b>10,730</b>
Owned:		
Steam.....	345	9,124
Gas.....	52	987
Rented:		
Electric.....	136	549
Other.....		70

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

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	48,729
Bituminous coal.....	Tons.....	42,139
Coke.....	Tons.....	444
Wood.....	Cords.....	71
Oil.....	Barrels.....	166
Gas.....	1,000 feet.....	433,028

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.....	267	539
Persons engaged in the industry.....	675	773
Proprietors and firm members.....	342	611
Salaried employees.....	1	
Wage earners (average number).....	332	162
Primary horsepower.....	5,541	13,893
Capital.....	\$388,261	\$1,570,025
Expenses.....	127,663	2,678,065
Services.....	103,648	47,804
Materials.....	5,025	1,257,513
Miscellaneous.....	18,990	51,748
Value of products.....	284,056	1,070,504

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

MANUFACTURES—PENNSYLVANIA.

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.													
STATE—All industries .....	1909	27,563	1,002,171	29,743	84,885	877,543	2,921,547	\$2,749,006	\$110,897	\$455,627	\$1,582,560	\$2,626,742	\$1,044,182
	1904	23,495	855,392	26,029	60,081	763,282	2,302,398	1,995,837	73,269	387,961	1,142,943	1,955,551	812,608
	1899	23,462		43,935		663,900	1,716,694	1,449,815	46,145	296,876	958,301	1,649,882	661,561
Agricultural implements .....	1909	36	2,071	37	233	2,401	3,842	6,491	257	1,223	2,082	4,805	2,723
	1904	43	2,668	54	220	2,394	3,230	5,460	227	1,103	2,075	5,017	2,942
	1899	50	1,525	64	197	1,564	2,240	4,102	184	638	1,232	3,198	1,966
Artificial flowers and feathers and plumes.	1909	30	917	35	77	805	75	943	72	262	675	1,319	644
	1904	19	627	27	47	553	52	409	38	170	367	722	355
	1899	25	950	35	42	873	30	545	53	209	467	950	483
Automobiles, including bodies and parts.	1909	44	3,566	29	338	3,199	2,746	6,971	384	1,808	4,051	6,532	2,481
	1904	6	631		65	566	423	1,453	79	352	901	1,226	625
	1899	8			16	60		297	18	43	31	99	68
Belting and hose, leather.....	1909	17	243	16	71	166	363	973	74	105	1,011	1,379	368
	1904	14	182	17	38	127	205	709	35	84	541	865	324
	1899	9	125	13	25	87		488	15	53	470	666	198
Boots and shoes, including out stock findings.	1909	140	11,829	167	840	10,822	4,337	11,661	1,161	4,266	12,064	20,219	8,155
	1904	133	9,685	195	500	8,990	3,221	7,394	485	3,263	8,907	14,884	5,977
	1899	109	10,162	241	674	9,247		7,051	588	3,148	8,682	13,830	5,148
Boxes, cigar.....	1909	77	1,970	96	73	1,801	1,818	1,026	67	580	1,252	2,328	1,076
	1904	83	1,779	115	79	1,585	1,754	1,194	48	428	1,023	1,870	856
	1899	101	1,334	128	36	1,170		993	22	319	910	1,553	642
Boxes, fancy and paper.....	1909	118	6,050	133	313	4,604	2,121	3,422	308	1,472	2,290	5,184	2,894
	1904	88	4,516	118	219	4,179	1,569	2,123	199	1,676	1,676	3,906	2,230
	1899	87	3,670	101	126	3,443		1,978	110	878	1,260	2,936	1,726
Brass and bronze products.....	1909	104	2,524	94	350	2,080	4,996	8,392	456	1,234	5,605	8,455	2,850
	1904	98	2,029	100	234	1,635	5,261	5,261	273	949	3,271	5,443	2,172
	1899	85	2,106	92	233	1,781		4,348	251	830	3,929	5,089	2,060
Bread and other bakery products.....	1909	3,185	17,838	3,375	2,242	12,221	10,806	30,888	1,807	6,528	27,830	45,850	18,520
	1904	2,817	15,011	3,009	1,638	10,964	6,044	10,100	861	5,392	19,300	33,370	14,070
	1899	2,448	10,981	2,552	1,031	7,398		10,986	721	3,255	11,055	20,784	9,729
Brick and tile.....	1909	326	8,943	349	536	8,058	38,247	20,150	546	3,881	2,453	9,225	6,772
	1904	370	8,430	446	424	7,501	31,235	13,887	355	3,213	1,599	7,599	5,681
	1899	355	7,509	507	269	6,733	20,921	10,507	248	2,626	1,138	5,954	4,816
Brooms and brushes.....	1909	139	1,139	162	117	860	811	1,552	97	410	1,255	2,304	1,049
	1904	152	1,109	173	88	848	407	961	83	305	813	1,708	895
	1899	167	1,219	206	88	925		1,026	62	348	941	1,769	828
Butter, cheese, and condensed milk.....	1909	538	2,093	635	281	1,177	7,613	4,291	155	556	11,674	13,544	1,870
	1904	645	2,152	623	311	1,218	9,483	3,649	89	556	9,658	11,681	1,925
	1899	749	1,795	692	127	976	8,558	3,033	46	446	8,712	10,290	1,878
Buttons.....	1909	24	1,210	25	71	1,123	858	977	95	404	746	1,565	819
	1904	21	1,037	20	58	1,009	796	719	64	305	360	900	540
	1899	21	1,212	30	42	1,140	471	567	39	321	403	999	596
Canning and preserving.....	1909	83	4,379	97	1,529	2,753	3,474	8,867	1,518	947	4,665	9,484	4,819
	1904	89	3,405	97	1,038	2,215	2,894	6,166	1,123	762	4,033	8,065	4,032
	1899	77			797	2,197		3,499	730	637	2,927	6,039	3,112
Carpets and rugs, other than rag.....	1909	93	12,078	108	460	11,510	13,073	24,721	762	5,169	14,648	24,879	10,231
	1904	102	14,356	136	504	13,710	11,871	22,284	652	6,829	16,706	27,120	10,414
	1899	93	13,358	103	336	12,919	10,537	17,968	375	5,331	13,774	23,113	9,339
Carriages and wagons and materials.....	1909	655	8,757	781	478	7,498	11,544	14,365	500	3,861	5,707	12,748	7,041
	1904	656	8,689	825	403	7,401	9,107	12,368	397	3,647	4,902	11,488	6,591
	1899	797			318	6,399		10,684	296	3,070	4,246	10,455	6,209
Cars and general shop construction and repairs by steam-railroad companies.	1909	132	50,545		3,900	46,645	56,774	45,341	2,989	30,157	41,401	76,035	34,634
	1904	128	44,109		2,271	41,838	32,157	30,418	1,853	25,617	32,361	61,021	28,660
	1899	144	29,619		1,065	28,554	12,386	19,182	811	16,326	23,148	43,065	19,917
Cars and general shop construction and repairs by street-railroad companies.	1909	65	2,568		126	2,442	4,370	2,464	110	1,477	1,094	2,747	1,653
	1904	9	1,220		44	1,176	40	1,164	45	687	483	1,259	776
	1899	10	1,027		22	1,005		766	13	574	506	1,245	649
Cars, steam-railroad, not including operations of railroad companies.	1909	13	8,799		1,033	7,766	31,732	31,282	1,242	4,819	19,002	27,510	8,608
	1904	9	6,007		546	5,461	13,842	31,524	542	3,061	13,821	19,428	5,607
	1899	11	6,260		414	5,846	4,426	33,829	426	3,112	12,189	19,261	7,072
Cement.....	1909	27	8,902		822	8,080	102,904	50,856	1,047	3,575	10,108	18,855	8,747
	1904	22	6,891		379	6,509	39,174	28,165	484	2,988	4,360	10,234	5,874
	1899												
Chemicals.....	1909	37	3,573	19	369	3,185	9,771	23,535	559	1,892	10,200	15,978	5,778
	1904	41	3,692	29	290	3,373	10,602	20,657	456	1,892	7,265	11,774	4,509
	1899												
Chocolate and cocoa products.....	1909	6	1,033		170	863	2,885	3,484	236	324	2,955	4,811	1,856
	1904	4	407		53	351	865	1,124	83	121	1,390	2,134	744
	1899	3	174		48	123		800	35	40	870	1,039	169
Clocks and watches, including cases and materials.	1909	8	1,587	3	189	1,395	1,033	4,651	133	728	1,172	2,873	1,701
	1904	6	906	5	103	798	596	2,774	107	373	814	1,549	735
	1899	6		74	1,180			3,387	75	549	801	1,751	950

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

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

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

<sup>4</sup>Comparable figures not available.

# MANUFACTURES—PENNSYLVANIA.

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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>														
Clothing, men's, including shirts.....	1909	606	26,405	1,099	1,683	23,623	5,288	\$20,790	\$1,692	\$3,902	\$19,863	\$39,682	\$19,819	
	1904	451	19,570	706	1,290	17,574	4,198	16,044	1,015	5,853	16,617	31,714	15,097	
	1899	621	19,570	706	1,166	17,198	4,198	13,443	1,097	6,088	15,405	30,055	14,650	
Clothing, women's.....	1909	401	18,080	646	1,733	15,701	2,514	12,255	1,667	7,140	18,156	32,837	14,681	
	1904	223	9,879	330	859	8,690	1,585	5,992	616	3,427	7,903	15,086	7,183	
	1899	280	9,253	346	596	8,311	862	5,197	525	2,606	6,270	11,695	5,425	
Coffins, burial cases, and undertakers' goods.	1909	36	1,309	36	170	1,103	1,447	2,877	186	514	1,675	2,757	1,132	
	1904	24	985	23	94	868	1,137	1,733	94	427	1,005	1,989	984	
	1899	22	767	27	74	666	1,137	2,017	71	231	585	1,214	629	
Coke.....	1909	146	16,219	83	805	15,331	26,001	68,023	943	8,436	33,762	51,816	18,054	
	1904	110	10,975	72	749	10,154	44,478	56,839	734	5,173	14,979	28,924	13,945	
	1899	89	9,841	40	518	9,283	24,525	20,213	481	4,517	11,678	22,282	10,604	
Confectionery.....	1909	251	6,436	255	773	5,408	3,899	8,204	813	1,760	8,203	13,542	5,339	
	1904	160	5,643	162	652	4,729	3,603	6,979	536	1,400	6,581	10,743	4,192	
	1899	135	5,643	162	616	4,249	3,603	4,367	490	1,101	4,294	7,483	3,189	
Cooperage and wooden goods, not elsewhere specified.	1909	133	1,903	155	118	1,630	3,681	3,631	132	756	2,989	4,630	1,641	
	1904	129	1,745	139	110	1,496	2,970	2,563	108	729	2,419	3,973	1,554	
	1899	110	1,745	139	66	1,326	2,970	2,091	48	565	2,030	3,213	1,183	
Copper, tin, and sheet-iron products....	1909	339	7,992	382	795	6,815	8,245	17,683	889	3,444	8,851	17,197	8,346	
	1904	205	5,731	260	450	5,021	2,535	9,192	475	2,523	4,949	9,687	4,738	
	1899	179	5,731	260	349	3,077	2,535	5,591	324	1,652	3,643	7,144	3,501	
Cordage and twine and jute and linen goods.	1909	18	2,228	12	97	2,119	4,630	5,161	185	685	3,001	4,895	1,804	
	1904	12	2,323	16	80	2,232	4,344	4,798	156	666	3,648	5,138	1,490	
	1899	21	2,798	25	90	2,683	4,344	0,163	104	762	5,448	7,257	1,809	
Cork, cutting.....	1909	10	1,789	9	53	1,727	2,045	3,362	104	535	1,669	2,065	1,296	
	1904	13	2,097	10	61	2,026	1,989	3,114	116	620	1,802	3,176	1,374	
	1899	10	1,590	9	43	1,538	1,989	1,483	73	402	1,120	2,188	1,068	
Cotton goods, including cotton small wares.	1909	175	17,386	156	937	16,293	24,589	33,692	1,612	7,034	18,757	33,917	15,160	
	1904	165	16,099	209	627	15,263	22,611	27,174	918	5,943	14,322	26,300	11,978	
	1899	178	17,817	241	565	17,011	23,403	24,332	742	6,057	13,177	25,448	12,271	
Cruelibles.....	1909	5	135	4	25	106	336	910	59	60	430	728	268	
	1904	5	124	1	34	89	360	959	63	53	534	784	250	
	1899	5	87	11	7	69	360	617	12	40	902	1,147	245	
Cutlery and tools, not elsewhere specified.	1909	129	4,832	114	468	4,250	11,311	12,406	549	2,280	3,431	8,022	4,591	
	1904	102	4,086	96	265	3,735	13,416	8,311	307	1,735	2,094	5,819	3,725	
	1899	82	2,377	101	149	2,127	13,416	4,201	183	1,046	1,523	3,741	2,218	
Dentists' materials.....	1909	23	1,218	27	119	1,072	427	2,799	254	464	1,325	2,745	1,420	
	1904	20	1,010	21	102	887	339	2,079	108	368	1,410	2,337	927	
	1899	18	720	20	70	630	339	1,288	79	327	981	1,829	848	
Dyeing and finishing textiles.....	1909	135	6,688	155	447	6,088	13,560	13,242	598	2,088	5,331	12,059	6,728	
	1904	123	5,070	161	324	4,585	9,712	9,923	445	2,076	2,701	6,788	4,085	
	1899	105	5,087	155	216	4,716	10,100	7,680	280	2,066	3,175	7,038	3,863	
Electrical machinery, apparatus, and supplies.	1909	84	14,641	42	3,574	11,025	33,829	59,974	4,058	6,237	13,535	31,351	17,816	
	1904	80	12,206	56	2,746	9,404	29,238	58,393	3,090	5,300	11,365	26,258	14,893	
	1899	63	8,511	48	646	7,817	8,187	20,968	837	4,003	11,373	19,113	7,740	
Explosives.....	1909	27	1,225	20	172	1,083	4,594	6,313	231	630	4,088	6,388	2,300	
	1904	40	1,079	19	163	897	5,699	5,320	233	527	2,516	4,013	1,497	
	1899	36	748	17	102	629	3,673	2,819	130	320	1,590	2,595	1,095	
Fancy articles, not elsewhere specified..	1909	52	951	55	68	828	498	990	57	322	592	1,385	793	
	1904	44	783	54	54	675	358	480	46	206	366	894	528	
	1899	48	823	64	47	712	358	479	25	210	414	886	472	
Fertilizers.....	1909	48	1,517	52	241	1,224	5,174	6,532	293	575	4,613	6,543	1,930	
	1904	43	1,135	48	129	958	4,551	5,386	170	447	2,891	4,095	1,204	
	1899	51	975	43	167	705	3,835	3,803	201	352	2,584	3,644	1,060	
Files.....	1909	7	1,298	4	77	1,217	1,313	2,685	91	528	427	1,540	1,113	
	1904	8	993	8	32	953	1,082	1,368	53	395	395	1,127	732	
	1899	14	1,205	17	30	1,149	1,650	1,650	58	445	458	1,236	778	
Flour-mill and gristmill products.....	1909	1,450	4,696	1,896	368	2,432	69,212	21,277	372	1,188	38,170	44,783	6,613	
	1904	1,195	4,496	1,558	306	2,632	61,638	18,766	237	1,247	33,205	38,519	5,314	
	1899	1,073	4,496	265	1,906	2,632	61,638	14,980	202	946	24,865	29,571	4,706	
Foundry and machine-shop products....	1909	1,695	100,505	1,389	12,295	86,821	162,414	283,556	15,034	51,366	101,011	210,746	109,735	
	1904	1,415	85,974	1,371	9,022	75,581	127,846	216,023	10,712	40,664	69,036	153,393	84,357	
	1899	1,415	85,974	1,371	9,022	75,581	127,846	216,023	10,712	40,664	69,036	153,393	84,357	
Fur goods.....	1909	58	349	72	50	227	14	1,086	37	160	544	1,217	673	
	1904	27	255	36	29	190	5	424	20	110	373	718	845	
	1899	26	255	36	29	190	5	607	27	122	368	785	417	
Furniture and refrigerators.....	1909	304	11,338	376	1,038	9,924	17,211	18,542	1,232	4,829	9,039	18,952	9,913	
	1904	229	8,944	250	647	8,047	12,292	11,163	640	3,608	5,430	12,776	7,337	
	1899	197	7,410	301	520	6,589	12,292	7,961	483	2,827	4,524	10,069	5,545	
Gas and electric fixtures and lamps and reflectors.	1909	75	1,876	73	321	1,482	1,249	2,863	333	765	1,239	2,962	1,723	
	1904	60	1,628	56	224	1,348	783	2,130	255	703	835	2,543	1,708	
	1899	48	1,562	53	187	1,352	783	2,261	181	677	1,055	2,612	1,457	

<sup>1</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.  
<sup>2</sup> Comparable figures not available.

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>													
Gas, illuminating and heating.....	1909	99	4,584	13	1,452	3,119	9,374	\$61,857	\$1,239	\$1,501	\$4,099	\$15,840	\$11,741
	1904	90	3,953	3	1,068	2,882	8,582	57,064	846	1,478	3,143	10,809	7,066
	1899	89	3,721		677	3,144	3,091	47,313	457	1,506	3,151	7,871	4,720
Glass.....	1909	112	24,024	34	1,180	23,710	55,182	58,632	1,730	13,436	12,634	32,818	20,134
	1904	122	21,993	32	1,167	20,794	47,750	40,612	1,597	12,518	9,325	27,672	13,347
	1899	119	20,343	81	842	19,420	29,595	28,287	1,110	10,287	6,435	22,011	15,576
Hats and caps, other than felt, straw, and wool.	1909	53	877	71	62	744	163	652	70	273	543	1,097	554
	1904	43	773	60	29	684	149	453	43	264	526	1,063	537
	1899												
Hats, fur-felt.....	1909	88	7,537	46	271	7,220	5,335	14,439	423	3,725	5,013	13,023	8,010
	1904	25	4,931	29	283	4,619	2,745	5,778	346	2,122	2,720	7,350	4,621
	1899	20	3,092	22	180	2,890	1,737	5,720	270	1,187	1,867	4,243	2,376
Hosiery and knit goods.....	1909	404	40,248	509	1,533	33,206	21,797	38,989	1,658	11,750	27,218	49,658	22,440
	1904	377	30,054	508	1,377	28,171	14,749	23,933	1,067	7,961	16,038	30,812	14,774
	1899	327	22,648	376	688	21,584	9,478	15,700	638	5,834	10,936	21,929	10,993
Ice, manufactured.....	1909	170	2,086	116	364	1,666	35,800	14,404	338	1,023	1,225	4,323	3,598
	1904	109	1,577	57	284	1,236	23,576	9,712	262	732	711	2,936	2,225
	1899	73	1,227	51	246	930	16,646	8,260	170	538	392	2,039	1,647
Ink, printing.....	1909	8	246	6	75	165	483	742	94	105	623	1,050	427
	1904	8	178	6	73	99	443	500	80	73	403	684	281
	1899	7	114	7	29	78		471	61	48	204	408	204
Iron and steel, blast furnaces.....	1909	66	16,215	34	1,660	14,521	476,680	194,708	2,400	9,457	142,074	168,578	26,504
	1904	65	14,732	24	891	13,867	304,154	107,742	1,114	7,764	86,322	107,455	21,133
	1899	77	10,712	28	609	10,075	217,326	72,513	787	8,038	64,005	101,675	37,490
Iron and steel, steel works and rolling mills.	1909	189	137,433	34	10,488	126,911	896,440	522,868	13,394	85,113	329,013	500,344	171,331
	1904	186	119,032	49	8,129	110,904	820,823	355,592	10,088	65,306	237,875	363,774	125,889
	1899	214	99,350	102	4,459	94,789	575,030	237,216	5,398	53,870	219,048	332,870	113,322
Iron and steel pipe, wrought.....	1909	11	4,143	5	265	3,873	12,472	15,325	337	2,177	14,022	18,291	4,969
	1904	11	3,201	3	150	3,048	8,277	8,566	219	1,340	7,172	9,621	2,449
	1899	10	3,797	1	121	3,075		11,698	151	1,679	11,586	15,384	3,798
Jewelry.....	1909	75	624	96	72	456	160	912	54	202	597	1,275	678
	1904	43	603	60	51	492	164	762	43	206	483	1,040	557
	1899	22	522	28	60	434		685	39	201	253	693	440
Leather goods.....	1909	156	3,124	210	390	2,524	1,107	4,527	470	1,137	3,153	5,824	2,671
	1904	134	3,012	170	320	2,522	900	3,553	288	1,061	2,643	5,153	2,510
	1899	134			202	2,396		2,404	182	852	1,878	3,968	2,120
Leather, tanned, curried, and finished..	1909	163	14,970	151	811	14,008	37,440	80,989	1,344	6,801	59,113	77,926	18,813
	1904	205	15,383	216	754	14,413	31,075	72,972	927	6,418	55,412	69,428	14,016
	1899	254	14,162	260	506	13,396	23,750	57,320	644	5,468	42,404	55,615	13,211
Lime.....	1909	348	3,791	393	140	3,258	8,682	6,930	137	1,259	1,038	3,342	2,304
	1904	124	2,601	143	92	2,366	4,996	3,979	96	892	764	2,515	1,751
	1899												
Liquors, distilled.....	1909	88	1,144	148	272	724	7,578	16,217	360	411	3,112	14,367	11,255
	1904	85	807	111	149	547	5,585	8,748	231	294	2,288	4,902	2,614
	1899	73	607	99	97	471	3,409	5,840	123	250	1,569	5,368	3,789
Liquors, malt.....	1909	237	9,007	131	1,642	7,234	54,360	94,135	3,261	5,453	12,610	47,713	35,103
	1904	225	7,076	153	1,059	5,864	40,519	68,884	2,253	4,072	9,277	34,864	25,587
	1899	208	5,492	171	816	4,505	29,472	63,684	1,474	2,884	6,610	20,163	22,553
Lumber and timber products.....	1909	2,607	32,073	3,473	1,727	26,873	113,412	54,638	1,758	13,558	27,314	57,454	30,140
	1904	1,896	31,262	2,527	1,595	27,140	93,228	44,336	1,507	13,520	24,286	56,713	32,327
	1899	2,273		1,160		31,008	109,876	43,852	979	13,017	24,964	53,886	28,922
Marble and stone work.....	1909	596	10,639	764	611	9,264	29,037	13,964	585	4,860	3,720	11,570	7,850
	1904	255	5,215	340	261	4,614	11,171	6,260	285	2,611	2,032	6,710	4,676
	1899	230			162	3,241		4,912	144	1,793	2,153	5,373	3,220
Mattresses and spring beds.....	1909	83	961	84	132	745	1,102	1,655	118	361	1,333	2,223	890
	1904	65	906	73	83	750	1,143	1,241	94	345	1,110	2,002	892
	1899	68			93	782		965	69	298	1,144	1,876	733
Millinery and lace goods.....	1909	105	4,697	141	321	4,235	841	3,552	288	1,327	3,754	6,770	3,016
	1904	53	2,315	83	143	2,039	1,135	1,272	100	645	1,483	2,759	1,276
	1899	41	1,071	50	75	946		670	57	305	792	1,564	772
Musical instruments, pianos and organs and materials.	1909	30	1,331	21	128	1,182	1,260	3,158	165	505	1,248	2,382	1,134
	1904	42	1,110	20	82	1,008	877	2,280	104	525	646	1,767	1,111
	1899	31	807	36	64	707	737	1,389	91	415	613	1,488	875
Optical goods.....	1909	24	744	24	141	579	292	926	117	219	461	1,063	602
	1904	18	421	20	49	352	184	629	55	120	155	471	316
	1899	17			54	424		497	35	128	195	512	317
Paint and varnish.....	1909	114	2,747	105	650	1,992	9,862	14,834	947	1,102	9,201	14,020	4,819
	1904	98	2,432	96	517	1,819	7,714	12,319	613	928	8,065	11,637	3,672
	1899	93	2,405	64	525	1,816	6,925	12,080	625	856	6,595	11,299	4,704
Paper and wood pulp.....	1909	62	7,196	32	508	6,656	60,910	27,747	820	3,303	11,398	19,873	8,475
	1904	65	6,293	53	324	5,960	54,837	21,469	518	2,839	8,510	15,411	6,901
	1899	73	5,195	74	281	4,840	41,849	16,424	382	1,989	6,374	12,208	5,594

<sup>1</sup> Comparable figures not available.  
<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 one establishment, to avoid disclosure of individual operations.

MANUFACTURES—PENNSYLVANIA.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>STATE—Continued.</b>													
Paper goods, not elsewhere specified....	1909	34	1,700	32	311	1,357	1,348	\$3,304	\$320	\$538	\$2,225	\$3,719	\$1,494
	1904	128	771	39	105	627	549	790	119	240	985	1,662	677
	1899	120	494	25	47	422	.....	749	44	154	651	1,194	543
Patent medicines and compounds and druggists' preparations.	1909	367	4,299	334	1,204	2,761	2,619	12,409	1,342	1,145	5,310	12,656	7,346
	1904	243	3,420	235	860	2,325	1,402	7,899	721	824	4,087	9,460	5,373
	1899	195	3,276	212	747	2,317	.....	7,775	677	831	3,775	8,945	5,170
Petroleum, refining.....	1909	41	3,423	36	487	2,900	35,212	38,990	768	1,861	47,440	53,088	5,648
	1904	43	4,657	22	408	4,227	11,609	32,847	557	2,371	38,922	47,460	8,538
	1899	38	3,616	40	277	3,299	13,328	26,581	403	1,682	27,514	34,978	7,464
Photo-engraving.....	1909	31	682	33	160	489	197	660	175	446	231	1,132	901
	1904	23	623	32	148	443	168	585	110	301	128	802	674
	1899	17	335	22	43	270	.....	295	35	169	59	379	320
Pottery, terra-cotta, and fire-clay products.	1909	139	9,784	99	682	9,003	23,142	27,225	856	4,357	4,109	13,072	8,963
	1904	158	9,375	87	619	8,669	23,475	25,707	738	3,979	2,909	10,759	7,850
	1899	143	9,512	172	468	8,872	16,057	11,309	451	3,007	2,452	8,127	5,675
Printing and publishing.....	1909	2,461	36,783	2,557	9,530	24,096	25,839	71,453	8,836	14,335	22,753	70,584	47,831
	1904	2,162	31,079	2,354	6,307	22,328	20,029	51,094	6,218	12,093	16,074	55,063	38,989
	1899	1,969	26,464	2,271	4,292	19,901	.....	41,772	3,969	9,785	11,196	40,854	26,158
Safes and vaults.....	1909	7	777	1	81	695	1,163	1,827	96	391	643	1,338	695
	1904	7	841	3	76	762	891	1,282	82	414	542	1,344	802
	1899	6	425	3	52	370	.....	753	55	164	230	721	491
Saws.....	1909	15	2,087	18	193	1,870	3,399	5,961	205	1,153	1,406	3,794	2,388
	1904	10	1,909	11	61	1,837	2,574	4,747	117	1,025	1,367	3,323	1,956
	1899	12	1,513	15	87	1,411	.....	4,602	93	735	996	2,500	1,564
Shipbuilding, including boat building..	1909	31	3,833	34	241	3,558	7,771	15,203	415	2,120	2,710	6,178	3,468
	1904	33	6,860	28	321	6,511	8,583	18,007	482	3,473	5,180	10,827	5,147
	1899	38	7,279	41	161	7,077	19,366	14,141	254	3,545	7,173	14,493	7,320
Shoddy.....	1909	20	518	32	36	450	2,170	1,627	47	186	1,463	2,051	588
	1904	23	429	35	34	360	1,960	1,216	43	142	1,713	2,204	491
	1899	26	421	19	34	368	1,632	972	25	148	1,070	1,449	379
Silk and silk goods, including throwsters	1909	226	38,178	143	1,566	36,469	41,962	49,679	2,132	11,443	35,166	62,061	26,895
	1904	168	28,240	133	1,192	26,915	28,390	31,312	1,300	6,973	24,287	39,334	15,067
	1899	121	21,904	131	745	21,028	23,210	20,894	719	4,630	19,835	31,073	11,188
Slaughtering and meat packing.....	1909	180	3,957	198	709	3,050	12,139	13,504	862	1,987	44,845	51,851	7,006
	1904	177	3,074	205	341	2,528	7,366	8,338	367	1,518	28,340	33,101	4,761
	1899	131	2,283	183	377	1,723	.....	6,636	318	945	21,806	25,537	3,731
Smelting and refining, not from the ore..	1909	24	278	17	55	266	566	1,605	89	143	2,978	3,577	599
	1904	18	307	17	50	240	419	1,161	77	150	2,280	2,755	475
	1899	16	303	18	72	213	.....	864	50	110	2,064	2,520	456
Soap.....	1909	59	1,746	74	475	1,197	2,598	5,428	344	556	5,947	9,124	3,177
	1904	60	1,460	71	205	1,184	2,152	4,411	253	499	4,054	6,959	2,905
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Steam packing.....	1909	31	2,231	18	536	1,677	5,817	7,022	471	814	2,981	4,987	2,006
	1904	24	1,383	11	175	1,197	4,794	4,689	262	533	1,680	4,059	2,379
	1899	22	822	31	136	655	.....	1,823	184	278	830	1,853	1,023
Stoves and furnaces, including gas and oil stoves.	1909	74	4,721	42	481	4,198	4,675	10,643	635	2,465	2,472	7,409	4,937
	1904	78	5,198	62	455	4,681	3,953	10,834	487	2,723	2,302	7,696	5,394
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tin plate and terneplate.....	1909	17	2,548	3	199	2,346	1,565	5,520	275	1,339	22,898	25,234	2,336
	1904	19	2,613	1	191	2,421	5,805	4,602	219	1,207	17,590	19,342	1,752
	1899	25	1,778	11	189	1,578	1,426	3,027	147	814	10,364	12,531	2,167
Tobacco manufactures.....	1909	2,432	37,580	2,069	1,693	33,188	2,638	27,604	1,785	11,620	20,713	50,161	29,448
	1904	2,803	35,265	3,139	1,378	30,748	1,714	23,371	1,117	10,438	15,937	40,897	24,960
	1899	2,684	29,177	2,964	921	25,302	1,724	15,602	860	8,507	11,994	32,731	20,737
Typewriters and supplies.....	1909	8	872	5	312	555	264	1,152	329	269	189	1,017	828
	1904	5	204	2	20	182	182	430	22	84	60	202	142
	1899	4	406	4	74	328	202	416	68	179	75	443	368
Umbrellas and canes.....	1909	45	2,551	44	192	2,315	1,570	5,119	325	906	3,148	5,060	1,912
	1904	37	2,833	37	110	2,736	1,501	6,031	131	842	3,319	5,133	1,814
	1899	44	.....	184	2,830	.....	.....	1,898	199	884	3,444	5,870	2,426
Wall paper.....	1909	11	1,196	.....	140	1,056	1,371	3,511	249	520	2,309	3,695	1,386
	1904	12	1,060	8	89	963	1,044	2,712	139	454	1,777	3,023	1,246
	1899	13	1,025	8	96	921	.....	2,194	184	432	1,848	2,894	1,046
Wood distillation, not including turpentine and rosin.	1909	50	1,093	36	124	933	1,749	5,111	133	522	1,684	2,960	1,276
	1904	63	1,426	42	135	1,249	2,297	5,009	111	598	1,709	3,093	1,384
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Woolen, worsted, and felt goods, and wool hats.	1909	217	28,692	245	1,038	27,409	50,405	75,170	1,746	10,947	54,634	77,447	22,813
	1904	232	25,367	291	825	24,251	39,682	45,193	1,151	8,791	37,247	55,934	18,687
	1899	260	25,496	301	564	24,631	36,013	39,739	692	8,715	31,364	48,765	17,401
All other industries.....	1909	2,893	68,062	3,129	8,500	56,433	125,775	195,692	10,259	28,745	135,749	211,025	75,276
	1904	2,313	64,665	2,674	4,909	57,091	107,376	146,717	5,691	27,709	106,087	175,101	69,034
	1899	4,374	.....	.....	10,027	124,597	.....	319,614	11,078	60,014	171,100	308,922	132,822

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

## MANUFACTURES—PENNSYLVANIA.

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>ALLENTOWN—All industries..</b>	1909	274	12,628	314	833	11,481	19,101	\$21,569	\$874	\$5,061	\$15,581	\$26,263	\$10,682
	1904	257	9,859	312	563	8,984		13,455	524	3,312	9,873	16,841	6,968
	1899	216			356	7,355		11,343	310	2,634	8,977	14,990	6,013
Boots and shoes, including cut stock and findings.	1909	9	770	10	30	724	365	609	40	297	762	1,302	540
	1904	10	778	16	46	716		569	39	251	691	1,130	435
	1899	9	715	14	38	663		649	25	210	586	901	315
Bread and other bakery products.....	1909	32	183	31	6	146	82	295	4	77	276	475	199
	1904	28	170	35	5	130		134	2	62	192	345	156
	1899	24	148	29	17	102		149	8	39	119	232	113
Brick and tile.....	1909	6	188	11	6	141	335	260	6	56	37	175	138
	1904	5	111	3	6	102		228	5	37	21	101	80
	1899	5	106	9	2	95		118	1	29	15	76	61
Brooms and brushes.....	1909	4	21	5		16	5	11		5	10	21	11
	1904	4	22	4		18		12		7	9	22	13
	1899	4	27	4	1	22		10	(*)	8	8	24	16
Carriages and wagons and materials.....	1909	4	38	8		30	33	99		18	26	61	35
	1904	5	40	9		31		75		18	14	52	33
	1899	5				24		51		12	13	42	29
Clothing, men's, including shirts.....	1909	5	183	8	6	169	14	275	6	64	130	252	122
	1904	6	242	13	2	227		168	3	85	247	428	182
	1899	6	239	12	20	207		204	10	78	270	455	186
Copper, tin, and sheet-iron products.....	1909	3	53	6	1	46	23	53	1	25	40	83	43
	1904	3	78	8	5	65		96	3	27	59	118	59
	1899	3			6	33		60	4	16	27	72	45
Foundry and machine-shop products...	1909	23	1,011	30	130	851	1,286	1,777	111	400	709	1,632	863
	1904	20	900	32	63	805		1,163	55	356	451	1,202	751
	1899	13	607	22	29	616		879	25	328	631	1,243	612
Furniture and refrigerators.....	1909	7	593	10	54	529	646	712	78	252	205	733	528
	1904	9	497	13	42	442		513	46	182	149	481	332
	1899	6	440	7	35	398		402	33	157	147	399	252
Hosiery and knit goods.....	1909	8	614	7	35	572	423	678	29	147	457	717	260
	1904	7	422	7	15	400		968	15	108	285	465	180
	1899	5	275	8	12	255		103	15	57	189	326	137
Leather goods.....	1909	3	23	4	1	18	1	51	1	10	18	44	26
	1904	3	29	4		25		129		13	24	63	39
	1899												
Liquors, malt.....	1909	4	129	8	18	103	501	1,632	29	63	193	657	464
	1904	4	65	7	12	46		938	12	36	110	434	324
	1899	4	62	5	10	47		633	21	33	87	311	224
Lumber and timber products.....	1909	10	171	20	14	137	629	413	8	80	157	319	162
	1904	7	133	13	6	114		258	4	59	107	211	104
	1899	7	118	12	4	102		157	2	46	92	189	97
Marble and stone work.....	1909	4	23	5	1	17	18	22	(*)	10	13	32	19
	1904	3	15	4		11		13		7	6	19	13
	1899												
Printing and publishing.....	1909	28	255	31	34	190	147	496	26	93	101	339	238
	1904	26	196	34	23	139		380	16	62	61	230	199
	1899	17	140	24	5	111		317	3	62	44	174	130
Silk and silk goods, including throwsters.	1909	15	3,937	9	150	3,778	2,808	6,405	171	1,484	4,299	7,456	3,157
	1904	9	2,806	3	92	2,711		3,142	108	826	2,230	3,901	1,671
	1899	7	2,449	4	65	2,380		2,149	68	607	2,008	3,468	1,460
Tobacco manufactures.....	1909	47	1,190	47	39	1,104	162	439	34	439	682	1,446	764
	1904	56	1,122	58	72	992		328	54	305	593	1,290	697
	1899	48	375	47	20	308		196	15	96	234	464	285
All other industries.....	1909	62	3,276	64	302	2,910	11,633	7,282	330	1,541	7,406	10,519	3,113
	1904	52	2,233	49	174	2,010		4,941	162	871	4,624	6,349	1,725
	1899	53			92	1,982		5,266	80	866	4,507	6,613	2,106
<b>ALTOONA—All industries.....</b>	1909	44	9,100	41	650	8,409	9,158	\$16,094	\$649	\$5,750	\$9,134	\$16,763	\$7,829
	1904	73	10,069	61	448	9,540		11,238	969	5,564	7,248	14,350	7,102
	1899	57			303	6,573		6,380	210	3,717	6,883	11,273	4,390
Bread and other bakery products.....	1909	11	64	12	7	45	55	138	3	22	68	122	54
	1904	15	60	17	4	39		30	1	17	67	115	48
	1899	11	58	12	6	40		20	2	17	49	98	49
Liquors, malt.....	1909	3	118	5	17	96	730	1,061	26	42	238	526	288
	1904	2	394	5	6	59		702	7	45	87	323	236
	1899	3	42	5	6	81		288	5	17	57	186	129
Lumber and timber products.....	1909	3	104	4	12	88	186	267	14	44	113	250	137
	1904	5	214	7	20	187		172	16	102	298	476	178
	1899	7	110	7	5	98		158	3	52	139	234	95
Printing and publishing.....	1909	10	209	7	48	154	177	406	34	87	81	260	173
	1904	9	125	7	26	92		186	20	51	46	159	113
	1899	6	155	7	12	136		133	11	58	33	144	101
All other industries.....	1909	17	8,605	13	596	8,026	8,010	14,222	572	5,555	8,684	15,605	6,461
	1904	41	9,276	45	392	9,168		10,083	315	5,349	6,780	13,277	6,537
	1899	30			274	6,268		5,781	189	3,573	6,605	10,611	4,406

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

<sup>3</sup> Less than \$500.

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

<sup>5</sup> Figures can not be shown without disclosing individual operations.

MANUFACTURES—PENNSYLVANIA.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
ERIE—All industries.....	1909	391	11,142	364	982	9,796	22,038	\$30,620	\$1,289	\$5,101	\$12,064	\$24,226	\$12,162
	1904	261	9,337	233	689	8,415		22,963	819	4,363	9,427	18,639	9,212
	1899	260			617	8,032		19,063	655	3,925	8,208	16,493	8,285
Brass and bronze products.....	1909	4	55	4	6	45	80	117	7	25	72	127	55
	1904	5	64	7	5	52		85	4	33	58	107	49
	1899	3	31	4		27		63		13	30	60	30
Bread and other bakery products.....	1909	48	210	48	12	160	117	264	5	91	364	561	197
	1904	28	150	27	2	121		160	3	53	190	311	121
	1899	28	143	27	13	103		188	12	43	143	288	145
Carriages and wagons and materials.....	1909	4	35	7	2	26	41	64	1	15	21	51	30
	1904	3	26	6	1	19		38	1	9	16	37	21
	1899	2 <sup>3</sup>	29	6	1	22		36	1	12	11	32	21
Confectionery.....	1909	8	52	8	7	37	34	42	9	16	116	171	55
	1904	3	46	2	2	42		16	3	14	56	94	38
	1899	4			7	15		13	3	7	9	30	21
Cooperage and wooden goods, not elsewhere specified.	1909	5	51	4	6	41	80	90	6	23	63	105	42
	1904	2 <sup>3</sup>	12	2		10		7		7	31	46	15
	1899	5	123	4	7	112		108	9	24	82	192	110
Copper, tin, and sheet-iron products....	1909	10	143	10	9	124	103	216	8	65	111	216	105
	1904	2 <sup>6</sup>	80	9	3	68		84	2	35	55	126	71
	1899	3				17		15		8	11	31	20
Cutlery and tools, not elsewhere specified	1909	4	137	2	22	113	168	493	24	67	65	197	132
	1904	3	94	1	7	86		171	10	40	39	105	66
	1899												
Flour-mill and gristmill products.....	1909	4	54	2	20	32	540	341	24	18	764	843	79
	1904	3	61	3	16	42		316	22	13	1,359	1,444	85
	1899	5			9	37		226	12	20	695	673	78
Foundry and machine-shop products...	1909	69	4,982	40	370	4,572	8,626	13,517	516	2,499	3,516	8,715	5,199
	1904	43	4,320	15	269	4,036		10,310	346	2,180	3,085	7,319	4,234
	1899	45			282	4,118		9,562	314	2,148	8,142	7,177	4,035
Liquors, malt.....	1909	3	153		30	123	373	2,449	46	90	212	926	714
	1904	4	161		30	131		1,847	44	94	167	882	715
	1899	5	145		30	115		1,100	46	90	138	697	559
Lumber and timber products.....	1909	16	368	12	44	312	896	1,179	54	175	610	964	354
	1904	11	331	13	20	298		571	22	143	442	731	289
	1899	11	348	19	32	297		727	31	121	430	769	339
Marble and stone work.....	1909	6	22	9		13	24	51		12	55	99	44
	1904	4 <sup>5</sup>	27	7		20		31		16	34	65	31
	1899	2 <sup>6</sup>	40	7	5	28		66	2	27	56	110	54
Musical instruments, pianos and organs and materials.	1909	4	123	2	21	100	190	258	26	64	104	237	133
	1904	3	123	3	12	113		173	11	77	52	210	158
	1899	4			5	158		239	8	103	78	250	172
Patent medicines and compounds and druggists' preparations.	1909	27	56	28	6	22	2	95	5	8	57	132	75
	1904	6	28	6	6	16		69	4	7	12	46	34
	1899	7	30	6		17		55	4	5	21	48	27
Printing and publishing.....	1909	23	513	20	89	409	610	1,247	90	182	250	829	579
	1904	2 <sup>20</sup>	508	13	72	423		932	63	230	250	694	444
	1899	22			32	308		474	26	159	140	462	322
Slaughtering and meat packing.....	1909	6	75	10	11	54	159	207	10	31	740	957	217
	1904	3	23	5	1	17		35	1	10	339	433	94
	1899												
Stoves and furnaces, including gas and oil stoves.	1909	8	575	3	41	531	468	1,013	63	324	249	843	594
	1904	6	502	3	42	457		844	68	264	270	774	504
	1899												
Tobacco manufactures.....	1909	23	95	26	1	68		90	1	41	63	157	94
	1904	29	133	39	2	92		105	3	45	63	168	105
	1899	26	124	32	2	90		82	1	45	62	156	94
All other industries.....	1909	119	3,438	120	285	3,024	9,467	8,887	394	1,355	4,632	8,096	3,464
	1904	77	2,643	72	199	2,372		6,669	222	1,088	2,909	5,047	2,138
	1899	83			185	2,568		6,049	186	1,090	3,200	5,513	2,258
HARRISBURG—All Industries.	1909	199	11,024	190	1,091	9,743	22,355	\$22,925	\$1,068	\$4,541	\$14,083	\$22,725	\$8,642
	1904	175	8,601	169	477	7,955		15,921	500	3,873	10,327	16,571	6,244
	1899	175			377	6,439		7,997	382	2,528	9,005	14,996	5,991
Bread and other bakery products.....	1909	39	237	40	12	185	143	301	11	91	362	601	239
	1904	40	178	45	4	129		156	1	60	225	372	146
	1899	44	125	48	2	75		92	1	36	116	226	110
Carriages and wagons and materials....	1909	7	61	7	4	50	67	85	2	29	37	92	55
	1904	5	60	4	2	54		104	2	29	23	75	52
	1899	7			5	43		81	5	21	23	59	36

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

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

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

<sup>5</sup> Not reported separately.

MANUFACTURES—PENNSYLVANIA.

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>HARRISBURG—Continued.</b>													
Foundry and machine-shop products...	1909	8	449	10	45	394	529	\$1,757	\$70	\$205	\$209	\$610	\$401
	1904	4	621	3	53	565	.....	1,315	64	283	316	954	638
	1899	6	625	4	42	579	.....	1,271	56	261	374	841	467
Iron and steel, steel works and rolling mills.	1909	5	2,214	.....	78	2,136	15,937	7,660	147	964	6,157	7,621	1,494
	1904	4	2,122	.....	73	2,049	.....	5,777	128	871	3,502	4,529	907
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Liquors, malt.....	1909	3	07	2	8	57	347	398	18	37	105	361	256
	1904	3	51	4	6	41	.....	356	7	25	64	248	184
	1899	3	39	3	4	32	.....	261	2	21	42	188	144
Lumber and timber products.....	1909	3	132	4	13	115	325	284	13	46	214	350	126
	1904	5	160	6	20	134	.....	315	13	59	287	400	113
	1899	4	91	3	6	82	.....	129	5	42	84	151	67
Patent medicines and compounds and druggists' preparations.	1909	11	37	11	12	14	2	53	3	5	25	57	32
	1904	5	10	5	2	3	.....	19	2	( <sup>2</sup> )	15	25	10
	1899	5	11	5	1	5	.....	23	1	2	9	20	11
Printing and publishing.....	1909	30	658	28	147	483	460	1,110	124	267	264	954	690
	1904	28	582	26	119	437	.....	888	86	229	152	846	694
	1899	<sup>19</sup>	394	17	34	343	.....	619	36	160	113	440	333
Tobacco manufactures.....	1909	20	1,630	19	31	1,580	73	1,210	38	497	682	1,762	1,080
	1904	<sup>23</sup>	916	24	18	874	.....	943	29	308	494	1,258	764
	1899	25	646	28	9	609	.....	89	4	132	269	636	267
All other industries.....	1909	73	5,539	99	741	4,729	4,472	10,058	642	2,400	6,028	10,317	4,289
	1904	58	3,901	52	180	3,669	.....	6,048	168	1,809	5,188	7,864	2,676
	1899	62	.....	.....	274	4,671	.....	5,432	272	1,853	7,975	12,531	4,558
<b>JOHNSTOWN—All industries.</b>													
Bread and other bakery products.....	1909	97	11,671	121	976	10,574	119,508	\$47,242	\$1,003	\$6,304	\$32,348	\$48,106	\$15,758
	1904	82	7,716	99	703	6,914	.....	59,589	729	3,865	19,755	28,892	9,137
	1899	66	.....	.....	367	5,600	.....	16,437	433	2,965	13,908	21,365	7,457
Copper, tin, and sheet-iron products....	1909	11	83	10	12	61	84	156	6	35	146	219	73
	1904	9	55	9	4	42	.....	119	2	25	75	127	62
	1899	11	48	13	.....	35	.....	32	.....	17	40	79	39
Liquors, malt.....	1909	4	176	5	32	139	1,020	1,670	42	91	186	308	622
	1904	3	125	3	22	100	.....	734	30	64	110	508	388
	1899	4	64	3	12	69	.....	526	12	42	88	395	307
Lumber and timber products.....	1909	5	85	9	17	59	510	177	15	43	99	195	96
	1904	<sup>5</sup>	55	9	6	40	.....	80	6	33	83	142	59
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Printing and publishing.....	1909	11	181	12	37	132	121	379	35	87	74	281	207
	1904	8	124	10	32	82	.....	198	31	56	45	188	143
	1899	10	87	12	1	74	.....	146	1	30	17	94	77
All other industries.....	1909	58	11,069	80	870	10,119	117,683	44,727	897	6,014	31,786	46,465	14,679
	1904	54	7,332	64	638	6,030	.....	58,423	659	3,673	19,420	27,880	8,490
	1899	41	.....	.....	354	5,422	.....	15,734	420	2,876	13,763	20,797	7,034
<b>PHILADELPHIA—All industries.</b>													
Artificial flowers and feathers and plumes.	1909	29	915	35	76	804	70	934	72	262	675	1,314	639
	1904	19	627	27	47	553	.....	400	38	170	367	722	355
	1899	24	949	34	42	873	.....	544	53	209	467	949	482
Belting and hose, leather.....	1909	13	188	13	56	119	236	637	63	81	809	1,104	265
	1904	10	135	10	29	98	.....	495	27	63	424	642	218
	1899	5	83	8	15	60	.....	340	9	35	299	428	129
Boots and shoes, including cut stock and findings.	1909	58	3,820	74	280	3,466	872	3,968	375	1,504	3,703	6,517	2,814
	1904	<sup>53</sup>	3,282	82	160	3,034	.....	2,498	172	1,321	2,943	5,856	2,443
	1899	80	4,170	118	224	3,828	.....	2,804	224	1,595	3,760	6,895	2,635
Boxes, cigar.....	1909	7	346	9	17	323	302	364	26	125	323	543	220
	1904	7	311	12	8	291	.....	318	12	90	203	394	191
	1899	10	225	14	9	202	.....	190	6	66	195	339	144
Boxes, fancy and paper.....	1909	65	3,632	67	236	3,379	1,382	2,457	238	1,113	1,631	3,822	2,191
	1904	54	3,435	65	170	3,209	.....	1,790	165	950	1,268	3,087	1,769
	1899	50	2,874	56	110	2,709	.....	1,598	99	709	1,006	2,413	1,407
Brass and bronze products.....	1909	49	1,263	42	179	1,042	1,651	3,214	248	625	2,518	4,057	1,539
	1904	<sup>45</sup>	831	55	79	697	.....	1,504	97	394	1,396	2,428	1,032
	1899	<sup>43</sup>	1,414	63	142	1,209	.....	2,551	157	537	2,186	3,515	1,329
Bread and other bakery products.....	1909	1,208	6,036	1,225	1,113	4,598	4,159	14,860	951	2,592	11,650	19,018	7,368
	1904	1,198	6,216	1,217	372	4,627	.....	9,162	384	2,386	8,344	14,440	6,096
	1899	1,299	5,051	1,320	458	3,273	.....	4,992	350	1,569	5,709	10,465	4,756

<sup>1</sup> Not reported separately.  
<sup>2</sup> Less than \$600.  
<sup>3</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.  
<sup>4</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.  
<sup>5</sup> Figures can not be shown without disclosing individual operations.  
<sup>6</sup> Excluding statistics for three establishments, to avoid disclosure of individual operations.



MANUFACTURES—PENNSYLVANIA.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employ-ees.	Wage earners (average number).							
Expressed in thousands.													
<b>PHILADELPHIA—Continued.</b>													
Brick and tile.....	1909	31	1,468	51	48	1,369	2,715	\$3,038	\$56	\$786	\$456	\$1,885	\$1,429
	1904	31	1,443	45	39	1,359	.....	2,196	45	697	347	1,566	1,219
	1899	37	1,451	49	47	1,451	.....	2,449	54	678	283	1,497	1,214
Brooms and brushes.....	1909	59	530	70	51	409	255	662	51	223	614	1,132	518
	1904	65	501	72	40	389	.....	396	36	184	403	782	379
	1899	69	537	80	45	472	.....	466	40	200	477	938	461
Buttons.....	1909	21 <sup>1</sup>	740	23	49	668	393	551	67	285	586	1,159	573
	1904	15	530	18	33	479	.....	288	32	158	212	481	269
	1899	17	677	26	25	626	.....	377	27	216	331	729	398.
Canning and preserving.....	1909	23	804	26	150	628	723	1,528	166	226	1,772	2,538	766
	1904	14	368	13	51	299	.....	615	50	123	553	887	334
	1899	20	.....	.....	77	330	.....	554	48	128	551	926	375
Carpets and rugs, other than rag.....	1909	84	10,863	96	404	10,363	11,435	22,893	684	4,722	13,375	22,629	9,254
	1904	91	13,202	128	458	12,618	.....	20,558	579	5,426	15,560	25,233	9,673
	1899	88	12,538	102	296	12,190	.....	16,867	330	5,092	13,223	21,986	8,793
Carriages and wagons and materials....	1909	90	1,511	96	99	1,316	1,100	2,392	125	839	901	2,458	1,557
	1904	102	1,046	131	86	1,426	.....	1,988	87	832	775	2,183	1,408
	1899	113	.....	.....	68	1,411	.....	2,301	78	754	692	2,035	1,343
Cars and general shop construction and repairs by steam-railroad companies.	1909	10	3,993	.....	294	3,669	2,256	4,471	232	2,527	2,416	5,318	2,902
	1904	8	3,652	.....	283	3,369	.....	3,452	195	2,164	2,207	4,673	2,466
	1899	10	2,861	.....	81	2,780	.....	1,434	72	1,609	1,946	3,651	1,705
Chemicals.....	1909	16	1,072	17	202	1,763	4,875	12,997	346	1,046	6,519	9,043	3,124
	1904	23	2,101	21	210	1,870	.....	14,635	329	1,109	8,484	8,452	2,968
	1899	24	2,169	4	248	1,917	.....	13,400	391	1,026	4,334	7,810	3,476
Clocks and watches, including cases and materials.	1909	5	937	3	160	774	793	2,737	162	399	978	1,965	987
	1904	23	847	2	102	743	.....	2,724	106	346	783	1,460	683
	1899	3	.....	.....	65	930	.....	2,862	62	434	690	1,455	756
Clothing, men's, including shirts.....	1909	456	14,075	716	1,144	12,215	2,472	14,871	1,256	5,962	14,488	29,001	14,513
	1904	266	9,809	394	898	8,577	.....	12,661	745	3,773	12,293	23,642	11,349
	1899	445	.....	.....	799	9,215	.....	10,242	855	4,190	11,542	22,699	11,157
Clothing, women's.....	1909	351	15,627	576	1,551	13,500	1,955	10,590	1,531	6,574	16,666	30,133	13,467
	1904	133	8,019	274	727	7,018	.....	4,715	508	2,964	6,933	12,871	5,938
	1899	191	7,020	283	510	6,233	.....	3,385	428	2,122	5,040	9,452	4,412
Confectionery.....	1909	129	3,371	128	352	2,891	1,099	4,264	446	1,008	4,340	7,315	2,975
	1904	76	3,140	88	353	2,669	.....	3,852	301	832	3,356	5,557	2,201
	1899	79	.....	.....	354	2,092	.....	2,325	307	615	2,572	4,355	1,783
Cooperage and wooden goods, not elsewhere specified.	1909	44	814	47	34	733	729	1,501	57	344	1,449	2,214	765
	1904	41	514	47	29	438	.....	888	30	242	1,038	1,673	635
	1899	41	.....	.....	22	377	.....	1,076	20	186	1,011	1,508	492
Copper, tin, and sheet-iron products....	1909	134	3,490	159	392	2,939	2,074	6,511	414	1,559	4,381	7,493	3,162
	1904	85	3,471	106	261	3,104	.....	5,591	275	1,494	2,714	5,470	2,756
	1899	84	.....	.....	144	1,012	.....	2,152	141	808	1,632	3,300	1,668
Cordage and twine and jute and linen goods.	1909	8	1,214	8	43	1,168	2,250	3,816	105	429	2,135	3,325	1,190
	1904	12	1,335	12	39	1,284	.....	3,766	114	434	3,048	4,121	1,073
	1899	13	1,871	16	68	1,787	.....	4,833	81	567	4,734	6,162	1,428
Cork, cutting.....	1909	6	75	8	7	60	40	74	8	24	49	106	57
	1904	8	106	10	11	85	.....	178	13	33	79	173	94
	1899	6	178	8	9	161	.....	161	11	35	103	196	93
Cotton goods, including cotton small wares.	1909	136	10,527	135	658	9,734	14,160	20,868	1,185	4,411	12,327	22,538	10,211
	1904	129	10,823	175	473	9,445	.....	17,076	726	3,712	9,168	17,463	8,295
	1899	143	11,301	206	400	10,695	.....	14,380	513	4,009	9,112	17,620	8,503
Cutlery and tools, not elsewhere specified.	1909	33	1,036	39	114	883	2,086	2,619	137	536	605	1,686	1,081
	1904	30	852	36	72	744	.....	1,367	78	376	495	1,301	806
	1899	25	434	20	39	366	.....	698	43	195	331	840	509
Dyeing and finishing textiles.....	1909	104	3,991	133	283	3,575	7,037	6,179	353	1,829	2,413	6,327	3,614
	1904	97	3,241	134	225	2,882	.....	5,098	261	1,368	1,671	4,371	2,700
	1899	91	3,762	143	164	3,455	.....	4,981	172	1,578	2,441	5,562	3,121
Electrical machinery, apparatus, and supplies.	1909	45	2,317	23	535	1,759	2,093	6,739	570	923	3,241	7,065	3,824
	1904	40	1,949	32	381	1,536	.....	3,748	417	773	2,878	5,066	2,188
	1899	40	1,429	33	143	1,283	.....	3,663	196	491	2,198	4,231	2,033
Fancy articles, not elsewhere specified..	1909	42	827	47	61	719	341	883	53	286	545	1,281	736
	1904	33	688	40	48	600	.....	416	40	181	324	772	448
	1899	36	672	45	38	539	.....	431	20	177	342	700	418
Fertilizers.....	1909	6	896	4	123	764	3,020	4,346	202	375	3,054	4,268	1,214
	1904	5	645	2	63	580	.....	3,535	104	279	1,872	2,697	625
	1899	6	542	3	96	443	.....	2,331	137	219	1,755	2,376	621
Files.....	1909	7	1,298	4	77	1,217	1,313	2,686	91	528	427	1,540	1,113
	1904	5	979	3	32	944	.....	1,369	53	385	392	1,114	722
	1899	8	961	10	33	918	.....	1,202	51	350	373	1,014	641
Flour-mill and gristmill products.....	1909	28	154	36	29	89	1,116	886	35	53	2,624	2,877	253
	1904	14	132	18	19	95	.....	534	19	66	1,666	1,905	239
	1899	15	.....	.....	15	70	.....	836	16	40	1,208	1,369	161

<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.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employ-ees.	Wage earners (average number).							
<b>PHILADELPHIA—Continued.</b>													
Foundry and machine-shop products...	1909	545	20,641	508	2,092	17,141	23,629	\$56,029	\$3,672	\$10,135	\$16,245	\$38,085	\$22,440
	1904	440	19,000	459	2,291	16,810	.....	50,849	2,775	9,291	12,853	32,955	20,102
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fur goods.....	1909	47	284	59	44	181	10	872	31	129	462	1,032	570
	1904	25	244	84	29	181	.....	392	20	105	360	877	317
	1899	23	.....	.....	41	104	.....	489	24	114	290	676	398
Furniture and refrigerators.....	1909	147	4,042	165	484	3,893	3,870	7,451	604	1,940	3,731	8,052	4,321
	1904	89	3,288	110	268	2,910	.....	4,352	271	1,577	2,187	5,452	3,265
	1899	80	2,715	106	163	2,446	.....	3,130	202	1,281	1,949	4,517	2,568
Gas and electric fixtures and lamps and reflectors.	1909	41	1,376	38	242	1,096	879	2,083	254	604	813	2,177	1,364
	1904	39	1,375	36	193	1,146	.....	1,808	221	621	623	2,135	1,512
	1899	31	1,250	34	125	1,091	.....	1,749	138	543	892	2,023	1,181
Glass.....	1909	4	1,185	1	72	1,112	419	1,252	89	559	498	1,307	869
	1904	5	1,379	1	62	1,313	.....	1,269	79	656	352	1,294	942
	1899	8	1,603	8	66	1,529	.....	1,258	85	618	388	1,347	950
Hats and caps, other than felt, straw, and wool.	1909	42	562	55	43	464	51	426	54	188	413	803	390
	1904	30	490	40	18	432	.....	249	33	173	296	637	341
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hats, fur-felt.....	1909	27	6,080	34	221	5,825	4,163	13,337	341	3,101	3,603	10,402	6,839
	1904	10	3,807	14	233	3,560	.....	7,700	305	1,784	1,885	5,843	3,963
	1899	12	2,289	11	189	2,116	.....	5,051	249	893	1,000	3,075	1,935
Hosiery and knit goods.....	1909	177	17,027	195	833	15,999	7,962	18,782	888	5,753	12,870	23,971	11,101
	1904	151	14,293	213	704	13,286	.....	12,585	615	4,291	7,817	15,825	8,008
	1899	150	12,532	180	304	11,988	.....	10,040	388	3,575	6,182	13,074	6,892
Ice, manufactured.....	1909	31	645	12	98	535	11,703	5,258	88	375	524	1,063	1,138
	1904	32	495	11	77	407	.....	3,635	66	250	353	1,188	635
	1899	20	465	3	117	345	.....	3,159	71	191	204	895	691
Ink, printing.....	1909	8	246	6	75	165	483	742	94	105	623	1,050	427
	1904	8	178	6	73	99	.....	590	86	73	403	684	281
	1899	7	114	7	29	78	.....	471	61	48	204	408	204
Iron and steel, steel works and rolling mills.	1909	8	5,248	6	421	4,821	27,009	13,016	742	2,774	5,588	11,789	6,201
	1904	6	4,060	6	308	3,746	.....	6,452	429	2,003	3,742	7,095	3,333
	1899	8	3,034	6	213	2,815	.....	6,070	299	1,807	3,555	7,209	3,644
Jewelry.....	1909	52	411	69	47	205	110	664	38	186	427	884	457
	1904	35	487	48	45	394	.....	681	38	241	308	854	456
	1899	19	485	25	58	402	.....	679	37	183	244	648	494
Leather goods.....	1909	84	2,002	103	277	1,707	430	2,096	371	781	2,141	3,904	1,833
	1904	70	2,055	88	224	1,743	.....	2,181	206	727	1,937	3,671	1,734
	1899	67	.....	.....	137	1,648	.....	1,414	134	581	1,205	2,708	1,603
Leather, tanned, curried, and finished..	1909	41	0,400	36	392	5,072	8,064	16,523	619	3,009	17,140	23,526	6,386
	1904	43	6,555	56	391	6,103	.....	13,078	411	2,800	17,732	23,903	6,171
	1899	44	6,015	65	109	5,781	.....	9,108	185	2,529	13,429	18,187	4,758
Liquors, malt.....	1909	48	2,290	31	402	1,857	13,368	28,676	1,028	1,443	3,933	14,257	10,324
	1904	51	2,008	43	313	1,652	.....	28,628	887	1,351	3,441	12,315	8,874
	1899	59	2,144	50	303	1,791	.....	27,638	652	1,229	2,877	12,607	9,730
Lumber and timber products.....	1909	98	3,609	103	258	3,248	7,872	5,072	319	1,812	4,453	7,703	3,250
	1904	75	2,694	102	176	2,416	.....	3,574	202	1,255	2,006	5,243	2,337
	1899	69	.....	.....	157	2,286	.....	3,603	155	1,106	2,953	5,155	2,202
Marble and stone work.....	1909	98	1,869	127	123	1,619	2,662	2,091	142	1,089	1,432	3,464	2,032
	1904	71	1,409	97	84	1,228	.....	2,264	110	852	880	2,476	1,666
	1899	76	.....	.....	55	1,020	.....	2,235	55	680	874	2,057	1,183
Mattresses and spring beds.....	1909	38	403	37	62	309	471	603	50	138	657	1,069	412
	1904	33	433	31	54	348	.....	507	64	170	622	982	400
	1899	35	.....	.....	43	339	.....	321	26	139	515	880	365
Millinery and lace goods.....	1909	90	3,164	124	270	2,770	370	2,205	222	956	2,773	5,052	2,279
	1904	42	1,614	66	97	1,451	.....	858	69	401	1,134	2,132	698
	1899	37	850	48	82	759	.....	607	45	275	743	1,446	708
Musical instruments, pianos and organs and materials.	1909	14	501	13	30	458	361	563	42	155	400	775	375
	1904	10	342	11	18	313	.....	384	23	160	110	459	349
	1899	13	280	16	28	236	.....	410	35	154	157	521	364
Optical goods.....	1909	14	419	12	116	291	110	455	90	123	273	621	345
	1904	10	240	11	19	210	.....	243	23	75	90	249	159
	1899	11	.....	.....	18	255	.....	148	14	79	82	209	187
Paint and varnish.....	1909	50	1,612	46	369	1,197	4,027	3,193	552	689	5,194	8,045	2,851
	1904	47	1,888	53	281	1,084	.....	7,288	351	557	4,778	6,949	2,171
	1899	46	1,533	27	356	1,200	.....	9,058	412	594	4,208	7,447	3,239
Paper and wood pulp.....	1909	7	1,395	2	92	1,301	10,645	4,923	183	629	2,352	4,122	1,770
	1904	6	1,153	3	60	1,089	.....	3,856	115	506	1,640	2,021	1,261
	1899	7	983	5	45	933	.....	2,671	61	389	1,511	2,036	1,125
Paper goods, not elsewhere specified....	1909	31	1,600	31	258	1,311	1,213	3,169	309	518	2,161	3,597	1,456
	1904	28	760	35	105	620	.....	777	119	238	976	1,651	675
	1899	40	488	24	46	418	.....	744	44	153	649	1,188	589

<sup>1</sup> Comparable figures not available.  
<sup>2</sup> Excluding statistics for six establishments, to avoid disclosure of individual operations.  
<sup>3</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.  
<sup>4</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.

MANUFACTURES—PENNSYLVANIA.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>PHILADELPHIA—Continued.</b>													
Patent medicines and compounds and druggists' preparations.	1909	174	3,175	153	882	2,140	2,012	\$9,752	\$1,074	\$897	\$4,087	\$9,423	\$5,396
	1904	108	2,760	107	780	1,923	.....	5,998	613	660	3,268	7,371	4,113
	1899	114	2,702	124	685	1,993	.....	6,927	583	711	3,228	7,445	4,217
Photo-engraving.....	1909	16	546	15	134	397	105	523	141	381	185	917	782
	1904	12	383	12	84	287	.....	320	66	224	85	547	462
	1899	9	263	8	37	218	.....	263	32	141	44	296	252
Pottery, terra-cotta, and fire-clay products.	1909	13	640	9	46	585	803	1,244	60	345	233	823	590
	1904	14	622	11	34	577	.....	1,079	50	394	152	781	629
	1899	16	549	18	37	494	.....	987	41	229	132	557	425
Printing and publishing.....	1909	931	20,912	885	6,346	13,681	12,267	42,591	5,905	8,249	15,387	45,897	30,420
	1904	756	17,288	788	4,167	12,333	.....	27,430	4,288	6,821	10,772	35,205	24,438
	1899	740	15,262	817	3,068	11,377	.....	25,545	2,996	5,769	7,702	26,749	19,047
Safes and vaults.....	1909	3	278	.....	33	245	418	506	33	100	288	493	205
	1904	3	335	2	23	310	.....	425	29	186	193	491	298
	1899	4	247	3	33	211	.....	479	43	111	165	565	400
Shoddy.....	1909	15	442	20	29	393	1,718	1,504	39	166	1,368	1,846	483
	1904	20	370	28	31	311	.....	1,070	40	121	1,562	2,002	440
	1899	21	368	12	32	324	.....	823	23	132	966	1,285	319
Silk and silk goods, including throwsters.	1909	32	3,348	29	263	3,056	2,156	6,091	315	1,235	3,472	6,502	3,030
	1904	31	2,924	32	211	2,681	.....	5,125	288	959	2,352	5,079	2,227
	1899	28	2,739	49	184	2,565	.....	3,814	179	826	2,292	4,532	2,240
Slaughtering and meat packing.....	1909	81	1,430	110	211	1,109	3,004	4,605	285	793	19,781	22,079	2,298
	1904	95	990	115	80	795	.....	2,634	90	510	11,295	12,922	1,627
	1899	69	879	99	142	638	.....	1,914	113	383	10,368	12,096	1,728
Smelting and refining, not from the ore.	1909	15	160	14	25	121	208	597	35	80	908	1,226	318
	1904	12	162	12	23	127	.....	479	26	80	817	1,051	234
	1899	7	163	9	56	98	.....	382	27	48	912	1,092	180
Soap.....	1909	32	1,059	40	220	799	1,520	3,651	199	388	5,071	7,319	2,243
	1904	31	997	35	149	813	.....	2,619	195	350	3,349	5,770	2,421
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Steam packing.....	1909	15	351	12	146	193	413	760	132	100	566	1,136	570
	1904	11	187	9	35	93	.....	477	25	45	215	407	192
	1899	17	326	20	68	238	.....	387	79	96	386	769	383
Stoves and furnaces, including gas and oil stoves.	1909	20	984	18	120	846	891	2,393	174	550	786	2,070	1,284
	1904	17	1,022	16	88	918	.....	2,176	117	551	752	1,955	1,203
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tobacco manufactures.....	1909	496	7,634	528	561	6,545	391	7,820	686	2,660	5,390	13,429	8,039
	1904	617	6,710	662	402	5,846	.....	7,726	366	2,296	3,279	8,655	5,376
	1899	556	6,960	607	273	6,080	.....	4,895	329	2,593	3,424	8,991	5,567
Umbrellas and canes.....	1909	31	1,297	31	100	1,166	1,342	3,413	102	505	1,060	2,075	1,015
	1904	24	1,484	23	67	1,394	.....	4,615	86	495	1,321	2,288	967
	1899	34	.....	135	1,626	.....	.....	1,244	168	550	1,879	3,143	1,264
Wall paper.....	1909	4	504	.....	50	454	525	1,368	117	196	1,047	1,732	685
	1904	6	510	6	33	471	.....	1,057	60	219	741	1,415	678
	1899	11	741	8	70	663	.....	1,472	103	316	1,424	2,063	634
Woolen, worsted, and felt goods, and wool hats.	1909	131	20,073	150	746	19,177	33,428	54,914	1,311	7,996	37,869	54,922	17,063
	1904	130	17,581	173	536	16,822	.....	30,357	835	6,160	25,574	39,258	13,084
	1899	129	17,348	149	354	16,845	.....	26,954	454	6,052	22,270	34,582	12,312
All other industries.....	1909	1,331	48,009	1,420	6,497	40,992	97,447	183,308	7,705	22,203	125,313	183,900	58,593
	1904	1,089	51,669	1,288	4,070	46,331	.....	144,636	4,695	24,020	110,424	167,728	57,304
	1899	1,782	.....	4,894	57,958	.....	.....	173,664	5,403	29,060	115,220	179,876	64,655
<b>PITTSBURGH—All industries.</b>													
	1909	1,659	79,625	1,553	10,598	67,474	307,666	\$283,139	\$12,683	\$39,973	\$148,527	\$243,454	\$94,927
	1904	1,562	81,407	1,516	8,273	71,618	.....	260,765	8,753	39,805	124,581	211,259	86,878
	1899	1,301	.....	.....	5,850	71,794	.....	211,774	6,351	37,635	128,458	218,198	89,740
Boxes, fancy and paper.....	1909	7	237	7	16	214	165	109	16	62	86	215	129
	1904	5	181	6	6	169	.....	69	5	46	68	140	72
	1899	4	144	6	1	137	.....	49	(*)	32	46	102	56
Brass and bronze products.....	1909	12	740	14	97	629	2,756	4,026	136	379	2,373	3,188	815
	1904	15	625	7	91	527	.....	2,965	112	287	1,783	2,462	679
	1899	9	.....	.....	50	231	.....	1,122	50	138	1,286	1,701	415
Bread and other bakery products.....	1909	248	2,791	264	518	2,009	2,222	5,873	506	1,048	4,472	8,054	3,582
	1904	208	2,538	232	434	1,872	.....	4,237	371	933	6,302	2,777	2,777
	1899	125	1,701	132	254	1,315	.....	2,465	222	510	1,647	3,211	1,564
Brick and tile.....	1909	17	457	17	33	407	2,614	947	36	198	173	555	382
	1904	22	536	32	28	475	.....	989	32	221	125	546	421
	1899	21	735	33	31	671	.....	1,232	28	301	149	730	581
Brooms and brushes.....	1909	9	131	10	21	100	165	308	22	57	162	325	163
	1904	11	148	10	20	109	.....	255	30	68	143	374	231
	1899	8	199	14	5	180	.....	321	5	57	221	343	127

\* Not reported separately.  
 † Excluding statistics for two establishments, to avoid disclosure of individual operations.  
 ‡ Excluding statistics for one establishment, to avoid disclosure of individual operations.  
 § Less than \$500.

MANUFACTURES—PENNSYLVANIA.

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>PITTSBURGH—Continued.</b>													
Canning and preserving.....	1909	11	3,073	14	1,349	1,710	1,811	\$6,823	\$1,338	\$815	\$2,392	\$6,202	\$3,810
	1904	16	2,405	8	991	1,406	.....	4,678	1,050	406	2,882	6,217	3,835
	1899	5	2,119	6	669	1,444	.....	2,473	672	409	1,932	4,420	2,497
Carriages and wagons and materials....	1909	28	358	30	30	208	726	928	28	216	227	582	355
	1904	37	499	49	18	432	.....	735	16	321	241	763	522
	1899	37	.....	.....	18	347	.....	513	15	207	186	578	387
Cars and general shop construction and repairs by steam-railroad companies.	1909	7	4,827	.....	514	4,313	9,898	4,379	391	3,052	4,967	8,556	3,589
	1904	8	4,880	.....	295	4,585	.....	2,378	243	2,895	2,884	6,107	3,223
	1899	8	2,234	.....	111	2,123	.....	1,384	95	1,119	626	1,887	1,262
Chemicals.....	1909	3	62	.....	14	48	260	446	25	32	392	581	139
	1904	3	87	.....	27	58	.....	301	28	30	270	351	81
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clothing, men's, including shirts.....	1909	24	1,011	43	102	866	340	1,237	88	342	1,122	1,950	828
	1904	18	925	34	104	787	.....	983	64	201	859	1,428	569
	1899	16	.....	.....	73	850	.....	968	50	277	861	1,381	520
Clothing, women's.....	1909	5	72	6	6	60	13	104	6	24	80	134	54
	1904	11	212	16	22	174	.....	322	41	97	208	430	222
	1899	9	370	17	28	325	.....	1,011	35	133	388	691	303
Confectionery.....	1909	16	713	7	98	613	549	1,127	86	210	1,282	1,853	571
	1904	10	408	6	77	325	.....	554	52	118	601	1,048	447
	1899	11	.....	.....	144	517	.....	588	72	133	507	1,021	514
Cooperage and wooden goods, not elsewhere specified.	1909	12	202	13	21	168	144	439	23	94	349	567	218
	1904	15	201	17	12	172	.....	314	15	94	300	493	193
	1899	10	208	13	3	252	.....	214	3	131	424	606	182
Copper, tin, and sheet-iron products....	1909	48	608	51	86	471	349	1,002	91	297	495	1,121	695
	1904	35	839	44	98	697	.....	1,512	100	404	896	1,618	722
	1899	30	.....	.....	74	662	.....	854	63	282	641	1,263	622
Cutlery and tools, not elsewhere specified.	1909	16	743	20	59	664	1,238	1,258	78	346	927	1,654	727
	1904	10	439	13	24	402	.....	562	35	218	361	767	396
	1899	9	.....	.....	36	346	.....	567	44	208	332	726	394
Electrical machinery, apparatus, and supplies.	1909	13	1,012	8	142	806	1,640	3,321	182	433	1,843	3,324	1,481
	1904	12	807	14	256	507	.....	3,105	235	261	1,074	1,797	723
	1899	7	.....	.....	34	379	.....	2,142	60	196	1,705	2,304	599
Foundry and machine-shop products...	1909	155	9,742	81	1,446	8,215	18,311	31,927	1,963	5,773	9,943	21,691	11,748
	1904	151	11,024	109	1,182	9,733	.....	30,076	1,609	5,728	9,382	20,757	11,376
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Furniture and refrigerators.....	1909	11	373	12	46	315	629	826	54	188	440	900	460
	1904	11	317	13	34	270	.....	511	54	176	192	587	395
	1899	9	160	21	29	110	.....	92	8	64	105	244	139
Gas and electric fixtures and lamps and reflectors.	1909	16	302	16	53	233	212	435	48	95	262	467	205
	1904	14	120	2	11	107	.....	84	17	37	143	246	103
	1899	9	.....	.....	30	232	.....	495	41	119	150	443	293
Glass.....	1909	9	1,263	6	88	1,171	915	2,483	134	608	449	1,443	994
	1904	11	2,055	6	141	1,908	.....	3,184	204	987	748	2,131	1,383
	1899	16	2,216	5	107	2,104	.....	3,688	137	1,133	742	2,430	1,688
Ice, manufactured.....	1909	15	268	2	70	196	6,384	2,965	91	131	199	958	759
	1904	10	465	3	79	383	.....	2,283	97	227	146	815	609
	1899	14	83	5	8	70	.....	547	10	44	15	111	96
Iron and steel, blast furnaces.....	1909	6	1,749	.....	366	1,383	50,768	30,134	619	1,053	16,038	20,668	4,630
	1904	4	1,593	.....	154	1,439	.....	12,900	182	836	12,581	15,500	2,919
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iron and steel, steel works and rolling mills.	1909	25	25,341	.....	1,781	23,580	156,512	105,053	2,344	14,455	55,887	82,307	26,420
	1904	25	27,334	.....	1,589	25,745	.....	101,217	2,045	14,910	50,667	77,440	26,773
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jewelry.....	1909	6	96	9	10	77	19	80	7	55	88	183	95
	1904	4	76	6	2	68	.....	38	2	42	63	128	65
Leather goods.....	1909	12	154	13	17	124	79	318	10	64	136	260	124
	1904	9	130	9	18	103	.....	200	15	60	120	243	123
	1899	14	.....	.....	11	116	.....	129	8	60	83	221	138
Leather, tanned, curried, and finished..	1909	6	273	2	27	244	846	1,553	46	139	914	1,162	248
	1904	6	452	3	41	408	.....	2,009	64	224	1,189	1,640	451
	1899	9	471	8	33	430	.....	2,190	52	186	1,138	1,582	444
Liquors, malt.....	1909	12	994	.....	121	873	6,591	14,628	299	686	1,267	5,420	4,153
	1904	11	851	.....	109	742	.....	11,246	238	560	1,222	4,083	2,861
	1899	11	633	.....	100	533	.....	16,832	208	404	1,014	4,840	3,826
Lumber and timber products.....	1909	40	780	46	89	645	2,836	2,019	100	433	960	1,694	734
	1904	42	943	51	104	788	.....	2,108	108	543	1,165	2,231	1,068
	1899	29	.....	.....	55	633	.....	1,555	50	331	1,061	1,858	807

<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> Comparable figures not available.  
<sup>4</sup> Not reported separately.

MANUFACTURES—PENNSYLVANIA.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>PITTSBURGH—Continued.</b>													
Marble and stone work.....	1909	25	348	30	33	285	709	\$563	\$44	\$104	\$248	\$598	\$350
	1904	16	266	23	24	219		342	24	156	146	443	297
	1899	23			25	612		633	27	316	339	886	547
Mattresses and spring beds.....	1909	6	256	5	28	223	261	574	38	124	337	590	253
	1904	4	132	3	5	124		218	6	60	183	335	152
	1899	7	230	8	24	198		271	23	75	331	500	189
Paint and varnish.....	1909	16	362	12	98	252	1,700	2,361	137	138	1,740	2,419	679
	1904	15	394	10	93	291		1,942	129	143	1,514	2,127	613
	1899	12	334	9	82	243		1,412	109	101	1,210	2,029	819
Patent medicines and compounds and druggists' preparations.	1909	31	214	25	75	114	263	685	96	51	313	898	585
	1904	31	209	25	48	180		492	49	63	475	1,019	544
	1899	14			86	131		270	51	49	343	804	461
Photo-engraving.....	1909	6	109	6	26	77	71	108	34	55	41	187	140
	1904	8	91	16	16	59		79	17	52	13	127	114
	1899	6	67	11	6	50		34	4	28	14	79	65
Pottery, terra-cotta, and fire-clay products.	1909	3	337		17	320	860	1,173	26	155	195	507	312
	1904	15	395		44	354		3,454	66	132	218	593	350
	1899	17			78	662		1,550	77	262	462	1,046	384
Printing and publishing.....	1909	254	4,216	255	1,156	2,895	4,173	9,600	1,314	1,960	2,669	9,071	6,402
	1904	211	3,832	212	847	2,773		9,074	923	1,877	2,156	7,789	5,633
	1899	147			552	2,359		5,184	433	1,509	1,435	4,933	3,523
Shipbuilding, including boat building.	1909	4	169	4	21	144	580	533	42	96	67	268	161
	1904	4	133	7	13	113		474	22	83	104	220	156
	1899	4			8	58		123	4	22	32	71	39
Slaughtering and meat packing.....	1909	14	1,063	7	215	841	3,391	3,510	276	553	11,466	13,107	1,641
	1904	21	1,038	22	128	886		2,784	145	575	8,345	9,995	1,650
	1899	13	706	19	99	588		2,284	101	327	6,118	6,051	933
Soap.....	1909	7	469	12	214	243	488	1,185	106	104	453	1,207	749
	1904	6	199	9	27	163		738	35	72	347	527	180
	1899												
Stoves and furnaces, including gas and oil stoves.	1909	9	285	8	44	233	256	1,226	49	133	161	416	255
	1904	9	145	5	25	115		221	23	53	103	243	140
	1899												
Surgical appliances and artificial limbs.	1909	9	66	13	11	42	31	36	12	37	20	111	91
	1904	6	64	4	18	42		31	10	28	7	71	64
	1899	3	48	4	11	33		20	4	14	11	56	45
Tobacco manufactures.....	1909	215	3,456	223	168	3,065	213	1,878	144	844	1,172	3,615	2,443
	1904	248	3,520	257	119	3,144		2,324	113	944	1,084	3,986	2,902
	1899	201	2,391	213	79	2,099		1,048	59	617	639	2,448	1,909
All other industries.....	1909	271	9,903	262	1,279	8,362	25,628	34,950	1,598	4,444	21,675	34,499	12,821
	1904	269	9,899	231	890	8,778		48,767	1,107	4,487	16,088	27,175	11,087
	1899	454			2,896	60,748		157,664	3,481	27,841	103,376	166,563	63,192
<b>READING—All industries.....</b>													
	1909	482	26,407	517	1,745	24,145	43,193	\$41,053	\$1,810	\$11,011	\$29,848	\$51,135	\$21,287
	1904	402	19,763	441	1,269	18,053		27,123	1,098	7,265	16,709	30,491	13,782
	1899	403			941	16,892		25,934	855	6,583	16,996	32,682	16,686
Automobiles, including bodies and parts.	1909	5	398	2	41	355	235	572	34	187	314	666	352
	1904	3	183		19	164		368	12	91	133	269	136
	1899												
Boxes, cigars.....	1909	4	119	4	7	108	99	118	5	39	62	123	66
	1904	4	116	6	19	91		70	8	27	55	114	59
	1899	3	80	5	1	74		67	(c)	20	71	104	33
Boxes, fancy and paper.....	1909	6	164	10	9	145	115	127	7	50	79	164	85
	1904	4	154	4	11	139		88	7	35	47	105	58
	1899	5	122	9	2	111		66	2	27	39	100	61
Brass and bronze products.....	1909	8	79	9	13	57	72	116	10	30	91	149	58
	1904	5	209	3	20	186		616	12	73	138	273	135
	1899	3	24	4	5	15		32	3	9	15	35	20
Bread and other bakery products.....	1909	55	447	68	37	342	282	517	16	191	536	950	414
	1904	53	387	64	29	294		332	18	137	373	676	303
	1899	51	307	59	31	217		285	19	104	234	501	267
Brooms and brushes.....	1909	6	61	8	6	47	26	82	(c)	16	88	159	71
	1904	5	48	7	4	41		40		16	39	72	33
	1899	7	59	11	5	43		28	1	13	46	74	29
Carriages and wagons and materials.....	1909	8	314	11	13	290	224	292	11	145	163	413	250
	1904	15	276	8	18	250		600	15	105	205	394	189
	1899	18			15	190		398	8	78	94	284	190
Cars and general shop construction and repairs by steam-railroad companies.	1909	6	2,765		137	2,628	5,752	3,985	82	1,081	3,767	5,661	1,894
	1904	5	2,648		76	2,572		3,264	66	1,476	2,719	4,275	1,556
	1899	4	2,008		46	1,962		2,069	46	1,046	2,255	6,815	4,000

<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> 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>5</sup> Less than \$500.

MANUFACTURES—PENNSYLVANIA.

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>READING—Continued.</b>													
Clothing, men's, including shirts.....	1909	10	608	20	54	534	118	\$508	\$56	\$167	\$567	\$938	\$871
	1904	8	320	10	20	281		223	18	81	377	501	184
	1899	9	283	18	19	246		227	24	69	281	436	155
Clothing, women's.....	1909	7	161	9	2	150	46	63	1	36	71	130	59
	1904	4	50	6	1	43		18	2	10	19	46	27
	1899	5	58	9		49		18		12	30	55	25
Confectionery.....	1909	10	507	13	109	385	388	515	72	96	600	1,047	447
	1904	5	422	4	39	379		377	45	84	427	781	354
	1899	3			34	293		128	31	58	200	325	125
Copper, tin, and sheet-iron products....	1909	3	15	2		13	3	21		9	15	33	18
	1904	1	37	3	3	31		39	2	18	18	47	29
	1899	7			5	25		89		2	43	79	36
Dyeing and finishing textiles.....	1909	4	298	1	25	272	625	290	21	84	134	294	160
	1904	3	150	4	11	135		131	13	51	70	180	110
	1899	4	31	5	3	23		37	1	9	16	33	17
Foundry and machine-shop products....	1909	37	3,079	20	221	2,832	3,889	4,293	227	1,384	1,716	3,889	2,173
	1904	36	2,994	35	149	2,810		3,135	138	999	1,200	2,991	1,791
	1899	34			216	3,166		4,335	186	1,282	1,696	3,892	2,196
Hats, fur-felt.....	1909	5	870	6	28	836	87	589	68	367	885	1,571	686
	1904	5	641	6	18	617		537	23	230	532	947	415
	* 1899												
Hosiery and knit goods.....	1909	38	4,521	30	95	4,396	2,007	4,025	114	1,323	2,132	4,551	2,419
	1904	27	2,066	23	130	2,813		2,098	81	721	1,164	2,540	1,376
	1899	21	1,741	24	50	1,687		710	38	391	607	1,326	629
Iron and steel, steel works and rolling mills.	1909	6	3,218		207	3,011	11,209	6,324	268	1,670	5,350	8,190	2,840
	1904	6	2,209		125	2,084		3,835	129	1,081	3,437	4,818	1,381
	* 1899												
Leather goods.....	1909	5	89	6	9	74	84	63	5	24	63	128	65
	1904	3	29	2	4	23		29	2	8	24	43	19
	1899	3				10		11		4	6	10	10
Liquors, malt.....	1909	4	153	4	44	105	1,555	2,546	87	73	349	1,417	1,068
	1904	4	118	1	25	92		984	64	68	267	1,168	901
	1899	5			18	109		996	25	72	170	834	655
Lumber and timber products.....	1909	6	246	1	23	222	722	427	21	106	306	547	241
	1904	6	196	3	22	171		212	15	88	253	401	148
	1899	15	159	7	6	146		179	5	60	185	302	117
Marble and stone work.....	1909	9	110	16	3	91	179	131	4	53	47	156	109
	1904	15	62	5	1	56		90	1	38	40	103	63
	1899	10			5	86		159	3	44	39	117	73
Optical goods.....	1909	3	288	2	13	273	170	392	18	86	139	339	200
	1904	3	167	3	29	135		374	31	41	52	191	139
	* 1899												
Patent medicines and compounds and druggists' preparations.	1909	13	32	16	1	15	10	31	1	6	33	67	34
	1904	8	26	12	2	12		24	1	5	9	41	32
	* 1899												
Printing and publishing.....	1909	37	452	42	134	276	355	571	80	199	162	743	581
	1904	34	410	42	128	240		416	72	122	110	504	454
	1899	30	339	34	33	272		540	22	127	92	435	343
Tobacco manufactures.....	1909	81	1,589	107	79	1,403	49	1,250	95	563	1,282	2,574	1,292
	1904	81	1,734	101	105	1,523		1,078	100	595	1,056	2,484	1,428
	* 1899	76	1,260	91	62	1,107		750	53	422	784	1,683	899
Woolen, worsted, and felt goods, and wool hats.	1909	5	543	12	37	494	628	793	37	237	740	1,315	575
	1904	13	318	8	13	297		372	13	116	302	484	182
	1899	4	304	8	1	295		450	1	127	294	528	234
All other industries.....	1909	101	5,281	92	398	4,791	14,674	11,912	470	2,189	10,157	14,913	4,759
	1904	75	2,893	81	243	2,569		7,773	210	979	3,643	5,923	2,280
	1899	106			384	6,786		14,360	385	2,598	9,701	15,208	5,507
<b>SCRANTON—All industries.....</b>													
	1909	293	14,242	270	1,121	12,851	20,564	\$22,494	\$1,337	\$5,146	\$14,302	\$28,385	\$12,083
	1904	258	11,901	243	746	10,912		19,161	840	4,422	11,253	20,453	9,200
	1899	247			550	11,139		18,984	710	4,388	17,220	24,742	7,622
Bread and other bakery products.....	1909	38	322	36	42	244	200	412	31	118	479	759	280
	1904	25	250	26	32	192		204	29	88	331	572	241
	1899	27	190	30	28	132		192	18	55	208	358	150
Brick and tile.....	1909	3	74	1	8	66	525	166	6	26	15	59	44
	1904	4	128	4	7	117		102	5	45	17	88	71
	1899	3	80	11	2	67		60	2	23	4	42	38
Carriages and wagons and materials.....	1909	13	230	18	15	197	294	534	15	103	150	331	181
	1904	10	158	14	15	129		259	10	63	74	200	126
	1899	8			8	127		344	4	65	81	217	136

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

MANUFACTURES—PENNSYLVANIA.

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

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employes.	Wage earners (average number).							
Expressed in thousands.													
<b>SCRANTON—Continued.</b>													
Clothing, women's.....	1909	7	446	9	16	421	103	\$270	\$15	\$128	\$285	\$550	\$265
	1904	4	167	6	12	149	.....	187	9	55	68	109	101
	1899	3	332	4	6	322	.....	36	3	60	50	133	83
Copper, tin, and sheet-iron products.....	1909	8	60	8	4	48	5	40	2	22	31	75	44
	1904	3	35	4	.....	31	.....	18	.....	24	21	63	42
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Flour-mill and gristmill products.....	1909	4	35	5	11	19	208	127	6	6	189	227	38
	1904	0	65	4	20	41	.....	343	17	20	828	948	120
	1899	4	46	3	8	35	.....	335	12	18	395	462	67
Foundry and machine-shop products...	1909	20	1,286	16	187	1,083	2,467	5,463	228	567	853	2,218	1,365
	1904	* 13	1,200	7	153	1,040	.....	5,769	180	540	704	1,902	1,198
	1899	* 13	1,443	10	52	1,381	.....	3,954	91	707	820	1,756	936
Gas and electric fixtures and lamps and reflectors.	1909	3	27	2	2	23	19	50	3	10	16	33	17
	1904	3	31	2	3	26	.....	32	3	10	13	32	19
	1899	3	.....	2	2	13	.....	6	2	7	8	23	15
Liquors, malt.....	1909	5	341	.....	60	281	1,172	2,130	164	214	509	1,947	1,438
	1904	4	185	.....	36	149	.....	1,342	91	110	264	1,227	963
	1899	6	210	.....	29	181	.....	1,431	92	117	220	1,196	976
Lumber and timber products.....	1909	9	432	9	24	369	737	1,095	40	212	603	933	330
	1904	10	382	5	35	342	.....	683	35	199	490	890	370
	1899	11	.....	21	21	277	.....	593	20	120	379	610	231
Patent medicines and compounds and druggists' preparations.	1909	10	96	3	28	60	1	72	18	17	37	197	160
	1904	* 9	24	8	1	15	.....	20	( )	5	16	46	30
	1899	* 6	14	7	1	6	.....	4	( )	2	4	11	7
Printing and publishing.....	1909	48	800	50	162	588	700	1,452	163	354	445	1,309	864
	1904	43	647	40	78	529	.....	1,078	51	338	292	1,098	806
	1899	* 36	.....	77	77	369	.....	994	53	179	196	882	686
Silk and silkgoods, including throwsters.	1909	15	3,908	9	85	3,814	4,738	2,087	121	976	4,640	6,631	1,991
	1904	10	3,125	8	56	3,061	.....	2,389	70	607	3,287	4,427	1,140
	1899	6	.....	59	59	2,517	.....	1,878	85	400	2,978	3,819	841
Tobacco manufactures.....	1909	28	339	32	43	264	135	540	40	88	288	698	350
	1904	* 32	173	36	4	133	.....	64	2	52	64	178	114
	1899	27	271	34	27	210	.....	274	22	79	210	506	296
All other industries.....	1909	82	5,846	67	424	5,355	9,200	7,147	485	2,305	5,762	10,478	4,716
	1904	82	5,331	79	294	4,958	.....	6,681	338	2,272	4,784	8,643	3,859
	1899	94	.....	230	230	5,602	.....	8,883	306	2,556	11,667	14,727	3,060
<b>WILKES-BARRE—All industries.</b>													
	1909	176	8,329	177	599	7,553	12,109	\$16,011	\$743	\$3,323	\$6,433	\$13,526	\$7,093
	1904	129	6,495	152	423	5,920	.....	11,718	481	2,498	5,265	11,000	5,735
	1899	138	.....	302	302	4,749	.....	9,702	381	1,745	4,309	8,617	4,308
Bread and other bakery products.....	1909	28	254	31	27	196	126	278	27	109	418	690	242
	1904	13	161	14	18	129	.....	197	13	67	287	446	159
	1899	15	165	18	9	138	.....	146	6	51	123	247	124
Brick and tile.....	1909	3	85	3	7	75	190	37	4	30	11	63	52
	1904	3	63	5	2	56	.....	21	1	22	5	36	31
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clothing, women's.....	1909	3	322	2	21	209	46	333	33	76	213	333	170
	1904	3	473	5	32	436	.....	298	17	92	255	503	248
	1899	3	667	7	24	636	.....	512	44	137	317	627	310
Flour-mill and gristmill products.....	1909	4	27	3	6	18	270	147	4	10	293	332	39
	1904	4	31	3	4	24	.....	191	4	15	273	315	42
	1899	4	29	3	11	15	.....	122	8	7	120	148	28
Furniture and refrigerators.....	1909	4	84	5	9	70	56	100	7	26	33	80	47
	1904	3	76	5	2	69	.....	62	3	17	16	48	30
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Printing and publishing.....	1909	31	462	36	99	327	320	597	94	206	206	766	560
	1904	22	371	24	69	278	.....	526	56	158	137	570	423
	1899	* 26	335	26	50	269	.....	370	37	118	84	411	327
Silk and silk goods, including throwsters.	1909	6	1,113	.....	30	1,063	1,366	1,390	27	247	407	1,066	659
	1904	3	953	4	31	918	.....	743	39	185	649	1,055	406
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tobacco manufactures.....	1909	13	36	14	.....	22	.....	36	.....	11	16	40	24
	1904	17	67	13	3	46	.....	39	2	24	23	72	49
	1899	16	59	20	1	38	.....	33	1	16	29	67	38
All other industries.....	1909	84	5,946	83	400	5,463	9,235	13,093	547	2,608	4,836	10,136	5,300
	1904	61	4,300	74	262	3,904	.....	9,639	346	1,906	3,620	7,957	4,337
	1899	74	.....	207	207	3,663	.....	8,519	285	1,416	3,636	7,117	3,481

1 Figures can not be shown without disclosing individual operations.  
 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 Less than \$500.  
 5 Figures do not agree with those published in 1904, because it was necessary to revise the totals in order to include data only for those establishments located within the corporate limits of the city.

MANUFACTURES—PENNSYLVANIA.

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

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

CITY OR BOROUGH.	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.													
Beaver Falls.....	1909	44	2,456	84	242	2,180	5,141	\$7,503	\$287	\$1,218	\$3,015	\$6,400	\$3,385
	1904	42	2,492	28	234	2,232	-----	6,518	280	1,223	2,242	4,008	2,666
	1899	47	-----	-----	142	2,174	-----	6,521	174	971	3,859	6,229	2,370
Bethlehem.....	1909	49	1,727	54	90	1,583	3,086	3,300	105	593	2,330	3,712	1,382
	1904	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	1899	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Braddock.....	1909	41	1,218	36	142	1,040	7,332	5,369	160	785	3,347	5,094	1,747
	1904	38	1,365	34	106	1,225	-----	3,283	118	756	2,738	4,125	1,387
	1899	30	-----	-----	64	815	-----	2,472	55	526	2,565	4,091	1,526
Bradford.....	1909	82	1,050	104	228	1,318	3,856	4,226	229	655	2,442	3,887	1,445
	1904	80	1,734	91	153	1,490	-----	3,276	161	841	1,593	3,192	1,599
	1899	65	-----	-----	74	1,200	-----	2,122	80	697	1,635	3,125	1,490
Butler.....	1909	61	3,344	102	419	2,823	10,405	16,769	457	1,571	7,594	11,058	3,464
	1904	48	2,489	74	322	2,093	-----	9,910	374	1,114	4,680	6,832	2,172
	1899	41	-----	-----	33	792	-----	1,419	44	416	520	1,403	883
Carbondale.....	1909	34	1,636	29	104	1,503	1,407	2,307	123	636	1,253	2,523	1,270
	1904	32	1,631	22	134	1,475	-----	2,679	171	606	1,113	2,316	1,203
	1899	26	-----	-----	67	1,023	-----	1,452	68	340	470	1,146	676
Carlisle.....	1909	50	1,590	148	108	1,334	1,735	2,054	144	511	1,431	2,466	1,065
	1904	48	1,496	53	103	1,340	-----	1,474	101	411	1,129	1,986	857
	1899	39	-----	-----	74	1,121	-----	928	90	328	1,047	1,708	661
Carnegie.....	1909	19	509	17	70	422	1,245	2,371	94	275	2,441	3,099	658
	1904	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	1899	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Chambersburg.....	1909	57	1,631	56	211	1,364	3,126	3,484	177	599	1,170	2,456	1,286
	1904	47	981	52	86	843	-----	1,033	58	312	569	1,085	516
	1899	44	-----	-----	34	612	-----	722	25	222	478	815	327
Chester.....	1909	128	7,867	102	779	6,986	17,131	23,928	965	3,392	11,576	19,373	7,797
	1904	131	7,612	120	431	7,061	-----	22,070	607	3,417	10,422	16,645	6,223
	1899	121	-----	-----	307	6,972	-----	17,672	486	3,131	8,571	14,940	6,369
Columbia.....	1909	47	2,944	45	126	2,773	6,589	3,590	130	1,107	2,671	4,807	2,136
	1904	44	3,187	38	115	3,034	-----	2,994	105	943	2,453	3,887	1,434
	1899	53	-----	-----	83	2,519	-----	2,256	61	881	2,572	4,214	1,642
Connellsville.....	1909	39	1,269	28	206	1,035	4,526	3,275	194	576	817	1,971	1,154
	1904	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	1899	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Dubois.....	1909	37	1,210	37	158	1,015	3,199	2,394	133	507	926	1,890	904
	1904	32	1,041	32	109	900	-----	2,598	85	459	961	1,709	748
	1899	24	-----	-----	33	817	-----	1,411	32	329	1,153	1,768	615
Dunmore.....	1909	18	1,423	16	99	1,308	1,266	938	133	603	670	1,851	1,181
	1904	15	1,219	9	77	1,133	-----	1,041	114	464	550	1,460	910
	1899	18	-----	-----	50	614	-----	1,021	47	276	490	1,132	642
Easton.....	1909	126	3,769	138	243	3,388	5,965	7,687	246	1,524	3,424	6,915	3,491
	1904	97	3,047	106	221	2,720	-----	4,330	190	1,180	2,684	5,059	2,375
	1899	106	-----	-----	147	3,202	-----	4,346	129	1,200	3,193	5,425	2,252
Greensburg.....	1909	47	393	50	33	310	738	938	32	163	330	726	396
	1904	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	1899	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Hazleton.....	1909	77	2,998	84	232	2,682	3,112	5,209	250	940	2,702	4,707	2,005
	1904	62	1,575	65	104	1,406	-----	2,575	107	434	1,130	2,136	1,056
	1899	45	-----	-----	72	822	-----	1,320	50	234	293	999	706
Homestead.....	1909	26	248	17	60	171	800	1,273	49	111	322	659	337
	1904	27	369	27	35	307	-----	733	45	171	265	713	448
	1899	15	-----	-----	12	164	-----	173	10	93	101	266	165
Lancaster.....	1909	306	8,981	317	707	7,957	10,037	17,443	813	3,236	8,841	15,979	7,133
	1904	300	9,432	324	415	8,893	-----	12,395	415	3,059	7,598	14,648	7,050
	1899	284	-----	-----	362	7,504	-----	9,470	356	2,569	6,453	12,750	6,297
Lebanon.....	1909	109	6,077	105	381	5,591	21,717	12,276	409	2,441	6,778	11,429	4,651
	1904	103	4,841	111	343	4,387	-----	7,831	304	1,791	3,279	6,099	3,099
	1899	97	-----	-----	177	4,475	-----	5,675	175	1,779	4,745	7,658	2,913
McKees Rocks.....	1909	31	3,903	21	291	3,591	8,872	10,323	335	2,309	5,407	9,787	4,330
	1904	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	1899	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
McKeesport.....	1909	68	9,093	58	789	8,246	49,935	43,433	891	6,031	27,296	42,495	15,199
	1904	75	9,618	74	696	8,848	-----	16,286	778	5,521	12,310	23,054	10,744
	1899	67	-----	-----	473	7,213	-----	15,088	445	4,147	21,835	36,058	14,223
Mahanoy City.....	1909	33	666	44	32	590	753	904	20	166	333	868	485
	1904	29	293	33	22	238	-----	467	41	93	133	431	298
	1899	29	-----	-----	23	301	-----	511	15	74	113	401	288
Meadville.....	1909	62	2,506	54	404	2,048	2,539	2,725	337	974	1,716	3,559	1,843
	1899	52	1,520	63	157	1,300	-----	1,761	115	602	964	2,075	1,111
	1904	46	-----	-----	95	1,201	-----	1,168	74	535	889	1,668	779

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

<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.



MANUFACTURES—PENNSYLVANIA.

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

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

CITY OR BOROUGH.	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.													
Mount Carmel.....	1909	20	651	28	23	600	322	\$435	\$19	\$144	\$416	\$785	\$360
	1904	19	238	29	12	197	.....	317	11	79	427	620	193
	1899	9	.....	.....	11	109	.....	334	7	39	260	393	133
Nantlooke.....	1909	17	878	15	15	348	447	420	24	120	180	423	243
	1904	12	263	13	21	229	.....	314	16	65	160	353	198
	1899	17	.....	.....	29	140	.....	291	6	44	182	310	128
New Castle.....	1909	82	6,063	73	651	5,339	64,697	27,028	753	3,870	30,974	33,033	7,064
	1904	71	6,050	69	548	5,433	.....	18,490	611	3,450	21,212	23,923	7,711
	1899	71	.....	.....	184	4,520	.....	12,953	239	2,988	13,146	20,016	6,870
Norristown.....	1909	111	4,223	104	301	3,818	5,713	6,984	378	1,553	3,274	7,413	4,139
	1904	84	3,781	66	198	3,517	.....	5,307	226	1,315	2,867	5,925	3,058
	1899	77	.....	.....	154	2,944	.....	3,674	126	977	2,159	4,107	1,948
Oil City.....	1909	34	1,593	44	211	1,338	2,467	3,847	227	903	2,300	4,122	1,822
	1904	36	1,755	31	167	1,557	.....	4,387	171	828	1,334	3,032	1,742
	1899	42	.....	.....	105	1,683	.....	3,304	133	378	3,088	5,164	1,470
Phoenixville.....	1909	31	2,822	37	186	2,599	15,152	8,765	235	1,180	3,717	5,876	2,159
	1904	31	3,027	43	96	2,888	.....	7,461	140	1,314	3,023	5,500	2,477
	1899	32	.....	.....	111	2,249	.....	6,320	107	910	1,847	3,322	1,475
Pittston.....	1909	40	942	39	111	792	2,133	2,337	92	316	1,067	1,969	902
	1904	40	937	44	63	830	.....	1,614	72	307	728	1,475	747
	1899	27	.....	.....	41	357	.....	902	89	158	623	998	375
Plymouth.....	1909	23	936	21	57	908	1,412	2,544	49	281	704	1,179	475
	1904	23	906	23	56	827	.....	669	34	210	447	890	413
	1899	24	.....	.....	37	755	.....	470	20	139	241	533	292
Pottstown.....	1909	78	4,123	84	389	3,650	17,415	9,961	494	1,722	8,099	12,505	3,506
	1904	77	3,825	97	271	3,457	.....	6,420	295	1,516	5,438	8,145	2,707
	1899	65	.....	.....	159	2,681	.....	4,083	135	1,160	4,845	7,357	2,512
Pottsville.....	1909	91	3,342	100	370	2,872	15,262	13,982	341	1,326	5,927	9,138	3,211
	1904	79	2,127	87	136	1,904	.....	3,304	150	759	4,025	5,806	1,781
	1899	77	.....	.....	139	1,699	.....	3,107	105	561	3,430	4,830	1,400
Shamokin.....	1909	39	1,744	34	87	1,623	1,862	3,227	121	499	2,129	3,544	1,415
	1904	48	930	61	22	897	.....	1,116	27	260	1,026	1,444	418
	1899	46	.....	.....	34	762	.....	685	29	197	700	1,147	447
Sharon.....	1909	45	3,795	51	428	3,316	27,462	14,649	455	2,000	6,683	9,881	3,193
	1904	37	2,029	34	183	1,812	.....	6,664	193	997	3,781	5,671	1,880
	1899	35	.....	.....	62	1,827	.....	4,134	77	898	2,264	3,765	1,501
Shenandoah.....	1909	29	301	24	35	242	1,382	1,051	37	134	336	387	551
	1904	30	219	30	19	170	.....	740	18	100	181	595	414
	1899	22	.....	.....	9	107	.....	313	11	47	94	302	203
South Bethlehem.....	1909	49	8,469	65	419	7,985	31,562	41,121	604	4,973	15,967	26,417	10,450
	1904	46	6,104	45	305	5,754	.....	18,059	395	2,753	7,261	15,275	8,014
	1899	38	.....	.....	254	4,645	.....	8,047	321	2,113	4,862	9,964	5,102
Sunbury.....	1909	39	2,339	42	228	2,069	2,335	4,768	297	1,118	2,228	4,450	2,222
	1904	32	1,551	38	56	1,457	.....	1,138	57	678	1,702	2,593	891
	1899	29	.....	.....	72	963	.....	1,863	51	358	1,153	1,898	710
Uniontown.....	1909	41	492	38	119	335	1,620	1,686	163	225	379	1,347	968
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Warren.....	1909	72	1,767	70	208	1,489	3,900	5,796	266	836	3,676	5,744	2,068
	1904	63	1,412	66	172	1,174	.....	4,982	186	645	2,719	4,666	1,947
	1899	43	.....	.....	69	1,050	.....	2,724	71	486	2,154	3,681	1,527
Washington.....	1909	75	2,387	68	193	2,126	4,216	3,983	264	1,119	2,447	4,837	2,390
	1904	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Chester.....	1909	35	1,113	35	162	916	934	2,489	182	478	667	2,146	1,479
	1904	35	993	33	111	849	.....	1,671	102	412	674	2,121	1,447
	1899	35	.....	.....	63	497	.....	1,051	48	234	316	859	543
Wilkesburg.....	1909	24	231	21	25	185	1,016	535	21	129	262	538	276
	1904	30	230	24	22	184	.....	427	23	127	235	472	237
	1899	10	.....	.....	8	100	.....	216	4	62	126	246	120
Williamsport.....	1909	159	6,534	139	754	5,641	11,713	14,070	768	2,527	7,060	13,348	6,288
	1904	115	5,880	133	451	5,296	.....	12,004	485	2,026	6,016	11,307	5,351
	1899	142	.....	.....	358	4,717	.....	8,661	320	1,767	5,001	9,726	4,125
York.....	1909	218	11,530	221	817	10,492	15,344	22,419	1,133	4,433	8,866	18,622	9,756
	1904	228	8,838	266	620	7,952	.....	14,292	634	3,039	6,490	13,333	6,553
	1899	241	.....	.....	348	6,851	.....	8,794	416	2,346	5,460	10,560	5,100
All other cities or boroughs <sup>3</sup> .....	1909	99	20,296	78	1,935	13,283	165,503	106,264	2,445	12,977	77,960	103,288	25,328

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

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

<sup>3</sup> Includes Coatesville, Duquesne, Monessen, North Braddock, Old Forge, South Sharon, and Steelton.

MANUFACTURES—PENNSYLVANIA.

TABLE II.—DETAIL STATEMENT FOR

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horsepower.
		Total.	Proprietors and firm members.	Salaried officers, supts. and managers.		Clerks.		Wage earners.				Total.	16 and over.		Under 16.		
				Male.	Female.	Average number.	Number.		Male.	Female.	Male.		Female.				
							Maximum month.	Minimum month.									
1 All industries.....	27,563	1,002,171	29,743	24,953	55,703	14,229	877,543	De 860,666	Ja 819,927	(1)	(1)	(1)	(1)	(1)	2,921,547		
2 Agricultural implements.....	36	2,671	37	51	149	33	2,401	Ap 2,445	Oc 2,337	2,374	2,355	(1)	(1)	(1)	3,821		
3 Artificial flowers and feathers and plumes.....	30	917	35	17	40	20	805	Ja 985	Je 560	949	101	4	15	0	75		
4 Artificial stone.....	127	671	159	30	11	5	466	Jy 573	Fe 291	605	604	1	1	1	602		
5 Automobiles, including bodies and parts.....	44	3,560	29	113	175	50	3,199	Ja 3,953	Ja 2,349	3,938	3,907	18	13	1	2,740		
6 Babbitt metal and solder.....	17	275	10	24	50	10	181	Oc 230	Ja 137	223	205	16	2	2	271		
7 Bags, paper.....	19	329	20	13	26	9	261	Ja 283	Jy 248	257	124	117	5	11	220		
8 Baking powders and yeast.....	5	27	4	1	7	1	14	Ja 2	Je 2	15	11	4	5	4	9		
9 Baskets, and rattan and willow ware.....	44	246	44	3	4	7	188	Se 205	Ja 141	197	144	38	15	1	119		
10 Belting and hose, leather.....	17	243	16	16	46	9	156	Oc 163	Fe 149	157	157	1	1	1	363		
11 Belting and hose, woven and rubber.....	3	393	1	14	46	11	321	Ap 419	Se 282	304	246	56	2	2	927		
12 Bicycles, motorcycles, and parts.....	11	385	10	7	20	7	341	Je 428	Ja 186	355	352	3	3	3	205		
13 Billiard tables and materials.....	5	41	5	2	6	1	27	Ap 29	Se 24	29	28	1	1	1	12		
14 Blacking and cleansing and polishing preparations.....	44	304	43	27	55	21	158	Je 165	De 150	156	76	78	2	2	388		
15 Bluing.....	12	64	12	5	1	4	42	My 47	No 38	46	20	24	1	1	34		
16 Boots and shoes, including cut stock and findings.....	140	11,829	167	232	435	173	10,822	De 11,093	Ap 10,669	11,281	6,598	3,877	451	356	4,337		
17 Boxes, cigar.....	77	1,970	96	37	21	15	1,801	De 1,908	Mh 1,750	1,911	850	927	60	74	1,818		
18 Boxes, fancy and paper.....	118	5,050	133	139	103	71	4,604	De 5,063	Jy 4,382	5,084	1,394	3,032	124	534	2,121		
19 Brass and bronze products.....	104	2,524	94	120	176	54	2,080	De 2,470	Ja 1,793	2,479	2,379	62	30	8	4,096		
20 Bread and other bakery products.....	3,185	17,838	3,375	235	1,499	508	12,221	Oc 12,465	Fe 11,920	12,643	10,314	1,851	231	247	10,806		
21 Brick and tile.....	328	8,043	349	322	165	49	8,058	Jy 9,227	Fe 4,658	9,271	9,105	21	145	1	38,247		
22 Brooms.....	84	598	103	19	26	6	444	De 478	Au 408	510	477	21	12	1	451		
23 Brushes.....	55	541	59	10	38	12	416	Fe 424	Jy 405	420	325	76	11	8	869		
24 Butter, cheese, and condensed milk.....	536	2,093	635	158	82	41	1,177	Jy 1,336	Fe 1,024	1,234	1,154	71	8	1	7,613		
25 Buttons.....	24	1,219	25	30	27	14	1,123	De 1,256	Ja 864	1,265	601	518	57	89	888		
26 Canning and preserving.....	83	4,379	97	96	1,200	233	2,753	Se 4,092	Ja 1,847	3,329	1,717	1,490	60	62	3,474		
27 Carpets and rugs, other than rag.....	93	12,078	103	151	240	63	11,510	Fe 11,875	Oc 11,189	12,454	7,461	4,354	342	297	13,073		
28 Carpets, rag.....	67	469	91	7	5	349	De 389	Je 324	394	307	71	10	6	290			
29 Carriages and wagons and materials.....	655	8,757	781	193	226	69	7,498	Je 7,982	Ja 7,188	7,455	7,338	33	84	1	11,544		
30 Cars and general shop construction and repairs by steam-railroad companies.....	132	50,545	1,942	1,915	43	46,645	De 50,665	Ap 43,721	50,660	50,539	93	28	28	1	56,774		
31 Cars and general shop construction and repairs by street-railroad companies.....	65	2,568	67	54	5	2,442	Se 2,520	Mh 2,357	2,499	2,476	20	3	3	1	4,370		
32 Cars, steam-railroad, not including operations of railroad companies.....	13	8,799	238	734	61	7,766	De 12,632	Fe 4,582	12,632	12,614	9	9	9	1	31,732		
33 Cement.....	27	8,902	103	645	74	8,080	No 9,721	Ja 6,421	9,370	9,330	4	36	1	1	102,604		
34 Chemicals.....	37	3,573	19	83	44	3,185	Je 3,311	Mh 3,072	3,286	3,174	110	2	2	2	9,771		
35 Chocolate and cocoa products.....	6	1,033	23	127	20	893	No 983	Jy 694	966	476	400	70	11	1	2,885		
36 Clocks and watches, including cases and materials.....	8	1,587	3	34	71	84	1,395	No 1,470	Mh 1,330	1,390	860	494	22	14	1,033		
37 Cloth, sponging and refinishing.....	8	136	9	3	2	8	119	Se 126	Ja 113	121	119	2	2	1	161		
38 Clothing, men's, including shirts.....	696	26,405	1,099	321	1,055	307	23,623	De 24,997	Au 22,724	25,805	8,548	16,130	239	888	5,238		
39 Clothing, women's.....	401	18,080	646	271	1,028	434	15,701	De 16,727	Jy 13,971	16,995	5,112	11,590	31	262	2,514		
40 Coffins, burial cases, and undertakers' goods.....	36	1,309	60	92	18	1,103	De 1,128	Jy 1,083	1,129	875	246	5	3	3	1,447		
41 Coke.....	146	16,219	83	384	406	35	15,331	De 17,521	Ap 13,296	17,562	17,558	3	1	1	26,091		
42 Confectionery.....	251	6,436	255	158	429	180	5,408	No 6,683	Jy 4,758	6,631	2,274	3,839	118	400	3,899		
43 Cooperage and wooden goods, not elsewhere specified.....	133	1,903	155	55	38	25	1,630	Je 1,677	Fe 1,560	1,752	1,608	52	92	1	3,681		
44 Copper, tin, and sheet-iron products.....	339	7,692	382	240	428	127	6,815	No 7,522	Fe 6,052	7,481	6,713	535	177	56	8,245		
45 Cordage and twine and jute and linen goods.....	18	2,228	12	37	52	8	2,119	No 2,166	My 2,000	2,193	1,048	906	134	105	4,630		
46 Cork, cutting.....	10	1,789	9	14	27	12	1,727	Se 1,859	Ja 1,541	1,788	831	796	105	56	2,045		
47 Corsets.....	6	626	4	15	52	122	433	Je 486	Ja 384	416	67	347	2	2	85		
48 Cotton goods, including cotton small wares.....	175	17,386	156	348	449	140	16,293	No 16,709	Fe 15,817	16,866	7,405	8,318	424	719	24,589		
49 Crucibles.....	5	135	4	12	11	2	106	De 119	Ap 84	119	119	1	1	1	336		
50 Cutlery and tools, not elsewhere specified.....	120	4,832	114	163	229	76	4,250	De 4,561	Jy 3,985	4,625	4,411	141	66	7	11,811		
51 Dairymen's, poultryers', and apiarists' supplies.....	13	789	5	20	69	45	650	Mh 730	Se 539	649	635	12	2	2	465		
52 Dentists' materials.....	23	1,218	27	33	60	26	1,072	De 1,124	Au 1,036	1,124	686	372	4	62	427		
53 Dyeing and finishing textiles.....	135	6,688	155	156	216	75	6,086	De 6,376	Jy 5,954	6,222	5,230	753	202	37	13,560		
54 Electrical machinery, apparatus, and supplies.....	84	14,641	42	520	2,530	524	11,025	De 13,940	Fe 9,692	14,145	12,006	2,055	70	14	33,829		
55 Electroplating.....	35	211	49	7	5	4	146	De 159	Ja 136	161	146	5	10	1	309		
56 Emery and other abrasive wheels.....	6	117	2	12	17	2	84	De 96	Ja 75	96	96	1	1	1	452		
57 Enameling and japanning.....	14	300	10	16	27	6	242	No 310	Ja 203	318	237	71	10	1	492		
58 Explosives.....	27	1,225	20	59	67	16	1,033	Se 1,159	Mh 906	1,111	1,002	101	8	2	4,594		
59 Fancy articles, not elsewhere specified.....	52	951	55	16	30	22	828	De 928	Ja 707	922	451	426	28	17	498		
60 Fertilizers.....	48	1,517	52	60	147	34	1,224	Ap 1,473	Je 1,109	1,162	1,159	3	3	1	5,174		
61 Files.....	7	1,298	4	16	44	17	1,217	De 1,239	Oc 1,200	1,239	900	237	88	14	1,313		
62 Firearms and ammunition.....	14	406	14	15	8	4	365	Oc 436	Jy 262	470	172	270	16	12	82		

1 No figures given for reasons explained in the Introduction.







TABLE II.—DETAIL STATEMENT FOR THE

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.				Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, supts. and managers.	Clerks.		Average number.	Wage earners.		Total.	16 and over.		Under 16.			
					Male.	Female.		Maximum month.	Minimum month.		Male.	Female.	Male.	Female.		
															Number.	
1 Silk and silk goods, including throwsters.	226	38,178	143	498	817	251	36,469	Ap 37,031	Ja 35,775	37,200	9,772	22,378	1,578	3,562	41,962	
2 Silverware and plated ware.	9	321	6	16	32	7	260	No 290	Jy 215	332	237	32	10	3	187	
3 Slaughtering and meat packing.	180	3,957	198	141	484	84	3,050	De 3,184	Au 2,940	3,183	3,184	22	7	12,139		
4 Smelting and refining, not from the ore.	24	278	17	22	26	7	206	De 236	Fe 171	239	239	1	1	536		
5 Soap.	59	1,746	74	27	252	106	1,197	Ja 1,226	Ja 1,172	1,174	821	312	27	14	2,598	
6 Steam packing.	31	2,231	18	88	325	123	1,677	De 2,018	Je 1,544	2,025	1,554	122	39	10	5,817	
7 Stereotyping and electrotyping.	21	414	18	28	25	4	339	My 349	Ja 330	339	320	6	13	339		
8 Stoves and furnaces, including gas and oil stoves.	74	4,721	42	155	260	66	4,198	No 4,488	Ja 3,385	4,535	4,463	29	42	1	4,075	
9 Sulphuric, nitric, and mixed acids.	6	172	3	11	22	7	132	Mh 149	Au 121	155	151	1	3	286		
10 Tin plate and terneplate.	17	2,548	3	43	109	47	2,346	No 2,795	Mh 1,963	2,751	2,448	278	25	1,565		
11 Tobacco manufactures.	2,432	37,580	2,609	471	1,025	197	33,188	De 35,099	Ap 32,097	35,552	16,006	18,615	174	757	2,638	
12 Type founding and printing materials.	8	402	6	17	61	25	293	Ja 310	Au 275	298	214	59	16	273		
13 Typewriters and supplies.	8	872	5	15	252	45	555	De 610	Ja 491	610	596	14	1	264		
14 Umbrellas and canes.	45	2,551	44	45	115	32	2,315	No 2,570	Jy 2,078	2,413	1,070	1,190	38	65	1,570	
15 Wall paper.	11	1,196	35	94	11	1,056	De 1,289	Au 777	1,324	1,016	1,069	99	40	1,371		
16 Wall plaster.	23	306	15	28	22	9	232	Ap 303	Ja 194	232	230	2	1	1,413		
17 Whips.	4	135	44	7	22	4	68	De 69	Ja 43	69	51	18	1	105		
18 Wood distillation, not including turpentine and resin.	50	1,093	36	85	28	11	933	Ja 1,058	Au 837	1,052	1,052	1	1	1,740		
19 Woolen, worsted, and felt goods, and wool hats.	217	28,692	245	422	475	141	27,409	No 28,383	Ja 25,796	28,226	12,494	13,053	1,187	1,492	50,405	
20 All other industries <sup>1</sup> .	1,953	50,979	2,100	1,730	3,198	1,015	42,936								101,898	

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

Artists' materials.	7	Cordials and sirups.	6	Hair work.	11
Awnings, tents, and sails.	36	Drug grinding.	2	Hammocks.	3
Axle grease.	3	Dyesuffs and extracts.	14	Hat and cap materials.	6
Bags, other than paper.	4	Engravers' materials.	1	Hones and whetstones.	1
Bone, carbon, and lamp black.	5	Engraving and diesinking.	27	Horseshoes, not made in steel works or rolling mills.	3
Boots and shoes, rubber.	1	Engraving, wood.	9	House-furnishing goods, not elsewhere specified.	24
Calcium lights.	1	Flavoring extracts.	37	Instruments, professional and scientific.	39
Card cutting and designing.	17	Food preparations.	128	Iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills.	22
Carrriages and sleds, children's.	5	Foundry supplies.	10	Iron and steel, doors and shutters.	2
Cars, street-railroad, not including operations of railroad companies.	1	Fuel, manufactured.	1	Iron and steel forgings.	38
Cash registers and calculating machines.	3	Furs, dressed.	1	Iron and steel, nails and spikes, cut and wrought, including wire nails, not made in steel works or rolling mills.	7
Charcoal.	3	Galvanizing.	8	Jewelry and instrument cases.	11
China decorating.	2	Glass, cutting, staining, and ornamenting.	106	Labels and tags.	16
Clothing, horse.	12	Glucose and starch.	2	Locomotives, not made by railroad companies.	7
Clothing, men's, buttonholes.	10	Glue.	6		
Coffee and spice, roasting and grinding.	84	Grease and tallow.	51		
		Grindstones.	1		

MANUFACTURES—PENNSYLVANIA.

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STATE, BY INDUSTRIES: 1909—Continued.

	Capital.	EXPENSES.										Value of products.	Value added by manufacture.
		Total.	Services.			Materials.		Miscellaneous.					
			Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes including internal revenue.	Contract work.	Other.		
1	\$49,879,061	\$55,614,244	\$1,173,305	\$958,637	\$11,442,878	\$495,850	\$34,069,721	\$178,854	\$94,043	\$3,851,881	\$2,749,075	\$62,061,802	\$26,895,731
2	781,251	485,130	34,700	26,575	190,330	4,242	198,200	8,430	525	22,128	601,831	399,389	
3	13,504,379	49,153,605	348,881	513,279	1,986,965	239,663	44,605,384	112,672	63,602	29,005	1,254,154	51,850,936	7,005,889
4	1,605,387	3,325,573	64,732	24,576	143,182	37,534	2,940,698	3,497	3,363	5,000	102,991	3,577,433	599,201
5	6,427,998	8,397,048	55,988	287,566	555,829	64,977	5,881,826	13,858	14,266	1,522,738	9,124,356	3,177,553	
6	7,021,710	5,000,308	218,044	253,025	814,272	149,465	2,831,102	20,899	12,057	10,069	697,375	4,987,171	2,006,604
7	411,367	503,618	48,720	19,715	231,666	14,378	131,450	21,175	156	934	35,424	644,686	498,858
8	10,643,111	6,348,431	310,277	324,325	2,464,775	115,768	2,355,860	63,333	32,007	37,361	644,735	7,408,933	4,937,315
9	1,142,636	500,459	17,060	27,848	87,240	29,195	298,797	5,353	40,965	624,473	296,480		
10	5,520,066	24,844,283	110,560	164,838	1,338,637	113,270	22,785,082	1,900	24,366	305,630	25,234,066	2,335,714	
11	27,003,854	44,054,733	730,523	1,054,940	11,619,512	119,515	20,593,907	364,344	6,079,825	140,989	3,351,171	50,161,387	29,447,964
12	1,021,826	573,696	33,840	58,210	159,308	10,887	194,466	19,006	1,677	95,302	606,351	400,995	
13	1,151,930	1,076,152	42,060	286,782	269,087	4,107	185,067	3,555	3,063	282,431	1,016,543	527,869	
14	5,119,023	4,678,745	93,680	291,028	906,020	25,439	3,119,614	33,180	5,903	38,731	222,150	5,059,846	1,911,793
15	3,511,107	3,402,482	114,921	133,816	519,670	45,383	2,283,305	38,502	4,784	282,101	3,695,211	1,396,523	
16	1,004,114	660,766	46,935	23,247	111,054	31,964	370,118	3,050	2,685	1,620	70,083	725,494	323,412
17	267,394	123,604	7,900	21,202	14,929	1,641	66,832	612	206	10,282	161,647	93,174	
18	5,111,070	2,490,091	112,517	20,515	521,643	1,463,325	220,623	790	22,948	2,200	125,529	2,960,162	1,276,213
19	75,170,431	71,177,842	1,091,736	654,062	10,947,225	789,043	53,845,042	255,773	99,864	802,120	2,692,977	77,446,996	22,812,911
20	158,033,658	154,832,334	3,696,503	3,678,170	22,317,217	3,033,791	110,508,867	650,590	373,469	233,581	10,340,146	171,703,451	58,160,793

1 All other industries embrace—Continued.

Looking-glass and picture frames.....	55	Pens, steel.....	1	Tin-foil.....	2
Malt.....	3	Pipes, tobacco.....	4	Toys and games.....	23
Mats and matting.....	1	Pulp, from fiber other than wood.....	2	Upholstering materials.....	23
Mineral and soda waters.....	435	Roofing materials.....	17	Vault lights and ventilators.....	7
Moving pictures.....	2	Salt.....	1	Vinegar and cider.....	102
Mucilage and paste.....	17	Screws, wood.....	1	Washing machines and clothes wringers.....	10
Needles, pins, and hooks and eyes.....	9	Sewing machines, cases, and attachments.....	2	Waste.....	23
Oil, castor.....	1	Smelting and refining, lead.....	1	Wheelbarrows.....	4
Oil, linsced.....	1	Smelting and refining, zinc.....	2	Window shades and fixtures.....	15
Oil, not elsewhere specified.....	37	Soda-water apparatus.....	4	Wire.....	8
Oilecloth and linoleum.....	3	Sporting and athletic goods.....	15	Wirework, including wire rope and cable.....	64
Ordnance and accessories.....	1	Springs, steel, car and carriage.....	13	Wood carpet.....	2
Paving materials.....	5	Stationery goods, not elsewhere specified.....	12	Wood preserving.....	1
Peanuts, grading, roasting, cleaning, and shelling.....	5	Statuary and art goods.....	13	Wood, turned and carved.....	94
Pencils, lead.....	2	Sugar, refining, not including beet sugar.....	2	Wool pulling.....	9
Pens, fountain, stylographic, and gold.....	2	Surgical appliances and artificial limbs.....	46	Wool scouring.....	2

MANUFACTURES—PENNSYLVANIA.

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

ALLENTOWN.

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.									WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).			Total.	16 and over.		Under 16.			
					Male.	Female.	Total.	16 and over.			Under 16.	Male.	Female.	Male.	Female.	
								Male.	Female.							
1 All industries.....	274	12,628	314	240	500	93	11,481	6,520	4,366	575	11,837	6,781	4,520	287	299	19,101
2 Boots and shoes, including out stock and findings.....	9	770	10	19	14	3	724	449	219	56	705	474	231	30	21	305
3 Bread and other bakery products.....	32	183	31	3	1	2	146	132	11	3	151	137	11	2	1	82
4 Brick and tile.....	6	168	11	6			141	140		1	145	144		1		335
5 Brushes <sup>1</sup> .....	4	21	5				16	15		1	15	14		1		5
6 Carriages and wagons and materials.....	4	38	8				30	30			28	23				33
7 Clothing, men's, including shirts.....	5	183	8		5	1	169	67	92	10	173	69	94	2	8	14
8 Copper, tin, and sheet-iron products.....	3	53				1	46	46			51	51				23
9 Foundry and machine-shop products.....	23	1,011	30	28	74	28	851	819	15	17	895	861	16	18		1,236
10 Furniture and refrigerators.....	7	593	10	25	28	1	529	506	3	20	564	540	3	21		646
11 Hosiery and knit goods.....	8	614	7	14	12	9	572	67	479	26	668	78	559	2	29	423
12 Leather goods.....	3	23	4		1		18	18			18	18				1
13 Liquors, malt.....	4	129	8	6	11	1	103	102	1		102	101	1			501
14 Lumber and timber products.....	10	171	20	5	7	2	137	137			145	145				629
15 Marble and stone work.....	4	23	5			1	17	17			15	15				18
16 Printing and publishing.....	28	255	31	14	18	2	190	161	18	11	192	163	18	9	2	147
17 Silk and silk goods, including throwsters.....	15	3,937	9	38	102	10	3,778	1,330	2,169	279	3,665	1,289	2,103	114	159	2,808
18 Tobacco manufactures.....	47	1,190	47	12	18	9	1,104	130	972	2	1,202	142	1,058		2	162
19 All other industries <sup>2</sup> .....	62	3,276	64	70	209	23	2,910	2,354	407	149	3,043	2,462	426	78	77	11,633

<sup>1</sup> Includes 1 establishment engaged in the manufacture of brooms.  
<sup>2</sup> All other industries embrace: Artificial stone, 1; automobiles, including bodies and parts, 1; baskets, and rattan and willow ware, 1; blacking and cleansing and polishing preparations, 1; boxes, cigar, 2; boxes, fancy and paper, 1; brass and bronze products, 2; cars and general shop construction and repairs by steam-railroad companies, 1; cars and general shop construction and repairs by street-railroad companies, 1; cement, 1; chemicals, 2; clothing, women's, 1; coffins, burial cases, and undertakers' goods, 1; confectionery, 3; cooperage and wooden goods, not elsewhere specified, 2; cordage and twine and jute and linen goods, 1; dyeing and finishing textiles, 4;

ALTOONA.

1 All industries.....	44	9,100	41	255	345	50	8,409	7,797	478	134	9,281	8,605	532	69	75	9,158
2 Bread and other bakery products.....	11	64	12	2		5	45	41	3	1	48	44	3	1		55
3 Liquors, malt.....	3	118	5	6	9	2	96	96			94	94				730
4 Lumber and timber products.....	3	104	4	8	1	3	88	88			54	54				186
5 Printing and publishing.....	10	209	7	12	24	12	154	124	25	5	154	124	25	5		177
6 All other industries <sup>1</sup> .....	17	8,605	13	227	311	28	8,026	7,448	450	128	8,031	8,289	504	63	75	8,010

<sup>1</sup> All other industries embrace: Artificial stone, 1; cars and general shop construction and repairs by steam-railroad companies, 2; clothing, men's, including shirts, 1; coke, 1; foundry and machine-shop products, 1; gas, illuminating and heating, 2; ice, manufactured, 2; leather goods, 1; mattresses and spring beds, 1; mineral and soda waters, 2; patent medicines and compounds and druggists' preparations, 1; silk and silk goods, including throwsters, 1; tobacco manufactures, 1.

ERIE.

1 All industries.....	391	11,142	364	338	471	173	9,796	8,592	933	271	10,594	9,288	1,012	193	101	22,038
2 Brass and bronze products.....	4	55	4	4		2	45	45			50	50				80
3 Bread and other bakery products.....	48	210	48	2	2	8	150	128	18	4	157	134	19	2	2	117
4 Carriages and wagons and materials.....	4	35	7		1	1	26	26			26	26				41
5 Confectionery.....	8	62	8	4	2	1	37	20	17		37	20	17			34
6 Cooperage and wooden goods, not elsewhere specified.....	5	51	4	3	1	2	41	39	2		39	37	2			80
7 Copper, tin, and sheet-iron products.....	10	143	10	5	1	3	124	124			129	129				163
8 Cutlery and tools, not elsewhere specified.....	4	187	2	7	10	5	113	110		3	142	138		3	1	168
9 Flour-mill and gristmill products.....	4	54	2	9	10	1	32	32			35	35				540
10 Foundry and machine-shop products.....	69	4,982	40	136	188	46	4,572	4,389	101	91	5,002	4,797	107	73	25	8,026
11 Liquors, malt.....	3	153		11	19		123	123			120	120				373
12 Lumber and timber products.....	16	368	12	18	20	6	312	310	2		299	297	2			896
13 Marble and stone work.....	6	22	9				13	13			13	13				24
14 Musical instruments, pianos and organs and materials.....	4	123	2	14	3	4	100	95	3	2	103	98	3	2		190
15 Patent medicines and compounds and druggists' preparations.....	27	56	28	3	2	1	22	7	14	1	23	7	15	1		2
16 Printing and publishing.....	23	518	20	24	35	30	409	268	139	2	437	286	149	2		610
17 Slaughtering and meat packing.....	6	75	10	3	6	2	54	54			53	53				159
18 Stoves and furnaces, including gas and oil stoves.....	8	575	3	11	21	9	531	517	1	13	550	536	1	13		408
19 Tobacco manufactures.....	23	95	26		1		68	66	1	1	70	68	1	1		
20 All other industries <sup>1</sup> .....	119	3,438	129	84	149	62	3,024	2,235	635	154	3,309	2,444	696	96	73	9,467

<sup>1</sup> All other industries embrace: Agricultural implements, 1; artificial stone, 0; automobiles, including bodies and parts, 1; awnings, tents, and sails, 2; babbitt metal and solder, 3; bicycles, motorcycles, and parts, 2; boxes, cigar, 2; boxes, fancy and paper, 1; brooms, 2; brushes, 1; buttons, 2; canning and preserving, 5; carpets, rag, 2; carriages and sleds, children's, 1; cars and general shop construction and repairs by steam-railroad companies, 1; cars and general shop construction and repairs by street-railroad companies, 1; cars, steam-railroad, not including operations of railroad companies, 1; clothing, men's, including shirts, 2; coffee and spice, roasting and grinding, 2; coffins, burial cases, and undertakers' goods, 1; cork, cutting, 1; dairymen's, poultryers', and apiarists' supplies, 1; dentists' materials, 1; dyeing and finishing textiles, 2; fancy articles, not elsewhere specified, 1; flags, banners, regalia, society badges, and emblems, 1; food preparations, 5; fur goods, 2; furnishing goods, men's, 2; furniture and refrigerators, 2; gas and electric fixtures and lamps and reflectors, 1; glass, cutting, staining, and ornamenting, 1; grease and tallow, 1;



MANUFACTURES—PENNSYLVANIA.

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

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

ALLENTOWN.

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 \$21,568,972	\$23,850,797	\$414,413	\$459,978	\$5,061,470	\$420,651	\$15,160,505	\$106,694	\$319,503	\$695,025	\$1,312,558	\$26,263,327	\$10,682,171
2 669,352	1,146,658	33,156	6,746	297,275	4,027	753,440	4,985	1,361	.....	40,659	1,302,072	539,596
3 294,957	376,491	3,000	1,240	76,953	8,338	267,163	5,812	1,596	.....	12,389	475,086	190,585
4 260,428	123,777	6,030	.....	55,748	29,397	7,441	6,673	622	.....	17,506	174,977	138,139
5 10,592	15,190	.....	.....	4,987	113	9,387	267	51	.....	20,925	20,925	11,425
6 99,347	45,226	.....	.....	17,917	941	25,553	.....	461	.....	354	61,495	35,001
7 275,419	207,000	.....	6,194	64,464	1,883	128,252	930	747	.....	4,530	251,661	121,526
8 53,483	67,497	.....	598	25,257	512	39,007	1,134	198	20	771	83,472	43,953
9 1,776,074	1,406,525	45,108	65,810	399,898	22,882	746,529	13,746	4,194	.....	168,390	1,631,805	862,394
10 712,184	650,851	45,118	32,501	252,039	7,374	198,112	5,900	2,537	.....	107,280	732,615	527,129
11 677,665	677,305	16,022	13,306	147,054	6,426	450,917	3,274	1,174	12,858	26,274	716,796	259,453
12 51,040	30,434	.....	572	10,011	209	17,769	413	490	.....	910	44,157	26,119
13 1,631,611	493,920	16,556	12,748	63,271	15,962	177,465	.....	103,124	.....	104,794	657,416	463,989
14 412,920	261,532	4,383	4,112	80,026	5,892	151,174	728	1,376	160	13,681	318,881	161,517
15 22,480	23,672	.....	406	9,587	614	12,485	202	44	.....	274	32,200	19,101
16 495,873	240,721	14,298	11,769	92,889	5,081	96,156	3,466	2,111	4,677	19,174	338,519	237,282
17 6,494,751	6,500,886	76,562	94,193	1,483,500	34,732	4,263,798	36,871	8,336	576,418	326,476	7,455,528	3,156,998
18 439,259	1,359,920	21,614	12,442	438,876	3,797	877,951	12,230	173,518	.....	19,382	1,445,652	763,694
19 7,280,977	9,764,182	132,168	197,281	1,541,718	272,411	7,132,837	10,063	17,763	892	448,999	10,520,070	3,114,772

flags, banners, regalia, society badges, and emblems, 1; cutlery and tools, not elsewhere specified, 1; food preparations, 2; fur goods, 2; gas and electric fixtures and lamps and reflectors, 2; gas, illuminating and heating, 1; glass, 1; glass, cutting, staining, and ornamenting, 1; hand stamps and stencils and brands, 1; hats and caps, other than felt, straw, and wool, 1; ice, manufactured, 1; instruments, professional and scientific, 1; iron and steel, blast furnaces, 1; iron and steel, steel works and rolling mills, 1; leather, tanned, curried, and finished, 2; mattresses and spring beds, 2; mineral and soda waters, 1; patent medicines and compounds and druggists' preparations, 3; photo-engraving, 2; pottery, terra-cotta, and fire-clay products, 1; slaughtering and meat packing, 1; umbrellas and canes, 1; wood, turned and carved, 1.

ALTOONA.

1 \$16,094,094	\$16,238,833	\$333,096	\$316,255	\$5,750,228	\$209,922	\$3,924,259	\$7,227	\$121,053	\$1,840	\$574,953	\$16,762,738	\$7,628,557
2 137,568	99,518	1,560	982	21,713	2,555	65,022	1,761	504	1,230	4,191	122,174	54,597
3 1,061,002	428,645	13,200	13,694	41,550	12,538	225,229	.....	75,328	410	47,796	526,456	288,689
4 267,281	177,924	11,580	2,170	44,231	1,111	111,631	.....	1,833	.....	5,368	249,562	136,820
5 405,765	217,132	10,000	23,710	87,213	5,418	75,430	2,874	938	200	11,349	259,685	178,837
6 14,222,510	15,316,614	266,756	276,799	5,556,521	188,300	8,446,947	2,592	42,450	.....	506,249	16,604,861	6,960,614

ERIE.

1 \$30,619,869	\$20,436,226	\$767,201	\$521,448	\$5,101,041	\$796,457	\$11,267,070	\$60,634	\$228,108	\$29,091	\$1,665,176	\$24,225,633	\$12,162,106
2 116,736	108,759	5,780	940	25,295	2,914	68,332	400	392	.....	4,200	127,246	55,600
3 264,161	490,491	2,236	3,116	61,440	9,279	354,622	4,936	1,397	.....	23,465	561,229	197,328
4 64,228	39,373	.....	1,400	14,553	518	20,220	.....	294	.....	5,368	51,002	30,264
5 41,848	163,792	6,126	3,016	16,373	2,354	114,138	6,940	170	.....	4,651	170,620	54,128
6 90,175	100,285	4,360	1,928	22,897	1,083	62,116	1,320	101	.....	6,480	105,265	42,066
7 216,262	196,051	6,336	2,080	64,878	2,568	108,133	1,496	387	.....	10,173	216,362	105,661
8 493,415	184,741	13,240	11,201	67,229	1,789	63,266	2,968	468	.....	24,580	197,211	132,156
9 341,411	617,405	17,178	7,143	17,953	3,902	759,958	150	1,428	.....	9,695	842,745	78,885
10 13,517,209	7,233,078	321,140	194,923	2,499,494	203,713	3,312,167	6,984	40,065	.....	654,592	8,714,772	5,198,892
11 2,448,727	678,604	24,657	21,443	89,523	15,946	196,081	.....	141,556	.....	189,398	925,931	713,904
12 1,179,383	886,156	33,940	20,521	175,452	5,968	603,885	4,370	3,298	2,560	36,162	963,582	353,729
13 51,050	69,085	.....	11,565	11,565	185	55,168	278	94	.....	1,795	98,660	43,307
14 257,908	208,864	22,788	3,232	64,430	2,027	101,489	600	314	493	13,485	237,329	133,813
15 94,611	85,951	4,480	860	7,901	720	55,934	3,671	87	502	11,796	131,714	75,060
16 1,247,473	618,027	54,506	35,049	181,741	9,563	240,742	5,644	1,756	.....	89,026	829,470	579,165
17 207,385	703,740	6,000	4,280	31,311	2,771	736,737	800	1,855	.....	9,986	957,115	217,607
18 1,012,932	695,577	26,360	36,893	324,022	7,287	241,358	1,615	3,728	.....	54,344	843,453	594,808
19 89,919	128,717	.....	1,202	41,394	467	62,618	1,370	13,778	.....	7,888	156,906	93,821
20 8,885,036	6,947,566	218,082	172,251	1,353,584	523,403	4,109,600	17,092	16,940	25,536	511,072	8,095,021	3,462,012

hand stamps and stencils and brands, 2; hats, fur-felt, 1; house-furnishing goods, not elsewhere specified, 1; ice, manufactured, 2; iron and steel, blast furnaces, 1; iron and steel forgings, 1; jewelry, 1; leather goods, 2; leather, tanned, curried, and finished, 1; locomotives, not made by railroad companies, 1; looking-glass and picture frames, 2; mineral and soda waters, 4; models and patterns, not including paper patterns; 5; oil, not elsewhere specified, 5; optical goods, 4; paint and varnish, 1; paper and wood pulp, 1; photo-engraving, 1; roofing materials, 1; rubber goods, not elsewhere specified, 2; shipbuilding, including boat building, 3; show cases, 1; signs and advertising novelties, 2; silk and silk goods, including throwsters, 1; sporting and athletic goods, 1; stereotyping and electrotyping, 1; wall plaster, 3; washing machines and clothes wringers, 1; wirework, including wire rope and cable, 3.

MANUFACTURES—PENNSYLVANIA.

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

HARRISBURG.

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.									WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).			Total.	16 and over.		Under 16.			
					Male.	Female.	Total.	16 and over.			Male.	Female.				
								Male.	Female.				Male.	Female.		
1 All industries.....	199	11,024	190	242	584	265	9,743	7,088	2,531	124	10,601	7,884	2,587	57	73	22,255
2 Bread and other bakery products.....	39	237	40	5	2	5	185	175	9	1	193	183	9	1	.....	143
3 Carriages and wagons and materials.....	7	61	7	1	1	2	50	50	.....	.....	53	53	.....	.....	.....	67
4 Foundry and machine-shop products.....	8	449	10	17	17	11	394	382	9	3	426	413	10	3	.....	529
5 Iron and steel, steel works and rolling mills.	5	2,214	.....	36	.....	42	2,186	2,127	.....	9	2,584	2,573	.....	11	.....	15,937
6 Liquors, malt.....	3	67	2	5	.....	3	57	57	.....	.....	57	57	.....	.....	.....	347
7 Lumber and timber products.....	3	132	4	8	2	3	115	115	.....	.....	115	115	.....	.....	.....	325
8 Patent medicines and compounds and druggists' preparations.	11	87	11	2	9	1	14	8	6	.....	15	9	6	.....	.....	2
9 Printing and publishing.....	30	658	28	34	76	37	483	379	98	6	568	446	115	5	2	460
10 Tobacco manufactures.....	20	1,680	19	4	23	4	1,580	210	1,326	44	1,534	204	1,287	6	37	73
11 All other industries <sup>1</sup> .....	78	5,539	69	180	451	160	4,729	3,685	1,083	61	5,056	3,831	1,160	81	84	4,472

<sup>1</sup> All other industries embrace: Artificial stone, 1; awnings, tents, and sails, 2; bags, paper, 1; boots and shoes, including cut stock and findings, 4; boxes, cigar, 1; boxes, fancy and paper, 1; brick and tile, 1; brooms, 1; butter, cheese, and condensed milk, 2; carpets, rag, 1; cars and general shop construction and repairs by steam-railroad companies, 1; cars and general shop construction and repairs by street-railroad companies, 1; clothing, women's, 4; coffee and spice, roasting and grinding, 1; coffins, burial cases, and undertakers' goods, 1; confectionery, 1; copper, tin, and sheet-iron products, 3; electroplating, 1; fancy articles, not elsewhere specified, 1; fertilizers, 1; flour-mill and gristmill products, 1; food preparations, 5; furnishing goods, men's, 1; furniture and refrigerators, 1; gas, illuminating and heating, 2; glass, cutting, staining,

JOHNSTOWN.

1 All industries.....	97	11,071	121	279	594	103	10,574	10,284	92	198	11,335	11,019	102	214	.....	119,608
2 Bread and other bakery products.....	11	83	10	5	.....	7	61	53	6	2	64	56	6	2	.....	84
3 Copper, tin, and sheet-iron products.....	5	77	5	3	3	2	64	59	4	1	64	59	4	1	.....	90
4 Liquors, malt.....	4	178	5	10	18	4	139	135	4	.....	143	139	4	.....	.....	1,020
5 Lumber and timber products.....	8	85	9	10	7	.....	59	59	.....	.....	59	59	.....	.....	.....	610
6 Printing and publishing.....	11	181	12	9	20	8	132	102	27	3	139	107	29	3	.....	121
7 All other industries <sup>1</sup> .....	58	11,069	80	242	540	82	10,119	9,876	51	192	10,866	10,599	50	208	.....	117,683

<sup>1</sup> All other industries embrace: Artificial stone, 1; awnings, tents, and sails, 1; brass and bronze products, 1; brick and tile, 2; brooms, 1; carriages and wagons and materials, 1; cars and general shop construction and repairs by street-railroad companies, 1; chemicals, 1; clothing, men's, including shirts, 1; coke, 1; confectionery, 4; flour-mill and gristmill products, 3; food preparations, 1; foundry and machine-shop products, 9; furniture and refrigerators, 1; gas, illuminating and heating, 1; glass, cutting, staining, and ornamenting, 2; ice, manufactured, 3; iron and steel, blast furnaces, 1; iron and steel, steel works and rolling mills, 1; iron and steel forgings, 1; liquors,

PHILADELPHIA.

1 All industries.....	3,379	294,498	9,162	7,416	19,609	8,427	251,884	166,854	74,680	10,370	272,446	181,130	80,142	5,206	5,968	365,950
2 Artificial flowers and feathers and plumes.....	29	915	35	16	40	20	804	85	634	85	948	100	748	6	94	70
3 Belting and hose, leather.....	13	188	13	13	30	7	119	119	.....	.....	120	120	.....	.....	.....	286
4 Boots and shoes, including cut stock and findings.	58	3,820	74	81	134	65	3,466	2,090	1,161	215	3,535	2,131	1,183	116	105	872
5 Boxes, cigar.....	7	346	9	8	6	3	320	219	83	18	320	219	83	11	7	362
6 Boxes, fancy and paper.....	65	3,682	67	91	93	52	3,379	802	2,102	415	3,730	951	2,321	50	404	1,382
7 Brass and bronze products.....	49	1,263	42	56	69	24	1,042	1,010	17	15	1,212	1,174	20	16	2	1,051
8 Bread and other bakery products.....	1,208	6,936	1,225	86	804	223	4,598	3,738	690	170	4,761	3,871	716	64	110	4,159
9 Brick and tile.....	31	1,468	51	25	23	.....	1,309	1,361	.....	8	1,388	1,380	.....	3	.....	2,715
10 Brooms.....	22	190	20	10	1	1	150	148	.....	2	162	160	.....	2	.....	68
11 Brushes.....	37	340	41	9	25	6	259	196	53	10	265	201	54	7	3	187
12 Buttons.....	21	740	23	19	21	9	668	396	215	57	758	449	244	25	40	393
13 Canning and preserving.....	23	804	26	15	105	30	623	387	206	35	650	405	215	21	15	723
14 Carpets and rugs, other than rag.....	84	10,893	96	134	219	51	10,303	6,114	3,731	518	11,282	6,652	4,061	305	264	11,435
15 Carriages and wagons and materials.....	90	1,511	96	42	44	13	1,310	1,313	.....	3	1,345	1,342	.....	3	.....	1,100
16 Cars and general shop construction and repairs by steam-railroad companies.	10	3,963	.....	180	114	.....	3,669	3,040	29	.....	3,972	3,939	33	.....	.....	2,266
17 Chemicals.....	16	1,972	17	40	128	34	1,753	1,641	110	2	1,748	1,636	110	.....	2	4,875
18 Clocks and watches, including cases and materials.	5	937	3	27	66	67	774	495	255	24	764	488	252	13	11	793
19 Clothing, men's, including shirts.....	456	14,075	716	167	759	218	12,215	6,474	5,521	220	12,952	6,870	5,346	95	141	2,472
20 Clothing, women's.....	351	15,627	676	240	958	353	13,500	4,631	8,707	162	14,483	4,965	9,340	28	150	1,955
21 Confectionery.....	129	3,371	128	64	102	102	2,891	1,012	1,654	225	3,651	1,279	2,088	54	230	1,699
22 Cooperage and wooden goods, not elsewhere specified.	44	814	47	16	13	5	733	671	1	61	745	682	1	62	.....	729
23 Copper, tin, and sheet-iron products.....	134	3,490	159	102	234	56	2,930	2,695	176	68	3,369	3,090	201	69	9	2,074
24 Cordage and twine and jute and linen goods.	8	1,214	8	17	23	3	1,163	640	462	61	1,179	648	668	26	37	2,250
25 Cork, cutting.....	6	75	8	4	2	1	60	34	21	5	62	35	22	3	2	49
26 Cotton goods, including cotton small wares.	136	10,527	135	236	321	101	9,734	4,351	4,877	506	10,116	4,516	5,071	166	363	14,160
27 Cutlery and tools, not elsewhere specified.....	33	1,036	39	37	65	12	833	860	10	13	971	946	11	10	4	2,086
28 Dyeing and finishing textiles.....	104	8,991	133	116	129	38	3,575	3,003	425	147	3,801	3,191	452	131	27	7,037
29 Electrical machinery, apparatus, and supplies.	45	2,317	23	110	317	102	1,759	1,458	260	41	2,053	1,701	304	44	4	2,683
30 Fancy articles, not elsewhere specified.....	42	827	47	13	27	21	719	354	388	27	802	395	377	19	11	341
31 Fertilizers.....	6	896	4	31	80	17	764	762	.....	2	753	751	.....	2	.....	3,020
32 Files.....	7	1,298	4	16	44	17	1,217	885	232	100	1,239	900	237	88	14	1,313
33 Flour-mill and gristmill products.....	28	154	36	8	17	4	89	89	.....	.....	95	95	.....	.....	.....	1,116
34 Foundry and machine-shop products.....	545	20,641	508	744	1,886	362	17,141	16,610	306	223	19,167	18,562	349	226	21	23,629
35 Fur goods.....	47	284	59	5	15	24	181	87	92	2	267	129	135	3	.....	10
36 Furniture and refrigerators.....	147	4,042	165	156	278	52	3,393	3,291	68	34	3,737	3,674	75	38	.....	3,870



MANUFACTURES—PENNSYLVANIA.

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

PHILADELPHIA—Continued.

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).			Total.	16 and over.		Under 16.				
					Male.	Female.	Total.	Male.	Female.		Under 16.	Male.	Female.	Male.	Female.		
																Male.	
37 Gas and electric fixtures and lamps and reflectors.	41	1,376	38	81	131	30	1,096	1,008	44	44	1,300	1,197	51	51	1	870	
38 Glass.	4	1,185	1	31	29	12	1,112	854	90	108	1,334	1,024	108	188	14	419	
39 Hats and caps, other than felt, straw, and wool.	42	502	55	11	22	10	464	322	139	3	476	330	143	2	1	51	
40 Hats, fur-felt.	27	6,080	34	41	161	19	5,825	4,054	1,491	280	6,217	4,327	1,591	133	106	4,163	
41 Hosiery and knit goods.	177	17,027	195	301	364	168	15,999	3,520	10,799	1,680	17,009	3,745	11,526	487	1,311	7,962	
42 Ice, manufactured.	8	645	12	58	36	4	535	535	.....	.....	496	496	.....	.....	.....	11,703	
43 Ink, printing.	8	246	6	18	50	7	165	165	.....	.....	162	162	.....	.....	.....	458	
44 Iron and steel, steel works and rolling mills.	8	5,248	6	36	374	11	4,821	4,793	.....	.....	5,341	5,310	.....	.....	.....	27,009	
45 Jewelry.	52	411	69	10	17	20	295	245	17	.....	305	253	34	13	5	110	
46 Leather goods.	84	2,092	108	45	185	47	1,707	1,036	476	195	1,763	1,070	492	51	150	430	
47 Leather, tanned, curried, and finished.	41	6,400	36	128	214	50	5,972	5,273	556	143	6,265	5,534	580	104	47	8,604	
48 Liquors, malt.	48	2,260	31	133	261	8	1,857	1,848	7	2	1,830	1,821	7	2	.....	13,368	
49 Lumber and timber products.	98	3,609	103	94	130	34	3,248	3,050	75	114	3,557	3,349	82	119	7	7,872	
50 Marble and stone work.	98	1,869	127	48	64	11	1,619	1,606	10	3	1,659	1,646	10	3	.....	2,662	
51 Mattresses and spring beds.	38	408	37	12	35	15	309	231	69	9	326	244	73	9	.....	471	
52 Millinery and lace goods.	90	3,164	124	51	133	86	2,770	429	2,213	128	2,830	437	2,262	31	100	370	
53 Musical instruments, pianos and organs and materials.	14	501	13	16	11	3	458	411	11	36	488	438	12	38	.....	361	
54 Optical goods.	14	419	12	12	68	36	291	172	104	15	295	175	105	5	10	110	
55 Paint and varnish.	50	1,612	46	82	227	60	1,197	1,155	36	6	1,274	1,229	39	5	1	4,027	
56 Paper and wood pulp.	7	1,395	2	26	45	21	1,301	1,145	156	.....	1,315	1,158	157	.....	.....	10,645	
57 Paper goods, not elsewhere specified.	31	1,600	31	47	137	74	1,311	602	638	71	1,360	620	657	30	43	1,213	
58 Patent medicines and compounds and druggists' preparations.	174	3,175	153	128	516	238	2,140	918	1,166	56	2,243	962	1,222	24	35	2,012	
59 Photo-engraving.	16	546	15	26	80	28	397	384	12	1	397	384	12	1	.....	195	
60 Pottery, terra-cotta, and fire-clay products.	13	640	9	21	20	5	585	572	6	7	650	635	7	.....	.....	803	
61 Printing and publishing.	931	20,912	885	972	3,406	1,968	13,681	10,028	3,160	493	14,624	10,712	3,383	367	182	12,287	
62 Safes and vaults.	3	278	.....	8	24	1	245	243	.....	2	256	254	.....	2	.....	418	
63 Shoddy.	15	442	20	11	11	7	393	293	100	.....	405	302	.....	.....	.....	1,718	
64 Silk and silk goods, including throwsters.	32	3,348	29	68	150	45	3,056	1,008	1,855	193	3,322	1,096	1,033	80	130	2,156	
65 Slaughtering and meat packing.	81	1,430	110	39	138	34	1,109	1,101	8	.....	1,144	1,136	8	.....	.....	3,004	
66 Smelting and refining, not from the ore.	15	160	14	8	11	6	121	120	1	.....	139	138	1	.....	.....	208	
67 Soap.	32	1,059	40	15	143	62	799	611	151	37	767	587	145	25	10	1,520	
68 Steam packing.	15	351	12	23	99	24	193	170	20	3	237	208	25	4	.....	413	
69 Stoves and furnaces, including gas and oil stoves.	20	984	18	35	67	18	846	840	3	3	845	839	3	3	.....	891	
70 Tobacco manufactures.	496	7,634	528	127	361	73	6,545	3,096	3,266	183	7,152	3,380	3,572	21	179	891	
71 Umbrellas and canes.	31	1,297	31	29	54	17	1,166	700	420	46	1,215	724	437	42	12	1,342	
72 Wall paper.	4	504	.....	13	35	2	454	326	45	83	503	361	50	72	20	625	
73 Woolen, worsted, and felt goods, and wool hats.	131	20,073	150	255	388	105	10,177	8,073	0,282	1,822	19,873	8,371	9,623	799	1,080	33,428	
74 All other industries <sup>1</sup> .	1,331	48,909	1,420	1,427	4,095	975	40,992	34,187	5,780	1,025	46,571	33,829	6,589	739	414	97,447	

<sup>1</sup> All other industries embrace: Agricultural implements, 2; artificial stone, 8; artists' materials, 3; automobiles, including bodies and parts, 18; awnings, tents, and sails, 20; axle grease, 3; babbit metal and solder, 11; bags, other than paper, 4; bags, paper, 11; baking powders and yeast, 3; baskets, and rattan and willow ware, 17; belting and hose, woven and rubber, 3; bicycles, motorcycles, and parts, 7; billiard tables and materials, 3; blacking and cleansing and polishing preparations, 30; bluing, 8; bone, carbon, and lamp black, 2; butter, cheese, and condensed milk, 1; card cutting and designing, 16; carpets, rag, 13; carriages and sleds, children's, 2; cars and general shop construction and repairs by street-railroad companies, 3; cars, street-railroad, not including operations of railroad companies, 1; china decorating, 2; chocolate and cocoa products, 2; cloth, dials and straps, 4; corsets, 2; crucibles, 3; dairymen's, poultrymen's and apiculturists' supplies, 4; coffee and spice, roasting and grinding, 61; coffins, burial cases, and undertakers' goods, 8; coloring, 22; emery and other abrasive wheels, 2; enameling and japanning, 9; engravers' materials, 1; engraving and diesinking, 24; engraving, wood, 5; firearms and ammunition, 5; fire extinguishers, chemical, 1; flags, banners, regalia, society badges, and emblems, 23; flavoring extracts, 21; food preparations, 66; foundry supplies, 1; furnishing goods, reducing and refining, not from the ore, 5; grease and tallow, 13; grindstones, 1; haircloth, 9; hair work, 8; hammocks, 3; hand stamps and stencils and brands, 22; hat and cap materials, 5; hats, straw, 9; house-furnishing goods, not elsewhere specified, 17; ink, writing, 3; instruments, professional and scientific, 31; iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills, 8; iron and steel forgings, 9; iron and steel, nails and spikes, cut and wrought, including wire nails, not made in steel works

PITTSBURGH.

1 All industries	1,659	79,625	1,553	2,457	6,731	1,410	87,474	58,369	7,699	1,406	78,762	68,571	8,495	998	668	307,666
2 Boxes, fancy and paper.	7	237	7	9	1	6	214	53	129	32	235	58	142	4	31	165
3 Brass and bronze products.	12	740	14	23	52	22	629	592	30	7	705	748	38	3	6	2,766
4 Bread and other bakery products.	248	2,791	204	46	396	76	2,009	1,282	595	132	2,108	1,346	623	22	117	2,222
5 Brick and tile.	17	457	17	19	10	4	407	395	12	.....	458	444	14	.....	.....	2,614
6 Brooms.	6	60	9	5	.....	.....	45	43	1	.....	68	65	1	.....	.....	65
7 Brushes.	3	71	1	5	5	5	55	39	14	2	51	36	13	.....	.....	100
8 Canning and preserving.	11	3,073	14	70	1,084	195	1,710	891	812	7	1,658	863	788	1	2	1,811
9 Carriages and wagons and materials.	28	358	30	19	10	1	298	297	1	.....	279	278	1	.....	.....	726
10 Cars and general shop construction and repairs by steam-railroad companies.	7	4,827	.....	226	281	7	4,313	4,278	26	9	4,849	4,809	31	9	.....	9,898
11 Chemicals.	3	62	.....	7	5	2	48	43	.....	.....	45	45	.....	.....	.....	260
12 Clothing, men's, including shirts.	24	1,011	43	12	77	13	866	171	690	5	965	190	769	2	4	340
13 Clothing, women's.	5	72	6	7	5	1	60	4	56	.....	66	4	62	.....	.....	13
14 Confectionery.	16	713	7	19	58	16	613	183	397	33	806	240	522	4	40	649
15 Cooperage and wooden goods, not elsewhere specified.	12	202	13	9	9	3	168	158	.....	10	198	186	.....	.....	.....	144
16 Copper, tin, and sheet-iron products.	48	608	51	42	28	16	471	395	51	25	539	452	59	15	13	349



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

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.				Primary horse-power.
		Total.	Proprietors, superintendents, and managers.	Clerks.		Wage earners (average number).			Total.	16 and over.		Under 16.				
				Male.	Female.	Total.	Male.	Female.		Under 16.	Male.	Female.	Male.	Female.		
															16 and over.	
17 Cutlery and tools, not elsewhere specified...	16	743	20	21	29	9	664	619	36	9	695	648	38	9	1,238	
18 Electrical machinery, apparatus, and supplies.	13	1,012	8	41	75	26	862	589	265	8	946	647	290	8	1,640	
19 Foundry and machine-shop products.....	155	9,742	81	390	907	149	8,215	8,009	140	66	10,100	9,843	175	59	18,311	
20 Furniture and refrigerators.....	11	373	12	20	19	7	316	299	12	4	283	269	11	3	60,768	
21 Gas and electric fixtures and lamps and reflectors.	16	302	16	24	21	8	233	121	106	6	311	161	142	4	629	
22 Glass.....	9	1,263	6	29	45	12	1,171	877	93	201	1,703	1,276	134	258	915	
23 Ice, manufactured.....	15	268	2	22	42	6	106	195	1	1	176	175	1	35	6,384	
24 Iron and steel, blast furnaces.....	6	1,749	75	259	32	1,383	1,374	1,374	9	1,840	1,828	12	12	50,768		
25 Iron and steel, steel works and rolling mills.	25	25,341	436	1,173	82	23,560	23,065	236	259	27,887	27,294	269	254	156,512		
26 Jewelry.....	6	96	9	2	3	5	77	64	10	3	77	64	10	3	19	
27 Leather goods.....	12	154	13	9	6	2	124	107	16	1	125	108	16	1	79	
28 Leather, tanned, curried, and finished.....	6	273	2	14	11	2	244	243	1	1	234	233	1	1	846	
29 Liquors, malt.....	12	894	24	95	1	873	872	1	1	807	806	1	1	6,591		
30 Lumber and timber products.....	40	780	46	35	47	7	645	616	1	28	740	707	1	32	2,836	
31 Marble and stone work.....	25	348	30	14	12	7	285	293	2	2	323	321	2	2	709	
32 Mattresses and spring beds.....	6	256	5	9	15	4	223	175	44	4	252	197	50	5	261	
33 Paint and varnish.....	16	362	12	29	53	16	252	233	18	1	240	222	17	1	1,760	
34 Patent medicines and compounds and druggists' preparations.	31	214	25	22	41	12	114	86	40	2	100	58	40	2	263	
35 Photo-engraving.....	6	109	6	14	8	4	77	69	4	4	78	70	4	4	71	
36 Pottery, terra-cotta and fire-clay products..	3	337	8	6	3	3	320	313	7	1	335	328	7	1	850	
37 Printing and publishing.....	254	4,216	255	223	752	181	2,805	2,104	614	87	2,896	2,173	634	82	4,173	
38 Shipbuilding, including boat building.....	4	169	4	14	7	144	144	144	1	1	115	115	1	1	580	
39 Slaughtering and meat packing.....	14	1,063	7	36	164	15	841	832	7	2	886	877	7	2	3,391	
40 Soap.....	7	469	12	6	80	123	243	114	128	1	264	124	139	1	488	
41 Stoves and furnaces, including gas and oil stoves.	9	285	8	12	25	7	233	216	14	3	258	239	16	3	256	
42 Surgical appliances and artificial limbs.....	9	60	13	4	6	1	42	41	1	1	41	40	1	1	31	
43 Tobacco manufactures.....	215	3,456	223	54	64	50	3,065	742	2,075	248	3,161	765	2,140	10	213	
44 All other industries <sup>1</sup> .....	271	9,903	262	359	744	176	8,362	7,158	1,012	102	10,689	9,159	1,291	106	25,628	

<sup>1</sup> All other industries embrace: Artificial flowers and feathers and plumes, 1; artificial stone, 1; automobiles, including bodies and parts, 1; awnings, tents, and sails, 7; babbitt metal and solder, 2; baking powders and yeast, 1; baskets, and rattan and willow ware, 3; belting and hose, leather, 1; billiard tables and materials, 1; bluing 1; boots and shoes, including cut stock and findings, 1; boxes, cigar, 3; butter, cheese, and condensed milk, 2; calcium lights, 1; card cutting and designing, 1; carpets, rag, 2; cars and general shop construction and repairs by street-railroad companies, 1; cars, steam-railroad, not including operations of railroad companies, 1; chocolate and cocoa products, 1; cleansing and polishing preparations, 4; cloth, sponging and refinishing, 1; coffee and spice, roasting and grinding, 4; coffins, burial cases, and undertaker's goods 3; coke, 2; cork, cutting, 1; crucibles, 1; electroplating, 6; engraving and diesinking, 1; engraving, wood, 3; fancy articles, not elsewhere specified, 2; fertilizers, 1; fire extinguishers, chemical, 1; fireworks, 1; flags, banners, regalia, society badges, and emblems, 1; flavoring extracts, 5; flour-mill and gristmill products, 1; food preparations, 12; foundry supplies, 1; fur goods, 6; furnishing goods, men's, 3; galvanizing, 3; gas, illuminating and heating, 3; glass, cutting, staining, and ornamenting, 22; gloves and mittens, leather, 1; grease and tallow, 2; hair work, 2; hand stamps and stencils and brands, 3; hats and caps, other than felt, straw, and wool, 2;

READING.

1 All industries.....	482	26,407	517	485	1,020	240	24,145	18,610	6,213	1,322	26,484	18,499	6,576	602	807	43,193
2 Automobiles, including bodies and parts...	5	398	2	10	27	4	355	355	.....	.....	393	393	.....	.....	.....	235
3 Boxes, cigar.....	4	110	4	4	1	2	108	47	54	7	112	49	56	7	.....	89
4 Boxes, fancy and paper.....	6	164	10	6	3	145	45	88	12	159	49	97	4	9	.....	115
5 Brass and bronze products.....	8	79	9	6	5	2	57	55	1	78	76	1	1	.....	.....	72
6 Bread and other bakery products.....	55	447	68	4	21	12	342	304	15	23	370	329	16	20	5	232
7 Brooms <sup>1</sup> .....	6	61	8	.....	5	1	47	45	2	.....	47	45	2	.....	.....	26
8 Carriages and wagons and materials.....	8	314	11	5	4	4	290	289	1	.....	279	278	1	.....	.....	224
9 Cars and general shop construction and repairs by steam-railroad companies.	6	2,765	60	77	.....	.....	2,628	2,628	.....	.....	3,001	3,001	.....	.....	.....	5,752
10 Clothing, men's, including shirts.....	10	608	20	13	38	3	534	125	384	25	564	132	406	14	12	118
11 Clothing, women's.....	7	161	9	1	.....	1	150	5	141	4	161	6	151	1	3	46
12 Confectionery.....	10	507	13	15	74	20	385	151	207	27	538	211	289	11	27	388
13 Copper, tin, and sheet-iron products.....	3	15	2	.....	13	.....	13	13	.....	.....	13	13	.....	.....	.....	3
14 Dyeing and finishing textiles.....	4	298	1	9	10	6	272	218	41	13	298	239	45	12	2	625
15 Foundry and machine-shop products.....	37	3,079	26	57	134	30	2,832	2,577	136	119	3,220	2,929	156	102	33	3,389
16 Hats, fur-felt.....	5	870	6	20	6	2	836	562	211	63	853	573	215	47	18	87
17 Hosiery and knit goods.....	38	4,521	30	41	33	21	4,396	642	3,200	554	4,497	655	3,275	111	456	2,097
18 Iron and steel, steel works and rolling mills.	6	3,218	29	151	27	3,011	2,992	2,992	2	19	3,481	3,459	22	.....	.....	11,209
19 Leather goods.....	5	89	6	5	2	2	74	61	2	11	80	66	2	11	1	84
20 Liquors, malt.....	4	153	4	10	34	.....	105	105	.....	.....	104	104	.....	.....	.....	1,555
21 Lumber and timber products.....	6	246	1	9	11	3	222	210	.....	12	243	230	.....	13	.....	722
22 Marble and stone work.....	9	110	16	1	2	.....	91	91	.....	.....	94	94	.....	.....	.....	179
23 Optical goods.....	3	288	2	7	4	2	273	104	123	46	270	103	122	15	30	170
24 Patent medicines and compounds and druggists' preparations.	13	32	16	1	.....	.....	15	9	6	.....	18	11	7	.....	.....	10
25 Printing and publishing.....	37	452	42	13	21	.....	270	220	46	10	331	264	55	11	1	355
26 Tobacco manufactures.....	81	1,539	107	11	53	15	1,403	714	685	4	1,504	766	734	.....	4	49
27 Woolen, worsted, and felt goods, and wool hats.	5	543	12	19	16	2	494	308	89	37	426	317	77	15	17	628
28 All other industries <sup>2</sup> .....	101	5,281	92	130	211	57	4,791	3,675	781	335	5,350	4,107	860	185	180	14,674

<sup>1</sup> Includes two establishments engaged in the manufacture of brushes.

<sup>2</sup> All other industries embrace: Bags, paper, 1; baskets, and rattan and willow ware, 2; bicycles, motorcycles, and parts, 1; boots and shoes, including cut stock and findings, 3; butter, cheese, and condensed milk, 2; carpets, rag, 3; cars and general shop construction and repairs by street-railroad companies, 1; coffee and spice, roasting and grinding, 4; cooperage and wooden goods, not elsewhere specified, 1; cordage and twine and jute and linen goods, 1; cotton goods, including cotton small wares, 1; cutlery and tools, not elsewhere specified, 5; flags, banners, regalia, society badges, and emblems, 2; flour-mill and gristmill products, 2; food preparations, 2; furniture and refrigerators, 2; gas and electric fixtures and lamps and reflectors, 2; gas, illuminating and heating, 2; glass, cutting, staining, and ornamenting, 1; hand stamps and stencils



MANUFACTURES—PENNSYLVANIA.

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

SCRANTON.

INDUSTRY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.				Primary horse-power.
		Total.	Pro- pri- etors and firm mem- bers.	Sala- ried offi- cers, super- intend- ents, and man- agers.	Clerks.		Wage earners (average number).			Total.	16 and over.		Under 16.			
					Male.	Fe- male.	Total.	16 and over.			Un- der 16.	Male.	Fe- male.	Male.	Fe- male.	
								Male.	Fe- male.							
1 All industries.....	293	14,242	270	316	603	202	12,851	6,756	5,068	1,027	13,180	6,963	5,179	318	720	20,564
2 Bread and other bakery products.....	38	322	30	10	19	13	244	193	46	5	46	36	9	1	.....	200
3 Brick and tile.....	8	74	1	6	1	1	65	65	.....	.....	47	47	.....	.....	.....	525
4 Carriages and wagons and materials.....	13	230	15	8	5	2	197	196	.....	1	195	194	.....	1	.....	294
5 Clothing, women's.....	7	446	9	5	3	8	421	40	356	25	484	46	409	1	28	103
6 Copper, tin, and sheet-iron products.....	8	60	8	1	2	1	48	48	.....	.....	47	47	.....	.....	.....	6
7 Flour-mill and gristmill products.....	4	35	5	3	5	3	19	19	.....	.....	16	16	.....	.....	.....	268
8 Foundry and machine-shop products.....	20	1,286	16	43	118	26	1,083	1,080	3	.....	1,256	1,252	4	.....	.....	2,467
9 Gas and electric fixtures and lamps and re- flectors.....	3	27	2	.....	.....	.....	23	22	1	.....	26	25	1	.....	.....	19
10 Liquors, malt.....	5	341	.....	15	42	3	281	281	.....	.....	278	278	.....	.....	.....	1,172
11 Lumber and timber products.....	9	432	9	18	12	4	389	387	.....	2	452	450	.....	2	.....	737
12 Patent medicines and compounds and druggists' preparations.....	10	96	8	5	5	18	60	4	56	.....	81	5	76	.....	.....	1
13 Printing and publishing.....	48	800	50	48	90	24	588	425	154	9	680	401	178	11	.....	700
14 Silk and silk goods, including throwsters...	15	3,908	9	33	36	16	3,814	378	2,792	644	3,830	378	2,805	154	403	4,738
15 Tobacco manufactures.....	28	339	32	13	27	3	264	62	182	20	269	63	185	1	20	135
16 All other industries <sup>1</sup> .....	82	5,846	67	106	238	80	5,355	3,556	1,478	321	5,473	3,635	1,512	147	179	9,200

<sup>1</sup> All other industries embrace: Artists' materials, 1; awnings, tents, and sails, 3; bluing, 1; boots and shoes, including cut stock and findings, 1; brass and bronze prod- ucts, 1; brushes, 1; buttons, 1; canning and preserving, 2; carpets, rag, 1; cars and general shop construction and repairs by steam-railroad companies, 2; cars and general shop construction and repairs by street-railroad companies, 1; clothing, men's, including shirts, 2; coffins, burial cases, and undertakers' goods, 1; confectionery, 2; cotton goods, including cotton small wares, 1; cutlery and tools, not elsewhere specified, 1; dentists' materials, 1; dyeing and finishing textiles, 1; electroplating, 2; emery and other abrasive wheels, 1; engraving and diesinking, 1; flavoring extracts, 2; fur goods, 1; gas, illuminating and heating, 1; hair work, 1; horseshoes, not made in steel works or rolling

WILKES - BARRE.

1 All industries.....	176	8,329	177	180	370	49	7,553	4,943	2,062	548	7,546	4,900	2,095	221	330	12,109
2 Bread and other bakery products.....	28	254	31	10	16	1	190	176	13	7	204	183	14	7	.....	126
3 Brick and tile.....	3	85	3	4	2	1	75	75	.....	.....	70	70	.....	.....	.....	180
4 Clothing, women's.....	3	322	2	2	15	4	299	24	235	40	279	22	220	.....	37	46
5 Flour-mill and gristmill products.....	4	27	3	3	3	.....	18	18	.....	.....	18	18	.....	.....	.....	270
6 Furniture and refrigerators.....	4	84	5	3	5	1	70	66	2	2	71	67	2	2	.....	56
7 Printing and publishing.....	31	462	36	27	63	9	327	284	32	11	336	292	33	10	1	320
8 Silk and silk goods, including throwsters...	6	1,113	.....	8	17	5	1,083	135	771	177	1,162	145	828	36	153	1,866
9 Tobacco manufactures.....	13	36	14	.....	.....	.....	22	18	4	.....	22	18	4	.....	.....	135
10 All other industries <sup>1</sup> .....	84	5,946	83	123	249	28	5,463	4,147	1,005	311	5,384	4,085	994	166	130	9,235

<sup>1</sup> All other industries embrace: Artificial stone, 1; boots and shoes, including cut stock and findings, 1; brass and bronze products, 1; carriages and wagons and mat- erials, 7; cars and general shop construction and repairs by steam-railroad companies, 2; clothing, men's, including shirts, 2; coffee and spice, roasting and grinding, 1; cop- per, tin, and sheet-iron products, 2; corsets, 1 cotton goods, including cotton small wares, 2; cutlery and tools, not elsewhere specified, 4; electrical machinery, apparatus, and supplies, 2; firearms and ammunition, 2; flavoring extracts, 1; food preparations, 1; foundry and machine-shop products, 7; gas, illuminating and heating, 1; grease and tallow, 1; hats and caps, other than felt, straw, and wool, 2; ice, manufactured, 1; instruments, professional and scientific, 1; jewelry, 1; liquors, malt, 3; locomotives,



MANUFACTURES—PENNSYLVANIA.

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

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

SCRANTON.

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 \$22,494,083	\$23,402,692	\$719,456	\$617,959	\$5,146,237	\$415,704	\$13,886,141	\$171,374	\$512,633	\$405,033	\$1,528,155	\$26,384,755	\$12,082,910
2 412,407	685,628	11,346	19,689	118,218	11,402	467,909	7,698	1,640	.....	47,657	758,857	279,486
3 165,656	55,673	4,542	1,020	26,023	5,432	9,860	.....	34	.....	8,762	69,196	43,904
4 534,320	283,868	10,345	4,837	102,740	9,563	140,588	3,642	1,468	860	10,015	331,260	181,090
5 269,868	471,890	7,688	7,050	127,048	2,837	282,531	8,465	139	831	33,909	549,583	284,215
6 40,361	59,105	1,300	1,038	22,098	379	30,429	2,134	35	.....	1,642	74,517	43,709
7 128,836	208,058	1,640	4,249	6,344	1,426	187,365	1,088	872	.....	5,074	226,523	37,732
8 5,462,992	1,949,987	94,693	132,913	567,115	54,782	707,948	4,128	20,043	55,200	222,865	2,218,214	1,365,484
9 49,009	30,787	2,600	.....	10,174	951	15,474	30	145	.....	1,413	33,014	16,589
10 2,129,811	1,519,670	100,700	62,903	214,352	28,285	480,809	.....	348,294	2,699	281,628	1,946,913	1,437,819
11 1,095,031	801,247	29,300	10,783	212,021	9,132	694,147	2,284	4,117	.....	20,463	932,561	329,282
12 72,103	148,981	8,100	9,480	16,784	141	36,417	2,705	32	90	75,282	197,342	160,784
13 1,451,741	1,136,017	97,180	66,124	353,730	14,518	480,179	20,797	1,537	103,865	48,587	1,309,301	864,004
14 2,980,535	6,173,277	84,401	36,579	975,870	64,818	4,575,567	9,931	14,095	230,751	181,265	6,630,848	1,990,463
15 549,232	593,224	18,058	21,693	87,622	1,778	286,604	5,315	85,601	.....	56,553	637,611	349,229
16 7,147,691	9,225,771	247,262	239,851	2,305,198	210,260	5,550,244	103,107	84,572	11,237	524,040	10,479,015	4,718,511

mills, 1; hosiery and knit goods, 3; iron and steel, steel works and rolling mills, 1; iron and steel forgings, 1; labels and tags, 1; leather goods, 2; lime, 1; locomotives, not made by railroad companies, 1; looking-glass and picture frames, 3; marble and stone work, 8; mattresses and spring beds, 4; millinery and lace goods, 1; mineral and soda waters, 8; musical instruments, pianos and organs and materials, 1; optical goods, 1; paint and varnish, 1; scales and balances, 1; slaughtering and meat packing, 2; soap, 1; statuary and art goods, 1; stereotyping and electrotyping, 1; stoves and furnaces, including gas and oil stoves, 1; surgical appliances and artificial limbs, 1; umbrellas and canes, 1; upholstering materials, 1; wall plaster, 1.

WILKES-BARRE.

1 \$16,010,724	\$12,248,106	\$366,684	\$375,994	\$3,323,385	\$210,762	\$6,222,089	\$45,481	\$342,900	\$112,431	\$1,248,380	\$13,525,957	\$7,093,106
2 278,191	606,908	12,326	14,316	109,071	10,228	407,532	7,029	1,021	.....	43,585	660,353	242,593
3 36,500	59,123	2,879	1,250	30,390	6,326	4,752	1,500	107	.....	2,919	63,242	52,164
4 832,556	376,020	7,200	20,105	76,499	876	213,050	1,750	1,081	.....	50,549	382,717	169,791
5 146,778	319,305	1,929	2,373	9,690	1,560	291,655	668	499	.....	10,931	331,740	38,525
6 99,690	99,009	3,280	4,115	20,351	1,136	31,409	420	380	.....	1,918	79,747	47,202
7 596,838	596,133	43,817	51,153	206,160	10,722	195,694	12,799	1,407	13,643	61,328	765,916	559,500
8 1,389,913	836,747	16,530	10,384	246,779	20,894	385,651	5,400	3,327	87,818	109,964	1,065,554	659,099
9 35,873	35,853	.....	.....	11,392	22	16,247	1,302	3,853	.....	3,537	39,709	23,440
10 13,094,385	9,308,008	279,223	266,298	2,607,143	158,998	4,677,099	13,803	330,825	10,970	963,649	10,136,979	5,800,882

not made by railroad companies, 1; looking-glass and picture frames, 1; lumber and timber products, 6; marble and stone work, 6; mattresses and spring beds, 2; millinery and lace goods, 1; mineral and soda waters, 6; patent medicines and compounds and druggists' preparations, 2; shipbuilding, including boat building, 1; signs and advertising novelties, 1; slaughtering and meat packing, 1; soap, 1; steam packing, 1; stoves and furnaces, including gas and oil stoves, 1; surgical appliances and artificial limbs, 1; wire, 1; wirework, including wire rope and cable, 1.

MANUFACTURES—PENNSYLVANIA.

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

CITY OR BOROUGH.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.						Primary horse-power
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).			Total.	16 and over.		Under 16.					
					Male.	Female.	Total.	16 and over.			Under 16.	Male.	Female.	Male.	Female.			
								Male.	Female.									
1 BEAVER FALLS.....	44	2,456	34	76	120	37	2,180	1,980	137	63	2,570	2,332	163	66	9	5,141		
2 BETHLEHEM.....	49	1,727	54	36	42	12	1,583	879	546	158	1,677	930	579	72	96	3,688		
3 BRADDOCK.....	41	1,218	36	48	83	11	1,040	1,005	7	28	1,208	1,167	8	33	9	7,332		
4 BRADFORD.....	82	1,650	104	73	120	35	1,318	1,123	162	33	1,443	1,229	177	26	11	3,850		
5 BUTLER.....	61	3,344	102	99	238	32	2,823	2,736	62	25	3,820	3,703	82	31	4	10,406		
6 CARBONDALE.....	34	1,636	29	37	51	16	1,503	1,220	235	48	1,455	1,182	227	10	36	1,407		
7 CARLISLE.....	50	1,590	148	34	50	24	1,334	835	426	73	1,402	915	466	38	43	1,735		
8 CARNEGIE.....	19	509	17	17	47	6	422	410	10	2	530	515	13	2	2	1,245		
9 CHAMBERSBURG.....	57	1,631	56	68	114	29	1,304	1,165	149	50	1,499	1,281	163	21	34	3,120		
10 CHESTER.....	128	7,867	102	243	436	100	6,986	5,260	1,488	238	7,420	5,587	1,578	126	129	17,131		
11 COLUMBIA.....	47	2,944	45	48	71	7	2,773	1,966	643	164	3,039	2,155	704	93	87	6,589		
12 CONNELLSVILLE.....	39	1,269	28	52	145	9	1,035	1,005	27	3	1,223	1,189	31	3	7	4,526		
13 DUBOIS.....	37	1,210	37	54	93	11	1,015	916	91	8	1,016	916	92	1	7	3,199		
14 DUNMORE.....	18	1,423	16	37	51	11	1,308	1,082	170	56	1,358	1,123	177	31	27	1,268		
15 EASTON.....	126	3,769	138	75	104	64	3,388	2,392	881	115	3,607	2,512	924	89	82	5,965		
16 GREENSBURG.....	47	393	50	18	10	5	310	281	27	2	338	307	20	2	2	738		
17 HAZLETON.....	77	2,998	84	57	134	41	2,682	995	1,357	330	2,883	1,699	1,458	135	221	3,112		
18 HOMESTEAD.....	26	248	17	19	28	13	171	154	13	4	182	173	15	4	4	890		
19 LANCASTER.....	306	8,981	317	187	401	119	7,957	4,719	2,745	493	8,600	5,104	2,966	233	297	10,037		
20 LEBANON.....	109	6,077	105	90	229	53	5,591	4,288	1,046	267	6,076	4,669	1,135	113	168	21,717		
21 MCKEES ROCKS.....	31	3,903	21	50	211	30	3,591	3,508	54	29	4,231	4,135	61	30	5	8,872		
22 MCKESSPORT.....	68	9,093	58	148	569	72	8,246	7,990	206	50	9,356	9,062	238	49	7	49,935		
23 MANAY CITY.....	33	666	44	9	19	4	590	443	398	49	608	147	410	3	48	763		
24 MEADVILLE.....	62	2,506	54	97	150	157	2,048	1,655	379	14	2,035	1,684	387	7	7	2,639		
25 MOUNT CARMEL.....	20	651	28	16	5	2	600	657	364	149	614	90	372	3	149	322		
26 NANTICOKE.....	17	378	15	9	4	2	348	75	179	94	347	75	178	6	88	447		
27 NEW CASTLE.....	82	6,063	73	103	472	76	5,339	5,143	160	36	5,972	5,753	179	38	2	64,007		
28 NORRISTOWN.....	111	4,223	104	123	103	75	3,818	1,940	1,676	202	4,051	2,061	1,774	109	107	5,713		
29 OIL CITY.....	34	1,593	44	85	109	17	1,338	1,311	24	3	1,529	1,498	27	2	2	2,407		
30 PHOENIXVILLE.....	31	2,822	37	47	115	24	2,599	1,934	535	80	2,905	2,161	654	51	39	15,152		
31 PITTSBURGH.....	40	942	39	29	61	21	792	351	390	51	825	365	409	19	32	2,133		
32 PLYMOUTH.....	23	980	21	18	31	8	908	285	518	105	859	267	485	9	89	1,412		
33 POTTSVILLE.....	78	4,123	84	98	247	44	3,050	2,968	602	80	4,179	3,392	680	58	43	17,415		
34 POTTSVILLE.....	91	8,342	100	125	212	33	2,872	2,085	629	158	3,066	2,228	609	64	105	15,262		
35 SHAMOKIN.....	39	1,744	34	31	47	9	1,623	359	1,016	248	1,717	372	1,083	34	228	1,862		
36 SHARON.....	45	3,795	51	121	272	35	3,316	3,293	20	3	4,798	4,706	29	3	3	27,462		
37 SHENANDOAH.....	29	301	24	18	14	3	242	158	76	8	287	158	90	2	7	1,382		
38 SOUTH BETHLEHEM.....	49	8,460	65	81	325	13	7,985	7,003	894	88	9,069	8,421	1,129	23	86	31,662		
39 SUNBURY.....	39	2,339	42	102	107	19	2,069	1,585	430	54	2,142	1,645	442	29	26	2,835		
40 UNIONTOWN.....	41	492	38	25	91	3	335	325	4	6	390	1,378	5	6	1	1,620		
41 WARREN.....	72	1,767	70	74	88	46	1,489	1,295	179	15	1,587	1,350	191	14	2	3,960		
42 WASHINGTON.....	75	2,387	68	71	82	40	2,126	1,937	125	64	2,159	1,966	129	54	10	4,216		
43 WEST CHESTER.....	35	1,113	35	29	90	43	916	829	81	6	891	805	80	2	4	634		
44 WILKINSBURG.....	24	231	21	8	9	8	185	181	4	4	227	222	5	5	5	1,016		
45 WILLIAMSPORT.....	169	6,534	139	189	375	190	5,041	4,103	1,309	169	6,079	4,490	1,406	131	52	11,713		
46 YORK.....	218	11,530	221	284	439	94	10,492	7,829	2,263	400	11,268	8,408	2,430	218	212	15,344		

MANUFACTURES—PENNSYLVANIA.

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

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

Capital.	EXPENSES.										Value of products.	Value added by manufacture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$7,603,172	\$5,064,607	\$149,498	\$137,197	\$1,217,864	\$123,586	\$2,891,573	\$3,720	\$50,171	\$379	\$490,619	\$6,400,338	\$3,385,179
2 3,300,303	3,283,113	57,769	47,148	593,366	44,493	2,285,949	3,103	49,119	74,649	127,517	3,711,602	1,381,160
3 5,368,886	4,629,078	75,633	84,717	784,865	134,014	3,213,348	10,938	22,017	.....	303,546	5,094,382	1,747,020
4 4,225,816	3,480,423	110,378	118,164	654,619	110,508	2,331,830	6,515	16,805	3,641	127,963	3,886,538	1,444,200
5 16,768,720	10,037,837	194,265	263,176	1,571,309	201,264	7,892,362	4,707	46,208	11,609	352,937	11,058,353	3,464,727
6 2,307,379	2,228,578	74,808	47,886	635,717	31,322	1,221,799	7,807	29,084	69,394	110,761	2,523,387	1,270,268
7 2,054,048	2,219,052	84,627	58,960	510,869	30,120	1,400,635	7,282	2,572	2,162	121,925	2,495,710	1,066,055
8 2,371,255	2,908,078	46,966	46,648	275,321	31,074	2,409,419	3,504	40,340	.....	55,106	3,099,445	658,352
9 3,483,712	2,135,926	105,239	71,428	599,184	48,626	1,120,981	5,621	9,638	4,746	170,463	2,456,035	628,428
10 23,928,262	17,037,434	573,759	396,742	3,392,003	728,471	10,847,917	33,502	104,290	4,742	978,008	19,378,314	7,790,626
11 3,590,195	4,191,244	64,319	65,309	1,106,641	191,712	2,479,311	5,852	11,031	90,018	177,051	4,807,068	2,136,045
12 3,274,771	1,798,882	69,410	124,097	576,450	45,622	771,683	7,042	75,913	.....	128,656	1,970,936	1,153,631
13 2,393,906	1,828,048	80,416	52,594	506,588	35,090	890,692	4,000	51,270	400	206,998	1,890,168	964,386
14 938,399	1,716,085	85,695	47,213	602,570	25,900	644,520	25,512	67,648	24,371	192,651	1,850,654	1,180,228
15 7,887,412	5,627,849	145,581	100,659	1,523,797	143,471	3,281,001	26,031	87,815	136,789	242,725	6,915,345	3,490,873
16 937,674	595,268	22,532	9,800	163,376	24,104	306,336	9,656	13,156	360	45,948	726,268	395,828
17 5,208,544	4,271,721	122,865	126,887	939,936	62,052	2,639,930	7,397	74,740	40,263	257,651	4,707,025	2,005,043
18 1,272,845	658,990	24,103	25,250	110,765	12,317	309,623	6,088	11,969	2,076	56,799	669,196	337,256
19 17,442,636	14,152,001	337,347	475,694	3,235,975	246,565	8,594,240	48,929	334,012	76,211	803,028	15,978,666	7,137,861
20 12,276,811	10,295,061	183,423	225,906	2,440,505	2,234,358	3,483,926	60,058	55,003	.....	600,790	11,429,063	4,051,613
21 10,328,079	8,467,279	120,115	214,619	2,309,492	274,663	5,132,183	8,192	45,085	2,546	360,384	9,786,828	4,379,982
22 43,432,069	35,473,003	841,043	549,720	0,030,799	2,867,862	24,427,883	11,770	410,848	2,443	830,639	42,404,567	15,198,832
23 983,610	717,866	7,076	11,890	166,231	17,247	366,057	4,969	52,293	442	91,461	867,576	484,672
24 2,726,110	3,324,266	140,793	196,567	973,887	62,874	1,662,935	8,246	4,871	.....	284,093	3,558,925	1,843,116
25 484,663	652,143	15,590	3,716	143,898	5,950	410,486	1,080	2,456	28,863	40,104	785,391	368,955
26 420,412	402,830	20,104	3,700	120,232	5,777	174,415	2,235	28,981	1,660	45,726	423,093	242,901
27 27,028,455	36,572,210	255,465	497,032	3,870,179	3,870,043	27,604,047	12,693	116,824	12,876	832,451	38,037,522	7,063,432
28 6,883,733	6,009,126	220,077	152,063	1,553,004	116,815	3,157,384	38,424	214,184	108,133	443,052	7,413,211	4,139,012
29 8,847,437	3,646,547	122,084	104,417	903,422	97,273	2,202,428	5,276	32,769	.....	177,888	4,121,892	1,822,191
30 8,764,839	5,355,262	90,871	144,254	1,179,735	481,197	3,235,726	9,990	26,063	16,009	170,817	5,876,154	2,159,231
31 2,336,048	1,739,559	37,426	54,043	315,785	34,433	1,032,070	2,334	90,159	43,883	128,826	1,969,452	902,949
32 2,644,133	1,076,039	22,069	27,180	280,023	27,761	676,173	3,902	2,325	.....	36,600	1,178,606	474,672
33 9,901,310	11,740,401	237,630	266,234	1,721,575	1,401,741	7,897,147	45,275	41,222	8,959	436,618	12,565,196	3,500,308
34 13,981,695	8,424,672	156,311	184,750	1,326,391	285,291	5,641,431	18,690	155,742	21,944	634,052	9,138,122	3,211,400
35 3,227,104	2,998,314	58,234	63,022	498,902	27,448	2,101,320	4,410	28,138	117,302	99,538	3,544,095	1,415,327
36 14,649,393	9,824,160	211,571	243,028	2,000,291	716,021	5,967,021	3,896	87,469	614	594,255	9,880,072	3,197,630
37 1,051,238	752,108	27,094	10,283	133,919	15,775	319,807	3,149	113,076	700	128,305	887,503	551,921
38 41,120,579	24,370,313	245,093	358,893	4,973,065	3,110,941	12,855,732	17,847	215,561	853	2,592,328	26,417,193	10,450,430
39 4,767,882	4,239,748	183,344	113,860	1,117,620	56,742	2,171,640	3,867	18,588	381,126	193,052	4,450,159	2,221,768
40 1,685,736	1,084,865	32,750	129,823	224,588	24,152	354,516	6,464	153,305	4,490	154,798	1,340,865	668,197
41 5,795,846	5,222,356	149,792	115,077	835,090	182,292	3,493,786	7,600	22,306	1,066	413,787	5,744,321	2,068,243
42 3,682,523	4,284,888	147,967	116,013	1,119,064	216,313	2,229,003	12,976	68,959	8,808	363,785	4,837,055	2,389,749
43 2,488,639	2,120,759	42,149	140,201	477,702	26,491	640,225	6,213	5,609	895	781,274	2,145,843	1,479,127
44 534,648	473,042	11,645	9,195	129,296	10,004	252,261	11,447	3,490	.....	45,704	538,217	275,952
45 14,070,147	11,720,412	375,667	392,403	2,526,621	209,022	6,856,703	27,686	58,372	243,456	1,036,452	13,347,943	6,283,218
46 22,418,626	16,692,482	605,434	527,384	4,438,233	282,411	8,583,082	58,876	222,829	180,887	1,793,346	18,022,400	9,756,907

# RHODE ISLAND.

## INDUSTRIES IN GENERAL.

General character of the state.—Rhode Island, with a gross area of 1,250 square miles, of which 197 represent water surface, is the smallest state in the Union. Its population in 1910 was 542,610, as compared with 428,556 in 1900 and 345,506 in 1890. It ranked thirty-eighth among the 49 states and territories as regards population in 1910 and thirty-fifth in 1900. Ninety-six and seven-tenths per cent of the entire population of the state resides in incorporated cities and towns having a population of 2,500 inhabitants or over, as against 95.1 per cent in 1900.

The state has nine cities and towns having a population of over 10,000: Providence, with a population of 224,326; Pawtucket, with 51,622; Woonsocket, with 38,125; Newport, with 27,149; Warwick, with 26,629; Central Falls, with 22,754; Cranston, with 21,107; East Providence, with 15,808; and Cumberland, with 10,107. In density of population Rhode Island far outranks all other states in the Union, having 508.5 persons per square mile, the corresponding figure for 1900 being 400.7. The transportation facilities are excellent, Providence, the largest city, being one of the most important seaports in New England, which, together with the fact that the state is traversed by the main line of the most important railway system in

New England, gives it direct and adequate connection with the other parts of the country.

Importance and growth of manufactures.—Rhode Island is preeminently a manufacturing community, and the growth and concentration of population in the state have been closely related to the increase in the importance of its manufacturing industries. During 1849 an average of 20,967 wage earners, representing 14.2 per cent of the total population, were employed in manufactures, while in 1909 an average of 113,538 wage earners, or 20.9 per cent of the total population, were so engaged. During this period of 60 years the gross value of products per capita increased from \$150 in 1849 to \$517 in 1909. From 1849 to 1904, however, the proportion which the manufactures of the state represent of the total value of the products of manufacturing industries in the United States decreased somewhat. This proportion was 2.2 per cent in 1849 and 1.4 per cent in 1904; the proportion for 1909 is not yet available.

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 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.....	1,951	1,617	1,678	20.7	-3.6
Persons engaged in manufactures.....	122,641	104,299	( <sup>2</sup> )	17.6	-----
Proprietors and firm members.....	1,721	1,561	( <sup>2</sup> )	10.2	-----
Salaried employees.....	7,382	5,420	4,022	36.2	34.8
Wage earners (average number).....	113,538	97,318	88,197	16.7	10.3
Primary horsepower.....	226,740	182,608	153,619	24.2	18.9
Capital.....	\$290,901,000	\$215,901,000	\$176,902,000	34.7	22.0
Expenses.....	242,264,000	177,649,000	140,347,000	36.4	26.6
Services.....	65,811,000	50,154,000	41,296,000	31.2	21.4
Salaries.....	10,577,000	7,041,000	5,301,000	50.2	32.8
Wages.....	55,234,000	43,113,000	35,995,000	28.1	19.8
Materials.....	158,192,000	112,872,000	87,952,000	40.2	28.3
Miscellaneous.....	18,261,000	14,623,000	11,099,000	24.9	31.8
Value of products.....	280,344,000	202,110,000	165,550,000	38.7	22.1
Value added by manufacture (value of products less cost of materials).....	122,152,000	89,238,000	77,598,000	36.9	15.0

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

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

In 1909 the state of Rhode Island had 1,951 manufacturing establishments, which gave employment to an average of 122,641 persons during the year and paid out \$65,811,000 in salaries and wages. Of the persons employed, 113,538 were wage earners. These establishments turned out products to the value

of \$280,344,000, to produce which materials costing \$158,192,000 were consumed. The value added by manufacture was thus \$122,152,000, 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 Rhode Island 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 20.7 per cent and the average number of wage earners 16.7 per cent, while the value of products increased 38.7 per cent and the value added by manufacture 36.9 per cent. As pointed out in the Introduction, it would be improper to infer that manufactures increased in volume during the period 1904-1909 to the extent indicated by these figures regarding values, since the increase shown

is certainly due, in part, to the increase that has taken place in the prices of commodities.

It is a matter of interest to note that the percentages of increase shown for wages, value of products, and value added by manufacture are considerably larger than those for the number of establishments and average number of wage earners. The only decrease shown in the table is that in the number of establishments during the period 1899-1904, amounting to 3.6 per cent.

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.....	1,951	113,538	100.0	\$280,344,000	100.0	\$122,152,000	100.0	38.7	22.1	36.9	15.0
Woolen, worsted, and felt goods, and wool hats.....	88	24,924	22.0	74,600,000	26.6	23,575,000	19.3	41.7	36.1	41.1	21.1
Cotton goods, including cotton small wares.....	106	28,788	25.4	50,313,000	17.9	24,912,000	20.4	45.5	30.8	67.1	1.1
Jewelry.....	296	9,511	8.4	20,685,000	7.4	10,897,000	8.9	43.3	9.1	40.2	10.2
Foundry and machine-shop products.....	141	10,937	9.6	20,612,000	7.4	12,598,000	10.3	45.2	4.4	37.2	14.5
Electrical machinery, apparatus, and supplies.....	12	1,601	1.4	6,410,000	2.3	1,816,000	1.5	17.9	6.3	28.0	45.0
Silverware and plated ware.....	11	2,294	2.0	6,198,000	2.2	3,563,000	2.9	16.4	25.3	22.9	22.5
Silk and silk goods, including throwsters.....	13	1,685	1.5	4,584,000	1.6	1,399,000	1.1	79.3	95.0	62.3	74.8
Gold and silver, reducing and refining, not from the ore.....	15	82	0.1	4,442,000	1.6	271,000	0.2	4.2	22.3	-1.1	-20.8
Bread and other bakery products.....	187	1,055	0.9	3,937,000	1.4	1,466,000	1.2	28.9	41.7	19.2	33.7
Hosiery and knit goods.....	17	1,774	1.6	3,866,000	1.4	1,422,000	1.2	15.6	22.8	32.4	12.6
Printing and publishing.....	147	1,454	1.3	3,780,000	1.3	2,716,000	2.2	23.1	49.9	20.5	50.7
Liquors, malt.....	9	450	0.4	3,579,000	1.3	2,391,000	2.0	30.6	45.7	18.5	41.3
Slaughtering and meat packing.....	21	214	0.2	3,156,000	1.1	362,000	0.3	18.8	2.3	32.6	-9.6
Lumber and timber products.....	57	748	0.7	1,907,000	0.7	843,000	0.7	12.3	36.2	-0.6	34.4
Gas, illuminating and heating.....	8	412	0.4	1,833,000	0.7	1,303,000	1.1	16.0	63.1	20.9	48.7
Marble and stone work.....	46	690	0.6	1,033,000	0.4	784,000	0.6	-0.7	-3.6	2.9	-7.6
Copper, tin, and sheet-iron products.....	41	377	0.3	982,000	0.3	480,000	0.4	28.6	104.4	35.2	70.7
Flour-mill and gristmill products.....	18	39	( <sup>2</sup> )	886,000	0.3	96,000	0.1	-21.9	-37.7	28.0	-70.8
Brass and bronze products.....	18	225	0.2	828,000	0.3	279,000	0.2	24.0	55.0	-14.4	48.2
Enameling and japanning.....	21	615	0.5	570,000	0.2	424,000	0.3	68.6	27.5	53.6	36.6
Tobacco manufactures.....	65	268	0.2	537,000	0.2	341,000	0.3	50.0	22.2	52.9	10.9
All other industries.....	614	25,427	22.4	65,656,000	23.4	30,218,000	24.7				

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

<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 dyeing and finishing of textiles is the most important of the industries included under the head of "All other industries." It covers the bleaching, dyeing, and mercerizing of raw fiber, yarns, and woven cloth, as well as the printing of cotton piece goods. A considerable number of the cotton, wool, and silk mills in the same establishment combine one or more of these subordinate processes with their manufacture; therefore the statistics for the independent establishments engaged in dyeing and finishing do not fully represent the statistics for the industry. It is of interest, however, to know that there were 45 of these independent establishments reported at the census of 1909, compared with 37 in 1904. The average number of wage earners employed was 7,792 and 7,562,

respectively, for the two census years. Measured by value of products, this industry, with \$13,955,700 in 1909, ranked fifth, compared with other industries of the state. In 1904 Rhode Island, with products valued at \$9,981,457, was the third state in the Union in this class of manufacture, New Jersey being first and Massachusetts second.

In addition to the 20 industries presented separately and dyeing and finishing textiles, there are 21 industries which had a value of products in 1909 in excess of \$500,000. They are included under the head of "All other industries" in the table, because in some cases the operations of individual establishments would be disclosed if they were shown separately; in others, because the returns do not present properly the true condition of the industry, for the reason that it is more or less interwoven with one or more other industries of similar character; while for others, comparable statistics for the different census years can not be presented on account of changes in classification.

These industries are: Automobiles, including bodies and parts; baking powders and yeast; rubber boots and shoes; dyestuffs and extracts; files; men's furnishing goods; grease and tallow; steel works and rolling mills; iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills; cottonseed oil and cake; oleomargarine; paper goods, not elsewhere specified; rubber goods, not elsewhere specified; wood screws; shipbuilding; soap; sporting and athletic goods; washing machines and clothes wringers; waste; and wire. The 1909 statistics, however, for the manufacture of men's furnishing goods, paper goods, and rubber goods, and for the shipbuilding industry are presented in Table II, page 1134.

Although a few industries predominate greatly 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.

*Textiles.*—The textile industry of the state—consisting of the manufacture of woolen and worsted goods; cotton goods, including cotton small wares; silk and silk goods, including throwsters; and hosiery and knit goods—is by far the most important branch of manufacture. Combined, the four allied branches gave employment to 57,169 wage earners on the average during the year, and the value of their products amounted to \$133,363,000, these figures representing 50.4 per cent and 47.6 per cent, respectively, of the totals for all industries in the state. Rhode Island ranks fourth among the states in the production of cotton goods, third in woolen and worsted goods, sixth in silk and silk goods, and eleventh in hosiery and knit goods.

*Manufactures from precious metals.*—The manufacture of jewelry is allied closely with the production of silverware and plated ware, and the reduction and refining of gold and silver from sweepings, clippings, and scrap. These three industries combined employed an average of 11,887 wage earners and turned out products valued at \$31,325,000. In 1905 Rhode Island led all other states in the manufacture of jewelry.

*Foundry and machine-shop products.*—The number of establishments engaged in this industry and the degree of their activity in any community are usually a fair index of the extent and prosperity of its manufactures. The industry was really of greater importance in the state than is indicated by the statistics, as some machine shops manufactured a distinctive product and were assigned to other classifications. A number of the most important establishments are engaged in the manufacture of textile machinery.

*Electrical machinery, apparatus, and supplies.*—The establishments engaged in this industry are devoted primarily to the production of insulated wires and cables, incandescent lamps of carbon filament, and electric-lighting fixtures.

The four groups of industries considered in the immediately preceding paragraphs held the same relative rank when measured by value added by manufacture as when measured by value of products. Treating the industries individually, however, considerable change is noted in their order when ranked according to value added by manufacture. Cotton manufacture displaces woolen and worsted goods from first place, and the foundry and machine-shop industry exchanges places with jewelry. Silverware becomes fifth in order instead of electrical machinery, which drops to eighth place. Printing and publishing and malt liquors become sixth and seventh, respectively, while silk manufacture falls to eleventh place, and gold and silver, reducing and refining, not from the ore, drops to twentieth 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 cotton industry showed a greater rate of increase from 1904 to 1909 in value added by manufacture than any other of the specified industries, namely, 67.1 per cent, while during the same period the silk industry showed the greatest rate of increase in value of products, 79.3 per cent. The foundry and machine-shop, jewelry, and woolen industries also showed remarkable increases both in gross value of products and in value added by manufacture.

Two of the specified industries, marble and stone work and flour-mill and gristmill products, showed a decrease in value of products both from 1899 to 1904 and from 1904 to 1909, while all the others showed an increase for both periods. Three industries showed a decrease in value added by manufacture from 1904 to 1909, while four showed a decrease from 1899 to 1904.

*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.....	122,641	81,843	40,798
Proprietors and officials.....	4,109	3,957	152
Proprietors and firm members.....	1,721	1,606	115
Salaried officers of corporations.....	907	885	22
Superintendents and managers.....	1,481	1,466	15
Clerks.....	4,994	3,837	1,657
Wage earners (average number).....	113,538	74,549	38,989
16 years of age and over.....	108,913	72,239	36,674
Under 16 years of age.....	4,625	2,310	2,315

The average number of persons engaged in manufactures during 1909 was 122,641. Of these, 113,538 were wage earners. Of the remainder, 4,109, or 45.1 per cent, were proprietors and officials, and 4,994, or 54.9 per cent, clerks. Corresponding figures for individual industries will be found in Table II.

The following table shows the percentage of proprietors and officials, clerks, and wage earners, respectively, in the total number of persons employed in manufactures. It covers all industries combined and 13 important industries individually.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	122,641	3.4	4.1	92.6
Bread and other bakery products.....	1,401	17.1	7.6	75.3
Cotton goods, including cotton small wares.....	29,488	1.1	1.3	97.6
Electrical machinery, apparatus, and supplies.....	1,780	2.3	5.2	92.5
Foundry and machine-shop products.....	11,905	3.5	4.7	91.9
Gold and silver, reducing and refining, not from the ore.....	142	26.1	16.2	57.7
Hosiery and knit goods.....	1,849	2.0	2.1	95.9
Jewelry.....	11,002	5.7	7.8	86.4
Liquors, malt.....	543	5.2	12.0	82.9
Printing and publishing.....	2,049	11.2	17.8	71.0
Silk and silk goods, including throwsters.....	1,750	2.1	1.6	96.3
Silverware and plated ware.....	2,517	1.4	7.4	91.1
Slaughtering and meat packing.....	267	12.4	7.5	80.1
Woolen, worsted, and felt goods, and wool hats.....	25,873	1.4	1.5	97.1
All other industries.....	32,325	5.2	5.8	89.0

Of the total number of persons engaged in all manufacturing industries, 3.4 per cent were proprietors and officials, 4.1 per cent clerks, and 92.6 per cent wage earners. The highest percentage of proprietors and officials shown for any individual industry, 26.1, is for the establishments engaged in reducing and refining gold and silver from sweepings, clippings, and scrap; measured by number of persons engaged, the establishments in this industry are generally small. In the bakery and the printing and publishing industries the majority of the establishments are also 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 very much higher than for most other industries or for all industries combined. The high percentage shown for the slaughtering and meat-packing industry is due to the fact that a number of the establishments classified under this head are small establishments engaged exclusively in the manufacture of sausage.

On account of the large average number of wage earners to an individual establishment in the cotton, woolen, and silverware industries, these industries show the smallest proportion of proprietors and officials.

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.....	113,538	63.6	32.3	4.1
Bread and other bakery products.....	1,055	91.7	7.5	0.8
Cotton goods, including cotton small wares.....	28,786	50.7	43.3	6.0
Electrical machinery, apparatus, and supplies.....	1,601	53.7	39.1	2.2
Foundry and machine-shop products.....	10,937	97.3	1.6	1.1
Gold and silver, reducing and refining, not from the ore.....	82	100.0	.....	.....
Hosiery and knit goods.....	1,774	19.9	73.1	7.0
Jewelry.....	9,511	56.3	40.6	2.6
Liquors, malt.....	450	100.0	.....	.....
Printing and publishing.....	1,454	70.3	26.8	2.3
Silk and silk goods, including throwsters.....	1,685	43.6	53.2	3.2
Silverware and plated ware.....	2,294	89.0	9.2	1.7
Slaughtering and meat packing.....	214	98.6	.....	1.4
Woolen, worsted, and felt goods, and wool hats.....	24,924	52.1	41.7	6.2
All other industries.....	28,771	75.9	21.8	2.3

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

For all industries combined, 63.6 per cent of the average number of wage earners were males over 16 years of age; 32.3 per cent, females over 16 years of age; and 4.1 per cent, persons of both sexes under the age of 16. The larger part of the total number of female wage earners is made up of those employed in the textile industries. In the cotton-goods industry over two-fifths of the employees are women over 16 years of age, in the hosiery and knit-goods industry the proportion is nearly three-fourths, in the silk industry over one-half, and in the woolen and worsted industry over two-fifths. The manufacture of electrical machinery, apparatus, and supplies, and the jewelry industry, also show a large proportion of female wage earners, 39.1 per cent and 40.6 per cent, respectively. If the four textile industries are excluded, females over 16 employed in all industries combined represent 20.6 per cent of the total number of wage earners.

The four textile industries combined also include the larger part of the total number of wage earners under 16 years of age. The proportions of such employees engaged in each industry were as follows: Cotton goods, 6 per cent; hosiery and knit goods, 7 per cent; silk and silk goods, 3.2 per cent; and woolen and worsted goods, 6.2 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.....	122,641	100.0	104,299	100.0	17.6
Proprietors and firm members.....	1,721	1.4	1,561	1.5	10.2
Salaried employees.....	7,382	6.0	5,420	5.2	36.2
Wage earners (average number)....	113,538	92.6	97,318	93.3	18.7

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 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 em-

ployed increased. 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 63.6 per cent of all wage earners, as compared with 63 per cent in 1904 and 62.7 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.....	113,538	100.0	97,318	100.0	88,197	100.0
16 years of age and over..	108,913	95.9	92,088	94.6	83,212	94.3
Male.....	72,239	63.6	61,346	63.0	55,305	62.7
Female.....	36,674	32.3	30,742	31.6	27,907	31.6
Under 16 years of age....	4,625	4.1	5,230	5.4	4,985	5.7

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 cotton-goods, foundry and machine-shop, jewelry, and woolen and worsted goods 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 1134, 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 the month.

MONTH.	WAGE EARNERS.											
	All industries.		Cotton goods, including cotton small wares.		Foundry and machine-shop products.		Jewelry.		Woolen, worsted, and felt goods, and wool hats.		All other industries.	
	Number.	Per cent of maximum.	Number.	Per cent of maximum.	Number.	Per cent of maximum.	Number.	Per cent of maximum.	Number.	Per cent of maximum.	Number.	Per cent of maximum.
January.....	108,773	91.3	28,807	98.7	9,301	73.4	9,293	82.7	24,072	94.1	37,300	89.3
February.....	109,615	92.0	28,738	98.4	9,567	75.5	8,939	79.5	24,480	95.6	37,891	90.7
March.....	111,924	93.9	28,896	99.0	10,062	79.4	8,928	79.4	25,429	99.3	38,609	92.4
April.....	111,320	93.4	28,806	98.7	10,216	80.6	8,439	75.1	24,880	97.2	38,979	93.3
May.....	111,952	93.9	28,818	98.7	10,318	81.4	8,625	76.7	25,128	98.1	39,063	93.5
June.....	112,055	94.0	28,632	98.1	10,638	83.9	8,774	78.1	25,203	98.4	38,813	92.9
July.....	111,571	93.6	28,611	98.0	11,113	87.7	8,574	76.3	24,811	96.9	38,462	92.1
August.....	112,835	94.7	28,342	97.1	11,388	89.8	9,097	80.9	24,800	96.9	39,208	93.8
September.....	116,116	97.4	28,722	98.4	11,566	91.2	10,201	90.8	25,604	100.0	40,023	95.8
October.....	118,007	99.0	28,796	98.6	12,015	94.8	10,893	96.8	25,365	99.1	40,948	98.0
November.....	119,104	99.9	29,080	99.6	12,382	97.7	11,145	99.2	25,011	97.7	41,486	99.3
December.....	119,191	100.0	29,192	100.0	12,678	100.0	11,238	100.0	24,362	94.9	41,781	100.0

There are no seasonal industries of importance in Rhode Island which give employment to a large number of persons at certain periods of the year only. On the contrary, all of the more important industries show comparatively little fluctuation in the number of wage earners employed. Among the industries covered by the above table the greatest variation is shown in the foundry and machine-shop industry, in which

the smallest number, 9,301, were employed in the month of January. The number increased constantly from month to month, however, to the end of the year, when 12,678 were employed, a difference of 3,377 from that at the beginning of the year. In the cotton mills the greatest activity was in December and the next greatest in November. The smallest number were employed in August, but represented a difference of only



850, or 2.9 per cent, from the largest number. In the woolen mills September was the month when the most wage earners were employed, while the fewest were employed in January. April was the month of least activity in the jewelry industry and November and December the months of greatest activity.

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.....	118,538	2,672	1,484	7,001	92,597	9,388	163	80	203
Brass and bronze products.....	225			2	145	78			
Bread and other bakery products.....	1,058	104	20	136	99		46	23	
Copper, tin, and sheet-iron products.....	377	206	18	11	142				
Cotton goods, including cotton small wares.....	28,736			34	28,658	94			
Electrical machinery, apparatus, and supplies.....	1,601	1	6	158	1,409	27			
Enameling and japanning.....	615		78		529	8			
Flour-mill and gristmill products.....	39				22	17			
Foundry and machine-shop products.....	10,937	9	348	1,221	8,411	948			
Gas, illuminating and heating.....	412				1	282	83		46
Gold and silver, reducing and refining, not from the ore.....	82				70	12			
Hosiery and knit goods.....	1,774		1		1,702	71			
Jewelry.....	9,511	573	53	167	7,500	1,218			
Liquors, malt.....	450			449	1				
Lumber and timber products.....	748	77	13	101	267	200			
Marble and stone work.....	660	618	13	23		1			
Printing and publishing.....	1,454	529	525	98	278	21	3		
Silk and silk goods, including throwsters.....	1,685				1,685				
Silverware and plated ware.....	2,204			2	2,292				
Slaughtering and meat packing.....	214	1	1	31	88	93			
Tobacco manufactures.....	268	236	2	5	22	3			
Woolen, worsted, and felt goods, and wool hats.....	24,024	2	95	284	22,748	1,795			
All other industries.....	25,427	316	311	4,134	16,529	3,892	31	7	157

It is evident from these figures that for the great majority of wage earners employed in the manufacturing industries of Rhode Island the prevailing hours of labor range from 54 to 60 a week, or from 9 to 10 a day, only 3.7 per cent of the total being employed in establishments working less than 9 hours a day and only three-tenths of 1 per cent being employed in establishments working more than 10 hours a day.

It will be noted that in all of the larger industries

the employment is confined mainly to a week of between 54 and 60 hours. Practically all of the wage earners in the gas industry, however, are in plants operating 60 hours a week or over, while for the majority of the wage earners in the bakery industry the prevailing hours of labor are 60 per week.

Location of establishments.—The next table shows how largely manufacturing in the state is centralized in cities and towns of 10,000 inhabitants or over. (See Introduction.)

ITEM.	Year.	Aggregate.	CITIES AND TOWNS HAVING A POPULATION OF 10,000 AND OVER.								DISTRICTS OUTSIDE OF CITIES AND TOWNS HAVING A POPULATION OF 10,000 AND OVER.	
			Total.		10,000 to 25,000.		25,000 to 100,000.		100,000 and over.		Number or amount.	Percent of total.
			Number or amount.	Percent of total.	Number or amount.	Percent of total.	Number or amount.	Percent of total.	Number or amount.	Percent of total.		
Population.....	1910	542,610	437,027	80.7	69,776	12.9	143,525	26.4	224,326	41.3	104,938	19.3
	1900	428,556	330,437	77.1	87,405	20.4	67,435	15.7	175,597	41.0	98,119	22.9
Number of establishments.....	1909	1,951	1,656	84.9	126	6.5	450	23.1	1,080	55.4	295	15.1
	1904	1,617	1,320	81.5	150	9.3	289	17.9	881	54.5	297	18.4
	1899	1,678	1,358	80.9	134	8.0	295	17.6	929	55.4	320	19.1
Average number of wage earners.....	1909	118,538	91,142	80.3	11,586	10.2	33,175	29.2	46,381	40.8	22,396	19.7
	1904	97,318	71,943	73.9	11,413	11.7	20,726	21.3	39,804	40.9	25,375	25.1
	1899	88,197	66,718	75.6	10,047	11.4	18,303	20.8	38,368	43.5	21,479	24.4
Value of products.....	1909	\$280,343,797	\$226,191,505	80.7	\$28,063,350	10.0	\$77,882,571	27.8	\$120,240,584	42.9	\$54,152,292	19.3
	1904	202,109,533	157,761,715	78.1	20,673,316	10.2	45,107,436	22.3	91,980,963	45.5	44,347,868	21.9
	1899	165,550,382	131,529,623	79.4	18,856,038	11.4	34,016,482	20.5	78,657,103	47.5	34,020,759	20.6
Value added by manufacture...	1909	122,152,223	101,209,421	82.9	12,122,190	9.9	33,616,782	27.5	55,470,539	45.4	20,942,802	17.1
	1904	89,237,322	70,514,173	79.0	8,089,377	9.1	20,417,143	22.9	42,007,653	47.1	18,723,149	21.0
	1899	77,998,602	61,111,305	78.8	8,134,338	10.5	16,870,528	21.7	36,106,439	46.5	16,487,297	21.2

In 1909, 80.7 per cent of the total value of products was reported from cities and towns having over 10,000 inhabitants, and 80.3 per cent of the average number of wage earners were employed in such cities and towns. The figures indicate that while very little relative change took place during the last 5 or 10 years, yet on the whole the industries of the manufacturing cities and larger towns have gained very slightly on those of the districts outside during the last decade.

The group of cities and towns having between 10,000 and 25,000 inhabitants consisted in 1910 of Central Falls, Cranston, Cumberland, and East Providence, and those having between 25,000 and 100,000 inhabitants comprise Newport, Pawtucket, Warwick, and Woonsocket. Providence is the only city having more than 100,000 inhabitants.

The population in 1900 was used as the basis in making the classification for 1904 as well as 1899. The increase in the population of different cities has affected the grouping in the table. In 1900 Newport and Warwick were in the first group, but during the following decade the population of each increased so that both now fall in the second group. Prior to 1910 Cumberland had less than 10,000 inhabitants, and so was not included in that group.

The first group shows a proportional loss and the second group a gain in 1909, as compared with 1904, while the manufacturing industries of Providence show a slight decrease in relative importance, although a decided absolute gain was returned for all items. Of the total value of products reported for the state in 1909, 10 per cent was reported from the four cities and towns of the first group, 27.8 per cent from the four cities and towns of the second group, and 42.9 per cent from Providence alone.

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

CITY OR TOWN.	AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS.		
	1909	1904	1899	1909	1904	1899
Providence.....	46,381	39,804	38,368	\$120,240,584	\$91,080,963	\$78,687,103
Pawtucket.....	15,275	12,054	10,712	37,698,186	25,846,899	19,271,582
Woonsocket.....	10,703	8,872	7,591	28,218,515	19,260,537	14,744,900
Warwick.....	6,471	6,153	5,465	10,588,943	7,051,971	6,019,989
Cumberland <sup>1</sup> .....	5,359	4,574	1,500	9,828,720	5,965,027	1,756,268
East Providence <sup>1</sup> .....	2,041	1,381	836	7,145,977	5,544,376	5,347,316
Cranston <sup>1</sup> .....	1,711	587	493	5,624,714	1,638,881	1,402,359
Central Falls.....	2,475	2,443	2,372	5,470,939	5,090,984	4,511,182
Newport.....	726	849	881	1,378,927	1,347,104	1,575,192

<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 shows an increase in value of products from 1904 to 1909, and all but Newport an increase from 1899 to 1904. The percentages of increase, how-

ever, were generally greater from 1904 to 1909. The greatest gain, 243.2 per cent, was made by Cranston, and was due in part to the establishment of such new industries as the manufacture of automobiles, of foundry and machine shops, and of street-railway repair shops. The next largest increase, 64.7 per cent, is shown for Cumberland, and was due mostly to the increased production of the cotton mills of that town. Manufacturing in Newport was practically at a standstill from 1904 to 1909, as there was scarcely any change in the value of products and a decrease in the average number of wage earners. The totals presented for Newport do not include the statistics for the naval torpedo station in that city, operated by the Federal Government. In 1909 this plant employed an average of 270 wage earners and turned out products valued at \$471,712.

Providence, the largest and most important city in the state, shows an increase in 1909, as compared with 1904, of \$28,259,621, or 30.7 per cent, in value of products, and 6,577, or 16.5 per cent, in the average number of wage earners. The relative importance of Providence as a manufacturing city is indicated by comparing it with the leading cities of the United States. This comparison shows that when ranked by value of products it was seventeenth both in 1899 and 1904. About one-fourth of the total value of the textile products of the state was reported from this city. Practically all of the establishments of the state engaged in manufactures from the precious metals were in Providence, 98.4 per cent of the value of products of these industries being credited to this city. All of the establishments engaged in "gold and silver refining, not from the ore," and in the production of silverware and plated ware were located here. Seventy and three-tenths per cent of the total value of the foundry and machine-shop products of the state was reported from Providence.

Pawtucket, Woonsocket, and Warwick still maintain their importance in the manufacture of textiles, these industries contributing 53.4, 70.5, and 77.8 per cent, respectively, of the total value of products of these places. In Woonsocket the woolen mills are the most important textile establishments, while in Pawtucket and Warwick cotton mills predominate.

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 table and the one following.

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
<b>ALL INDUSTRIES:</b>				
1909.....	1,951	113,538	\$280,343,797	\$122,152,223
1904.....	1,617	97,318	202,109,583	89,237,322
Individual:				
1909.....	955	8,888	18,425,145	9,408,377
1904.....	754	8,358	18,576,416	9,124,529
Firm:				
1909.....	329	8,849	18,464,914	8,229,493
1904.....	347	11,053	25,198,561	9,455,620
Corporation:				
1909.....	659	95,794	243,420,998	104,490,185
1904.....	512	76,303	158,322,601	70,646,328
Other:				
1909.....	8	7	26,740	24,168
1904.....	4	4	12,005	10,845
Per cent of total:				
1909.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0
Individual:				
1909.....	48.9	7.8	6.6	7.7
1904.....	46.6	9.1	9.2	10.2
Firm:				
1909.....	16.9	7.8	6.6	6.7
1904.....	21.5	12.0	12.5	10.6
Corporation:				
1909.....	33.8	84.4	86.8	85.5
1904.....	31.7	78.9	78.3	79.2
Other:				
1909.....	0.4	(1)	(1)	(1)
1904.....	0.2	(1)	(1)	(1)
<b>Bread and other bakery products, 1909.....</b>	187	1,055	\$3,386,864	\$1,466,806
Individual.....	147	448	1,022,156	589,059
Firm.....	28	219	887,379	322,692
Corporation.....	12	388	1,427,329	554,555
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	78.6	42.5	41.2	40.2
Firm.....	15.0	20.8	22.5	22.0
Corporation.....	6.4	36.8	36.3	37.8
<b>Cotton goods, including cotton small wares, 1909.....</b>	108	28,786	\$50,312,597	\$24,911,358
Individual.....	8	62	163,448	61,592
Firm.....	12	3,604	5,092,593	2,343,253
Corporation.....	86	25,120	45,056,556	22,506,513
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	7.5	0.2	0.3	0.2
Firm.....	11.3	12.5	10.1	9.4
Corporation.....	81.1	87.3	89.6	90.3
<b>Foundry and machine-shop products, 1909.....</b>	141	10,937	\$20,611,693	\$12,598,192
Individual.....	57	550	1,332,787	745,750
Firm.....	14	149	333,406	195,866
Corporation.....	70	10,238	18,945,500	11,656,576
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	40.4	5.0	6.5	5.9
Firm.....	9.9	1.4	1.6	1.6
Corporation.....	49.0	93.6	91.9	92.5
<b>Jewelry, 1909.....</b>	286	9,511	\$20,685,100	\$10,897,063
Individual.....	132	2,367	3,303,071	2,047,007
Firm.....	73	2,126	4,121,705	2,485,517
Corporation.....	91	5,018	13,259,724	6,364,479
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	44.6	24.9	16.0	18.8
Firm.....	24.7	22.4	19.9	22.8
Corporation.....	30.7	52.8	64.1	58.4
<b>Printing and publishing, 1909.....</b>	147	1,454	\$3,780,075	\$2,716,400
Individual.....	86	305	629,556	472,949
Firm.....	25	127	259,822	194,093
Corporation.....	28	1,015	2,893,957	2,025,190
Other.....	8	7	26,740	24,168
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	58.5	21.0	16.7	17.4
Firm.....	17.0	8.7	6.9	7.1
Corporation.....	19.0	69.8	75.8	74.6
Other.....	5.4	0.5	0.7	0.9
<b>Woolen, worsted, and felt goods, and woolhats, 1909.....</b>	88	24,924	\$74,600,240	\$23,574,864
Individual.....	10	456	806,581	345,100
Firm.....	6	573	1,009,431	387,133
Corporation.....	72	23,895	72,784,278	22,842,631
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	11.4	1.8	1.1	1.5
Firm.....	6.8	2.3	1.4	1.6
Corporation.....	81.8	95.9	97.6	96.9

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

The most important distinction shown is that between corporate and all other forms of ownership. For all industries combined, 33.8 per cent of the total number of establishments were in 1909 under corpo-

rate ownership, as against 66.2 per cent under all other forms. The corresponding figures for 1904 were 31.7 per cent and 68.3 per cent, respectively. In respect to value of products the difference was even more pronounced, for in 1909 the establishments operated by corporations reported 86.8 per cent of the total value, as against 13.2 per cent for those under all other forms of ownership, while in 1904 the corresponding figures were 78.3 per cent and 21.7 per cent, respectively. The greatest relative decrease from 1904 to 1909 is shown for establishments operated by firms, which represented only 16.9 per cent of the total number of establishments in 1909, as compared with 21.5 per cent in 1904.

**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 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 1,951 establishments only 69, or 3.5 per cent, had a value of products exceeding \$1,000,000. These establishments, however, had an average number of wage earners of 49,126, or 43.3 per cent, of the total number in all establishments, and reported 48.3 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 of less than \$5,000—constituted a very considerable proportion (24.4 per cent) of the total number of establishments, but the value of their products amounted to only four-tenths of 1 per cent of the total. The great bulk of the manufacturing was carried on in establishments having a product valued at not less than \$100,000.

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

The fact that the average value of products per establishment increased from \$124,990 to \$143,692, and the value added by manufacture from \$55,187 to \$62,610, can scarcely be taken as in itself indicating a tendency toward concentration. The increased values shown may be, and probably are, due in part to the increase that has taken place in the prices of commodities. The average number of wage earners per establishment decreased by two.

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.....	1,951	113,538	\$280,343,797	\$122,152,223	<b>Cotton goods, including cotton small wares, 1909—Con.</b>				
1904.....	1,617	97,318	202,109,563	89,237,322	Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000:					Less than \$5,000.....	2.8	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
1909.....	477	707	1,166,084	795,432	\$5,000 and less than \$20,000.....	3.8	0.2	0.1	0.1
1904.....	308	449	807,109	552,428	\$20,000 and less than \$100,000.....	25.5	3.4	2.9	2.5
\$5,000 and less than \$20,000:					\$100,000 and less than \$1,000,000.....	54.7	53.1	51.0	50.3
1909.....	579	3,244	5,891,800	3,510,241	\$1,000,000 and over.....	13.2	43.3	46.0	47.1
1904.....	523	2,955	5,392,825	3,277,555	Average per establishment.....		272	\$474,647	\$235,013
\$20,000 and less than \$100,000:					<b>Foundry and machine-shop products, 1909.....</b>				
1909.....	459	10,742	21,304,255	11,231,441	1909.....	141	10,937	\$20,611,693	\$12,598,192
1904.....	428	9,595	18,617,859	10,035,332	Less than \$5,000.....	17	20	40,866	31,279
\$100,000 and less than \$1,000,000:					\$5,000 and less than \$20,000.....	47	261	478,459	323,116
1909.....	367	49,719	116,696,453	52,043,520	\$20,000 and less than \$100,000.....	43	1,036	2,062,782	1,209,731
1904.....	317	50,490	97,235,874	43,774,550	\$100,000 and less than \$1,000,000.....	30	4,808	9,417,048	5,579,126
\$1,000,000 and over:					\$1,000,000 and over.....	4	4,812	8,612,538	5,454,940
1909.....	69	49,126	135,285,205	54,571,589	Per cent of total.....	100.0	100.0	100.0	100.0
1904.....	41	33,829	80,055,916	31,597,457	Less than \$5,000.....	12.1	0.2	0.2	2.6
Per cent of total:					\$5,000 and less than \$20,000.....	33.3	2.4	2.3	0.6
1909.....	100.0	100.0	100.0	100.0	\$20,000 and less than \$100,000.....	30.5	9.5	10.0	44.3
1904.....	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000.....	21.3	44.0	45.7	44.3
Less than \$5,000:					\$1,000,000 and over.....	2.8	44.0	41.8	44.3
1909.....	24.4	0.6	0.4	0.7	Average per establishment.....		78	\$146,182	\$89,349
1904.....	19.0	0.5	0.4	0.6	<b>Jewelry, 1909.....</b>				
\$5,000 and less than \$20,000:					Less than \$5,000.....	286	9,511	\$20,685,100	\$10,897,083
1909.....	29.7	2.9	2.1	2.9	\$5,000 and less than \$20,000.....	58	234	132,701	109,090
1904.....	32.3	3.0	2.7	3.7	\$20,000 and less than \$100,000.....	66	602	681,340	480,447
\$20,000 and less than \$100,000:					\$100,000 and less than \$1,000,000.....	108	3,225	5,354,684	3,313,363
1909.....	23.5	9.5	7.6	9.2	\$1,000,000 and less than \$1,000,000.....	64	5,460	14,516,375	6,994,163
1904.....	26.5	0.9	9.2	11.2	Per cent of total.....	100.0	100.0	100.0	100.0
\$100,000 and less than \$1,000,000:					Less than \$5,000.....	19.6	2.5	0.6	1.0
1909.....	18.8	43.8	41.6	42.6	\$5,000 and less than \$20,000.....	22.3	6.3	3.3	4.4
1904.....	19.6	51.9	48.1	49.1	\$20,000 and less than \$100,000.....	36.5	33.9	25.9	30.4
\$1,000,000 and over:					\$100,000 and less than \$1,000,000.....	21.6	57.3	70.2	64.2
1909.....	3.5	43.3	48.3	44.7	Average per establishment.....		32	\$69,882	\$36,814
1904.....	2.5	34.8	39.6	35.4	<b>Printing and publishing, 1909.....</b>				
Average per establishment:					Less than \$5,000.....	147	1,454	\$9,780,075	\$2,716,400
1909.....		58	\$143,692	\$62,610	\$5,000 and less than \$20,000.....	71	78	170,498	134,733
1904.....		60	124,990	55,187	\$20,000 and less than \$100,000.....	45	218	403,562	308,444
<b>Bread and other bakery products, 1909.....</b>					\$100,000 and less than \$1,000,000.....	23	377	906,809	677,175
1909.....	187	1,055	\$3,986,864	\$1,486,306	\$1,000,000 and less than \$1,000,000.....	8	781	2,239,146	1,601,047
Less than \$5,000.....	47	80	151,596	69,147	Per cent of total.....	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000.....	100	293	1,000,645	393,371	Less than \$5,000.....	48.3	5.4	4.5	5.0
\$20,000 and less than \$100,000.....	33	395	1,478,067	521,732	\$5,000 and less than \$20,000.....	36.6	15.0	10.7	11.2
\$100,000 and less than \$1,000,000.....	7	331	1,309,616	490,556	\$20,000 and less than \$100,000.....	15.6	25.9	24.0	24.9
Per cent of total.....	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000.....	6.4	53.7	60.8	58.9
Less than \$5,000.....	25.1	3.4	3.9	4.1	Average per establishment.....		10	\$25,715	\$18,479
\$5,000 and less than \$20,000.....	53.5	27.3	25.4	26.9	<b>Woolen, worsted, and felt goods and wool hats, 1909.....</b>				
\$20,000 and less than \$100,000.....	17.6	37.4	37.5	35.6	1909.....	88	94,924	\$74,600,240	\$23,574,864
\$100,000 and less than \$1,000,000.....	3.7	31.4	33.2	33.5	Less than \$5,000.....	4	8	13,690	9,292
Average per establishment.....		6	\$21,053	\$7,841	\$5,000 and less than \$20,000.....	12	375	521,973	238,787
<b>Cotton goods, including cotton small wares, 1909.....</b>					\$20,000 and less than \$100,000.....	49	7,651	21,505,311	6,467,645
1909.....	106	28,786	\$50,312,597	\$24,911,858	\$100,000 and less than \$1,000,000.....	23	16,859	52,559,265	16,859,140
Less than \$5,000.....	3	5	8,900	5,413	\$1,000,000 and over.....				
\$5,000 and less than \$20,000.....	4	52	52,351	31,387	Per cent of total.....	100.0	100.0	100.0	100.0
\$20,000 and less than \$100,000.....	27	970	1,464,368	622,177	Less than \$5,000.....	4.5	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )
\$100,000 and less than \$1,000,000.....	58	15,294	25,640,252	12,531,358	\$20,000 and less than \$100,000.....	13.6	1.5	0.7	1.0
\$1,000,000 and over.....	14	12,465	23,145,626	11,721,013	\$100,000 and less than \$1,000,000.....	55.7	30.7	28.8	27.4
					\$1,000,000 and over.....	28.1	67.8	70.5	71.5
					Average per establishment.....		283	\$847,730	\$267,896

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

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

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

In some respects, and especially from the standpoint of conditions under which persons engaged in manufactures work, the best classification of establishments to bring out the feature of size is a classification according to the number of wage earners employed. The next table shows such a classification for all industries combined and for 13 important industries individually, and gives not only the number of establishments falling into each group but also the average number of wage earners employed.

The per cent distribution of the number of establishments is not shown in the table; of the 1,951 establishments reported for all industries, 8.1 per cent employed no wage earners; 38.1 per cent, 1 to 5; 23.2 per cent, 6 to 20; and 11.1 per cent, 21 to 50. The most numerous single group consists of the 744 establishments employing 1 to 5 wage earners, and the

next, of the 452 establishments employing from 6 to 20 wage earners. There were 117 establishments that employed over 250 wage earners; 15 employed over 1,000, of which 5 were cotton mills and 4 woolen mills.

Of the total number of wage earners, 61.2 per cent were in establishments employing over 250 wage earners. The single group having the largest number of employees was the group comprising the establishments employing from 251 to 500 wage earners. This group employed 25,828 wage earners, or 22.7 per cent of the total. The individual industries listed in this table, but not in the preceding one, namely, electrical machinery, hosiery and knit goods, silk, and silverware and plated ware, 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.

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.....	1,051	158	744	452	216	143	121	74	28	15
Bread and other bakery products.....	187	27	112	40	6	1	1			
Cotton goods, including cotton small wares.....	106		4	10	15	15	20	25	12	5
Electrical machinery, apparatus, and supplies.....	12		4	1	2		3	1	1	
Foundry and machine-shop products.....	141	6	38	41	21	17	7	8	2	1
Gold and silver, reducing and refining, not from the ore.....	15		9	6						
Hosiery and knit goods.....	17		1	3	3	3	5	2		
Jewelry.....	296	8	66	90	73	40	18		1	
Liquors, malt.....	9	1	1	1	3	2	1			
Printing and publishing.....	147	29	75	32	5	2	4			
Silk and silk goods, including throwsters.....	13			4	1	4		4		
Silverware and plated ware.....	11		1	1	5	1	2			1
Slaughtering and meat packing.....	21	2	11	6		2				
Woolen, worsted, felt goods, and wool hats.....	88		4	5	8	16	28	16	7	4
All other industries.....	888	85	418	212	74	40	32	18	5	4
AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	118,538	1,922	5,124	7,211	10,141	19,538	25,828	18,883	24,891	
Bread and other bakery products.....	1,055	275	409	209	50	106	8,895	7,711	6,977	
Cotton goods, including cotton small wares.....	28,780	10	130	502	1,080	2,481	2,298	734		
Electrical machinery, apparatus, and supplies.....	1,601	10	6	53		500	2,799	1,125	3,364	
Foundry and machine-shop products.....	10,937	120	376	673	1,240	1,240				
Gold and silver, reducing and refining, not from the ore.....	32	29	53							
Hosiery and knit goods.....	1,774	1	32	96	191	875	579			
Jewelry.....	9,511	204	1,062	2,418	2,718	2,598		511		
Liquors, malt.....	450	1	12	113	143	170				
Printing and publishing.....	1,454	180	381	211	133	544				
Silk and silk goods, including throwsters.....	1,685		40	45	284	1,810				
Silverware and plated ware.....	2,294	2	13	174	68	313			1,724	
Slaughtering and meat packing.....	214	28	53		138					
Woolen, worsted, felt goods, and wool hats.....	24,924	8	75	203	1,172	4,764	5,467	5,288	7,857	
All other industries.....	28,771	1,059	2,470	2,419	2,913	4,941	6,480	3,514	4,969	
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	100.0	1.7	4.5	6.4	8.9	17.2	22.7	16.6	21.9	
Bread and other bakery products.....	100.0	26.1	38.8	19.8	5.2	10.0	30.9	26.8	24.2	
Cotton goods, including cotton small wares.....	100.0	( <sup>1</sup> )	0.5	1.7	3.8	12.1	18.6	45.8		
Electrical machinery, apparatus, and supplies.....	100.0	0.6	0.4	3.3		31.2	25.6	10.3	30.8	
Foundry and machine-shop products.....	100.0	1.1	3.4	6.2	11.3	11.3				
Gold and silver, reducing and refining, not from the ore.....	100.0	35.4	64.6							
Hosiery and knit goods.....	100.0	0.1	1.8	5.4	10.8	49.3	32.6			
Jewelry.....	100.0	2.1	11.2	25.4	28.6	27.3		5.4		
Liquors, malt.....	100.0	0.2	2.7	26.2	31.8	39.1				
Printing and publishing.....	100.0	12.4	26.2	14.5	9.5	37.4				
Silk and silk goods, including throwsters.....	100.0		2.7	2.7	16.9	77.7				
Silverware and plated ware.....	100.0	0.1	0.6	7.6	3.0	13.6			75.2	
Slaughtering and meat packing.....	100.0	10.7	24.8		64.5					
Woolen, worsted, felt goods, and wool hats.....	100.0	( <sup>1</sup> )	0.3	1.2	4.7	19.1	21.9	21.2	31.5	
All other industries.....	100.0	3.7	8.0	8.4	10.1	17.2	22.5	12.2	17.3	

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

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

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
All industries.....	4.4	22.8	65.3	7.5
Bread and other bakery products.....	2.4	18.9	70.9	7.8
Cotton goods, including cotton small wares.....	3.3	29.1	62.6	5.1
Electrical machinery, apparatus, and supplies.....	3.1	11.7	79.4	5.8
Foundry and machine-shop products.....	6.5	37.6	43.6	12.3
Gold and silver, reducing and refining, not from the ore.....	1.0	1.3	95.8	1.2
Hosiery and knit goods.....	4.4	18.8	72.3	4.6
Jewelry.....	8.6	26.4	54.4	10.6
Liquors, malt.....	5.7	13.6	42.0	38.6
Printing and publishing.....	10.6	32.1	35.8	15.5
Silk and silk goods, including throwsters.....	1.9	18.7	75.7	3.7
Silverware and plated ware.....	4.6	28.5	47.9	18.9
Slaughtering and meat packing.....	1.8	4.1	98.0	1.2
Woolen, worsted, and felt goods, and wool hats.....	2.0	17.3	76.5	4.2
All other industries.....	5.8	22.8	62.4	9.0

The foregoing 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.

This table shows that, for all industries combined, 65.3 per cent of the total expenses were incurred for materials, 27.2 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.

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

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899 <sup>1</sup>	1909	1904	1899 <sup>1</sup>	1909	1904	1899
Primary power, total.....	3,674	1,463	1,545	226,740	182,608	153,619	100.0	100.0	100.0
Owued.....	1,500	1,463	1,545	210,040	172,829	146,928	92.6	94.6	95.6
Steam.....	1,104	1,085	1,170	175,293	141,591	115,735	77.2	77.5	75.3
Gas.....	100	63	43	3,300	1,247	427	1.5	0.7	0.3
Water wheels.....	290	293	332	31,376	29,181	28,171	13.8	16.0	18.3
Water motors.....	6	12	( <sup>2</sup> )	41	50	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Other.....				39	760	2,595	( <sup>2</sup> )	0.4	1.7
Rented.....	2,174	( <sup>2</sup> )	( <sup>2</sup> )	16,691	9,779	6,691	7.4	5.4	4.4
Electric.....	2,174	( <sup>2</sup> )	( <sup>2</sup> )	13,697	6,119	2,969	6.0	3.4	1.9
Other.....				2,994	3,660	3,722	1.3	2.0	2.4
Electric motors	3,964	570	152	42,130	15,811	4,895	100.0	100.0	100.0
Run by current generated by establishment	1,790	570	152	28,433	9,692	1,926	67.5	61.3	39.3
Run by rented power.....	2,174	( <sup>2</sup> )	( <sup>2</sup> )	13,697	6,119	2,969	32.5	38.7	60.7

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

The table indicates that the increase in primary power was in power generated by steam and gas engines and water wheels, that generated by water motors and the forms of owned power included under the head of "Other" showing a decrease. The more general use of gas engines is shown, the number of such engines reported being 100 in 1909, as against 63 in 1904 and 43 in 1899. The figures also show that the practice of renting power is on the increase, 7.4 per cent of the total power being rented in 1909, as against but 5.4 per cent in 1904 and 4.4 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 1,926 in 1899 to 9,692 in 1904 and 28,433 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 table following shows the quantity of each kind of fuel used in 1909 for all industries combined and for certain selected industries.

INDUSTRY.	Anthracite coal (tons).	Bituminous coal (tons).	Coke (tons).	Wood (cords).	Oil, including gasoline (barrels).	Gas (1,000 feet).
All industries.....	186,164	627,514	31,326	6,821	171,092	115,679
Bread and other bakery products.....	3,745	1,753	4,633	1,160	5	4,035
Cotton goods, including cotton small wares.....	47,239	220,965	27	478	776	555
Electrical machinery, apparatus, and supplies.....	470	10,932	30	.....	5,228	807
Foundry and machine-shop products.....	17,110	33,883	10,179	563	2,202	9,698
Gas, illuminating and heating.....	10,900	55,600	13,161	.....	112,189	10,291
Gold and silver, reducing and refining, not from the ore.....	15	1,477	995	411	58	1,265
Hosiery and knit goods.....	59	6,686	.....	.....	.....	.....
Jewelry.....	711	3,452	175	35	20	43,539
Liquors, malt.....	1,341	28,618	.....	.....	.....	.....
Printing and publishing.....	406	2,526	285	34	30	5,829
Silk and silk goods, including throwsters.....	134	4,156	.....	.....	.....	.....
Silverware and plated ware.....	665	5,494	112	.....	5,614	14,299
Slaughtering and meat packing.....	160	1,440	50	138	1	25
Woolen, worsted, and felt goods, and wool hats.....	16,867	198,684	.....	1,108	127	.....
All other industries.....	80,342	345,808	1,676	2,894	44,842	25,336

NOTE.—In addition, there were 314 tons of other varieties of fuel reported.

## SUPPLEMENTARY DATA REGARDING IMPORTANT INDUSTRIES.

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

For certain industries the Census Bureau collects, by means of special schedules, details regarding the quantity and value of materials and products and the number and classes of machines used in manufactures which do not appear on the general schedule. Certain data of this character for five important industries in Rhode Island are here presented.

**Textiles.**—The progress of the textile industries is indicated by the increase in the number of spindles, looms, knitting machines, and other equipment. The following table shows the number of the principal machines used in the combined industries and for each of the four branches for 1909, 1904, and 1899:

MACHINE.	Cen- sus.	Total.	Cotton goods, including cotton small wares.	Woolen, worsted, and felt goods, and wool hats.	Hosiery and knit goods.	Silk and silk goods, including throwsters.
Producing spindles.	1909	2,836,038	2,363,689	459,127	1,280	11,942
	1904	2,489,016	2,035,802	379,374	4,364	19,476
	1899	2,350,020	1,920,522	419,844	6,244	3,410
Looms.....	1909	81,093	69,330	9,252	.....	2,511
	1904	63,830	54,021	8,103	.....	1,706
	1899	50,838	42,293	8,007	.....	593
Knitting machines.	1909	1,669	.....	.....	1,669	.....
	1904	1,170	.....	.....	1,170	.....
	1899	1,262	.....	.....	1,262	.....
Cards (sets).....	1909	625	.....	621	4	.....
	1904	609	.....	659	10	.....
	1899	488	.....	478	10	.....
Combing machines.	1909	461	.....	461	.....	.....
	1904	294	.....	291	3	.....
	1899	290	.....	287	3	.....

The total number of producing spindles shows an increase from 1904 to 1909 of 347,022, or 13.9 per cent; the number of looms an increase of 17,263, or 27 per cent; the number of knitting machines an increase of 499, or 42.6 per cent; and the number of combing machines an increase of 167, or 56.8 per cent; while the number of sets of cards decreased 44, or 6.6 per cent. The gains for producing spindles and for looms were much greater than the gains shown for the five-year period 1899 to 1904, which were 5.9 per cent and 25.6 per cent, respectively. The cotton mills made the largest gain in absolute number of spindles, the increase being 277,887, or 13.3 per cent; this industry also reported by far the largest number of spindles, 2,363,689. About one-fifth as many spindles were used in the woolen and worsted mills, and the increase was 79,753, or 21 per cent. The knitting mills and the silk mills each used fewer spindles in 1909 than in 1904. The number of looms used in the cotton mills increased 15,309, or 28.3 per cent; in the woolen mills 1,149, or 14.2 per cent; and in the silk mills 805, or 47.2 per cent.

**Woolen and worsted goods.**<sup>1</sup>—This industry in the state, which consists exclusively of the manufacture of woolen

<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 Rhode Island only woolen and worsted goods are made.

and of worsted goods, dates from 1804, when the first woolen mill was started at Peacedale. It ranks first among the manufacturing industries of the state both in cost of materials and in value of products, and second in value added by manufacture.

The quantity and cost of the materials reported for this industry in 1909, 1904, and 1899, by kinds, are given in the following table:

MATERIAL.	1909	1904	1899
Total cost.....	\$51,025,376	\$35,936,232	\$24,877,656
Wool:			
Foreign (in condition purchased)—			
Pounds.....	20,073,869	9,293,080	9,842,343
Cost.....	\$7,300,236	\$3,103,045	\$2,894,387
Domestic (in condition purchased)			
Pounds.....	58,108,445	56,776,005	41,014,744
Cost.....	\$15,468,437	\$13,804,403	\$5,333,765
Cotton:			
Pounds.....	570,139	1,847,509	3,535,334
Cost.....	\$96,882	\$290,491	\$360,241
Shoddy:			
Pounds.....	1,546,464	4,273,269	2,101,252
Cost.....	\$259,829	\$631,450	\$309,237
Wool or other waste and noils:			
Pounds.....	2,578,085	3,100,612	2,005,717
Cost.....	\$839,389	\$880,816	\$588,764
Tops, purchased:			
Pounds.....	10,409,834	4,150,072	2,874,537
Cost.....	\$7,887,543	\$2,455,639	\$1,499,364
Yarns, purchased:			
Woolen—			
Pounds.....	273,926	1,233,801	1,174,278
Cost.....	\$143,015	\$715,529	\$582,961
Worsted—			
Pounds.....	13,403,194	10,382,578	7,794,620
Cost.....	\$11,987,111	\$8,009,611	\$5,726,002
Merino—			
Pounds.....	65,430	405,642	115,600
Cost.....	\$32,437	\$139,020	\$53,576
Cotton—			
Pounds.....	5,479,701	5,596,723	4,174,190
Cost.....	\$1,530,130	\$1,391,562	\$941,494
Silk—			
Pounds.....	27,191	30,339	18,688
Cost.....	\$150,824	\$342,337	\$82,046
Spun-silk—			
Pounds.....	18,376	57,119	25,229
Cost.....	\$71,649	\$231,227	\$88,336
Chemicals and dyestuffs.....	\$1,536,824	\$1,108,222	\$1,019,008
Fuel and rent of power.....	\$906,926	\$740,476	\$435,837
All other materials.....	\$2,814,094	\$2,032,374	\$1,902,467

Both the quantity and the cost of the foreign wool used more than doubled from 1904 to 1909, while from 1899 to 1904 there was a decrease of 549,263 pounds in quantity, although there was an increase of \$208,658 in cost. Of all wool consumed in 1909, 73.5 per cent was domestic, representing 67.9 per cent of the total cost of this material, while in 1904 the proportions were 85.9 per cent and 81.6 per cent, respectively. A decrease is shown in the quantity and cost of the cotton consumed. The most conspicuous gains shown for any materials not made in the mill were for tops and for worsted yarns. For tops increases of 6,256,762 pounds in quantity and \$5,431,904 in cost were reported, and for worsted yarns increases of 3,020,616 pounds in quantity and \$3,917,500 in cost. Shoddy, wool and other waste and noils, and woolen, merino, silk, and spun-silk yarns all show decreases in quantity and cost, but cotton yarn shows a decrease in quantity only.

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

PRODUCT.	1909	1904	1899
Total value.....	\$74,600,240	\$52,640,763	\$38,671,879
All-wool woven goods, whether woolen or worsted:			
Wool cloth, etc.—			
Square yards.....	4,716,866	4,556,010	1,735,526
Value.....	\$3,436,215	\$2,654,026	\$1,308,525
Worsted coatings, etc.—			
Square yards.....	30,517,666	18,793,540	16,629,693
Value.....	\$24,280,705	\$16,802,566	\$12,584,943
Woolen overcoatings, etc.—			
Square yards.....	178,227	592,199	810,894
Value.....	\$120,488	\$504,400	\$829,714
Worsted dress goods, cashmeres, buntings, etc.—			
Square yards.....	18,069,251	18,276,957	9,850,120
Value.....	\$8,090,724	\$7,198,495	\$4,059,947
All other—			
Square yards.....	179,581	1,613,530	1,671,829
Value.....	\$121,728	\$1,057,971	\$1,239,145
Union or cotton mixed woven goods:			
Unions, tweeds, etc.—			
Square yards.....	1,831,640	3,708,784	1,244,332
Value.....	\$984,481	\$2,138,727	\$835,901
All other—			
Square yards.....	164,500	321,656	555,869
Value.....	\$90,225	\$142,590	\$482,790
Goods woven on cotton warps, etc.:			
Worsted filling, cassimeres, jeans, etc.—			
Square yards.....	8,453,778	6,772,247	6,738,436
Value.....	\$5,030,340	\$3,955,123	\$4,585,717
Worsted filling, dress goods, etc.—			
Square yards.....	7,187,938	2,995,144	8,835,833
Value.....	\$2,275,346	\$930,799	\$1,620,473
All other—			
Square yards.....	5,140,513	2,292,020	2,095,579
Value.....	\$2,303,847	\$870,381	\$599,191
Upholstery goods and sundries.....	\$239,651	\$519,409	\$382,000
Partly manufactured goods for sale:			
Woolen yarn, all wool—			
Pounds.....	661,234	1,339,608	579,528
Value.....	\$368,165	\$844,691	\$288,419
Woolen yarn, union or merino—			
Pounds.....	594,654	2,341,087	1,187,639
Value.....	\$225,817	\$1,150,011	\$684,011
Worsted yarn and tops—			
Pounds.....	24,285,265	13,222,913	8,789,306
Value.....	\$23,410,014	\$10,551,023	\$6,789,859
Noils—			
Pounds.....	5,199,661	3,319,117	2,099,777
Value.....	\$1,819,094	\$1,240,806	\$651,720
Waste—			
Pounds.....	7,106,426	5,837,000	3,292,631
Value.....	\$1,316,779	\$831,462	\$410,317
All other—			
Pounds.....	177,701	1,461,544	708,836
Value.....	\$32,248	\$320,589	\$454,555
Amount received for contract work....	\$366,622	\$138,822	\$149,626
All other products.....	\$122,251	\$282,882	\$745,026

The quantity of all kinds of wool woven goods reported, whether woolen or worsted, was 53,661,591 square yards in 1909, as compared with 43,831,236 in 1904 and 30,698,062 in 1899, a gain of 9,830,355 square yards in 1909 as compared with 1904, and of 13,133,174 square yards in 1904 as compared with 1899. In 1909, compared with 1904, decided increases were made in each of the three classes of goods woven on cotton warps, the most noteworthy being in those included under the head "All other," which more than doubled. Both classes of union or cotton mixed goods decreased in both quantity and value. Partly manufactured goods, such as yarns, noils, waste, etc., generally increased in quantity and value, although all-wool yarns and those included under the head "All other" both decreased. The output of worsted yarn and tops increased 11,062,352 pounds, and the value of the output \$12,858,991.

Cotton goods, including cotton small wares.—The beginning of the cotton industry in the United States under the factory system took place in Rhode Island with the starting of the first mill at Pawtucket in 1790. This was a water frame cotton mill producing cotton warp, which was used by hand weavers in the pro-

duction of sheetings, shirtings, checks, and ginghams. With the introduction in 1814 of power looms and dressing machines simultaneously in Providence, R. I., and in Waltham, Mass., a single establishment was enabled to perform all the processes of cotton manufacture. The industry in the state has shown a healthy growth.

The quantity and cost of the materials used, by kinds, in 1909, 1904, and 1899, are given below:

MATERIAL.	1909	1904	1899
Total cost.....	\$25,401,239	\$19,665,504	\$11,697,461
Cotton:			
Domestic—			
Pounds.....	101,896,174	89,422,985	92,900,390
Cost.....	\$13,138,735	\$11,021,798	\$6,794,160
Egyptian and other foreign—			
Pounds.....	10,860,853	6,125,640	6,575,088
Cost.....	\$2,030,857	\$1,023,838	\$562,179
Yarn, purchased:			
Cotton—			
Pounds.....	13,263,093	13,033,803	7,031,251
Cost.....	\$4,061,301	\$3,303,127	\$1,440,361
Silk and spun-silk—			
Pounds.....	516,323	( <sup>1</sup> )	( <sup>1</sup> )
Cost.....	\$1,278,528	( <sup>1</sup> )	( <sup>1</sup> )
Other—			
Pounds.....	112,904	( <sup>1</sup> )	( <sup>1</sup> )
Cost.....	\$115,502	\$151,719	\$104,195
Cotton waste, purchased:			
Pounds.....	29,195,098	45,168,838	5,963,702
Cost.....	\$1,274,939	\$1,824,505	\$289,853
Starst:			
Pounds.....	3,584,542	2,778,192	2,487,648
Cost.....	\$116,461	\$85,137	\$70,707
Chemicals and dyestuffs.....	\$287,997	\$149,309	\$371,706
Fuel and rent of power.....	\$1,045,147	\$795,652	\$568,946
All other materials.....	\$2,061,422	\$1,309,419	\$1,485,354

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

The cotton consumed in this industry in 1909 amounted to 112,757,027 pounds, which cost \$15,169,592, representing an increase since 1904 of 17,208,392 pounds, or 18 per cent, in quantity, and of \$3,123,956, or 25.9 per cent, in cost. In 1909 the quantity and cost of domestic cotton represented 90.4 per cent and 86.6 per cent of the respective totals for all cotton consumed, proportions somewhat smaller than the corresponding figures for 1904, which were 93.6 per cent and 91.5 per cent, respectively. There was a slight gain in the quantity of cotton yarn purchased, whereas its cost increased \$748,174. The waste purchased from other mills decreased decidedly, 15,972,840 pounds in quantity and \$549,516 in cost.

The statement following shows the products reported for the industry at the last three censuses.

Brown or bleached sheetings and shirtings showed the greatest value in 1909 as in 1904, and during the five-year period the quantity made increased 45,031,732 square yards and its value \$4,627,446. The quantity of plain cloth for printing or converting manufactured increased by 18,310,655 square yards and its value by \$3,662,178; while the quantity of fancy woven fabrics decreased by 1,700,730 square yards, although their value increased by \$2,865,478. It is significant that the quantities of the different classes of products did not increase as much proportionally as their values, which is due principally to the general rise in prices and in part perhaps to the manufacture of a higher grade fabric in 1909 than in 1904.



PRODUCT.	1909	1904	1899
<b>Total value</b> .....	\$50,312,597	\$34,573,450	\$20,435,675
Plain cloths, for printing or converting:			
Square yards.....	111,065,838	93,355,183	99,272,574
Value.....	\$8,008,079	\$4,345,901	\$4,354,811
Brown or bleached sheetings and shirtings:			
Square yards.....	135,165,530	90,133,798	128,276,782
Value.....	\$10,204,180	\$5,576,734	\$7,160,965
Twills and sateens:			
Square yards.....	53,871,689	56,095,899	43,308,277
Value.....	\$4,139,572	\$3,880,069	\$2,504,620
Fancy woven fabrics:			
Square yards.....	49,809,098	51,009,828	21,554,243
Value.....	\$7,108,434	\$4,242,956	\$1,997,352
Corduroy, cotton velvet, and plush:			
Square yards.....	3,106,639	3,422,296	1,965,422
Value.....	\$1,185,787	\$940,030	\$779,900
Tapes and webbing:			
Pounds.....	3,791,553		
Value.....	\$2,214,178	\$1,531,909	\$975,249
Yarns, for sale:			
Pounds.....	19,752,920	16,462,391	14,482,710
Value.....	\$9,068,271	\$4,954,570	\$2,845,261
Thread:			
Pounds.....	3,715,469	2,934,660	3,943,840
Value.....	\$3,510,713	\$2,717,267	\$2,734,280
Cotton waste, not used for further manufacture:			
Pounds.....	42,153,042	49,352,389	19,159,895
Value.....	\$1,984,192	\$2,177,008	\$393,079
All other products.....	\$5,335,211	\$4,207,006	\$2,687,158

Silk and silk goods, including throwsters.—The third industry in importance among the textile industries of Rhode Island in respect to value of products is the manufacture of silk and silk goods. The first silk mill reported in the state was at the census of 1879. The recent development of this branch of the textile industries has been more rapid than in the case of any other of the textile group. In value of products it has displaced hosiery and knit goods in rank since 1904.

The following statement compares the kind, quantity, and value of the materials consumed in the industry as reported at the last three censuses:

MATERIAL.	1909	1904	1899
<b>Total cost</b> .....	\$3,187,685	\$1,695,950	\$818,561
<b>Silk:</b>			
Raw—			
Pounds.....	483,330	262,112	102,691
Cost.....	\$2,173,458	\$1,179,447	\$490,750
Spun—			
Pounds.....	73,816	52,145	51,516
Cost.....	\$175,113	\$139,909	\$136,404
<b>Yarns, not made in mill:</b>			
Woolen or worsted—			
Pounds.....	59,811	7,800	2,667
Cost.....	\$93,493	\$5,040	\$2,000
Cotton—			
Pounds.....	1,421,229	969,426	409,936
Cost.....	\$404,141	\$290,214	\$122,800
Fuel and rent of power.....	\$36,091	\$20,341	\$6,176
All other materials.....	\$805,359	\$59,999	\$60,431

The relative increase in the use of raw silk from census to census is the most noteworthy feature of this table. There has been an increase of 221,218 pounds in the quantity of this class of material reported and of \$994,011 in its cost since 1904. While there has been far more cotton than woolen or worsted yarn used, the increase in the use of the latter material has been proportionally greater than that in the use of the former.

A detailed statement of products can not be shown without disclosing the operations of individual establishments. The principal product, however, consisted of silk-mixed, piece-dyed broad silks. In 1909 no silk was thrown for other establishments under contract,

while in 1904 a total of 88,000 pounds was thrown—68,000 pounds into organzine and 20,000 pounds into tram.

Hosiery and knit goods.—This industry has been carried on in the state at least since 1870, when three mills were in operation. Its real growth, however, began in 1889. While it is the least important of the textile group in respect to value of products, the gains have been substantial from year to year.

The following statement compares the quantity and cost of the different kinds of materials used in 1909, 1904, and 1899:

MATERIAL.	1909	1904	1899
<b>Total cost</b> .....	\$2,444,457	\$2,271,099	\$1,770,979
<b>Yarns, not made in mill:</b>			
Worsted—			
Pounds.....	597,037	622,209	531,778
Cost.....	\$636,017	\$606,595	\$488,442
Merino—			
Pounds.....	314,048	120,331	8,999
Cost.....	\$146,544	\$56,770	\$5,450
Cotton—			
Pounds.....	4,009,892	4,778,112	4,071,207
Cost.....	\$1,220,424	\$1,154,334	\$809,562
Silk and spun-silk—			
Pounds.....	22,900	5,425	155
Cost.....	\$34,955	\$17,352	\$432
Chemicals and dyestuffs.....	\$32,160	\$61,935	\$14,794
Fuel and rent of power.....	\$29,795	\$42,082	\$25,715
All other materials.....	\$244,562	\$331,522	\$426,594

<sup>1</sup> Excluding the operations of one establishment engaged in the manufacture of hand-knit goods.

A conspicuous feature in the development of this industry is the marked decrease during the last decade in the quantity of raw cotton and wool consumed. In 1899, 735,548 pounds of wool and 125,733 pounds of cotton were used. In 1904 the quantity of wool had decreased to 559,124 pounds and the quantity of cotton to 47,000 pounds, while in 1909 only one establishment spun a portion of the yarn knitted. The material reported for 1909 consists mostly of yarn spun in other mills. Cotton yarn was the principal material used, the cost of which formed about one-half of the total cost of all materials at each of the three censuses. From 1904 to 1909 decreases are shown in the amounts of worsted and cotton yarns consumed, while increases are reported in the case of merino yarns and of silk and spun-silk yarns.

The kind, quantity, and value of products at the last three censuses were as follows:

PRODUCT.	1909	1904	1899
<b>Total value</b> .....	\$3,865,792	\$3,344,655	\$2,724,825
<b>Hose:</b>			
Dozens.....	<sup>2</sup> 428,551	338,754	216,855
Value.....	<sup>2</sup> \$1,024,802	\$763,963	\$507,498
<b>Half hose:</b>			
Dozens.....	125,643	41,063	55,412
Value.....	\$220,280	\$80,000	\$98,223
<b>Shirts and drawers:</b>			
Dozens.....	199,997	212,307	133,486
Value.....	\$330,977	\$656,540	\$447,068
<b>Combination suits:</b>			
Dozens.....	111,199	1,950	6,800
Value.....	\$554,201	\$16,000	\$28,440
<b>Boot and shoe linings:</b>			
Square yards.....	6,686,112	9,021,062	5,151,255
Value.....	\$862,090	\$826,362	\$820,351
All other products.....	\$373,442	\$1,001,790	\$816,728

<sup>1</sup> Excluding the operations of one establishment engaged in the manufacture of hand-knit goods.

<sup>2</sup> Includes silk hose and half hose.

From 1904 to 1909 there was a general increase in the value of each kind of product, with the exception of those included under the head "All other products." During the five-year period 1899-1904, on the other hand, small decreases were reported in the value of half hose, combination suits, and boot and shoe linings, although large increases were shown for all other classes of products. The quantities generally increased from 1899 to 1904, but from 1904 to 1909 there was a decrease of 12,310 dozens in the output of shirts and drawers and of 2,334,950 square yards in the output of boot and shoe linings. The greatest gains were those made in the output of combination suits, which more than counterbalance the loss in shirts and drawers. The decided decline in the value of "All other products" from \$1,001,790 in 1904 to \$373,442 in 1909, was due principally to the discontinuance of the manufacture of eiderdown.

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

Without exception each of the different classes of publications shows a decrease in number in 1909 as compared with 1904, the greatest decline being in the weeklies. Only for the dailies and for the publications included under the head "All other classes" are gains shown in circulation. The wider circulation of the Boston newspapers and periodicals possibly may have had some effect upon the circulation of home papers. In 1909 three of the twelve daily papers, with an aggregate circulation of 30,608, were morning editions. All the publications were in the English language except one daily, which was in French; three weeklies, two of which were in Italian and one in German; and one semiweekly, which was in French.

PERIOD OF ISSUE.	NUMBER OF PUBLICATIONS.			AGGREGATE CIRCULATION PER ISSUE.		
	1909	1904	1899	1909	1904	1899
Total.....	47	80	42	254,493	247,613	170,594
Daily.....	12	13	12	147,045	131,056	118,844
Sunday.....	2	3	2	44,625	49,408	(1)
Semiweekly.....	3	4	2	5,810	6,719	6,854
Weekly.....	21	29	21	34,013	39,542	37,671
All other classes.....	9	11	3	23,000	20,888	7,225

<sup>1</sup> Included in circulation of dailies. <sup>2</sup> Includes one triweekly publication.

Laundries.—Statistics for steam laundries are not included in the general tables. There were 53 such establishments in the state of Rhode Island, 24 of which were in Providence, 8 in Warwick, 5 in Newport, 5 in Pawtucket, and 5 in Woonsocket.

The following statement summarizes the statistics:

Number of establishments.....	53
Persons engaged in the industry.....	1,211
Proprietors and firm members.....	70
Salaried employees.....	65
Wage earners (average number).....	1,076
Primary horsepower.....	1,368
Capital.....	\$612,524
Expenses.....	841,748
Services.....	523,045
Materials.....	158,443
Miscellaneous.....	160,260
Amount received for work done.....	1,019,404

The most common form of organization was the individual, with 28 establishments. The firm and corporate forms of ownership were represented by 20 and 5 establishments, respectively. Thirteen establishments had receipts for the year's business of less than \$5,000; 27, \$5,000 but less than \$20,000; 11, \$20,000 but less than \$100,000; and 2, \$100,000 but less than \$1,000,000.

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

MONTH.	WAGE EARNERS.		MONTH.	WAGE EARNERS.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	1,041	94.2	July.....	1,105	100.0
February.....	1,040	94.1	August.....	1,101	99.6
March.....	1,041	94.2	September.....	1,104	100.0
April.....	1,047	94.8	October.....	1,091	98.7
May.....	1,070	98.8	November.....	1,095	99.1
June.....	1,083	98.0	December.....	1,095	99.1

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

KIND.	Number of engines.	Horsepower.
Primary power, total.....		1,368
Owned.....	54	1,275
Steam.....	52	1,252
Gas.....	2	23
Rented.....		93
Electric.....	3	20
Other.....		73

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

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	1,099
Bituminous coal.....	Tons.....	8,031
Coke.....	Tons.....	50
Wood.....	Cords.....	71
Oil.....	Barrels.....	25
Gas.....	1,000 feet.....	2,927

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

	Custom sawmills.	Custom gristmills.
Number of establishments.....	11	16
Persons engaged in the industry.....	26	16
Proprietors and firm members.....	12	16
Salaried employees.....	14	16
Wage earners (average number).....	14	16
Primary horsepower.....	410	403
Capital.....	\$19,500	\$27,865
Expenses.....	11,110	30,843
Services.....	7,181	
Materials.....	807	135,806
Miscellaneous.....	3,112	977
Value of products.....	15,290	145,066

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

# MANUFACTURES—RHODE ISLAND.

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

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).							
STATE—All industries.....	1909	1,951	122,641	1,721	7,382	113,538	226,740	\$290,901	\$10,577	\$55,234	\$158,192	\$280,344	\$122,152
	1904	1,617	104,299	1,561	5,420	97,318	182,608	215,901	7,041	43,113	112,872	202,110	89,238
	1899	1,678	.....	.....	4,022	88,197	153,619	176,902	5,301	35,995	87,952	165,550	77,598
Brass and bronze products.....	1909	18	257	15	17	225	350	560	25	118	549	828	279
	1904	26	364	31	32	301	226	432	33	141	342	668	326
	1899	20	244	24	13	207	.....	229	13	72	211	431	220
Bread and other bakery products.....	1909	187	1,401	213	133	1,055	757	1,436	83	659	2,471	3,937	1,466
	1904	174	1,228	205	59	904	368	1,056	43	570	1,824	3,054	1,230
	1899	170	1,070	200	104	706	.....	640	85	352	1,236	2,158	920
Copper, tin, and sheet-iron products.....	1909	41	470	44	49	377	179	543	58	213	452	932	480
	1904	21	381	17	50	314	159	391	42	165	381	738	355
	1899	17	.....	.....	13	194	.....	236	15	98	152	360	208
Cotton goods, including cotton small wares.....	1909	106	29,488	46	656	28,786	95,278	67,079	1,330	11,797	25,401	50,313	24,912
	1904	99	25,425	56	611	24,753	75,007	47,477	1,021	8,890	19,666	34,573	14,907
	1899	87	24,440	28	380	24,032	67,309	40,151	734	8,033	11,697	26,436	14,739
Electrical machinery, apparatus, and supplies.....	1909	12	1,730	5	124	1,601	2,837	4,315	179	678	4,595	6,410	1,815
	1904	11	1,531	3	119	1,409	3,223	3,003	133	557	4,017	5,435	1,418
	1899	13	922	8	50	804	1,388	2,652	65	329	4,135	5,113	978
Enameling and japanning.....	1909	21	673	27	31	615	337	219	22	271	146	570	424
	1904	11	420	17	18	385	106	193	16	158	62	338	276
	1899	20	430	28	14	388	.....	108	13	117	63	265	202
Flour-mill and gristmill products.....	1909	18	68	18	11	39	1,046	387	11	22	790	886	96
	1904	22	83	23	15	46	1,310	389	7	24	1,059	1,134	75
	1899	21	.....	.....	19	72	.....	481	14	35	1,503	1,820	257
Foundry and machine-shop products.....	1909	141	11,905	87	881	10,937	11,033	27,101	1,203	6,900	8,014	20,612	12,598
	1904	143	9,498	105	776	8,617	6,717	23,883	1,077	4,676	5,014	14,194	9,180
	1899	165	.....	.....	523	8,940	.....	10,751	729	4,705	6,573	13,592	8,019
Gas, illuminating and heating.....	1909	8	487	.....	75	412	710	7,110	118	303	530	1,833	1,303
	1904	6	524	.....	62	462	652	5,793	89	303	502	1,580	1,078
	1899	6	475	.....	45	430	353	5,664	50	249	244	969	725
Gold and silver, reducing and refining, not from the ore.	1909	15	142	15	45	82	270	711	70	57	4,171	4,442	271
	1904	10	120	16	27	77	225	599	29	55	3,987	4,261	274
	1899	10	108	16	22	70	.....	508	24	44	3,138	3,484	346
Hosiery and knit goods.....	1909	17	1,849	9	66	1,774	1,626	2,878	147	635	2,444	3,866	1,422
	1904	15	1,802	9	72	1,721	1,565	2,277	100	574	2,271	3,345	1,074
	1899	18	1,675	13	66	1,506	1,231	2,454	83	470	1,771	2,725	954
Jewelry.....	1909	296	11,002	292	1,199	9,511	2,425	17,050	1,548	4,761	9,788	20,685	10,897
	1904	197	7,507	233	799	6,475	2,524	11,199	919	3,365	6,058	14,432	7,774
	1899	210	.....	.....	602	7,102	.....	8,788	583	3,146	6,177	13,229	7,052
Liquors, malt.....	1909	9	543	3	90	450	2,055	4,530	162	384	1,188	3,579	2,391
	1904	7	473	1	66	406	2,031	4,771	117	330	723	2,740	2,017
	1899	6	350	1	53	266	1,967	3,338	90	224	453	1,880	1,427
Lumber and timber products.....	1909	57	830	59	73	748	2,828	1,343	83	437	1,064	1,907	843
	1904	47	761	54	49	658	2,472	1,018	46	371	850	1,698	848
	1899	51	.....	.....	31	657	.....	979	29	280	616	1,247	631
Marble and stone work.....	1909	46	764	61	43	660	1,754	577	61	451	249	1,033	784
	1904	23	828	27	43	758	1,316	678	58	520	278	1,040	762
	1899	40	.....	.....	26	882	.....	753	24	473	254	1,079	825
Printing and publishing.....	1909	147	2,049	139	456	1,454	1,944	3,267	493	656	1,064	3,780	2,716
	1904	140	1,996	130	434	1,432	939	2,604	364	787	816	3,070	2,254
	1899	117	1,499	128	124	1,247	.....	1,759	180	663	552	2,048	1,496
Silk and silk goods, including throwsters.....	1909	13	1,750	6	59	1,685	2,318	3,496	80	788	3,188	4,584	1,896
	1904	8	1,326	4	31	1,291	1,645	2,652	41	480	1,695	2,550	890
	1899	6	466	3	8	455	250	680	12	167	819	1,311	492
Silverware and plated ware.....	1909	11	2,517	8	215	2,294	1,515	9,422	251	1,568	2,635	6,198	3,563
	1904	10	2,067	9	139	1,919	1,133	5,582	171	1,440	2,423	5,323	2,800
	1899	12	1,978	11	152	1,815	.....	6,499	171	1,100	1,881	4,249	2,368
Slaughtering and meat packing.....	1909	21	267	26	27	214	428	593	53	122	2,794	3,156	362
	1904	16	223	22	15	186	357	662	13	105	2,334	2,657	273
	1899	13	278	20	27	231	.....	779	26	123	2,294	2,596	302
Tobacco manufactures.....	1909	65	360	79	13	268	7	228	18	180	196	537	341
	1904	38	264	43	4	217	3	184	6	129	135	358	223
	1899	34	208	35	14	159	.....	121	12	66	92	293	201
Woolen, worsted, and felt goods, and wool hats.	1909	88	25,673	26	723	24,924	43,715	68,867	1,322	11,538	51,025	74,600	23,575
	1904	82	22,090	44	495	21,610	35,981	45,600	654	9,102	35,926	52,641	16,705
	1899	177	18,009	62	401	17,009	28,420	41,018	737	6,641	24,878	38,672	13,794
All other industries.....	1909	614	28,366	543	2,396	25,427	53,319	68,594	3,260	12,391	35,438	65,656	30,218
	1904	511	25,388	512	1,563	23,313	44,049	51,953	2,051	10,371	28,848	46,277	24,429
	1899	593	.....	.....	1,270	20,245	.....	43,316	1,657	8,608	20,153	41,595	21,442

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

MANUFACTURES—RHODE ISLAND.

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 manuf-acture.
			Total.	Proprietors and firm members.	Salari- ed employ- ees.	Wage earners (average number).							
Expressed in thousands.													
<b>PAWTUCKET—All industries</b> .....	1909	217	16,261	166	820	15,275	29,510	\$40,084	\$1,405	\$7,255	\$21,540	\$37,696	\$16,156
	1904	186	12,950	169	737	12,054	27,178	27,178	1,040	5,100	14,112	25,847	11,735
	1899	191	.....	.....	495	10,712	20,451	20,451	715	4,831	9,977	19,272	9,295
Bread and other bakery products.....	1909	16	122	17	10	95	64	145	6	53	252	305	113
	1904	11	111	19	6	86	.....	90	4	48	185	276	91
	1899	19	162	24	21	107	.....	70	14	50	146	264	118
Cotton goods, including cotton small wares.....	1909	23	7,205	4	216	7,045	16,524	16,903	429	3,039	7,567	14,338	6,771
	1904	20	5,764	3	235	5,526	10,422	10,422	304	2,143	5,627	10,099	4,472
	1899	15	4,572	5	110	4,457	5,500	5,500	214	1,601	2,699	5,635	2,936
Foundry and machine-shop products.....	1909	20	1,346	7	96	1,243	1,191	2,770	153	757	841	2,250	1,409
	1904	22	1,039	15	68	1,006	2,334	2,334	99	545	719	1,882	1,163
	1899	23	1,031	23	45	1,013	.....	1,627	67	561	855	1,833	978
Hosiery and knit goods.....	1909	5	444	4	15	425	242	710	30	141	710	930	270
	1904	3	228	.....	11	217	.....	367	15	65	429	559	130
	1899	3	.....	.....	9	235	.....	270	8	57	334	450	116
Jewelry.....	1909	7	293	6	23	264	75	201	39	84	199	385	186
	1904	4	90	4	9	83	.....	83	12	26	32	116	33
	1899	6	205	12	11	182	.....	313	10	79	338	598	260
Lumber and timber products.....	1909	8	289	9	22	258	567	515	24	161	469	723	254
	1904	3	123	2	14	107	.....	254	15	64	166	303	137
	1899	4	.....	.....	15	101	.....	330	18	51	159	348	189
Printing and publishing.....	1909	12	164	13	28	123	180	322	35	89	104	388	284
	1904	13	232	16	43	168	.....	307	46	92	120	414	294
	1899	14	.....	.....	26	169	.....	329	19	80	116	316	200
Tobacco manufactures.....	1909	14	116	21	1	94	.....	81	1	55	61	156	95
	1904	12	106	13	1	92	.....	91	1	52	46	181	85
	1899	12	54	12	4	38	.....	35	3	21	23	68	45
All other industries.....	1909	112	6,222	35	409	5,728	10,661	18,444	688	2,876	11,337	18,111	6,774
	1904	98	5,201	37	345	4,769	.....	13,135	484	2,065	6,788	12,068	5,286
	1899	95	.....	.....	254	4,410	.....	11,977	362	1,831	5,307	9,700	4,463
<b>PROVIDENCE—All industries</b> .....	1909	1,080	51,667	1,017	4,269	46,381	56,410	\$118,512	\$5,650	\$24,449	\$64,770	\$120,341	\$55,471
	1904	881	43,748	823	3,051	39,804	.....	95,666	3,819	19,655	49,973	91,931	43,008
	1899	929	.....	.....	2,493	38,368	.....	78,686	3,063	16,931	42,551	78,657	36,106
Brass and bronze products.....	1909	11	140	12	7	121	98	272	13	70	345	477	132
	1904	21	339	20	32	281	.....	402	33	130	320	618	298
	1899	15	212	18	12	182	.....	193	12	59	177	371	194
Bread and other bakery products.....	1909	87	779	103	78	598	504	884	46	392	1,473	2,381	908
	1904	83	652	100	38	514	.....	569	30	312	1,054	1,757	703
	1899	78	554	93	107	354	.....	292	59	175	718	1,132	404
Copper, tin, and sheet-iron products.....	1909	27	390	28	43	319	166	455	50	176	395	784	389
	1904	15	312	11	44	257	.....	346	36	128	347	634	287
	1899	11	.....	.....	18	154	.....	174	15	78	120	289	166
Cotton goods, including cotton small wares.....	1909	13	2,010	6	63	1,941	5,156	3,502	111	774	1,392	2,850	1,458
	1904	17	2,143	10	55	2,078	.....	3,307	97	688	1,539	2,993	1,454
	1899	12	2,403	2	46	2,355	.....	3,126	74	766	1,232	2,653	1,421
Electrical machinery, apparatus, and supplies.....	1909	6	436	3	55	378	504	966	60	186	373	879	506
	1904	6	303	1	35	272	.....	454	37	111	268	560	302
	1899	9	146	8	11	127	.....	235	11	54	99	210	117
Foundry and machine-shop products.....	1909	85	8,404	53	643	7,708	7,208	20,150	879	4,966	5,235	14,485	9,250
	1904	80	6,179	55	576	5,548	.....	13,930	813	3,177	3,418	9,584	6,166
	1899	97	.....	.....	423	6,419	.....	12,983	586	3,433	3,965	9,757	5,792
Gold and silver, reducing and refining, not from the ore.	1909	15	142	15	45	82	270	711	70	57	4,171	4,442	271
	1904	10	120	16	27	77	.....	599	29	55	3,987	4,261	274
	1899	10	103	10	22	70	.....	506	24	44	3,138	3,484	346
Jewelry.....	1909	282	10,621	280	1,165	9,176	2,340	16,755	1,492	4,651	9,534	20,168	10,632
	1904	193	7,410	229	790	6,391	.....	11,111	903	3,339	6,625	14,317	7,691
	1899	203	.....	.....	591	6,917	.....	8,473	573	3,005	5,838	12,028	6,790
Liquors, malt.....	1909	4	240	.....	47	193	858	2,414	83	168	657	1,867	1,210
	1904	4	196	.....	29	167	.....	2,837	60	133	369	1,427	1,061
	1899	3	142	.....	31	111	.....	1,768	50	81	220	1,008	788
Lumber and timber products.....	1909	17	404	12	44	348	1,081	605	53	293	430	840	410
	1904	16	360	21	32	307	.....	537	23	182	536	896	360
	1899	15	302	23	8	271	.....	255	7	129	255	489	224
Printing and publishing.....	1909	90	1,532	81	347	1,104	1,920	2,304	395	735	823	2,860	2,032
	1904	84	1,331	70	312	999	.....	1,633	247	548	600	2,178	1,578
	1899	70	971	77	73	.....	.....	1,040	90	452	370	1,371	1,001

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

MANUFACTURES—RHODE ISLAND.

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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 AND CITY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaries employed.	Wage earners (average number).							
Expressed in thousands.													
PROVIDENCE—Continued.													
Silverware and plated ware.....	1909	11	2,517	8	215	2,294	1,515	\$9,422	\$251	\$1,568	\$2,635	\$6,193	\$3,503
	1904	<sup>1</sup> 10	2,007	9	139	1,919	.....	8,532	171	1,440	2,423	5,323	2,900
	1899	<sup>1</sup> 12	1,978	11	152	1,815	.....	5,499	171	1,100	1,881	4,249	2,368
Tobacco manufactures.....	1909	38	172	42	8	122	6	115	14	91	98	280	182
	1904	16	90	17	2	71	.....	57	4	46	60	145	85
	1899	15	109	14	9	86	.....	58	8	24	51	168	117
Woolen, worsted, and felt goods, and wool hats.	1909	20	10,853	2	237	10,614	17,936	27,942	449	4,878	20,439	20,926	9,487
	1904	15	10,281	2	112	10,167	.....	19,969	203	4,219	16,307	23,102	6,795
	1899	15	8,845	5	188	8,682	.....	21,506	363	3,141	12,295	18,376	6,081
All other industries.....	1909	374	13,027	372	1,272	11,383	16,728	32,015	1,075	5,534	16,765	31,806	15,041
	1904	311	11,910	326	828	10,756	.....	26,283	1,120	5,047	12,132	24,186	12,054
	1899	364	.....	.....	832	10,004	.....	23,572	1,010	4,330	12,182	22,416	10,234

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

Central Falls.....	1909	43	2,612	26	111	2,475	4,992	\$4,975	\$145	\$1,021	\$3,381	\$5,471	\$2,090
	1904	33	2,558	30	85	2,443	.....	4,950	123	965	3,380	5,091	1,761
	1899	36	.....	.....	76	2,372	.....	3,970	104	883	2,720	4,511	1,785
Cranston.....	1909	28	1,921	16	194	1,711	3,707	5,030	232	1,003	2,887	5,625	2,738
	<sup>1</sup> 1904	13	656	8	61	587	.....	1,902	86	332	596	1,689	1,043
	1899	13	.....	.....	45	493	.....	1,817	69	249	613	1,402	789
Gumberland.....	1909	29	5,403	19	120	5,359	15,112	10,351	280	2,231	4,618	9,827	5,209
	<sup>1</sup> 1904	19	4,717	17	126	4,574	.....	11,359	214	1,778	3,107	5,955	2,888
	1899	10	.....	.....	20	1,500	.....	4,373	40	540	592	1,756	1,164
East Providence.....	1909	26	2,237	14	182	2,041	7,123	6,479	262	932	5,061	7,146	2,085
	<sup>1</sup> 1904	21	1,492	15	96	1,381	.....	3,643	117	574	4,254	5,544	1,200
	1899	15	.....	.....	42	836	.....	2,191	49	332	4,288	5,347	1,059
Newport.....	1909	54	890	54	110	726	869	968	32	480	570	1,379	809
	1904	46	975	46	80	849	.....	1,286	65	489	556	1,347	791
	1899	43	.....	.....	50	881	.....	1,407	48	443	654	1,575	921
Warwick.....	1909	49	6,694	55	168	6,471	22,041	13,368	322	2,803	5,394	10,589	5,195
	1904	37	6,316	44	119	6,153	.....	8,253	187	2,144	3,848	7,052	3,204
	1899	27	.....	.....	67	5,465	.....	8,318	116	1,826	2,441	6,020	3,579
Woonsocket.....	1909	130	11,341	90	542	10,703	23,571	27,700	768	4,908	18,762	28,219	11,457
	1904	103	9,112	83	357	8,672	.....	15,462	456	3,550	10,579	19,261	8,682
	1899	104	.....	.....	162	7,591	.....	13,954	256	2,854	7,169	14,745	7,576

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

<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.		Average number.	Wage earners.		Total.	16 and over.		Under 16.				
					Male.	Female.		Number.			Male.	Female.	Male.	Female.			
								Maximum month.	Minimum month.								
1 All industries.....	1,951	122,641	1,721	2,388	3,337	1,657	113,538	De 119,191	Ja 108,773	(1)	(1)	(1)	(1)	(1)	226,740		
2 Artificial stone.....	5	23	5	3	.....	15	Je 22	Ja 10	20	20	.....	.....	.....	.....	45		
3 Belting and hose, leather.....	4	52	3	5	8	36	Se 30	Ja 32	36	36	.....	.....	.....	.....	297		
4 Blacking and cleansing and polishing preparations.	5	21	4	3	4	10	My 13	Ja 7	8	6	2	.....	.....	.....	5		
5 Boots and shoes, including out stock and findings.	6	81	6	2	6	2	De 79	Ja 53	79	47	32	.....	.....	.....	106		
6 Boxes, fancy and paper.....	9	542	10	19	7	10	De 505	Je 444	565	135	402	2	26	.....	128		
7 Brass and bronze products.....	18	257	15	10	2	5	De 248	Jy 216	247	243	4	.....	.....	.....	350		
8 Bread and other bakery products.....	187	1,401	213	27	33	73	De 1,097	Fe 1,025	1,104	1,012	84	7	1	.....	787		
9 Brooms.....	4	16	4	.....	.....	12	No 16	Au 10	16	16	.....	.....	.....	.....	13		
10 Brushes.....	9	156	7	3	2	1	De 154	My 135	154	63	98	1	2	.....	64		
11 Carpets, rag.....	3	28	3	1	.....	23	De 28	.....	17	14	3	.....	.....	.....	31		
12 Carriages and wagons and materials.....	40	296	39	10	2	7	Mh 262	Ja 214	220	217	1	2	.....	.....	387		
13 Clothing, men's, including shirts.....	4	146	5	4	7	8	Oc 129	Au 110	127	26	101	.....	.....	.....	21		
14 Confectionery.....	20	193	21	11	17	13	De 143	My 122	143	80	49	2	12	.....	166		
15 Copper, tin, and sheet-iron products.....	41	470	44	26	18	5	Oc 433	Ap 337	429	381	44	1	3	.....	176		
16 Cordage and twine and jute and linen goods.	6	156	8	5	3	1	Mh 165	Au 103	160	90	64	.....	.....	.....	477		
17 Cotton goods, including cotton small wares.	106	29,488	46	279	262	115	De 29,192	Au 28,342	29,786	15,091	12,894	900	901	.....	65,278		
18 Cutlery and tools, not elsewhere specified.	17	178	23	6	1	4	De 170	Jy 130	170	164	2	4	.....	.....	96		
19 Electrical machinery, apparatus, and supplies.	12	1,730	5	34	45	45	De 1,796	Jy 1,497	1,796	1,055	702	7	32	.....	2,397		
20 Electroplating.....	10	196	22	7	6	5	No 168	Je 148	167	142	19	5	1	.....	155		
21 Enameling and japanning.....	21	673	27	7	8	16	Oc 714	Fe 503	680	443	221	13	3	.....	337		
22 Fancy articles, not elsewhere specified.....	13	148	17	6	6	5	De 142	Ja 99	144	103	33	2	6	.....	40		
23 Flour-mill and gristmill products.....	18	68	18	4	6	1	No 44	Mh 35	42	42	.....	.....	.....	.....	1,046		
24 Foundry and machine-shop products.....	141	11,905	87	324	376	181	De 12,678	Ja 9,301	12,906	12,561	206	122	17	.....	11,933		
25 Furnishing goods, men's.....	9	723	4	10	15	10	Mh 767	Jy 604	664	249	384	13	18	.....	617		
26 Furniture and refrigerators.....	10	205	11	3	4	6	Je 222	Fe 163	185	167	12	6	.....	.....	89		
27 Gas and electric fixtures and lamps and reflectors.	5	84	7	3	2	3	De 73	Ja 64	73	39	32	.....	2	.....	70		
28 Gas, illuminating and heating.....	8	487	.....	21	43	11	Au 445	Fe 369	403	387	16	.....	.....	.....	719		
29 Gold and silver, reducing and refining, not from the ore.	15	142	15	22	16	7	Ja 90	Ap 78	80	80	.....	.....	.....	.....	270		
30 Hand stamps and stencils and brands.....	5	24	9	.....	.....	1	Ja 15	Au 14	14	12	.....	2	.....	.....	1		
31 Hats and caps, other than felt, straw, and wool.	5	46	11	1	4	2	De 31	Fe 24	31	23	8	.....	.....	.....	4		
32 Hosiery and knit goods.....	17	1,849	9	28	18	20	De 1,825	Au 1,711	1,880	374	1,374	9	123	.....	1,626		
33 Ice, manufactured.....	5	23	2	3	.....	1	Jy 35	Ja 0	25	25	.....	.....	.....	.....	349		
34 Jewelry.....	206	11,002	292	337	487	375	De 11,238	Ap 8,439	11,314	6,428	4,503	154	139	.....	2,425		
35 Lapidary work.....	3	31	5	.....	3	5	No 30	Ap 10	30	29	1	.....	.....	.....	7		
36 Leather goods.....	9	178	9	9	7	0	No 155	My 139	152	131	19	2	.....	.....	108		
37 Liquors, malt.....	9	543	3	25	62	3	Se 487	Fe 425	460	460	.....	.....	.....	.....	2,055		
38 Lumber and timber products.....	57	880	59	31	30	12	Ap 834	Ja 673	806	803	2	1	.....	.....	2,828		
39 Marble and stone work.....	46	764	61	18	21	4	Jy 732	De 533	576	576	.....	.....	.....	.....	1,754		
40 Mattresses and spring beds.....	6	74	6	1	8	4	Je 67	Ja 89	47	33	14	.....	.....	.....	26		
41 Millinery and lace goods.....	8	280	5	5	.....	5	Oc 290	Ja 228	284	17	252	1	14	.....	36		
42 Models and patterns, not including paper patterns.	9	67	10	.....	.....	1	Se 64	Ap 46	60	60	.....	.....	.....	.....	39		
43 Paint and varnish.....	5	65	6	7	9	6	No 43	Mh 33	39	37	.....	2	.....	.....	209		
44 Paper goods, not elsewhere specified.....	10	347	6	18	4	17	De 319	Ja 286	319	218	71	17	13	.....	684		
45 Patent medicines and compounds and druggists' preparations.	19	135	14	14	16	35	No 66	Jy 52	63	37	22	3	1	.....	28		
46 Photo-engraving.....	4	47	4	1	4	4	De 37	Ap 30	37	37	.....	.....	.....	.....	15		
47 Printing and publishing.....	147	2,049	139	91	271	94	De 1,570	Ja 1,411	1,570	1,112	421	36	1	.....	1,944		
48 Rubber goods, not elsewhere specified.....	5	835	1	15	22	23	No 819	Au 745	805	391	367	21	26	.....	1,075		
49 Shipbuilding, including boat building.....	13	599	12	7	40	2	My 677	Se 407	551	541	10	.....	.....	.....	1,030		
50 Silk and silk goods, including throwsters.	13	1,750	6	31	10	18	No 1,908	Ja 1,452	1,893	825	1,007	13	48	.....	2,313		
51 Silverware and plated ware.....	11	2,517	8	28	141	46	Oc 2,473	Ja 2,078	2,393	2,130	221	25	17	.....	1,515		
52 Slaughtering and meat packing.....	21	267	26	7	14	6	De 230	Jy 204	230	227	.....	3	.....	.....	428		
53 Surgical appliances and artificial limbs.....	3	31	1	5	.....	2	De 23	Je 22	23	16	7	.....	.....	.....	52		
54 Tobacco manufactures.....	65	360	79	7	5	1	Se 283	Ap 229	291	218	72	.....	.....	.....	7		
55 Woolen, worsted, and felt goods, and wool hats.	88	25,673	26	380	311	82	Se 25,604	Ja 24,072	24,739	12,879	10,317	726	817	.....	43,715		
56 All other industries.....	317	22,343	243	514	951	347	.....	.....	.....	.....	.....	.....	.....	.....	46,549		

1 No figures given for reasons explained in the Introduction.

2 Same number reported for one or more other months.

3 None reported for one or more other months.

4 All other industries embrace—

Artists' materials.....	1	Cash registers and calculating machines.....	1	Fireworks.....	1
Automobiles, including bodies and parts.....	2	Chemicals.....	3	Flags, banners, regalia, society badges, and emblems.....	3
Awnings, tents, and sails.....	5	Clocks and watches, including cases and materials.....	1	Flavoring extracts.....	5
Bags, other than paper.....	1	Clothing, women's.....	4	Food preparations.....	1
Baking powders and yeast.....	1	Coffee and spice, roasting and grinding.....	3	Fur goods.....	3
Baskets, and rattan and willow ware.....	1	Coffins, burial cases, and undertakers' goods.....	1	Glass, cutting, staining, and ornamenting.....	1
Boots and shoes, rubber.....	3	Cooperage and wooden goods, not elsewhere specified.....	2	Gold and silver, leaf and foil.....	5
Brick and tile.....	2	Cordials and sirups.....	1	Grease and tallow.....	3
Butter.....	1	Cork, cutting.....	1	Haircloth.....	1
Buttons.....	1	Dyeing and finishing textiles.....	45	Hat and cap materials.....	1
Canning and preserving.....	2	Dyestuffs and extracts.....	10	Hats, fur-felt.....	3
Card cutting and designing.....	1	Emery and other abrasive wheels.....	1	House-furnishing goods, not elsewhere specified.....	1
Cars and general shop construction and repairs by steam-railroad companies.....	1	Engraving and diesinking.....	38	Instruments, professional and scientific.....	1
Cars and general shop construction and repairs by street-railroad companies.....	4	Files.....	2	Iron and steel, steel works and rolling mills.....	2

MANUFACTURES—RHODE ISLAND.

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THE STATE, BY INDUSTRIES: 1909.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.	
	Total.	Services.			Materials.		Miscellaneous.						
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.			
\$280,901,270	\$242,268,739	\$6,145,336	\$4,431,510	\$55,234,068	\$5,108,776	\$153,082,798	\$983,148	\$1,891,434	\$1,200,749	\$14,185,920	\$280,343,797	\$122,152,228	
1	40,701	19,939	1,875	7,803	356	7,734	251	253	2,167	28,296	20,206		
2	282,600	200,642	9,100	4,600	25,294	2,580	147,954	120	1,191	9,797	242,848	92,308	
3	23,145	53,036	3,380	3,640	5,222	331	28,638	1,079	30	10,716	61,072	32,103	
4	121,274	103,621	4,080	3,996	27,682	1,947	55,022	4,330	902	5,662	142,080	85,111	
5	328,967	407,294	26,750	13,938	157,687	5,718	163,404	7,235	1,901	30,661	499,419	330,297	
6	560,238	731,872	20,342	4,571	117,967	14,469	534,506	2,243	1,971	375	827,698	278,623	
7	1,435,924	3,484,014	36,442	46,476	659,443	72,610	2,397,048	47,931	7,484	215,080	3,936,864	1,466,306	
8	11,400	37,803	6,990	6,990	170	30,219	291	33	160	43,009	12,620		
9	123,940	108,005	4,200	2,072	68,187	3,518	83,254	1,834	444	1,108	202,634	115,862	
10	9,272	10,261	900	520	9,378	883	2,357	950	-----	1,293	22,511	19,291	
11	408,410	347,504	10,546	4,886	151,721	7,672	155,495	4,222	2,416	475	421,913	258,746	
12	204,412	442,233	18,375	21,743	29,364	1,262	320,725	1,146	374	29,568	475,375	153,388	
13	201,436	351,384	14,883	20,632	6,694	6,694	251,215	14,027	865	-----	447,527	189,618	
14	545,063	809,125	42,207	16,061	218,263	6,243	445,473	14,522	2,003	3,351	932,271	480,555	
15	190,197	245,578	6,750	1,356	48,444	6,117	170,084	4,150	893	-----	256,887	80,056	
16	67,678,645	40,585,017	991,120	339,263	11,796,733	1,045,147	24,356,092	22,491	350,511	187,046	1,498,605	50,812,697	24,011,358
17	148,639	169,473	9,588	3,756	82,364	4,960	49,078	5,470	486	1,332	12,439	217,193	163,155
18	4,314,783	5,787,657	89,621	89,727	677,593	64,651	4,530,685	13,113	17,710	-----	304,557	6,410,020	1,814,684
19	212,031	268,426	12,422	5,165	80,850	5,095	152,455	6,514	802	-----	5,123	323,168	165,618
20	218,650	493,371	6,804	14,774	270,663	14,453	132,008	6,586	683	078	46,722	569,848	423,387
21	95,158	194,037	10,620	6,018	52,613	1,777	109,334	4,779	230	600	8,666	222,921	111,810
22	887,191	831,807	6,700	5,600	22,367	7,956	782,253	2,030	1,153	-----	4,748	880,432	96,223
23	27,101,221	18,870,569	732,192	471,033	6,899,667	400,941	7,612,500	75,844	122,237	275,744	1,780,351	20,611,693	12,598,192
24	1,084,217	1,886,873	25,778	22,589	310,931	16,398	878,968	3,782	4,950	4,000	119,477	1,548,638	653,272
25	236,572	231,307	4,870	5,751	121,179	3,911	78,989	5,190	1,258	400	9,759	262,371	179,471
26	93,989	87,367	3,540	2,552	37,267	2,054	36,200	2,660	433	100	7,471	130,733	92,389
27	7,109,560	1,159,644	64,216	53,370	302,664	456,477	74,021	-----	89,010	-----	119,886	1,833,176	1,302,678
28	711,224	4,352,123	42,695	27,649	57,425	17,118	4,164,242	9,540	3,043	-----	40,501	4,441,784	270,424
29	16,445	17,938	-----	416	10,418	195	4,110	2,165	45	-----	589	26,845	22,543
30	25,855	52,771	1,560	3,253	14,958	361	28,289	1,216	121	-----	3,013	66,550	37,900
31	2,878,478	3,381,983	85,910	61,338	635,119	29,705	2,414,662	4,936	10,369	7,693	132,161	3,865,792	1,421,335
32	140,910	42,489	2,745	390	16,301	9,015	9,773	4,000	379	-----	5,885	57,446	38,658
33	17,050,490	18,004,578	704,163	783,581	4,700,780	161,637	9,626,400	204,165	51,029	149,654	1,503,169	20,686,100	10,897,063
34	192,800	29,112	3,500	11,178	1,230	8,922	1,105	28	28	-----	3,149	43,134	32,002
35	311,955	367,304	13,416	9,796	31,630	4,264	228,208	5,084	889	2,500	21,527	405,861	173,389
36	4,529,042	2,824,977	95,473	66,064	333,942	104,074	1,083,636	48	624,396	-----	466,744	3,579,366	2,391,656
37	1,342,024	1,710,672	61,570	31,525	437,035	13,042	1,050,762	19,915	7,401	22,503	76,889	1,907,072	842,268
38	576,844	805,451	30,348	31,030	450,826	23,477	225,906	7,183	3,164	1,522	32,020	1,039,451	784,048
39	41,359	180,719	1,716	7,684	25,082	1,041	10,510	7,080	147	-----	7,459	168,838	67,337
40	163,288	294,307	5,222	2,170	92,776	1,856	196,172	2,384	303	13,412	9,952	332,937	184,909
41	23,849	51,572	-----	208	35,233	1,533	9,114	2,986	82	-----	2,366	69,744	69,047
42	234,273	355,950	15,320	17,926	23,003	3,465	283,628	800	1,355	-----	10,363	471,361	184,238
43	900,233	1,222,436	94,430	13,536	139,571	23,799	878,123	2,076	4,986	-----	65,915	1,352,572	450,650
44	163,602	257,402	21,494	28,090	28,461	1,813	107,092	6,979	679	-----	63,681	306,040	197,130
45	21,554	51,866	1,170	4,117	27,322	873	8,918	1,888	38	3,179	4,361	56,281	46,490
46	3,257,320	2,974,579	214,555	278,704	955,965	41,715	1,021,960	76,308	22,763	60,309	302,300	3,780,075	2,716,400
47	1,906,318	2,656,054	49,420	37,076	319,728	27,522	2,046,993	19,072	8,999	-----	149,184	3,142,529	1,067,954
48	877,443	755,166	21,963	30,426	369,309	16,220	288,108	4,805	2,104	800	15,381	817,281	512,953
49	3,495,555	4,210,400	57,010	23,013	788,229	36,091	3,151,594	5,793	13,188	38,624	96,958	4,584,431	1,396,746
50	9,422,115	5,495,799	100,189	151,100	1,568,095	60,284	2,574,944	16,027	13,017	17,620	904,483	6,198,300	3,563,072
51	593,467	3,065,325	38,072	14,733	121,726	11,637	2,782,719	6,266	2,328	-----	27,844	3,156,308	361,952
52	49,038	49,584	8,900	1,680	10,024	1,745	13,715	2,800	-----	-----	10,840	53,250	37,790
53	228,140	477,225	13,704	3,798	179,818	1,568	194,015	7,252	51,898	-----	25,112	536,534	340,951
54	68,866,620	66,663,375	879,448	443,019	11,537,699	906,926	50,118,450	197,913	187,959	364,260	2,027,701	74,600,240	23,574,894
55	59,700,448	44,978,663	1,379,092	1,185,319	9,956,161	1,451,959	26,875,072	111,969	272,466	13,996	3,782,629	52,735,578	24,498,547

4 All other industries embrace—Continued.

Iron and steel, bolts, nuts, washers, and rivets, not made in steel works and rolling mills.....	5	Oil, coltseed, and cake.....	1	Stoves and furnaces, including gas and oil stoves..	2
Iron and steel forgings.....	3	Oil, not elsewhere specified.....	3	Toys and games.....	2
Jewelry and instrument cases.....	1	Oleomargarine.....	4	Upholstering goods.....	1
Labels and tags.....	1	Optical goods.....	2	Vault lights and ventilators.....	1
Lead, bar, pipe, and sheet.....	2	Paper and wood pulp.....	1	Vinegar and cider.....	3
Leather, tanned, curried, and finished.....	3	Pens, fountain, stylographic, and gold.....	1	Washing machines and clothes wringers.....	1
Lime.....	1	Pulp goods.....	1	Waste.....	2
Liquors, distilled.....	2	Saws, wood.....	2	Window shades and fixtures.....	3
Looking-glass and picture frames.....	3	Sewing machines, cases, and attachments.....	1	Wire.....	7
Mineral and soda waters.....	37	Shoddy.....	3	Wirework, including wire rope and cable.....	7
Mucilage and paste.....	1	Soap.....	9	Wood, turned and carved.....	16
Musical instruments, pianos and organs and materials.....	1	Sporting and athletic goods.....	3	Wool scouring.....	2
		Steam packing.....	1		



# SOUTH CAROLINA.

## INDUSTRIES IN GENERAL.

**General character of the state.**—South Carolina, with a gross area of 30,989 square miles, of which 494 represent water surface, ranks thirty-ninth in size among the states and territories of continental United States. Its population in 1910 was 1,515,400, as compared with 1,340,316 in 1900 and 1,151,149 in 1890. The density of population for the entire state was 49.7 per square mile in 1910, the corresponding figure for 1900 being 44. It ranked twenty-sixth among the 49 states and territories as regards population in 1910 and twenty-fourth in 1900. In 1909 as well as in 1899 it ranked thirty-second among the states in respect to gross value of manufactured products. Charleston, with a population of 58,833, is the only city in the state having a population of over 50,000. There are, however, three other cities each of which has a population of over 10,000. These four cities—Charleston, Columbia, Greenville, and Spartanburg—contain 7.8 per cent of the total population and are credited with 16.1 per cent of the total value of manufactured products of the state.

The transportation facilities of South Carolina are excellent. Of the 3,397<sup>1</sup> miles of steam-railroad trackage in the state in 1909, the greater portion is owned by the several companies which operate the important trunk lines of the South. There are also many less important roads which serve as feeders to these main lines. Charleston, one of the important seaports

on the southern Atlantic coast, together with two other ports in the state, afford ample opportunities for domestic and foreign commerce. Furthermore, the principal rivers of the state, which are navigable to a considerable extent, afford additional means of transportation.

**Importance and growth of manufactures.**—Although South Carolina is preeminently an agricultural community, at each census from 1869 to 1909 the manufactures of the state have represented an increased proportion of the total value of products of the manufacturing industries in the United States. This proportion in 1869 was two-tenths of 1 per cent, while in 1899 and in 1909 it was one-half of 1 per cent.

In 1849 the total value of the manufactures of the state, including the products of the neighborhood and hand industries, amounted to only \$7,045,477, while in 1909, exclusive of the value of the products of the neighborhood and hand industries, it reached \$113,235,945, representing an increase of fifteen fold. During the same period the population of the state increased 126.7 per cent, and the gross value of products per capita of the total population of the state increased from \$11 to \$75.

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.	
	1899	1904	1909	1904-1899	1909-1904
Number of establishments.....	1,854	1,399	1,369	32.5	2.2
Persons engaged in manufactures.....	78,040	63,071	( <sup>1</sup> )	23.7	.....
Proprietors and firm members.....	1,737	1,241	( <sup>1</sup> )	40.0	.....
Salaried employees.....	3,257	2,389	1,419	36.3	68.4
Wage earners (average number).....	73,046	59,441	47,025	22.9	26.4
Primary horsepower.....	276,378	197,479	112,697	40.0	75.2
Capital.....	\$173,221,000	\$113,422,000	\$62,750,000	52.7	80.8
Expenses.....	97,371,000	72,206,000	44,055,000	34.9	63.9
Services.....	24,117,000	16,224,000	10,438,000	48.6	55.4
Salaries.....	3,756,000	2,355,000	1,308,000	59.5	80.0
Wages.....	20,361,000	13,869,000	9,130,000	46.8	51.9
Materials.....	66,351,000	49,969,000	30,486,000	32.8	63.9
Miscellaneous.....	6,903,000	6,013,000	3,131,000	14.8	92.0
Value of products.....	113,236,000	79,376,000	53,336,000	42.7	48.8
Value added by manufacture (value of products less cost of materials).....	46,885,000	29,407,000	22,850,000	59.4	28.7

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

In 1909 the state of South Carolina had 1,854 manufacturing establishments which gave employment to an average of 78,040 persons during the year and

<sup>1</sup> Report of Interstate Commerce Commission, 1909.

paid out \$24,117,000 in salaries and wages. Of the persons employed, 73,046 were wage earners. These establishments turned out products to the value of \$113,236,000, to produce which materials costing

\$66,351,000 were used. The value added by manufacture was thus \$46,885,000, which figure, as explained in the Introduction, best represents the net wealth created by manufacturing operations during the year.

The totals presented in the preceding table do not include the statistics for an establishment operated by the Federal Government—the United States navy yard located just beyond the corporate limits of Charleston. In 1909 this plant employed an average of 571 wage earners, and the expense of repair work at the yard during that year was reported at \$876,098.

In general, this table brings out the fact that the manufacturing industries of South Carolina not only increased considerably during each period, but that as a whole there was a greater development during the five-year period 1899–1904 than during the more

recent five-year period, 1904–1909. During the period 1904–1909 the number of establishments increased 32.5 per cent; the average number of wage earners, 22.9 per cent; the cost of materials, 32.8 per cent; the value of products, 42.7 per cent; and the value added by manufacture, 59.4 per cent. The differences in the increases shown for the two five-year periods in the cost of materials and in the value added by manufacture are noteworthy. As pointed out in the Introduction, it would be improper to infer that manufactures increased in volume to the full extent indicated by these figures regarding values, since the increase shown is certainly due, in part, to the increase that has taken place in the prices of commodities.

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

INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		PER CENT OF INCREASE. <sup>1</sup>			
		Average number.	Percent distribution.	Amount.	Percent distribution.	Amount.	Percent distribution.	Value of products.		Value added by manufacture.	
								1904–1909	1899–1904	1904–1909	1899–1904
<b>All industries.....</b>	<b>1,854</b>	<b>73,046</b>	<b>100.0</b>	<b>\$113,236,000</b>	<b>100.0</b>	<b>\$46,885,000</b>	<b>100.0</b>	<b>42.7</b>	<b>48.8</b>	<b>59.4</b>	<b>24.7</b>
Cotton goods, including cotton small wares.....	147	45,454	62.2	65,930,000	58.2	24,627,000	52.5	33.4	66.3	62.8	21.4
Lumber and timber products.....	851	14,604	20.0	13,141,000	11.6	9,160,000	19.5	58.7	38.9	58.7	63.6
Oil, cottonseed, and cake.....	103	1,765	2.4	10,903,000	9.6	2,183,000	4.7	99.6	76.1	139.9	23.0
Fertilizers.....	26	1,851	2.5	9,025,000	8.0	3,396,000	7.2	148.1	-25.5	269.0	-46.7
Printing and publishing.....	161	834	1.1	1,601,000	1.4	1,261,000	2.7	54.2	31.6	53.0	37.1
Cars and general shop construction and repairs by steam-railroad companies.....	10	1,418	2.0	1,499,000	1.3	753,000	1.6	38.7	56.4	16.2	63.2
Bread and other bakery products.....	63	309	0.5	1,100,000	1.0	376,000	0.8	78.0	17.7	51.6	22.8
Brick and tile.....	45	888	1.2	731,000	0.6	463,000	1.0	11.4	14.5	-3.3	8.6
Hosiery and knit goods.....	7	839	1.1	655,000	0.6	321,000	0.7	-39.3	175.3	-34.9	220.1
Foundry and machine-shop products.....	34	417	0.6	547,000	0.5	369,000	0.8	0.9	34.5	-0.5	57.2
Carriages and wagons and materials.....	23	272	0.4	464,000	0.4	220,000	0.5	-15.3	32.4	-14.7	24.0
Ice, manufactured.....	32	218	0.3	433,000	0.4	304,000	0.6	77.5	110.3	79.9	113.9
Marble and stone work.....	36	236	0.3	426,000	0.4	282,000	0.6				
Turpentine and rosin.....	56	443	0.6	406,000	0.4	242,000	0.5	-29.3	-27.2	21.0	-36.9
Flour-mill and gristmill products.....	10	23	( <sup>2</sup> )	351,000	0.3	43,000	0.1	-51.6	-16.6	-53.3	-31.9
Gas, illuminating and heating.....	12	127	0.2	334,000	0.3	220,000	0.5	73.1	12.2	64.2	
Canning and preserving.....	16	467	0.6	318,000	0.3	159,000	0.3				
Copper, tin, and sheet-iron products.....	8	79	0.1	200,000	0.2	94,000	0.2	400.0	-65.5	248.1	-47.1
Clothing, men's, including shirts.....	5	99	0.1	139,000	0.1	45,000	0.1				
Coffins, burial cases, and undertakers' goods.....	4	77	0.1	127,000	0.1	65,000	0.1	0.8	96.9	-26.1	183.9
Mattresses and spring beds.....	4	46	0.1	107,000	0.1	43,000	0.1	10.3	-15.7	19.4	-36.8
All other industries.....	202	2,520	3.5	4,799,000	4.2	2,259,000	4.8				

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

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

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 another establishment.

In addition to the industries presented separately, there are four important industries, each of 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 because the returns do not present properly the true condition of the industry, for the reason that it is

more or less interwoven with one or more other industries. These industries are: The manufacture of cordage and twine and jute and linen goods, the mineral and soda water industry, the cleaning and polishing of rice, and the manufactures from tobacco.

Four industries, two of which use cotton as a principal material, predominate greatly in importance. 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.

*Cotton goods, including cotton small wares.*—This industry consists entirely of mills engaged primarily in the manufacture of cotton goods, no establishment being reported where the output of cotton small

wares predominates. It is by far the most important industry in the state. In 1909 it gave employment to an average of 45,454 wage earners, and the value of its products amounted to \$65,930,000, these figures representing 62.2 per cent and 58.2 per cent, respectively, of the corresponding totals for all manufacturing industries in the state. Measured by value of products, South Carolina is third in order of importance among the states in the production of cotton goods. That the percentage of increase in value added by manufacture was much less from 1899 to 1904 than from 1904 to 1909 was due in part to the fluctuation in the price of raw cotton.

*Lumber and timber products.*—This industry includes, in addition to the timber plants, the chief products of which are logs and bolts, the sawmills, shingle mills, and planing mills, producing rough lumber, lath, shingles, cooperage stock, sash, doors, blinds, interior finish, and other millwork, and also the wooden packing-box factories. The number of establishments included in this industry largely exceeds the number engaged in any other industry in the state.

*Oil, cottonseed, and cake.*—The statistics include those for all establishments engaged primarily in extracting oil from cotton seed or in refining crude cottonseed oil. The industry is entirely dependent upon the production of cotton, and utilizes the seed, which until recently was practically treated as waste. Since 1899 the number of establishments has increased rapidly, and the varied uses for cottonseed products have greatly stimulated the industry.

*Fertilizers.*—South Carolina was the first state in the Union to mine and to utilize phosphate rock as the basis of commercial fertilizer. For many years following 1867, when the rock was first mined, this state produced the larger part of the world's supply. The rapid growth of the cottonseed-oil industry in the state has caused a marked development of this industry, for cottonseed meal is one of the best ammoniates, and is an important ingredient in the manufacture of fertilizers. The value of products for the industry was \$4,882,506 in 1899 compared with \$3,637,576 in 1904 and \$9,024,900 in 1909, a decrease from 1899 to 1904 of \$1,244,930, or 25.5 per cent, but an increase of \$5,387,324, or 148.1 per cent, from 1904 to 1909. Measured by value of products, the fertilizer industry was third in importance in 1899 among the industries of the state, whereas in 1904 and 1909 it held fourth place. In 1899 South Carolina was the second state in the Union in this class of manufacture. It dropped to sixth place in 1904, but by 1909 it had nearly regained its former position by becoming third in importance.

*Printing and publishing.*—Establishments engaged in the printing and publishing of newspapers and

periodicals, book and job printing, and lithographing are included in this classification, which reported a total of 161 establishments in 1909, gave employment to an average of 834 wage earners in that year, and turned out products valued at \$1,601,000.

*Cars and general shop construction and repairs by steam-railroad companies.*—This class of manufacture represents the work done in the car shops of steam-railroad companies, and is confined practically to repairs to the rolling stock and equipment. The statistics do not include minor repairs made in round-houses. The industry was fifth in the state in 1909 in the employment of wage earners, with an average of 1,418 for the year.

With the exception of the fertilizer and cottonseed-oil industries, which exchanged places, these six industries held the same relative positions when measured by value added by manufacture as when measured by value of products.

*Turpentine and rosin.*—While this industry does not rank among the most important, it is one of the oldest and is identified closely with the industrial development of the state. There was a decrease in the value of products both between 1899 and 1904, and between 1904 and 1909. The value added by manufacture also decreased between 1899 and 1904, but increased in the succeeding period.

This table shows also the percentages of increase for these leading industries in respect to value of products and value added by manufacture. With the exception of the manufacture of copper, tin, and sheet-iron products, the fertilizer industry showed a greater rate of increase from 1904 to 1909 than any other of the industries shown separately, both in the value added by manufacture and in value of products, namely, 259 per cent and 148.1 per cent, respectively. In the cottonseed-oil, ice, lumber, gas, and bakery industries the gross value of products and the value added by manufacture increased greatly during the same period. Five of the industries listed, namely, hosiery and knit goods, carriage and wagon, turpentine and rosin, flour-mill and gristmill, and canning and preserving, decreased in value of products from 1904 to 1909, while the fertilizer, the turpentine and rosin, the flour-mill and gristmill, the copper, tin, and sheet-iron products, and the mattress and spring-bed industries decreased from 1899 to 1904. Seven industries decreased in value added by manufacture from 1904 to 1909, while five decreased from 1899 to 1904, but with the exception of fertilizers none of these decreases are for industries of great importance in the state. The percentages of increase are not given for marble and stone work and for men's clothing, because the statistics for these two industries for previous censuses are not comparable.

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.....	78,040	60,944	17,096
Proprietors and officials.....	3,333	3,287	46
Proprietors and firm members.....	1,737	1,697	40
Salaried officers of corporations.....	606	603	3
Superintendents and managers.....	990	987	3
Clerks.....	1,661	1,393	268
Wage earners (average number).....	73,046	59,264	16,782
16 years of age and over.....	63,641	50,848	12,793
Under 16 years of age.....	9,405	5,416	3,989

The average number of persons engaged in manufactures during 1909 was 78,040, of whom 73,046 were wage earners. Of the remainder, 3,333 were proprietors and officials, and 1,661 were clerks. Corresponding figures for individual industries will be found in Table II.

The following table shows, for 1909, the percentage of proprietors and officials, clerks, and wage earners, respectively, among the total number of persons employed in manufactures. It covers all industries combined and 11 important industries individually.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	78,040	4.3	2.1	93.6
Bread and other bakery products.....	621	16.5	12.7	70.8
Brick and tile.....	990	9.0	1.3	89.7
Cars and general shop construction and repairs by steam-railroad companies.....	1,483	0.5	3.8	95.6
Cotton goods, including cotton small wares.....	46,342	1.0	1.0	98.1
Fertilizers.....	2,057	3.4	6.7	90.0
Foundry and machine-shop products.....	477	9.2	3.4	87.4
Hosiery and knit goods.....	864	1.7	1.2	97.1
Lumber and timber products.....	16,330	8.8	1.8	89.4
Oil, cottonseed, and cake.....	2,190	12.1	7.3	80.6
Printing and publishing.....	1,294	19.4	16.2	64.5
Turpentine and rosin.....	524	14.9	0.6	84.5
All other industries.....	4,968	10.9	5.3	83.8

Of the total number of persons engaged in all manufacturing industries, 4.3 per cent were proprietors and officials, 2.1 per cent clerks, and 93.6 per cent wage earners. In the printing and publishing and the bakery 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 very much higher than for most other industries or for all industries combined. Similar conditions prevail to some extent in the manufacture of turpentine and rosin, where the proprietors and officials form 14.9 per cent of the total number of persons engaged. The proportion is also large in the manufacture of cottonseed products, 12.1 per cent, which is due to the fact that the industry in the state is conducted in relatively small establishments measured by number of wage earners employed. The smallest proportion for this class is found in the steam-railroad repair shops, and is due to the fact that corporations which operate these establishments report no proprietors, and that general officials are not as a rule assigned to the supervision of this particular branch of the work.

In the cotton-goods industry the proportion of proprietors and officials is exceedingly small on account of the large average number of wage earners to an individual establishment.

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 total 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.	
All industries.....	73,046	69.6	17.5	12.9
Bread and other bakery products.....	369	79.4	12.2	8.4
Brick and tile.....	888	94.1	.....	5.9
Cars and general shop construction and repairs by steam-railroad companies.....	1,418	99.9	0.1	0.1
Cotton goods, including cotton small wares.....	45,454	56.6	24.7	18.7
Fertilizers.....	1,851	100.0	.....	.....
Foundry and machine-shop products.....	417	97.4	2.6	.....
Hosiery and knit goods.....	839	35.0	45.6	18.7
Lumber and timber products.....	14,694	98.5	0.1	1.5
Oil, cottonseed, and cake.....	1,705	99.8	0.1	0.1
Printing and publishing.....	834	78.5	15.0	6.5
Turpentine and rosin.....	443	94.8	3.4	1.8
All other industries.....	4,164	67.6	28.1	9.8

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

For all industries combined, 69.6 per cent of the average number of wage earners were males 16 years of age and over; 17.5 per cent, females 16 years of age and over; and 12.9 per cent, persons under the age of 16. The larger part of the total number of female wage earners is made up of those employed in

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>78,046</b>	<b>1,431</b>	<b>1,391</b>	<b>1,778</b>	<b>1,391</b>	<b>61,647</b>	<b>3,211</b>	<b>2,038</b>	<b>288</b>
Bread and other bakery products.....	369	6	4	12	1	238	19		
Brick and tile.....	888	68	12		46	594	147	88	3
Canning and preserving.....	467	52	10	24		375		21	
Carriages and wagons and materials.....	272		10			261	1	6	
Cars and general shop construction and repairs by steam-railroad companies.....	1,418			1,252		107	59		
Clothing, men's, including shirts.....	99			5	94				
Coffins, burial cases, and undertakers' goods.....	77					77			
Copper, tin, and sheet-iron products.....	79			48		31			
Cotton goods, including cotton small wares.....	45,454		445			45,009			
Fertilizers.....	1,851			4		1,798	6	43	
Foundry and machine-shop products.....	417			190	22	201	4		
Gas, illuminating and heating.....	127	1					14		112
Hosiery and knit goods.....	839					839			
Ice, manufactured.....	218					28	10	55	119
Lumber and timber products.....	14,604	567	623	72	742	9,677	2,586	337	
Marble and stone work.....	236	70	31	7	26	102			
Oil, cottonseed, and cake.....	1,765				2	116	286	1,351	10
Printing and publishing.....	834	336	122	126	34	196	7	13	
Turpentine and rosin.....	443	174	23			246			
All other industries.....	2,589	157	11	38	424	1,754	66	124	15

It is evident from these figures that for the great majority of wage earners employed in the manufacturing industries of South Carolina the prevailing hours of labor are 60 a week, only 8.1 per cent of the total being employed in establishments where less than 60 hours a week prevail, and 7.5 per cent in establishments working more than these hours.

In the manufacture of cotton goods 99 per cent and in the lumber industry 66.3 per cent of the wage earners work 60 hours a week. These two industries combined gave employment to 82.2 per cent of the total average number of wage earners engaged in all manufacturing industries in the state in 1909.

The cottonseed-oil industry is mainly on a 72-hour-per-week basis. Relatively long hours are what might be expected in a seasonal industry where the operations for the entire year are confined principally to a few months. Steam-railroad repair shops are mainly on a 54-hour-per-week basis.

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

In 1909 only 16.1 per cent of the total value of products was reported from the four cities having over 10,000 inhabitants, and only 11.4 per cent of the average number of wage earners were employed in such cities. This is due primarily to the fact that the establishments of the two leading and most highly developed industries of the state, the cotton-goods and lumber industries, are located largely outside the

corporate limits of the cities, although the former industry is the most important in each of the cities, except Charleston. The figures indicate that while very little relative change took place during the 5 or 10 years, yet on the whole the manufacturing industries of the districts outside of the cities gained on those of the cities.

ITEM.	Year.	Total.	LOCATION OF ESTABLISHMENTS.		PER CENT OF TOTAL.	
			In cities with population of 10,000 and over.	Outside districts.	In cities with population of 10,000 and over.	Outside districts.
Population.....	1910	1,515,400	118,410	1,396,990	7.8	92.2
	1900	1,340,316	100,170	1,240,146	7.5	92.5
Number of establishments.	1909	1,854	248	1,606	13.4	86.6
	1904	1,399	220	1,179	15.7	84.3
	1899	1,369	195	1,174	14.2	85.8
Average number of wage earners.	1909	73,046	8,351	64,695	11.4	88.6
	1904	59,441	8,697	50,744	14.6	85.4
	1899	47,025	7,409	39,616	15.8	84.2
Value of products..	1909	\$113,235,945	\$18,240,484	\$94,995,461	16.1	83.9
	1904	79,376,262	14,488,514	64,887,748	18.3	81.7
	1899	53,335,811	11,404,995	41,930,816	21.4	78.6
Value added by manufacture.	1909	46,885,071	7,120,347	39,764,724	15.2	84.8
	1904	29,407,636	5,453,894	23,953,742	18.5	81.5
	1899	22,849,950	4,428,966	18,420,984	19.4	80.6

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

CITY.	1910	1900
Charleston.....	53,833	55,907
Columbia.....	26,319	21,106
Spartanburg.....	17,517	11,395
Greenville.....	15,741	11,800

The relative importance in manufacturing industry of each of these four cities is shown in the following table, in which the value of products and average number of wage earners are shown separately for 1909, 1904, and 1899:

CITY.	AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS.		
	1909	1904	1899	1909	1904	1899
Charleston.....	2,874	3,450	3,187	\$6,950,807	\$6,007,094	\$5,713,315
Columbia.....	2,522	2,393	2,091	5,871,820	4,676,944	3,133,903
Spartanburg.....	1,773	1,650	1,361	3,275,711	2,127,702	1,691,825
Greenville.....	1,182	1,204	770	2,142,146	1,676,774	966,452

Each of the cities shows an increase in value of products from 1904 to 1909, as well as from 1899 to 1904, but, with the exception of Spartanburg, the percentages of increase for the former period were less for each of the cities than for the state as a whole. Although Charleston shows an increase of 15.7 per cent in value of products for the later five-year period, the number of wage earners decreased 16.7 per cent. Likewise, in Greenville the number of wage earners decreased 1.8 per cent, while the value of products increased 27.8 per cent.

Charleston, the largest and most important manufacturing city in the state, owes its position to a wide diversity of industries, of which the most important, as measured by value of products, are the fertilizer, the bakery, the lumber and timber, the printing and publishing, the cottonseed oil and cake industries, the manufacture of jute and jute goods, and the cleaning and polishing of rice.

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

The most important distinction shown is that between corporate and all other forms of ownership. For all industries combined, 30.4 per cent of the total number of establishments were in 1909 under corporate ownership, as against 69.5 per cent under all other forms. The corresponding figures for 1904 were 33.2 per cent and 66.8 per cent, respectively. The establishments under corporate ownership, however, produced nine-tenths of the total value of products in 1909. For all industries combined, as measured by value of products and value added by manufacture, corporations gained to some extent, due principally to the growth of the cotton-goods industry, in which practically all of the mills are reported under corporate ownership.

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.....	1,854	78,046	\$113,235,945	\$46,885,071
1904.....	1,399	58,441	79,376,262	29,407,636
Individual:				
1909.....	940	6,243	6,816,852	4,168,834
1904.....	672	5,172	5,704,439	3,236,440
Firm:				
1909.....	340	3,342	3,977,839	2,247,098
1904.....	256	2,745	3,090,494	1,761,726
Corporation:				
1909.....	564	63,455	102,403,671	40,434,017
1904.....	464	51,510	70,493,378	24,398,500
Other:				
1909.....	10	6	37,583	35,122
1904.....	7	14	27,951	21,970
Per cent of total:				
1909.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0
Individual:				
1909.....	50.7	8.5	6.0	8.9
1904.....	48.0	8.7	7.3	11.0
Firm:				
1909.....	18.3	4.6	3.5	4.8
1904.....	18.3	4.6	3.9	6.0
Corporation:				
1909.....	30.4	86.9	90.4	86.2
1904.....	33.2	86.7	88.8	83.0
Other:				
1909.....	0.5	( <sup>1</sup> )	( <sup>1</sup> )	0.1
1904.....	0.5	( <sup>1</sup> )	( <sup>1</sup> )	0.1
<b>Bread and other bakery products, 1909.</b>				
Individual.....	63	369	\$1,099,920	\$376,006
Firm.....	57	183	585,196	237,164
Firm <sup>2</sup> .....	6	186	514,724	136,842
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	90.5	49.6	53.2	63.1
Firm <sup>2</sup> .....	9.5	50.4	46.8	36.9
<b>Lumber and timber products, 1909.</b>				
Individual.....	851	14,804	\$13,140,886	\$9,159,418
Firm.....	503	4,171	3,226,614	2,363,315
Firm.....	198	2,286	2,018,983	1,332,491
Corporation.....	90	8,137	7,896,279	5,413,612
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	66.2	28.6	24.6	25.8
Firm.....	23.3	15.7	15.4	15.1
Corporation.....	10.6	55.7	60.1	59.1
<b>Oil, cottonseed, and cake, 1909.</b>				
Individual.....	103	1,765	\$10,908,935	\$2,133,400
Firm.....	4	42	225,794	34,314
Firm.....	6	96	505,013	115,748
Corporation.....	93	1,627	10,081,228	2,033,838
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	3.9	2.4	2.1	1.6
Firm.....	5.8	5.4	5.5	5.3
Corporation.....	90.3	92.2	92.5	93.1
<b>Printing and publishing, 1909.</b>				
Individual.....	161	884	\$1,600,591	\$1,260,672
Firm.....	83	268	387,400	309,331
Firm.....	35	156	213,157	160,922
Corporation.....	37	404	966,291	757,237
Other.....	6	6	33,743	33,182
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	51.6	32.1	24.2	24.5
Firm.....	21.7	18.7	13.3	12.8
Corporation.....	23.0	48.4	60.4	60.1
Other.....	3.7	0.7	2.1	2.6

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

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

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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>1,854</b>	<b>73,048</b>	<b>\$113,235,945</b>	<b>\$46,885,071</b>
1909.....	1,854	73,048	\$113,235,945	\$46,885,071
1904.....	1,389	59,441	79,376,262	29,407,636
<b>Less than \$5,000:</b>				
1909.....	812	2,473	1,744,344	1,247,783
1904.....	644	1,425	1,267,021	871,350
<b>\$5,000 and less than \$20,000:</b>				
1909.....	507	4,224	4,912,546	3,200,619
1904.....	434	4,191	4,342,225	2,554,214
<b>\$20,000 and less than \$100,000:</b>				
1909.....	300	9,037	13,432,870	6,391,272
1904.....	257	8,752	11,448,252	4,773,142
<b>\$100,000 and less than \$1,000,000:</b>				
1909.....	218	42,296	68,253,491	27,147,965
1904.....	151	33,375	44,511,158	10,224,657
<b>\$1,000,000 and over:</b>				
1909.....	17	15,018	24,887,694	8,897,432
1904.....	13	11,698	17,817,606	4,934,278
<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.....	43.8	3.4	1.5	2.7
1904.....	38.9	2.4	1.6	3.0
<b>\$5,000 and less than \$20,000:</b>				
1909.....	27.3	5.8	4.3	6.8
1904.....	31.0	7.0	5.5	8.7
<b>\$20,000 and less than \$100,000:</b>				
1909.....	16.2	12.4	11.9	13.6
1904.....	18.4	14.7	14.4	16.2
<b>\$100,000 and less than \$1,000,000:</b>				
1909.....	11.8	57.9	60.3	57.9
1904.....	10.8	55.1	56.1	55.2
<b>\$1,000,000 and over:</b>				
1909.....	0.9	20.6	22.0	19.0
1904.....	0.9	19.7	22.4	16.9
<b>Average per establishment:</b>				
1909.....		38	\$61,077	\$25,289
1904.....		43	\$56,738	\$21,020
<b>Bread and other bakery products, 1909:</b>				
Less than \$5,000.....	63	369	\$1,099,920	\$376,006
\$5,000 and less than \$20,000.....	20	20	57,714	23,235
\$20,000 and less than \$100,000.....	32	113	292,004	118,120
\$100,000 and less than \$1,000,000.....	11	238	750,202	234,045
<b>Per cent of total:</b>				
1909.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	31.7	5.4	5.2	6.2
\$5,000 and less than \$20,000.....	50.8	30.6	26.5	31.4
\$20,000 and less than \$100,000.....	17.5	64.0	68.2	62.4
<b>Average per establishment:</b>				
1909.....		6	\$17,469	\$5,968
<b>Lumber and timber products, 1909:</b>				
Less than \$5,000.....	851	14,604	\$13,140,886	\$9,159,418
\$5,000 and less than \$20,000.....	511	1,859	1,004,030	773,527
\$20,000 and less than \$100,000.....	218	2,489	2,189,287	1,606,641
\$100,000 and less than \$1,000,000.....	97	4,468	4,231,227	2,790,490
\$1,000,000 and less than \$1,000,000.....	25	5,318	5,716,342	3,998,760
<b>Per cent of total:</b>				
1909.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	60.0	12.7	7.6	8.4
\$5,000 and less than \$20,000.....	25.6	16.3	16.7	17.4
\$20,000 and less than \$100,000.....	11.4	30.6	32.2	30.5
\$100,000 and less than \$1,000,000.....	2.9	39.8	43.5	43.7
<b>Average per establishment:</b>				
1909.....		17	\$15,442	\$10,768
<b>Oil, cottonseed, and cake, 1909:</b>				
\$5,000 and less than \$20,000.....	103	1,765	\$10,902,935	\$2,183,400
\$20,000 and less than \$100,000.....	8	21	98,815	22,596
\$100,000 and less than \$1,000,000.....	61	578	3,108,340	671,225
\$1,000,000 and less than \$1,000,000.....	34	1,168	7,095,780	1,489,579
<b>Per cent of total:</b>				
1909.....	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000.....	7.8	1.2	0.9	1.0
\$20,000 and less than \$100,000.....	59.2	32.7	28.5	30.7
\$100,000 and less than \$1,000,000.....	33.0	66.1	70.6	68.2
<b>Average per establishment:</b>				
1909.....		17	\$105,854	\$21,198
<b>Printing and publishing, 1909:</b>				
Less than \$5,000.....	161	834	\$1,600,591	\$1,260,672
\$5,000 and less than \$20,000.....	39	174	213,894	169,898
\$20,000 and less than \$100,000.....	59	314	518,754	407,790
\$100,000 and less than \$1,000,000.....	10	181	356,006	289,930
\$1,000,000 and less than \$1,000,000.....	3	185	511,937	393,054
<b>Per cent of total:</b>				
1909.....	100.0	100.0	100.0	100.0
Less than \$5,000.....	55.3	20.9	13.4	13.5
\$5,000 and less than \$20,000.....	38.6	37.6	32.4	32.3
\$20,000 and less than \$100,000.....	6.2	21.7	23.2	23.0
\$100,000 and less than \$1,000,000.....	1.9	13.8	32.0	31.2
<b>Average per establishment:</b>				
1909.....		5	\$9,942	\$7,830

1 Includes the group "\$100,000 and less than \$1,000,000."  
 2 Includes the group "\$1,000,000 and over."  
 3 Includes the group "Less than \$5,000."

This table shows that, in 1909, of the 1,854 establishments, only 17, or nine-tenths of 1 per cent, had a value of products exceeding \$1,000,000. These 17 establishments, of which 16 were cotton mills, gave

employment to an average of 15,016 wage earners, or 20.6 per cent of the total number in all establishments, and reported 22 per cent of the total value of products and 19 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 (43.8 per cent) of the total number of establishments, but the value of their products amounted to only 1.5 per cent of the total. The great bulk of manufacturing was carried on in establishments having a value of products of not less than \$100,000.

Comparison between the two censuses shows a slight increase in the proportion of business done by establishments reporting products valued at \$100,000 or more.

The fact that the average value of products per establishment increased from \$56,738 to \$61,077 and the value added by manufacture from \$21,020 to \$25,289, can not be taken as in itself indicating a tendency toward concentration. The increased values shown may be, and probably are, due in part to the increase that has taken place in the prices of commodities. The average number of wage earners per establishment decreased three. This table shows further that when the size of establishments is measured by value of products, the bakery, lumber, and printing and publishing industries are composed almost entirely of establishments in which the value of products is less than \$100,000, while one-third of the establishments engaged in the manufacture of cottonseed oil have a value of products in excess of \$100,000 each.

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.

The per cent distribution of the number of establishments is not shown in this table, but of the 1,854 establishments reported for all industries, 3.2 per cent employed no wage earners; 48.9 per cent, from 1 to 5 wage earners; 27.2 per cent, from 6 to 20; 7.6 per cent, from 21 to 50; and 13.1 per cent, 51 and over. The most numerous single group consists of the 906 establishments employing from 1 to 5 wage earners, and the next of the 505 establishments employing from 6 to 20 wage earners. There were 77 establishments that employed over 250 wage earners, 4 of which employed over 1,000, 3 of the latter being cotton mills and 1 a lumber mill.

Of the total number of wage earners, 54.3 per cent were in establishments employing over 250 wage

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earners. The single group of establishments having the largest number of employees was the one employing from 501 to 1,000; this group employed 17,281 wage earners, or 23.7 per cent of the total. In four of the seven industries listed in this table but not in the

preceding one, namely, the steam-railroad repair shops, the fertilizer, the cotton-goods, and the hosiery and knit-goods industries, comparatively large establishments do most of the business, as appears from the classification according to the number of 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.....	1,854	60	906	505	141	68	97	48	25	4
Bread and other bakery products.....	63	8	43	12	7	2	1			
Brick and tile.....	45		16	17	7	4	1			
Cars and general shop construction and repairs by steam-railroad companies.....	10		1	1	2	3		3		
Cotton goods, including cotton small wares.....	147		1	4	6	13	60	35	25	3
Fertilizers.....	26		6	3	2	8	7			
Foundry and machine-shop products.....	34	3	14	9	7	1				
Hosiery and knit goods.....	7			1	2	1	2	1		
Lumber and timber products.....	351	6	461	274	58	22	23	6		1
Oil, cottonseed, and cake.....	103		28	47	25	2	1			
Printing and publishing.....	161	19	105	32	3	2				
Turpentine and rosin.....	56	3	27	19	7					
All other industries.....	351	23	204	86	22	10	3	3		
AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	73,046		2,544	5,446	4,370	5,024	16,059	17,057	17,281	5,265
Bread and other bakery products.....	369		113	90		166				
Brick and tile.....	888		44	204	236	274	130			
Cars and general shop construction and repairs by steam-railroad companies.....	1,418		4	6	86	189		1,133		
Cotton goods, including cotton small wares.....	45,454		4	47	202	906	10,739	12,639	17,281	3,637
Fertilizers.....	1,851		23	35	63	599	1,131			
Foundry and machine-shop products.....	417		35	127	137	68				
Hosiery and knit goods.....	839			19	53	87				
Lumber and timber products.....	14,604		1,355	2,944	1,839	1,621	3,274	394		1,628
Oil, cottonseed, and cake.....	1,765		101	587	791	131	105	1,943		
Printing and publishing.....	834		293	287	107	147				
Turpentine and rosin.....	443		50	198	195					
All other industries.....	4,164		522	902	611	786	395	948		
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	100.0		3.5	7.5	6.0	6.9	22.0	23.3	23.7	7.3
Bread and other bakery products.....	100.0		30.6	24.4		45.0				
Brick and tile.....	100.0		5.0	23.0	26.6	30.9	14.6			
Cars and general shop construction and repairs by steam-railroad companies.....	100.0		0.3	0.4	6.1	13.3		79.9		
Cotton goods, including cotton small wares.....	100.0		(1)	0.1	9.4	2.0	23.6	27.8	38.0	8.0
Fertilizers.....	100.0		1.2	1.9	3.4	32.4	61.1			
Foundry and machine-shop products.....	100.0		8.4	30.5	44.8	16.3				
Hosiery and knit goods.....	100.0			2.3	6.3	10.4	34.1	47.0		
Lumber and timber products.....	100.0		9.3	20.2	12.6	11.1	22.4	13.3		11.1
Oil, cottonseed, and cake.....	100.0		5.7	33.3	44.8	10.3	5.9			
Printing and publishing.....	100.0		35.1	34.4	12.8	17.6				
Turpentine and rosin.....	100.0		11.3	44.7	44.0					
All other industries.....	100.0		12.5	21.7	14.7	18.9	9.5	22.8		

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

**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.

The table shows that, for all industries combined, 68.1 per cent of the total expenses was incurred for materials, 24.8 per cent for services—that is, salaries and wages—and 7.1 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Ma-terials.	Miscel-laneous ex-penses.
All industries.....	3.9	20.9	68.1	7.1
Bread and other bakery products.....	4.3	12.9	78.7	4.1
Brick and tile.....	6.3	39.7	45.7	8.2
Cars and general shop construction and repairs by steam-railroad companies.....	4.1	45.8	49.8	0.3
Cotton goods, including cotton small wares.....	2.5	20.2	71.7	5.5
Fertilizers.....	4.5	8.9	74.4	12.3
Foundry and machine-shop products.....	10.1	43.7	40.1	6.1
Hosiery and knit goods.....	4.5	26.3	57.9	11.3
Lumber and timber products.....	7.0	42.9	39.0	11.2
Oil, cottonseed, and cake.....	3.3	4.7	87.1	4.9
Printing and publishing.....	19.0	34.1	28.2	18.7
Turpentine and rosin.....	2.9	33.2	54.0	9.8
All other industries.....	7.2	20.0	61.7	11.0

**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>	<b>3,149</b>	<b>1,578</b>	<b>1,333</b>	<b>276,378</b>	<b>197,479</b>	<b>112,697</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Owned.....	2,089	1,578	1,333	235,213	188,948	109,192	85.1	95.7	96.9
Steam.....	1,806	1,309	1,174	193,052	157,432	80,913	69.9	79.7	71.8
Gas.....	153	55	29	1,264	239	323	0.5	0.1	0.3
Water wheels.....	125	123	130	38,422	31,094	27,586	13.9	15.7	24.5
Water motors.....	5	1	( <sup>2</sup> )	75	3	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
Other.....				2,400	180	370	0.9	0.1	0.3
Rented.....	1,051	( <sup>2</sup> )	( <sup>2</sup> )	41,165	8,531	3,505	14.9	4.3	3.1
Electric.....	1,051	( <sup>2</sup> )	( <sup>2</sup> )	41,130	8,451	185	14.9	4.3	0.2
Other.....				35	80	3,320	( <sup>2</sup> )	( <sup>2</sup> )	2.9
<b>Electric motors</b>	<b>1,502</b>	<b>268</b>	<b>124</b>	<b>67,620</b>	<b>32,162</b>	<b>6,061</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Run by current generated by establishment.....	451	268	124	26,490	23,711	5,876	39.2	73.7	96.9
Run by rented power.....	1,051	( <sup>2</sup> )	( <sup>2</sup> )	41,130	8,451	185	60.8	26.3	3.1

<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.

This table indicates that the increase in primary power during the last decade was general in all of the different forms. In 1909 as in 1904 steam formed the major part of the power; but notwithstanding an increase during this period of 35,620 horsepower, the proportion of this kind of power decreased from 79.7 per cent in 1904 to 69.9 per cent in 1909. The more general use of gas engines is shown, the number of such engines being 153 with 1,264 horsepower in 1909, as against 55 with 239 horsepower in 1904 and 29 with 323 horsepower in 1899. The figures also show that

the practice of renting power is decidedly on the increase, particularly from 1904 to 1909, as 41,165 horsepower was rented in 1909, as against only 8,531 in 1904 and 3,505 in 1899. This increase is in rented electric power and is due to the rapid development of the abundant water power of the state through central power stations that generate electricity and transmit it over a wide area, thereby furnishing a better and cheaper power for manufacturing. 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 having increased from 5,876 in 1899 to 23,711 in 1904 and 26,490 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.	An-thracite coal (tons).	Bitumi-nous coal (tons).	Coke (tons).	Wood (cords).	Oil, including gaso-line (bar-rels).	Gas (1,000 feet).
<b>All industries.....</b>	<b>9,314</b>	<b>675,653</b>	<b>4,444</b>	<b>140,208</b>	<b>8,865</b>	<b>1,448</b>
Bread and other bakery products..	388	662	244	2,811	17	711
Brick and tile.....		36,642		44,240	134	
Cars and general shop construction and repairs by steam-railroad companies.....		9,289	24		12	
Cotton goods, including cotton small wares.....	7,270	428,523		21,282	278	
Fertilizers.....		46,046		986	27	
Foundry and machine-shop products.....	67	2,094	1,331	1,317	120	
Gas, illuminating and heating.....		20,609	1,350		6,624	
Hosiery and knit goods.....		3,087		1,148		
Lumber and timber products.....		7,287	50	5,963	166	
Oil, cottonseed, and cake.....	1,232	62,119	800	39,476	8	
Printing and publishing.....	200	499		208	329	494
Turpentine and rosin.....				2,797	1	
All other industries.....	157	59,706	645	19,981	1,151	243

NOTE.—In addition, there were 45 tons of other varieties of fuel reported.

**SUPPLEMENTARY DATA REGARDING IMPORTANT INDUSTRIES.**

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

For certain industries the Census Bureau collects, by means of special schedules, details regarding the quantity and value of materials and products and the number and kind of machines used in manufactures which do not appear on the general schedule. Certain data of this character for six important industries in South Carolina are here presented.

**Cotton goods, including cotton small wares.**—The cotton-goods industry has been the most important factor in the development of manufactures in South Carolina. Its history in the state dates beyond 1839 when 15 establishments were reported, employing an average of 570 wage earners and turning out products valued at \$359,000. Beginning about 1869 the industry developed rapidly and became more firmly established on a factory basis. During the decade beginning in that year the value of products nearly dou-

bled, while from 1879 to 1889, the period of greatest relative growth, the increase was 238.5 per cent. From 1889 to 1899 the value of products increased 203.3 per cent.

The quantity and cost of materials used, by kind, in 1909, 1904, and 1899, are given below:

MATERIAL.	1909	1904	1899
<b>Total cost.....</b>	<b>\$41,303,438</b>	<b>\$34,308,311</b>	<b>\$17,268,888</b>
<b>Cotton:</b>			
Domestic—			
Pounds.....	322,945,571	269,045,002	229,899,760
Cost.....	\$35,284,141	\$30,451,159	\$14,909,520
Foreign—			
Pounds.....	1,440,207	1,912,459	154,047
Cost.....	\$249,068	\$318,020	\$20,026
<b>Cotton yarns, purchased:</b>			
Pounds.....	487,186	636,800	2,866,926
Cost.....	\$89,706	\$110,055	\$365,106
Starch.....	\$359,679	\$209,646	\$118,966
Chemicals and dyestuffs.....	\$187,157	\$93,007	\$50,707
Fuel and rent of power and heat.....	\$1,977,599	\$1,573,054	\$611,222
All other materials.....	\$3,156,088	\$1,583,370	\$1,191,366

The cotton consumed in this industry in 1909 amounted to 324,385,778 pounds, which cost \$35,533,209, representing an increase of 53,428,317 pounds, or 19.7 per cent, over the quantity consumed in 1904, and an increase of \$4,764,030, or 15.5 per cent, in the cost. This represents an increase in the consumption of domestic cotton alone, the foreign cotton used in 1909 amounting to only 1,440,207 pounds, as compared with 1,912,459 pounds in 1904, although from 1899 to 1904 the consumption of foreign cotton increased greatly. The great increase in the cost of cotton per pound from 1899 to 1904, and the very slight change in this respect from 1904 to 1909, are conspicuous features of the table. There has been a material decrease in the quantity of cotton yarns purchased, which indicates a decided tendency among manufacturers to spin their own yarn. Expenditures for all the remaining materials for which separate totals are shown increased from 1899 to 1904, as well as from 1904 to 1909.

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

PRODUCT.	1909	1904	1899
<b>Total value</b> .....	<b>\$65,929,585</b>	<b>\$49,437,644</b>	<b>\$29,723,919</b>
Plain cloth for printing or converting:			
Square yards.....	561,801,267	414,491,743	175,191,634
Value.....	\$26,848,377	\$17,425,723	\$6,205,673
Brown or bleached sheetings and shirtings:			
Square yards.....	302,763,414	276,078,497	283,105,383
Value.....	\$15,914,168	\$13,249,096	\$11,553,073
Twills and sateens:			
Square yards.....	12,910,370	17,919,465	11,379,712
Value.....	\$797,624	\$962,409	\$485,484
Fancy woven fabrics:			
Square yards.....	50,893,070	17,781,844	213,068
Value.....	\$2,981,306	\$675,998	\$14,000
Ginghams:			
Square yards.....	29,417,246	26,212,195	16,752,808
Value.....	\$1,525,286	\$1,378,908	\$806,551
Drills:			
Square yards.....	75,823,918	88,551,799	116,467,224
Value.....	\$5,062,204	\$5,344,146	\$5,375,017
Ticks, denims, and stripes:			
Square yards.....	8,582,717	6,533,888	1,802,138
Value.....	\$808,407	\$444,977	\$139,131
Bags and bagging:			
Square yards.....	19,792,444	14,250,913	229,109
Value.....	\$1,120,825	\$683,877	\$20,984
Yarns, for sale:			
Pounds.....	32,709,732	31,645,397	24,859,616
Value.....	\$6,759,913	\$6,217,795	\$3,461,090
Cotton waste, for sale:			
Pounds.....	29,821,480	24,199,029	25,582,434
Value.....	\$850,246	\$367,273	\$433,958
All other products.....	\$3,261,239	\$1,889,442	\$1,228,930

In 1899 brown or bleached sheetings or shirtings, valued at \$11,553,073, was the leading class of products, but in 1904 and 1909 these products became secondary to the manufacture of plain cloth for printing or converting. The value of plain cloth formed 40.7 per cent in 1909, 35.2 per cent in 1904, and 20.9 per cent in 1899, of the total value of all products reported for the entire industry at the three censuses.

The largest proportional increases shown are in the quantity and value of fancy woven fabrics. From 1899 to 1904 the quantity multiplied over eighty-three times and the value nearly seventy times, while from 1904 to 1909 the gain in quantity was 186.2 per cent and the gain in value 205.5 per cent. The output of

brown or bleached sheetings and shirtings, gingham, ticks, denims, and stripes, bags and bagging, and yarns for sale had a greater value in 1909 than in 1904, while the value of twills and sateens, drills, and cotton waste for sale was less.

The growth of this industry is indicated clearly by the increase in the number of producing spindles and looms. The number of active spindles reported by the cotton mills of the state was 3,754,251 in 1909, 2,864,092 in 1904, and 1,431,349 in 1899, an increase in 1909 over 1904 of 890,159, or 31.1 per cent, and an increase in 1904 over 1899 of 1,432,743, or 100.1 per cent. During the period from 1904 to 1909 the number of looms increased from 72,702 to 94,205, a gain of 21,503, or 29.6 per cent, while from 1899 to 1904 the number increased from 42,663 to 72,702, a gain of 30,039, or 70.4 per cent.

**Lumber and timber products.**—Lumbering has long been an important industry in South Carolina. As early as 1849 there were 353 establishments reported, with a total value of products amounting to \$1,108,880.

The following is a statement of the quantities of the principal products reported for the sawmills at the censuses of 1909 and 1899:

PRODUCT.	QUANTITY.	
	1909	1899
Rough lumber.....M feet b.m.	897,660	466,429
Shingles.....thousands.	122,709	83,878
Lath.....thousands.	28,303	26,311

From 1899 to 1909 there was an increase of 92.5 per cent in the production of rough lumber, 38.1 per cent in shingles, and 7.6 per cent in lath. Yellow pine was the principal species of timber cut in 1909, with 797,094 M feet board measure, or 88.8 per cent of the total cut of rough lumber. Cypress was second in importance, with 36,040 M feet, or 4 per cent of the total cut. Chief among the other species cut were red gum, spruce, oak, and yellow poplar.

**Oil, cottonseed, and cake.**—The growth and importance of this industry in the state is remarkable. As late as 1880 cotton seed was used as fertilizer and as feed, or was treated as waste; soon after three cottonseed crushing mills were in operation in the state. At the census of 1889, 17 establishments were reported, with products valued at \$927,772.

The following statement shows the quantity and cost of cotton seed crushed and the quantity and value of crude products, by kind, in 1909, 1904, and 1899:

MATERIAL OR PRODUCT.	QUANTITY.		
	1909	1904	1899
Cotton seed crushed.....tons..	346,550	213,103	156,642
Crude products, manufactured:			
Oil.....gallons..	15,745,552	9,178,661	6,162,218
Meal and cake.....tons..	166,729	90,815	57,986
Hulls.....tons..	103,705	71,942	71,542
Linters.....pounds..	14,366,109	6,641,495	3,223,892

The totals presented include all cotton seed crushed, whether by establishments where the exclusive or chief products were those obtained from cotton seed, or by such mills as were engaged primarily in the manufacture of other products but incidentally crushed some cotton seed. Furthermore, the crude products reported represent the total production derived from crushing cotton seed, whether sold as such or used as intermediate products in further processes of manufacture, such as the refining of oil and the mixing of fertilizer and feed.

Of the 102 cottonseed-oil mills reported in 1909 as crushing seed, 23 crushed less than 1,000 tons each during the census year; 28 crushed 1,000 but less than 2,000 tons; 32 crushed 2,000 but less than 5,000 tons; 13 crushed 5,000 but less than 10,000 tons; 4 crushed 10,000 but less than 20,000 tons; and 2 crushed 20,000 tons or over.

In 1909 the ratios which the several products bore to the total weight of the seed when received at the mill were: crude oil, 17 per cent; meal and cake, 45.2 per cent; hulls, 30 per cent; and linters, 2.1 per cent; whereas in 1904 the proportions were: crude oil, 16.2 per cent; meal and cake, 42.6 per cent; hulls, 33.8 per cent; and linters, 1.6 per cent. It is interesting to note that from 1899 to 1909 there was an increase of 2.2 in the percentage of oil and 8.2 in that of meal and cake, while in the percentage of hulls there was a decrease of 15.7.

Fertilizers.—The principal products manufactured during 1909, 1904, and 1899, by kind, quantity, and value, are shown in the following statement:

PRODUCT.	1909	1904	1899
<b>Total value.....</b>	<b>\$9,024,000</b>	<b>\$3,637,576</b>	<b>\$4,882,506</b>
Superphosphates from minerals, bones, etc.:			
Tons.....	176,065	49,763	173,183
Value.....	\$2,036,220	\$453,033	\$1,404,539
Ammoniated fertilizers:			
Tons.....	41,686	90,324	.....
Value.....	\$872,025	\$1,415,462	.....
Concentrated phosphate:			
Tons.....	2,771	.....	.....
Value.....	\$74,767	.....	.....
Complete fertilizers:			
Tons.....	237,298	57,230	207,860
Value.....	\$4,943,478	\$980,263	\$3,140,915
Other fertilizers:			
Tons.....	55,044	57,001	7,497
Value.....	\$801,827	\$648,739	\$106,324
Sulphuric acid, for sale:			
Tons.....	11,839	4,329	41,036
Value.....	\$67,954	\$51,864	\$225,698
Other acids:			
Tons.....	12,836	.....	.....
Value.....	\$159,342	.....	.....
All other products.....	\$69,292	\$87,585	.....

The statistics presented in this table pertain to the establishments engaged primarily in fertilizer production. There were, however, considerable quantities incidentally manufactured in 1909 by cottonseed-oil mills, amounting to 19,635 tons, which were valued at \$392,922.

The quantity of all kinds of fertilizers shown in the above table was 512,714 tons in 1909, compared with 254,408 tons in 1904 and 388,540 tons in 1899, a gain

of 258,306 tons in 1909 over 1904 and a decrease of 134,132 tons in 1904, compared with 1899. Complete fertilizers was the most important product in 1909 and 1899, while ammoniated fertilizers was the chief product in 1904. From 1904 to 1909 the quantity of complete fertilizers increased more than threefold and superphosphates more than twofold. During the same period ammoniated fertilizers and other fertilizers decreased 53.8 per cent and 3.6 per cent, respectively. The principal materials used by fertilizer establishments in 1909 consisted of 188,234 tons of phosphate rock, 80,653 tons of pyrites, and 50,669 tons of ammoniates, and in 1904 of 92,108 tons of phosphate rock, 42,670 tons of pyrites, and about 14,300 tons of ammoniates. In addition to the products shown in the above table, 237,188 tons of acid phosphate, 165,509 tons of sulphuric acid, and 25,420 tons of other products were manufactured during 1909 by the 26 establishments reporting, but were consumed by the same establishments in which they were manufactured in further processes.

Printing and publishing.—The following tabular statement shows the number of different newspapers and periodicals published and the average circulation per issue of each for the census 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>138</b>	<b>148</b>	<b>120</b>	<b>278,512</b>	<b>239,968</b>	<b>161,968</b>
Daily.....	13	14	7	51,624	32,193	18,850
Sunday.....	4	6	3	32,447	24,617	(1)
Semiweekly.....	21	16	16	44,622	28,401	23,527
Weekly.....	90	103	33	133,240	137,439	110,111
Monthly.....	8	6	10	10,504	7,918	8,000
All other classes.....	2	3	1	6,075	9,400	1,500

<sup>1</sup> Included in circulation of dailies. <sup>2</sup> Includes one triweekly publication.

With the exception of semiweeklies and monthlies, each of the different classes of publications decreased in number in 1909, as compared with 1904, the greatest decline being in the weeklies. Only the weeklies and the publications included under the head of "All other classes" decreased in circulation from 1904 to 1909. The greatest gain in circulation was made by the daily publications. In 1904 the circulation of this class was 32,193, an increase of 13,343, or 70.8 per cent, over 1899. By 1909 the circulation had reached 51,624, a gain of 19,431, or 60.4 per cent, over 1904. In 1909, 5 of the 13 daily papers were morning editions, with an aggregate circulation per issue of 33,115. All of the publications reported were published in the English language, except one weekly, which was in German.

Turpentine and rosin.—As early as 1849 there were 40 establishments in the state reported as engaged in this industry, having products valued at \$235,836. The industry increased until 1879, when 192 establishments were reported, with a product valued at

\$1,893,206. Since that census there has been a steady decline of the industry, because of the gradual depletion of the pine forests of the state.

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

PRODUCT.	1909	1904	1899
Total value.....	\$406,288	\$574,150	\$787,656
Spirits of turpentine:			
Gallons.....	460,186	764,412	1,508,019
Value.....	\$205,517	\$370,046	\$563,445
Resin:			
Barrels (230 pounds).....	51,401	87,830	120,013
Value.....	\$109,273	\$203,749	\$183,528
All other products.....	\$1,496	\$355	\$40,683

The working unit in turpentine operations is called a "crop," which consists of 10,500 boxes or cups. In 1909 there were 271 crops produced in the state, of which 42 were from virgin trees; 41 from yearling or second-year trees; 91 from third-year trees; and 97 from older trees. It is an interesting fact that no establishments in the state report the treatment of trees through the new cup system, but they universally employed the comparatively crude and wasteful box method.

Laundries.—Statistics for steam laundries are not included in the general tables or in the totals for manufacturing industries. In 1909 there were 24 such establishments in South Carolina, 3 of which were in Charleston, 3 in Greenville, 2 in Columbia, and 2 in Spartanburg.

The following statement summarizes the statistics:

Number of establishments.....	24
Persons engaged in the industry.....	440
Proprietors and firm members.....	26
Salaried employees.....	41
Wage earners (average number).....	373
Primary horsepower.....	501
Capital.....	\$183,975
Expenses.....	207,717
Services.....	117,772
Materials.....	51,765
Miscellaneous.....	38,180
Amount received for work done.....	269,112

In respect to form of organization, the establishments are distributed evenly, eight establishments each being reported as under individual, firm, and corporate ownership, respectively. Seven establishments reported receipts for the year of less than \$5,000; 12 reported receipts of between \$5,000 and \$20,000; and 5 reported receipts of between \$20,000 and \$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 are shown in the following table:

MONTH.	WAGE EARNERS.		MONTH.	WAGE EARNERS.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	362	92.3	July.....	392	100.0
February.....	365	93.1	August.....	361	92.1
March.....	373	95.2	September.....	364	92.9
April.....	376	95.9	October.....	379	96.7
May.....	373	95.2	November.....	386	98.5
June.....	380	96.9	December.....	366	93.4

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.....		501
Owned—Steam.....	23	450
Rented—Electric.....	5	51

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

KIND.	Unit.	Quantity.
Bituminous coal.....	Tons.....	4,575
Coke.....	Tons.....	50
Wood.....	Cords.....	1,095
Oil.....	Barrels.....	48
Gas.....	1,000 feet.....	538

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.....	73	378
Persons engaged in the industry.....	271	808
Proprietors and firm members.....	100	441
Salaried employees.....	1	4
Wage earners (average number).....	170	363
Primary horsepower.....	1,358	7,272
Capital.....	\$68,358	\$488,198
Expenses.....	32,225	1,203,305
Services.....	25,847	37,045
Materials.....	1,745	1,153,398
Miscellaneous.....	4,633	12,862
Value of products.....	62,273	1,326,931

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

MANUFACTURES—SOUTH CAROLINA.

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 manuf-acture.
			Total.	Pro- pri- etors and firm mem- bers.	Sala- ried em- ploy- ees.	Wage earners (average number).							
<b>STATE—All industries</b> .....	1909	1,854	78,040	1,737	3,257	73,046	276,378	\$173,221	\$3,756	\$20,361	\$66,351	\$113,238	\$46,888
	1904	1,399	63,071	1,241	2,389	59,441	197,479	113,422	2,355	13,869	48,969	79,376	29,407
	1899	1,369	.....	.....	1,419	47,025	112,697	62,760	1,308	9,130	30,486	53,336	22,850
Bread and other bakery products.....	1909	63	521	65	87	369	218	394	39	119	724	1,100	376
	1904	52	397	57	29	311	132	278	19	99	370	618	248
	1899	35	312	39	27	246	.....	285	12	76	323	525	202
Brick and tile.....	1909	45	990	50	52	888	2,824	935	37	233	268	731	463
	1904	47	963	52	36	875	2,531	517	29	184	177	656	479
	1899	76	1,293	107	41	1,145	2,342	341	20	241	132	673	441
Canning and preserving.....	1909	15	495	14	14	467	95	286	19	64	159	313	159
	1904	14	1,080	16	20	1,044	287	202	14	112	349	574	225
	1899	14	.....	.....	7	126	.....	36	1	13	20	51	31
Carriages and wagons and materials.....	1909	23	317	25	20	272	272	453	25	104	244	464	220
	1904	38	404	42	16	346	320	502	20	118	290	548	258
	1899	56	.....	.....	14	340	.....	314	12	91	206	414	208
Cars and general shop construction and repairs by steam-railroad companies.	1909	10	1,483	.....	65	1,418	1,029	518	62	687	746	1,499	753
	1904	8	1,222	.....	91	1,131	510	300	64	577	433	1,081	648
	1899	6	303	.....	27	776	413	355	21	363	294	691	397
Clothing, men's, including shirts.....	1909	5	115	1	15	99	39	113	11	20	94	139	45
	1904	5	138	4	9	125	18	54	4	25	76	137	61
	1899	5	195	7	12	176	10	128	5	37	187	306	119
Coffins, burial cases, and undertakers' goods.....	1909	4	90	3	10	77	285	130	9	27	62	127	65
	1904	3	104	.....	12	92	125	156	8	25	38	126	89
	1899	3	66	4	4	58	.....	72	4	14	33	64	31
Copper, tin, and sheet-iron products.....	1909	8	92	8	5	79	54	100	3	35	106	200	94
	1904	5	27	2	1	24	10	24	1	15	13	40	27
	1899	8	.....	.....	7	56	.....	39	4	24	66	116	51
Cotton goods, including cotton small wares.....	1909	147	46,342	3	885	45,454	187,716	125,549	1,460	11,661	41,303	65,930	24,627
	1904	127	38,038	6	761	37,271	133,397	82,337	1,008	7,702	34,308	49,438	15,130
	1899	80	30,621	5	415	30,201	73,042	39,259	537	5,067	17,264	20,724	12,460
Fertilizers.....	1909	26	2,057	2	204	1,851	4,786	11,857	338	671	5,629	9,025	3,390
	1904	20	1,221	1	149	1,071	4,286	7,087	153	304	2,692	3,638	946
	1899	22	1,862	5	85	1,772	3,940	10,505	105	479	3,108	4,883	1,775
Flour-mill and gristmill products.....	1909	10	44	9	12	23	406	110	7	7	308	351	43
	1904	29	103	29	14	60	1,440	206	7	18	633	725	92
	1899	20	.....	.....	18	94	.....	205	8	25	734	869	135
Foundry and machine-shop products.....	1909	34	477	20	40	417	817	703	45	194	178	547	369
	1904	37	517	39	28	450	1,122	511	29	212	171	642	371
	1899	26	369	27	18	324	404	316	17	141	167	403	236
Gas, illuminating and heating.....	1909	12	163	1	35	127	207	1,431	34	52	114	334	220
	1904	4	124	.....	16	108	43	1,153	11	31	59	193	134
	1899	4	127	.....	23	104	33	961	12	30	38	172	134
Hosiery and knit goods.....	1909	7	864	3	22	839	597	755	26	152	334	655	321
	1904	14	1,103	5	40	1,058	890	824	30	187	586	1,079	493
	1899	6	377	3	15	359	501	345	14	74	238	392	154
Ice, manufactured.....	1909	32	287	22	47	218	2,964	1,041	44	85	129	433	304
	1904	18	144	8	25	111	1,835	712	23	45	75	244	169
	1899	13	93	7	13	73	1,074	407	10	24	37	116	79
Lumber and timber products.....	1909	851	16,330	1,042	684	14,604	49,400	15,010	713	4,378	3,981	13,141	9,160
	1904	502	11,654	621	392	10,641	29,490	8,194	347	2,873	2,506	8,279	5,773
	1899	519	.....	.....	274	7,117	18,219	3,882	168	1,503	2,431	5,959	3,628
Marble and stone work.....	1909	36	315	41	38	236	142	218	30	120	144	426	282
	1904	18	51	9	3	39	2	39	2	15	28	67	39
	1899	11	.....	.....	10	137	.....	265	8	46	34	113	79
Mattresses and spring beds.....	1909	4	56	1	9	46	77	76	9	12	64	107	43
	1904	5	69	3	7	59	69	73	6	14	61	97	36
	1899	5	.....	.....	15	59	.....	62	9	13	58	115	57
Oil, cottonseed, and cake.....	1909	103	2,190	16	409	1,765	17,730	6,880	333	467	8,720	10,903	2,183
	1904	100	1,626	3	341	1,282	14,500	5,177	320	320	4,553	5,463	910
	1899	50	914	18	162	734	5,766	1,960	109	144	2,363	3,103	740
Printing and publishing.....	1909	161	1,294	171	289	834	603	1,664	230	412	340	1,601	1,261
	1904	160	985	161	201	623	298	945	152	288	214	1,038	824
	1899	120	834	125	84	625	.....	680	62	236	188	789	601
Turpentine and rosin.....	1909	56	524	63	18	443	2	129	9	101	164	406	242
	1904	79	265	87	9	169	9	92	4	37	374	574	200
	1899	132	1,093	171	36	886	.....	269	8	136	471	788	317
All other industries.....	1909	202	2,994	177	297	2,520	6,135	4,869	273	760	2,540	4,799	2,259
	1904	134	2,836	96	189	2,551	6,165	4,039	191	638	1,963	4,219	2,253
	1899	152	.....	.....	112	1,617	.....	2,064	102	353	2,085	3,170	1,976

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

MANUFACTURES—SOUTH CAROLINA.

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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 AND CITY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaries employees.	Wage earners (average number).							
Expressed in thousands.													
CHARLESTON—All industries	1909	116	3,375	76	425	2,874	4,824	\$6,573	\$396	\$1,013	\$4,229	\$6,951	\$2,722
	1904	108	3,888	78	360	3,450		5,807	338	1,054	3,748	6,007	2,269
	1899	104			221	3,187		5,398	206	919	3,507	5,713	2,206
Bread and other bakery products	1909	20	342	20	69	253	137	264	31	81	505	750	245
	1904	23	306	27	27	252		221	18	83	275	467	182
	1899	25	207	29	26	212		246	12	65	290	403	173
Carriages and wagons and materials	1909	3	61	3	3	55	21	23	3	20	24	58	34
	1904	3	45	4	1	40		15	1	16	11	40	29
	1899												
Foundry and machine-shop products	1909	5	152	3	13	136	269	298	19	66	41	166	125
	1904	4	194	1	11	182		210	14	112	65	243	178
	1899	4	178	1	10	167		179	13	88	90	223	133
Ics, manufactured	1909	4	27	1	4	22	640	253	5	13	24	74	60
	1904	4	41		3	38		307	3	19	33	72	39
	1899												
Lumber and timber products	1909	9	364	3	37	324	898	454	38	100	277	497	220
	1904	8	405	7	29	369		455	35	98	202	404	202
	1899	10	272	7	20	245		322	18	86	298	494	196
Printing and publishing	1909	18	306	14	94	198	465	454	82	110	110	468	358
	1904	15	223	10	84	134		286	66	67	72	279	207
	1899	13	250	16	33	201		272	27	99	90	331	241
All other industries	1909	57	2,123	32	205	1,888	2,394	4,827	218	623	3,248	4,938	1,690
	1904	51	2,669	29	205	2,435		4,313	201	659	3,000	4,512	1,422
	1899	52			132	2,362		4,379	136	581	2,739	4,202	1,463

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

Columbia	1909	55	2,788	33	233	2,522	7,784	\$7,705	\$259	\$927	\$3,578	\$5,872	\$2,294
	1904	41	2,573	25	155	2,393		4,745	176	798	2,642	4,677	2,035
	1899	41			75	2,091		3,879	93	519	1,848	3,134	1,286
Greenville	1909	41	1,324	29	113	1,182	2,574	1,930	98	365	1,228	2,142	914
	1904	36	1,303	26	73	1,204		2,059	60	257	1,101	1,677	576
	1899	22			36	770		1,081	36	145	718	966	248
Spartanburg	1909	36	1,916	25	118	1,773	4,965	4,471	126	499	2,085	3,276	1,191
	1904	35	1,745	26	69	1,650		2,869	72	348	1,544	2,128	584
	1899	28			33	1,361		2,335	41	270	907	1,591	684

<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.

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.....	1,854	78,040	1,737	1,596	1,393	268	73,046	Mh 76,373	Je 70,283	(1)	(1)	(1)	(1)	(1)	276,378		
2 Agricultural implements.....	4	24	5	2	1	1	15	Ap 20	No 11	15	15				53		
3 Bread and other bakery products.....	63	521	65	21	32	34	369	No 391	Ja 353	373	296	46	23	8	218		
4 Brick and tile.....	45	990	50	39	9	4	888	Au 1,230	Fe 510	1,229	1,157		72		2,824		
5 Canning and preserving.....	15	495	14	11	2	1	467	Mh 974	Je 3	1,088	374	552	32	80	95		
6 Carriages and wagons and materials.....	23	317	25	9	8	3	272	De 291	Au 245	291	258	5	28		272		
7 Cars and general shop construction and repairs by steam-railroad companies.....	10	1,483		8	55	2	1,418	De 1,503	Fe 1,309	1,503	1,501	1	1		1,029		
8 Cars and general shop construction and repairs by street-railroad companies.....	4	45		4	3		38	Ap 39	Au 37	39	37	2			85		
9 Clothing, men's, including shirts.....	5	115	1	8	7		99	Se 137	Ja 65	131	21	108	1	1	39		
10 Coffins, burial cases, and undertakers' goods.....	4	90	3	2	7	1	77	Oc 89	Ja 64	88	88				285		
11 Confectionery.....	11	35	12	1			22	De 24	Fe 20	24	19	4	1		5		
12 Copper, tin, and sheet-iron products.....	8	92	8	1	4		79	Je 90	No 74	77	78		2		54		
13 Cotton goods, including cotton small wares.....	147	46,342	3	443	370	72	45,454	Jy 46,300	Ja 44,609	46,065	26,063	11,886	4,843	3,773	187,716		
14 Fertilizers.....	26	2,057	2	67	127	10	1,851	Mh 4,356	Jy 922	1,669	1,668	1			4,766		
15 Flour-mill and gristmill products.....	10	44	9	8	3	1	23	Fe 26	Se 21	26	26				406		
16 Foundry and machine-shop products.....	34	477	20	24	12	4	417	Au 441	Je 398	436	425	11			817		
17 Gas, illuminating and heating.....	12	163	1	11	20	4	127	De 143	Au 115	143	143				207		
18 Hosiery and knit goods.....	7	804	3	12	8	2	839	Ja 863	No 807	822	293	375	68	86	597		
19 Ice, manufactured.....	32	287	22	36	8	3	218	Jy 339	Ja 121	250	243	7			2,964		
20 Leather goods.....	3	13	4				9	Ja 9	De 9	9	9				4		
21 Lumber and timber products.....	851	16,330	1,042	397	253	34	14,004	De 15,967	Jy 13,704	18,127	17,847	17	263		49,400		
22 Marble and stone work.....	36	315	41	9	27	2	236	Se 249	Ja 207	250	245		5		142		
23 Mattresses and spring beds.....	4	56	1	5	2	2	46	Se 52	Ja 39	49	43	6			77		
24 Oil, cottonseed, and cake.....	103	2,190	16	249	150	10	1,765	De 2,888	Au 521	2,855	2,851	3	1		17,790		
25 Patent medicines and compounds and druggists' preparations.....	7	51	11	5	18	7	10	De 12	Je 8	13	13						
26 Printing and publishing.....	161	1,294	171	80	167	42	834	My 848	Jy 816	851	668	128	52	3	603		
27 Turpentine and rosin.....	56	524	63	15	3		443	Se 544	Ja 232	586	556	20	10		2		
28 Wood distillation, not including turpentine and rosin.....	3	28		5	3	1	19	De 35	Au 10	35	35				676		
29 All other industries.....	170	2,798	145	124	94	28	2,407								5,313		

1 No figures given for reasons explained in the Introduction.

2 Same number reported for one or more other months.

3 Same number reported throughout the year.

4 All other industries embrace—

Artificial stone.....	2	Clothing, women's.....	1	Food preparations.....	2
Awnings, tents, and sails.....	3	Cooperage and wooden goods, not elsewhere specified.....	1	Furniture and refrigerators.....	3
Bags, other than paper.....	1	Cordage and twine and jute and linen goods.....	3	Glass.....	1
Baking powders and yeast.....	1	Dairymen's, poulterers', and apiarists' supplies.....	1	Hand stamps and stencils and brands.....	2
Baskets, and rattan and willow ware.....	2	Dyeing and finishing textiles.....	1	Lead, bar, pipe, and sheet.....	1
Boxes, cigar.....	1	Dyestuffs and extracts.....	1	Leather, tanned, curried, and finished.....	1
Boxes, fancy and paper.....	1	Electrical machinery, apparatus, and supplies.....	1	Lime.....	1
Brooms.....	4			Liquors, malt.....	1

MANUFACTURES—SOUTH CAROLINA.

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THE STATE, BY INDUSTRIES: 1909.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$173,220,870	\$97,370,829	\$2,563,601	\$1,192,687	\$20,360,750	\$3,106,324	\$63,244,550	\$117,547	\$990,309	\$420,768	\$5,374,293	\$113,235,945	\$46,865,071
2 34,500	23,411	450	535	6,650	290	12,100	-----	178	2,500	708	36,300	23,810
3 394,096	919,936	21,008	18,339	118,601	15,657	708,257	12,936	5,687	-----	19,251	1,099,920	376,006
4 936,372	585,825	31,453	5,528	232,701	188,011	79,932	-----	3,240	-----	44,900	730,543	462,540
5 286,426	253,967	12,400	6,605	63,949	4,572	153,970	1,283	-----	-----	2,161	9,018	159,530
6 453,160	412,481	12,595	12,428	104,025	4,026	240,354	3,076	3,112	-----	-----	32,865	463,566
7 518,430	1,499,226	12,075	49,483	687,196	16,389	729,504	-----	4,080	-----	499	1,499,226	753,333
8 71,475	52,657	4,372	1,956	18,807	1,156	23,396	-----	1,090	-----	1,880	52,657	28,105
9 113,469	131,804	6,775	4,270	20,196	1,048	93,205	372	919	300	4,719	138,607	44,854
10 129,908	108,737	2,400	6,440	27,016	4,273	57,655	-----	526	-----	10,427	126,817	64,889
11 19,856	54,669	1,000	-----	7,983	1,144	35,875	6,548	361	-----	1,758	71,028	34,009
12 99,807	148,276	1,248	2,216	34,900	795	105,155	1,474	1,154	-----	1,384	200,050	94,100
13 125,549,218	57,614,650	1,124,211	335,851	11,660,658	1,977,599	39,325,839	599,693	148,186	2,442,613	65,929,585	24,626,147	
14 11,857,225	7,571,240	181,057	150,445	671,261	161,717	5,467,741	13,444	83,006	-----	836,569	9,024,900	3,395,442
15 110,091	327,403	5,000	1,670	7,000	6,185	301,966	-----	763	-----	4,870	350,506	42,355
16 703,431	444,558	33,520	11,492	194,158	17,465	160,753	3,915	4,021	100	19,134	547,218	369,000
17 1,431,202	250,050	23,959	9,920	51,638	94,005	20,044	12	11,379	-----	39,093	333,877	219,828
18 765,398	576,254	19,787	6,010	151,629	13,321	320,549	406	7,510	49,043	7,999	655,346	321,470
19 1,040,746	307,834	38,565	5,747	84,882	89,520	39,043	212	8,330	2,051	39,484	432,666	304,103
20 23,733	27,956	-----	-----	5,324	46	21,800	660	69	-----	57	38,659	16,813
21 15,009,649	10,214,597	512,804	199,927	4,377,760	35,320	3,946,148	14,651	68,921	178,983	580,083	13,140,886	9,159,418
22 218,378	314,904	8,956	20,870	120,072	3,656	140,495	2,326	1,728	4,654	12,537	425,671	281,520
23 75,536	96,171	5,000	2,950	12,003	1,360	62,704	60	429	97	10,968	107,300	43,236
24 6,880,240	10,007,598	232,252	100,449	466,837	316,344	8,403,191	6,333	49,168	6,036	426,383	10,902,935	2,183,400
25 46,153	69,074	7,180	9,447	4,308	48	29,613	1,400	1,138	-----	15,940	90,943	61,282
26 1,664,485	1,207,074	100,820	128,914	411,586	22,014	317,905	24,855	11,984	26,926	162,061	1,600,591	1,260,672
27 128,727	303,087	7,750	1,165	100,701	1,009	162,777	-----	2,202	-----	27,483	406,286	242,500
28 70,436	41,246	4,700	2,700	8,092	4,325	13,650	-----	140	1,000	6,039	61,878	33,903
29 4,599,733	3,805,994	151,655	91,030	710,217	125,029	2,270,380	23,579	117,120	292	315,612	4,459,909	2,064,020

4 All other industries embrace—Continued.

Mineral and soda waters.....	160	Roofing materials.....	1	Upholstering materials.....	1
Paint and varnish.....	1	Shipbuilding, including boat building.....	1	Vinegar and cider.....	1
Paper and wood pulp.....	1	Slaughtering and meat packing.....	2	Wirework, including wire rope and cable.....	1
Paper goods, not elsewhere specified.....	1	Soap.....	1	Wood, turned and carved.....	2
Paving materials.....	1	Steam packing.....	1	Woolen, worsted, and felt goods, and wool hats....	1
Pottery, terra-cotta, and fire-clay products.....	4	Tobacco manufactures.....	10		
Rice, cleaning and polishing.....	3	Umbrellas and canes.....	1		



MANUFACTURES—SOUTH CAROLINA.

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

INDUSTRY AND CITY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.				Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).			Total.	16 and over.		Under 16.			
					Male.	Female.	Total.	16 and over.			Under 16.	Male.	Female.	Male.	Female.	
								Male.	Female.							
1 All industries.....	116	3,375	76	125	224	76	2,874	2,088	592	194	3,102	2,285	660	108	109	4,824
2 Bread and other bakery products.....	20	342	20	17	27	25	253	190	37	17	249	196	36	9	8	137
3 Carriages and wagons and materials.....	3	61	3	1	2	2	55	55	.....	.....	55	55	.....	.....	.....	21
4 Foundry and machine-shop products.....	5	152	3	6	5	2	136	136	.....	.....	148	148	.....	.....	.....	269
5 Ice, manufactured.....	4	27	1	3	.....	1	22	22	.....	.....	18	18	.....	.....	.....	640
6 Lumber and timber products.....	9	364	3	19	13	5	324	324	.....	.....	353	353	.....	.....	.....	898
7 Printing and publishing.....	18	306	14	12	70	12	198	158	37	3	205	164	38	3	.....	465
8 All other industries <sup>1</sup> .....	57	2,123	32	67	107	31	1,886	1,194	518	174	2,134	1,351	586	96	101	2,394

<sup>1</sup> All other industries embrace: Awnings, tents, and sails, 3; baking powders and yeast, 1; baskets, and rattan and willow ware, 1; boxes, cigar, 1; boxes, fancy and paper, 1; brooms, 1; canning and preserving, 2; cars and general shop construction and repairs by steam-railroad companies, 1; cars and general shop construction and repairs by street-railroad companies, 1; clothing, men's, including shirts, 1; clothing, women's, 1; confectionery, 4; cooperage and wooden goods, not elsewhere specified, 1; copper, tin, and sheet-iron products, 1; cordage and twine and jute and linen goods, 2; cotton goods, including cotton small wares, 1; fertilizers, 3; flour-mill and gristmill products, 1;

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

1 COLUMBIA.....	55	2,788	33	69	145	19	2,522	2,038	248	236	2,857	2,309	281	184	83	7,784
2 GREENVILLE.....	41	1,324	29	46	63	4	1,182	667	359	176	1,252	707	359	83	103	2,574
3 SPARTANBURG.....	36	1,916	25	42	59	17	1,773	1,074	474	225	1,819	1,102	486	123	108	4,965

MANUFACTURES—SOUTH CAROLINA.

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

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

CHARLESTON.

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 \$6,672,516	\$6,185,333	\$207,075	\$188,718	\$1,012,627	\$147,450	\$4,082,026	\$43,211	\$108,067	\$3,139	\$393,020	\$6,950,807	\$2,721,331
2 264,295	636,930	17,588	13,480	81,248	8,179	496,601	3,780	4,426	.....	11,628	750,167	245,387
3 23,139	50,876	1,200	2,120	19,940	698	23,357	1,396	175	.....	1,790	57,723	39,668
4 207,785	137,122	13,650	4,952	66,202	4,498	36,689	1,200	1,300	.....	8,541	106,140	124,953
5 233,137	53,768	4,200	600	12,672	20,163	3,848	.....	3,012	.....	9,283	73,850	49,849
6 453,712	440,286	25,992	11,838	99,915	1,403	276,913	1,530	3,789	.....	26,846	497,155	219,779
7 453,809	358,559	25,430	56,209	109,914	4,544	106,886	4,052	3,356	2,451	46,727	487,610	357,180
8 4,826,639	4,501,992	118,995	99,519	622,736	107,916	3,136,732	31,253	91,049	688	289,205	4,938,162	1,690,615

food preparations, 2; gas, illuminating and heating, 1; hand stamps and stencils and brands, 2; leather goods, 1; liquors, malt, 1; marble and stone work, 4; mineral and soda waters, 5; oil, cottonseed, and cake, 2; paint and varnish, 1; patent medicines and compounds and druggists' preparations, 1; rice, cleaning and polishing, 2; slaughtering and meat packing, 1; soap, 1; steam packing, 1; tobacco manufactures, 2; umbrellas and canes, 1; upholstering materials, 1; wood, turned and carved, 1.

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

1 \$7,704,660	\$5,225,366	\$123,241	\$135,393	\$926,710	\$147,563	\$3,430,110	\$8,084	\$53,836	\$50,478	\$349,351	\$5,871,820	\$2,294,147
2 1,630,052	1,840,062	57,311	40,871	365,339	55,603	1,172,242	8,517	48,077	2,680	89,422	2,142,146	914,801
3 4,470,948	2,936,822	72,191	53,511	498,567	75,292	2,009,851	9,998	30,384	70,246	110,843	3,275,711	1,190,568

# SOUTH DAKOTA.

## INDUSTRIES IN GENERAL.

**General character of the state.**—South Dakota ranks fourteenth in size among the states and territories of continental United States, having an area of 77,650 square miles, of which 76,850 square miles represent land surface. Its population in 1910 was 583,888, as compared with 401,570 in 1900 and 348,600 in 1890. It ranked thirty-sixth among the 49 states and territories as regards population in 1910 and thirty-eighth in 1900.

Lying in the Great Plains region and, with the exception of the Black Hills district, consisting of rolling upland, South Dakota is essentially an agricultural state. In 1910 only 13.1 per cent of the entire population of the state resided in incorporated cities and towns having a population of 2,500 or over, as against 10.2 per cent in 1900. The density of population in 1910 was 7.6 persons per square mile, as compared with 5.2 in 1900. Sioux Falls and Aberdeen were the

only cities with a population of more than 10,000 in 1910. The eastern part of the state and the mining region of the southwest corner are well provided with transportation facilities. Nearly every county east of the Missouri River has one or more railroads.

**Importance and growth of manufactures.**—The agricultural and mining industries of South Dakota are of much more importance than its manufactures. The increase, however, in the number of manufacturing establishments from 1899 to 1909, and that in the average number of wage earners engaged in manufactures, has kept pace with the general increase in population.

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

	NUMBER OR AMOUNT.			PER CENT OF INCREASE. <sup>1</sup>	
	1909	1904	1899	1904-1909	1899-1904
Number of establishments.....	1,020	686	624	48.7	9.9
Persons engaged in manufactures.....	5,226	3,582	( <sup>2</sup> )	45.9	.....
Proprietors and firm members.....	942	649	( <sup>2</sup> )	45.1	.....
Salaried employees.....	682	441	288	54.6	53.1
Wage earners (average number).....	3,602	2,492	2,224	44.5	12.0
Primary horsepower.....	17,666	11,154	11,775	58.4	-5.3
Capital.....	\$13,018,000	\$7,585,000	\$6,051,000	71.6	25.4
Expenses.....	15,787,000	11,246,000	8,155,000	40.4	37.9
Services.....	2,914,000	1,716,000	1,305,000	69.8	31.5
Salaries.....	616,000	294,000	175,000	109.5	68.0
Wages.....	2,298,000	1,422,000	1,130,000	61.6	25.8
Materials.....	11,476,000	8,697,000	6,484,000	32.0	34.1
Miscellaneous.....	1,397,000	833,000	366,000	67.7	127.6
Value of products.....	17,870,000	13,085,000	9,530,000	36.6	37.3
Value added by manufacture (value of products less cost of materials).....	6,394,000	4,388,000	3,046,000	45.7	44.1

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

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

In 1909 the state of South Dakota had 1,020 manufacturing establishments, which gave employment to an average of 5,226 persons during the year and paid out \$2,914,000 in salaries and wages. Of the persons employed, 3,602 were wage earners. These establishments turned out products to the value of \$17,870,000, to produce which materials costing \$11,476,000 were consumed. The value added by manufacture was thus \$6,394,000, which figure, as explained in the Introduction, best represents the net wealth created by manufacturing operations during the year.

During the last five years the percentages of increase in value of products, value added by manufacture,

total expenses, and cost of materials were about the same as in the preceding five years, 1899-1904, but the percentages of increase in the number of wage earners and the amount paid in wages were considerably greater.

As pointed out in the Introduction, it would be improper to infer that manufactures increased in volume during the period 1904-1909 to the extent indicated by these figures regarding values, since the increase shown is certainly due, in part, to the increase that has taken place in the price of commodities.

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

INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		PER CENT OF INCREASE. <sup>1</sup>			
		Average number.	Percent distribution.	Amount.	Percent distribution.	Amount.	Percent distribution.	Value of products.		Value added by manufacture.	
								1904-1909	1899-1904	1904-1909	1899-1904
<b>All industries</b> .....	1,020	3,602	100.0	\$17,870,000	100.0	\$6,394,000	100.0	36.6	37.3	45.7	44.1
Flour-mill and gristmill products.....	95	285	7.9	6,208,000	34.7	872,000	13.6	-4.8	103.1	-24.9	121.6
Butter, cheese, and condensed milk.....	05	189	5.2	2,688,000	15.0	378,000	5.9	23.0	82.1	8.0	80.4
Printing and publishing.....	392	825	22.9	1,978,000	11.1	1,520,000	23.8	61.7	63.8	55.1	67.5
Bread and other bakery products.....	02	286	7.9	1,161,000	6.5	440,000	6.9	199.2	391.1	158.8	240.0
Lumber and timber products.....	58	451	12.5	945,000	5.3	590,000	9.3	150.7	-23.8	112.9	-7.6
Liquors, malt.....	4	76	2.1	606,000	3.4	375,000	5.9	56.2	38.6	56.9	-1.2
Tobacco manufactures.....	59	203	5.6	454,000	2.5	290,000	4.5	38.4	66.5	44.3	57.0
Cars and general shop construction and repairs by steam-railroad companies.....	5	327	9.1	439,000	2.5	274,000	4.3	74.9	41.0	128.3	31.9
Confectionery.....	3	106	2.9	400,000	2.2	120,000	2.0	20.5	.....	-8.5	.....
Gas, illuminating and heating.....	17	108	3.0	273,000	1.6	158,000	2.5	87.8	.....	58.0	.....
Artificial stone.....	38	104	2.9	253,000	1.4	133,000	2.1	301.6	.....	269.4	.....
Foundry and machine-shop products.....	37	78	2.2	225,000	1.3	152,000	2.4	1.8	.....	-9.0	.....
Carriages and wagons and materials.....	10	48	1.3	131,000	0.7	71,000	1.1	323.6	-33.7	238.1	-27.6
Brick and tile.....	12	54	1.5	103,000	0.6	72,000	1.1	22.6	82.6	12.5	98.9
All other industries.....	103	512	14.2	2,005,000	11.2	934,000	14.6	.....	.....	.....	.....

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

It should be borne in mind, in considering this table, that the value of products in some of the industries involves a certain amount of duplication, due to the use of the products 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.

*Flour-mill and gristmill products.*—The statistics show that this industry continues to lead in value of products, reporting in 1909 more than one-third of the total value of products for the state. Compared with the returns, however, for 1904, there has been a decrease of 4.8 per cent in the value of products and of 24.9 per cent in value added by manufacture.

*Butter, cheese, and condensed milk.*—The establishments reported for this industry are engaged primarily in the manufacture of butter, no cheese or condensed milk being produced in 1909. This industry increased much more rapidly during the period from 1899 to 1904 than during the latter half of the decade.

*Printing and publishing.*—Over one-third of the total number of manufacturing establishments and nearly one-fourth of the total number of wage earners of the state are engaged in this industry. The 392 establishments embraced 378 publishers of newspapers and periodicals, 13 job printing offices, and one bookbinding establishment.

*Bread and other bakery products.*—An increase of nearly 200 per cent was shown in the value of the bakery products reported for 1909, as compared with 1904.

*Lumber and timber products.*—The development of this industry in South Dakota during the last five years is shown in the increase in value of products and in value added by manufacture. The former item decreased 23.8 per cent from 1899 to 1904, but increased 150.7 per cent from 1904 to 1909, and the latter item decreased 7.6 per cent during the earlier

period and increased 112.9 per cent during the later. The increase in the later five-year period is due partly to the large increase in the cut of western yellow pine during this period as well as to an advance in the price of this timber, which constitutes almost the entire lumber cut of South Dakota.

The above table shows that when these five leading industries are ranked according to value added by manufacture the order differs considerably from that when the ranking is by value of products. In value added by manufacture the leading industry is printing and publishing, which ranked third in value of products. It leads also in the number of wage earners employed.

This table shows also the percentages of increase for these leading industries in respect to value of products and value added by manufacture.

In some of the less important industries the percentage of increase in value of products from 1904 to 1909 was very large, amounting to over 300 per cent in two industries—artificial stone and carriages and wagons.

In addition to the 14 industries presented separately, there are 7 other industries each of which had a value of product in 1909 in excess of \$100,000. They are included under the head of "All other industries" because, if they were shown separately, the operations of individual establishments would be disclosed, or because the data for prior censuses are not available or comparable, or 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 industries of similar character. These 7 industries are: Automobiles, including bodies and parts; cement; men's clothing, including shirts; copper, tin, and sheet-iron products; marble and stone work; mineral and soda water; and slaughtering and meat packing. The 1909 statistics, however, for the manufacture of copper, tin, and sheet-iron products and marble and stone work will be found in Table II.

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.....	5,226	4,588	638
Proprietors and officials.....	1,227	1,183	39
Proprietors and firm members.....	942	906	36
Salaried officers of corporations.....	96	95	1
Superintendents and managers.....	189	187	2
Clerks.....	397	255	142
Wage earners (average number).....	3,602	3,145	457
16 years of age and over.....	3,556	3,099	457
Under 16 years of age.....	46	46	

The average number of persons engaged in manufactures during 1909 was 5,226. Of these, 3,602 were wage earners. Of the remainder, about three-fourths were proprietors and officials and about one-fourth were clerks. Corresponding figures for individual industries will be found in Table II.

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

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	5,226	23.5	7.6	68.9
Bread and other bakery products.....	431	27.4	6.3	66.4
Butter, cheese, and condensed milk.....	262	32.1	12.7	55.2
Flour-mill and gristmill products.....	454	30.2	7.0	62.8
Lumber and timber products.....	534	13.1	2.4	84.5
Printing and publishing.....	1,387	30.1	10.5	59.5
All other industries.....	2,168	18.6	6.8	74.5

Of the total number of persons engaged in all manufacturing industries, 23.5 per cent were proprietors and officials, 7.6 per cent clerks, and 68.9 per cent wage earners. The proportion of proprietors and officials is much greater than in states where the manufacturing industries are developed highly, for the reason that in South Dakota a very large proportion of the establishments are small and the work done largely by the proprietors or by their immediate representatives.

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 the wage earners as reported for December 15, or the nearest representative day. As a means of judging the importance of the several industries the average total number employed for the year is also given in each case.

INDUSTRY.	WAGE EARNERS.			
	Average number. <sup>1</sup>	Per cent of total.		
		16 years of age and over.		Under 16 years of age.
		Male.	Female.	
All industries.....	3,602	88.0	12.7	1.3
Bread and other bakery products.....	286	65.7	32.9	1.4
Butter, cheese, and condensed milk.....	139	95.7	4.3	
Flour-mill and gristmill products.....	285	99.6		0.4
Lumber and timber products.....	451	99.8		0.2
Printing and publishing.....	825	69.5	28.0	2.5
All other industries.....	1,016	91.0	7.8	1.2

<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, 86 per cent of the average number of wage earners were males over 16 years of age; 12.7 per cent, females over that age; and 1.3 per cent, all persons under the age of 16. The largest part of the total number of female wage earners over 16 years of age and of children under that age were confined to the bakery and printing industries combined. In the bakery industry about one-third of the total wage earners employed were females, and in the printing industry about three-tenths of the total employees were of that class.

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.....	5,226	100.0	3,582	100.0	45.9
Proprietors and firm members.....	942	18.0	649	18.1	45.1
Salaried employees.....	682	13.0	441	12.3	54.6
Wage earners (average number).....	3,602	68.9	2,492	69.6	44.5

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

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

CLASS.	AVERAGE NUMBER OF WAGE EARNERS.					
	1909		1904		1899	
	Number.	Percent distribution.	Number.	Percent distribution.	Number.	Percent distribution.
Total.....	3,602	100.0	2,492	100.0	2,224	100.0
16 years of age and over..	3,556	98.7	2,459	98.7	2,114	95.1
Male.....	3,099	86.0	2,179	87.4	2,033	91.4
Female.....	457	12.7	280	11.2	81	3.6
Under 16 years of age....	46	1.3	33	1.3	110	4.9

This table indicates that very few children are employed in the manufacturing industries of the state, and that the present proportion of children is less than it was 10 years ago, although there was a slight increase in the number from 1904 to 1909.

From 1904 to 1909, as well as from 1899 to 1904, there was a proportional and actual increase in the employment of female wage earners.

**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 1170, 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.	WAGE EARNERS.									
	All industries.		Lumber and timber products.						All other industries.	
			Total.		In mills.		In logging operations.			
	Number.	Per cent of maximum.	Number.	Per cent of maximum.	Number.	Per cent of maximum.	Number.	Per cent of maximum.	Number.	Per cent of maximum.
January.....	3,108	79.2	331	58.9	188	50.1	143	75.3	2,777	81.1
February.....	3,235	82.4	405	82.7	275	73.3	190	100.0	2,770	80.8
March.....	3,374	89.0	486	86.5	296	78.9	190	100.0	2,888	84.3
April.....	3,373	85.9	369	65.7	240	64.0	129	67.9	3,004	87.7
May.....	3,543	90.3	366	68.7	264	75.7	102	53.7	3,187	92.2
June.....	3,703	95.0	476	84.7	343	91.5	133	70.0	3,237	96.0
July.....	3,824	97.4	515	91.6	363	96.8	152	80.0	3,309	96.6
August.....	3,779	96.3	394	70.1	291	77.6	103	54.2	3,385	98.3
September.....	3,925	100.0	500	89.0	351	93.6	149	78.4	3,425	100.0
October.....	3,860	98.3	407	88.4	335	89.3	162	85.3	3,363	98.2
November.....	3,869	98.6	562	100.0	375	100.0	187	98.4	3,307	98.6
December.....	3,572	91.0	434	77.2	291	77.6	143	75.3	3,138	91.6

The lumber industry shows more fluctuations in the number of wage earners employed than any other important industry. The greatest activity in logging operations is shown for February and March. In the mills the minimum number of wage earners was employed in January, the number fluctuating until November, when the maximum number was employed. For all industries combined the number of wage earners employed was lowest in January, and increased gradually until reaching the maximum in September.

**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.....	3,602	516	82	746	40	1,932	131	39	116
Artificial stone.....	104	.....	3	3	.....	98	.....	.....	.....
Bread and other bakery products.....	286	19	3	25	.....	219	1	14	4
Brick and tile.....	54	.....	.....	10	.....	44	.....	.....	.....
Butter, cheese, and condensed milk.....	139	7	.....	13	.....	85	29	.....	.....
Carriages and wagons and materials.....	48	.....	.....	.....	.....	48	.....	.....	.....
Cars and general shop construction and repairs by steam-railroad companies.....	327	.....	.....	.....	.....	313	14	.....	.....
Confectionery.....	108	.....	.....	38	.....	73	.....	.....	.....
Flour-mill and gristmill products.....	295	28	.....	9	.....	175	48	25	.....
Foundry and machine-shop products.....	78	2	.....	4	.....	72	.....	.....	.....
Gas, illuminating and heating.....	108	6	.....	1	16	36	37	.....	12
Liquors, malt.....	76	15	.....	43	.....	18	.....	.....	.....
Lumber and timber products.....	451	8	3	13	.....	425	2	.....	.....
Marble and stone work.....	116	8	.....	63	4	21	.....	.....	.....
Printing and publishing.....	825	207	73	447	7	91	.....	.....	.....
Tobacco manufactures.....	203	188	.....	3	.....	2	.....	.....	.....
All other industries.....	396	18	.....	53	13	212	.....	.....	100

It appears from these figures that a majority of the wage earners employed in the manufacturing industries of South Dakota are employed 60 hours or over per week, the proportion being 61.6 per cent of all wage earners. The artificial stone industry, the bakeries, the railroad repair shops, the flour mills, and the lumber mills and logging camps were mainly on a 10-hour-per-day basis (60 hours per week). Shorter hours prevail in printing and publishing, 88.1 per cent of the total number of wage earners in that industry being employed in establishments running 54 hours or less per week. Eight hours per day were the prevailing hours in the tobacco industry.

Location of establishments.—The following table shows the distribution of manufacturing between cities having a population of 10,000 or over and the remainder of the state. (See Introduction.)

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	583,888	24,847	559,041	4.3	95.7
	1900	401,570	10,266	391,304	2.6	97.4
Number of establishments.	1909	1,020	120	900	11.8	88.2
	1904	686	61	625	8.9	91.1
	1899	624	48	576	7.7	92.3
Average number of wage earners.	1909	3,602	972	2,630	27.0	73.0
	1904	2,492	465	2,027	18.7	81.3
	1899	2,224	311	1,913	14.0	86.0
Value of products.	1909	\$17,870,135	\$4,464,069	\$13,406,066	25.0	75.0
	1904	13,085,333	1,897,790	11,187,543	14.5	85.5
	1899	9,529,946	883,624	8,646,322	9.3	90.7
Value added by manufacture.	1909	6,393,785	1,823,764	4,570,021	28.5	71.5
	1904	4,388,502	832,097	3,556,405	19.0	81.0
	1899	3,046,269	562,098	2,484,173	18.5	81.5

At the census of 1900 Sioux Falls was the only city having over 10,000 inhabitants, but in 1910 Aberdeen became a city of that class. The population for the census of 1900 was used in grouping data for 1904 as well as for 1899. The addition, therefore, of Aberdeen in 1909 accounts in part for the relatively large increase in urban manufactures during the period 1904-1909.

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. 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 five important industries.

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.....	1,020	3,602	\$17,870,135	\$6,393,785
1904.....	686	2,492	13,085,333	4,388,502
Individual:				
1909.....	583	1,045	4,047,905	1,876,363
1904.....	376	810	3,222,105	1,373,597
Firm:				
1909.....	160	425	2,927,528	908,217
1904.....	125	452	2,842,052	902,559
Corporation:				
1909.....	216	2,076	9,870,131	3,479,291
1904.....	112	1,145	6,003,547	1,943,511
Other:				
1909.....	61	55	1,024,571	129,914
1904.....	73	79	1,017,629	168,835
Per cent of total:				
1909.....	100.0	100.0	100.0	100.0
1904.....	100.0	100.0	100.0	100.0
Individual:				
1909.....	57.2	29.0	22.7	29.3
1904.....	54.8	32.7	24.6	31.3
Firm:				
1909.....	15.7	11.8	16.4	14.2
1904.....	18.2	18.1	21.7	20.6
Corporation:				
1909.....	21.2	57.6	55.2	54.4
1904.....	16.3	45.9	45.9	44.3
Other:				
1909.....	6.0	1.6	5.7	2.0
1904.....	10.6	3.2	7.8	3.8
<b>Bread and other bakery products, 1909.....</b>	92	286	\$1,160,536	\$439,170
Individual.....	69	111	470,964	190,499
Firm.....	20	35	177,890	79,697
Corporation.....	3	140	511,682	168,974
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	75.0	38.8	40.6	43.4
Firm.....	21.7	12.2	15.3	18.1
Corporation.....	3.3	49.0	44.1	38.5
<b>Butter, cheese, and condensed milk, 1909.....</b>	95	189	\$3,685,511	\$377,478
Individual.....	30	26	548,852	88,705
Firm.....	8	17	218,840	34,402
Corporation.....	12	47	1,036,131	165,113
Other.....	45	49	881,688	89,258
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	31.6	18.7	20.4	23.5
Firm.....	8.4	12.2	8.1	9.1
Corporation.....	12.6	33.8	38.6	43.7
Other.....	47.4	35.3	32.8	23.6
<b>Flour-mill and gristmill products, 1909.....</b>	95	286	\$6,208,216	\$873,451
Individual.....	31	47	892,441	170,557
Firm.....	23	64	1,250,306	200,177
Corporation.....	35	174	3,942,605	472,796
Other.....	6	.....	122,864	28,921
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	32.6	16.5	14.4	19.5
Firm.....	24.2	22.5	20.1	22.9
Corporation.....	36.8	61.1	63.5	54.2
Other.....	6.3	.....	2.0	3.3
<b>Lumber and timber products, 1909.....</b>	58	451	\$944,777	\$595,866
Individual.....	34	83	202,684	114,431
Firm.....	9	31	110,570	82,741
Corporation.....	15	337	631,523	398,694
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	58.6	18.4	21.5	19.2
Firm.....	15.5	6.9	11.7	13.9
Corporation.....	25.9	74.7	65.8	66.9
<b>Printing and publishing, 1909.....</b>	392	825	\$1,975,978	\$1,519,482
Individual.....	272	402	851,678	678,653
Firm.....	40	71	170,221	135,884
Corporation.....	74	350	941,037	698,733
Other.....	6	2	7,042	6,182
Per cent of total.....	100.0	100.0	100.0	100.0
Individual.....	69.4	48.7	43.1	44.7
Firm.....	10.2	8.6	8.9	8.9
Corporation.....	18.9	42.4	47.6	46.0
Other.....	1.5	0.2	0.4	0.4

The proportion of establishments operated by firms was smaller in 1909 than in 1904 and the proportion under corporate ownership considerably larger. In addition, the establishments operated by individuals and by firms reported smaller proportions of the total average number of wage earners, the total value of products, and the total value added by manufacture in 1909 than in 1904. In 1909 corporations reported more than half the totals for each of these items, a much larger proportion than they reported at the preceding census. Of the value of products reported by the flour-mill and gristmill industry and by the lumber industry, 63.5 per cent and 66.8 per cent, respectively, are returned by establishments under this form of ownership. Of the 61 establishments classified as under "Other" forms of ownership,

45 were engaged in making butter and were operated under the cooperative form of 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.	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.....	1,020	3,602	\$17,870,135	\$6,393,785	<b>Butter, cheese, and condensed milk, 1909—Con.</b>				
1904.....	686	2,492	13,085,333	4,383,502	Per cent of total.....	100.0	100.0	100.0	100.0
Less than \$5,000:					Less than \$5,000.....	6.3	2.9	0.6	0.9
1909.....	533	553	1,204,393	873,341	\$5,000 and less than \$20,000.....	51.6	29.5	22.9	24.1
1904.....	319	334	751,832	553,310	\$20,000 and less than \$100,000.....	37.9	45.3	46.3	40.0
\$5,000 and less than \$20,000:					\$100,000 and less than \$1,000,000.....	4.2	22.3	31.2	35.0
1909.....	309	378	3,144,801	1,541,435	Average per establishment.....		1	\$28,269	\$3,973
1904.....	216	637	2,202,435	1,076,446					
\$20,000 and less than \$100,000:					<b>Flour-mill and gristmill products, 1909</b>	95	285	\$6,205,218	\$872,451
1909.....	142	1,056	5,652,440	1,923,520	Less than \$5,000.....	11	6	33,800	6,340
1904.....	130	895	5,885,237	1,809,290	\$5,000 and less than \$20,000.....	22	21	285,408	58,528
\$100,000 and less than \$1,000,000:					\$20,000 and less than \$100,000.....	45	120	2,139,453	391,756
1909.....	36	1,110	7,808,496	2,052,489	\$100,000 and less than \$1,000,000.....	17	138	3,740,548	415,829
1904.....	21	526	4,245,779	888,956	Per cent of total.....	100.0	100.0	100.0	100.0
Per cent of total:					Less than \$5,000.....	11.6	2.1	0.5	0.7
1909.....	100.0	100.0	100.0	100.0	\$5,000 and less than \$20,000.....	23.2	7.4	4.6	6.7
1904.....	100.0	100.0	100.0	100.0	\$20,000 and less than \$100,000.....	47.4	42.1	34.5	44.9
Less than \$5,000:					\$100,000 and less than \$1,000,000.....	17.0	48.4	60.4	47.7
1909.....	52.3	15.5	7.1	13.7	Average per establishment.....		3	\$65,350	\$9,184
1904.....	46.5	15.4	5.7	12.6					
\$5,000 and less than \$20,000:					<b>Lumber and timber products, 1909</b>	58	451	\$944,777	\$595,886
1909.....	30.3	24.4	17.6	24.1	Less than \$5,000.....	22	30	60,345	44,767
1904.....	31.5	27.6	16.8	24.5	\$5,000 and less than \$20,000.....	28	95	258,664	156,284
\$20,000 and less than \$100,000:					\$20,000 and less than \$100,000.....	5	46	183,337	91,564
1909.....	13.9	23.3	31.8	30.1	\$100,000 and less than \$1,000,000.....	3	280	441,931	303,221
1904.....	19.0	35.9	45.0	42.6	Per cent of total.....	100.0	100.0	100.0	100.0
\$100,000 and less than \$1,000,000:					Less than \$5,000.....	37.9	6.7	6.4	7.5
1909.....	3.5	30.8	43.7	32.1	\$5,000 and less than \$20,000.....	48.3	21.1	27.4	26.2
1904.....	3.1	21.1	32.4	20.3	\$20,000 and less than \$100,000.....	8.6	10.2	19.4	15.4
Average per establishment:					\$100,000 and less than \$1,000,000.....	5.2	62.1	46.8	50.9
1909.....	4		\$17,520	\$6,268	Average per establishment.....		8	\$16,289	\$10,274
1904.....	4		19,075	6,397					
<b>Bread and other bakery products, 1909</b>	92	283	\$1,160,536	\$439,170	<b>Printing and publishing, 1909</b>	392	825	\$1,975,976	\$1,519,492
Less than \$5,000.....	41	29	119,905	55,706	Less than \$5,000.....	316	363	693,408	557,958
\$5,000 and less than \$20,000.....	44	94	408,123	171,593	\$5,000 and less than \$20,000.....	80	229	522,699	412,152
\$20,000 and less than \$100,000.....	7	163	632,503	211,816	\$20,000 and less than \$100,000.....	16	233	759,871	549,372
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.....	44.6	10.1	10.3	12.7	Less than \$5,000.....	80.6	44.0	35.1	36.7
\$5,000 and less than \$20,000.....	47.8	32.9	35.2	39.1	\$5,000 and less than \$20,000.....	15.3	27.8	26.6	27.1
\$20,000 and less than \$100,000.....	7.6	57.0	54.5	48.2	\$20,000 and less than \$100,000.....	4.1	28.2	38.5	36.2
Average per establishment.....		3	\$12,615	\$4,774	Average per establishment.....		2	\$5,041	\$3,576
<b>Butter, cheese, and condensed milk, 1909</b>	95	139	\$2,685,511	\$377,478					
Less than \$5,000.....	6	4	19,959	3,347					
\$5,000 and less than \$20,000.....	49	41	614,556	90,935					
\$20,000 and less than \$100,000.....	36	63	1,215,578	151,083					
\$100,000 and less than \$1,000,000.....	4	31	838,418	132,113					

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

This table shows that, in 1909, of the 1,020 establishments, only 36, or 3.5 per cent, had a value of products exceeding \$100,000. These establishments, however, had a total average number of wage earners of 1,110, or 30.8 per cent of the total for the state; 43.7 per cent of the total value of products; and 32.1 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—represented more than one-half (52.3 per cent) of the total number of establishments, while the average number of wage earners employed in them formed only 15.5 per cent of the total, and the value of their products only 7.1 per cent.

The fact that the average value of products per establishment decreased from \$19,075 to \$17,520, and the average value added by manufacture from \$6,397 to \$6,268, is due chiefly to the disproportionate



increase in the number of very small establishments. Out of a total increase of 334 establishments, there were 214 each of which had a product valued at less than \$5,000. There was no change in the average number of wage earners per establishment. Considering only the five leading industries which are included in the table, the average value of products per establishment varies from \$5,041 for the printing and publishing industry to \$65,350 for flour mills and gristmills.

In some respects, and especially from the standpoint of conditions under which persons engaged in manufactures work, the best classification of establishments to bring out the feature of size is a classification according to the number of wage earners employed. The next table shows such a classification for all industries combined and for five 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.	Over 1,000 wage earners.
NUMBER OF ESTABLISHMENTS.										
All industries .....	1,020	146	767	83	17	4	3			
Bread and other bakery products.....	92	17	71	3			1			
Butter, cheese, and condensed milk.....	95	9	84	2						
Flour-mill and gristmill products.....	95	12	70	12	1					
Lumber and timber products.....	53	2	45	6	1	2	1			
Printing and publishing.....	302	72	300	10	4					
All other industries.....	233	34	196	44	11	2	1			
AVERAGE NUMBER OF WAGE EARNERS.										
All industries .....	3,602	1,456	835	517	310	484				
Bread and other bakery products.....	286	134	19			133				
Butter, cheese, and condensed milk.....	139	114	25							
Flour-mill and gristmill products.....	285	162	96	27						
Lumber and timber products.....	451	106	43	22	149	131				
Printing and publishing.....	825	538	178	109						
All other industries.....	1,616	402	474	359	161	220				
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All industries .....	100.0	40.4	23.2	14.4	8.6	13.4				
Bread and other bakery products.....	100.0	46.9	6.6			46.5				
Butter, cheese, and condensed milk.....	100.0	82.0	18.0							
Flour-mill and gristmill products.....	100.0	56.8	33.7	9.5						
Lumber and timber products.....	100.0	23.5	9.5	4.9	33.0	29.0				
Printing and publishing.....	100.0	65.2	21.6	13.2						
All other industries.....	100.0	24.9	29.3	22.2	10.0	13.6				

The per cent distribution of the number of establishments is not shown in this table; of the 1,020 establishments reported for all industries, 89.5 per cent employed no wage earners or from 1 to 5 wage earners each, while only 3 establishments employed over 100 wage earners each.

Of the total number of wage earners, 40.4 per cent were in establishments employing from 1 to 5 wage earners each. The creamery and the printing and publishing industries are the leading industries in this group. The group of establishments employing from 6 to 20 wage earners reported 23.2 per cent of the total number of wage earners, and the 3 establishments which employed over 100 wage earners each reported 13.4 per cent of the total.

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

the different classes of expenses going to make up the total.

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

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
All industries .....	3.9	14.6	72.7	8.9
Bread and other bakery products.....	3.0	15.3	73.1	8.6
Butter, cheese, and condensed milk.....	1.7	4.4	90.7	3.2
Flour-mill and gristmill products.....	1.4	3.2	91.1	4.3
Lumber and timber products.....	3.6	33.6	39.0	23.7
Printing and publishing.....	12.2	35.6	32.9	19.2
All other industries.....	6.3	25.6	56.0	12.2

This table shows that, for all industries combined, 72.7 per cent of the total expenses was incurred for

materials, 18.5 per cent for services—that is, salaries and wages—and but 8.9 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries.

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

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899 <sup>1</sup>	1909	1904	1899 <sup>1</sup>	1909	1904	1899
Primary power, total.....	972	436	507	17,666	11,154	11,775	100.0	100.0	100.0
Owned.....	648	436	507	15,980	10,963	11,663	90.5	98.3	99.0
Steam.....	253	214	308	12,257	8,483	9,256	69.4	76.1	78.6
Gas and oil.....	366	186	158	2,784	1,397	1,270	15.8	12.5	10.8
Water wheels.....	24	31	41	927	1,060	1,099	5.2	9.5	9.3
Water motors.....	5	5	(?)	12	9	(?)	0.1	0.1	(?)
Other.....					14	38		0.1	0.3
Rented.....	324	(?)	(?)	1,686	191	112	9.5	1.7	1.0
Electric.....	324	(?)	(?)	1,683	181	100	9.5	1.6	0.8
Other.....				3	10	12	(?)	0.1	0.1
Electric motors.....	346	23	7	2,084	339	234	100.0	100.0	100.0
Run by current generated by establishment.....	22	23	7	401	158	134	19.2	46.6	57.3
Run by rented power.....	324	(?)	(?)	1,683	181	100	80.8	53.4	42.7

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

<sup>2</sup> Not reported.

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

The table indicates that the increase in primary power was principally in power generated by steam. Electric power also shows a large increase, while water power shows a decrease. The more general

use of gas engines is shown, the number of such engines being 366 in 1909, as compared with 186 in 1904 and 158 in 1899. The number of motors run by rented power was not reported in 1904 and 1899, hence comparative figures are not available for the two earlier censuses. The horsepower furnished by electric motors run by rented power increased from 181 in 1904 to 1,683 in 1909. In 1904, 98.3 per cent of the total horsepower was owned by the establishments reporting, while in 1909 only 90.5 per cent was so reported. During the same period the proportion of rented electric horsepower increased from 1.6 per cent to 9.5 per cent. The horsepower developed by electric motors run by current generated in the manufacturing establishments reporting increased from 134 in 1899 to 158 in 1904 and 401 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. Because a large amount of fuel is consumed in the manufacture of gas, it is included in addition to the five important industries in the following table, which 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).
All industries.....	2,744	102,547	3,960	4,080	19,239	106,436
Bread and other bakery products.....	808	881	374	1,172	121	1,477
Butter, cheese, and condensed milk.....	27	5,239			111	32
Flour-mill and gristmill products.....	522	26,762		9	1,681	100,000
Gas, illuminating and heating.....	22	4,720	3,129		15,238	
Lumber and timber products.....		2,755			171	4
Printing and publishing.....	632	1,490	23	318	960	2,241
All other industries.....	783	60,760	434	2,531	957	2,682

NOTE.—In addition, there was 1 ton of other varieties of fuel reported.

SUPPLEMENTARY DATA REGARDING IMPORTANT INDUSTRIES.

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

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

Flour-mill and gristmill products.—Wheat is the principal agricultural crop of South Dakota, and naturally flour-mill and gristmill products ranked first among its manufactures. The following tabular statement gives the quantity and value of products for the last three census years:

PRODUCT.	1909	1904	1899
<b>Products, total value.....</b>	<b>\$6,208,216</b>	<b>\$6,519,864</b>	<b>\$3,208,532</b>
Wheat flour:			
White—			
Barrels.....	962,840	1,142,805	897,026
Value.....	\$5,041,149	\$5,300,128	\$2,045,678
Graham—			
Barrels.....	5,446	5,219	(1)
Value.....	\$26,648	\$23,242	(1)
Corn meal and corn flour:			
Barrels.....	6,845	23,308	14,652
Value.....	\$23,413	\$49,571	\$23,480
Rye flour:			
Barrels.....	2,579	2,835	2,744
Value.....	\$12,022	\$11,414	\$6,651
Buckwheat flour:			
Pounds.....	219,675	26,000	(2)
Value.....	\$7,199	\$1,010	(2)
Barley meal:			
Pounds.....	361,000	40,000	347,000
Value.....	\$7,500	\$700	\$4,930
Feed:			
Tons.....	9,849	16,713	14,091
Value.....	\$245,780	\$230,438	\$185,130
Offal:			
Tons.....	44,272	55,845	33,868
Value.....	\$830,022	\$780,371	\$341,573
All other products.....	\$5,477	\$490	\$3,040

<sup>1</sup> Included in figures for white wheat flour.   <sup>2</sup> Figures not available.

There was a decrease in the value of products between 1904 and 1909, due to a falling off of 6 per cent in the value and of 15.7 per cent in the quantity of white flour manufactured. The figures for buckwheat flour and barley meal show notable increases for the same five-year period, the quantity of the former product increasing more than eightfold and of the latter product ninefold.

Butter.—The quantity and value of products for 1909, 1904, and 1899 are given in the next table.

The value of solid packed butter represented 90.3 per cent in 1909, 97 per cent in 1904, and 94.6 per cent in 1899 of the total value of products. From 1899 to 1904 this class of product increased decidedly both in quantity and in value, while from 1904 to 1909, notwithstanding a marked decrease in quantity, there was an increase in the value.

The quantity and value of skimmed milk sold shows a very large decrease from census to census. This is due to the radical change which has taken place in the creamery industry. Formerly whole milk was brought to the creamery while at present the cream is separated largely on the farm and sold as such.

PRODUCT.	1909	1904	1899
<b>Products, total value.....</b>	<b>\$2,685,511</b>	<b>\$2,182,653</b>	<b>\$1,199,493</b>
Butter:			
Packed solid—			
Pounds.....	8,880,010	10,835,596	6,110,726
Value.....	\$2,424,897	\$2,116,900	\$1,134,228
Prints and rolls—			
Pounds.....	615,598	222,864	61,381
Value.....	\$173,516	\$44,423	\$14,739
Cream sold:			
Pounds.....	390,108	2,140	1,596
Value.....	\$43,147	\$215	\$1,070
Skimmed milk:			
Pounds.....	1,116,882	4,491,814	9,690,340
Value.....	\$1,583	\$7,903	\$5,670
All other products.....	\$42,368	\$13,212	\$40,786

<sup>1</sup> Does not include 1 cheese establishment.

Printing and publishing.—The progress of the newspaper and periodical branch of the industry is indicated in the following statement, which shows the number and aggregate circulation per issue for the different classes of publications for the years 1909, 1904, and 1899.

PERIOD OF ISSUE.	NUMBER OF PUBLICATIONS.			AGGREGATE CIRCULATION PER ISSUE.		
	1909	1904	1899	1909	1904	1899
<b>Total.....</b>	<b>402</b>	<b>302</b>	<b>221</b>	<b>485,101</b>	<b>330,705</b>	<b>232,166</b>
Daily.....	19	16	16	46,153	21,910	16,463
Sunday.....	4	5	3	23,526	11,350	(1)
Semiweekly.....	3	5	1	4,400	6,850	1,600
Weekly.....	360	263	189	277,127	198,604	151,438
Monthly.....	11	11	9	23,750	58,600	34,400
All other classes.....	5	2	3	110,145	33,391	28,265

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

In 1909 the aggregate circulation per issue of the newspapers and periodicals of the state was 485,101, which represents an increase of 46.7 per cent over the corresponding figure for 1904. Weekly publications have a greater circulation than all other periodicals combined; out of a total of 402 newspapers and periodicals published in 1909, 360, or 89.6 per cent, were published weekly. The proportion which the weeklies formed of the total number in 1904 was 87.1 per cent, while in 1899 it was 85.5 per cent. There was an increase of three in the number of dailies from 1904 to 1909, but during the same period the combined average circulation of all dailies increased over 100 per cent.

Laundries.—Statistics for steam laundries are not included in the general tables. In 1909 there were 28 such establishments in the state of South Dakota, 4 of which were located in Aberdeen and 3 in Sioux Falls.

The following statement summarizes the statistics:

Number of establishments.....	28
Persons engaged in the industry.....	447
Proprietors and firm members.....	33
Salaried employees.....	28
Wage earners (average number).....	386
Primary horsepower.....	519
Capital.....	\$336,276
Expenses.....	313,492
Services.....	190,830
Materials.....	81,770
Miscellaneous.....	40,892
Amount received for work done.....	423,092

Sixteen establishments were operated by individuals, 4 by corporations, and 8 by general partnerships. Nine establishments had receipts for the year's business of less than \$5,000; 9, receipts of \$5,000 but less than \$20,000; and 10, receipts 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.....	352	85.0	July.....	410	99.0
February.....	352	85.0	August.....	414	100.0
March.....	356	86.0	September.....	400	98.1
April.....	369	89.1	October.....	398	96.1
May.....	384	92.8	November.....	395	95.4
June.....	394	95.2	December.....	397	95.9

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

KIND.	Number of engines.	Horse-power.
<b>Primary power, total.....</b>		
Owued.....	26	519
Steam engines.....	19	395
Gas engines.....	7	360
Rented—Electric.....	23	25
		123

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

KIND.	Unit.	Quantity.
Anthracite coal.....	Tons.....	19
Bituminous coal.....	Tons.....	6,265
Wood.....	Cords.....	1
Oil.....	Barrels.....	215
Gas.....	1,000 feet.....	5,236

Custom sawmills and gristmills.<sup>1</sup>—Statistics for custom sawmills and gristmills are not included in the general tables, but are presented in the following summary:

Number of establishments.....	4
Persons engaged in the industry.....	4
Proprietors and firm members.....	3
Wage earners (average number).....	1
Primary horsepower.....	82
Capital.....	\$15,500
Expenses.....	29,637
Services.....	400
Materials.....	<sup>2</sup> 28,630
Miscellaneous.....	607
Value of products.....	<sup>2</sup> 36,102

<sup>1</sup> Includes one custom mill.  
<sup>2</sup> Includes estimate of all grain ground. A similar estimate for value of lumber sawed by custom sawmills is impracticable.

# MANUFACTURES—SOUTH DAKOTA.

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

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 employees.	Wage earners (average number).							
STATE—All industries.....	1909	1,020	5,226	942	682	3,603	17,666	\$13,018	\$816	\$2,298	\$11,476	\$17,870	\$6,394
	1904	686	3,582	649	441	2,492	11,154	7,585	294	1,422	8,697	13,085	4,388
	1899	624	.....	.....	.....	.....	11,775	6,061	175	1,130	6,484	9,530	3,046
Artificial stone.....	1909	38	168	49	15	104	139	190	10	62	120	253	133
	1904	4	46	2	9	35	20	37	4	18	27	63	36
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bread and other bakery products.....	1909	92	431	114	31	288	123	500	30	151	721	1,161	440
	1904	32	169	41	12	116	81	170	7	49	218	388	170
	1899	13	51	17	8	26	.....	23	2	14	29	79	50
Brick and tile.....	1909	12	72	5	13	54	790	227	10	28	31	103	72
	1904	10	64	9	6	40	355	175	3	27	20	84	64
	1899	11	67	19	.....	48	162	64	.....	20	13	46	33
Butter, cheese, and condensed milk.....	1909	95	252	50	63	139	1,450	633	44	112	2,308	2,686	373
	1904	197	350	32	126	192	1,410	484	26	125	1,833	2,133	350
	1899	138	287	44	95	148	1,579	461	12	77	1,005	1,199	194
Carriages and wagons and materials.....	1909	10	64	10	6	48	94	133	4	38	60	131	71
	1904	3	23	2	2	19	16	54	2	13	10	31	21
	1899	9	.....	.....	.....	25	41	44	.....	14	20	49	29
Cars and general shop construction and repairs by steam-railroad companies.....	1909	5	346	.....	19	327	557	259	23	243	165	439	274
	1904	6	197	.....	13	184	270	107	15	106	131	251	120
	1899	7	126	.....	9	117	70	68	8	80	87	178	91
Confectionery.....	1909	3	136	.....	30	106	69	203	38	36	271	400	129
	1904	5	121	3	21	97	15	182	20	35	191	332	141
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Flour-mill and gristmill products.....	1909	95	454	83	86	285	7,364	2,873	79	187	5,336	6,208	872
	1904	96	521	110	64	347	6,777	2,428	57	203	5,358	6,519	1,161
	1899	86	.....	.....	62	275	.....	1,647	47	143	2,685	3,209	524
Foundry and machine-shop products.....	1909	37	137	45	14	78	307	352	8	62	73	225	152
	1904	11	138	12	3	123	269	188	6	124	54	221	167
	1899	13	38	18	1	19	.....	42	(4)	8	14	39	25
Gas, illuminating and heating.....	1909	17	144	.....	36	108	318	1,317	26	64	120	278	153
	1904	7	61	.....	14	47	115	654	9	26	48	148	100
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Liquors, malt.....	1909	4	103	.....	27	76	708	1,330	42	59	231	606	375
	1904	4	87	.....	17	70	267	930	24	44	149	383	239
	1899	4	74	3	10	61	218	561	12	24	38	280	242
Lumber and timber products.....	1909	53	534	52	31	451	2,260	941	33	301	349	945	596
	1904	26	227	23	13	191	833	244	12	114	97	377	280
	1899	36	.....	.....	17	371	.....	233	15	170	192	495	303
Marble and stone work.....	1909	15	148	18	14	116	213	132	13	76	73	220	147
	1904	5	33	6	3	24	41	69	2	20	46	97	51
	1899	7	.....	.....	2	125	.....	58	2	45	10	114	104
Printing and publishing.....	1909	392	1,387	359	203	825	931	2,159	170	493	456	1,976	1,520
	1904	279	1,061	301	168	592	426	1,344	85	312	242	1,222	930
	1899	209	770	224	52	494	.....	737	37	204	161	746	535
Tobacco manufactures.....	1909	59	287	72	12	203	.....	216	12	122	164	454	290
	1904	47	227	55	5	167	.....	125	5	87	127	328	201
	1899	27	168	30	9	129	.....	84	5	60	69	197	128
All other industries.....	1909	88	563	85	82	396	2,246	1,553	74	264	998	1,785	787
	1904	54	317	53	25	239	259	394	17	119	140	453	307
	1899	64	.....	.....	33	386	.....	2,029	35	266	2,161	2,399	738

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

Aberdeen.....	1909	37	430	36	99	295	540	\$1,132	\$94	\$178	\$1,011	\$1,575	\$564
Sioux Falls.....	1909	83	937	86	174	677	1,402	2,605	161	385	1,629	2,889	1,260
	1904	61	633	67	101	405	.....	1,743	93	248	1,066	1,688	632
	1899	48	.....	.....	57	311	.....	927	42	152	322	884	502

<sup>1</sup> Excluding statistics for one establishment, to avoid disclosure of individual operations.  
<sup>2</sup> Figures can not be shown without disclosing individual operations.  
<sup>3</sup> Excluding statistics for two establishments, to avoid disclosure of individual operations.  
<sup>4</sup> Less than \$500.

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.....	1,020	5,226	942	295	255	142	3,602	Se 3,925	Ja 3,108	(1)	(1)	(1)	(1)	(1)	17,688		
2 Artificial stone.....	38	168	49	11	3	1	104	Je <sup>2</sup> 156	Ja 24	170	170				139		
3 Bread and other bakery products.....	92	431	114	4	13	14	236	Au 325	Mh 259	278	183	91	4		126		
4 Brick and tile.....	12	72	5	11	2		54	Je 106	Ja <sup>2</sup> 8	103	103				790		
5 Brooms.....	5	23	5		1	1	16	Ja <sup>2</sup> 16	Au <sup>2</sup> 16	16	16				2		
6 Butter, cheese, and condensed milk.....	95	252	50	31	18	14	139	Jy 170	Fe <sup>2</sup> 116	131	125	6			1,456		
7 Carriages and wagons and materials.....	10	64	10	3	2	1	48	De 60	Fe 42	69	60				94		
8 Cars and general shop construction and repairs by steam-railroad companies.....	5	346		12	7		327	De 398	My 269	398	398				557		
9 Confectionery.....	3	136		7	18	5	106	No 130	Jy 89	121	46	75			69		
10 Copper, tin, and sheet-iron products.....	8	33	7	2	3	1	20	Jy <sup>2</sup> 25	Ja 15	19	17		2		8		
11 Flour-mill and gristmill products.....	95	454	83	54	22	10	235	No 320	My 253	323	322		1		7,364		
12 Foundry and machine-shop products.....	37	137	45	7	6	1	78	Jy 89	Ja 65	91	91				307		
13 Fur goods.....	3	15	3		2		10	No <sup>2</sup> 17	My <sup>2</sup> 5	17	3	14			1		
14 Gas, illuminating and heating.....	17	144		17	9	10	108	Jy 160	Fe <sup>2</sup> 78	102	102				218		
15 Jewelry.....	3	11	4	1			6	De <sup>2</sup> 7	My 5	6	5	1			5		
16 Leather goods.....	3	9	3	2			4	Fe <sup>2</sup> 6	Ja <sup>2</sup> 4	4	4						
17 Lime.....	6	29	3	1	1		24	No 42	Fe <sup>2</sup> 13	38	38						
18 Liquors, malt.....	4	103		16	10	1	76	Au 88	No 69	72	69		3		796		
19 Lumber and timber products.....	68	534	52	18	10	3	451	No 562	Ja 331	668	666		2		2,260		
20 Marble and stone work.....	15	148	18	4	9	1	116	Je 145	Fe 66	153	132		1		213		
21 Patent medicines and compounds and druggists' preparations.....	3	4		2			2	Ja <sup>2</sup> 2	Au <sup>2</sup> 2	2	1	1					
22 Printing and publishing.....	392	1,837	358	58	84	61	825	De 858	Ja 794	378	609	246	23		931		
23 Tobacco manufactures.....	59	257	72	3	9		203	De 227	Ap 185	232	187	35	10				
24 All other industries <sup>4</sup> .....	57	439	60	21	28	16	314								2,230		

<sup>1</sup> No figures given for reasons explained in the Introduction.  
<sup>2</sup> Same number reported for one or more other months.  
<sup>3</sup> Same number reported throughout the year.  
<sup>4</sup> All other industries embrace—

Agricultural implements.....	3	Cars and general shop construction and repairs by street-railroad companies.....	1	Coffee and spice, roasting and grinding.....	1
Automobiles, including bodies and parts.....	3	Cement.....	1	Flavoring extracts.....	1
Awnings, tents, and sails.....	2	Clothing, men's, including shirts.....	2	Furnishing goods, men's.....	1
Carpets, rag.....	2			Furniture and refrigerators.....	2

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

CITY.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horse-power.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).					Total.	16 and over.		Under 16.		
					Male.	Female.	Total.	16 and over.		Under 16.	Male.		Female.	Male.	Female.		
								Male.	Female.								
1 ABERDEEN.....	37	430	36	23	49	27	295	215	75	5	343	250	87	6		540	
2 SIOUX FALLS.....	83	937	86	58	79	37	677	502	168	7	711	527	177	7		1,402	

MANUFACTURES—SOUTH DAKOTA.

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THE STATE, BY INDUSTRIES: 1909.

Capital.	EXPENSES.										Value of products.	Value added by manufacture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$13,017,932	\$16,787,191	\$324,561	\$291,080	\$2,297,512	\$507,855	\$10,968,495	\$33,888	\$145,837	\$196,243	\$981,760	\$17,870,135	\$6,398,785
2 190,472	199,327	7,690	2,060	61,644	2,715	117,354	330	1,111	963	5,460	253,407	133,338
3 500,429	986,951	7,200	22,576	151,404	28,204	693,162	19,639	4,180	.....	60,586	1,160,536	439,170
4 228,870	79,632	8,855	726	27,504	19,833	10,736	5	1,126	.....	10,842	102,680	72,088
5 21,445	25,622	.....	1,420	8,349	306	12,003	.....	82	.....	3,462	33,404	21,095
6 633,230	2,545,073	22,154	21,760	111,770	33,097	2,274,936	5,339	3,033	.....	72,984	2,685,511	377,478
7 133,121	108,348	2,900	1,380	87,952	3,824	56,499	70	1,215	13	4,495	131,384	71,061
8 258,072	438,021	18,070	5,210	243,499	20,030	145,018	.....	1,675	.....	6,019	438,019	273,871
9 203,204	375,659	14,560	23,671	35,714	4,790	266,497	1,804	755	.....	27,868	400,249	128,962
10 49,543	88,130	3,000	2,979	13,899	566	48,400	1,688	179	.....	16,813	107,648	58,670
11 2,872,621	5,854,359	68,147	21,044	187,266	110,320	5,219,445	979	17,451	6,054	227,663	6,208,216	873,451
12 852,214	156,233	5,434	2,270	62,386	8,724	64,277	694	2,120	285	10,043	225,471	152,470
13 42,900	30,206	.....	936	4,966	175	19,610	1,200	133	.....	3,156	42,787	22,962
14 1,317,421	239,914	15,418	10,106	63,716	78,357	41,196	.....	5,776	.....	25,345	277,569	158,016
15 13,231	14,365	200	.....	6,279	92	6,986	.....	504	.....	144	17,601	10,523
16 12,400	12,760	600	.....	3,483	42	7,650	.....	620	.....	265	17,789	10,097
17 34,900	36,234	300	90	14,742	8,357	12,558	.....	57	.....	130	38,510	17,595
18 1,330,419	461,208	28,300	13,791	58,798	25,693	205,358	.....	51,198	.....	78,070	605,989	374,948
19 940,549	894,682	22,240	10,395	300,940	13,466	335,445	1,021	7,049	152,108	52,009	945,777	595,866
20 132,045	178,967	4,488	8,985	75,942	3,413	69,257	.....	3,624	.....	600	11,884	147,198
21 5,250	8,803	1,500	.....	1,500	.....	3,980	740	100	357	626	12,033	8,053
22 2,159,079	1,385,587	69,451	100,074	493,317	41,755	414,739	38,799	12,137	21,670	193,625	1,975,976	1,519,482
23 215,861	350,682	3,540	8,340	121,858	1,901	161,859	7,871	31,716	.....	22,597	454,281	290,521
24 1,371,756	1,306,548	29,905	33,247	210,684	96,190	781,524	8,941	4,310	14,193	127,654	1,515,590	637,876

\* All other industries embrace—Continued.

Grease and tallow.....	1	Paint and varnish.....	1	Type founding and printing materials.....	1
Leather, tanned, curried, and finished.....	1	Photo-engraving.....	1	Typewriters and supplies.....	1
Mattresses and spring beds.....	2	Shipbuilding, including boat building.....	1	Wall plaster.....	1
Mineral and soda waters.....	25	Slaughtering and meat packing.....	1		
Models and patterns, not including paper patterns.....	1	Stoves and furnaces, including gas and oil stoves.....	1		

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

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

Capital.	EXPENSES.										Value of products.	Value added by manufacture.
	Total.	Services.			Materials.		Miscellaneous.					
		Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
1 \$1,132,105	\$1,399,842	\$32,774	\$61,639	\$178,424	\$43,361	\$967,742	\$10,008	\$8,458	\$35	\$97,381	\$1,574,963	\$563,870
2 2,605,143	2,478,120	73,691	87,295	384,903	66,130	1,563,052	22,256	38,711	9,064	233,018	2,850,076	1,259,894

# TENNESSEE.

## INDUSTRIES IN GENERAL.

General character of the state.—Tennessee has a gross area of 42,022 square miles, of which 335 represent water surface. Its population in 1910 was 2,184,789, as compared with 2,020,616 in 1900 and 1,767,518 in 1890. It ranked seventeenth among the 49 states and territories of continental United States as regards population in 1910 and fourteenth in 1900. The density of population for the entire state is 52.4 per square mile, the corresponding figure for 1900 being 48.5. Of the entire population of the state, 20.2 per cent resided in cities and incorporated towns having a population of 2,500 inhabitants or over, as against 16.2 per cent in 1900.

Memphis, with a population of 131,105, and Nashville, with 110,364, are the only cities in the state having over 50,000 inhabitants in 1910. Three other cities have a population of over 10,000 but less than 50,000, namely, Chattanooga, Knoxville, and Jackson. Apart from these five cities, only 4.7 per cent of the population resided in cities and incorporated towns of 2,500 inhabitants or over.

The transportation facilities of the state are good, as the Mississippi, Tennessee, and Cumberland Rivers afford advantages for communication by water, while the trunk lines of a number of large railway systems, several of which center at Memphis, cross the state

and afford direct connection with all parts of the country.

Importance and growth of manufactures.—Tennessee is preeminently an agricultural and mining state, and its manufactures are based largely upon its rich natural resources. The development of manufacturing in the state has about kept pace with that in the United States as a whole, the value of the manufactures of the state representing about the same relative proportion, less than 1 per cent, of the total value of products of the manufacturing industries of the United States in 1849 and in 1909.

In 1849 the total value of the manufactures of the state, including the products of the neighborhood and hand industries, amounted to only \$9,725,608, while in 1909, exclusive of the value of products of the neighborhood and hand industries, it reached \$180,216,548, an increase of over seventeen times in 60 years. During the same period the population of the state increased 117.9 per cent. The gross value of products per capita of the total population of the state increased from \$10 in 1849 to \$82 in 1909.

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

	NUMBER OR AMOUNT.			PER CENT OF INCREASE.	
	1909	1904	1899	1904-1909	1899-1904
Number of establishments.....	4,609	3,175	3,116	45.2	1.9
Persons engaged in manufactures.....	87,672	69,287	( <sup>1</sup> )	26.5	-----
Proprietors and firm members.....	5,415	3,805	( <sup>1</sup> )	42.3	-----
Salaried employees.....	8,417	4,910	3,329	71.4	47.5
Wage earners (average number).....	73,840	60,572	45,963	21.9	31.8
Primary horsepower.....	242,277	175,780	130,318	37.8	34.9
Capital.....	\$167,924,000	\$102,439,000	\$63,141,000	63.9	62.2
Expenses.....	158,980,000	119,328,000	78,358,000	33.2	52.3
Services.....	37,438,000	27,886,000	17,776,000	34.3	56.9
Salaries.....	9,186,000	5,080,000	3,048,000	80.8	66.7
Wages.....	28,252,000	22,806,000	14,728,000	23.9	54.8
Materials.....	104,016,000	79,352,000	54,559,000	31.1	45.4
Miscellaneous.....	17,526,000	12,090,000	6,023,000	45.0	100.7
Value of products.....	180,217,000	137,960,000	92,749,000	30.6	48.7
Value added by manufacture (value of products less cost of materials).....	76,201,000	58,608,000	38,190,000	30.0	53.5

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

In 1909 the state of Tennessee had 4,609 manufacturing establishments, which gave employment to an average of 87,672 persons during the year and paid out \$37,438,000 in salaries and wages. Of the persons employed, 73,840 were wage earners. The establishments reporting turned out products to the value

of \$180,217,000, to produce which materials costing \$104,016,000 were used. The value added by manufacture was thus \$76,201,000, which figure, as explained in the Introduction, best represents the net wealth created by manufacturing operations during the year.



In general, this table indicates that while there was considerable development in manufactures during the five-year period 1904-1909, the percentage of increase in most items was less than for the preceding five-year period, 1899-1904. The greatest relative increases during the later period were in number of establishments (45.2 per cent), number of salaried employees (71.4 per cent), and salaries (80.8 per cent). The number of wage earners increased 21.9 per cent, the value of products 30.6 per cent, and value added by

manufacture 30 per cent. As pointed out in the Introduction, it would be improper to infer that manufactures increased in volume to the full extent indicated by these figures regarding values, since the increase shown is certainly due, in part, to the increase that has taken place in the prices of commodities.

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.....	4,609	73,840	100.0	\$180,217,000	100.0	\$76,201,000	100.0	30.6	48.7	30.0	53.5
Lumber and timber products.....	1,977	22,389	30.3	30,457,000	16.9	16,816,000	22.1	13.4	40.2	10.1	55.2
Flour-mill and gristmill products.....	454	1,577	2.1	29,070,000	16.1	3,784,000	5.0	14.7	32.3	10.0	21.2
Foundry and machine-shop products.....	124	4,041	5.5	9,190,000	5.1	4,630,000	6.1	50.1	31.9	41.6	38.6
Printing and publishing.....	413	2,914	3.9	7,173,000	4.0	5,219,000	6.8	40.9	47.4	38.5	46.4
Cars and general shop construction and repairs by street-railroad companies.....	17	5,566	7.5	6,777,000	3.8	3,661,000	4.8	16.1	87.6	28.0	80.5
Oil, cottonseed, and cake.....	20	806	1.1	6,593,000	3.7	1,392,000	1.8	76.1	25.6	110.9	-6.0
Cotton goods, including cotton small wares.....	17	3,078	4.2	5,201,000	2.9	1,857,000	2.4	46.1	78.5	40.7	54.9
Iron and steel, blast furnaces.....	13	1,143	1.5	4,653,000	2.6	1,272,000	1.7	35.7	-27.0	55.3	-46.3
Hosiery and knit goods.....	22	3,117	4.2	3,556,000	2.0	1,445,000	1.9	119.0	312.2	119.3	351.4
Patent medicines and compounds and druggists' preparations.....	76	433	0.6	3,515,000	2.0	2,174,000	2.9				
Clothing, men's, including shirts.....	34	1,596	2.2	3,361,000	1.9	1,238,000	1.6	9.5	74.4	3.9	60.2
Furniture and refrigerators.....	42	2,410	3.3	3,309,000	1.8	1,861,000	2.4				
Fertilizers.....	12	559	0.8	3,240,000	1.8	1,127,000	1.5	20.8	84.2	14.0	40.3
Carriages and wagons and materials.....	129	1,706	2.3	3,040,000	1.7	1,601,000	2.1	-7.3	93.7	-0.6	76.5
Bread and other bakery products.....	131	856	1.2	2,892,000	1.6	1,102,000	1.4	46.5	79.0	15.6	126.9
Leather, tanned, curried, and finished.....	25	395	0.5	2,530,000	1.4	536,000	0.7	-29.4	27.9	-26.9	18.6
Confectionery.....	31	894	1.2	2,520,000	1.4	863,000	1.1	34.5	130.1	-5.4	133.8
Liquors, distilled.....	39	154	0.2	2,256,000	1.3	1,861,000	2.4	297.2	-39.6	496.5	-57.8
Leather goods.....	47	604	0.8	2,139,000	1.2	826,000	1.1	19.7	59.3	0.6	75.1
Slaughtering and meat packing.....	27	280	0.4	2,057,000	1.1	447,000	0.6				
Liquors, malt.....	5	392	0.5	2,044,000	1.1	1,391,000	1.8	11.6	55.9	-0.3	52.8
Stoves and furnaces, including gas and oil stoves.....	17	1,085	1.5	1,931,000	1.1	1,234,000	1.6	74.3		60.9	
Woolen, worsted, and felt goods, and wool hats.....	21	1,654	2.2	1,802,000	1.0	675,000	0.9	6.6	12.5	-11.3	18.4
Marble and stone work.....	81	1,006	1.4	1,465,000	0.8	985,000	1.3	55.2	11.7	62.8	-4.0
Ice, manufactured.....	57	779	1.1	1,324,000	0.7	1,043,000	1.4	93.6	27.1	85.9	31.1
Brick and tile.....	91	1,281	1.7	1,308,000	0.7	962,000	1.3	18.9	60.6	15.2	60.9
Gas, illuminating and heating.....	11	422	0.6	1,282,000	0.7	925,000	1.2	54.5	45.1	47.8	43.2
Copper, tin, and sheet-iron products.....	57	572	0.8	1,228,000	0.7	630,000	0.8	41.1	147.4	45.9	123.6
Coffins, burial cases, and undertakers' goods.....	8	480	0.6	1,189,000	0.7	667,000	0.9	23.8	47.7	16.2	93.9
Boots and shoes, including out stock and findings.....	4	374	0.5	1,181,000	0.6	354,000	0.5	41.1		79.7	
Cooperage and wooden goods, not elsewhere specified.....	10	856	1.2	1,148,000	0.6	519,000	0.7				
Agricultural implements.....	16	646	0.9	1,004,000	0.6	691,000	0.8	30.6	66.1	29.9	74.3
Mattresses and spring beds.....	17	272	0.4	656,000	0.4	294,000	0.4	60.5	65.8	33.6	168.3
Coke.....	8	250	0.3	588,000	0.3	108,000	0.1	-27.7	5.9	-45.7	-17.8
Paint and varnish.....	6	71	0.1	397,000	0.2	159,000	0.2	-17.5	218.5	-17.6	211.3
Pottery, terra-cotta, and fire-clay products.....	6	323	0.4	328,000	0.2	218,000	0.3	6.1	18.8	-5.2	23.7
Lime.....	20	416	0.6	323,000	0.2	230,000	0.3	-0.9		12.2	
Boxes, fancy and paper.....	6	202	0.3	258,000	0.1	136,000	0.2	31.6	48.5	47.8	33.3
Canning and preserving.....	37	303	0.4	206,000	0.1	75,000	0.1	-14.9	236.1	-17.6	167.6
Millinery and lace goods.....	6	92	0.1	202,000	0.1	101,000	0.1	11.6		20.2	
All other industries.....	406	7,840	10.6	26,787,000	14.9	11,186,000	14.7				

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

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

In addition to the 40 industries presented separately in the above table, there are 19 other industries, each of which reported products valued at more than \$200,000 in 1909. These are included under the head of "All other industries," because in some in-

stances, if they were shown separately, the operations of individual establishments would be disclosed; in others, because the returns do not properly present the true conditions of the industry, as it is more or less interwoven with one or more other industries; and in others, because comparable statistics for the different census years can not be presented on account of changes in classification. These industries are: Bags, other than paper; brooms; cars and general shop construction and repairs by street-railroad com-

panies; cars, steam-railroad, not including the operations of railroad companies; cement; coffee and spice, roasting and grinding; dyestuffs and extracts; explosives; flavoring extracts; food preparations; glass; iron and steel, steel works and rolling mills; mineral and soda waters; smelting and refining, copper; soap; sulphuric, nitric, and mixed acids; tobacco manufactures; vinegar and cider; and wood, turned and carved. Statistics, however, for the manufacture of bags, other than paper, the broom industry, street-railroad repair shops, and the construction of steam-railroad cars are presented in Table II, page 1192, for 1909.

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.

*Lumber and timber products.*—This industry embraces logging operations, sawmills, planing mills, and establishments engaged in the manufacture of wooden packing boxes. The statistics of mills engaged exclusively in custom sawing for local consumption are not included in the general tables or in the totals for manufacturing industries. Separate statistics for the custom sawmills are given on page 1187. In spite of the fact that the rate of increase in this industry was comparatively small for the period from 1904 to 1909, it still leads all other industries in the state, having in 1909 over two-fifths of the number of establishments and reporting over one-sixth of the total value of products and nearly one-third of the total number of wage earners.

*Flour-mill and gristmill products.*—In value of products this industry stood but little below the lumber and timber products industry in 1909, reporting 16.1 per cent of the total for the state. The rate of growth, however, was less from 1904 to 1909 than from 1899 to 1904. There was a slight decrease during the last five years in the number of wage earners employed, due perhaps to improved methods of manufacturing and of handling grain and the manufactured products. The soil and climatic conditions of the state are well adapted, especially in the eastern and middle sections, to the raising of wheat and corn. Owing to the comparatively simple processes involved in this class of manufacture, as well as the extent to which these processes are carried on by machinery, the value added by manufacture and the number of wage earners employed are small in proportion to the gross value of products.

*Foundry and machine-shop products.*—This classification embraces not only foundries and machine shops but establishments engaged in the manufacture of gas machines, hardware, plumbers' supplies, steam fittings and heating apparatus, iron and steel pipe, cast, and structural ironwork. The industry was really of greater importance in the state than is indicated by the statistics, as some machine shops manufactured a distinctive product and were assigned to other clas-

sifications. The number of establishments engaged in the industry increased from 100 in 1904 to 124 in 1909. During this period the value of products increased 50.1 per cent and the value added by manufacture 41.6 per cent.

*Printing and publishing.*—All establishments engaged in bookbinding and blank-book making, steel engraving and plate printing, job printing, and the printing and publishing of newspapers, periodicals, books, and music are included under this head. This industry has had a substantial growth during each of the two five-year periods.

*Cars and general shop construction and repairs by steam-railroad companies.*—This industry is peculiar among the manufacturing industries of the country. It represents the work done in the car shops of steam-railroad companies and is confined practically to the repairs to the rolling stock and equipment of their own roads, although, to a limited extent, there may be some new construction of rolling stock. The statistics are exclusive of minor repairs in roundhouses.

*Oil, cottonseed, and cake.*—The statistics include those for all establishments engaged primarily in extracting oil from cotton seed or refining crude cottonseed oil. The industry is entirely dependent upon the production of cotton, as it utilizes the seed, of which, prior to 1870, comparatively little use was made. In this industry a very decided increase in value of products is shown from 1904 to 1909, accompanied by an increase of 15 per cent in the number of wage earners. The establishments are located principally in the southern and western, or cotton-growing, sections of the state.

*Iron and steel, blast furnaces.*—The industry shows a decrease of 27 per cent in value of products from 1899 to 1904. During the period from 1904 to 1909, however, the industry felt the stimulating effect of the increased demand for pig iron, and with the development of extensive ore beds the industry has nearly recovered from the depression of 1904.

*Textiles.*—The textile industries of the state—consisting of the manufacture of cotton goods, hosiery and knit goods, and woolen and worsted goods—are important branches of the state's manufacturing interests. Combined, the three allied branches gave employment to an average of 7,849 wage earners during 1909, and the value of their products amounted to \$10,568,000, these figures representing 10.6 per cent and 5.9 per cent, respectively, of the corresponding totals for all manufacturing industries in the state.

Measured by value added by manufacture, only 5 of the 40 industries presented separately in the above table held the same rank as when measured by value of products. Interesting variations in this respect are shown for some of the industries. Printing and publishing and the flour mills and gristmills exchange places,

the former taking second place and the latter industry going to fourth place. The manufacture of patent medicines and compounds displaces the cottonseed-oil industry from sixth place, the latter industry dropping to eleventh place. Blast furnaces drop from eighth place in value of products to thirteenth in value added by manufacture. Still greater variations are shown for the leather, distilled-liquor, slaughtering and meat-packing, and malt-liquor industries.

Wherever comparative figures can be given, this table shows also the percentages of increase for these leading industries in value of products and value added by manufacture. During the five-year period 1904 to 1909, the distillery, hosiery and knit-goods, and ice industries showed large increases in gross value of products as well as in value added by manufacture. Six of the industries listed separately, namely, the manufacture of carriages and wagons, the tanning and finishing of leather, and the coke, paint and varnish, lime, and canning and preserving industries showed decreases in value of products from 1904 to 1909, while 8 industries showed decreases during the same period in value added by manufacture. None of these decreases, however, occurred among the 10 leading industries in the state. From 1899 to 1904 there was only 1 industry which showed a decrease in value of products, but 7 showed 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.....	87,672	77,277	10,395
Proprietors and officials.....	8,393	8,252	141
Proprietors and firm members.....	5,415	5,303	112
Salaries officers of corporations.....	1,216	1,203	13
Superintendents and managers.....	1,762	1,746	16
Clerks.....	5,439	4,377	1,062
Wage earners (average number).....	73,840	64,648	9,192
16 years of age and over.....	71,395	63,016	8,379
Under 16 years of age.....	2,445	1,632	813

The average number of persons engaged in manufactures during 1909 was 87,672, of whom 73,840 were wage earners. Of the remainder, 8,393 were proprietors and officials and 5,439 were clerks. Corresponding figures for individual industries will be found in Table II, page 1192.

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 16 important industries individually:

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.			
	Total number.	Per cent of total.		
		Proprietors and officials.	Clerks.	Wage earners (average number).
All industries.....	87,673	9.6	6.2	84.2
Bread and other bakery products.....	1,179	14.8	12.7	72.5
Carriages and wagons and materials.....	1,992	11.6	2.7	85.6
Cars and general shop construction and repairs by steam-railroad companies.....	5,884	1.4	4.0	94.6
Clothing, men's, including shirts.....	1,892	5.3	10.4	84.4
Cotton goods, including cotton small wares.....	3,164	1.6	1.1	97.3
Fertilizers.....	670	5.2	11.3	83.4
Flour-mill and gristmill products.....	2,658	31.2	9.5	59.3
Foundry and machine-shop products.....	4,694	6.4	7.5	86.1
Furniture and refrigerators.....	2,667	4.6	4.7	90.7
Hosiery and knit goods.....	3,229	1.9	1.5	96.5
Iron and steel, blast furnaces.....	1,268	3.8	6.1	90.1
Lumber and timber products.....	26,283	12.6	2.2	85.2
Oil, cottonseed, and cake.....	957	6.0	0.8	84.2
Patent medicines and compounds and druggists' preparations.....	998	13.7	42.9	43.4
Printing and publishing.....	4,442	15.1	19.3	65.6
Woolen, worsted, and felt goods, and wool hats.....	1,737	2.8	2.0	95.2
All other industries.....	23,958	8.9	7.7	83.4

Of the total number of persons engaged in all manufacturing industries, 9.6 per cent were proprietors and officials, 6.2 per cent clerks, and 84.2 per cent wage earners. In the flour-mill and gristmill industry the majority of the establishments are small and the work is to a large extent done by the proprietors or their immediate representatives, so that the proportion of persons engaged in this industry falling in the class of proprietors and officials is very much higher than for any other industry or for all industries combined. Similar conditions prevail to some extent in the lumber and timber products, bakery, and printing and publishing industries, and in the manufacture of patent medicines and compounds, and carriages and wagons. The small proportion of this class shown for the cotton-goods and the steam-railroad repair shop industries is due to the comparatively large number of wage earners employed.

The table following 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.	
All industries.....	73,840	85.3	11.3	3.3
Bread and other bakery products.....	855	71.9	26.1	2.0
Carriages and wagons and materials.....	1,706	99.1	0.2	0.6
Cars and general shop construction and repairs by steam-railroad companies.....	5,566	99.7	0.3	( <sup>2</sup> )
Clothing, men's, including shirts.....	1,596	19.2	79.1	1.7
Cotton goods, including cotton small wares.....	3,078	44.5	37.9	17.6
Fertilizers.....	559	100.0		
Flour-mill and gristmill products.....	1,577	99.0	0.1	0.9
Foundry and machine-shop products.....	4,041	98.6	0.2	1.2
Furniture and refrigerators.....	2,419	91.4	2.8	5.8
Hosiery and knit goods.....	3,117	25.8	57.6	16.6
Iron and steel, blast furnaces.....	1,148	99.1		0.9
Lumber and timber products.....	22,389	98.0	0.6	1.4
Oil, cottonseed, and cake.....	806	99.9	0.1	
Patent medicines and compounds and druggists' preparations.....	483	41.3	58.2	0.5
Printing and publishing.....	2,914	76.9	20.2	3.0
Woolen, worsted, and felt goods, and wool hats.....	1,654	44.6	44.7	10.8
All other industries.....	19,987	86.7	10.6	2.7

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

For all industries combined, 85.3 per cent of the average number of wage earners were males 16 years of age and over; 11.3 per cent, females 16 years of age and over; and 3.3 per cent, children under 16 years of age. The larger part of the total number of female wage earners is made up of those employed in the men's clothing and the textile industries. In the men's clothing industry over three-fourths of the wage earners are women 16 years of age and over; in the cotton-goods industry, over one-third; in the hosiery and knit-goods industry, more than one-half; and in the woolen mills, a little less than one-half. The proportions which the number of children formed of the total number of wage earners engaged in each of the textile industries were as follows: Cotton goods, 17.6 per cent; hosiery and knit goods, 16.6 per cent; and woolen goods, 10.8 per cent.

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

CLASS.	PERSONS ENGAGED IN MANUFACTURES.				Per cent of increase, 1904-1909.
	1909		1904		
	Number.	Percent distribution.	Number.	Percent distribution.	
Total.....	87,672	100.0	69,287	100.0	26.5
Proprietors and firm members.....	5,415	6.2	3,805	5.5	42.3
Salaried employees.....	8,417	9.6	4,910	7.1	71.4
Wage earners (average number).....	73,840	84.2	60,572	87.4	21.9

Comparable figures are not obtainable for 1899. Salaried employees show the greatest percentage of increase. Although the greatest actual gain in persons engaged in manufactures was in wage earners, this

class shows the smallest percentage of increase and is the only one which shows a decrease in relative numerical importance.

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

CLASS.	AVERAGE NUMBER OF WAGE EARNERS.					
	1909		1904		1899	
	Number.	Percent distribution.	Number.	Percent distribution.	Number.	Percent distribution.
Total.....	73,840	100.0	60,572	100.0	45,968	100.0
16 years of age and over..	71,395	96.7	58,368	96.4	43,970	95.7
Male.....	63,016	85.3	51,757	85.4	39,095	85.1
Female.....	8,379	11.3	6,611	10.9	4,875	10.6
Under 16 years of age....	2,445	3.3	2,204	3.6	1,993	4.3

This table shows that, while for all industries combined there were increases from 1899 to 1904 and from 1904 to 1909 in the number of children under 16 years of age employed, the proportion which the children form of the total number of wage earners has decreased from census to census. There has not been much change in the proportion of male and of female wage earners 16 years of age and over. In 1909 males 16 years of age and over formed 85.3 per cent of all wage earners, as compared with 85.4 per cent in 1904 and 85.1 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, for canning and preserving, for the lumber and timber and the cottonseed-oil 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 one month. In Table II, page 1192, are shown for practically all of the important industries in the state, the largest number and the smallest number of wage earners reported for any month. The figures are for the 15th day, or the nearest representative day, of the month. The wage earners for the lumber industry are divided in the table so as to show separately the number employed in the mills and the number engaged in logging operations.

A little more than 30 per cent of the total average number of wage earners in all industries combined are employed in the lumber and timber industry, and the variation in the number of wage earners employed from month to month for all industries follows closely the variation in the number employed in that one industry. In the lumber mills the minimum number was reported for January. There was an increase from January to March, followed by a decrease from March to June, but from June to November, when the maximum number, 19,249, was employed, the number in-

creased constantly from month to month. In logging operations the least number was employed in May and the greatest in November. A greater variation occurred in the number of wage earners employed in the cottonseed-oil and the canning and preserving industries, but as the number employed was comparatively small, the fluctuation does not materially affect the total for all industries. As in the lumber and timber

industry, the maximum number in the cottonseed-oil mills was employed in November. The proportion of the maximum represented by the number reported for the summer months was very low. The canning and preserving industry is particularly seasonal in its character, the number employed varying from 3 in March, probably watchmen or caretakers, to 1,411 in August.

MONTH.	WAGE EARNERS.													
	All industries.		Canning and preserving.		Lumber and timber products.						Oil, cottonseed, and cake.		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.				
January.....	69,305	85.9	10	0.7	20,620	81.0	16,110	83.7	4,510	72.6	1,306	93.7	47,366	88.1
February.....	69,074	86.7	10	0.7	20,968	82.3	16,481	85.0	4,482	72.1	1,144	82.1	47,857	89.0
March.....	71,073	88.1	3	0.2	21,771	85.5	17,205	89.7	4,500	72.5	918	65.0	48,381	89.9
April.....	70,666	87.6	11	0.8	21,485	84.4	16,961	88.1	4,524	72.8	523	37.5	48,647	90.4
May.....	69,713	86.4	15	1.1	20,969	82.4	16,640	86.5	4,328	69.6	457	32.8	48,272	89.7
June.....	70,123	86.0	15	1.1	20,651	81.1	16,241	84.4	4,410	71.0	213	15.3	49,244	91.5
July.....	71,155	88.2	361	25.6	21,080	82.8	16,406	85.2	4,674	75.2	186	13.3	49,828	92.1
August.....	74,956	92.9	1,411	100.0	22,189	87.1	16,850	87.5	5,339	85.9	208	14.8	51,150	95.1
September.....	78,850	97.7	1,243	88.1	23,965	94.1	18,217	94.6	5,748	92.5	685	49.1	52,957	98.4
October.....	80,011	99.2	504	35.7	24,980	98.1	18,873	98.0	6,107	95.3	1,363	97.8	53,164	98.8
November.....	89,676	100.0	25	1.8	25,462	100.0	19,249	100.0	6,213	100.0	1,304	100.0	53,795	100.0
December.....	79,587	98.6	25	1.8	24,537	96.4	19,055	99.0	5,482	88.2	1,280	91.8	53,745	99.9

Prevailing hours of labor.—In the next table wage laborers have been classified according to the hours of labor prevailing in the establishments in which they are employed.

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.....	73,840	3,579	2,040	9,987	7,416	39,806	6,128	2,419	2,497	
Agricultural implements.....	645	1		154		490				
Boots and shoes, including cut stock and findings.....	374			73	101	200				
Boxes, fancy and paper.....	202			21	87	94				
Bread and other bakery products.....	855	34	15	161	57	412	113	38	26	
Brick and tile.....	1,281	28	27	43	51	1,017	26	78	11	
Canning and preserving.....	303	30	31	16	20	130	51	25		
Carriages and wagons and materials.....	1,706	102	89	100	201	1,211	1	2		
Cars and general shop construction and repairs by steam-railroad companies.....	5,566	218		4,305	887	14	142			
Clothing, men's, including shirts.....	1,596	103	205	423	551	314				
Coffins, burial cases, and undertakers' goods.....	480		88	13	166	223				
Coke.....	250	44		50		144	6			
Confectionery.....	894	4	8	18	373	428	55	8		
Cooperage and wooden goods, not elsewhere specified.....	856	29		3	25	799				
Copper, tin, and sheet-iron products.....	572	129	90	96	2	255				
Cotton goods, including cotton small wares.....	3,078			65		1,333	1,643	37		
Fertilizers.....	559	1			46	512				
Flour-mill and gristmill products.....	1,577	167	5	3		410	78	913	1	
Foundry and machine-shop products.....	4,041	10	13	1,005	441	2,551	19	2		
Furniture and refrigerators.....	2,419		31	256	580	1,321	207	24		
Gas, illuminating and heating.....	422					1	81	108	237	
Hosiery and knit goods.....	3,117				840	1,323	954			
Ice, manufactured.....	779	2				23	56	77	611	
Iron and steel, blast furnaces.....	1,143					189		83	881	
Leather goods.....	604	8	8	99	180	309				
Leather, tanned, curried, and finished.....	395	1			11	383				
Lime.....	415			18	32	218	60	41	40	
Liquors, distilled.....	154	2		11		117				
Liquors, malt.....	392	132			111			25		
Lumber and timber products.....	22,389	729	704	826	933	17,973	1,177	40	1	
Marble and stone work.....	1,006	80	6	188	23	434			29	
Mattresses and spring beds.....	272	5	61	67	14	125				
Millinery and lace goods.....	92	5		72		15				
Oil, cottonseed, and cake.....	806							806		
Paint and varnish.....	71			4		67				
Patent medicines and compounds and druggists' preparations.....	433	46	70	90	175	50	2			
Pottery, terra-cotta, and fire-clay products.....	323	30				36	243			
Printing and publishing.....	2,914	1,149	386	782	262	335				
Slaughtering and meat packing.....	280	4		2		249		2	23	
Stoves and furnaces, including gas and oil stoves.....	1,085	5	98	239		736				
Woolen, worsted, and felt goods, and wool hats.....	1,654	1			67	1,029	557			
All other industries.....	7,840	471	105	624	1,183	4,386	393	85	688	

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.

For more than one-half of the wage earners employed in the manufacturing industries of Tennessee the prevailing hours of labor are 60 a week. Nearly one-fourth of the total work from 54 to 60 hours a week; 7.6 per cent are employed in establishments where the prevailing hours are less than 54 a week; and 15 per cent in establishments where they are more than 60 a week.

It will be noted that the foundry and machine-shop, hosiery and knit-goods, furniture, and lumber and timber industries, as well as a number of others, are mainly on a 60-hour-per-week basis, but that the flour-mill and gristmill and the cottonseed-oil industries are largely on a 72-hour-per-week basis. In the majority of establishments engaged in the manufacture of ice and in the operation of blast furnaces wage earners are usually employed over 72 hours per week, these long hours being doubtless explained by the operation of the establishments on Sunday.

Location of establishments.—The following table shows the extent to which the manufactures of Tennessee are centralized in cities of 10,000 population and over. (See Introduction.) The population in 1900 was used as the basis in making the classification for 1904 as well as for 1899.

ITEM.	Year.	Total.	LOCATION OF ESTABLISHMENT.		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	2,184,789	338,198	1,846,591	15.5	84.5
	1900	2,020,616	260,487	1,760,129	12.9	87.1
Number of establishments.	1909	4,609	1,099	3,510	23.8	76.2
	1904	3,175	903	2,272	28.4	71.6
	1899	3,116	744	2,372	23.9	76.1
Average number of wage earners.	1909	73,840	28,236	45,604	38.2	61.8
	1904	60,572	26,093	34,479	43.1	56.9
	1899	45,963	23,302	22,661	50.7	49.3
Value of products...	1909	\$180,216,548	\$86,786,821	\$93,429,727	48.2	51.8
	1904	137,960,476	64,888,160	73,072,316	47.0	53.0
	1899	92,749,129	47,831,174	44,917,955	51.6	48.4
Value added by manufacture.	1909	76,200,714	36,729,604	39,471,210	48.2	51.8
	1904	58,608,730	28,309,819	30,298,911	48.3	51.7
	1899	38,190,090	20,259,482	17,930,608	53.0	47.0

In 1909, 48.2 per cent of the total value of products and 38.2 per cent of the average number of wage earners were reported from cities having over 10,000 inhabitants. While very little change took place during the last 10 years in the relative number of establishments in the cities of over 10,000 inhabitants and in the remainder of the state, the outside districts show a substantial increase over the cities in

the average number of wage earners employed, and a smaller relative increase in value of products and in value added by manufacture.

The population for 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
Memphis.....	131,105	102,320
Nashville.....	110,364	80,865
Chattanooga.....	44,604	30,154
Knoxville.....	36,840	32,637
Jackson.....	15,779	14,511

The relative importance in manufactures of these cities is shown in the following table, in which the value of products and average number of wage earners are shown separately for 1909, 1904, and 1899:

CITY.	AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS.		
	1909	1904	1899	1909	1904	1899
*Memphis.....	7,927	7,374	6,626	\$30,241,519	\$20,043,192	\$14,233,483
Nashville.....	9,721	8,032	6,725	23,649,697	21,597,013	15,301,996
Chattanooga.....	6,410	6,420	4,729	16,036,455	14,201,390	10,517,886
Knoxville.....	2,773	2,999	4,203	8,149,377	6,698,850	6,201,840
Jackson.....	1,405	1,268	1,018	2,709,775	2,317,718	1,576,869

\* 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.

Each city shows an increase in the value of products from 1899 to 1904 and from 1904 to 1909. During the period from 1904 to 1909 Memphis shows the greatest rate of gain and Chattanooga the smallest. In average number of wage earners Knoxville shows a decrease during each of the five-year periods, Chattanooga a slight decrease from 1904 to 1909, while the other three cities show increases for both periods.

Memphis, the largest city in the state, shows an increase in 1909, as compared with 1904, of \$10,198,327, or 50.9 per cent, in value of products, and of 553, or 7.5 per cent, in the average number of wage earners. The leading manufactures of this city are flour-mill and gristmill products, food preparations, lumber and timber products, cottonseed-oil and tobacco manufactures. In 1909, 65.5 per cent of the total value of cottonseed products manufactured in the state was reported from Memphis.

The increase in value of products for Nashville from 1904 to 1909 was \$8,082,684, or 37.5 per cent. The flour-mill and gristmill and printing and publishing industries of this city contributed 19.7 per cent and 45.8 per cent, respectively, of the total value of products of these industries in the state.

Chattanooga's chief industry was the manufacture of foundry and machine-shop products. Other important manufactures, however, were flour-mill and gristmill products, lumber, malt liquors, and furniture.

In Knoxville the flour-mill and gristmill industry was the most important, followed by the men's clothing

industry. Of the total value of men's clothing manufactured in the state in 1909, Knoxville reported 38.2 per cent. The lumber and timber industry and printing and publishing are other important industries.

The leading manufacturing industries of Jackson are the steam-railroad repair shops, foundries and machine shops, the lumber and timber industry, and the cottonseed-oil mills.

The statistics for that part of Bristol which lies in Tennessee are included with those for the outside district in the table on page 1179. The table in the next column presents the totals for the entire city and for the parts situated in Tennessee and Virginia, respectively.

The leading industries of Bristol, Tenn., are the flour-mill and gristmill industry and the manufacture of dyestuffs and extracts, and those of Bristol, Va., are the flour mills and gristmills, the manufacture of paper and wood pulp, the lumber and timber industry, and the steam-railroad repair shops.

	Total for city.	Bristol, Tenn.	Bristol, Va.
Population (1910) .....	13,395	7,148	6,247
Number of establishments.....	51	23	28
Persons engaged in manufactures.....	1,319	377	942
Proprietors and firm members.....	42	22	20
Salaried employees.....	148	68	80
Wage earners (average number).....	1,129	287	842
Primary horsepower.....	3,914	1,289	2,625
Capital.....	\$3,082,409	\$1,345,671	\$1,736,738
Expenses.....	2,619,392	820,676	1,798,716
Services.....	631,813	190,327	471,486
Salaries.....	142,741	53,615	89,126
Wages.....	489,072	106,712	382,360
Materials.....	1,828,296	593,974	1,234,322
Miscellaneous.....	159,283	66,375	92,908
Value of products.....	2,848,777	878,109	1,970,668
Value added by manufacture (value of products less cost of materials).....	1,020,481	284,135	736,346

Character of ownership.—The table that follows presents conditions in respect to the character of ownership, or legal organization, of manufacturing enterprises. For all industries combined comparative figures are given covering the censuses of 1909 and 1904. Comparative data for 1899 are not available.

INDUSTRY AND CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.	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>Foundry and machine-shop products, 1909.</b>				
1909.....	4,609	73,840	\$180,216,548	\$76,209,714	Individual.....	124	4,041	\$9,189,791	\$4,628,891
1904.....	3,175	60,572	137,960,476	58,808,730	Firm.....	35	413	868,751	427,803
Individual:					Firm.....	29	159	352,759	214,384
1909.....	2,182	11,349	22,206,362	10,635,339	Corporation.....	60	3,469	7,968,271	3,987,404
1904.....	1,345	8,717	17,339,985	8,277,012	Per cent of total.....	100.0	100.0	100.0	100.0
Firm:					Individual.....	28.2	10.2	9.5	9.2
1909.....	1,330	10,388	23,227,921	10,487,841	Firm.....	23.4	3.9	3.8	4.6
1904.....	1,035	9,793	23,300,353	9,946,132	Corporation.....	48.4	85.8	86.8	86.1
Corporation:					<b>Furniture and refrigerators, 1909.</b>				
1909.....	1,068	51,716	133,750,538	54,238,100	Individual.....	42	2,419	\$3,309,385	\$1,881,612
1904.....	785	42,049	97,285,799	40,362,147	Firm.....	7	222	194,084	126,184
Other:					Firm.....	4	92	69,687	34,890
1909.....	29	389	1,031,727	839,434	Corporation.....	31	2,104	3,045,614	1,701,438
1904.....	10	13	84,339	29,439	Per cent of total.....	100.0	100.0	100.0	100.0
Per cent of total:					Individual.....	16.7	9.2	5.9	6.7
1909.....	100.0	100.0	100.0	100.0	Firm.....	8.5	3.8	2.1	1.9
1904.....	100.0	100.0	100.0	100.0	Corporation.....	73.8	87.0	92.0	91.4
Individual:					<b>Lumber and timber products, 1909.</b>				
1909.....	47.3	15.4	12.3	14.0	Individual.....	1,977	22,389	\$30,456,807	\$16,815,368
1904.....	42.4	14.4	12.6	14.1	Individual.....	1,101	6,676	6,600,074	4,141,237
Firm:					Firm.....	665	5,906	6,567,393	4,104,112
1909.....	28.9	14.1	12.9	13.8	Corporation.....	211	9,807	17,199,340	8,570,017
1904.....	32.6	16.2	16.9	17.0	Per cent of total.....	100.0	100.0	100.0	100.0
Corporation:					Individual.....	55.7	20.8	22.0	24.7
1909.....	23.2	70.0	74.2	71.2	Firm.....	33.6	26.4	21.6	24.4
1904.....	24.7	69.4	70.5	68.9	Corporation.....	10.7	43.8	56.5	51.0
Other:					<b>Patent medicines and compounds and druggists' preparations, 1909.</b>				
1909.....	0.6	0.5	0.6	1.1	Individual.....	76	433	\$3,514,676	\$2,173,870
1904.....	0.3	(1)	(1)	(1)	Individual.....	15	12	53,072	38,787
<b>Carriages and wagons and materials, 1909.</b>					Firm.....	15	194	1,778,181	1,201,940
Individual.....	129	1,706	\$3,039,613	\$1,600,187	Corporation.....	46	227	1,683,423	985,143
Individual.....	46	284	404,778	216,434	Per cent of total.....	100.0	100.0	100.0	100.0
Firm.....	44	297	505,542	307,132	Individual.....	19.7	2.8	1.5	1.7
Corporation.....	39	1,125	2,129,293	1,076,621	Firm.....	19.7	44.8	50.6	55.3
Per cent of total.....	100.0	100.0	100.0	100.0	Corporation.....	60.5	52.4	47.0	43.0
Individual.....	35.7	16.6	13.3	13.5	<b>Printing and publishing, 1909.</b>				
Firm.....	34.1	17.4	16.6	19.2	Individual.....	413	2,914	\$7,173,230	\$5,219,645
Corporation.....	30.2	65.9	70.1	67.3	Individual.....	208	426	793,011	594,148
<b>Clothing, men's, including shirts, 1909.</b>					Firm.....	92	440	874,406	600,649
Individual.....	34	1,596	\$3,361,105	\$1,238,595	Corporation.....	85	1,063	4,490,709	3,190,473
Individual.....	6	21	51,669	25,111	Other.....	28	385	1,015,104	834,375
Firm.....	8	481	993,241	392,690	Per cent of total.....	100.0	100.0	100.0	100.0
Corporation.....	20	1,094	2,316,195	820,794	Individual.....	50.4	14.6	11.1	11.4
Per cent of total.....	100.0	100.0	100.0	100.0	Firm.....	22.3	15.1	12.2	11.5
Individual.....	17.6	1.3	1.5	2.0	Corporation.....	20.6	57.1	62.6	61.1
Firm.....	23.5	30.1	29.6	31.7	Other.....	6.8	13.2	14.2	16.0
Corporation.....	55.8	68.5	68.9	66.3	<b>Slaughtering and meat packing, 1909.</b>				
<b>Flour-mill and gristmill products, 1909.</b>					Individual.....	27	280	\$2,056,719	\$448,609
Individual.....	454	1,577	\$29,070,019	\$3,784,153	Individual.....	11	43	306,031	77,626
Individual.....	203	359	5,493,218	891,518	Firm.....	9	20	250,410	82,063
Firm.....	187	361	5,870,094	987,156	Corporation.....	7	211	1,494,278	286,020
Corporation.....	64	857	17,706,707	1,905,479	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.....	40.7	15.4	14.9	17.4
Individual.....	44.7	22.8	18.9	23.6	Firm.....	33.3	9.3	12.5	18.6
Firm.....	41.2	22.9	20.2	26.1	Corporation.....	25.9	75.4	72.7	64.0
Corporation.....	14.1	54.3	60.9	50.4					

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

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

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 76.8 per cent under all other forms. The corresponding figures for 1904 were 24.7 per cent and 75.3 per cent, respectively. The percentage of the total value of products contributed by establishments under corporate ownership increased from 70.5 per cent in 1904 to 74.2 per cent in 1909, while for the same period the percentage contributed by those under firm ownership decreased from 16.9 per cent to 12.9 per cent. The percentage of the value added by manufacture contributed by the establishments under corporate ownership increased from 68.9 per cent in 1904 to 71.2 per cent in 1909, while the percentage contributed by those under firm ownership decreased during the same period from 17 per cent to 13.8 per cent.

In four of the individual industries for which figures are given in the table, namely, the men's clothing industry, foundries and machine shops, the manufacture of furniture and refrigerators, and patent medicines and compounds, there was a larger number of establishments under corporate management than under any other. In every industry shown separately in the table, except the manufacture of patent medicines and compounds, the establishments operated by corporations contributed the greater part of the total value of products and of the total 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, two tables are presented, which group establishments by value of products (p. 1182), and by number of wage earners (p. 1183).

**Size measured by value of products.**—The table on the next page shows, in addition to certain size groups, the average size of establishments 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 individual industries figures are given for 1909 only. In 1909, of the 4,609 establishments only 17, or four-tenths of 1 per cent, had a value of products exceeding \$1,000,000. These establishments, however, employed an average of 6,423 wage earners, or 8.7 per cent of the total number in all establishments, and reported 17 per cent of the total value of products, and 12.2 per cent of the total value added by manufacture.

On the other hand, the very small establishments—that is, those having a value of products of less than

\$5,000—constituted a very considerable proportion (45.2 per cent) of the total number of establishments, but the value of their products amounted to only 2.6 per cent of the total. The great bulk of the manufacturing was reported by establishments having products valued at not less than \$100,000.

It will be seen from the table on page 1182 that during the five years from 1904 to 1909 there was an increase, when measured by value of products, in the relative importance of the large establishments—those reporting products valued at not less than \$100,000—and also in that of the very small establishments—those reporting products under \$5,000 in value. Establishments in each of these two classes gave employment to a larger proportion of the total number of wage earners, and reported a larger proportion of the total value of products and of the total value added by manufacture, in 1909 than in 1904. Decreases are shown in the corresponding proportions for establishments reporting products of between \$5,000 and \$100,000 in value.

There was a general decrease in the average size of manufacturing establishments from 1904 to 1909. The average value of products per establishment decreased during the period from \$43,452 to \$39,101, the value added by manufacture from \$18,459 to \$16,533, and the average number of wage earners per establishment from 19 to 16.

Of the individual industries for which figures are given in the table, those in which the average size of the establishment as measured by value of products is smallest are the lumber and timber and the printing and publishing industries. In each of these industries more than 60 per cent of the establishments reported products valued at less than \$5,000 for the year. The industries in which the establishments averaged the largest were the men's clothing, furniture and refrigerator, and slaughtering and meat-packing industries, in which 73.6 per cent, 64.3 per cent, and 59.2 per cent, respectively, of the establishments reported products valued at \$20,000 or over.

**Size measured by number of wage earners.**—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 1183 shows for 1909 such a classification for all industries combined and for 16 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 4,609 establishments reported for all industries, 6.6 per cent employed no wage earners; 54.3 per cent employed from 1 to 5; and 25.5 per cent, from 6 to 20. The most numerous single group consists of the 2,505 establishments employing from 1 to 5 wage earners, and the next of the 1,174 establishments employing from 6 to 20. There were 153 establishments that



employed over 100 wage earners each, while 10 employed over 500 each, and one of them, a steam-railroad repair shop, employed over 1,000.

Of the total number of wage earners, 46 per cent were in establishments employing over 100 wage earners. The single group having the largest number of wage earners was the group comprising the establishments employing from 101 to 250 each. This group employed 17,173 wage earners, or 23.3 per cent of the

total. Of the individual industries listed in this table but not in the preceding one, steam-railroad repair shops, the cotton-goods, the hosiery and knit-goods, and the woolen-goods industries are conducted in comparatively large establishments, as appears from the classification according to the number of wage earners employed. The majority of the blast-furnaces employ a relatively small number of wage

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>Foundry and machine-shop products, 1909</b>				
1909	4,609	73,840	\$180,216,548	\$76,200,714	Less than \$5,000	124	4,041	\$9,189,791	\$4,829,591
1904	3,175	60,572	137,960,476	58,608,730	\$5,000 and less than \$20,000	29	52	72,293	46,655
Less than \$5,000:					\$20,000 and less than \$100,000	34	209	345,965	197,697
1909	2,082	5,541	4,640,418	3,068,839	\$100,000 and less than \$1,000,000 <sup>2</sup>	42	1,188	1,984,688	1,108,527
1904	1,015	1,784	2,607,791	1,709,725	Per cent of total	19	2,642	6,806,845	3,276,812
\$5,000 and less than \$20,000:					Less than \$5,000	100.0	100.0	100.0	100.0
1909	1,352	8,675	13,880,948	7,335,137	\$5,000 and less than \$20,000	23.4	1.3	0.8	1.0
1904	1,084	6,260	11,301,086	6,129,232	\$20,000 and less than \$100,000	27.4	5.2	3.8	4.3
\$20,000 and less than \$100,000:					\$100,000 and less than \$1,000,000	33.9	28.2	21.4	23.9
1909	789	15,379	34,700,071	15,749,778	Average per establishment	16.3	65.4	74.1	70.8
1904	766	16,318	33,836,276	15,427,091	Furniture and refrigerators, 1909				
\$100,000 and less than \$1,000,000:					Less than \$5,000	42	2,419	\$3,309,385	\$1,661,512
1909	360	37,822	96,628,066	40,751,742	\$5,000 and less than \$20,000	8	7	5,872	5,260
1904	299	30,419	71,720,062	29,094,606	\$20,000 and less than \$100,000	12	99	120,911	70,916
\$1,000,000 and over:					\$100,000 and less than \$1,000,000	13	635	687,780	347,046
1909	17	6,423	30,567,045	9,305,618	Per cent of total	14	1,678	2,494,022	1,438,298
1904	11	5,791	18,796,261	5,690,388	Less than \$5,000	100.0	100.0	100.0	100.0
Per cent of total:					\$5,000 and less than \$20,000	7.1	0.3	0.2	0.3
1909	100.0	100.0	100.0	100.0	\$20,000 and less than \$100,000	28.6	4.1	3.7	3.8
1904	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000	31.0	26.2	20.8	18.9
Less than \$5,000:					Average per establishment	33.8	69.4	75.4	77.3
1909	45.2	7.5	2.6	4.0	Lumber and timber products, 1909				
1904	32.0	2.9	1.9	3.0	Less than \$5,000	1,977	22,389	\$30,456,807	\$16,815,364
\$5,000 and less than \$20,000:					\$5,000 and less than \$20,000	1,198	4,085	2,572,252	1,771,099
1909	29.3	11.7	7.4	9.6	\$20,000 and less than \$100,000	530	4,901	4,950,787	3,177,176
1904	34.1	10.3	8.2	10.5	\$100,000 and less than \$1,000,000	174	4,565	7,316,344	3,976,618
\$20,000 and less than \$100,000:					\$1,000,000 and less than \$1,000,000	69	8,778	15,011,394	7,891,582
1909	17.1	20.8	19.3	20.7	Per cent of total	100.0	100.0	100.0	100.0
1904	24.1	26.9	24.3	26.3	Less than \$5,000	60.6	18.2	8.4	10.5
\$100,000 and less than \$1,000,000:					\$5,000 and less than \$20,000	27.1	22.2	16.3	18.9
1909	8.0	51.2	53.8	53.5	\$20,000 and less than \$100,000	8.8	20.4	24.0	23.7
1904	9.4	50.2	52.0	50.7	\$100,000 and less than \$1,000,000	3.5	39.2	61.3	47.0
\$1,000,000 and over:					Average per establishment			\$15,406	\$8,505
1909	0.4	8.7	17.0	12.2	Patent medicines and compounds and druggists' preparations, 1909				
1904	0.3	9.6	13.6	9.5	Less than \$5,000	76	433	\$3,514,676	\$2,173,870
Average per establishment:					\$5,000 and less than \$20,000	30	12	52,492	30,915
1909		16	\$39,101	\$16,633	\$20,000 and less than \$100,000	23	59	239,750	161,394
1904		19	43,452	18,459	\$100,000 and less than \$1,000,000	18	117	982,421	531,720
Carriages and wagons and materials, 1909					\$1,000,000 and less than \$1,000,000 <sup>2</sup>	5	245	2,240,043	1,445,841
Less than \$5,000	129	1,705	\$3,039,613	\$1,600,187	Per cent of total	100.0	100.0	100.0	100.0
\$5,000 and less than \$20,000	47	150	135,408	85,742	Less than \$5,000	39.5	2.8	1.5	1.7
\$20,000 and less than \$100,000	45	298	432,681	289,701	\$5,000 and less than \$20,000	30.3	13.6	6.8	7.4
\$100,000 and less than \$1,000,000	7	763	1,200,624	665,244	\$20,000 and less than \$100,000	23.7	27.0	28.0	24.5
Per cent of total	100.0	100.0	100.0	100.0	\$100,000 and less than \$1,000,000	6.6	56.6	63.7	66.4
Less than \$5,000	36.4	8.8	4.5	5.5	Average per establishment			\$16,406	\$8,505
\$5,000 and less than \$20,000	34.9	17.5	14.2	18.5	Printing and publishing, 1909				
\$20,000 and less than \$100,000	23.3	44.1	42.5	41.8	Less than \$5,000	413	2,914	\$7,173,230	\$5,219,645
\$100,000 and less than \$1,000,000	5.4	29.6	38.0	36.4	\$5,000 and less than \$20,000	268	375	687,600	402,032
Average per establishment		13	\$23,563	\$12,405	\$20,000 and less than \$100,000	91	382	821,443	645,784
Clothing, men's, including shirts, 1909					\$100,000 and less than \$1,000,000	35	667	1,377,535	955,726
\$5,000 and less than \$20,000	34	1,596	\$3,361,105	\$1,238,595	\$1,000,000 and less than \$1,000,000	19	1,490	4,376,643	3,166,084
\$20,000 and less than \$100,000	9	53	83,393	37,395	Per cent of total	100.0	100.0	100.0	100.0
\$100,000 and less than \$1,000,000	14	426	790,656	346,784	Less than \$5,000	64.9	12.9	8.2	8.9
Per cent of total	100.0	100.0	100.0	100.0	\$5,000 and less than \$20,000	22.0	13.1	11.6	12.4
\$5,000 and less than \$20,000	26.5	3.3	2.5	3.0	\$20,000 and less than \$100,000	8.5	22.9	19.2	20.5
\$20,000 and less than \$100,000	41.2	26.7	22.6	26.0	\$100,000 and less than \$1,000,000	4.6	51.1	61.0	60.5
\$100,000 and less than \$1,000,000	32.4	70.0	74.9	68.0	Average per establishment			\$17,369	\$12,638
Average per establishment		47	\$98,956	\$36,429	Slaughtering and meat packing, 1909				
Flour-mill and gristmill products, 1909					Less than \$5,000	27	280	\$2,056,719	\$448,807
Less than \$5,000	454	1,577	\$29,070,019	\$3,784,183	\$5,000 and less than \$20,000	3	3	5,521	3,877
\$5,000 and less than \$20,000	69	40	190,545	35,529	\$20,000 and less than \$100,000	8	25	105,339	36,165
\$20,000 and less than \$100,000	190	217	2,131,595	414,268	\$100,000 and less than \$1,000,000	12	101	697,223	159,130
\$100,000 and less than \$1,000,000	160	463	6,822,747	1,144,002	\$1,000,000 and less than \$1,000,000	4	151	1,435,536	247,437
\$1,000,000 and over	29	382	6,932,173	801,445	Per cent of total	100.0	100.0	100.0	100.0
Per cent of total	100.0	100.0	100.0	100.0	Less than \$5,000	11.1	1.1	0.4	0.9
Less than \$5,000	15.2	3.1	0.7	1.0	\$5,000 and less than \$20,000	29.6	8.9	5.1	8.1
\$5,000 and less than \$20,000	41.8	18.8	7.3	10.9	\$20,000 and less than \$100,000	44.4	36.1	24.7	35.0
\$20,000 and less than \$100,000	35.2	28.7	23.5	30.2	\$100,000 and less than \$1,000,000	14.8	53.9	69.8	55.4
\$100,000 and less than \$1,000,000	6.4	24.2	23.7	21.2	Average per establishment			\$76,175	\$16,541
\$1,000,000 and over	1.3	30.2	44.7	36.6					
Average per establishment		3	\$64,031	\$8,935					

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

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

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.....	4,609	308	2,505	1,174	318	153	110	27	9	1
Bread and other bakery products.....	181	6	103	16	2	2	2			
Carriages and wagons and materials.....	129	2	65	43	12	6	1			
Cars and general shop construction and repairs by steam-railroad companies.....	17		2	3			4	5	2	1
Clothing, men's, including shirts.....	34	2	3	8	9	8	4			
Cotton goods, including cotton small wares.....	17				4	6	4	1	2	
Fertilizers.....	12		4	1	2	3	2			
Flour-mill and gristmill products.....	454	66	350	28	6	3	1			
Foundry and machine-shop products.....	124	8	43	40	16	12	7	3		
Furniture and refrigerators.....	42		10	5	10	8	8	1		
Hosiery and knit goods.....	22		1	3	2	4	9	2	1	
Iron and steel, blast furnaces.....	18				6	5	1	1		
Lumber and timber products.....	1,977	40	1,088	679	103	23	31	7	1	
Oil, cottonseed, and cake.....	20		1	2	11	5	1			
Patent medicines and compounds and druggists' preparations.....	76	17	43	12	3		1			
Printing and publishing.....	413	111	229	41	19	8	4	1		
Woolen, worsted, and felt goods, and wool hats.....	21	6	4	2	1	3	3	1	1	
All other industries.....	1,107	53	559	291	112	52	33	6	2	
AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	73,840		6,214	12,403	10,401	10,870	17,173	9,175	6,301	1,303
Bread and other bakery products.....	865		232	105	64	135	259			
Carriages and wagons and materials.....	1,706		168	513	404	408	123			
Cars and general shop construction and repairs by steam-railroad companies.....	5,566		4	37			692	1,682	1,838	1,303
Clothing, men's, including shirts.....	1,596		14	104	280	511	687			
Cotton goods, including cotton small wares.....	3,075				146	404	650	299	1,579	
Fertilizers.....	559		11	13	96	192	247			
Flour-mill and gristmill products.....	1,577		680	263	238	206	190			
Foundry and machine-shop products.....	4,041		104	504	498	831	980	1,144		
Furniture and refrigerators.....	2,419		36	65	352	582	1,133	251		
Hosiery and knit goods.....	3,117		5	48	70	258	1,385	688	663	
Iron and steel, blast furnaces.....	1,143				241	404	189	309		
Lumber and timber products.....	22,889		2,937	6,872	3,252	1,889	4,440	2,275	624	
Oil, cottonseed, and cake.....	806		2	23	340	305	130			
Patent medicines and compounds and druggists' preparations.....	453		89	108	75		191			
Printing and publishing.....	2,914		536	394	629	568	514	253		
Woolen, worsted, and felt goods, and wool hats.....	1,654		4	24	36	245	406	429	507	
All other industries.....	19,987		1,392	3,270	3,680	3,722	4,998	1,835	1,090	
PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.										
All industries.....	100.0		8.4	16.8	14.1	14.7	23.3	12.4	8.5	1.8
Bread and other bakery products.....	100.0		27.1	19.3	7.5	15.8	30.3			
Carriages and wagons and materials.....	100.0		9.8	30.1	23.7	29.2	7.2			
Cars and general shop construction and repairs by steam-railroad companies.....	100.0		0.1	0.7			12.4	30.4	33.0	23.4
Clothing, men's, including shirts.....	100.0		0.9	6.5	17.5	32.0	43.0			
Cotton goods, including cotton small wares.....	100.0				4.7	13.1	21.1	9.7	51.3	
Fertilizers.....	100.0		2.0	2.3	17.2	34.3	44.2			
Flour-mill and gristmill products.....	100.0		43.1	16.7	15.1	13.1	12.0			
Foundry and machine-shop products.....	100.0		2.6	12.5	12.3	20.6	23.8	28.3		
Furniture and refrigerators.....	100.0		1.5	2.7	14.6	24.1	46.8	10.4		
Hosiery and knit goods.....	100.0		0.2	1.5	2.2	8.3	44.4	22.1	21.3	
Iron and steel, blast furnaces.....	100.0				21.1	35.3	18.5	27.0		
Lumber and timber products.....	100.0		13.1	30.7	14.5	8.9	19.8	10.2	2.8	
Oil, cottonseed, and cake.....	100.0		0.2	2.9	42.2	37.8	15.9			
Patent medicines and compounds and druggists' preparations.....	100.0		20.6	24.9	17.3		37.2			
Printing and publishing.....	100.0		18.4	13.5	21.6	20.2	17.6	8.7		
Woolen, worsted, and felt goods, and wool hats.....	100.0		0.2	1.5	2.2	14.8	24.7	25.9	30.7	
All other industries.....	100.0		7.0	16.4	18.4	18.6	25.0	9.2	5.5	

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

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

This table shows that, for all industries combined, 65.4 per cent of the total expenses was incurred for materials, 23.6 per cent for services—that is, salaries and wages—and 11 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
All industries.....	5.8	17.8	65.4	11.0
Bread and other bakery products.....	5.3	14.9	71.0	8.8
Carriages and wagons and materials.....	6.3	27.8	56.6	9.3
Cars and general shop construction and repairs by steam-railroad companies.....	4.9	48.0	48.0	1.2
Clothing, men's, including shirts.....	10.0	12.0	65.4	8.7
Cotton goods, including cotton small wares.....	2.2	17.8	69.4	10.6
Fertilizers.....	4.8	7.2	74.5	13.5
Flour-mill and gristmill products.....	1.2	2.1	93.0	3.8
Foundry and machine-shop products.....	8.6	24.9	66.7	9.8
Furniture and refrigerators.....	8.6	29.9	48.3	13.1
Hosiery and knit goods.....	3.8	22.2	64.9	9.1
Iron and steel, blast furnaces.....	3.5	12.4	80.8	3.3
Lumber and timber products.....	5.3	28.0	54.8	11.9
Oil, cottonseed, and cake.....	3.4	4.8	86.4	5.5
Patent medicines and compounds and druggists' preparations.....	17.5	4.8	43.9	33.7
Printing and publishing.....	18.2	28.5	32.7	20.6
Woolen, worsted, and felt goods, and wool hats.....	4.2	24.0	64.5	7.3
All other industries.....	6.6	16.8	61.3	15.3

**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	1909	1904	1899	1909	1904	1899
Primary power, total.....	6,058	3,205	2,018	242,277	175,780	130,313	100.0	100.0	100.0
Owned.....	4,441	3,205	2,018	226,972	173,123	128,424	93.7	98.5	98.5
Steam.....	3,764	2,780	2,440	215,333	161,010	116,715	88.9	92.1	89.0
Gas.....	317	128	68	1,853	1,084	593	0.8	0.0	0.5
Water wheels.....	341	200	401	9,970	6,702	11,073	4.0	5.0	8.5
Water motors.....	19	32	(*)	107	233	(*)	(*)	0.1	(*)
Other.....				4	125	38	(*)	0.1	(*)
Rented.....	1,017	(*)	(*)	15,305	2,057	1,894	6.3	1.5	1.5
Electric.....	1,017	(*)	(*)	14,666	2,230	1,370	6.1	1.3	1.1
Other.....				639	427	524	0.3	0.2	0.4
<b>Electric motors</b>	<b>2,579</b>	<b>186</b>	<b>46</b>	<b>29,686</b>	<b>6,586</b>	<b>2,193</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Run by current generated by establishment.....	962	186	40	14,920	4,356	823	50.4	66.1	37.5
Run by rented power.....	1,017	(*)	(*)	14,666	2,230	1,370	49.6	33.9	62.5

\* Includes the neighborhood industries and hand trades, omitted in 1904 and 1909.  
 † Not reported.      \* Less than one-tenth of 1 per cent.

The amount of primary power used in the manufacturing industries of Tennessee increased 34.9 per cent from 1899 to 1904, and 37.8 per cent from 1904 to 1909. This increase was chiefly in power generated by steam engines. From 1904 to 1909 the capacity of the steam engines increased 53,419 horsepower, or 33 per cent, yet the proportion which steam power formed of the total primary power decreased from 92.1 per cent in 1904 to 88.9 per cent in 1909. The horsepower of water wheels and water motors showed an

actual decrease. The more general use of gas engines is shown, the number and power of such engines reported in 1909 being 317, with 1,853 horsepower, as compared with 68, with 593 horsepower, in 1899. The figures also show that the practice of renting electric power is on the increase, 14,666 horsepower, or 6.1 per cent of the total power reported in 1909, being rented electric power, as against 1,370 horsepower, or 1.1 per cent, in 1899. The use of electric motors for the purpose of applying the power generated within the establishments is also shown to be rapidly increasing, the horsepower of such motors having increased from 823 in 1899 to 14,920 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).
All industries.....	14,115	1,661,456	691,282	94,287	65,108	15,409
Bread and other bakery products.....	853	3,238	2,861	4,634	61	1,760
Brick and tile.....		107,729	3,502	23,121	72	
Cars and general shop construction and repairs by steam-railroad companies.....		53,602	1,289		4,300	
Coke.....		485,935			21	
Cotton goods, including cotton small wares.....	831	40,599		2,258	9	
Flour-mill and gristmill products.....	80	86,636	230	17,626	936	
Foundry and machine-shop products.....	11	46,899	43,801	1,635	746	875
Furniture and refrigerators.....		16,757	4	255	12	
Gas, illuminating and heating.....		53,909	5,967		52,732	
Hosiery and knit goods.....		22,317			440	
Ice, manufactured.....		99,145		850	128	
Iron and steel, blast furnaces.....		30,203	656,386	152	201	
Liquors, malt.....		32,070				
Lumber and timber products.....	500	49,190		1,281	728	
Oil, cottonseed, and cake.....		47,203		500		
Pottery, terra-cotta, and fire-clay products.....		43,564		210	2	
Printing and publishing.....	21	11,099	375	198	221	6,661
Woolen, worsted, and felt goods, and wool hats.....		23,591		2,873	10	
All other industries.....	11,819	376,024	67,807	38,694	4,623	6,027

NOTE.—In addition, there were 8,810 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 eight important industries in Tennessee are here presented.

**Lumber and timber products.**—The forests of Tennessee, containing an abundant growth of many of the most valuable species of forest trees, are among the best in the United States. Lumbering has long been an important industry in the state. As early as 1849 Tennessee had, including the custom sawmills, 451 establishments which reported a total value of products amounting to \$725,387.

The following statement gives the quantity of the various products of the sawmills reported at the censuses of 1909 and 1899:

PRODUCT.	QUANTITY.	
	1909	1899
Rough lumber.....	M feet b. m. 1,223,849	950,935
Lath.....	thousands.. 31,179	33,199
Shingles.....	thousands.. 35,692	69,735

The above table shows an increase of 272,891 M feet board measure, or 28.7 per cent, in the production of rough lumber. Eighty-three per cent of the total quantity of rough lumber sawed was hardwood, the

principal kind being oak, in the production of which Tennessee was the leading state in 1909, with approximately one-eighth of the total for the United States. The state was also first in the production of yellow poplar and hickory. Decreases are shown in the production of lath and shingles.

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

PRODUCT.	1909	1904	1899
Total value.....	\$29,070,019	\$25,350,758 <sup>1</sup>	\$19,161,398
Wheat flour:			
White—			
Barrels.....	2,999,501	3,184,847	3,339,040
Value.....	\$17,218,719	\$17,015,408	\$12,590,493
Graham—			
Barrels.....	9,588	1,830	( <sup>1</sup> )
Value.....	\$48,070	\$8,715	( <sup>1</sup> )
Corn meal and corn flour:			
Barrels.....	1,981,746	2,052,705	2,002,032
Value.....	\$6,505,710	\$4,771,722	\$3,995,887
Rye flour:			
Barrels.....	5	40	113
Value.....	\$20	\$160	\$348
Buckwheat flour:			
Pounds.....	21,300	103,000	49,135
Value.....	\$1,020	\$2,830	\$1,026
Barley meal:			
Pounds.....		139,600	29,800
Value.....		\$1,948	\$435
Hominy and grits:			
Pounds.....	26,720,930	36,009,405	10,465,400
Value.....	\$441,371	\$421,209	\$164,348
Feed:			
Tons.....	64,150	31,909	43,032
Value.....	\$1,657,194	\$676,234	\$632,693
Offal:			
Tons.....	127,843	136,875	138,172
Value.....	\$3,189,486	\$2,442,960	\$1,734,492
All other products.....	\$7,873	\$9,512	\$41,676

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

In 1909 the value of white flour constituted 59.2 per cent of the total value of products shown for the industry, and that of corn meal and corn flour, 22.4 per cent. From 1904 to 1909 there was a large increase in both the quantity and the value of feed reported, while for white-wheat flour, corn meal and corn flour, hominy and grits, and offal decreases in quantity were accompanied by increases in value.

**Printing and publishing.**—The following statement shows the number and circulation of the newspapers and periodicals published in the state as reported 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>330</b>	<b>334</b>	<b>258</b>	<b>5,801,541</b>	<b>3,157,803</b>	<b>3,181,017</b>
Daily.....	16	17	16	245,058	183,050	165,718
Sunday.....	7	9	7	183,196	125,905	( <sup>1</sup> )
Semi-weekly.....	10	3	6	16,925	8,720	7,700
Weekly.....	223	230	187	923,431	753,290	1,136,199
Monthly.....	49	33	28	517,643	247,143	270,150
All other classes.....	25	42	14	3,714,688	1,839,695	1,551,250

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

From 1904 to 1909 there has been a decrease of four in the total number of publications, the increase in the number of monthlies and semiweeklies being more than offset by the decrease in the number of dailies, Sunday publications, weeklies, and the publications shown under the head of "All other classes."

The number of dailies and of Sunday papers were the same in 1909 as shown for 1899.

The aggregate circulation per issue shows an increase of 77.4 per cent from 1904 to 1909, as compared with an increase of less than 1 per cent from 1899 to 1904. The weeklies increased in number but decreased in circulation from 1899 to 1904, while they decreased in number but increased in circulation from 1904 to 1909. The increase in the aggregate circulation of Sunday papers from 1904 to 1909 was 45.5 per cent. About three-fourths of the periodicals classified under the head of "All other classes" are published in Nashville. They are quarterly publications of various religious organizations and consist principally of Sunday-school quarterlies, lesson leaves, and papers. They show great gains in circulation at each census.

All the publications reported were printed in the English language, except two weeklies in German and two religious quarterlies in Spanish.

**Oil, cottonseed, and cake.**—This is one of the foremost industries of the state. The quantity of cotton seed crushed and the quantity of the resultant products, namely, oil, meal and cake, hulls, and linters, are shown in the following tabular statement for the last three census years:

MATERIAL OR PRODUCT.	QUANTITY.		
	1909	1904	1899
Cotton seed, crushed..... tons..	179,475	143,479	168,307
Crude products, manufactured:			
Oil..... gallons..	7,525,409	5,760,599	6,454,173
Meal and cake..... tons..	76,963	58,477	69,613
Hulls..... tons..	59,434	53,738	79,858
Linters..... pounds..	8,533,484	5,918,496	4,058,473

The totals presented include the data for all cotton seed crushed and for the crude products manufactured, whether sold as such or used as intermediate products in further processes of manufacture, such as the refining of oil and the mixing of fertilizers and feed.

There was a decrease of 24,828 tons, or 14.8 per cent, in the amount of seed crushed in 1904, as compared with 1899, but this was more than offset by an increase of 35,996 tons, or 25.1 per cent, in the amount crushed in 1909, as compared with 1904.

The production of cottonseed oil decreased in 1904, as compared with 1899, 693,574 gallons, or 10.7 per cent, and increased in 1909, as compared with 1904, 1,764,810 gallons, or 30.6 per cent. The production of linters in 1909 was more than twice that reported for 1899, while that of hulls shows a decrease of 25.6 per cent.

Of the 20 cottonseed-oil mills reported as crushing seed in 1909, 1 crushed less than 1,000 tons, 4 crushed 2,000 but less than 5,000 tons, 8 crushed 5,000 but less than 10,000 tons, and 7 crushed 10,000 tons and over.

**Textiles.**—The growth of the textile industry, as a whole, is shown by the increase in the number of spindles, looms, and knitting machines. In the next table the number of each of the principal kinds of machines used at the last three censuses is shown.

MACHINE.	Cen- sus.	Total.	Cotton goods, including cotton small wares.	Hosiery and knit goods.	Woolen, worsted, and felt goods, and wool hats.
Producing spindles.....	1909 1904 1899	286,506 200,047 161,931	225,638 153,375 123,800	11,892	48,976 46,672 38,035
Looms.....	1909 1904 1899	5,143 4,080 4,234	4,283 3,098 2,905		800 1,078 1,239
Knitting machines.....	1909 1904 1899	3,929 1,787 581		3,929 1,787 581	
Woolen cards (sets).....	1909 1904 1899	82 82 99			82 82 99

The total number of producing spindles shows an increase from 1904 to 1909 of 86,459, or 43.2 per cent; of looms, an increase of 1,057, or 25.9 per cent; and of knitting machines, an increase of 2,142, or 119.9 per cent; while the number of woolen cards was the same for both years. In the cotton mills, where 78.8 per cent of the spindles and 83.3 per cent of the looms were used in 1909, the rates of increase for both kinds of machines were much greater from 1904 to 1909 than during the previous five years.

**Cotton goods, including cotton small wares.**—The manufacture of cotton goods is the most important of the textile industries in Tennessee, and shows a decided growth from census to census. The quantity and cost of the materials used, and the kind and value of the products reported at the last three censuses are given below:

MATERIAL OR PRODUCT.	1909	1904	1899
Materials used, total cost.....	\$3,343,672	\$2,240,973	\$1,143,234
Cotton:			
Pounds.....	28,312,077	19,292,275	15,040,336
Cost.....	\$2,941,046	\$2,045,800	\$984,309
Starch.....	\$8,085	\$10,554	\$9,000
Fuel and rent of power.....	\$103,111	\$55,654	\$39,820
All other materials.....	\$291,430	\$123,965	\$112,199
Products, total value.....	\$5,200,701	\$3,560,934	\$1,894,335
Brown or bleached sheetings and shirtings:			
Square yards.....	7,096,080	6,184,885	11,012,570
Value.....	\$435,958	\$341,530	\$501,678
Yarns, for sale:			
Pounds.....	7,443,170	5,002,494	2,000,083
Value.....	\$1,378,605	\$992,200	\$263,682
Cotton waste, for sale:			
Pounds.....	2,164,304	2,203,961	1,150,099
Value.....	\$56,954	\$84,322	\$22,709
All other products.....	\$3,320,184	\$2,142,872	\$1,206,928

In 1909, 28,312,077 pounds of cotton, all domestic, costing \$2,941,046, were consumed in this industry. This was an increase of 9,019,802 pounds, or 46.8 per cent, in quantity and of \$895,246, or 43.8 per cent, in cost over the figures for 1904. The industry shows a gain of 46 per cent in value of products from 1904 to 1909, as against a gain of 78.5 per cent from 1899 to 1904. The increase in value of products from 1904 to 1909 was due principally to the increase in the value of the cotton yarn produced for sale and the value of the products included under the head of "All other products." The principal items included under the latter

head are plain cloths for printing or converting, drills, and duck. They are not shown separately, as to do so would disclose the output of individual establishments.

Both the quantity and the value of the output of brown or bleached sheetings and shirtings show increases over the figures for 1904, but the increases have not been large enough to counterbalance the decreases which took place from 1899 to 1904. While the quantity of yarn produced for sale in 1909 was 2,380,676 pounds, or 47 per cent, greater than in 1904 and their value \$386,435, or 38.9 per cent, greater, the increase was not as great as during the earlier five-year period when the increase in quantity was 153.1 and that in value 276.3 per cent.

**Hosiery and knit goods.**—The following tabular statement shows the quantity and cost of the different kinds of materials used and the quantity and value of the various products of the industry during the last three census years:

MATERIAL OR PRODUCT.	1909	1904	1899
Materials used, total cost.....	\$2,120,225	\$969,196	\$246,950
Cotton yarn, purchased:			
Pounds.....	4,746,086	4,701,653	1,099,000
Cost.....	\$1,203,887	\$841,092	\$203,500
Chemicals and dyestuffs.....	\$121,614	\$40,915	\$21,500
Fuel and rent of power.....	\$42,916	\$18,146	\$1,600
All other materials.....	\$751,808	\$89,043	\$22,350
Products, total value.....	\$3,565,436	\$1,827,823	\$395,160
Hose:			
Dozens.....	2,420,817	1,155,692	133,300
Value.....	\$2,075,719	\$917,233	\$192,160
Half hose:			
Dozens.....	846,839	609,754	360,000
Value.....	\$770,547	\$368,792	\$203,000
All other products.....	\$719,170	\$341,798	.....

Cotton yarn purchased formed over four-fifths of the total cost of materials used in 1899 and 1904, but in 1909, when a few of the mills purchased the raw cotton and spun their own yarn, the cost of cotton yarn purchased formed less than three-fifths of the total.

From 1904 to 1909 the value of hose manufactured increased 126.3 per cent and that of half hose 108.9 per cent, while the output of the former increased 109.5 per cent and the output of the latter only 28.3 per cent. The average value of hose per dozen dropped from \$1.05 in 1899 to 79 cents in 1904, but advanced to 86 cents in 1909. The average value per dozen of half hose, on the other hand, advanced from 56 cents in 1899 and 1904 to 91 cents in 1909. In 1909 three establishments were engaged in manufacturing knit underwear, and although a large increase was shown in the value of products in 1909 as compared with 1904 the statistics are included under "All other products" in the table in order to avoid disclosing the operations of individual establishments.

**Woolen goods.**—With respect to value of products this industry is less important than either cotton goods or hosiery and knit goods. The larger part of the output is woolen goods for men's wear woven on cotton warp. The title of this industry, being uniform for all states, is "Woolen, worsted, and felt goods, and wool hats," but in Tennessee only woolen goods are made.

**Iron and steel, blast furnaces.**—The following is a tabular statement showing the quantity and value of products for 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
Total value.....	\$4,653,125	\$3,428,049	\$4,693,215
Pig iron:			
Tons.....	333,416	303,624	374,249
Value.....	\$4,644,067	\$3,426,932	\$4,693,215
<i>Classified by grades.</i>			
Foundry..... tons.	271,562	247,368	287,655
Forge or mill..... tons.	12,693	24,957	54,182
All other, including low phosphorus, Bessemer, ferro-silicon, ferro-phosphorous, white and mottled, and miscellaneous, and direct castings..... tons.	49,161	31,299	32,412
All other products.....	\$8,458	\$1,117	

This industry has been built up in the state by the working of the abundant deposits of ore and fuel found there. The value of products in 1909 was practically the same as in 1899, although from 1899 to 1904 there was a decrease of 27 per cent, due to the general business depression prevailing in 1904. The table shows a large decrease in that grade of pig iron classified as forge or mill. The average value per ton of pig iron was \$12.54 in 1899, \$11.29 in 1904, and \$13.93 in 1909.

**Fertilizers.**—The following tabular statement gives the quantity and value of products reported for this industry at the censuses of 1909, 1904, and 1899:

PRODUCT.	1909	1904	1899
Total value.....	\$3,240,343	\$2,700,661	\$1,466,288
Superphosphates from minerals, bones, etc.:			
Tons.....	25,322	29,416	35,059
Value.....	\$244,278	\$308,284	\$450,568
Complete fertilizers:			
Tons.....	139,343	83,370	36,695
Value.....	\$2,776,372	\$1,596,764	\$704,220
Other fertilizers:			
Tons.....	14,691	46,707	20,400
Value.....	\$213,464	\$755,964	\$304,000
Sulphuric acid:			
Tons.....	366	5,000	
Value.....	\$5,197	\$30,000	
All other products.....	\$10,032	\$9,549	\$1,500

Complete fertilizers formed the largest single product at each census. Their value from census to census has composed an increasing proportion of the total value of products for the industry, and in 1909 formed more than five-sixths of this total. Superphosphates from minerals, and "Other fertilizers" show decreases both in quantity and in value during the period 1904-1909, the principal cause of which is the more general use in this industry in Tennessee of phosphate rock, pyrites, and kainit. The quantity and value of sulphuric acid sold in 1909 was only about one-sixth of that sold in 1904.

**Laundries.**—Statistics for steam laundries are not included in the general tables, or in the totals for manufacturing industries. In 1909 there were 63 such establishments in the state of Tennessee, 10 of which were in Nashville, 8 in Memphis, 7 in Knoxville, 6 in Chattanooga, and 3 in Jackson.

The three most common forms of ownership—the individual, firm, and corporate—were about equally represented in the industry, the first two reporting 22 establishments each and the corporate form 19 establishments. Twelve establishments had receipts for the year's business of less than \$5,000; 29, \$5,000 but

less than \$20,000; 19, \$20,000 but less than \$100,000; and 3, receipts in excess of \$100,000.

The following statement summarizes the statistics:

Number of establishments.....	63
Persons engaged in the industry.....	2,392
Proprietors and firm members.....	68
Salaried employees.....	175
Wage earners (average number).....	2,149
Primary horsepower.....	1,863
Capital.....	\$1,283,533
Expenses.....	1,340,732
Services.....	811,213
Materials.....	297,691
Miscellaneous.....	231,828
Amount received for work done.....	1,643,407

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

MONTH.	WAGE EARNERS.		MONTH.	WAGE EARNERS.	
	Number.	Per cent of maximum.		Number.	Per cent of maximum.
January.....	2,041	90.9	July.....	2,236	99.6
February.....	2,039	90.8	August.....	2,246	100.0
March.....	2,059	91.7	September.....	2,183	97.2
April.....	2,130	94.8	October.....	2,189	97.5
May.....	2,117	94.3	November.....	2,171	96.7
June.....	2,166	97.8	December.....	2,177	96.9

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

KIND.	Number of engines or motors.	Horse-power.
Primary power, total.....		1,863
Owned:		
Steam.....	64	1,797
Gas.....	1	5
Rented—Electric.....	39	61

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

KIND.	Unit.	Quantity.
Bituminous coal.....	Tons.....	29,395
Coke.....	Tons.....	318
Wood.....	Cords.....	12
Oil.....	Barrels.....	94
Gas.....	1,000 feet.....	9,108

**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.....	226	1,068
Persons engaged in the industry.....	918	1,938
Proprietors and firm members.....	321	1,403
Salaried employees.....	3	2
Wage earners (average number).....	594	533
Primary horsepower.....	4,475	16,537
Capital.....	\$237,331	\$667,643
Expenses.....	108,017	2,290,827
Services.....	87,960	58,985
Materials.....	6,027	1,210,509
Miscellaneous.....	14,030	27,080
Value of products.....	233,204	1,648,200

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

MANUFACTURES—TENNESSEE.

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.														
STATE—All industries.....	1909	4,909	87,672	5,415	8,417	73,840	242,277	\$167,924	\$9,188	\$23,252	\$104,016	\$180,217	\$76,201								
	1904	3,176	69,287	3,805	4,910	60,672	175,780	102,459	5,080	22,806	79,352	137,960	55,408								
	1899	3,116			3,329	46,063	130,318	63,141	3,048	14,728	54,559	92,749	38,190								
Agricultural implements.....	1909	16	712	9	58	645	1,230	1,400	80	268	418	1,004	201								
	1904	12	650	9	34	613	692	757	51	210	314	769	155								
	1899	11	422	11	38	373	503	418	35	113	202	463	201								
Boots and shoes, including out stock and findings.	1909	4	427	7	46	374	174	532	70	118	827	1,181	354								
	1904	4	246	5	16	225	200	174	19	78	640	837	197								
Boxes, fancy and paper.....	1909	6	227	3	22	202	114	148	27	53	122	258	126								
	1904	0	201	3	11	187	70	84	9	40	104	196	69								
	1899	0	100	7	15	174		64	11	83	63	132	59								
Bread and other bakery products.....	1909	131	1,179	150	174	855	645	1,260	132	370	1,790	2,832	1,102								
	1904	81	767	95	69	603	310	1,294	58	237	1,021	1,974	634								
	1899	76	531	90	75	300		650	37	158	683	1,103	420								
Brick and tile.....	1909	91	1,487	112	94	1,281	4,031	1,868	82	443	346	1,308	960								
	1904	84	1,410	108	68	1,234	3,165	1,200	65	378	265	1,100	835								
	1899	91	1,307	121	34	1,152	2,821	891	31	293	106	685	519								
Canning and preserving.....	1909	37	375	45	27	303	450	274	11	39	131	206	71								
	1904	10	231	16	12	203	360	90	10	30	151	242	91								
	1899	11	151	19	16	116	75	36	2	16	98	72	34								
Carriages and wagons and materials.....	1909	129	1,692	150	130	1,706	4,537	3,006	160	693	1,489	3,043	1,601								
	1904	97	2,148	109	150	1,889	4,408	2,617	158	750	1,068	3,278	1,916								
	1899	95			77	1,167		1,138	71	305	780	1,082	612								
Cars and general shop construction and repairs by steam-railroad companies.	1909	17	5,884		318	5,566	5,145	4,035	329	3,252	3,116	6,777	3,601								
	1904	10	4,939		179	4,760	1,904	2,029	173	2,617	2,978	5,839	2,601								
	1899	10	2,882		65	2,817	1,341	1,320	59	1,469	1,528	3,113	1,688								
Clothing, men's, including shirts.....	1909	34	1,892	34	262	1,596	593	2,257	309	402	2,123	3,361	1,233								
	1904	32	2,154	44	142	1,908	665	1,324	153	413	1,877	3,069	1,192								
	1899	31			81	1,584		839	74	360	1,010	1,760	744								
Coffins, burial cases, and undertakers' goods..	1909	8	570		90	480	976	1,138	130	201	522	1,189	667								
	1904	8	482		52	430	712	804	83	185	349	623	674								
	1899	10	342	3	52	287		440	68	118	329	626	296								
Coke.....	1909	8	270		20	250	370	858	14	87	478	586	136								
	1904	9	416		30	377	405	733	24	129	611	810	199								
	1899	8	469		22	477	630	607	14	128	523	705	249								
Confectionery.....	1909	31	1,050	23	100	894	1,154	1,504	177	270	1,057	2,520	860								
	1904	25	695	19	116	560	313	646	100	181	961	1,873	612								
	1899	10			68	337		872	54	101	424	814	300								
Cooperage and wooden goods, not elsewhere specified.	1909	19	913	18	30	856	2,209	1,443	59	253	629	1,148	51								
	1904	25	424	29	19	376	884	230	18	134	481	702	221								
	1899	34			13	539		230	18	170	277	572	285								
Copper, tin, and sheet-iron products.....	1909	57	704	73	59	572	154	673	70	261	593	1,229	63								
	1904	35	404	49	32	383	150	269	25	204	435	871	436								
	1899	24			16	224		207	13	86	167	352	156								
Cotton goods, including cotton small wares....	1909	17	3,164	3	83	3,078	11,129	7,454	105	857	3,344	5,201	1,837								
	1904	16	2,362	2	66	2,294	8,301	5,113	80	631	2,241	3,561	1,230								
	1899	17	2,158	3	47	2,108	5,525	3,708	54	423	1,143	1,995	689								
Fertilizers.....	1909	12	670	12	99	559	2,182	4,106	137	204	2,122	3,249	1,197								
	1904	10	854	6	67	781	1,670	3,381	210	210	1,712	2,701	989								
	1899	5	492	4	45	443		950	49	94	790	1,468	676								
Flour-mill and gristmill products.....	1909	454	2,658	663	418	1,577	27,178	8,511	323	559	25,286	20,070	3,794								
	1904	387	2,429	584	250	1,595	23,441	6,927	212	591	21,912	25,251	3,459								
	1899	362			217	1,055	20,915	4,997	192	500	16,323	19,161	2,838								
Foundry and machine-shop products.....	1909	124	4,694	102	551	4,041	7,488	9,253	695	2,006	4,550	9,100	4,439								
	1904	100	3,716	85	318	3,313	4,742	4,610	945	1,482	2,854	6,124	3,379								
	1899	104			182	3,353		3,817	167	1,208	2,284	4,443	2,339								
Furniture and refrigerators.....	1909	42	2,667	15	233	2,419	3,758	3,497	258	897	1,445	3,309	1,361								
	1904	43	2,781	25	146	2,610	3,623	2,780	168	923	1,469	3,233	1,322								
	1899	26	1,164	21	75	1,068		1,003	71	318	553	1,188	636								
Gas, illuminating and heating.....	1909	11	530	4	104	422	613	9,370	98	164	957	1,282	626								
	1904	11	412	4	50	358	624	2,185	69	127	204	830	437								
	1899	11	287		49	218		2,304	41	65	135	572	267								
Hosiery and knit goods.....	1909	22	3,229	2	110	3,117	2,758	3,055	125	734	2,120	3,555	1,445								
	1904	16	1,855	4	41	1,810	1,052	1,160	41	341	969	1,628	669								
	1899	4	523		12	511	212	217	15	73	249	395	161								
Ice, manufactured.....	1909	57	986	46	161	779	9,337	2,748	154	362	281	1,324	1,040								
	1904	37	437	26	79	382	0,312	1,125	87	191	123	684	361								
	1899	27	472	20	67	355	3,559	1,104	177	110	110	538	238								
Iron and steel, blast furnaces.....	1909	13	1,268		125	1,148	18,150	7,122	147	519	3,381	4,653	1,772								
	1904	13	1,486		123	1,358	21,011	5,688	128	546	2,609	3,428	3,019								
	1899	13	1,845	1	81	1,763	18,350	5,252	103	439	3,169	4,663	1,324								

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

# MANUFACTURES—TENNESSEE.

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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.	Salaries employees.	Wage earners (average number).							
Expressed in thousands.													
<b>STATE—Continued.</b>													
Leather goods.....	1909	47	808	47	157	604	344	\$1,419	\$141	\$243	\$1,313	\$2,139	\$826
	1904	36	852	32	91	729	268	921	87	258	966	1,787	821
	1899	134	.....	.....	66	534	.....	540	51	188	653	1,122	469
Leather, tanned, curried, and finished.....	1909	25	463	26	42	395	1,684	3,564	50	139	1,994	2,530	536
	1904	29	804	28	40	736	1,731	4,013	64	252	2,851	3,584	733
	1899	44	887	55	29	803	864	3,444	35	240	2,184	2,802	618
Lime.....	1909	20	461	19	27	415	668	282	30	139	93	323	230
	1904	17	456	22	18	416	505	278	18	118	121	326	205
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Liquors, distilled.....	1909	39	239	40	45	154	1,205	1,398	44	53	395	2,256	1,861
	1904	50	207	60	15	132	893	882	17	55	256	568	312
	1899	51	205	55	11	139	700	590	8	43	200	940	740
Liquors, malt.....	1909	5	450	2	56	392	3,005	2,263	122	238	653	2,044	1,391
	1904	4	408	1	50	357	1,774	2,339	94	162	437	1,832	1,395
	1899	4	320	1	31	288	1,270	1,278	52	130	262	1,175	913
Lumber and timber products.....	1909	1,977	26,283	2,683	1,211	22,389	83,382	30,159	1,325	6,966	13,641	30,457	16,816
	1904	1,122	19,705	1,605	823	17,277	54,301	20,431	809	6,456	11,590	26,864	15,274
	1899	1,204	.....	.....	510	14,300	47,807	11,056	418	4,380	9,327	18,166	9,839
Marble and stone work.....	1909	81	1,189	88	95	1,006	2,781	1,476	88	515	480	1,465	985
	1904	32	750	40	29	681	1,204	648	30	331	339	944	605
	1899	54	.....	68	68	685	.....	609	36	241	215	845	630
Mattresses and spring beds.....	1909	17	352	20	60	272	1,690	513	52	104	362	656	294
	1904	12	279	21	21	237	217	212	17	72	216	436	220
	1899	10	.....	14	107	.....	.....	81	10	32	181	263	82
Millinery and lace goods.....	1909	6	154	8	54	92	4	56	20	26	101	202	161
	1904	4	81	6	2	75	5	37	1	27	101	181	80
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oil, cottonseed, and cake.....	1909	20	957	4	147	806	7,472	3,731	202	290	5,201	6,593	1,392
	1904	20	819	.....	118	701	6,666	2,914	138	245	3,084	3,744	660
	1899	17	833	2	80	751	4,425	1,997	105	204	2,278	2,980	702
Paint and varnish.....	1909	6	117	1	45	71	1,045	408	52	37	238	397	159
	1904	4	91	1	14	76	205	224	25	30	288	481	193
	1899	5	56	3	8	45	122	74	11	18	89	151	62
Patent medicines and compounds and druggists' preparations.....	1909	76	993	52	513	433	418	2,225	535	148	1,341	3,515	2,174
	1904	147	739	28	222	489	371	1,317	228	143	901	2,789	1,888
	1899	128	.....	115	399	.....	.....	739	137	138	525	1,504	979
Pottery, terra-cotta, and fire-clay products.....	1909	6	354	3	28	323	678	357	32	126	110	328	218
	1904	8	318	7	14	297	535	186	19	128	79	309	230
	1899	18	330	15	15	300	577	172	12	91	74	260	156
Printing and publishing.....	1909	413	4,442	443	1,085	2,914	2,965	6,493	1,085	1,701	1,954	7,173	5,219
	1904	340	3,373	356	657	2,330	1,913	4,415	657	1,231	1,323	5,091	3,768
	1899	1284	2,604	316	500	1,788	.....	3,602	432	821	882	3,455	2,573
Slaughtering and meat packing.....	1909	27	379	31	68	280	1,242	2,516	61	140	1,610	2,057	447
	1904	12	81	13	9	59	936	408	9	23	275	377	102
	1899	13	.....	15	166	.....	.....	680	17	66	1,480	1,712	232
Stoves and furnaces, including gas and oil stoves.....	1909	17	1,242	7	150	1,085	1,380	1,827	146	519	717	1,951	1,234
	1904	10	879	7	53	819	830	1,158	60	404	349	1,116	767
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Woolen, worsted, and felt goods, and wool hats.....	1909	21	1,737	21	62	1,654	2,371	2,515	73	419	1,127	1,802	675
	1904	27	1,481	22	44	1,415	2,590	2,310	54	327	945	1,706	761
	1899	51	1,725	29	64	1,632	2,692	2,400	68	294	874	1,517	643
All other industries.....	1909	466	9,463	449	1,174	7,840	25,094	31,144	1,445	3,430	15,601	26,787	11,186
	1904	321	6,349	304	606	5,439	15,495	14,314	619	1,995	9,343	15,797	6,454
	1899	301	.....	456	3,525	.....	.....	5,249	423	1,116	4,393	8,058	3,665

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

<b>MEMPHIS—All industries.....</b>	1909	329	9,937	597	1,413	7,927	21,320	\$26,968	\$1,727	\$4,288	\$17,851	\$30,242	\$12,391
	1904	289	8,448	269	805	7,374	.....	13,286	394	3,543	11,338	20,643	8,705
	1899	223	.....	452	.....	6,826	.....	9,767	552	2,792	7,879	14,233	6,354
Bread and other bakery products.....	1909	31	515	32	62	421	312	736	68	202	864	1,452	588
	1904	27	327	32	29	266	.....	628	29	113	446	787	341
	1899	21	216	24	35	157	.....	471	19	75	459	669	210
Carriages and wagons and materials.....	1909	16	421	14	33	374	714	952	48	200	386	882	496
	1904	15	520	8	33	479	.....	538	53	262	466	971	505
	1899	11	296	8	13	275	.....	403	20	113	206	452	246

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



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

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

INDUSTRY.	Consus.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).							
Expressed in thousands.													
<b>MEMPHIS—Continued.</b>													
Clothing, men's, including shirts.....	1909	7	58	7	5	40	27	\$62	\$0	\$10	\$75	\$163	\$38
	1904	9	240	10	27	197	.....	142	28	37	293	487	164
	1899	12	.....	.....	1	428	.....	213	2	129	274	528	264
Confectionery.....	1909	9	373	4	72	297	62	422	75	123	830	1,128	368
	1904	7	218	2	30	189	.....	290	30	82	442	840	407
	1899	4	.....	.....	5	57	.....	45	4	22	88	147	69
Cooperage and wooden goods, not elsewhere specified.	1909	4	428	2	13	413	1,160	901	20	123	310	587	247
	1904	5	223	4	8	211	.....	292	10	80	269	379	130
	1899	3	79	3	4	72	.....	29	4	39	86	152	66
Copper, tin, and sheet-iron products.....	1909	14	140	19	7	114	5	130	7	68	111	242	131
	1904	11	125	10	.....	100	.....	85	.....	77	129	282	163
	1899	7	.....	.....	.....	60	.....	30	.....	32	34	110	76
Foundry and machine-shop products.....	1909	18	519	12	70	437	1,537	1,080	82	284	565	1,130	585
	1904	15	512	13	53	446	.....	743	68	256	372	831	509
	1899	15	807	20	23	704	.....	1,071	33	351	496	1,079	333
Ice, manufactured.....	1909	0	308	1	35	272	1,720	842	48	154	80	405	415
	1904	4	210	.....	31	179	.....	437	32	110	40	310	370
	1899	4	217	.....	25	192	.....	545	31	103	45	230	215
Leather goods.....	1909	0	96	8	24	64	54	147	17	30	151	262	111
	1904	5	99	4	5	60	.....	71	6	27	116	171	65
	1899	5	.....	.....	.....	110	.....	183	.....	69	169	278	119
Lumber and timber products.....	1909	18	1,288	17	145	1,120	3,250	2,855	220	563	1,604	2,830	1,326
	1904	10	1,041	11	85	945	.....	1,872	111	421	1,050	1,917	838
	1899	20	.....	.....	73	1,025	.....	1,984	96	599	1,237	2,488	1,261
Marble and stone work.....	1909	8	122	11	4	107	125	130	3	84	53	216	163
	1904	3	110	5	3	102	.....	121	2	61	93	121	85
	1899	4	83	6	1	76	.....	101	1	46	43	187	144
Oil, cottonseed, and cake.....	1909	9	500	4	77	419	3,002	2,261	117	161	3,609	4,316	807
	1904	11	559	.....	74	485	.....	2,190	101	181	2,261	2,681	420
	1899	9	636	.....	49	687	.....	1,550	72	159	1,521	2,271	450
Patent medicines and compounds and druggists' preparations.	1909	21	140	15	61	70	17	304	47	29	360	639	279
	1904	8	68	4	12	42	.....	128	10	14	174	374	200
	1899	5	48	6	9	33	.....	72	13	14	78	226	148
Printing and publishing.....	1909	45	815	68	231	516	622	1,183	242	407	520	1,793	1,273
	1904	46	640	61	150	423	.....	668	190	278	382	1,322	840
	1899	27	432	29	78	325	.....	441	90	173	208	776	568
All other industries.....	1909	114	4,208	383	574	3,251	7,721	14,648	727	1,835	8,533	14,137	5,004
	1904	107	3,696	303	259	3,244	.....	4,069	324	1,544	4,863	8,601	3,648
	1899	79	.....	.....	136	1,865	.....	2,629	103	868	2,045	4,000	1,665
<b>NASHVILLE—All industries.</b>													
	1909	384	11,883	369	1,794	9,721	19,538	\$27,880	\$1,862	\$4,836	\$17,456	\$29,650	\$12,114
	1904	287	9,386	265	1,099	8,032	.....	15,691	1,110	3,224	12,432	21,677	9,643
	1899	237	.....	.....	911	6,720	.....	11,374	730	2,276	9,927	15,305	6,214
Bread and other bakery products.....	1909	23	122	25	10	87	65	\$3	10	49	203	336	153
	1904	14	167	16	22	119	.....	533	17	45	203	636	318
	1899	16	110	10	27	73	.....	77	12	36	61	169	76
Carriages and wagons and materials.....	1909	17	226	22	11	193	149	131	12	96	158	337	176
	1904	11	202	14	20	168	.....	105	15	81	169	319	146
	1899	19	.....	.....	5	111	.....	73	5	47	65	165	101
Cars and general shop construction and repairs by steam-railroad companies.	1909	3	1,388	.....	60	1,328	639	1,012	08	797	678	1,576	396
	1904	3	1,463	.....	30	1,427	.....	619	47	743	890	1,724	334
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clothing, men's, including shirts.....	1909	5	400	12	59	398	127	445	73	112	522	836	314
	1904	7	594	18	43	528	.....	364	53	121	424	788	344
	1899	8	518	15	37	460	.....	275	31	99	367	604	227
Confectionery.....	1909	11	334	10	41	283	131	324	36	63	315	454	139
	1904	9	267	7	65	195	.....	203	52	50	248	353	233
	1899	5	.....	.....	55	166	.....	276	42	49	202	426	222
Cooperage and wooden goods, not elsewhere specified.	1909	4	96	3	9	84	150	98	10	34	139	190	61
	1904	5	85	2	5	79	.....	75	5	31	164	216	62
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Copper, tin, and sheet-iron products.....	1909	12	96	16	12	68	10	115	8	30	75	160	85
	1904	14	67	3	5	59	.....	45	4	37	44	114	70
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Flour-mill and gristmill products.....	1909	10	309	16	50	243	2,227	947	51	89	4,888	5,719	331
	1904	4	210	2	36	178	.....	752	41	36	3,090	4,242	643
	1899	4	225	2	45	178	.....	922	47	91	3,424	3,907	483
Foundry and machine-shop products.....	1909	11	179	15	22	142	193	252	24	80	114	250	166
	1904	9	190	10	18	162	.....	235	19	83	143	268	156
	1899	13	172	13	13	141	.....	113	12	60	82	222	140

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

MANUFACTURES—TENNESSEE.

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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 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 employees.	Wage earners (average number).							
Expressed in thousands.													
<b>NASHVILLE—Continued.</b>													
Furniture and refrigerators.....	1909	5	522	1	45	476	463	\$763	\$49	\$204	\$248	\$673	\$425
	1904	6	493	4	31	458		462	33	199	289	639	350
	1899												
Ice, manufactured.....	1909	4	178		23	153	1,795	354	27	66	67	233	166
	1904	3	63	1	9	53		129	9	25	33	120	87
	1899	4	97	4	14	79		195	11	33	28	112	84
Leather goods.....	1909	11	271	14	75	182	93	617	67	86	508	789	281
	1904	7	252	7	56	209		303	31	76	330	564	234
	1899	13		45	208			237	37	66	292	475	183
Lumber and timber products.....	1909	25	1,372	28	100	1,244	3,352	3,052	117	547	1,539	2,673	1,134
	1904	19	1,125	29	81	1,015		1,545	73	358	1,635	2,418	783
	1899	13	1,182	23	47	1,112		1,180	44	368	837	1,633	796
Mattresses and spring beds.....	1909	4	95	3	21	71	111	130	15	27	103	187	84
	1904	3	58	10	6	42		35	4	14	70	130	60
	1899	3	50	8	5	37		29	4	11	61	89	28
Patent medicines and compounds and druggists' preparations.	1909	14	81	10	41	30	13	208	35	10	82	206	124
	1904	7	88	2	40	41		172	41	10	110	280	170
	1899	3	47	5	14	28		57	14	7	71	123	52
Printing and publishing.....	1909	86	1,875	61	579	1,235	1,227	3,594	608	728	896	3,285	2,389
	1904	54	1,426	41	340	1,045		2,548	344	552	691	2,292	1,701
	1899	52	1,066	44	291	731		2,115	246	371	421	1,628	1,207
All other industries.....	1909	189	4,275	132	639	3,504	8,788	15,755	658	1,318	6,921	11,716	4,795
	1904	92	2,641	89	298	2,254		7,481	322	713	3,444	6,274	2,830
	1899	94			313	3,306		6,325	281	1,029	3,086	5,758	2,672

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

Chattanooga.....	1909	185	7,507	125	972	6,410	17,509	\$16,125	\$1,180	\$2,816	\$8,434	\$16,086	\$7,602
	1904	177	7,236	130	686	6,420		10,394	719	2,564	7,474	14,261	6,787
	1899	149			458	4,729		7,459	417	1,616	6,421	10,518	4,097
Jackson.....	1909	42	1,613	28	180	1,405	2,789	2,236	193	673	1,215	2,710	1,495
	1904	42	1,421	35	118	1,268		1,519	112	498	1,183	2,318	1,135
	1899	33			101	1,018		980	78	400	693	1,577	884
Knoxville.....	1909	159	3,464	141	550	2,773	6,001	5,333	552	1,078	5,101	8,149	3,048
	1904	138	3,420	128	293	2,999		3,744	275	1,048	4,101	6,699	2,598
	1899	102			240	4,203		5,036	242	1,288	3,552	6,202	2,650

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

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

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

<sup>4</sup> 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.	10 and over.		Under 16.				
					Male.	Female.	Average number.	Number.			Male.	Female.	Male.	Female.			
								Maximum month.	Minimum month.								
1 All industries.....	4,809	87,672	5,415	2,978	4,377	1,062	73,840	No 80,676	Ja 69,305	(1)	(1)	(1)	(1)	(1)	242,277		
2 Agricultural implements.....	10	712	9	26	22	10	645	De 743	My 507	701	745	4	12		1,296		
3 Artificial stone.....	20	155	33	6	1		115	Jy 155	Ja 57	142	140	2			51		
4 Bags, other than paper.....	5	464	5	13	33	8	405	No 492	My 345	436	151	242	22	21	576		
5 Belting and hose, leather.....	3	28	0	1	2	2	17	Je 19	Fe 15	17	17				39		
6 Boots and shoes, including out stock and findings.....	4	427	7	9	35	2	374	Jy 385	Fe 358	333	252	80	34	11	174		
7 Boxes, fancy and paper.....	6	227	3	11	7	4	202	No 222	Ja 184	238	90	144		4	114		
8 Brass and bronze products.....	9	40	10	2	2	1	25	No 30	Ap 17	30	30				43		
9 Bread and other bakery products.....	131	1,179	150	25	112	37	855	De 967	My 797	975	701	254	17	3	645		
10 Brick and tile.....	91	1,487	112	57	32	5	1,281	Jy 1,740	Fe 652	1,754	1,604	1	89		4,631		
11 Brooms.....	20	173	40	8	2	1	122	No 148	My 102	152	120	25	5	2	82		
12 Buttons.....	5	76	0	1			69	No 128	Ja 24	123	119	4			84		
13 Canning and preserving.....	37	375	45	21	6		303	Au 1,411	Mh 3	1,423	430	787	01	116	450		
14 Carriages and wagons and materials.....	129	1,092	150	82	38	16	1,706	De 1,833	Ja 1,555	1,892	1,875	4	13		4,437		
15 Cars and general shop construction and repairs by steam-railroad companies.....	17	5,884		81	231	6	5,566	De 6,081	My 5,197	6,067	6,051	15	1		5,145		
16 Cars and general shop construction and repairs by street-railroad companies.....	6	283		6	10	1	266	De 283	Fe 252	283	279	4			503		
17 Cars, steam-railroad, not including operations of railroad companies.....	3	1,170		22	42	2	1,104	No 1,588	My 564	1,539	1,539				1,400		
18 Clothing, men's, including shirts.....	34	1,892	34	65	176	20	1,596	Ja 1,775	Oc 1,400	1,772	341	1,401		30	503		
19 Coffins, burial cases, and undertakers' goods.....	3	570		24	59	7	480	Fe 487	No 472	480	448	32			978		
20 Coke.....	3	270		9	11		250	No 325	Jy 205	322	322				370		
21 Confectionery.....	31	1,089	23	40	108	21	894	No 1,083	Ja 708	1,073	550	511	7	5	1,154		
22 Cooperage and wooden goods, not elsewhere specified.....	19	913	18	20	16	3	850	De 1,032	My 685	1,047	898	120	26	3	2,209		
23 Copper, tin, and sheet-iron products.....	57	704	73	21	31	7	572	Au 674	Fe 889	653	614	16	16	7	154		
24 Cotton goods, including cotton small wares.....	17	3,164	3	48	31	4	3,078	My 3,120	Se 3,042	3,123	1,389	1,163	277	274	11,123		
25 Electrical machinery, apparatus, and supplies.....	5	118		12	2	5	99	De 119	Je 88	110	90	28	1		94		
26 Fertilizers.....	12	670	12	23	71	5	559	Mh 893	Je 872	517	517				2,162		
27 Flour-mill and gristmill products.....	454	2,658	603	163	223	26	1,577	Au 1,061	Je 1,425	1,650	1,633	2	18	2	27,176		
28 Foundry and machine-shop products.....	124	4,004	102	200	281	70	4,041	De 4,535	Ja 3,055	4,513	4,432	5	53		7,498		
29 Furnishing goods, men's.....	4	57	2	5	8	1	46	De 40	Mh 40	49	5	42	2		8		
30 Furniture and refrigerators.....	42	2,637	15	107	65	31	2,419	De 2,694	Ja 2,232	2,696	2,465	75	156		3,758		
31 Gas, illuminating and heating.....	11	530	4	24	67	13	422	De 514	Fe 373	515	515				635		
32 Hosiery and knit goods.....	22	3,220	2	60	28	22	3,117	Ap 3,191	Mh 3,038	3,201	841	1,878	209	333	2,758		
33 Ice, manufactured.....	57	956	40	90	56	9	779	Jy 1,143	Ja 440	749	742		7		6,227		
34 Iron and steel, blast furnaces.....	13	1,268		48	69	8	1,143	Ja 1,401	My 893	1,539	1,523		13		18,150		
35 Jewelry.....	5	37	0	4	7	1	19	Ja 19	Jy 19	19	19				27		
36 Leather goods.....	47	808	47	73	68	16	604	De 657	My 558	657	585	29	43		844		
37 Leather, tanned, curried, and finished.....	25	493	26	19	19	4	395	Mh 420	Se 360	388	388				1,684		
38 Lime.....	20	401	13	20	5	2	415	Se 451	Ja 353	457	454		3		693		
39 Liquors, distilled.....	39	239	40	20	21	4	164	No 174	Jy 123	187	180	3	4		1,203		
40 Liquors, malt.....	5	450	2	13	40	3	392	Jy 451	Fe 340	365	349	1	18		3,005		
41 Lumber and timber products.....	1,977	20,283	2,033	623	504	84	22,359	No 25,402	Ja 20,620	28,603	28,082	132	373	10	63,382		
42 Marble and stone work.....	81	1,189	88	37	47	11	1,066	De 1,060	Ja 942	1,076	1,072	2	2		2,781		
43 Mattresses and spring beds.....	17	352	20	30	19	11	272	No 320	Ap 219	325	257	65	3		1,620		
44 Millinery and lace goods.....	0	154	8	12	21	21	92	Se 121	Jc 54	71	0				4		
45 Models and patterns, not including paper patterns.....	6	24	8	2			12	De 10	Ap 11	16	16				41		
46 Oil, cottonseed, and cake.....	20	957	4	53	89	5	805	No 1,304	Jy 136	1,407	1,405	2			7,472		
47 Paint and varnish.....	6	117	1	17	22	6	71	My 77	Ja 63	74	65	7	2		1,045		
48 Patent medicines and compounds and druggists' preparations.....	70	998	52	85	276	152	433	De 520	Ja 309	532	220	309	2	1	418		
49 Photo-engraving.....	6	55	6	6		3	40	No 46	Au 35	44	39		5		20		
50 Pottery, terra-cotta, and fire-clay products.....	6	354	3	6	21	1	323	Je 333	De 311	310	314	2	3		678		
51 Printing and publishing.....	413	4,442	443	229	627	229	2,014	Se 3,011	Ja 2,799	3,043	2,339	614	88	2	2,905		
52 Saws.....	5	46	8	5	4	1	28	Jy 31	Mh 21	20	22		7		106		
53 Slaughtering and meat packing.....	27	370	31	23	38	7	280	De 633	My 151	631	591	39	1		1,242		
54 Stoves and furnaces, including gas and oil stoves.....	17	1,242	7	46	66	38	1,085	No 1,275	Ja 651	1,250	1,195	45	10		1,380		
55 Surgical appliances and artificial limbs.....	3	7	3				4	Ja 4	Jy 4	4	4				3		
56 Woolen, worsted, and felt goods, and wool hats.....	21	1,737	21	27	30	5	1,654	Je 1,740	Ja 1,569	1,686	751	753	83	94	2,371		
57 All other industries.....	346	6,730	316	288	543	100	5,469								22,017		

1 No figures given for reasons explained in the Introduction.  
 2 Same number reported for one or more other months.  
 3 Same number reported throughout the year.  
 4 All other industries embrace—

Automobiles, including bodies and parts.....	2	Clothing, women's.....	3	Fireworks.....	1
Awnings, tents, and sails.....	8	Coffee and spice, roasting and grinding.....	8	Flags, banners, regalia, society badges, and emblems.....	1
Axle grease.....	1	Cordage and twine and jute and linen goods.....	1	Flavoring extracts.....	10
Babbitt metal and solder.....	2	Cordials and syrups.....	2	Food preparations.....	28
Baking powders and yeast.....	2	Cutlery and tools, not elsewhere specified.....	2	Gas and electric fixtures and lamps and reflectors.....	2
Blacking and cleansing and polishing preparations.....	3	Dyestuffs and extracts.....	6	Glass.....	1
Bluing.....	1	Electroplating.....	1	Glass, cutting, staining, and ornamenting.....	1
Carpets, rag.....	1	Engraving and desinking.....	1	Grasses and tallow.....	1
Cement.....	2	Explosives.....	2	Hair work.....	1
Charcoal.....	1	Fancy articles, not elsewhere specified.....	1		



MANUFACTURES—TENNESSEE.

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

INDUSTRY AND CITY.	Number of establishments	PERSONS ENGAGED IN INDUSTRY.										WAGE EARNERS—NUMBER DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horsepower.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners (average number).			Total.	16 and over.		Under 16.				
					Male.	Female.	Total.	16 and over.			Under 16.	Male.	Female.				
								Male.	Female.								
1 All industries.....	329	9,937	597	399	858	156	7,927	7,198	383	346	9,012	8,187	445	285	85	21,320	
2 Bread and other bakery products.....	31	515	32	8	44	10	421	277	144	.....	460	303	157	.....	.....	312	
3 Carriages and wagons and materials.....	16	421	14	17	13	3	374	370	2	2	387	383	2	2	.....	714	
4 Clothing, men's, including shirts.....	7	53	7	1	4	.....	46	5	41	.....	64	7	57	.....	27		
5 Confectionery.....	9	373	4	17	48	7	297	176	118	3	371	220	147	.....	63		
6 Cooperage and wooden goods, not elsewhere specified.....	4	428	2	6	5	2	413	402	.....	11	492	479	.....	23	1,166		
7 Copper, tin, and sheet-iron products.....	14	140	19	1	5	1	114	112	.....	2	118	116	.....	2	5		
8 Foundry and machine-shop products.....	13	519	12	23	37	10	437	429	4	4	500	491	5	4	1,537		
9 Ice, manufactured.....	6	308	1	14	19	2	272	272	.....	.....	200	200	.....	.....	1,728		
10 Leather goods.....	9	96	8	11	11	2	64	64	.....	.....	83	83	.....	.....	54		
11 Lumber and timber products.....	18	1,283	17	68	71	16	1,126	1,107	.....	19	1,329	1,307	.....	22	3,250		
12 Marble and stone work.....	8	122	11	.....	3	1	107	106	1	.....	103	102	1	.....	126		
13 Oil, cottonseed, and cake.....	9	500	4	31	43	3	419	418	1	.....	734	732	2	.....	3,962		
14 Patent medicines and compounds and druggists' preparations.....	21	146	15	10	28	14	70	50	20	.....	69	49	20	.....	17		
15 Printing and publishing.....	45	815	68	40	108	23	516	443	62	21	539	463	54	22	622		
16 All other industries <sup>1</sup> .....	114	4,208	353	153	359	62	3,251	2,907	.....	284	3,503	3,262	.....	220	7,721		

<sup>1</sup> All other industries embrace: Agricultural implements, 1; artificial stone, 4; automobiles, including bodies and parts, 1; awnings, tents, and sails, 4; bags, other than paper, 2; belting and hose, leather, 1; blacking and cleansing and polishing preparations, 2; boxes, fancy and paper, 1; brass and bronze products, 1; brick and tile, 1; brooms, 6; buttons, 1; carpets, rag, 1; cars and general shop construction and repairs by steam-railroad companies, 2; cars and general shop construction and repairs by street-railroad companies, 1; coffee and spice, roasting and grinding, 3; coffins, burial cases, and undertakers' goods, 1; flavoring extracts, 3; flour-mill and gristmill products, 7; food preparations, 8; furnishing goods, men's, 1; furniture and refrigerators, 3; gas, illuminating and heating, 2; glass, cutting, staining, and ornamenting, 2.

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1 All industries.....	384	11,683	368	498	1,003	233	9,721	7,776	1,755	160	10,467	8,349	1,928	170	40	19,535
2 Bread and other bakery products.....	23	122	25	2	3	5	87	79	4	4	95	89	5	4	.....	65
3 Carriages and wagons and materials.....	17	226	22	7	3	1	193	192	1	.....	183	187	1	.....	.....	148
4 Cars and general shop construction and repairs by steam-railroad companies.....	3	1,383	.....	23	30	1	1,328	1,315	13	.....	1,377	1,303	14	.....	.....	639
5 Clothing, men's, including shirts.....	5	406	12	13	40	3	398	35	303	.....	394	35	350	.....	.....	127
6 Confectionery.....	11	334	10	9	23	9	283	115	162	6	303	147	208	7	1	181
7 Cooperage and wooden goods, not elsewhere specified.....	4	96	3	0	3	.....	84	84	.....	.....	86	86	.....	.....	.....	150
8 Copper, tin, and sheet-iron products.....	12	93	10	5	6	1	68	68	.....	.....	71	71	.....	.....	.....	16
9 Flour-mill and gristmill products.....	10	309	10	10	35	5	243	242	1	.....	231	230	1	.....	.....	2,227
10 Foundry and machine-shop products.....	11	179	15	15	5	2	142	137	.....	5	166	100	.....	6	.....	183
11 Furniture and refrigerators.....	5	522	1	24	18	3	476	457	4	15	497	477	4	10	.....	403
12 Ice, manufactured.....	4	170	.....	15	8	.....	153	153	.....	.....	183	183	.....	.....	.....	1,795
13 Leather goods.....	11	271	14	26	43	6	182	103	7	12	204	183	8	13	.....	93
14 Lumber and timber products.....	25	1,372	28	40	46	5	1,244	1,219	.....	25	1,273	1,247	.....	23	.....	3,362
15 Mattresses and spring beds.....	4	95	3	13	5	3	71	54	14	3	79	60	16	3	.....	111
16 Patent medicines and compounds and druggists' preparations.....	14	81	10	12	23	6	30	12	18	.....	32	13	19	.....	.....	13
17 Printing and publishing.....	86	1,875	61	98	337	144	1,235	897	322	15	1,277	927	335	14	1	1,227
18 All other industries <sup>1</sup> .....	130	4,275	132	171	360	99	3,504	2,554	845	105	3,971	2,894	958	81	38	8,733

<sup>1</sup> All other industries embrace: Artificial stone, 1; awnings, tents, and sails, 1; axle grease, 1; bags, other than paper, 1; baking powders and yeast, 1; belting and hose, leather, 2; boots and shoes, 2; boxes, fancy and paper, 3; brass and bronze products, 3; brick and tile, 2; brooms, 7; buttons, 1; carpets, rag, 1; cars and general shop construction and repairs by street-railroad companies, 1; clothing, women's, 1; coffee and spice, roasting and grinding, 6; coffins, burial cases, and undertakers' goods, 1; cotton goods, including cotton small wares, 1; cutlery and tools, not elsewhere specified, 1; electrical machinery, apparatus, and supplies, 2; engraving and diesinking, 1; fertilizers, 1; flavoring extracts, 4; food preparations, 8; furnishing goods, men's, 2; gas, illuminating and heating, 2; hair work, 3; hand stamps and stencils and brands, 4; hats and caps, other than felt, straw, and wool, 1; hosiery and knit goods, 1; house-furnishing goods, not elsewhere specified, 1; iron and steel, blast furnaces, 1; jewelry, 2; lime, 2;

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

1 CHATTANOOGA.....	185	7,507	125	301	507	164	6,410	5,807	494	109	7,148	6,477	553	112	6	17,599
2 JACKSON.....	43	1,013	28	65	93	22	1,405	1,290	112	13	1,539	1,402	123	8	6	2,739
3 KNOXVILLE.....	159	3,464	141	169	276	75	2,773	2,127	602	44	3,030	2,347	604	31	18	6,001

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

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

MEMPHIS.

	Capital.	EXPENSES.									Value of products.	Value added by manufacture.	
		Total.	Services.			Materials.		Miscellaneous.					
			Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.			Other.
1	\$28,968,367	\$27,097,058	\$770,290	\$957,083	\$4,288,053	\$410,853	\$17,440,325	\$197,330	\$559,451	\$151,116	\$2,322,557	\$30,241,519	\$12,390,341
2	735,801	1,272,032	17,379	51,054	202,362	24,306	839,275	26,968	3,832	.....	100,856	1,451,508	537,087
3	952,433	755,931	33,413	14,775	200,008	8,106	378,249	6,096	7,577	20,000	87,106	882,434	496,079
4	61,703	122,792	2,000	4,230	16,240	483	74,206	5,890	759	11,750	7,234	102,956	88,267
5	421,938	1,099,070	26,011	48,957	122,974	11,611	817,915	21,297	3,521	425	46,359	1,127,918	298,392
6	900,971	628,809	12,286	8,200	122,800	26	310,076	630	2,294	.....	72,458	557,461	247,360
7	130,223	202,812	1,326	5,364	68,203	1,106	109,856	5,030	617	.....	11,310	241,504	130,542
8	1,085,857	1,023,920	38,625	43,599	283,806	10,421	545,811	5,750	7,683	.....	79,225	1,130,132	584,900
9	842,375	408,205	30,000	17,869	153,809	53,211	27,088	.....	11,380	.....	114,908	494,314	414,615
10	147,291	230,871	11,442	5,629	39,116	2,512	148,306	7,815	877	.....	15,044	202,398	111,520
11	2,855,332	2,457,652	130,688	83,483	502,700	7,680	1,496,360	12,538	12,079	44,076	102,083	2,830,434	1,326,394
12	138,688	157,333	.....	2,700	84,361	1,130	51,498	804	452	.....	16,278	215,876	163,198
13	2,250,845	3,989,876	72,621	44,535	101,197	55,854	3,452,740	.....	15,302	.....	187,617	4,315,731	807,127
14	303,782	628,037	10,744	29,305	29,311	1,452	358,428	6,575	2,317	1,712	81,663	630,247	270,367
15	1,183,170	1,552,175	73,790	108,625	406,811	13,599	505,993	29,492	10,119	17,525	320,251	1,702,887	1,273,295
16	14,947,958	12,737,533	298,095	428,252	1,834,295	210,297	8,324,404	57,785	480,642	55,628	1,068,095	14,136,159	5,601,398

hair work, 1; hand stamps and stencils and brands, 3; iron and steel, doors and shutters, 1; jewelry, 2; liquors, malt, 2; mattresses and spring beds, 4; millinery and lace goods, 1; mineral and soda waters, 8; mirrors, 1; models and patterns, not including paper patterns, 1; paint and varnish, 3; photo-engraving, 1; rubber goods, not elsewhere specified, 1; scales and balances, 1; shipbuilding, including boat building, 2; slaughtering and meat packing, 2; tobacco manufactures, 12; vinegar and cider, 4; window shades and fixtures, 1; wirework, including wire rope and cable, 3; wood, turned and carved, 1.

NASHVILLE.

1	\$27,880,129	\$26,904,585	\$824,903	\$1,037,127	\$4,335,554	\$570,931	\$16,885,489	\$136,697	\$643,485	\$402,181	\$2,068,218	\$29,649,697	\$12,193,277
2	82,920	278,106	8,000	2,350	48,545	6,385	186,555	4,714	1,187	.....	10,360	335,702	132,812
3	130,637	291,036	9,960	1,997	96,405	3,059	154,035	5,810	1,719	.....	17,121	337,034	179,040
4	1,011,727	1,675,841	36,960	31,195	796,681	20,619	657,703	.....	4,304	.....	28,559	1,575,841	897,459
5	445,021	751,968	25,955	47,250	111,625	3,590	518,563	6,338	2,476	.....	36,165	836,147	313,994
6	324,070	461,203	14,537	20,912	63,176	6,778	308,222	7,483	1,850	.....	38,145	454,306	139,306
7	97,750	193,133	9,124	1,078	33,948	890	137,025	185	504	.....	9,179	190,490	51,675
8	115,118	126,563	4,480	3,445	30,210	1,376	74,056	3,100	674	.....	9,222	159,511	84,079
9	946,931	5,567,070	18,036	32,517	88,884	31,423	4,856,247	3,207	6,000	.....	530,755	5,710,423	831,753
10	251,847	232,583	19,619	4,792	80,134	6,958	106,799	1,758	2,035	.....	10,488	279,607	165,850
11	763,390	629,874	34,017	14,730	204,024	2,178	245,942	2,860	4,369	84,940	36,808	672,927	424,807
12	353,533	178,379	20,658	5,944	65,704	44,235	22,441	.....	4,262	.....	15,085	232,716	165,990
13	617,469	710,937	35,993	32,015	86,147	4,330	504,146	4,680	2,905	.....	41,621	788,728	280,252
14	3,052,140	2,438,277	71,180	46,107	546,550	8,091	1,530,745	6,304	11,780	105,536	111,894	2,673,197	1,134,361
15	120,587	156,530	8,500	6,069	26,735	2,148	100,567	849	644	.....	10,718	136,725	84,010
16	208,413	108,769	12,935	22,153	10,105	411	81,330	3,278	165	291	38,090	205,511	123,764
17	3,593,989	2,799,959	199,066	404,013	727,804	32,338	863,971	33,024	16,908	210,633	311,879	3,284,945	2,383,586
18	15,755,557	10,344,357	296,783	360,453	1,318,877	390,022	6,525,266	53,107	531,243	475	812,128	11,710,827	4,795,539

liquors, distilled, 1; liquors, malt, 1; marble and stone work, 5; millinery and lace goods, 5; mineral and soda waters, 2; mirrors, 1; models and patterns, not including paper patterns, 2; oil, cottonseed, and cake, 1; paint and varnish, 1; paving materials, 1; photo-engraving, 3; pottery, terra-cotta and fire-clay products, 1; rules, ivory and wood, 1; shipbuilding, including boat building, 1; show cases, 1; slaughtering and meat packing, 4; soap, 2; stationery goods, not elsewhere specified, 2; stereotyping and electrotyping, 1; stoves and furnaces, including gas and oil stoves, 4; surgical appliances and artificial limbs, 2; tobacco manufactures, 19; toys and games, 1; type founding and printing materials, 1; upholstering materials, 1; vinegar and cider, 1; wirework, including wire rope and cable, 1; wood, turned and carved, 1; woolen, worsted, and felt goods, and wool hats, 1.

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

1	\$16,125,258	\$14,047,718	\$613,429	\$566,982	\$2,815,606	\$402,044	\$7,942,415	\$63,225	\$223,149	\$41,850	\$1,288,928	\$16,036,455	\$7,601,996
2	2,236,159	2,295,695	86,509	106,767	672,936	58,519	1,165,052	4,670	14,957	4,841	190,444	2,709,773	1,495,202
3	5,332,886	7,402,916	267,359	284,525	1,077,689	74,953	5,025,736	56,475	62,594	48,783	514,502	8,149,377	3,048,588