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MANUFACTURES : UNITED STATES

ABSTRACT OF STATISTICS OF MANUFACTURES FOR STATES, CITIES, AND INDUSTRIES

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GENERAL SUMMARY.

Continental United States and noncontiguous territories: 1909.—The following table gives for 1909 the more important figures for the manufactures of continental United States and for Alaska, Hawaii, and Porto Rico. The table does not cover possessions of the United States other than those mentioned. The statistics of manufactures included in the census of the Philippine Islands taken by the War Department for 1902 are not comparable with those shown in the reports for continental United States; and there has been no census of manufactures in Guam, Samoa, or the Canal Zone. The statistics for Alaska, Hawaii, and Porto Rico include some small establishments of the nature of hand or neighborhood industries, such as are omitted from the canvass for continental United States.

	NUMBER OR AMOUNT.				
	Total.	Continental United States.	Alaska.	Hawaii.	Porto Rico.
Number of establishments	270,082	268,491	152	500	939
Persons engaged in manufactures	7,707,751	7,678,578	3,479	7,572	18,122
Proprietors and firm members	275,952	273,265	135	1,074	1,478
Salaried employees	792,168	790,267	245	594	1,062
Wage earners (average number)	6,639,931	6,615,046	3,099	5,904	15,582
Primary horsepower	18,760,686	18,680,776	3,975	41,930	34,005
Capital	$18,490,749,000	$18,428,270,000	$13,060,000	$23,875,000	$25,544,000
Expenses	18,525,426,000	18,453,080,000	9,454,000	31,753,000	31,139,000
Services	4,375,634,000	4,365,613,000	2,328,000	2,795,000	4,898,000
Salaries	940,900,000	938,575,000	380,000	686,000	1,259,000
Wages	3,434,734,000	3,427,038,000	1,948,000	2,109,000	3,639,000
Materials	12,194,019,000	12,141,791,000	5,120,000	25,629,000	21,479,000
Miscellaneous	1,955,773,000	1,945,676,000	2,006,000	3,329,000	4,762,000
Value of products	20,767,546,000	20,672,052,000	11,340,000	47,404,000	36,750,000
Value added by manufacture (value of products less cost of materials)	8,573,527,000	8,530,261,000	6,220,000	21,775,000	15,271,000

The total value of manufactures in the area covered by this table for 1909 was $20,767,546,000, of which 99.5 per cent was contributed by continental United States, the manufactures of Alaska, Hawaii, and Porto Rico being comparatively unimportant. The most important industry in Alaska is the canning and preserving of fish; in Hawaii, the manufacture of sugar; and in Porto Rico, the manufacture of sugar and of tobacco products.

The above table is the only one in this bulletin in which the statistics for the noncontiguous territories are included, all the other tables relating exclusively to continental United States.

Explanation of terms.—With reference to some of the items contained in the above and following tables certain explanations are necessary:

Persons engaged in manufacturing industries.—The statistics of the number of proprietors and firm members and the number of salaried employees are based on the returns for a single representative day only. In the case of wage earners a report was obtained of the number employed on the 15th of each month, and from these returns the average number employed during the year has been calculated by dividing the sum of the numbers reported for the several months by 12. (See also p. 14.)

Capital.—For reasons stated in reports of prior censuses the statistics of capital secured by the census canvass are so defective as to be of little value, except as indicating very general conditions. The instructions on the schedule for securing capital were as follows:

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

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

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

Value of products.—The amounts given under this head represent the selling value at the factory of all products manufactured during the year, which may differ from the value of the products sold. Amounts received for work on materials furnished by others are included.

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

Primary horsepower.—This item represents the total primary power generated by the manufacturing establishments plus the amount of power, principally electric, rented by them from other concerns. It does not cover the electric power developed by the primary power of the establishments themselves, the inclusion of which would evidently result in duplication.

General comparison for the United States: 1909, 1904, and 1899.—The following table gives the principal items of information covered by census inquiries relative to manufactures in continental United States for 1909, 1904, and 1899, together with the per cent of increase from census to census:

	NUMBER OR AMOUNT.			PER CENT OF INCREASE.	
	1909	1904	1899	1904–1909	1899–1904
Number of establishments	268,491	216,180	207,514	24.2	4.2
Persons engaged in manufactures	7,678,578	6,213,612	(1)	23.6	(1)
Proprietors and firm members	273,265	225,673	(1)	21.1	(1)
Salaried employees	790,267	519,556	364,120	52.1	42.7
Wage earners (average number)	6,615,046	5,468,383	4,712,763	21.0	16.0
Primary horsepower	18,680,776	13,487,707	10,097,893	38.5	33.6
Capital	$18,428,270,000	$12,675,581,000	$8,975,256,000	45.4	41.2
Expenses	18,453,080,000	13,138,260,000	9,870,425,000	40.5	33.1
Services	4,365,613,000	3,184,884,000	2,389,132,000	37.1	33.3
Salaries	938,575,000	574,439,000	380,771,000	63.4	50.9
Wages	3,427,038,000	2,610,445,000	2,008,361,000	31.3	30.0
Materials	12,141,791,000	8,500,208,000	6,575,851,000	42.8	29.3
Miscellaneous	1,945,676,000	1,453,168,000	905,442,000	33.9	60.5
Value of products	20,672,052,000	14,793,903,000	11,406,927,000	39.7	29.7
Value added by manufacture (value of products less cost of materials)	8,530,261,000	6,293,695,000	4,831,076,000	35.5	30.3

(1) Figures not available.

In 1909 the United States had 268,491 manufacturing establishments, which gave employment during the year to an average of 7,678,578 persons, of whom 6,615,046 were wage earners. These manufacturing establishments paid $4,365,613,000 in salaries and wages, and turned out products to the value of $20,672,052,000, to produce which materials costing $12,141,791,000 were consumed. The value added by manufacture, namely, the difference between the cost of materials and the total value of products, was $8,530,261,000. This figure best represents the net wealth created by manufacturing operations, because the gross value of products includes the cost of the materials used, which are either the products of non-manufacturing industries, such as agriculture, forestry, fisheries, and mining, or else are themselves the product of manufacturing establishments. The value of products derived from this latter class of materials involves a duplication, inasmuch as the value of these materials has already figured in the value of products reported for the establishments manufacturing them in the first instance; in some cases, indeed, where a given product has passed through several distinct stages of manufacture in different establishments before reaching its final form, this duplication may be repeated several times. All such duplications, as well as the original value of materials, are, however, eliminated in the figures for value added by manufacture. This value covers salaries and wages—which represent over one-half of the total—overhead charges, depreciation, interest, taxes, and other expenses attendant upon the manufacturing operations, as well as the profits of the undertaking.

The table above shows that the manufacturing industries of the United States as a whole experienced a more rapid growth during the five-year period 1904–1909 than during the period 1899–1904, although in both periods the progress was very marked. During the first five years of the decade the average number of wage earners increased 16 per cent; during the second five years, 21 per cent. The value of products increased 29.7 per cent during the first period and 39.7 per cent during the second period. The rate of increase in the value added by manufacture shows less difference between the two periods, being 30.3 per cent during the first five years and 35.5 per cent during the second five years. In this connection it may be noted that there was a greater rate of increase in the cost of materials during the second period than during the first.

During the 10 years from 1899 to 1909 the number of establishments increased 29.4 per cent; the persons employed, 105.3 per cent; the average number of wage earners, 40.4 per cent; the amount of primary power, 85 per cent; the value of materials consumed, 84.6 per cent; the value of products, 81 per cent; and the value added by manufacture, 76 per cent. The gross value of products in 1909 exceeds that in 1899 by more than $9,000,000,000, while the value added by manufacture in 1909 was, in round numbers, $3,700,000,000 more than in 1899.

It would be improper to infer that manufactures increased in volume during either of the five-year periods covered by the table to the full extent indicated by the increase in value of materials consumed or in the value of products, since the increase shown in these items is certainly due in part to the increase that has taken place in the price of commodities. It may be presumed that the quantity of products increased somewhat more rapidly than the number of wage earners; this might be expected from the fact that the amount of primary power increased much faster than the number of wage earners

other words, each wage earner, on the average, had greater assistance from mechanical power in 1909 than in 1904 or 1899.

It is a matter of interest to note that during both of the five-year periods the wages paid showed a higher percentage of increase than the average number of wage earners, thus indicating an increase in the average wages.

Comparison with earlier censuses.—In 1810 the Secretary of the Treasury made a report on the condition of manufactures in the United States and estimated that the value of products for 1809 exceeded $120,000,000. An estimate based on the returns of the census of 1810 placed the value of the annual product at $198,613,471. Further efforts to secure statistics of manufactures were made in 1820 and 1840, but the results were more or less unsatisfactory. In 1830 no such attempt was made. The census of 1850 was the first to present fairly complete statistics for manufactures. Each census from that time to 1890 was based in part on returns for the preceding calendar year and in part on returns for other 12-month periods, mainly ending during the census year itself. The last three censuses cover principally returns for the preceding calendar year or for 12-month periods ending within that year. In general, in this report the statistics for all censuses are referred to by the year preceding that in which the census was taken.

The statistics of manufactures secured at the decennial censuses from 1850 to 1900, inclusive, covered the neighborhood, hand, and building industries, as well as the factory industries, while the reports for 1904 and 1909 were confined to factory industries. The statistics for 1899 obtained at the decennial census of 1900, although originally taken on the broader basis, have, for the purpose of comparison with later censuses, been reduced to the factory basis by eliminating as far as possible the neighborhood, hand, and building trades, but no such elimination is possible with respect to the earlier censuses. For this reason the statistics for years prior to 1899 are not entirely comparable with those for 1904 and 1909. Nevertheless, for the purpose of showing in a rough way the movement during each decade since 1850, the following summary table is presented. Two sets of figures are given in this table for 1899, the one including the neighborhood, hand, and building trades, in order to make the data comparable with those for preceding censuses, and the other excluding them in order to make the figures comparable with those for later censuses. The values and wages for 1869 have been reduced to a gold basis, inasmuch as the figures as reported would, because of the inflation of the currency at that time, exaggerate the increase from 1859 to 1869, and understate the increase from 1869 to 1879.

	Number of establishments.	Capital.	Wage earners (average number).	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
Factories and hand and neighborhood industries:							
1849 (census of 1850)	123,025	$533,245,000	957,059	$236,755,000	$555,124,000	$1,019,107,000	$463,983,000
1859 (census of 1860)	140,433	1,009,856,000	1,311,246	378,870,000	1,031,605,000	1,885,862,000	854,257,000
Per cent of increase, 1849 to 1859	14.1	89.4	37.0	60.0	85.8	85.0	84.1
1869 (census of 1870) (gold value)	252,148	1,694,567,000	2,053,996	620,467,000	1,990,742,000	3,385,860,000	1,395,118,000
Per cent of increase, 1859 to 1869	79.6	67.8	56.6	63.8	93.0	79.5	63.3
1879 (census of 1880)	253,852	2,790,273,000	2,732,595	947,954,000	3,306,824,000	5,369,579,000	1,972,755,000
Per cent of increase, 1869 to 1879	0.7	64.7	33.0	52.8	66.6	74.5	41.4
1889 (census of 1890)	355,405	6,525,051,000	4,251,535	1,891,210,000	5,162,014,000	9,372,379,000	4,210,365,000
Per cent of increase, 1879 to 1889	40.0	133.8	55.6	99.5	52.0	74.5	113.4
1899 (census of 1900)	512,191	9,813,834,000	5,306,143	2,320,038,000	7,343,628,000	13,000,149,000	5,656,521,000
Per cent of increase, 1889 to 1899	44.1	50.4	24.8	22.7	42.3	38.7	34.3
Factories, excluding hand and neighborhood industries:							
1899 (census of 1900)	207,514	8,975,256,000	4,712,763	2,008,361,000	6,575,851,000	11,400,927,000	4,831,076,000
1904 (census of 1905)	216,180	12,675,581,000	5,468,383	2,610,445,000	8,500,208,000	14,703,903,000	6,203,695,000
Per cent of increase, 1899 to 1904	4.2	41.2	16.0	30.0	29.3	29.7	30.3
1909 (census of 1910)	268,491	18,428,270,000	6,615,046	3,427,038,000	12,141,701,000	20,672,052,000	8,530,261,000
Per cent of increase, 1904 to 1909	24.2	45.4	21.0	31.3	42.8	39.7	35.5
Per cent of increase, 1899 to 1909	29.4	105.3	40.4	70.6	84.6	81.2	76.6

This table shows that, although the returns for 1849 included neighborhood, hand, and building trades and those for 1909 did not, nevertheless the value of products in the latter year was over twenty times as great as the value reported 60 years before. During the same time the number of wage earners employed increased almost sixfold.

As judged by the number of wage earners, the decade showing the greatest percentage of increase was that from 1859 to 1869, during which the average number of wage earners increased 56.6 per cent. The decade 1879 to 1889 also showed an exceptionally high percentage of increase in this respect, while the next largest percentage of increase occurred during the decade from 1899 to 1909. As respects value of products, the percentage of increase during the past decade exceeds that in any other except the decade from 1849 to 1859; but in value added by manufacture, the percentage of increase during the past 10 years falls below that from 1879 to 1889, as well as that from 1849 to 1859.

The absolute increases shown for the various items covered by the table during the decade 1899 to 1909

were much greater than during any other decade; the increase in value of products, in fact, almost equaled the total value of all manufactured products in 1889.

Leading industries.—The relative importance of the leading manufacturing industries in the United States in 1909 and their growth from 1899 to 1909 are shown in the table on page 8, which includes the industries having a gross value of products in 1909 of $100,000,000 or more. This table presents for each industry the most important items for 1909 and also the percentages of increase in these items for the two five-year periods. The industries are arranged in the order of the value of products. The table also shows the rank of the industries, not only with respect to value of products, but with respect to number of wage earners employed and value added by manufacture, and the percentage of the total of each of these items for all industries combined which is represented by each specified industry. The number of wage earners and the value added by manufacture are, on the whole, a better measure of the relative importance of manufacturing industries than the gross value of products. In some industries the value of the materials used constitutes by far the larger part of the total value of products, the manufacturing process involving the addition of only a small amount of labor cost and other expenses and of manufacturer's profit to the cost of the materials. Moreover, in some of the industries there is a much greater duplication in the gross value of products than in others, such duplication being due to the use of the product of one establishment in the industry as material for another establishment. This duplication, of course, does not appear in the value added by manufacture.

In considering the ranking of the industries in this table, it should be borne in mind that some of the industries specified are in a sense groups of industries rather than single industries. As stated in the Introduction, in certain cases, in order to avoid a misleading understatement of the importance of the production of a given minor class of commodities, the returns for establishments making these commodities as their sole or principal product have had to be combined with those of establishments in larger industries which produce primarily other commodities, but which incidentally make a large part of the distinctive products in question. In a few instances where a similar condition exists, however, it was deemed best not to make such a combination of industries. As also stated in the Introduction, the report for each establishment, as a whole, has been assigned to a given class of industry according to its products of chief value, so that the figures for any given class must not be taken either as fully covering or as representing exclusively the operations of that branch of manufacturing indicated by the industry designation.

The following explanations show the scope of those classifications in the table which are not on their face entirely clear:

Slaughtering and meat packing.—This classification includes the wholesale slaughtering and meat-packing establishments and those engaged in the manufacture of sausage, but not the numerous retail butcher shops which in the aggregate slaughter a large number of animals. It includes the manufacture of many by-products, some of which are carried to a high degree of elaboration.

Foundry and machine-shop products.—This industry includes all allied industries excepting those which manufacture a distinctive product indicated by some other classification, such as cash registers, calculating machines, sewing machines, and electrical machinery. The establishments engaged in the manufacture of bells, gas machines and gas and water meters, hardware, plumbers' supplies, saddlery hardware, steam fittings, structural ironwork, and cast-iron and cast-steel pipe, some of which were reported under separate classifications at previous censuses, are all included under this general heading.

Lumber and timber products.—This industry embraces logging operations, ordinary sawmills, planing mills, and establishments engaged in the manufacture of wooden packing boxes. It does not include statistics of mills engaged exclusively in custom sawing for local consumption.

Iron and steel, steel works and rolling mills.—This industry embraces the manufacture of steel and the hot rolling of iron and steel. It also includes the making of forgings and castings and the manufacture of rolled iron and steel into more highly finished forms when conducted as a part of the rolling-mill operations, as well as the few extant forges and bloomeries. It does not, however, include the making of cold-rolled products, nor of forgings, castings, and manufactures of iron and steel by establishments not equipped with steel-making furnaces or hot trains of rolls.

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

Printing and publishing.—This classification includes job-printing establishments, the printing and publishing of books, newspapers and periodicals, and music, bookbinding, steel engraving, and lithographing.

Cotton goods, including cotton small wares.—In addition to the statistics for cotton mills proper, there are included under this head the statistics for establishments that make a specialty of small wares, such as

braids, tapes, bindings, corset and shoe laces, and the like.

Clothing, men's, including shirts.—This classification includes the making of men's and boys' ready-made clothing; the making of overalls, butchers' aprons, bathing suits, and gymnasium clothing; and the manufacture of all kinds of shirts—cotton, linen, flannel, etc.—as well as shirt bosoms and shirt waists for men and boys.

Boots and shoes, including cut stock and findings.—Under this head are included not only factories making the finished product, but those doing the whole or part of the work on materials furnished by others, as well as shops doing stitching, crimping, fitting, and bottoming, or performing other special operations. The manufacture of footwear not coming strictly under the head of boots and shoes, such as overgaiters, moccasins, and leggings, is also covered by this designation. It does not include the manufacture of rubber boots and shoes.

Clothing, women's.—Besides the making of suits, dresses, skirts, and shirt waists, this industry includes the manufacture of women's underwear and night robes, of infants' clothing, and of such articles as aprons, linings, belts, dress shields, and hose supporters.

Sugar and molasses, not including beet sugar.—Under this classification are included the manufacture of sugar and of some by-products of the sugar industry, such as molasses and sirup, and also the operations of sugar refineries, together with the manufacture of maple sugar. It does not, however, include the small plantation or custom sugar mills.

Furniture and refrigerators.—This industry embraces the manufacture of wood and metal furniture of all kinds, store and office fixtures, and refrigerators and ice boxes, except where such products are provided for by a distinct classification, such as show cases.

Copper, tin, and sheet-iron products.—This classification comprises the manufacture of all sheet-metal products of copper, tin, and iron, including the preparation of copper, tin, or sheet-iron material for building construction. It includes the factory work on cornices, skylights, roofing, etc., but does not include the erection or installation of the same.

Canning and preserving.—This industry includes the canning and preserving of fruits and vegetables, fish, oysters, clams, etc., and the manufacture of pickles, preserves, jellies, sauces, etc. It includes the preparation of pickled, smoked, and dried fish, and the packing of dried fruits by packing houses which make a specialty of such business, but does not include the drying and packing of fruits by the grower on the farm, nor does it include the canning of meats, soups, and similar products in meat-packing establishments, the statistics for which are included with those for the slaughtering and meat-packing industry.

Patent medicines and compounds and druggists' preparations.—Under this head are included establishments making so-called patent medicines, and also some compounds that are not used for medicinal purposes, and the manufacture of capsules, extracts, tinctures, and other pharmaceutical preparations, together with perfumery and cosmetics.

Chemicals.—This classification includes establishments engaged primarily in the manufacture of acids, sodas, potashes, alums, coal-tar products, cyanide, bleaching materials, plastics, compressed or liquefied gases, alkaloids, gold, silver, and platinum salts, chloroform, ether, and other fine chemicals, glycerin, epsom salts, copperas, blue vitriol, and other bases and salts, when they are made as a chief product by the establishment reporting. Chemical substances produced by the aid of electricity are presented in a group by themselves. Chemicals of the class above specified are frequently manufactured as by-products by establishments classified in the census reports under a different head, for example, by establishments making patent medicines and compounds and druggists' preparations, soap, fertilizers, baking powders, and flavoring extracts; by refiners of coal tar for use as roofing material; by smelters and refiners of lead and zinc; and by establishments engaged in the manufacture of sulphuric, nitric, and mixed acids and of explosives, in wood distillation, and in making tin and terne plate.

It will be seen from the table on the next page that some of the industries that hold a very high rank in gross value of products rank comparatively low in the number of wage earners employed and in the value added by manufacture. Where this is the case it indicates that the cost of materials represents a large proportion of the total value of products, and that therefore the value added by manufacture, of which wages constitute usually the largest item, is not commensurate with the total value of products. Thus the slaughtering and meat-packing industry, which ranks first in gross value of products, and the flour-mill and gristmill industry, which ranks fifth in that respect, both hold a comparatively low rank with regard to number of wage earners and value added by manufacture. The blast-furnace industry, the smelting and refining of copper, the manufacture and refining of sugar and molasses, the manufacture of butter, cheese, and condensed milk, the refining of petroleum, and the smelting and refining of lead are other industries which rank much higher in gross value of products than in the number of wage earners or the value added by manufacture.

There are several industries the rank of which according to the number of wage earners and the value added by manufacture is decidedly higher than the rank according to value of products; in other words, the cost of materials is relatively a smaller part of the total value of products for these industries than for

most others. Among the industries of this class are the making of women's clothing, the manufacture of automobiles, furniture, electrical machinery, apparatus, and supplies, hosiery and knit goods, silk goods, and agricultural implements, and the confectionery and marble and stone work industries.

The foundry and machine-shop industry, the lumber industry, the steel works and rolling mills, the printing and publishing industry, the manufacture of cotton goods, of men's clothing, and of boots and shoes all rank among the first 10 industries of the country on each of the three bases shown in the table.

The figures for both value of products and value added by manufacture in the case of the brewery and distillery industries include a very large amount of tax paid to the Federal Government, and are therefore misleading as an indication of the relative importance of these industries from a purely manufacturing standpoint. That importance is best shown by their ranking in number of wage earners; in this respect the brewery industry ranks twenty-fifth among the industries of the country, and the distillery industry forty-third.

INDUSTRY.	Number of establishments.	WAGE EARNERS. Average number.	Rank.	Per cent distribution.	VALUE OF PRODUCTS. Amount (expressed in thousands).	Rank.	Per cent distribution.	VALUE ADDED BY MANUFACTURE. Amount (expressed in thousands).	Rank.	Per cent distribution.	PER CENT OF INCREASE.[1] Wage earners (average number). 1904-1909	1899-1904	Value of products. 1904-1909	1899-1904	Value added by manufacture. 1904-1909	1899-1904
All industries	**268,491**	**6,615,046**	....	**100.0**	**$20,672,052**	....	**100.0**	**$8,530,261**	....	**100.0**	**21.0**	**16.0**	**39.7**	**29.7**	**35.5**	**30.3**
Slaughtering and meat packing	1,641	89,728	16	1.4	1,370,568	1	6.6	168,740	12	2.0	19.0	8.9	48.6	17.0	52.6	7.3
Foundry and machine-shop products	13,253	531,011	2	8.0	1,228,475	2	5.9	688,464	1	8.0	19.8	3.8	39.5	10.3	34.2	17.8
Lumber and timber products	40,071	695,019	1	10.5	1,156,129	3	5.6	648,011	2	7.6	30.5	4.7	30.7	16.2	23.7	32.3
Iron and steel, steel works and rolling mills	446	240,076	6	3.6	985,723	4	4.8	328,222	4	3.8	15.7	13.3	46.3	12.9	41.0	12.8
Flour-mill and gristmill products	11,691	39,453	30	0.6	883,584	5	4.3	116,008	18	1.4	0.9	21.4	23.9	42.2	24.7	27.0
Printing and publishing	31,445	258,434	5	3.9	737,876	6	3.6	536,101	3	6.3	18.0	12.2	33.6	39.8	30.8	40.6
Cotton goods, including cotton small wares	1,324	378,880	3	5.7	623,392	7	3.0	257,383	7	3.0	19.9	4.3	39.5	32.8	56.7	1.0
Clothing, men's, including shirts	6,354	239,696	7	3.6	568,077	8	2.7	270,562	6	3.2	38.0	10.2	39.7	25.6	38.5	25.5
Boots and shoes, including cut stock and findings	1,918	198,297	8	3.0	512,798	9	2.5	180,060	10	2.1	24.7	6.0	43.4	23.3	36.6	34.3
Woolen, worsted, and felt goods, and wool hats	985	168,722	9	2.6	435,979	10	2.1	153,101	15	1.8	15.0	12.3	36.5	28.4	33.4	20.9
Tobacco manufactures	15,822	166,810	10	2.5	416,695	11	2.0	230,509	8	2.8	4.6	20.3	25.8	25.6	16.8	20.0
Cars and general shop construction and repairs by steam-railroad companies	1,145	282,174	4	4.3	405,601	12	2.0	206,188	9	2.4	19.1	36.4	30.0	42.6	29.9	46.0
Bread and other bakery products	23,926	160,216	14	1.5	396,865	13	1.9	158,831	14	1.9	23.3	35.0	47.2	53.7	39.8	41.4
Iron and steel, blast furnaces	208	38,429	31	0.6	391,429	14	1.9	70,791	30	0.8	9.6	10.6	68.8	12.1	33.9	-20.7
Clothing, women's	4,558	153,743	11	2.3	384,752	15	1.9	175,964	11	2.1	32.9	38.2	55.4	55.4	50.5	56.7
Smelting and refining, copper	38	15,628	38	0.2	378,806	16	1.8	45,274	36	0.5	22.6	12.6	57.3	45.8	2.8	2.5
Liquors, malt	1,414	54,579	25	0.8	374,730	17	1.8	278,134	5	3.3	13.4	22.0	25.6	25.0	24.5	20.6
Leather, tanned, curried, and finished	919	62,202	23	0.9	327,874	18	1.6	70,595	27	0.9	8.7	9.8	29.8	23.8	29.5	25.3
Sugar and molasses, not including beet sugar	233	13,526	41	0.2	279,249	19	1.4	31,666	41	0.4	-0.2	-4.1	0.7	15.7	-2.7	77.5
Butter, cheese, and condensed milk	8,479	18,431	36	0.3	274,558	20	1.3	39,012	39	0.5	18.5	21.5	63.2	28.6	54.4	15.1
Paper and wood pulp	777	75,978	17	1.2	267,657	21	1.3	102,215	21	1.2	15.2	32.9	41.8	48.2	32.0	36.4
Automobiles, including bodies and parts	743	75,721	19	1.1	249,202	22	1.2	117,536	17	1.4	528.4	437.7	723.7	532.6	590.3	473.5
Furniture and refrigerators	3,155	128,452	13	1.9	239,887	23	1.2	131,112	16	1.5	12.5	26.0	34.9	36.1	29.9	37.8
Petroleum, refining	147	13,029	40	0.2	230,998	24	1.1	37,725	40	0.4	-16.9	37.4	35.4	41.2	5.9	69.0
Electrical machinery, apparatus, and supplies	1,009	87,256	18	1.3	221,309	25	1.1	112,743	20	1.3	44.3	43.9	57.2	52.3	52.4	72.1
Liquors, distilled	613	6,430	43	0.1	204,699	26	1.0	168,722	13	2.0	20.1	44.0	55.9	35.6	59.7	29.4
Hosiery and knit goods	1,374	129,275	12	2.0	200,144	27	1.0	89,993	23	1.1	24.2	24.4	46.0	43.0	49.1	35.1
Copper, tin, and sheet-iron products	4,228	73,615	20	1.1	199,824	28	1.0	87,242	25	1.0	38.8	38.4	66.6	53.1	55.8	50.6
Silk and silk goods, including throwsters	852	99,037	15	1.5	196,912	29	1.0	89,145	24	1.0	24.4	21.7	47.7	24.3	55.2	28.0
Smelting and refining, lead	28	7,424	42	0.1	167,406	30	0.8	15,443	43	0.2	-2.0	-9.0	-0.9	5.9	-8.5	-46.1
Gas, illuminating and heating	1,296	37,215	32	0.6	166,814	31	0.8	114,386	19	1.3	21.8	36.1	33.3	65.3	30.0	59.6
Carriages and wagons and materials	5,492	69,028	21	1.1	159,893	32	0.8	77,942	28	0.9	-10.2	5.5	2.6	12.7	-0.5	9.6
Canning and preserving	3,767	59,968	24	0.9	157,101	33	0.8	55,278	31	0.7	5.3	-0.1	20.4	31.3	16.8	32.7
Brass and bronze products	1,021	40,618	29	0.6	140,989	34	0.7	50,761	34	0.6	22.5	22.1	46.5	15.5	38.1	33.8
Oil, cottonseed, and cake	817	17,071	37	0.3	147,868	35	0.7	28,035	42	0.3	9.9	41.2	53.4	64.2	71.2	20.8
Agricultural implements	640	50,551	26	0.8	146,329	36	0.7	86,022	26	1.0	6.7	1.7	30.6	10.7	35.0	11.3
Patent medicines and compounds and druggists' preparations	3,642	22,895	35	0.3	141,942	37	0.7	91,556	22	1.1	11.8	7.6	20.9	32.3	17.5	37.1
Confectionery	1,944	44,638	27	0.7	134,796	38	0.7	53,645	32	0.6	23.2	34.9	54.8	43.6	40.1	51.4
Paint and varnish	791	14,240	39	0.2	124,889	39	0.6	45,873	35	0.5	22.4	20.0	37.5	30.6	47.9	24.9
Cars, steam-railroad, not including operations of railroad companies	110	43,086	28	0.7	123,730	40	0.6	44,977	37	0.5	26.5	1.8	11.3	22.8	26.6	23.5
Chemicals	349	23,714	34	0.4	117,689	41	0.6	53,567	33	0.6	19.7	4.1	56.5	20.1	61.5	18.0
Marble and stone work	4,064	65,603	22	1.0	113,093	42	0.5	75,696	29	0.9	28.4	22.6	33.3	33.3	29.9	38.4
Leather goods	2,375	34,007	33	0.5	104,719	43	0.5	44,692	38	0.5	2.1	16.8	27.5	35.9	18.6	38.5
All other industries	61,887	1,648,441	....	24.9	4,561,602	....	22.0	2,084,396	....	24.5	18.5	23.9	41.8	41.5	36.6	47.1

[1] Per cent of increase is based on figures in Table I, page 74. A minus sign (-) denotes decrease.

The table shows very great differences among the several industries with respect to the percentages of increase in the number of wage earners, value of products, and value added by manufacture. The great majority of the industries, however, show an increase in each of these items for each of the five-year periods, the exceptions being the sugar industry and the smelting and refining of lead, which show a decrease in one or more items for each five-year period; the refining of petroleum, which shows a

decrease in one item, and the manufacture of carriages and wagons, which shows a decrease in two items, for the period 1904 to 1909; and the blast-furnace industry and the canning and preserving industry, which show a decrease in one item each during the period 1899 to 1904.

By far the highest percentages of increase are shown for the automobile industry, the gross value of products of which increased more than sevenfold during the five years 1904 to 1909, and more than fiftyfold during the decade as a whole. Other industries which show exceptionally large increases for both five-year periods in all three items are the making of men's and of women's clothing, the bakery and the butter, cheese, and condensed-milk industries, the manufacture of electrical machinery, apparatus, and supplies, and of copper, tin, and sheet-iron products, the distillery industry, the manufacture of hosiery and knit goods and of silk and silk goods, the illuminating-gas industry, the manufacture of brass and bronze products, and the confectionery, paint and varnish, and marble and stone work industries. It is interesting to note that the group of "all other industries," which includes the less important industries of the country, shows greater percentages of increase than all industries combined, thus indicating possibly an increased tendency toward diversification in manufacturing industries.

The percentage of increase in all three of the items—number of wage earners, gross value of products, and value added by manufacture—was greater during the second five-year period (1904 to 1909) than during the first (1899 to 1904) in the slaughtering and meat-packing and foundry and machine-shop industries, the manufacture of cotton goods, the men's clothing, boot and shoe, and woolen-goods industries, the smelting and refining of copper, the manufacture of automobiles, silk and silk goods, brass and bronze products, agricultural implements, and paint and varnish, the steel works and rolling mills, and the chemical industry. On the other hand, the percentage of increase in all three items was less during the later five-year period than during the earlier in the flour-mill and gristmill, railroad repair shop, bakery, women's clothing, paper and wood pulp, petroleum refining, furniture, illuminating gas, carriage and wagon, and leather-goods industries. In all the other industries covered by the table the increases during the second period are in some items greater than during the first period, while in other items they are less, or else the industry shows a decrease during one or both periods.

In considering the relative importance of the industries shown in Table I, page 74, and not included in the table on page 8, it should be noted that there are several industries listed the figures given for which fall far short of being a complete presentation of the statistics for that branch of manufactures covered by the industry designation, for the reason that they cover only establishments engaged primarily in manufacturing the class of products indicated by this designation, while large quantities of the same products are manufactured incidentally by establishments classified under other heads. Some conspicuous examples are the manufacture of glue, candles, lard, and fertilizers, and the dyeing and finishing of textiles. A large proportion of the glue, lard, and fertilizers are manufactured by slaughtering and meat-packing establishments, and quantities of fertilizers are also made in cottonseed-oil mills. The dyeing and finishing of textiles is done largely in the establishments that manufacture the fabric. Candles are manufactured in establishments classified under the head of "soap" and in those engaged in the manufacture of petroleum products. For reasons of this character the roasting and grinding of coffee and spice, and the manufacture of fertilizers, food preparations, and rubber goods, and the soap industry, for each of which products valued at over $100,000,000 were reported, are not shown in the table on page 8.

Summary by states and geographic divisions.—The table on the next page shows, for each state, the population, also the number of wage earners, value of products, and value added by manufacture in 1909, together with the rank of the state with respect to each of these items and the percentage of the total reported from each state. It also shows the percentage of increase with respect to each of these three items from 1904 to 1909 and from 1899 to 1904, respectively. The states are arranged in the order of their rank with respect to value of products.

The first seven states in respect to value of products are also the first seven in respect to number of wage earners and value added by manufacture. Each of these seven states has the same rank in all three respects except that Illinois, which is third in value of products and value added by manufacture, ranks fourth in number of wage earners, Massachusetts advancing to third place. These seven states together reported over three-fifths of the total value of manufactured products for the United States.

Most of the other states show approximately the same rank in each of the three items, but there are several states in which, because of the large proportion which the cost of materials represents of the total value of products, the rank according to value of products is materially higher than that in number of wage earners or in value added by manufacture. This is particularly true of states in which the flour-mill and slaughtering industries are the most important. The most noteworthy case of this character is Kansas, which ranks fourteenth in value of products, but only thirty-third in number of wage earners and twenty-eighth in value added by manufacture.

With only one exception all of the states show an increase in each of the three items from 1904 to 1909;

in Montana, however, the value added by manufacture shows a decrease for this period, due largely to merely technical differences in methods of accounting in the smelting industry, which is the principal one in that state. A few of the states showed a decrease in one or more items for the period 1899 to 1904.

The greatest percentages of increase are naturally in those states in which the development of manufacturing industries is comparatively recent. Thus Texas, Washington, Oregon, Utah, Oklahoma, Idaho, North Dakota, and Nevada show exceptionally high rates of increase for both five-year periods. Among the 10 states which are most important in manufacturing the most conspicuous advances are in Ohio, New Jersey, and Michigan. The absolute increase, as distinguished from the percentage of increase, was greater in New York, the leading manufacturing state, than in any other state.

STATE.	Population.	Number of establishments.	WAGE EARNERS. Average number.	Rank.	Per cent distribution.	VALUE OF PRODUCTS. Amount (expressed in thousands).	Rank.	Per cent distribution.	VALUE ADDED BY MANUFACTURE. Amount (expressed in thousands).	Rank.	Per cent distribution.	PER CENT OF INCREASE.[1] Wage earners (average number). 1904-1909	1899-1904	Value of products. 1904-1909	1899-1904	Value added by manufacture. 1904-1909	1899-1904
United States	**91,972,266**	**268,491**	**6,615,046**	....	**100.0**	**$20,672,052**	....	**100.0**	**$8,530,261**	....	**100.0**	**21.0**	**16.0**	**39.7**	**29.7**	**35.5**	**30.3**
New York	9,113,614	44,935	1,003,981	1	15.2	3,369,490	1	16.3	1,512,586	1	17.7	17.2	17.0	35.4	32.9	32.7	33.5
Pennsylvania	7,665,111	27,563	877,543	2	13.3	2,626,742	2	12.7	1,044,182	2	12.2	15.0	15.0	34.3	18.5	28.5	17.5
Illinois	5,638,591	18,026	465,764	4	7.0	1,919,277	3	9.3	758,350	3	8.9	22.8	14.0	36.1	25.8	33.0	29.8
Massachusetts	3,366,416	11,684	584,559	3	8.8	1,490,529	4	7.2	659,704	4	7.7	19.7	11.4	32.6	23.8	32.6	21.7
Ohio	4,767,121	15,138	440,934	5	6.8	1,437,936	5	7.0	613,734	5	7.2	22.7	18.2	49.7	28.3	41.7	27.0
New Jersey	2,537,167	8,817	329,223	6	4.9	1,145,529	6	5.5	425,496	6	5.0	22.5	24.5	47.9	40.6	40.0	39.2
Michigan	2,810,173	9,159	231,499	7	3.5	685,109	7	3.3	316,497	7	3.7	32.1	12.5	59.7	31.2	59.0	33.5
Wisconsin	2,333,860	9,721	182,583	10	2.8	590,306	8	2.9	243,949	9	2.9	20.6	10.1	43.6	25.8	33.7	30.4
Indiana	2,700,876	7,969	186,984	9	2.8	579,675	9	2.8	244,700	8	2.9	21.3	10.9	47.0	16.9	41.1	22.2
Missouri	3,293,335	8,375	152,993	11	2.3	574,111	10	2.8	219,700	11	2.6	14.9	23.6	30.6	39.0	17.3	41.8
California	2,377,549	7,059	115,296	13	1.7	529,761	11	2.6	204,523	12	2.4	14.9	30.0	44.3	42.7	35.0	63.8
Connecticut	1,114,756	4,251	210,792	8	3.2	490,272	12	2.4	233,013	10	2.7	16.1	13.7	32.8	17.1	31.1	22.3
Minnesota	2,075,708	5,561	84,767	18	1.3	409,420	13	2.0	127,708	13	1.5	21.7	7.9	33.0	37.6	31.3	32.6
Kansas	1,690,949	3,435	44,215	33	0.7	325,104	14	1.6	66,220	28	0.8	24.3	31.2	64.0	28.7	58.7	25.4
Maryland	1,295,346	4,837	107,921	15	1.6	315,669	15	1.5	116,620	15	1.4	14.6	(2)	29.7	15.3	24.9	14.2
Rhode Island	542,610	1,951	113,538	14	1.7	280,344	16	1.4	122,152	14	1.4	16.7	10.3	38.7	22.1	36.9	15.6
Texas	3,896,542	4,588	70,230	25	1.1	272,896	17	1.3	94,717	19	1.1	43.1	27.1	81.3	62.0	60.7	53.0
Iowa	2,224,771	5,528	61,635	29	0.9	259,238	18	1.2	88,531	22	1.0	24.6	11.4	61.4	20.8	53.4	22.6
Louisiana	1,656,388	2,516	76,165	21	1.2	223,949	19	1.1	89,084	21	1.0	36.4	36.6	20.2	67.3	28.5	92.7
Kentucky	2,289,905	4,776	65,400	27	1.0	223,754	20	1.1	111,975	16	1.3	9.4	15.6	40.1	26.3	53.0	23.9
Washington	1,141,990	3,674	69,120	26	1.0	220,746	21	1.1	102,858	17	1.2	52.9	43.4	71.4	81.9	64.2	92.5
Virginia	2,061,612	5,685	105,676	16	1.6	219,794	22	1.1	94,211	20	1.1	31.6	21.2	47.7	37.0	44.5	32.3
North Carolina	2,206,287	4,931	121,473	12	1.8	216,656	23	1.0	94,704	18	1.1	42.3	18.0	52.0	67.1	49.9	56.5
Georgia	2,609,121	4,792	104,588	17	1.6	202,863	24	1.0	85,893	23	1.0	12.8	11.3	31.3	59.8	27.4	49.2
Nebraska	1,192,214	2,500	24,336	37	0.4	199,019	25	1.0	47,938	31	0.6	20.1	8.5	28.5	18.9	55.3	−10.2
Tennessee	2,184,789	4,609	73,840	22	1.1	180,217	26	0.9	76,201	25	0.9	21.9	31.8	30.6	48.7	30.0	53.5
Maine	742,371	3,546	79,955	19	1.2	176,029	27	0.8	78,928	24	0.9	6.7	7.2	22.2	27.5	23.4	23.6
New Hampshire	430,572	1,961	78,058	20	1.2	164,581	28	0.8	68,424	27	0.8	20.3	−3.4	33.1	14.9	31.8	6.3
West Virginia	1,221,119	2,586	63,893	28	1.0	161,950	29	0.8	69,072	26	0.8	46.0	32.3	63.5	47.8	51.8	49.8
Alabama	2,138,093	3,393	72,148	24	1.1	145,902	30	0.7	62,519	29	0.7	16.0	18.0	33.7	51.4	28.3	42.8
Colorado	799,024	2,034	28,067	36	0.4	130,044	31	0.6	49,553	30	0.6	28.7	11.0	29.9	12.4	33.8	30.8
South Carolina	1,515,400	1,854	73,046	23	1.1	113,236	32	0.5	46,885	32	0.5	22.9	26.4	42.7	48.8	59.4	28.7
Oregon	672,765	2,240	28,750	35	0.4	93,005	33	0.4	43,453	35	0.5	55.2	28.1	67.5	51.7	74.3	57.7
Mississippi	1,797,114	2,598	50,384	31	0.8	80,555	34	0.4	43,629	34	0.5	30.2	44.4	40.2	70.4	37.8	81.3
Arkansas	1,574,449	2,025	44,982	32	0.7	74,916	35	0.4	30,981	36	0.5	35.9	5.0	39.1	35.0	24.7	48.5
Montana	376,053	677	11,655	41	0.2	73,272	36	0.4	24,692	38	0.3	30.1	−0.1	10.3	25.9	−5.5	12.4
Florida	752,619	2,159	57,473	30	0.9	72,890	37	0.4	46,762	33	0.5	36.5	18.7	44.9	47.1	38.5	58.3
Vermont	355,956	1,958	33,788	34	0.5	68,310	38	0.3	33,487	37	0.4	2.1	17.5	8.3	22.5	9.2	22.0
Utah	373,351	749	11,785	40	0.2	61,989	39	0.3	20,723	40	0.2	46.4	48.8	59.2	116.5	48.2	113.8
Oklahoma	1,657,155	2,310	13,143	39	0.2	53,682	40	0.3	19,529	41	0.2	140.9	129.1	119.5	200.7	142.1	198.3
Delaware	202,322	726	21,238	38	0.3	52,840	41	0.3	21,902	39	0.3	15.0	−10.2	28.4	−0.4	34.6	−1.0
Arizona	204,354	311	6,441	44	0.1	50,257	42	0.2	16,657	42	0.2	34.4	53.3	79.6	37.4	23.5	7.4
District of Columbia	331,069	518	7,707	43	0.1	25,289	43	0.1	15,042	43	0.2	22.4	2.3	37.7	11.8	41.5	18.7
Idaho	325,594	725	8,220	42	0.1	22,400	44	0.1	12,480	44	0.1	168.5	97.2	155.4	102.2	165.5	200.9
North Dakota	577,056	752	2,789	48	(2)	19,138	45	0.1	5,404	46	0.1	58.9	29.2	87.3	63.2	75.0	48.0
South Dakota	583,888	1,020	3,602	46	0.1	17,870	46	0.1	6,304	45	0.1	44.5	12.0	36.6	37.3	45.7	44.1
Nevada	81,875	177	2,257	49	(2)	11,887	47	0.1	3,521	49	(2)	181.4	59.1	283.9	145.5	139.8	145.1
New Mexico	327,301	313	4,143	45	0.1	7,898	48	(2)	4,637	47	0.1	19.1	39.7	38.4	40.5	33.6	68.3
Wyoming	145,965	268	2,807	47	(2)	6,249	49	(2)	3,641	48	(2)	56.3	−11.0	77.4	7.8	63.9	17.1

[1] Per cent of increase is based on figures in Table II, page 85. A minus sign (−) denotes decrease.

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

The table on the next page presents similar data for the nine grand geographic divisions of the United States, arranged in the order of their rank in value of products. The states included in each division are shown in Table II on page 85.

The three Middle Atlantic states—New York, New Jersey, and Pennsylvania—together reported more than one-third of the total value of manufactured products for the country; the East North Central states, about one-fourth; and the New England states, somewhat over one-eighth. These three divisions together contributed 72.6 per cent of the total value of manufactured products in 1909; they showed, however, somewhat lower percentages of increase during the past decade than the other divisions, in which manufacturing is of more recent development.

DIVISION.	Population.	Number of establishments.	WAGE EARNERS.			VALUE OF PRODUCTS.			VALUE ADDED BY MANUFACTURE.			PER CENT OF INCREASE.					
			Average number.	Rank.	Per cent distribution.	Amount (expressed in thousands).	Rank.	Per cent distribution.	Amount (expressed in thousands).	Rank.	Per cent distribution.	Wage earners (average number).		Value of products.		Value added by manufacture.	
												1904–1909	1899–1904	1904–1909	1899–1904	1904–1909	1899–1904
United States	**91,972,266**	**268,491**	**6,615,046**	....	**100.0**	**$20,672,052**	....	**100.0**	**$8,530,261**	....	**100.0**	**21.0**	**16.0**	**30.7**	**29.7**	**35.5**	**30.3**
Middle Atlantic	19,315,892	81,315	2,207,747	1	33.4	7,141,761	1	34.5	2,982,263	1	35.0	17.0	17.6	36.9	28.1	32.2	28.0
East North Central	18,250,621	60,013	1,513,764	2	22.9	5,211,702	2	25.2	2,177,230	2	25.5	23.6	14.1	44.6	26.4	39.6	29.4
New England	6,552,681	25,351	1,101,200	3	16.6	2,670,065	3	12.9	1,193,768	3	14.0	17.1	10.4	31.8	22.0	31.2	20.3
West North Central	11,637,921	27,171	374,337	5	5.7	1,803,899	4	8.7	562,044	5	6.6	19.8	17.4	40.4	32.0	33.0	29.8
South Atlantic	12,194,895	28,088	663,015	4	10.0	1,381,186	5	6.7	591,181	4	6.9	26.9	14.0	41.8	36.8	39.5	34.1
Pacific	4,192,304	13,579	213,166	7	3.2	843,512	6	4.1	350,834	6	4.1	29.9	33.2	52.9	51.2	46.7	69.7
East South Central	8,409,901	15,381	261,772	6	4.0	630,488	7	3.0	294,325	7	3.4	18.3	24.8	35.8	42.8	38.7	42.8
West South Central	8,784,534	12,399	201,520	8	3.1	625,443	8	3.0	243,312	8	2.9	42.6	26.5	50.6	64.6	44.5	70.4
Mountain	2,633,517	5,254	75,435	9	1.1	363,996	9	1.8	135,304	9	1.6	42.9	18.6	42.9	32.8	32.8	33.6

Summary for 50 leading cities: 1909.—The table on page 12 presents, for the 50 cities which stand highest in value of manufactured products, arranged in order of rank, data similar to those presented for the geographic divisions in the preceding table. It should be particularly noted in considering this table that the figures relate only to the manufacturing establishments situated actually within the boundaries of the several cities. In the case of practically every city listed there are important manufacturing establishments in the immediate vicinity, and in the case of several of the cities such outside establishments, which virtually constitute a part of the city's industrial interests, have a greater value of products than those within the city itself. The most notable instances of this character are Pittsburgh and Boston, which would rank decidedly higher in a table based on metropolitan or industrial districts than they do in the table for cities proper. While the population of Pittsburgh proper is 533,905, the population of the metropolitan district of Pittsburgh, as defined by the Census Bureau, is 1,042,855. Similarly, the population of the Boston metropolitan district is 1,520,470, as compared with 670,585 for the city proper. Further details regarding the manufactures of the 25 leading cities are given in Table III on page 88.

The rank of the cities of the country with respect to manufactures is in many cases decidedly different from their rank in population. Thus Boston ranks fifth in population, but eighth in value of manufactured products; Baltimore, seventh in population, but thirteenth in value of manufactured products; and Los Angeles, sixteenth in population, but thirty-second in value of products. Kansas City, Kans., on the other hand, by reason of the large slaughtering establishments there, ranks fifteenth in value of manufactured products, but is not among the 50 principal cities from the standpoint of population. Of the 50 cities in the United States which have over 100,000 inhabitants, 14 are not included among the 50 cities having the largest value of manufactures.

In the case of some of the cities listed in the table, the rank with respect to the number of wage earners and the value added by manufacture is very different from that with respect to the gross value of products, these differences being dependent upon the character of the predominating industries. It is noteworthy, however, that the 13 cities which rank highest in gross value of products are also the 13 which occupy the highest rank with respect to wage earners and value added by manufacture, although considered individually these cities do not in all cases hold the same rank in each of the three respects. Conspicuous instances of cities having higher rank in gross value of products than in number of wage earners or value added by manufacture are Kansas City, Kans., South Omaha, Youngstown, Bayonne, and Perth Amboy. On the other hand, cities which lead in the manufacture of textiles, such as Lawrence, Fall River, Lowell, New Bedford, and Paterson, have a decidedly higher rank with respect to number of wage earners than with respect to either value of products or value added by manufacture.

For every city listed in the table a greater gross value of products and, with the exception of Omaha, a greater value added by manufacture were reported in 1909 than in 1899. Only two cities—San Francisco and New Orleans—showed a loss in gross value in 1909 as compared with 1904, and only San Francisco a loss in value added by manufacture. Between 1899 and 1904, however, decreases in gross value of manufactures occurred in four cities. In number of wage earners, Pittsburgh, San Francisco, South Omaha, and Peoria showed a decline in 1909 as compared with 1899; several other cities showed decreases from 1899 to 1904, but these were more than made up during the second half of the decade. It may be noted that the statistics for the Pittsburgh industrial district, which is more comprehensive than the city, would show decided gains and that the decrease in the manufacturing industries in San Francisco is the natural result of the great earthquake and fire.

Of the cities reporting products of $200,000,000 or more, Detroit showed the greatest percentage

of increase in all of the items under consideration and Cleveland the next greatest with the exception of the number of wage earners in which it was exceeded by Milwaukee. Among the smaller manufacturing cities included in the table, those showing conspicuous increases are Akron, Perth Amboy, Los Angeles, and Seattle.

In the case of most of the cities higher rates of increase in all three items are shown for the period 1904 to 1909 than for the period 1899 to 1904.

CITY.	Population.	Number of establishments.	WAGE EARNERS. Average number.	Rank.	VALUE OF PRODUCTS. Amount (expressed in thousands).	Rank.	VALUE ADDED BY MANUFACTURE. Amount (expressed in thousands).	Rank.	PER CENT OF INCREASE.[1] Wage earners (average number). 1904-1909	1899-1904	Value of products. 1904-1909	1899-1904	Value added by manufacture. 1904-1909	1899-1904
New York, N. Y.	4,766,883	25,938	554,002	1	$2,029,693	1	$937,538	1	19.2	19.6	33.0	30.2	32.3	31.5
Chicago, Ill.	2,185,283	9,656	293,977	2	1,281,171	2	487,701	2	21.5	9.4	34.1	19.7	33.6	23.5
Philadelphia, Pa.	1,549,008	8,379	251,884	3	746,076	3	316,984	3	10.0	6.6	26.2	13.7	22.8	14.8
St. Louis, Mo.	687,029	2,667	87,371	4	328,495	4	140,306	4	5.6	27.6	22.9	38.9	8.3	41.0
Cleveland, Ohio.	560,663	2,148	84,728	5	271,961	5	118,160	6	32.3	15.7	58.2	23.4	58.9	18.2
Detroit, Mich.	465,766	2,036	81,011	6	252,992	6	122,774	5	67.1	26.3	97.3	45.1	99.1	49.1
Pittsburgh, Pa.	533,905	1,659	67,474	9	243,454	7	94,927	8	−5.8	−0.2	15.2	−3.2	9.5	−3.4
Boston, Mass.	670,585	3,155	69,637	8	237,457	8	112,880	7	17.7	11.9	28.8	13.3	25.8	11.5
Buffalo, N. Y.	423,715	1,753	51,412	13	218,804	9	82,266	12	18.0	27.1	48.5	39.5	39.4	48.7
Milwaukee, Wis.	373,857	1,764	59,502	12	208,324	10	88,503	10	37.2	5.2	51.0	21.5	32.3	30.8
Newark, N. J.	347,469	1,858	59,955	11	202,511	11	87,882	11	18.3	18.2	35.0	33.1	26.6	33.5
Cincinnati, Ohio.	363,591	2,184	60,192	10	194,516	12	92,584	9	2.7	6.6	17.1	17.2	11.8	17.8
Baltimore, Md.	558,485	2,502	71,444	7	186,978	13	79,954	13	9.8	−2.3	24.5	11.1	14.0	16.2
Minneapolis, Minn.	301,408	1,102	26,962	25	165,405	14	45,412	18	24.4	10.5	36.5	28.3	40.7	26.6
Kansas City, Kans.	82,331	165	12,294	42	164,081	15	19,691	44	16.8	11.0	70.1	20.6	56.4	12.9
San Francisco, Cal.	416,912	1,796	28,244	21	133,041	16	56,824	15	−26.5	18.0	−3.4	28.7	−8.1	49.1
Jersey City, N. J.	267,779	745	25,454	28	128,775	17	39,458	21	25.1	17.0	70.0	3.9	46.5	18.9
Indianapolis, Ind.	233,650	855	31,815	19	126,522	18	42,371	20	19.0	27.4	53.9	33.6	39.1	44.8
Providence, R. I.	224,326	1,080	46,881	14	120,241	19	55,471	16	16.5	3.7	30.7	16.9	32.0	16.3
Rochester, N. Y.	218,149	1,203	39,108	15	112,676	20	62,002	14	23.1	13.3	38.9	37.9	43.6	37.4
Louisville, Ky.	223,928	903	27,023	24	101,284	21	47,156	17	8.2	8.3	21.7	25.9	25.7	20.1
South Omaha, Nebr.	26,259	71	6,306	48	92,436	22	14,763	48	11.4	−10.5	37.1	−3.0	79.6	−3.2
Youngstown, Ohio.	79,066	115	10,408	45	81,271	23	18,979	45	29.7	−6.7	73.5	38.2	62.6	8.3
Lawrence, Mass.	85,892	162	30,542	20	79,993	24	34,555	23	39.4	4.8	66.5	15.1	85.6	10.2
New Orleans, La.	339,075	848	17,186	37	78,794	25	30,062	28	−1.6	7.9	−3.2	41.7	33.1	32.4
Worcester, Mass.	145,986	580	28,221	22	77,148	26	34,547	25	23.8	0.9	47.9	11.4	37.5	7.8
Bayonne, N. J.	55,545	97	7,519	47	73,641	27	14,709	49	6.5	51.1	21.5	57.1	7.8	184.0
Akron, Ohio.	69,067	246	15,831	39	73,158	28	30,087	27	64.5	16.6	118.0	52.4	128.8	41.4
Perth Amboy, N. J.	32,121	80	5,866	50	73,093	29	9,161	50	48.5	97.0	116.0	147.5	104.3	65.2
Lynn, Mass.	89,336	431	27,368	23	71,503	30	30,142	26	27.1	31.5	30.0	39.8	34.6	50.5
Paterson, N. J.	125,600	702	32,004	18	69,584	31	34,856	22	12.3	−0.1	27.3	12.7	28.0	16.1
Los Angeles, Cal.	319,198	1,325	17,327	36	68,586	32	29,673	29	66.2	101.5	97.0	130.0	84.0	128.9
Bridgeport, Conn.	102,054	307	25,775	27	65,699	33	27,662	32	32.2	14.4	47.2	32.9	24.3	56.9
Fall River, Mass.	119,295	288	37,139	16	64,146	34	28,622	31	38.4	−12.4	47.6	11.2	64.7	−17.4
Peoria, Ill.	66,950	283	5,981	49	63,061	35	45,288	19	2.5	−2.7	4.4	35.6	1.6	41.2
Toledo, Ohio.	168,497	760	18,878	34	61,230	36	27,146	35	20.3	23.1	37.6	39.2	42.6	51.3
Omaha, Nebr.	124,096	432	8,023	46	60,854	37	17,439	46	37.8	10.3	12.7	41.8	57.0	−38.8
Dayton, Ohio.	116,577	513	21,549	31	60,378	38	32,850	24	26.1	18.6	52.5	27.7	55.7	26.1
Lowell, Mass.	106,294	320	32,575	17	60,271	39	27,440	34	11.2	0.2	28.6	13.8	37.4	−4.6
Yonkers, N. Y.	79,803	158	12,711	41	59,334	40	16,132	47	30.0	29.4	76.9	93.9	57.9	31.7
St. Paul, Minn.	214,744	719	19,339	33	58,000	41	28,690	30	34.6	10.3	53.9	27.5	52.4	33.1
Kansas City, Mo.	248,381	902	14,643	40	54,704	42	23,742	38	32.6	13.8	53.8	50.8	47.9	45.1
New Bedford, Mass.	96,652	207	26,566	26	53,238	43	24,674	37	48.8	17.0	80.7	26.0	84.4	15.2
Denver, Colo.	213,381	766	12,058	43	51,538	44	20,611	43	24.7	13.8	40.6	−3.3	31.6	16.6
Reading, Pa.	96,071	482	24,145	29	51,135	45	21,287	42	33.7	6.9	67.7	−6.7	54.5	−12.1
New Haven, Conn.	133,605	590	23,547	30	51,071	46	26,752	36	9.8	21.8	28.8	13.7	26.5	12.7
Seattle, Wash.	237,194	751	11,331	44	50,569	47	22,550	39	77.3	43.9	99.0	65.8	101.1	71.0
Waterbury, Conn.	73,141	169	20,170	32	50,350	48	21,624	41	30.0	16.5	55.6	6.7	48.1	20.4
Syracuse, N. Y.	137,249	738	18,148	35	49,495	49	27,059	33	24.7	23.2	42.5	30.7	48.7	32.9
Camden, N. J.	94,538	365	16,527	38	49,138	50	21,754	40	30.5	63.5	46.3	86.9	65.3	74.9

[1] Per cent of increase is based on figures in Table IV, page 89. A minus sign (−) denotes decrease.

Distribution according to size of communities.—It is a matter of interest to know the extent to which the manufacturing enterprises of the country are located in the larger cities as compared with the smaller cities and rural districts. Some indication of this is given in the table on the opposite page, which distributes the total number of establishments, average number of wage earners, value of products, and value added by manufacture reported in 1909 and 1899 by classes of places, the classes distinguished being cities of 100,000 inhabitants or over, cities of 25,000 to 100,000 inhabitants, cities of 10,000 to 25,000 inhabitants, and the remainder of the country, the latter including the smaller cities, towns, and other incorporated places and the rural districts. The aggregate population of each group in 1910 and 1900 is also given. Statistics for 1904 are not given because there was no Federal census of population for that year, and it is impossible to determine with accuracy what cities belonged to each group.

In considering this table it should be noted that each place is classed at each census according to its population at that census, so that the same community may be in one class in 1900 and in another class in 1910; and consequently the change in the totals for any given class of communities from 1899 to 1909 should not be

taken as measuring the increase in manufacturing business in the same communities. The significant figures are the percentages of the totals reported by each class of places at the two censuses. It should be noted further that the statistics of manufactures shown for any given community are those reported from establishments lying strictly within the municipal boundaries. Since in many cases large manufacturing establishments are located just outside of city boundaries, the proportion of the manufacturing business of the country as a whole which, in a sense, can be properly credited to places of 10,000 or more inhabitants is somewhat greater than can be shown by the statistics in this table.

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.	Per cent distribution.	Number or amount.	Per cent distribution.	Number or amount.	Per cent distribution.	Number or amount.	Per cent distribution.	Number or amount.	Per cent distribution.
Number of cities	1910	.....	593	.....	365	.....	178	.....	50	.....	.....	.....
	1900	.....	436	.....	277	.....	122	.....	37	.....	.....	.....
Population	1910	91,972,266	34,062,692	37.0	5,495,594	6.0	8,204,960	8.9	20,362,138	22.1	57,909,574	63.0
	1900	75,994,575	24,015,430	31.6	4,297,118	5.7	5,509 965	7.3	14,208,347	18.7	51,979,145	68.4
Number of establishments	1909	268,491	135,772	50.6	18,936	7.1	27,061	10.1	89,775	33.4	132,719	49.4
	1899	207,514	102,904	49.6	15,463	7.5	20,133	9.7	67,308	32.4	104,610	50.4
Average number of wage earners.	1909	6,615,046	4,316,642	65.3	678,407	10.3	1,126,253	17.0	2,511,922	38.0	2,298,404	34.7
	1899	4,712,703	3,043,592	64.6	524,900	11.1	766,446	16.3	1,752,246	37.2	1,669,171	35.4
Value of products	1909	$20,672,051,870	$14,264,878,867	69.0	$1,946,703,215	9.4	$3,582,403,574	17.3	$8,735,772,018	42.3	$6,407,173,063	31.0
	1899	11,406,926,761	7,862,942,819	68.9	1,052,639,594	9.2	1,841,503,437	16.1	4,968,799,788	43.6	3,543,983,882	31.1
Value added by manufacture	1909	8,550,269,992	6,006,955,465	70.4	802,106,297	9.4	1,431,622,446	16.8	3,773,166,722	44.2	2,523,305,527	29.6
	1899	4,831,075,210	3,376,967,092	69.9	458,679,363	9.5	772,606,873	16.0	2,145,680,856	44.4	1,454,108,118	30.1

In 1909 places of more than 10,000 inhabitants, although they included only 37 per cent of the total population of the country, contained a little over one-half of the total number of manufacturing establishments in the country. These establishments employed nearly two-thirds of the wage earners employed in manufactures (65.3 per cent), and reported more than two-thirds of the total value of products and of the value added by manufacture, the actual percentages being 69 and 70.4, respectively.

It is noteworthy, however, that, whereas communities of this size contained a materially larger proportion of the population of the country in 1910 than they did in 1900—37 per cent as against 31.6 per cent—there was only a very slight increase in their proportion of the total number of manufacturing establishments and of wage earners, and of the total value added by manufacture, and practically no change in their proportion of the total value of products. In other words, while these communities, considered as a group, have perhaps a little more than held their own in relative importance in manufacturing industry, they have not gained in this respect commensurately with their gain in population. The foregoing statement regarding this group as a whole holds true likewise for the class of cities having from 25,000 to 100,000 inhabitants and for the class having 100,000 or more inhabitants, except that for the latter group there was a slight decrease in the proportion of the value of products and value added by manufacture. On the other hand, the class of communities having from 10,000 to 25,000 inhabitants reported a slight increase in its proportion of the total population in 1910 as compared with 1900, and a slightly larger proportion of the total value of products in 1909 than in 1899, although in respect to number of establishments, average number of wage earners, and value added by manufacture, the proportion for such communities was slightly lower in the later year than in the earlier.

PERSONS ENGAGED IN MANUFACTURING INDUSTRIES.

Definitions and explanations.—Attention is called to certain differences between the census of 1909 and previous censuses in respect to the manner of collecting and presenting statistics of persons engaged in manufacturing industries.

At the censuses of 1899, 1904, and 1909 the following general classes of persons engaged in manufacturing industries were distinguished: (1) Proprietors and firm members, (2) salaried officers of corporations, (3) superintendents and managers, (4) clerks, and (5) wage earners. In the reports for the censuses of 1904 and 1899 these five classes were shown according to the three main groups: (1) Proprietors and firm members, (2) salaried officials, clerks, etc., and (3) wage earners. The second group included the three classes of salaried officers of corporations, superintendents and managers, and clerks. In certain tables relating exclusively to the present census a somewhat different grouping is employed—that into (1) proprietors and officials, (2) clerks, and (3) wage earners. The first

group includes proprietors and firm members, salaried officers of corporations, and superintendents and managers. In comparative tables covering the censuses of 1899 and 1904 it is of course necessary to group the figures for 1909 according to the same classification that was employed in the earlier censuses.

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

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

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

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

In particular, totals by sex and age for the wage earners reported for the representative day for all industries combined would be misleading because of the undue weight given to seasonal industries, in some of which, such as canning and preserving, the distribution of the wage earners by sex and age is materially different from that in most industries of more regular operation. In order to determine as nearly as possible the sex and age distribution of the average number of wage earners for a given state as a whole, the per cent distribution by sex and age of the wage earners in each industry for December 15 or the nearest representative day has been calculated from the actual numbers reported for that date. The percentages thus obtained have been applied to the average number of wage earners for the year in that industry, to determine the average number of men, women, and children employed. These calculated averages for the several industries have been added up to give the average distribution for each state as a whole and for the entire country.

In 1899 and 1904 the schedule called for the average number of wage earners of each sex 16 years and over, and the average number under 16 years of age without distinction of sex, for each month, and these monthly statements were combined in an annual average. Comparatively few manufacturing concerns, however, keep their books in such way as to show readily the number of men, women, and children employed on the average each month. These monthly returns by sex and age were, in fact, largely estimates. It was believed that a more accurate and reliable sex and age distribution could be secured by taking as a basis of estimate the actual numbers employed on a single day.

Summary for United States: 1909.—The following table shows, for 1909, the distribution of the persons engaged in manufacturing, each class being distributed by sex, and the average number of wage earners by age also:

CLASS.	PERSONS ENGAGED IN MANUFACTURES.		
	Total.	Male.	Female.
All classes	**7,678,578**	**6,162,263**	**1,516,315**
Proprietors and officials	487,173	472,914	14,259
Proprietors and firm members	273,205	263,673	9,532
Salaried officers of corporations	80,735	78,937	1,798
Superintendents and managers	133,173	130,304	2,869
Clerks	576,359	437,056	139,303
Wage earners (average number)	6,615,046	5,252,293	1,362,753
16 years of age and over	6,452,809	5,162,547	1,290,253
Under 16 years of age	162,246	89,746	72,500

The average number of persons engaged in manufacturing industries during 1909 was 7,678,578. Of these, 6,615,046, or 86.1 per cent, were wage earners; 487,173, or 6.3 per cent, proprietors and officials; and 576,359, or 7.5 per cent, clerks. Of the wage earners, 5,162,547 were males 16 years of age and over; 1,290,253 females 16 years of age and over; and 162,246 children under the age of 16.

Statistics of employees for the last three censuses are given for individual industries in Table I, and for each state and geographic division in Table II, pages 74 and 85, respectively.

Occupational status by leading industries: 1909.—The following table shows for the 43 leading industries the number of proprietors, officers of corporations, superintendents and managers, clerks, and wage earners, respectively, and the percentage which the persons included in each of the principal groups represent of the total number employed. The figures for wage earners represent the average number for the year.

INDUSTRY.	PERSONS ENGAGED IN MANUFACTURES.									
	Total number.	Proprietors and officials.				Clerks.	Wage earners (average number).	Per cent of total.		
		Total.	Proprietors and firm members.	Salaried officials of corporations.	Superintendents and managers.			Proprietors and officials.	Clerks.	Wage earners (average number).
All industries	**7,678,578**	**487,173**	**273,295**	**80,735**	**133,173**	**576,359**	**6,615,046**	**6.3**	**7.5**	**86.1**
Agricultural implements	60,220	2,489	465	560	1,455	7,189	50,551	4.1	11.9	83.9
Automobiles, including bodies and parts	85,359	2,564	405	758	1,401	7,074	75,721	3.0	8.3	88.7
Boots and shoes, including cut stock and findings	215,923	5,752	1,838	1,027	2,887	11,874	198,297	2.7	5.5	91.8
Brass and bronze products	45,441	2,160	828	584	748	2,663	40,618	4.8	5.9	89.4
Bread and other bakery products	144,322	29,136	26,982	801	1,353	14,970	100,216	20.2	10.4	69.4
Butter, cheese, and condensed milk	31,506	10,480	8,019	1,032	1,429	2,595	18,431	33.3	8.2	58.5
Canning and preserving	71,972	6,920	4,244	968	1,708	5,084	59,968	9.6	7.1	83.3
Carriages and wagons and materials	82,944	8,844	6,213	1,166	1,465	4,172	69,928	10.7	5.0	84.3
Cars and general shop construction and repairs by steam-railroad companies	301,273	6,074	2	1,877	5,095	12,125	282,174	2.3	4.0	93.7
Cars, steam-railroad, not including operations of railroad companies	47,094	1,041	7	241	793	2,967	43,086	2.2	6.3	91.5
Chemicals	27,791	1,086	154	367	565	2,991	23,714	3.9	10.8	85.3
Clothing, men's, including shirts	271,437	12,041	8,502	1,089	2,450	19,709	239,686	4.4	7.3	88.3
Clothing, women's	179,021	9,281	6,482	842	1,957	15,997	153,743	5.2	8.9	85.9
Confectionery	54,854	3,362	1,832	766	764	6,854	44,638	6.1	12.5	81.4
Copper, tin, and sheet-iron products	86,934	7,209	4,423	1,288	1,558	6,050	73,615	8.4	7.0	84.7
Cotton goods, including cotton small wares	387,771	4,461	377	1,726	2,358	4,430	378,880	1.2	1.1	97.7
Electrical machinery, apparatus, and supplies	105,600	4,121	430	997	2,685	14,223	87,256	3.9	13.5	82.6
Flour-mill and gristmill products	66,054	18,763	14,570	1,486	2,707	7,853	39,453	28.4	11.9	59.7
Foundry and machine-shop products	615,485	31,605	9,851	9,348	12,406	52,869	531,011	5.1	8.6	86.3
Furniture and refrigerators	144,140	7,281	2,057	2,170	2,454	8,407	128,452	5.1	5.8	89.1
Gas, illuminating and heating	51,007	2,980	277	990	1,710	10,806	37,215	5.9	21.2	73.0
Hosiery and knit goods	136,130	3,308	1,134	799	1,375	3,547	129,275	2.4	2.6	94.9
Iron and steel, blast furnaces	43,061	1,119	48	262	809	3,513	38,429	2.6	8.2	89.2
Iron and steel, steel works and rolling mills	260,762	4,286	47	779	3,460	16,400	240,076	1.6	6.3	92.1
Leather goods	43,525	4,209	2,552	760	897	4,409	34,907	9.7	10.1	80.2
Leather, tanned, curried, and finished	67,100	2,331	784	622	918	2,567	62,202	3.5	3.8	92.7
Liquors, distilled	8,328	1,111	563	217	331	787	6,430	13.3	9.4	77.2
Liquors, malt	66,725	4,362	630	1,819	1,904	7,784	51,579	6.5	11.7	81.8
Lumber and timber products	784,989	68,105	48,825	6,616	12,724	21,805	695,079	8.7	2.8	88.5
Marble and stone work	77,275	8,453	6,020	867	1,566	3,219	65,603	10.9	4.2	84.9
Oil, cottonseed, and cake	21,273	2,167	110	576	1,481	2,035	17,071	10.2	9.6	80.2
Paint and varnish	21,896	2,016	456	793	767	5,640	14,240	9.2	25.8	65.0
Paper and wood pulp	81,473	2,298	250	773	1,275	3,197	75,978	2.8	3.9	93.3
Patent medicines and compounds and druggists' preparations	41,101	5,647	2,802	1,427	1,418	12,559	22,895	13.7	30.6	55.7
Petroleum, refining	16,640	671	42	211	418	2,040	13,929	4.0	12.3	83.7
Printing and publishing	388,466	49,332	30,424	7,265	11,643	80,700	258,434	12.7	20.8	66.5
Silk and silk goods, including throwsters	105,238	2,336	664	490	1,092	3,965	99,037	2.1	3.8	94.1
Slaughtering and meat packing	108,716	3,514	1,659	731	1,124	15,474	89,728	3.3	14.2	82.5
Smelting and refining, copper	16,832	275	7	58	215	929	15,628	1.6	5.5	92.8
Smelting and refining, lead	8,059	132	.....	44	88	503	7,424	1.6	6.2	92.1
Sugar and molasses, not including beet sugar	15,658	780	201	140	445	1,343	13,526	5.0	8.6	86.4
Tobacco manufactures	197,637	21,012	17,634	809	2,569	9,815	166,810	10.6	5.0	84.4
Woolen, worsted, and felt goods, and wool hats	175,176	3,192	732	782	1,678	3,262	168,722	1.8	1.9	96.3
All other industries	1,916,361	117,932	59,096	23,811	35,025	149,988	1,648,441	6.2	7.8	86.0

The highest proportion of proprietors and officials shown for any individual industry covered by the table, 33.3 per cent, is for the butter, cheese, and condensed-milk industry. Many of the establishments in this industry are carried on by cooperative associations, and the practice in 1909, as at prior censuses, was not to include the members of such associations as proprietors in the totals, but to omit them altogether. From the information contained in the reports, it is impossible, in some instances, to distinguish such associations from partnerships, and the large number of proprietors and officials shown for this industry indicates the probability that the members of some associations were inadvertently included as partners. The high percentage of proprietors and officials in the flour-mill and gristmill and the bakery industries is explained by the fact that the majority of the establishments are small and the work is to a large extent done by the proprietors or their immediate representatives, while in the large flour mills automatic machinery has reduced the amount of labor to a minimum.

A factor which has much to do with the proportion of clerks among the total number of employees in an industry is the method of marketing the product. Thus there are high percentages of clerks in the manufacture of patent medicines and compounds and druggists' preparations, and in the paint and varnish, illuminating-gas, and printing and publishing industries. In these industries the average num-

ber of customers or patrons for each establishment is large and this necessitates a large force of employees for soliciting trade, correspondence, accounting, and collection.

In general, though not in all cases, the larger the average size of establishments in an industry, the smaller is the proportion of proprietors, officials, and clerks, and the larger the proportion of wage earners. Thus the four textile industries—the cotton; woolen, hosiery and knit-goods, and silk-manufacturing industries—which are mainly conducted in large factories, show the largest proportions of wage earners. An unusually large proportion of wage earners is shown also for the paper and pulp mills, the steel works and rolling mills, the construction of steam-railroad cars, the smelting and refining of copper and lead, the tanning and finishing of leather, boots and shoes, and the repair shops of steam railroads.

Comparison with previous censuses as to occupational status.—In order to compare the distribution of persons engaged in manufacturing industries according to occupational status in 1909 with that shown at the census of 1904, it is necessary to use the classification employed at the earlier census. (See p. 13.) Such a comparison is made in the following table. Comparable figures for 1899 are not available.

CLASS.	PERSONS ENGAGED IN MANUFACTURES.				
	1909		1904		Per cent of increase, 1904–1909.
	Number.	Per cent distribution.	Number.	Per cent distribution.	
Total	7,678,578	100.0	6,213,612	100.0	23.6
Proprietors and firm members	273,265	3.6	225,673	3.6	21.1
Salaried employees	790,267	10.3	519,556	8.4	52.1
Wage earners (average number)	6,615,046	86.1	5,468,383	88.0	21.0

A greater percentage of increase is shown for salaried employees than for the other two classes. This is due in part to the changes from individual and firm ownership to corporate organization, a change which frequently involves the transfer of proprietors and firm members to the class of officials. At the same time there is no doubt that the number of clerks here classified with the other salaried employees has increased relatively faster than the number of wage earners. This may indicate an increase of the practice on the part of the manufacturers of direct sale of goods without the interposition of so many middlemen as formerly handled the product.

Sex and age distribution, by leading industries: 1909.—The table opposite shows, for the 43 leading industries, the number and per cent distribution, by age and sex, of wage earners as reported for December 15, or the nearest representative day. As a means of judging the true importance of the several industries as employers of labor, the average number employed for the entire year is also given in each case, this number, in the case of seasonal industries, being much smaller than the number on the representative day. The per cent distribution for all industries combined, based on the average number employed as shown in the table on page 14 is also presented.

In all industries combined 78 per cent of the average number of wage earners were males 16 years of age or over, 19.5 per cent females 16 years of age or over, and 2.5 per cent children under the age of 16.

The industries for which the largest proportions of males 16 years of age or over are shown are those in which the work is of a nature requiring much physical strength or a high degree of skill. Thus in the smelting and refining of both copper and lead males 16 years of age or over constitute 99.9 per cent of the total number of wage earners, and in the blast furnaces they constitute 99.8 per cent. Other industries in which males of 16 years or over represent more than 99 per cent of the wage earners are the gas industry, construction of steam-railroad cars, steel works and rolling mills, marble and stone work, the repair shops of steam railroads, and the manufacture of cotton-seed oil.

The proportion of women and children, naturally, is larger in those industries in which the processes require dexterity rather than strength. In six of the industries covered by the following table—the making of men's and women's clothing, the confectionery industry, and the manufacture of hosiery and knit goods, of patent medicines and compounds and druggists' preparations, and of silk and silk goods—more than half of the wage earners are females 16 years of age or over.

The proportion of wage earners under 16 years is larger in three of the textile industries—the cotton goods, silk and silk goods, and hosiery and knit-goods industries—than in any other of the principal industries of the country. The proportion is also relatively high in the canning and preserving, confectionery, and woolen-goods industries.

INDUSTRY.	WAGE EARNERS.							
	Average number.	Number Dec. 15, or nearest representative day.				Per cent of total.		
		Total.	16 years of age and over.		Under 16 years of age.	16 years of age and over.		Under 16 years of age.
			Male.	Female.		Male.	Female.	
All industries	**6,615,046**	(1)	(1)	(1)	(1)	**78.0**	**19.5**	**2.5**
Agricultural implements	50,551	55,429	54,520	674	226	98.4	1.2	0.4
Automobiles, including bodies and parts	75,721	97,250	96,960	982	208	98.3	1.0	0.2
Boots and shoes, including cut stock and findings	198,207	211,507	132,411	70,457	8,639	62.6	33.3	4.1
Brass and bronze products	40,618	46,230	42,908	2,774	548	92.8	6.0	1.2
Bread and other bakery products	100,216	104,443	84,956	17,407	2,080	81.3	16.7	2.0
Butter, cheese, and condensed milk	18,431	19,323	17,743	1,468	112	91.8	7.6	0.6
Canning and preserving	59,068	155,847	67,219	77,593	11,035	43.1	49.8	7.1
Carriages and wagons and materials	69,928	72,783	71,104	1,126	553	97.7	1.5	0.8
Cars and general shop construction and repairs by steam-railroad companies	282,174	302,080	301,120	455	505	99.7	0.2	0.2
Cars, steam-railroad, not including operations of railroad companies	43,086	58,274	58,046	190	38	99.6	0.3	0.1
Chemicals	23,714	25,341	24,102	1,061	178	95.1	4.2	0.7
Clothing, men's, including shirts	239,696	257,128	109,139	142,781	5,208	42.4	55.5	2.0
Clothing, women's	153,743	162,859	58,316	103,063	1,480	35.8	63.3	0.9
Confectionery	44,638	52,421	18,836	30,453	3,132	35.9	58.1	6.0
Copper, tin, and sheet-iron products	73,615	78,909	66,797	9,716	2,396	84.6	12.3	3.0
Cotton goods, including cotton small wares	378,880	387,608	197,420	150,057	40,221	50.9	38.7	10.4
Electrical machinery, apparatus, and supplies	87,256	102,950	78,605	23,398	947	76.4	22.7	0.9
Flour-mill and gristmill products	39,453	42,495	41,787	565	143	98.3	1.3	0.3
Foundry and machine-shop products	531,011	604,167	587,636	11,895	4,636	97.3	2.0	0.8
Furniture and refrigerators	128,452	138,829	132,176	3,677	2,976	95.2	2.6	2.1
Gas, illuminating and heating	37,215	37,396	37,308	71	17	99.7	0.2	(2)
Hosiery and knit goods	120,275	136,713	37,419	88,183	11,111	27.4	64.5	8.1
Iron and steel, blast furnaces	38,420	47,278	47,184	10	84	99.8	(2)	0.2
Iron and steel, steel works and rolling mills	240,076	284,264	281,801	1,114	1,349	99.1	0.4	0.5
Leather goods	34,907	36,502	29,868	5,738	896	81.8	15.7	2.5
Leather, tanned, curried, and finished	62,202	66,717	64,005	2,230	482	95.9	3.3	0.7
Liquors, distilled	6,430	8,130	7,008	1,111	11	86.2	13.7	0.1
Liquors, malt	54,579	54,135	52,865	1,040	230	97.7	1.9	0.4
Lumber and timber products	695,049	838,160	820,978	4,027	7,155	98.7	0.5	0.9
Marble and stone work	65,003	67,921	67,575	112	234	99.5	0.2	0.3
Oil, cottonseed, and cake	17,071	29,691	29,551	49	91	99.5	0.2	0.3
Paint and varnish	14,240	14,426	13,207	1,137	82	91.5	7.9	0.6
Paper and wood pulp	75,978	78,672	68,497	9,909	266	87.1	12.6	0.3
Patent medicines and compounds and druggists' preparations	22,895	24,683	11,503	12,672	508	46.6	51.3	2.1
Petroleum, refining	13,929	14,873	14,657	170	46	98.5	1.1	0.3
Printing and publishing	258,434	272,027	204,388	60,973	6,666	75.1	22.4	2.4
Silk and silk goods, including throwsters	99,037	102,309	35,785	58,441	8,143	35.0	57.1	8.0
Slaughtering and meat packing	89,728	94,854	88,352	6,960	542	93.1	6.3	0.6
Smelting and refining, copper	15,628	16,020	16,013	.....	16	99.9	.....	0.1
Smelting and refining, lead	7,424	8,002	8,001	1	.....	99.9	(2)	.....
Sugar and molasses, not including beet sugar	13,526	25,134	24,626	376	132	98.0	1.5	0.5
Tobacco manufactures	166,810	181,036	90,417	84,193	6,426	49.9	46.5	3.6
Woolen, worsted, and felt goods, and wool hats	168,722	175,171	92,820	72,409	9,942	53.0	41.3	5.7

[1] No totals given for reasons explained on page 14.

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

In addition to the industries shown in the above table, which were selected according to their importance with respect to gross value of products, certain others are of interest because of the relatively large number of women and children employed. The table on the next page shows the sex and age distribution of wage earners in all industries not covered by the preceding table in which there were at least 5,000 women, or in which the women constituted over 40 per cent of the wage earners and numbered not less than 500.

The table shows that there are a large number of industries, some of considerable importance, in which women 16 years of age or over represent more than 40 per cent of the total number of wage earners. In the manufacture of corsets, of artificial flowers, feathers, and plumes, and of steel pens, more than 80 per cent of the wage earners are women. Other industries in which female wage earners 16 years of age or over constitute over three-fourths of the total number employed are the manufacture of men's furnishing goods and of millinery and lace goods, and the grading, roasting, cleaning, and shelling of peanuts. Large numbers of women are also employed in several industries listed in this table in which, however, the proportion which these represent of the total number of wage earners is less than 40 per cent.

Of the industries in the table on page 18 those in which the proportion of children under 16 years of age exceeds 5 per cent are the manufacture of bags, other than paper; cigar boxes; fancy and paper boxes; horse clothing; cordage and twine; needles, pins, and hooks and eyes; lead pencils; stationery goods, not elsewhere specified; and the cork-cutting industry.

INDUSTRY.	WAGE EARNERS.							
	Average number.	Number Dec. 15, or nearest representative day.				Per cent of total.		
		Total.	16 years of age and over.		Under 16 years of age.	16 years and over.		Under 16 years of age.
			Male.	Female.		Male.	Female.	
Artificial flowers and feathers and plumes	10,016	10,769	1,416	9,017	336	13.1	83.7	3.1
Awnings, tents, and sails	4,242	4,033	2,264	1,715	54	56.0	42.4	1.6
Bags, other than paper	7,908	8,437	2,870	4,794	773	34.0	56.8	9.2
Bags, paper	3,212	3,299	1,680	1,561	58	50.9	47.3	1.8
Baking powders and yeast	2,155	2,273	1,199	1,020	54	52.7	44.9	2.4
Boots and shoes, rubber	17,612	18,528	10,995	7,060	473	59.3	38.1	2.6
Boxes, cigar	6,115	6,554	2,914	3,260	380	44.5	49.7	5.8
Boxes, fancy and paper	39,514	43,239	14,398	25,961	3,080	33.8	60.0	7.1
Buttons	16,427	17,873	10,721	6,580	622	60.0	36.8	3.5
Carpets and rugs, other than rag	33,307	34,874	19,601	13,859	1,414	56.2	39.7	4.1
Clocks and watches, including cases and materials	23,857	25,574	15,775	9,262	537	61.7	36.2	2.1
Clothing, horse	1,648	1,789	580	1,047	162	32.4	58.5	9.1
Cordage and twine and jute and linen goods	25,820	26,941	13,019	12,083	1,839	48.3	44.8	6.8
Cork, cutting	3,142	3,239	1,756	1,310	173	54.2	40.4	5.3
Corsets	17,564	18,152	2,291	15,234	627	12.6	83.9	3.5
Dyeing and finishing textiles	44,046	45,841	36,486	8,269	1,086	79.6	18.0	2.4
Fireworks	1,403	1,380	756	564	60	54.8	40.9	4.3
Flags, banners, regalia, society badges and emblems	3,572	3,552	1,267	2,192	93	35.7	61.7	2.6
Flavoring extracts	1,220	1,270	722	522	26	56.8	41.1	2.0
Food preparations	14,968	17,786	12,070	5,449	267	67.9	30.6	1.5
Fur goods	11,927	14,450	8,539	5,853	58	59.1	40.5	0.4
Furnishing goods, men's	38,482	41,970	9,153	31,926	891	21.8	76.1	2.1
Gloves and mittens, leather	11,354	12,188	5,202	6,697	289	42.7	54.9	2.4
Gold and silver, leaf and foil	1,383	1,417	612	756	49	43.2	53.4	3.5
Hair work	3,534	3,885	1,338	2,464	83	34.4	63.4	2.1
Hats, fur-felt	25,064	30,292	21,182	8,468	642	69.9	28.0	2.1
Hats, straw	8,814	10,328	3,512	6,641	175	34.0	64.3	1.7
House-furnishing goods, not elsewhere specified	4,907	5,371	2,713	2,570	88	50.5	47.8	1.6
Jewelry	30,347	33,014	23,336	9,615	963	70.8	29.1	2.9
Jewelry and instrument cases	2,070	2,343	1,045	1,239	59	44.6	52.9	2.5
Millinery and lace goods	39,201	40,522	8,061	31,290	1,171	19.9	77.2	2.9
Needles, pins, and hooks and eyes	4,678	4,955	2,262	2,813	280	45.6	56.7	5.7
Paper goods, not elsewhere specified	19,211	20,500	10,141	9,707	652	49.5	47.4	3.2
Peanuts, grading, roasting, cleaning, and shelling	1,949	2,336	473	1,823	40	20.2	78.1	1.7
Pencils, lead	4,134	4,412	1,843	2,244	325	41.8	50.9	7.4
Pens, steel	689	729	113	591	25	15.5	81.1	3.4
Pottery, terra-cotta, and fire-clay products	56,168	60,842	53,159	6,799	884	87.4	11.2	1.4
Stationery goods, not elsewhere specified	6,206	6,417	3,405	2,635	377	53.1	41.1	5.9
Surgical appliances and artificial limbs	4,241	4,440	2,193	2,113	134	49.4	47.6	3.0
Umbrellas and canes	5,472	5,837	2,586	3,017	234	44.3	51.7	4.0

Sex and age distribution, by states: 1909.—The table opposite shows, for each geographic division and each state, the distribution of wage earners by sex and age and the per cent that each class represents of the total average number of wage earners. The numbers of each sex and each age period are obtained by applying to the average number employed in each industry in each state the percentages of each age and sex in the number of wage earners reported for December 15, or the nearest representative day, and then totaling the result, as explained on page 14.

The relative number of males 16 years of age or over, females 16 years of age or over, and children under 16 employed in each state depends primarily upon the character of the industries in that state, but the number of persons under 16 employed is also affected by the legislation of the several states with regard to child labor. The largest proportions of female wage earners 16 years of age or over are found in the New England and Middle Atlantic divisions, owing chiefly to the importance of the textile and clothing industries in these divisions. Next to these two divisions in this respect ranks the South Atlantic division, and in this division appears the largest proportion of wage earners under 16 years of age, 6.3 per cent. This large proportion is due chiefly to the predominance of the textile industries in the South Atlantic states. The proportions of females 16 years of age or over and of children under 16 are lowest in the West South Central, Mountain, and Pacific divisions, where the textile and clothing industries are relatively unimportant.

Among the individual states the largest proportion of female wage earners 16 years of age or over, [illegible] per cent, is found in Rhode Island, and the next largest proportion in New Hampshire, followed closely by Massachusetts and New York. The proportion of children employed is largest in South Carolina, [illegible] per cent, and next largest in North Carolina. Among the Northern states Rhode Island shows the largest percentage of children.

DIVISION AND STATE.	AVERAGE NUMBER OF WAGE EARNERS.				PER CENT OF TOTAL.		
	Total.	16 years of age and over.		Under 16 years of age.	16 years of age and over.		Under 16 years of age.
		Male.	Female.		Male.	Female.	
United States	6,615,046	5,162,547	1,290,253	162,246	78.0	19.5	2.5
GEOGRAPHIC DIVISIONS:							
New England	1,101,290	760,022	306,940	34,328	69.0	27.9	3.1
Middle Atlantic	2,207,747	1,618,967	544,316	44,464	73.3	24.7	2.0
East North Central	1,513,764	1,271,013	220,194	22,557	84.0	14.5	1.5
West North Central	374,337	311,140	57,471	5,726	83.1	15.4	1.5
South Atlantic	663,015	517,457	103,703	41,856	78.0	15.6	6.3
East South Central	261,772	228,788	24,995	7,989	87.4	9.5	3.1
West South Central	204,520	191,353	9,724	3,443	93.6	4.7	1.7
Mountain	75,435	71,142	3,834	459	94.3	5.1	0.6
Pacific	213,166	192,666	19,076	1,424	90.4	8.9	0.7
NEW ENGLAND:							
Maine	79,955	60,612	17,956	1,387	75.8	22.5	1.7
New Hampshire	78,658	53,574	23,888	1,196	68.1	30.4	1.5
Vermont	33,788	28,940	4,631	211	85.7	13.7	0.6
Massachusetts	584,559	389,927	173,144	21,488	66.7	29.6	3.7
Rhode Island	113,538	72,239	36,674	4,625	63.6	32.3	4.1
Connecticut	210,792	154,724	50,647	5,421	73.4	24.0	2.6
MIDDLE ATLANTIC:							
New York	1,003,931	702,637	293,525	7,819	70.0	29.2	0.8
New Jersey	326,223	236,499	82,186	7,538	72.5	25.2	2.3
Pennsylvania	877,543	679,831	168,605	29,107	77.5	19.2	3.3
EAST NORTH CENTRAL:							
Ohio	446,934	372,694	68,996	5,244	83.4	15.4	1.2
Indiana	186,985	161,117	22,255	3,612	86.2	11.9	1.9
Illinois	465,709	382,691	76,156	6,917	82.2	16.3	1.5
Michigan	231,499	197,777	31,205	2,517	85.4	13.5	1.1
Wisconsin	182,583	156,734	21,582	4,267	85.8	11.8	2.3
WEST NORTH CENTRAL:							
Minnesota	84,767	73,038	11,423	306	86.2	13.5	0.4
Iowa	61,635	51,128	9,460	1,047	83.0	15.3	1.7
Missouri	152,993	119,930	29,195	3,868	78.4	19.1	2.5
North Dakota	2,789	2,489	243	57	89.2	8.7	2.0
South Dakota	3,602	3,099	457	46	86.0	12.7	1.3
Nebraska	24,336	20,763	3,356	217	85.3	13.8	0.9
Kansas	44,215	40,653	3,337	235	91.9	7.5	0.5
SOUTH ATLANTIC:							
Delaware	21,238	17,205	3,504	529	81.0	16.5	2.5
Maryland	107,921	72,416	28,957	6,548	67.1	26.8	6.1
District of Columbia	7,707	6,851	827	29	89.0	10.7	0.2
Virginia	105,676	88,191	13,863	3,622	83.5	13.1	3.4
West Virginia	63,893	58,335	4,505	1,053	91.3	7.1	1.6
North Carolina	121,473	96,682	21,093	13,698	70.9	17.8	11.3
South Carolina	73,026	59,828	12,703	9,405	69.6	17.5	12.9
Georgia	104,588	83,998	14,549	6,041	80.3	13.9	5.8
Florida	57,473	53,520	3,012	941	93.1	5.2	1.6
EAST SOUTH CENTRAL:							
Kentucky	65,400	55,072	9,495	833	84.2	14.5	1.3
Tennessee	73,840	65,016	8,379	2,445	85.3	11.3	3.3
Alabama	72,148	63,413	5,082	3,653	87.9	7.0	5.1
Mississippi	50,384	47,287	2,039	1,058	93.9	4.0	2.1
WEST SOUTH CENTRAL:							
Arkansas	44,982	43,763	694	525	97.3	1.5	1.2
Louisiana	76,165	70,153	4,473	1,539	92.1	5.9	2.0
Oklahoma	13,143	12,345	675	123	93.9	5.1	0.9
Texas	70,230	65,092	3,882	1,256	92.7	5.5	1.8
MOUNTAIN:							
Montana	11,655	11,436	189	30	98.1	1.6	0.3
Idaho	8,220	8,035	155	30	97.7	1.9	0.4
Wyoming	2,867	2,810	45	12	98.0	1.6	0.4
Colorado	28,067	25,808	2,094	165	92.0	7.5	0.6
New Mexico	4,143	3,995	82	66	96.4	2.0	1.6
Arizona	6,441	6,366	38	37	98.8	0.6	0.6
Utah	11,785	10,470	1,205	110	88.8	10.2	0.9
Nevada	2,257	2,222	26	9	98.4	1.2	0.4
PACIFIC:							
Washington	69,120	66,042	2,812	266	95.5	4.1	0.4
Oregon	28,750	26,206	2,226	98	91.8	7.8	0.3
California	115,296	100,218	14,018	1,060	86.9	12.2	0.9

Comparison with previous censuses as to sex and age.—The following table shows, for all industries combined, the distribution of the average number of wage earners according to age periods, and in the case of those 16 years of age or over according to sex, for 1909, 1904, and 1899. As already explained (p. 14), the distribution for 1909 is estimated on the basis of the actual proportions reported for a single representative day, while the figures for the other two censuses represent averages computed from the number of each class reported for each month of the year.

CLASS.	AVERAGE NUMBER OF WAGE EARNERS.					
	1909		1904		1899	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
Total	6,615,046	100.0	5,468,383	100.0	4,712,763	100.0
16 years of age and over	6,452,800	97.5	5,308,498	97.1	4,551,487	96.6
Male	5,162,547	78.0	4,242,643	77.6	3,632,977	77.1
Female	1,290,253	19.5	1,065,855	19.5	918,510	19.5
Under 16 years of age	162,246	2.5	159,885	2.9	161,276	3.4

From an examination of this table it will be seen that, while the numbers of men and women workers increased at each census, the number of children under 16 years of age has been comparatively stationary. For all industries combined there was a slight net increase during the 10 years in the number of children employed, although from 1899 to 1904 the number decreased. The percentage which children represent of the total number of wage earners, however, decreased from census to census. The proportion of adult female wage earners has been the same at each census, while the proportion of adult males has increased slightly.

Comparison of sex and age distribution in selected industries: 1909, 1904, and 1899.—The table on page 20 shows, in percentages, the distribution of wage earners according to sex and age periods, in 1909, 1904, and 1899, for all industries of any importance in which the proportion of women and children is relatively high or in which the absolute number of women and children is large. The percentages for the three years are comparable though not precisely parallel, for the reason that those for 1909 relate to the number employed on December 15, or the nearest representative day, which in the case of many establishments in some industries was in another month than December, while those for 1904 and 1899 (in which years reports were made for each month of the average number of wage earners by sex and age) are based upon the average number in each group for the month of December. Nevertheless, the figures should be very closely comparable for nearly all industries.

In about three-fifths of the 61 industries shown in this table the number of females 16 years of age or over and of children under the age of 16, taken together, formed a smaller proportion of the wage earners reported for December in 1909 than in 1899, or, in other words, the proportion of males 16 years of age or over increased during the decade. In the cotton-goods industry, in which the number of women and children is greater than in any other industry, each of these classes represented a smaller per-

centage of the total number of wage earners in 1909 than in 1899. Similar changes have occurred in the men's clothing and the hosiery and knit-goods industries, both of which are important as employers of women and children. In the silk and woolen industries the proportion of women has increased slightly, but the proportion of children under 16 has decreased. For the tobacco-products industry, in which the proportion of children has likewise decreased, a marked increase is shown in the proportion of women employed.

Among the 61 industries listed in the table there were 22 in which the percentage of children was higher in 1909 than in 1899, but most of these are relatively unimportant industries. The most conspicuous increase in the proportion of children employed is in the manufacture of bags, other than paper.

INDUSTRY.	PER CENT OF ALL WAGE EARNERS EMPLOYED.[1]								
	16 years of age and over.						Under 16 years of age.		
	Male.			Female.					
	1909	1904	1899	1909	1904	1899	1909	1904	1899
Artificial flowers and feathers and plumes	13.1	14.1	12.9	83.7	80.7	79.1	3.1	5.2	8.0
Awnings, tents, and sails	56.0	59.5	65.1	42.4	39.4	34.0	1.6	1.2	0.9
Bags, other than paper	34.0	34.0	31.3	56.8	60.2	65.3	9.2	5.9	3.4
Bags, paper	50.9	52.0	53.6	47.3	45.2	45.4	1.8	2.7	1.0
Baking powders and yeast	52.7	47.0	49.9	44.9	51.3	48.4	2.4	1.7	1.7
Boots and shoes, including cut stock and findings	62.6	63.4	63.6	33.3	33.2	33.4	4.1	3.4	3.1
Boots and shoes, rubber	59.3	57.1	60.3	38.1	39.8	38.2	2.6	3.1	1.5
Boxes, cigar	44.5	44.5	46.4	49.7	50.0	49.4	5.8	5.5	4.2
Boxes, fancy and paper	32.8	29.3	27.9	60.0	64.5	65.9	7.1	6.2	6.2
Bread and other bakery products	81.3	79.6	79.2	16.7	18.1	17.7	2.0	2.3	3.1
Buttons	60.0	50.8	47.4	36.5	45.9	47.2	3.5	3.3	5.4
Canning and preserving	43.1	48.2	55.6	49.8	45.7	40.0	7.1	6.1	4.4
Carpets and rugs, other than rag	56.2	51.0	48.4	39.7	43.3	44.1	4.1	5.7	7.5
Clocks and watches, including cases and materials	61.7	61.8	63.8	36.2	36.9	34.4	2.1	1.4	1.8
Clothing, horse	32.4	36.8	25.2	58.5	56.6	65.5	9.1	6.6	9.2
Clothing, men's, including shirts	42.4	37.6	33.9	55.5	60.0	63.4	2.0	2.4	2.6
Clothing, women's	35.8	34.9	29.6	63.3	64.4	69.4	0.9	0.8	0.9
Coffee and spice, roasting and grinding	59.4	60.3	51.9	39.1	38.3	46.1	1.4	1.4	2.0
Confectionery	35.9	35.9	44.7	58.1	59.3	49.8	6.0	4.8	5.4
Copper, tin, and sheet-iron products	84.6	85.0	86.7	12.3	12.4	9.2	3.0	2.6	4.1
Cordage and twine and jute and linen goods	48.3	57.6	55.2	44.8	35.6	36.8	6.8	6.7	8.1
Cork, cutting	54.2	45.1	43.8	40.4	46.7	48.2	5.3	8.3	8.0
Corsets	12.6	10.0	9.9	83.9	86.3	87.4	3.5	2.8	2.7
Cotton goods, including cotton small wares	50.9	46.6	44.8	38.7	40.5	41.9	10.4	12.9	13.3
Dyeing and finishing textiles	79.6	80.2	81.9	18.0	15.9	14.4	2.4	3.9	3.7
Electrical machinery, apparatus, and supplies	76.4	80.6	82.8	22.7	18.3	15.8	0.9	1.0	1.5
Fireworks	54.8	55.7	54.7	40.9	39.0	36.7	4.3	5.3	8.6
Flags, banners, regalia, society badges, and emblems	35.7	32.8	28.2	61.7	65.6	68.9	2.6	1.6	2.9
Flavoring extracts	56.8	51.7	51.2	41.1	46.5	46.5	2.0	1.8	2.3
Food preparations	67.9	59.0	65.6	30.6	39.2	31.7	1.5	1.8	2.7
Foundry and machine-shop products	97.3	97.3	97.7	2.0	1.9	1.4	0.8	0.8	0.9
Fur goods	50.1	57.3	45.3	40.5	42.3	53.9	9.4	0.4	0.7
Furnishing goods, men's	21.8	14.1	14.7	76.1	84.3	83.3	2.1	1.6	2.0
Gloves and mittens, leather	42.7	39.6	30.9	54.9	58.3	67.1	2.4	2.1	2.0
Gold and silver, leaf and foil	43.2	45.5	51.0	53.4	51.8	46.8	3.5	2.8	2.2
Hair work	34.4	17.8	13.9	63.4	80.5	85.8	2.1	1.7	0.4
Hats, fur-felt	69.9	70.3	70.2	28.0	27.6	28.4	2.1	2.1	1.4
Hats, straw	34.0	33.4	.....	64.3	65.6	.....	1.7	0.9	.....
Hosiery and knit goods	27.4	24.2	25.0	64.5	66.2	64.5	8.1	9.6	10.5
House-furnishing goods, not elsewhere specified	50.5	56.0	57.3	47.8	41.5	40.5	1.6	2.5	2.2
Jewelry	68.8	71.9	67.2	28.4	26.1	31.0	2.8	2.0	1.8
Jewelry and instrument cases	44.6	47.7	48.5	52.9	51.0	47.5	2.5	1.3	4.0
Leather goods	81.8	79.7	84.4	15.7	17.3	12.3	2.5	3.0	3.3
Mattresses and spring beds	79.9	79.7	77.0	18.4	18.8	20.4	1.7	1.5	2.6
Millinery and lace goods	19.9	13.4	16.9	77.2	85.1	81.9	2.9	1.5	1.2
Needles, pins, and hooks and eyes	45.6	47.5	50.9	46.7	46.5	44.0	7.7	6.0	5.1
Paper and wood pulp	87.1	85.9	83.2	12.6	13.7	16.5	0.3	0.4	0.4
Paper goods, not elsewhere specified	49.5	41.5	46.0	47.4	55.3	51.6	3.2	3.2	2.4
Patent medicines and compounds and druggists' preparations	46.6	42.2	44.5	51.3	55.4	53.9	2.1	2.4	1.6
Peanuts, grading, roasting, cleaning, and shelling	20.2	19.7	.....	78.1	75.4	.....	1.7	4.9	.....
Pencils, lead	41.8	42.1	35.8	50.9	54.0	51.9	7.4	3.8	12.3
Pens, steel	15.5	9.3	13.6	81.1	83.7	78.8	3.4	7.0	7.6
Pottery, terra-cotta, and fire-clay products	87.4	85.8	87.2	11.2	11.8	10.5	1.5	2.4	2.3
Printing and publishing	75.1	74.5	74.8	22.4	22.9	20.6	2.4	2.6	4.7
Silk and silk goods, including throwsters	35.0	34.1	36.6	57.1	56.7	53.4	8.0	9.2	10.0
Slaughtering and meat packing	93.1	92.0	93.1	6.3	6.7	4.5	0.6	1.2	2.4
Stationery goods, not elsewhere specified	53.1	49.6	42.9	41.1	46.5	50.7	5.9	3.9	6.4
Surgical appliances and artificial limbs	49.4	48.4	54.3	47.6	49.8	40.3	3.0	1.8	5.4
Tobacco manufactures	49.9	54.1	57.3	46.5	41.3	37.6	3.6	4.6	4.7
Umbrellas and canes	44.3	39.3	39.9	51.7	56.0	56.0	4.0	4.7	4.1
Woolen, worsted, and felt goods, and wool hats	53.0	52.8	53.0	41.3	39.6	39.7	5.7	7.6	7.2

[1] For 1904 and 1899 the percentages are based on the average numbers reported for the month of December; for 1909, on the number employed on Dec. 15, or the nearest representative day.

Comparison of sex and age distribution, by states: 1909, 1904, and 1899.—The following table shows, for each geographic division and state, for 1909, 1904, and 1899, respectively, the percentage of the average number of wage earners employed during the year represented by males 16 years of age or over, females 16

years of age or over, and children under 16 years of age. For 1909 the percentages have been computed from the returns for a representative day in the manner described on page 14; for the other two years the bases of calculation are average numbers computed for the year from the returns made for each month.

DIVISION AND STATE.	PER CENT OF AVERAGE NUMBER OF WAGE EARNERS.								
	16 years of age and over.						Under 16 years of age.		
	Male.			Female.					
	1909	1904	1899	1909	1904	1899	1909	1904	1899
United States	**78.0**	**77.6**	**77.1**	**19.5**	**19.5**	**19.5**	**2.5**	**2.9**	**3.4**
GEOGRAPHIC DIVISIONS:									
New England	69.0	69.1	68.4	27.9	28.0	28.7	3.1	2.9	2.9
Middle Atlantic	73.3	73.9	73.3	24.7	23.5	23.4	2.0	2.7	3.3
East North Central	84.0	83.8	84.4	14.5	14.5	13.2	1.5	1.7	2.4
West North Central	83.1	83.6	83.4	15.4	14.2	13.6	1.5	2.3	3.0
South Atlantic	78.0	75.4	74.7	15.6	17.0	17.4	6.3	7.6	7.9
East South Central	87.4	85.9	86.2	9.5	9.7	9.0	3.1	4.3	4.8
West South Central	93.6	92.6	91.3	4.7	5.5	6.4	1.7	1.9	2.4
Mountain	94.3	93.6	94.4	5.1	5.2	4.2	0.6	1.3	1.3
Pacific	90.4	88.6	85.5	8.9	10.3	12.6	0.7	1.2	1.9
NEW ENGLAND:									
Maine	75.8	75.6	72.1	22.5	22.4	24.8	1.7	2.0	3.1
New Hampshire	68.1	68.1	67.1	30.4	30.5	30.4	1.5	1.5	2.4
Vermont	85.7	85.5	85.0	13.7	13.8	14.1	0.6	0.7	0.9
Massachusetts	66.7	66.9	66.6	29.6	30.1	30.6	3.7	3.0	2.8
Rhode Island	63.6	63.0	62.7	32.3	31.6	31.6	4.1	5.4	5.7
Connecticut	73.4	73.1	72.3	24.0	24.5	25.6	2.6	2.4	2.1
MIDDLE ATLANTIC:									
New York	70.0	70.4	69.3	29.2	28.6	29.0	0.8	0.9	1.7
New Jersey	72.5	73.4	73.3	25.2	23.6	23.1	2.3	3.0	3.7
Pennsylvania	77.5	77.9	77.7	19.2	17.6	17.4	3.3	4.5	4.9
EAST NORTH CENTRAL:									
Ohio	83.4	83.4	84.0	15.4	15.2	14.7	1.2	1.4	1.3
Indiana	86.2	85.3	86.0	11.9	12.5	11.4	1.9	2.2	2.5
Illinois	82.2	82.8	82.6	16.3	15.9	14.4	1.5	1.3	3.0
Michigan	85.4	84.3	86.2	13.5	13.8	12.2	1.1	1.9	1.6
Wisconsin	85.8	85.4	86.0	11.3	11.9	9.9	2.3	2.7	4.0
WEST NORTH CENTRAL:									
Minnesota	86.2	87.4	88.5	13.5	12.1	10.4	0.4	0.5	1.1
Iowa	83.0	83.0	83.1	15.3	14.8	12.9	1.7	2.2	4.0
Missouri	78.4	79.5	78.1	19.1	17.1	18.5	2.5	3.4	3.5
North Dakota	89.2	86.7	90.7	8.7	11.3	6.8	2.0	2.0	2.5
South Dakota	86.0	87.4	91.4	12.7	11.2	3.6	1.3	1.3	4.9
Nebraska	85.3	85.5	86.9	13.8	12.5	9.2	0.9	2.0	3.9
Kansas	91.0	90.4	89.9	7.5	7.6	7.2	0.5	2.0	2.9
SOUTH ATLANTIC:									
Delaware	81.0	80.5	79.8	16.5	16.0	16.1	2.5	3.5	4.1
Maryland	67.1	67.4	65.5	26.8	26.7	28.6	6.1	5.9	6.0
District of Columbia	89.0	89.1	87.1	10.7	9.7	11.7	0.2	1.2	1.2
Virginia	83.5	81.0	79.5	13.1	14.9	14.0	3.4	4.0	5.5
West Virginia	91.3	90.0	89.0	7.1	7.4	8.5	1.6	2.6	2.4
North Carolina	70.9	69.9	65.0	17.8	21.4	20.9	11.3	13.6	14.1
South Carolina	69.6	63.3	61.0	17.5	20.2	20.1	12.9	16.4	18.0
Georgia	80.3	78.5	80.4	13.9	13.6	12.1	5.8	7.9	7.5
Florida	93.1	94.2	94.8	5.2	5.0	4.3	1.6	0.8	0.9
EAST SOUTH CENTRAL:									
Kentucky	84.2	82.8	84.1	14.5	13.9	11.8	1.3	3.3	4.2
Tennessee	85.3	85.4	85.1	11.3	10.9	10.6	3.3	3.6	4.3
Alabama	87.9	86.6	87.0	7.0	7.3	6.6	5.1	6.6	6.5
Mississippi	93.9	91.4	90.8	4.0	5.3	5.4	2.1	3.3	3.8
WEST SOUTH CENTRAL:									
Arkansas	97.3	96.9	96.7	1.5	1.5	1.3	1.2	1.6	2.0
Louisiana	92.1	89.4	85.0	5.9	8.2	12.3	2.0	2.4	2.7
Oklahoma	93.9	92.0	94.7	5.1	6.0	3.2	0.9	2.0	2.1
Texas	92.7	93.3	93.2	5.5	5.1	4.4	1.8	1.7	2.4
MOUNTAIN:									
Montana	98.1	97.7	98.1	1.6	1.6	0.9	0.3	0.7	1.1
Idaho	97.7	95.8	96.5	1.9	2.9	2.1	0.4	1.3	1.4
Wyoming	98.0	97.8	98.5	1.6	1.8	0.7	0.4	0.4	0.7
Colorado	92.0	92.4	93.4	7.5	6.2	5.5	0.6	1.4	1.0
New Mexico	96.4	97.4	96.5	2.0	1.5	2.4	1.6	1.1	1.0
Arizona	98.8	98.9	98.0	0.6	0.7	0.9	0.6	0.4	1.1
Utah	88.8	88.9	86.1	10.2	12.6	10.7	0.9	2.4	3.2
Nevada	98.4	98.5	95.4	1.2	1.0	1.2	0.4	0.5	3.4
PACIFIC:									
Washington	95.5	96.9	97.2	4.1	2.9	2.0	0.4	0.2	0.8
Oregon	91.8	90.9	90.4	7.8	8.0	7.7	0.3	1.1	1.9
California	86.9	84.4	79.7	12.2	14.0	17.9	0.9	1.6	2.4

In every geographic division except New England, children under 16 years of age constituted a smaller proportion of the average number of wage earners in 1909 than in 1899, while the proportion in New England rose slightly, wholly on account of increased proportions in Massachusetts and Connecticut. The proportion of children decreased during the decade in all but five of the states, the exceptions being Massachusetts, Connecticut, Maryland (where there was very little change), Florida, and New Mexico. In the Middle Atlantic, East North Central, West North Central, East South Central, and Mountain divisions women 16 years of age or over represented a larger proportion of the total in 1909 than in 1899, but in the other divisions they constituted a somewhat smaller proportion. Most of the individual states show comparatively little change in the proportion of women, the most conspicuous increases being in certain states where the manufacturing industries are still comparatively undeveloped, such as South Dakota and Nebraska. Marked decreases in the proportion of women took place in Louisiana and California.

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 purposes of comparison figures for 1904 are also given, but these are on a slightly different basis, since at that census each establishment was asked to report the average number employed for each month rather than the number employed on a specified day of each month.

MONTH.	WAGE EARNERS IN ALL MANUFACTURING INDUSTRIES.[1]			
	Number.		Per cent of maximum.	
	1909	1904	1909	1904
January	6,210,063	5,262,472	88.6	92.7
February	6,297,627	5,330,471	89.9	93.9
March	6,423,517	5,450,736	91.7	96.0
April	6,437,633	5,493,343	91.9	96.8
May	6,457,279	5,512,373	92.2	97.1
June	6,517,469	5,463,804	93.0	96.2
July	6,486,676	5,323,966	92.6	93.8
August	6,656,933	5,420,648	95.0	95.5
September	6,868,765	5,608,412	98.5	98.8
October	6,997,090	5,676,920	99.9	100.0
November	7,006,853	5,587,028	100.0	98.4
December	6,900,652	5,490,453	99.8	96.7

[1] The numbers for 1909 represent the number employed on the 15th of each month, or the nearest representative day; those for 1904, the average number employed during each month.

In 1909 the largest number of wage earners, 7,006,853, was employed in November, and the smallest number, 6,210,063, in January, this number being equal to 88.6 per cent of the maximum. In 1904 the largest number was employed in October and the smallest number in January, the minimum representing 92.7 per cent of the maximum. In 1909 a fairly constant increase in employment was shown from January to November, except that the number employed in July was a little lower than in June.

The figures for employment by months for all industries combined fail to show fully the variations in employment, since a variation in one direction in one industry may be offset by a variation in the opposite direction in another industry. Except for distinctly

seasonal industries, however, the employment in most of the important industries of the country appears to have been comparatively steady throughout the year 1909. The following table shows the amount of variation in certain industries. It gives (1) the 14 industries which reported the largest average number of wage earners, including all reporting 100,000 or more, and (2) the 12 industries which show the greatest variations in employment, including all (except one or two employing less than 1,000 wage earners each) in which the number for the month of least activity is less than one-half that for the month of greatest activity.

INDUSTRY.	WAGE EARNERS.					
	Average number.	Maximum number.		Minimum number.		
		Month.	Number.	Month.	Number.	Per cent of maximum.
Principal industries.						
Lumber and timber products	695,019	Nov...	739,100	Jan...	649,239	87.8
Foundry and machine-shop products	531,011	Dec...	597,234	Jan...	482,080	80.7
Cotton goods, including cotton small wares	378,880	Dec...	383,520	Jan...	374,433	97.6
Cars and general shop construction and repairs by steam-railroad companies	282,174	Dec...	301,538	May...	268,700	89.1
Printing and publishing	258,434	Dec...	269,884	July...	251,757	93.3
Iron and steel, steel works and rolling mills	240,076	Dec...	283,020	Mar...	215,076	75.8
Clothing, men's, including shirts	239,696	Dec...	251,349	Jan...	230,650	91.8
Boots and shoes, including cut stock and findings	198,297	Dec...	207,452	May...	190,382	91.8
Woolen, worsted, and felt goods, and wool hats	168,722	Nov...	173,943	Jan...	158,318	91.0
Tobacco manufactures	166,810	Dec...	176,369	Jan...	161,563	91.6
Clothing, women's	153,743	Oct...	167,525	July...	135,034	80.6
Hosiery and knit goods	129,275	Nov...	134,540	Jan...	123,308	91.7
Furniture and refrigerators	128,452	Nov...	136,615	Jan...	120,524	88.2
Bread and other bakery products	100,246	Oct...	102,770	Jan...	96,639	94.0
Industries showing large variation.						
Brick and tile	76,528	July...	104,930	Jan...	38,312	36.5
Canning and preserving	59,908	Sept...	154,800	Jan...	19,998	12.9
Fertilizers	18,310	Mar...	20,310	July...	14,264	48.7
Oil, cottonseed, and cake	17,071	Nov...	20,334	July...	5,174	17.6
Ice, manufactured	16,114	July...	22,872	Jan...	9,847	43.1
Artificial stone	9,957	Aug...	12,884	Jan...	4,856	37.7
Hats, straw	8,814	Mar...	11,488	July...	4,700	40.9
Beet sugar	7,204	Nov...	16,807	Feb...	2,206	13.1
Sugar and molasses	4,127	Nov...	15,761	Feb...	559	3.5
Vinegar and cider	1,542	Oct...	3,464	Mar...	886	25.6
Grindstones	1,304	May...	1,665	Jan...	795	47.7
Rice, cleaning and polishing	1,239	Oct...	2,017	July...	436	21.6

Considering first the principal industries, it will be seen that the greatest regularity of employment was in the manufacture of cotton goods, in which the number employed during the month of least activity, January, was equal to 97.6 per cent of the number employed in the month of greatest activity, December. Other industries in which the number for the month of least activity was more than 90 per cent of the number for the month of greatest activity are the manufacture of boots and shoes, bakeries, the men's clothing industry, the tobacco-products industry, the manufacture of woolen goods and of hosiery and knit goods, and printing and publishing. Among the principal industries the greatest variation appears in the steel works and rolling mills, in which the number employed during March, the month of least activity, was only 75.8 per cent of the number employed during December, the month of greatest activity. The women's clothing and foundry and machine shop industries also show a comparatively large degree of variation in the number employed.

The lumber industry, as already stated, includes logging camps as well as sawmills, and also includes planing mills and wooden packing-box factories. The variation in employment in all of these branches taken together for the country as a whole is not very great, the number employed during the month of least activity being 87.8 per cent of the number employed during the month of greatest activity. For the logging camps alone, however, there is greater variation, the number employed during July, 170,587, being only 76.6 per cent of the number employed in December, which was 222,564. Furthermore, since in different sections of the country the active season in the woods covers different months, if the operations of the logging camps in each geographic division are considered separately, a much wider variation appears in the number employed, this being particularly true in the Northern states.

There are a number of industries which are conspicuously seasonal in character. In the case of some of these the weather will not permit work except at certain seasons, and in others the raw material used is available only at certain seasons and must be handled immediately, while in the case of the remainder the demand for the products is conspicuously seasonal. The most variable large industry is canning and preserving, which naturally is confined mainly to the period at which fruits and vegetables are harvested. The industry includes the canning and preserving of fish and oysters, which is carried on in the winter months; if this were excluded there would necessarily be a much greater variation in the numbers employed. In this industry the number employed during January, the month of least activity, formed only 12.9 per cent of the number employed during September.

CHARACTER OF OWNERSHIP.

Summary for United States.—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. Comparative figures are given, covering all industries combined, for the censuses of 1909 and 1904. Similar data for 1899 are not available.

CHARACTER OF OWNERSHIP.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
All classes:				
1909	268,491	6,615,046	$20,672,051,870	$8,530,260,992
1904	216,180	5,468,383	14,793,902,563	6,293,694,753
Average per establishment—				
1909		25	76,998	31,771
1904		25	68,433	29,113
Individual:				
1909	140,605	804,883	2,042,061,500	908,824,072
1904	113,940	755,923	1,702,830,624	824,202,887
Average per establishment—				
1909		6	14,523	6,890
1904		7	14,944	7,234
Firm:				
1909	54,265	794,836	2,184,107,632	951,383,741
1904	47,934	841,242	2,132,530,604	930,143,823
Average per establishment—				
1909		15	40,249	17,532
1904		18	44,480	19,405
Corporation:				
1909	69,501	5,002,393	16,341,116,634	6,583,207,117
1904	51,097	3,862,398	10,904,069,307	4,526,055,153
Average per establishment—				
1909		72	235,121	94,721
1904		76	213,399	88,578
Other:				
1909	4,120	12,934	104,766,104	26,846,002
1904	3,203	8,520	54,460,028	13,202,890
Average per establishment—				
1909		3	25,429	6,516
1904		3	17,005	4,122
Per cent of total—				
1909	100.0	100.0	100.0	100.0
1904	100.0	100.0	100.0	100.0
Individual:				
1909	52.4	12.2	9.9	11.4
1904	52.7	13.8	11.5	13.1
Firm:				
1909	20.2	12.0	10.6	11.2
1904	22.2	15.4	14.4	14.8
Corporation:				
1909	25.9	75.6	79.0	77.2
1904	23.6	70.6	73.7	71.9
Other:				
1909	1.5	0.2	0.5	0.3
1904	1.5	0.2	0.4	0.2

The most important distinction shown is that between corporate and all other forms of ownership. Of the total number of establishments reported as engaged in manufacturing industries in 1909, 25.9 per cent were under corporate ownership. The corresponding figure for 1904 was 23.6 per cent. While corporations thus controlled only about one-fourth of the total number of establishments, they gave employment to a large proportion of all wage earners reported, namely, 75.6 per cent in 1909 and 70.6 per cent in 1904. The value of the products of the factories operated by corporations represented 79 per cent of the total value of products for all establishments in 1909 and 73.7 per cent in 1904. These figures show that even during this short period of five years the corporate form of ownership increased so greatly that it represented an appreciably larger proportion of the manufacturing interests of the country in 1909 than in 1904.

Partnerships (including limited partnerships) controlled about one-fifth of the total number of manufacturing establishments in 1909, and individuals rather more than one-half of the total number. These two classes of establishments were about equal in volume of business, each reporting in the neighborhood of one-eighth of the total number of wage earners and one-tenth of the total value of products in 1909. During the five years from 1904 to 1909 partnerships lost ground, relatively, to a greater degree than individual ownership, presumably because of the incorporation of many concerns previously operated by firms.

In 1909 there were 4,120 establishments operated by cooperative companies and other miscellaneous forms of ownership that could not be classified as individual, firm, or corporate ownership. These establishments gave employment to only two-tenths of 1 per cent of the wage earners, and the value of their products was only five-tenths of 1 per cent of the total value reported for all establishments.

From 1904 to 1909 the average number of wage earners per establishment decreased for all three principal classes of ownership, while the average value of products per establishment decreased for the establishments under individual and firm ownership but increased for corporate ownership.

Proportion of business done by corporations in the principal industries: 1909 and 1904.—The table on page 24 shows, for the principal industries, the number of manufacturing establishments operated by corporations in 1909 and 1904, and the percentage which they represent of the entire number of establishments; also the value of the manufactured products made in establishments under corporate ownership and the percentage which this represents of the total value. The figures as to total value, on which the percentages are based, will be found in the table on page 74. Two important industries, the repair shops of steam railroads and the smelting and refining of copper, are not shown separately in this table, as to do so would disclose the operations of individual establishments.

This table shows that in industries where a large investment in plant and machinery is necessary to the proper conduct of the business, the establishments are as a rule operated by corporations, it being easier under this form of ownership to obtain the necessary capital. All of the establishments engaged in the smelting and refining of lead in 1909 were operated by corporations, and more than 90 per cent of the blast furnaces, steel works and rolling mills, cottonseed-oil mills, and establishments manufacturing steam-railroad cars were under this form of ownership. The general tendency has been toward an increase in the proportion of the establishments operated by corporations, and 34 of the 41 selected

the former showing a gain of about 25,000,000 bushels and the latter a gain of about 29,000,000 bushels.

The increase in the value of all products of flour mills and gristmills for the period 1899–1909 was 76.2 per cent. This gain was due mainly to advances in price, for the increases in quantity were relatively much smaller. The value of the wheat flour produced increased 64.7 per cent, but its quantity only 6 per cent, while the production of rye flour increased 54 per cent in value and only 6.2 per cent in quantity. The figures in the table indicate that higher unit values prevailed for all classes of products during 1909 than during the two prior census years. For the decade as a whole the percentage of increase in cost of materials, which constitutes by far the greater part of the value of products, was, however, even higher than that in value of products.

	1909	1904	1899
MATERIALS.			
Total cost	$767,576,479	$619,971,161	$428,116,757
Grain ground or milled, bushels	806,247,961	754,945,729	729,061,820
Wheat	486,483,314	494,095,083	471,306,986
Corn	209,281,237	178,217,321	180,573,076
Rye	11,503,969	11,480,370	10,088,381
Buckwheat	7,156,062	6,531,305	5,490,156
Barley	24,509,770	18,628,552	10,067,348
Oats	50,241,598	45,381,009	47,175,766
Other	7,075,011	612,089	4,360,107
PRODUCTS.			
Total value	[1] $883,584,405	[2] $713,033,395	$501,396,304
Wheat flour:			
Barrels	105,756,045	104,013,278	99,763,777
Value	$550,116,254	$480,258,514	$333,997,686
White—			
Barrels	105,321,960	103,608,350	[3]
Value	$548,017,654	$478,484,601	[3]
Graham—			
Barrels	434,676	404,928	[3]
Value	$2,098,600	$1,773,913	[3]
Rye flour:			
Barrels	1,532,139	1,503,100	1,443,339
Value	$6,383,538	$5,892,108	$4,145,565
Buckwheat flour:			
Pounds	176,081,891	175,354,062	143,190,724
Value	$4,663,561	$4,379,359	$3,190,152
Barley meal:			
Pounds	28,550,952	68,508,055	91,275,646
Value	$486,000	$922,884	$963,710
Corn meal and corn flour:			
Barrels	21,552,737	23,624,693	27,838,811
Value	$66,941,095	$56,368,556	$52,167,739
Hominy and grits:			
Pounds	827,987,702	756,861,398	291,726,145
Value	$12,509,493	$8,455,420	$2,567,084
Feed:			
Tons (2,000 pounds)	5,132,369	3,456,786	3,993,080
Value	$140,541,915	$76,096,127	$63,011,421
Offal:			
Tons (2,000 pounds)	4,104,042	4,408,626	3,104,408
Value	$89,814,427	$76,105,532	$36,679,196
All other cereal products—"breakfast foods," oatmeal, rolled oats, etc., value	$4,726,106	[3]	[3]
All other products, value	$7,408,016	$4,554,895	$4,673,751
EQUIPMENT.			
Pairs of rolls	76,866	80,822	67,141
Runs of stone	11,185	10,609	10,939
Attrition mills	981	[4]	[4]

[1] In addition, merchant-ground products, valued at $1,637,228, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation. The items covered by this amount were wheat flour, 105,477 barrels, valued at $614,952; corn meal, 32,804 barrels, valued at $87,507; rye flour, 2,620 barrels, valued at $12,330; feed, 33,765 tons, valued at $907,165; and offal, 627 tons, valued at $15,274; and in addition, "breakfast foods," to the value of $36,978,613, were made by establishments engaged primarily in the manufacture of food preparations. See note to table on page 73, for custom ground by-products.

[2] In addition, "breakfast foods," to the value of $23,904,952, were made by establishments engaged primarily in the manufacture of food preparations.

[3] Not reported separately.

[4] Not reported.

Rice, cleaning and polishing.—The following table presenting statistics for the cleaning and polishing of rice includes the quantity of rice milled, whether on a custom or exchange basis or in merchant mills. In 1909 there were 974,747,475 pounds of rice treated, as compared with 398,602,018 pounds in 1899, an increase of 144.5 per cent. The amount for 1909, however, was a little less than that for 1904. In 1909 there were only 3,873,735 pounds of foreign rough rice treated, as against 39,414,459 pounds in 1899. Attention is called to the fact that in 1909 whole rice formed 76.3 per cent of the total quantity of cleaned rice and broken rice 23.7 per cent, whereas in 1904 whole rice formed 65.9 per cent and broken rice 34.1 per cent of the cleaned-rice product.

	1909	1904	1899
MATERIALS.			
Rough rice milled, pounds	974,747,475	999,727,650	398,602,018
Domestic	970,873,740	990,473,625	359,187,559
Foreign	3,873,735	9,254,025	39,414,459
PRODUCTS.			
Total value	[1] $22,371,457	$16,296,916	$8,723,726
Clean rice:			
Pounds	626,089,489	623,900,245	243,031,200
Value	$20,685,982	$15,357,133	[2]
Whole—			
Pounds	477,589,004	411,208,943	[2]
Value	$17,398,736	$12,077,124	[2]
Broken—			
Pounds	148,500,485	212,691,302	[2]
Value	$3,287,246	$3,280,009	[2]
Polish:			
Pounds	29,821,813	33,290,331	15,134,048
Value	$362,052	$267,647	[2]
Bran:			
Pounds	91,208,529	120,694,130	69,265,012
Value	$736,215	$501,193	[2]
Hulls and waste, value	$166,147	$116,360	[2]
All other products, value	$421,061	$54,583	[2]

[1] In addition, 48,150 pounds of clean rice, valued at $1,449, were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

[2] Not reported separately.

Slaughtering and meat packing.—The table on page 38 presents statistics for the wholesale slaughtering and meat-packing industry. It includes the manufacture of sausage when done in connection with slaughtering or meat packing or when carried on in independent establishments, but it does not include the rendering of lard in independent establishments or the operations of retail butchers. The cost of all materials reported for the industry was $1,201,827,784 in 1909 and $685,310,099 in 1899, an increase of 75.4 per cent. The total value of products increased from $788,367,647 in 1899 to $1,370,568,101 in 1909, or 73.8 per cent.

A portion of the dressed meat reported as material was obtained from slaughtering establishments included in the tabulation, and therefore is duplicated in the total value of products.

On account of the higher prices in 1909, the percentages of increase in value from 1899 to 1909 for the different kinds of products are somewhat greater than the percentages of increase in quantity. This is

DIVISION AND STATE.	NUMBER OF ESTABLISHMENTS.						VALUE OF PRODUCTS OF ESTABLISHMENTS OPERATED BY CORPORATIONS.			
	Total.		Operated by corporations.				Amount.		Per cent of total.	
			Number.		Per cent of total.					
	1909	1904	1909	1904	1909	1904	1909	1904	1909	1904
United States	268,491	216,180	69,501	51,097	25.9	23.6	$16,341,116,634	$10,904,069,307	79.0	73.7
GEOGRAPHIC DIVISIONS:										
New England	25,351	22,279	7,300	5,572	28.8	25.0	2,173,070,560	1,569,457,541	81.4	74.5
Middle Atlantic	81,315	67,699	17,785	12,460	21.9	18.4	5,133,389,739	3,417,242,344	71.9	65.5
East North Central	60,013	51,754	17,755	14,093	29.6	27.2	4,434,329,994	2,913,000,832	85.1	80.8
West North Central	27,171	21,402	6,649	4,816	24.5	22.4	1,513,583,331	1,044,005,587	83.9	81.3
South Atlantic	28,088	19,504	6,765	4,823	24.1	24.7	1,059,302,614	701,534,357	76.7	72.0
East South Central	15,381	10,311	3,558	2,672	23.1	25.9	494,623,131	349,227,144	78.5	75.2
West South Central	12,339	8,279	3,403	2,299	27.6	27.8	509,339,325	315,236,430	81.4	75.9
Mountain	5,254	3,610	1,751	1,117	33.2	30.9	328,052,051	230,401,412	90.2	90.5
Pacific	13,570	11,192	4,543	3,252	33.5	29.1	695,018,111	423,992,759	82.4	76.9
NEW ENGLAND:										
Maine	3,546	3,145	861	671	24.3	21.3	136,156,275	101,575,154	77.3	70.5
New Hampshire	1,961	1,618	424	338	21.6	20.9	126,642,602	88,159,093	76.9	71.3
Vermont	1,058	1,099	372	309	19.0	18.2	42,641,046	36,373,592	62.4	57.7
Massachusetts	11,684	10,723	3,483	2,555	29.8	23.8	1,182,935,652	810,543,002	79.4	72.1
Rhode Island	1,951	1,617	659	512	33.8	31.7	243,426,998	158,322,601	86.8	78.3
Connecticut	4,251	3,477	1,501	1,187	35.3	34.1	441,267,987	314,484,099	90.0	85.2
MIDDLE ATLANTIC:										
New York	44,935	37,194	9,345	6,086	20.8	16.4	2,108,026,670	1,396,924,211	62.6	56.1
New Jersey	8,817	7,010	2,560	1,834	29.0	26.2	971,904,531	647,236,276	84.8	79.7
Pennsylvania	27,563	23,495	5,880	4,540	21.3	19.3	2,053,458,538	1,403,081,857	78.2	71.7
EAST NORTH CENTRAL:										
Ohio	15,138	13,785	5,123	4,008	33.8	29.1	1,240,778,444	777,392,416	86.9	80.9
Indiana	7,969	7,044	2,303	1,915	29.7	27.2	495,570,099	317,461,228	85.6	80.6
Illinois	18,026	14,921	5,209	4,145	28.9	27.8	1,646,518,916	1,179,028,840	85.8	83.6
Michigan	9,159	7,440	2,638	2,044	28.8	27.4	571,102,107	328,185,756	83.4	76.5
Wisconsin	9,721	8,558	2,422	1,981	24.9	23.1	471,360,437	310,912,592	79.9	75.6
WEST NORTH CENTRAL:										
Minnesota	5,561	4,756	1,326	922	23.8	19.4	330,924,507	234,013,704	80.8	76.0
Iowa	5,528	4,785	1,317	1,041	23.8	21.8	189,182,389	116,246,585	73.0	72.4
Missouri	8,375	6,464	2,447	1,847	29.2	28.6	508,761,173	379,405,293	88.6	86.3
North Dakota	752	507	133	81	17.7	16.0	13,580,608	5,146,817	71.0	50.4
South Dakota	1,020	686	216	112	21.2	16.3	9,870,131	6,003,547	55.2	45.9
Nebraska	2,500	1,819	487	359	19.5	19.7	175,621,402	138,623,975	88.2	89.5
Kansas	3,435	2,475	723	454	21.0	18.3	285,637,061	164,565,576	87.9	83.0
SOUTH ATLANTIC:										
Delaware	726	631	202	[1] 169	27.8	25.4	30,071,988	[1] 28,921,912	68.3	70.3
Maryland	4,837	3,852	873	650	18.0	16.0	207,102,289	147,744,248	65.6	60.7
District of Columbia	518	482	122	91	23.6	18.9	16,544,835	10,150,923	65.4	55.3
Virginia	5,685	3,187	1,099	702	19.3	22.0	163,780,071	109,546,390	74.5	73.6
West Virginia	2,586	2,109	813	638	31.4	30.3	140,385,264	78,951,053	86.7	73.7
North Carolina	4,931	3,272	1,330	879	27.2	26.9	182,140,664	113,510,110	84.1	79.6
South Carolina	1,854	1,399	564	464	30.4	33.2	102,403,671	70,493,378	90.4	88.8
Georgia	4,702	3,219	1,252	931	26.1	28.9	165,057,980	114,976,572	81.4	76.1
Florida	2,159	1,413	501	[1] 308	23.2	21.8	45,815,852	[1] 27,239,766	62.9	54.2
EAST SOUTH CENTRAL:										
Kentucky	4,776	3,734	1,147	862	24.0	23.1	178,650,245	117,046,726	79.8	73.3
Tennessee	4,609	3,175	1,068	785	23.2	24.7	133,750,538	97,285,799	74.2	70.5
Alabama	3,398	1,882	788	578	23.2	30.7	123,502,394	92,725,327	84.6	84.9
Mississippi	2,508	1,520	555	447	21.4	29.4	58,719,954	42,169,292	72.9	73.4
WEST SOUTH CENTRAL:										
Arkansas	2,925	1,907	640	518	21.9	27.2	55,585,992	38,724,917	74.2	71.9
Louisiana	2,516	2,091	910	700	36.2	33.5	183,303,633	138,977,223	81.9	74.6
Oklahoma	2,310	1,123	501	[1] 242	21.7	21.5	30,300,339	[1] 17,401,144	73.4	71.1
Texas	4,588	3,158	1,352	839	29.5	26.6	231,059,361	120,133,146	84.7	79.8
MOUNTAIN:										
Montana	677	382	203	118	30.0	30.9	68,458,197	63,369,703	93.4	95.4
Idaho	725	364	200	105	27.6	28.8	16,982,034	6,136,137	75.8	70.0
Wyoming	208	169	[1] 68	[1] 55	25.0	32.5	[1] 4,664,800	[1] 2,751,358	74.6	78.1
Colorado	2,034	1,600	608	478	34.3	29.8	116,901,543	89,377,091	90.0	89.2
New Mexico	313	199	[1] 96	[1] 53	30.4	26.6	[1] 6,253,089	[1] 4,645,600	79.2	81.4
Arizona	311	169	[1] 122	71	38.6	42.0	[1] 48,305,675	27,135,784	96.1	96.6
Utah	749	606	294	203	30.3	33.5	56,234,329	34,765,530	90.7	89.3
Nevada	177	115	[1] 70	[1] 34	37.3	29.6	[1] 10,761,734	2,220,209	90.5	71.7
PACIFIC:										
Washington	3,674	2,751	1,444	926	39.3	33.7	185,171,875	103,215,882	83.9	80.1
Oregon	2,246	1,602	640	409	28.5	25.5	70,781,269	40,034,283	76.1	72.1
California	7,659	6,839	2,459	1,917	32.1	28.0	439,064,967	280,742,580	82.9	76.5

[1] Includes establishments operated under other forms of ownership, to avoid disclosing individual operations. There were eight of these establishments in 1909 and seven in 1904 which were included in the total for geographic divisions but are not included in the total for the United States.

This table shows that in most of the states in 1909 the number of manufacturing establishments owned by corporations represented between one-fifth and one-third of the total number of manufacturing establishments. Vermont, North Dakota, Nebraska, Maryland, and Virginia were the only states in which less than one-fifth of the establishments were owned by corporations, and Rhode Island, Connecticut, Ohio, Louisiana, and five states in the western part of the country were the only ones in which over one-third were under this form of ownership. In a large majority of the states the proportion of establishments operated by corporations was larger in 1909 than in 1904, the exceptions being Nebraska, Virginia, South Carolina, Georgia, Tennessee, Alabama, Mississippi, Arkansas, Montana, Idaho, Wyoming, and Arizona.

In most of the states between three-fifths and nine-tenths of the total value of manufactured products in 1909 was reported by establishments under corporate ownership. The only state in which the proportion was less than three-fifths was South Dakota, while in Connecticut, South Carolina, Montana, Colorado, Arizona, and Utah the proportion was nine-tenths or more. Among the great manufacturing states, New York is conspicuous for the comparatively small proportion, 62.6 per cent, of the value of its products contributed by this class of establishments. In almost every state a larger percentage of the total value of products was reported by such establishments in 1909 than in 1904, thus indicating that the tendency toward the incorporation of manufacturing concerns, particularly the larger concerns, is general and to a considerable degree independent of variations in state legislation regarding corporations. The only states in which the proportion of the total value produced by corporations was less in 1909 than in 1904 are Nebraska, Delaware, Alabama, Mississippi, Montana, Wyoming, New Mexico, and Arizona, and the difference in each case was slight.

SIZE OF ESTABLISHMENTS.

Summary for United States.—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 in all industries combined according to the value of their products, and shows for each group, for 1909 and 1904, the number of wage earners, value of products, and value added by manufacture, together with the percentage of the respective totals represented by each group. It also gives the average size of establishments as measured by these three items; the changes in this average are, however, much less significant than the changes in the percentages for the several groups.

Of the 268,491 establishments reported as engaged in manufacturing industries in 1909, there were 3,061, or 1.1 per cent, whose products were valued at more than $1,000,000 each. The corresponding figures for 1904 were 1,900 establishments out of 216,180, or nine-tenths of 1 per cent. While these establishments represented a comparatively small proportion of the total number of establishments, they gave employment to a much larger proportion of all the wage earners reported, namely, 30.5 per cent in 1909 and 25.6 per cent in 1904. The value of products of such establishments represented 43.8 per cent of the total value of products in 1909 and 38 per cent in 1904.

The figures indicate that establishments of this class produced a considerably larger proportion of the manufactures of the country in 1909 than in 1904. It should be noted that the increased proportion is due partly to the fact that certain establishments included in the other groups in 1904 were included in this group in 1909 as the result of an increase in the value of their output.

VALUE OF PRODUCTS.	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
All classes:				
1909	268,491	6,615,046	$20,672,051,870	$8,530,260,993
1904	216,180	5,468,383	14,793,902,563	6,293,631,753
Less than $5,000:				
1909	93,340	142,430	222,463,847	144,246,[illegible]
1904	71,147	106,353	176,128,212	114,781,121
$5,000 and less than $20,000:				
1909	86,089	470,075	904,724,296	508,954,[illegible]
1904	72,791	419,466	751,047,759	424,129,641
$20,000 and less than $100,000:				
1909	57,269	1,090,380	2,544,348,079	1,[illegible]
1904	48,090	1,027,047	2,120,257,883	1,090,2[illegible]
$100,000 and less than $1,000,000:				
1909	27,823	2,896,475	7,940,817,284	3,[illegible]
1904	22,246	2,515,064	6,109,012,538	2,782,611,883
$1,000,000 and over:				
1909	3,061	2,015,686	9,053,698,364	3,945,[illegible]
1904	1,900	1,400,453	5,628,456,171	1,883,[illegible]
Per cent of total:				
1909	100.0	100.0	100.0	[illegible]
1904	100.0	100.0	100.0	[illegible]
Less than $5,000:				
1909	34.8	2.2	1.1	1.7
1904	32.9	1.9	1.2	1.8
$5,000 and less than $20,000:				
1909	32.4	7.1	4.4	6.0
1904	33.7	7.7	5.1	6.7
$20,000 and less than $100,000:				
1909	21.3	16.5	12.3	14.7
1904	22.2	18.8	14.4	17.3
$100,000 and less than $1,000,000:				
1909	10.4	43.8	38.4	41.[illegible]
1904	10.3	46.0	41.3	44.2
$1,000,000 and over:				
1909	1.1	30.5	43.8	[illegible]
1904	0.9	25.6	38.0	[illegible]
Average per establishment:				
1909	.....	25	$76,993	$31,[illegible]
1904	.....	25	$68,433	$29,[illegible]

In 1909 establishments with a product valued between $100,000 and $1,000,000, gave employment to 43.8 per cent of the wage earners, and the value of their products formed 38.4 per cent of the total. Establishments with a product valued between $20,000 and $100,000 gave employment to about one-sixth of the wage earners, and the value of their products formed about one-eighth of the total. The establishments which

had a product valued between $5,000 and $20,000, constituted about one-third of the whole number, but gave employment to only 7.1 per cent of the wage earners, and the value of their products formed only 4.4 per cent of the total. Establishments that had a product in 1909 valued at less than $5,000 also formed about one-third of the total number, but they gave employment to only 2.2 per cent of the wage earners and turned out products whose value amounted to only 1.1 per cent of the total. In this class of establishments a large proportion of the work was done by the proprietors and firm members.

Of the five classes designated, the class of establishments with products valued at $1,000,000 or over is the only one that reported a larger proportion of the total value of products in 1909 than in 1904, every other class having lost relatively. The same statement is true as to the number of wage earners, except that the establishments of smallest size, as well as those of largest size, have gained somewhat in their proportion of the total number employed.

During the five years 1904–1909 the average value of products per establishment increased from $68,433 to $76,993, and the average value added by manufacture from $29,113 to $31,771. These changes can scarcely be taken as in themselves indicating a tendency toward concentration, as the increased values shown are due in part to the increase that has taken place in the prices of commodities. The average number of wage earners per establishment was the same at the two censuses, namely, 25.

Relative importance of large establishments in the principal industries: 1909 and 1904.—The following table shows for the principal industries of the United States, for 1909 and 1904, the number of establishments manufacturing products to the value of $1,000,000 or more, and the percentage which such establishments represent of the total number of establishments; also the value of products made by establishments of this class and the proportion which that value represents of the total for all establishments in the industry.

INDUSTRY.	NUMBER OF ESTABLISHMENTS.						VALUE OF PRODUCTS OF ESTABLISHMENTS REPORTING PRODUCTS VALUED AT $1,000,000 OR OVER.			
	Total.		Reporting products valued at $1,000,000 or over.				Amount.		Per cent of total.	
			Number.		Per cent of total.					
	1909	1904	1909	1904	1909	1904	1909	1904	1909	1904
All industries	**268,491**	**216,180**	**3,061**	**1,900**	**1.1**	**0.9**	**$9,053,698,364**	**$5,628,456,171**	**43.8**	**38.0**
Agricultural implements	640	648	34	27	5.3	4.2	94,138,206	58,479,820	64.3	52.2
Automobiles, including bodies and parts	743	178	56	10	7.5	5.6	170,380,802	13,995,669	68.4	46.6
Boots and shoes, including cut stock and findings	1,948	1,895	135	[1] 62	7.0	3.3	244,547,642	[1] 119,079,802	47.7	33.3
Brass and bronze products	1,021	813	24	[2] 17	2.4	2.1	85,947,143	[2] 51,736,503	57.3	50.5
Bread and other bakery products	23,926	18,226	21	14	0.1	0.1	30,385,586	23,083,467	9.2	8.6
Butter, cheese, and condensed milk	8,479	8,926	9	(1)	0.1	.....	11,933,853	(1)	4.3	.....
Canning and preserving	3,767	3,168	13	4	0.3	0.1	23,468,494	5,627,911	14.9	4.3
Carriages and wagons and material	5,492	5,588	13	8	0.2	0.1	23,026,135	13,057,216	15.0	9.0
Cars and general shop construction and repairs by steam-railroad companies	1,145	1,140	94	68	8.2	6.0	189,111,816	125,671,990	46.6	40.6
Cars, steam-railroad, not including operations of railroad companies	110	73	25	25	22.7	34.2	99,841,717	98,706,346	80.7	88.8
Chemicals	349	275	31	18	8.9	6.5	70,806,560	36,296,017	60.2	48.3
Clothing, men's, including shirts	6,354	5,145	84	58	1.3	1.1	167,971,252	101,380,521	29.6	24.9
Clothing, women's	4,558	3,351	22	11	0.5	0.3	30,612,144	14,037,712	8.0	5.7
Confectionery	1,944	1,348	12	5	0.6	0.4	18,998,220	7,733,842	14.1	8.9
Copper, tin, and sheet-iron products	4,228	2,540	27	15	0.6	0.6	44,938,540	25,257,976	22.5	21.1
Cotton goods, including cotton small wares	1,324	1,154	163	99	12.3	8.6	332,345,643	197,884,132	52.9	43.9
Electrical machinery, apparatus, and supplies	1,009	784	31	22	3.1	2.8	126,375,340	85,154,294	57.1	60.5
Flour-mill and gristmill products	11,631	10,051	138	87	1.2	0.9	319,047,650	202,952,454	36.1	28.5
Foundry and machine-shop products	13,253	10,705	181	111	1.4	1.0	356,133,870	193,749,471	29.0	22.0
Furniture and refrigerators	3,155	2,593	11	8	0.3	0.3	20,070,913	12,523,557	8.4	7.0
Gas, illuminating and heating	1,206	1,019	28	24	2.2	2.4	96,395,457	73,898,211	57.8	59.0
Hosiery and knit goods	1,374	1,144	25	11	1.8	1.0	37,126,550	15,018,710	18.5	11.0
Iron and steel, blast furnaces	208	190	86	49	41.3	25.8	335,992,823	173,321,243	85.8	74.8
Iron and steel, steel works and rolling mills	446	415	186	131	41.7	31.6	896,704,330	570,175,787	91.0	84.6
Leather, tanned, curried, and finished	919	1,049	78	48	8.5	4.6	157,911,458	91,557,225	48.2	36.2
Liquors, distilled	613	805	39	22	6.4	2.7	148,433,755	101,537,912	72.5	77.4
Liquors, malt	1,414	1,530	67	46	4.7	3.0	138,046,347	84,069,197	36.8	28.2
Lumber and timber products	40,671	25,153	72	[3] 26	0.2	0.1	103,756,410	[3] 35,550,164	0.0	4.0
Oil, cottonseed, and cake	817	715	17	9	2.1	1.3	35,974,829	21,351,063	24.3	22.1
Paint and varnish	791	639	26	16	3.3	2.5	44,109,139	29,873,089	35.3	32.9
Paper and wood pulp	777	761	50	30	6.4	3.9	93,580,398	47,301,705	35.0	25.1
Patent medicines and compounds and druggists' preparations	3,642	2,777	19	[3] 14	0.5	0.5	33,032,561	[3] 26,851,722	23.7	22.9
Petroleum, refining	147	98	35	19	23.8	19.4	208,671,648	154,549,495	88.0	88.3
Printing and publishing	31,445	27,793	74	[2] 43	0.2	0.2	137,082,261	[2] 82,419,052	18.6	14.9
Silk and silk goods, including throwsters	852	624	37	23	4.3	3.7	68,579,806	39,778,944	34.8	29.8
Slaughtering and meat packing	1,641	1,221	166	[3] 110	10.1	9.0	1,176,461,413	[3] 773,222,035	85.8	83.9
Smelting and refining, copper	38	40	32	31	84.2	77.5	375,135,093	238,328,190	99.0	99.0
Smelting and refining, lead	28	32	21	18	75.0	56.2	166,045,144	181,011,667	99.2	97.4
Tobacco manufactures	15,822	16,827	64	43	0.4	0.3	203,894,122	123,000,821	48.9	37.1
Woolen, worsted, and felt goods, and wool hats	985	1,074	86	63	8.7	5.9	248,343,985	135,993,851	57.0	42.6
All other industries	69,459	53,613	729	455	1.0	0.8	1,880,724,222	1,242,336,558	37.2	33.9

[1] The statistics for three establishments omitted, to avoid the disclosure of individual operations.
[2] The statistics for two establishments omitted, to avoid the disclosure of individual operations.
[3] The statistics for one establishment omitted, to avoid the disclosure of individual operations.

The total value of products for each industry as a whole, from which the percentages in the last two columns are calculated, appears in the table on page 74. Three important industries, the manufacture of leather goods, marble and stone work, and sugar and molasses, are not shown in the table in order to avoid the disclosure of individual operations.

While the gross value of products is in some respects not the best criterion of the relative importance of different industries or of different states or sections in respect to manufacturing business, it is a fairly satisfactory standard for comparing different classes of establishments within the same industry. This table shows, as might be expected, exceedingly wide variation among the different industries in respect to the proportion of large establishments, and in respect to the proportion of the total value of products which is reported by such establishments. The industry in which establishments reporting products to the value of $1,000,000 or more constitute the largest proportion of the total number of establishments is the smelting and refining of copper, followed, in order, by the smelting and refining of lead, steel works and rolling mills, blast furnaces, the refining of petroleum, and the construction of steam-railroad cars. In each of these industries in 1909 establishments of this class constituted more than one-fifth of the total number, and in the smelting and refining of copper they constituted about five-sixths of the total. In these industries, moreover, establishments of this size reported exceptionally high proportions of the total value of products. The smelting and refining of lead and of copper ranked highest in this respect, with 99.2 and 99 per cent, respectively, of the total value of products reported by establishments with a value of products above $1,000,000. The slaughtering and meat-packing industry, also, though its proportion of large establishments is not conspicuously high, shows a very high proportion of the total value of products, 85.8 per cent, reported from such establishments.

On the other hand, there are a number of industries in which the smaller establishments predominate and in which only a very small proportion of the total value of products is contributed by establishments manufacturing products to the value of $1,000,000 or more. In the bakery, butter, cheese, and condensed-milk, women's clothing, furniture, and lumber industries the proportion of the total value of products reported by such establishments is less than 10 per cent, and there are several other industries of importance in which the proportion is less than 20 per cent.

In practically every industry named in the table the number of establishments manufacturing products to the value of $1,000,000 or more increased materially from 1904 to 1909, and constituted a larger proportion of the total number of establishments in the later year than in the earlier. In the same way the value of the products of such establishments in nearly every industry constituted a larger proportion of the total value in 1909 than in 1904, the only exceptions being in the manufacture of electrical machinery, apparatus, and supplies, the construction of railroad cars, the illuminating-gas industry, the distillery industry, and the refining of petroleum.

Relative importance of large establishments, by states: 1909 and 1904.—The table opposite presents, by states grouped according to geographic divisions, statistics showing the relative importance of the establishments having a product valued at $1,000,000 or over for the census years 1909 and 1904. Certain states are not shown separately, as to do so would disclose individual operations.

The differences among the several states with respect to the extent to which manufacturing is carried on in large establishments are dependent in part upon the character of the industries predominant in each state. It also depends in part upon the degree to which those industries have been developed; in those states in which manufactures are extensive the large establishments are likely, other conditions being equal, to do a greater proportion of the manufacturing than in states where manufactures are relatively unimportant.

The state in which establishments manufacturing products to the value of $1,000,000 or more represented the largest proportion of the total number of establishments in 1909 was Rhode Island, with 3.5 per cent, followed by Arizona and Massachusetts, in the order named. The proportion in New York, the leading manufacturing state, was comparatively low, 1 per cent. There are several states in which such establishments represented only a small fraction of 1 per cent of the total number.

In most of the states the large establishments contributed a very considerable proportion of the entire value of manufactured products. The state in which this proportion was the highest in 1909 is Arizona, with 84.1 per cent, followed by Nebraska, Montana, Kansas, New Jersey, Illinois, Utah, and Pennsylvania, in each of which states the products of establishments of this class represented more than one-half of the total value. The predominance of the smelting and refining of copper and lead in the Mountain states named, of the slaughtering and meat-packing industry in Kansas and Nebraska, of the slaughtering and the iron and steel industries in Illinois, of the iron and steel industry in Pennsylvania, and of the smelting and refining of copper and the refining of petroleum in New Jersey serve in a large measure to explain these high percentages. In New York, the most important manufacturing state, 37 per cent of the total value of products

was reported by establishments of the class under consideration, this comparatively low percentage being the result in part of the great magnitude in that state of the clothing industries, which are mostly conducted in small establishments. Of the states given in the table those in which the proportion of the total value of products reported by large establishments is less than 10 per cent are Oklahoma, Arkansas, and Florida.

STATE.	NUMBER OF ESTABLISHMENTS.						VALUE OF PRODUCTS OF ESTABLISHMENTS REPORTING PRODUCTS VALUED AT $1,000,000 OR OVER.			
	Total.		Reporting products valued at $1,000,000 or over.				Amount.		Per cent of total.	
			Number.		Per cent of total.					
	1909	1904	1909	1904	1909	1904	1909	1904	1909	1904
United States	**268,491**	**216,180**	**3,061**	**1,900**	**1.1**	**0.9**	**$9,053,698,364**	**$5,628,456,171**	**43.8**	**38.0**
NEW ENGLAND:										
Maine	3,546	3,145	25	17	0.7	0.5	57,250,905	32,815,822	32.5	22.8
New Hampshire	1,961	1,618	34	20	1.7	1.2	80,784,016	46,369,594	49.1	30.7
Vermont	1,958	1,699	4	6	0.2	0.4	7,195,281	8,475,059	10.5	13.4
Massachusetts	11,684	10,723	293	191	2.5	1.8	719,811,362	458,142,511	48.3	40.8
Rhode Island	1,951	1,617	69	41	3.5	2.5	135,285,205	80,055,916	48.3	39.6
Connecticut	4,251	3,477	93	65	2.2	1.9	241,562,058	157,691,418	49.3	42.7
MIDDLE ATLANTIC:										
New York	44,935	37,194	470	294	1.0	0.8	1,245,968,072	816,099,837	37.0	32.8
New Jersey	8,817	7,010	194	121	2.2	1.7	649,848,742	384,853,547	56.7	49.7
Pennsylvania	27,563	23,495	400	284	1.5	1.2	1,331,111,312	901,530,525	50.7	46.1
EAST NORTH CENTRAL:										
Ohio	15,138	13,785	240	136	1.6	1.0	666,361,742	331,726,477	46.3	34.5
Indiana	7,909	7,044	92	45	1.2	0.6	272,679,094	134,974,371	47.1	34.3
Illinois	18,026	14,021	273	168	1.5	1.1	1,078,746,101	755,157,389	56.2	53.5
Michigan	9,159	7,446	88	41	1.0	0.6	258,341,090	100,138,469	37.7	23.3
Wisconsin	9,721	8,558	86	58	0.9	0.7	228,084,707	124,048,292	38.6	30.4
WEST NORTH CENTRAL:										
Minnesota	5,561	4,756	65	39	1.2	0.8	198,507,729	132,541,419	48.5	43.1
Iowa	5,528	4,785	20	11	0.5	0.2	95,585,315	41,089,284	36.9	25.6
Missouri	8,375	6,464	94	68	1.1	1.1	271,595,930	189,336,754	47.3	43.1
Nebraska	2,500	1,819	17	9	0.7	0.5	137,133,162	110,013,438	68.9	71.0
Kansas	3,435	2,475	34	21	1.0	0.8	204,385,280	114,177,287	62.9	57.6
SOUTH ATLANTIC:										
Delaware	726	631	7	9	1.0	1.4	16,892,803	13,711,604	32.0	33.3
Maryland	4,837	3,852	41	34	0.8	0.9	124,586,041	95,606,842	39.5	39.3
District of Columbia	518	482	3	(1)	0.6	.....	5,012,734	(1)	19.8	.....
Virginia	5,685	3,187	26	15	0.5	0.5	59,124,982	34,071,439	26.9	22.9
West Virginia	2,586	2,109	33	14	1.3	0.7	92,481,895	25,154,989	38.6	25.4
North Carolina	4,931	3,272	22	9	0.4	0.3	58,668,316	30,411,650	27.1	21.3
South Carolina	1,854	1,399	17	13	0.9	0.9	24,887,694	17,817,606	22.0	22.4
Georgia	4,792	3,219	18	10	0.4	0.3	34,054,085	20,664,194	10.8	13.7
Florida	2,159	1,413	4	.....	0.2	.....	4,450,669	.....	6.1	.....
EAST SOUTH CENTRAL:										
Kentucky	4,776	3,734	29	17	0.6	0.5	62,164,020	38,590,336	27.8	24.2
Tennessee	4,609	3,175	17	11	0.4	0.3	30,567,045	18,796,261	17.0	13.6
Alabama	3,398	1,882	22	14	0.6	0.7	42,048,999	25,070,580	28.8	23.0
WEST SOUTH CENTRAL:										
Arkansas	2,925	1,907	4	(1)	0.1	.....	5,443,573	(1)	7.3	.....
Louisiana	2,516	2,091	23	13	0.9	0.6	75,417,505	54,118,186	33.7	29.0
Oklahoma	2,310	1,123	4	.....	0.2	.....	4,884,270	.....	9.1	.....
Texas	4,588	3,158	36	17	0.8	0.5	102,054,306	39,030,054	37.4	25.9
MOUNTAIN:										
Montana	677	382	6	6	0.9	1.6	49,871,216	52,545,498	68.1	79.1
Colorado	2,034	1,606	20	16	1.0	1.0	58,645,700	50,670,463	45.1	50.6
Arizona	311	169	9	7	2.9	4.1	42,276,901	22,761,981	84.1	81.0
Utah	749	606	7	5	0.9	0.8	33,100,176	20,978,066	53.4	53.9
PACIFIC:										
Washington	3,674	2,751	20	13	0.5	0.5	42,379,727	28,001,570	19.2	21.7
Oregon	2,246	1,602	8	5	0.4	0.3	14,398,817	7,873,317	15.5	14.2
California	7,659	6,839	71	31	0.9	0.5	202,103,929	105,272,449	38.2	28.7
All other states [2]	5,853	3,560	8	6	0.1	0.2	17,038,958	8,162,677	10.8	8.0

[1] Excluded to avoid disclosures of individual establishments, but included in the total for the United States.
[2] All other states embrace Idaho, Mississippi, Nevada, North Dakota, and Wyoming in 1909 and Arkansas, District of Columbia, Mississippi, and New Mexico in 1904.

In a large majority of the states, establishments manufacturing products to the value of $1,000,000 or more represented a larger proportion of the total number of establishments in 1909 than in 1904, and reported a larger proportion of the total value of products in the later year than in the earlier. The only states where this was not true with respect to the value of products are Vermont, Delaware, South Carolina, Nebraska, Montana, Colorado, Utah, and Washington.

DISTRIBUTION OF EXPENSES.

Expenses in leading industries.—As stated in the Introduction, the census does not purport to furnish figures that can be used for determining the total cost of manufacture and consequently the profits. Facts of interest can, however, be brought out concerning the relative importance of those classes of expenses which are reported. The following table shows in percentages the distribution of these expenses among the classes indicated, for all industries combined and for the 43 principal industries separately.

INDUSTRY.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
All industries	**5.1**	**18.6**	**65.8**	**10.5**
Agricultural implements	8.6	24.3	51.1	16.0
Automobiles, including bodies and parts	4.5	23.1	62.5	9.9
Boots and shoes, including cut stock and findings	3.9	20.6	69.6	5.9
Brass and bronze products	4.1	17.3	72.6	6.0
Bread and other bakery products	4.0	17.4	69.9	8.6
Butter, cheese, and condensed milk	1.4	4.3	91.0	3.3
Canning and preserving	5.6	13.5	72.0	9.0
Carriages and wagons and materials	5.7	27.0	58.9	8.4
Cars and general shop construction and repairs by steam-railroad companies	4.3	44.7	49.2	1.8
Cars, steam-railroad, not including operations of railroad companies	4.3	23.0	66.7	6.0
Chemicals	0.5	15.0	68.2	10.3
Clothing, men's, including shirts	5.2	20.7	57.9	16.2
Clothing, women's	6.0	23.0	61.1	9.9
Confectionery	7.6	13.1	67.9	11.4
Copper, tin, and sheet-iron products	5.8	22.4	63.7	8.1
Cotton goods, including cotton small wares	2.6	24.0	66.9	6.5
Electrical machinery, apparatus, and supplies	10.0	24.5	53.8	11.7
Flour-mill and gristmill products	1.5	2.6	92.8	3.1
Foundry and machine-shop products	8.7	29.8	50.1	11.4
Furniture and refrigerators	7.3	30.8	51.0	10.9
Gas, illuminating and heating	10.9	18.4	46.2	24.5
Hosiery and knit goods	4.4	25.5	62.7	7.4
Iron and steel, blast furnaces	1.8	6.8	88.4	3.0
Iron and steel, steel works and rolling mills	2.9	18.3	73.9	4.8
Leather goods	7.2	19.3	64.6	8.9
Leather, tanned, curried, and finished	2.2	10.5	81.2	6.1
Liquors, distilled	1.0	1.6	18.4	79.0
Liquors, malt	7.6	13.7	32.2	46.5
Lumber and timber products	4.8	32.0	51.0	12.2
Marble and stone work	6.7	44.8	39.4	9.1
Oil, cottonseed, and cake	3.1	4.3	87.7	4.9
Paint and varnish	0.3	7.4	71.1	12.2
Paper and wood pulp	4.0	17.2	69.7	9.1
Patent medicines and compounds and druggists' preparations	14.9	8.7	44.1	32.4
Petroleum, refining	1.8	4.4	89.6	4.2
Printing and publishing	16.7	26.6	32.6	24.1
Silk and silk goods, including throwsters	4.2	21.8	60.8	13.2
Slaughtering and meat packing	1.5	3.9	91.3	3.3
Smelting and refining, copper	0.7	3.8	94.4	1.1
Smelting and refining, lead	0.9	3.4	94.8	0.9
Sugar and molasses, not including beet sugar	0.9	2.8	92.6	3.7
Tobacco manufactures	4.6	19.0	48.4	28.0
Woolen, worsted, and felt goods, and wool hats	2.6	18.7	72.9	5.8
All other industries	6.4	21.1	62.1	10.5

This table shows that, for all industries combined, 65.8 per cent of the total expenses reported were incurred for materials, 23.7 per cent for services (that is, salaries and wages), and 10.5 per cent for other purposes. As would be expected, these proportions vary greatly in the different industries. The item of salaries takes on large proportions in such industries as the gas industry, the manufacture of patent medicines, and printing and publishing, which require a large force of employees for accounting and collecting. The industries for which the highest percentages for wages are shown—in each case over 30 per cent—are marble and stone work, steam-railroad repair shops, the lumber and timber industry, and the furniture industry. The cost of materials constituted over 90 per cent of the expenses reported in the smelting and refining of copper and lead, flour and grist milling and the manufacture of sugar and molasses, slaughtering and meat packing, and the butter, cheese, and condensed-milk industry. Miscellaneous expenses, which are made up principally of rent, taxes, insurance, and advertising, are relatively largest in the distillery and brewery industries, the manufacture of patent medicines and compounds, and the tobacco-products industry, all of which are subject to internal-revenue taxes; they are also large in the gas and the printing and publishing industries.

Expenses, by states.—The table opposite shows, for each geographic division and each state, the per cent distribution in 1909 of the total expenses reported among the principal items.

The variation among the several divisions and states in the percentage of the total expenses which is represented by each class follows closely the variation in the character of the predominating industries. Thus the percentage of expenses incurred for materials is highest and that incurred for wages lowest in the West North Central division, this condition being due to the predominating importance in those states of the flour-milling and the slaughtering industries, in which materials contribute the greater part of the value of products. The proportion of expenses incurred for materials is also high in the Mountain division, on account of the influence of the smelting and refining industries. Wages represent the highest percentage of the total expenses, 23.7, in the New England division, where the textile and other highly elaborative industries predominate.

Among the individual states the highest percentage for materials is shown for Kansas and the next highest for Nebraska, while this percentage is lowest in Florida; the highest percentages for wages are shown for Wyoming, New Mexico, and Florida, in the order named. Among the great manufacturing states of the East and North there is no very great variation in the distribution of expenses among the various items. Of the 10 most important manufacturing states, Massachusetts has the highest proportion for wages and is among the lowest for miscellaneous expenses.

The exceptionally high percentage for miscellaneous expenses in Kentucky, 25.8, is due to the importance there of the distillery industry, in the miscellaneous expenses of which are included very large sums paid as internal-revenue tax.

DIVISION AND STATE.	PER CENT OF TOTAL EXPENSES REPORTED.			
	Salaries.	Wages.	Materials.	Miscellaneous expenses.
United States	**5.1**	**18.6**	**65.8**	**10.5**
GEOGRAPHIC DIVISIONS:				
New England	4.8	23.7	62.6	8.9
Middle Atlantic	5.4	18.6	65.3	10.8
East North Central	5.4	17.8	65.1	11.7
West North Central	4.2	12.4	75.1	8.3
South Atlantic	4.7	20.1	64.9	10.3
East South Central	5.2	18.3	60.2	16.2
West South Central	4.5	17.4	68.1	9.9
Mountain	3.9	17.8	71.6	6.7
Pacific	4.9	20.4	65.4	9.3
NEW ENGLAND:				
Maine	3.7	24.3	62.7	9.2
New Hampshire	2.8	24.3	65.8	7.1
Vermont	4.7	28.9	58.2	8.3
Massachusetts	4.8	22.8	62.9	9.5
Rhode Island	4.4	22.8	65.3	7.5
Connecticut	6.6	25.6	59.8	8.6
MIDDLE ATLANTIC:				
New York	6.2	18.7	62.2	12.9
New Jersey	4.7	16.4	69.7	9.2
Pennsylvania	4.7	19.3	67.2	8.8
EAST NORTH CENTRAL:				
Ohio	5.6	19.1	64.2	11.0
Indiana	5.0	18.2	63.7	13.1
Illinois	5.3	15.8	67.0	12.0
Michigan	5.9	20.1	62.3	11.6
Wisconsin	4.9	17.9	65.9	11.4
WEST NORTH CENTRAL:				
Minnesota	4.1	12.6	74.9	8.4
Iowa	4.7	13.0	73.2	8.2
Missouri	5.6	15.5	67.9	11.1
North Dakota	3.6	10.3	79.1	6.9
South Dakota	3.9	14.6	72.7	8.9
Nebraska	3.0	7.6	82.3	7.1
Kansas	2.4	8.5	84.7	4.4
SOUTH ATLANTIC:				
Delaware	4.9	21.9	65.9	7.2
Maryland	4.3	15.9	69.6	9.7
District of Columbia	9.0	24.4	50.0	16.6
Virginia	4.6	19.4	64.0	11.9
West Virginia	3.9	22.8	64.2	9.0
North Carolina	3.7	18.4	65.4	12.5
South Carolina	3.9	20.9	68.1	7.1
Georgia	5.1	19.8	66.4	8.7
Florida	7.8	36.4	41.3	14.5
EAST SOUTH CENTRAL:				
Kentucky	4.8	13.9	55.6	25.8
Tennessee	5.8	17.8	65.4	11.0
Alabama	5.1	21.1	64.6	9.2
Mississippi	5.3	27.3	53.7	13.6
WEST SOUTH CENTRAL:				
Arkansas	5.3	29.5	53.9	11.3
Louisiana	4.4	16.4	66.1	13.1
Oklahoma	4.3	15.3	72.3	8.0
Texas	4.4	15.5	72.8	7.3
MOUNTAIN:				
Montana	3.1	16.3	73.6	7.0
Idaho	5.2	29.1	52.5	13.2
Wyoming	5.6	37.2	46.6	10.6
Colorado	4.9	17.4	70.2	7.5
New Mexico	5.4	36.8	46.3	11.5
Arizona	1.9	13.4	81.7	3.0
Utah	3.6	15.5	76.1	4.8
Nevada	3.4	17.9	75.5	3.2
PACIFIC:				
Washington	5.0	25.4	60.1	9.6
Oregon	5.0	24.5	61.1	9.4
California	4.8	17.7	68.3	9.2

ENGINES AND POWER.

Summary for United States: 1909, 1904, and 1899.—The following table shows for all industries combined the number of engines or motors employed by manufacturing concerns and their horsepower at the censuses of 1909, 1904, and 1899. The figures for the total primary power used exclude duplications and represent the primary power of engines, water wheels, etc., owned by the manufacturing establishments themselves plus the electric or other power rented from outside concerns. A separate presentation is made of the number and horsepower of electric motors operated by current generated within the establishments, which, of course, as it represents secondary power, is not included in the totals. This item plus the electric power rented makes up the total for electric power, which is shown separately.

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899	1909	1904	1899	1909	1904	1899
Primary power, total	**408,472**	**231,363**	**168,143**	**18,680,776**	**13,487,707**	**10,097,893**	**100.0**	**100.0**	**100.0**
Owned	209,163	169,774	168,143	16,808,106	12,854,805	9,778,418	90.0	95.3	96.8
Steam	153,482	127,207	130,710	14,202,137	10,825,348	8,139,579	76.0	80.3	80.6
Gas	34,352	21,515	14,334	754,083	289,423	134,742	4.0	2.1	1.3
Water wheels	20,126	19,595	23,099	1,807,144	1,641,949	1,454,112	9.7	12.2	14.4
Water motors	1,203	1,397	(1)	15,449	5,931	(1)	0.1	(2)	(1)
Other				29,293	92,154	49,985	0.2	0.7	0.5
Rented	199,309	61,589	(1)	1,872,670	632,902	319,475	10.0	4.7	3.2
Electric	199,309	61,589	(1)	1,749,031	441,589	182,562	9.4	3.3	1.8
Other				123,639	191,313	136,913	0.7	1.4	1.4
Electric motors	**388,854**	**73,119**	**10,891**	**4,817,140**	**1,592,475**	**492,936**	**100.0**	**100.0**	**100.0**
Run by current generated by establishment	189,545	73,119	10,891	3,068,109	1,150,886	310,374	63.7	72.3	63.0
Run by rented power	199,309	(1)	(1)	1,749,031	441,589	182,562	36.3	27.7	37.0

[1] Not reported. [2] Less than one-tenth of 1 per cent.

The total horsepower of manufacturing establishments was 18,680,776 in 1909, as compared with 13,487,707 in 1904 and 10,097,893 in 1899. In 1909, 90 per cent of the horsepower was that of engines or motors owned by the manufacturing establishments themselves, and 10 per cent was rented power, mostly electric. Especially striking is the increase in the use of gas engines and of electric power, both that rented

from outside concerns and that generated by the manufacturing concerns themselves. The total horsepower of electric motors in 1899, including both those operated by purchased current and those operated by current generated in the establishment, was 492,936; in 1909 it was 4,817,140, or nearly ten times as great. The practice of renting electric power is rapidly becoming more common among small establishments and even among large establishments, while the large concerns more and more tend to use electric motors for the purpose of applying the power which they themselves generate.

The amount of water power owned by manufacturing establishments shows only a comparatively moderate rate of increase during the decade, but not a little of the electric power rented by manufacturers is generated in the first instance by utilizing water power.

Horsepower, by leading industries.—The following table shows, for the 43 leading industries, the amount of each of the several kinds of power used in 1909:

INDUSTRY	Total horsepower (excluding duplication).	OWNED BY ESTABLISHMENTS REPORTING—					RENTED.		ELECTRIC MOTORS.	
		Steam engines.	Gas engines.	Water wheels.	Water motors.	Other.	Electric motors.	Other.	Total.[1]	Run by current generated by establishment.
All industries	**18,680,776**	**14,202,137**	**754,083**	**1,807,144**	**15,449**	**29,293**	**1,749,031**	**123,639**	**4,817,140**	**3,068,109**
Agricultural implements	100,601	71,394	4,433	8,387	3	500	15,684	200	38,905	23,221
Automobiles, including bodies and parts	75,550	39,325	7,000	287	.....	.....	27,641	1,297	41,829	14,188
Boots and shoes, including cut stock and findings	96,302	60,772	3,532	2,708	17	.....	17,381	11,802	32,381	15,000
Brass and bronze products	106,120	78,101	4,800	3,370	4	.....	18,309	1,356	33,462	15,063
Bread and other bakery products	65,298	25,506	8,166	251	83	3	31,160	129	39,795	8,635
Butter, cheese, and condensed milk	101,349	90,802	3,373	1,403	62	131	5,366	212	8,276	2,910
Canning and preserving	81,179	70,362	4,519	364	34	30	5,469	401	8,728	3,259
Carriages and wagons and materials	126,032	82,911	13,120	4,604	63	17	24,969	348	39,424	14,455
Cars and general shop construction and repairs by steam-railroad companies	293,361	254,942	3,140	138	312	898	33,786	145	161,288	127,502
Cars, steam-railroad, not including operations of railroad companies	97,797	89,123	1,148	370	.....	700	6,456	.....	61,060	54,604
Chemicals	208,604	103,273	1,147	10,913	153	215	92,057	846	156,699	64,642
Clothing, men's, including shirts	42,725	16,003	5,259	1,335	45	6	18,816	1,261	22,894	4,078
Clothing, women's	22,294	4,112	1,058	190	16	.....	15,175	843	16,085	910
Confectionery	35,870	25,090	1,408	.....	8	12	8,607	745	16,983	8,376
Copper, tin, and sheet-iron products	62,366	34,650	8,572	416	4	5	17,898	821	30,771	12,873
Cotton goods, including cotton small wares	1,296,517	869,838	2,812	302,288	736	7,363	108,512	4,968	235,902	127,300
Electrical machinery, apparatus, and supplies	158,768	99,883	6,753	1,078	36	14	50,045	959	164,540	114,495
Flour-mill and gristmill products	853,584	473,363	62,681	259,138	4,903	208	49,901	3,390	67,066	17,165
Foundry and machine-shop products	869,305	546,206	96,966	18,341	361	2,754	192,077	11,700	623,914	430,937
Furniture and refrigerators	221,451	184,425	5,830	6,743	105	612	20,420	3,316	43,252	22,832
Gas, illuminating and heating	128,350	115,332	7,128	2,755	50	182	2,723	171	17,336	14,613
Hosiery and knit goods	103,709	74,560	1,235	12,015	23	200	13,286	2,390	25,285	12,199
Iron and steel, blast furnaces	1,173,422	1,033,033	125,230	204	15	.....	14,850	.....	135,143	120,293
Iron and steel, steel works and rolling mills	2,100,978	1,955,346	70,391	5,829	.....	1,500	58,797	115	716,609	657,812
Leather goods	28,148	10,028	1,381	1,337	36	.....	14,946	420	16,663	1,717
Leather, tanned, curried, and finished	148,140	131,311	7,231	1,546	10	140	6,487	1,415	35,919	29,432
Liquors, distilled	46,120	44,623	321	252	.....	150	708	66	3,786	3,078
Liquors, malt	347,726	330,705	1,261	116	224	1,065	14,190	165	66,519	52,329
Lumber and timber products	2,840,082	2,587,487	38,628	139,392	1,111	836	62,260	10,428	130,767	68,507
Marble and stone work	187,686	132,236	10,874	9,451	167	241	32,062	2,655	53,748	21,686
Oil, cottonseed, and cake	192,342	183,440	1,674	125	50	189	6,394	470	10,855	4,461
Paint and varnish	56,162	42,166	3,290	2,004	2	25	7,814	861	17,037	9,223
Paper and wood pulp	1,304,265	469,089	9,325	783,311	2,185	275	38,640	1,470	130,120	91,510
Patent medicines and compounds and druggists' preparations	25,659	15,938	1,712	250	14	121	6,882	742	11,175	4,293
Petroleum, refining	90,268	83,707	5,870	.....	.....	378	28	285	8,808	8,780
Printing and publishing	297,763	59,240	32,152	600	1,720	94	197,692	6,265	229,312	31,620
Silk and silk goods, including throwsters	97,947	72,059	1,277	8,383	.....	.....	10,354	5,874	23,758	13,404
Slaughtering and meat packing	208,707	190,036	2,208	30	16	30	15,047	740	78,677	63,630
Smelting and refining, copper	158,126	114,862	1,107	12,725	.....	19	29,413	.....	55,229	25,816
Smelting and refining, lead	26,954	23,090	35	.....	.....	.....	3,829	.....	12,166	8,337
Sugar and molasses, not including beet sugar	160,603	158,682	305	.....	.....	210	1,316	.....	18,730	17,414
Tobacco manufactures	28,514	21,929	795	243	2	7	5,367	171	11,203	5,836
Woolen, worsted, and felt goods, and wool hats	362,209	261,364	2,077	78,909	341	.....	13,733	5,735	70,223	65,440
All other industries	3,651,823	2,871,193	172,779	125,163	2,439	10,163	434,534	38,552	1,085,078	654,144

[1] Includes the horsepower of motors run by rented current and also of those run by current generated by the establishment.

This table shows very wide differences among the industries with respect to the relative importance of the several kinds of power. These differences are due partly to differences in the geographic location of the industries, which affect the character of power available, and partly to differences in the character of machinery used, which affect the adaptability of the different kinds of power.

The power developed by the use of gas engines represents a larger proportion of the total power employed in establishments engaged in the manufacture of carriages and wagons, flour mills and gristmills, foundries and machine shops, blast furnaces, steel works and rolling mills, lumber mills, and printing and publishing establishments than in any of the other industries listed. The largest absolute amount of power derived from gas engines is reported for the blast furnaces, and the next largest for the foundries and machine shops.

A very large proportion of the total power derived from water wheels is used in four industries, namely, the manufacture of cotton goods, flour mills and grist-

mills, the lumber and timber products industry, and the manufacture of paper and wood pulp. In the last-mentioned industry the horsepower developed by water wheels amounts to 783,311, about 60 per cent of the total power used in that industry.

The extent to which electric motors are utilized in applying the power employed varies considerably in the different industries. In a considerable number of industries the electric power, including that generated by the manufacturing establishments themselves and that rented from other concerns, is equal to more than one-half of the total primary power. These industries are the manufacture of automobiles, bread and other bakery products, the construction of steam-railroad cars, the repair shops of steam-railroad companies, the chemical industry, the making of men's and of women's clothing, the manufacture of electrical machinery, apparatus, and supplies, the foundry and machine-shop industry, the manufacture of leather goods, and the printing and publishing industry. In the electrical-machinery industry the horsepower of electric motors installed is greater than the total primary power; this may be accounted for by reason of the provision of motors for the operation of machinery which is not in constant use. The largest absolute amount of electric power is reported by the steel works and rolling mills, and the next largest, by the foundries and machine shops. In the former the electric power is equal to a little over one-third of the total amount of primary power and in the latter to nearly three-fourths.

Horsepower, by states: 1909.—The table on page 34 shows, by states grouped according to geographic divisions, the amount of each of the several kinds of power used in manufacturing industries in 1909.

The rank of the states with respect to the amount of power used in manufacturing industries is somewhat different from that with respect to value of products and other leading items in the statistics of manufactures. Although New York ranks first among the states in most of the leading items, Pennsylvania outranks it in respect to the amount of power used in manufacturing industries. New York stands second, Ohio third, Massachusetts fourth, and Illinois fifth. The relative total amount of power used is largely dependent upon the character of the industries predominant in each division or state. The relative extent to which the different kinds of power are used in the several divisions and states is also dependent in part upon the character of the industries and in part upon the situation of each state with reference to supplies of coal, petroleum, and gas, and with reference to the availability of water power.

In every division—in fact in every state, except Maine and Vermont—steam engines are the most important source of power. The proportion which power generated by gas engines represents of the total power is larger in the East North Central division than in any other division, partly on account of the proximity of gas wells. The Middle Atlantic states rank next in the proportion of the total power which is developed by gas engines. With respect to power obtained from water wheels owned by the manufacturing establishments, New England ranks far ahead of the other divisions both in the absolute amount of power and in the proportion which water power represents of the total. More than two-fifths of the total power derived from water wheels owned by manufacturing establishments is found in New England, and more than one-fourth of the total power utilized by the factories of New England is derived from water wheels. The Middle Atlantic division ranks next in this respect. The largest absolute amounts of power utilized by means of electric motors (including both those operated by purchased current and those operated by current generated in the establishment) are reported from the Middle Atlantic division, the East North Central division, and New England in the order named, and in these three divisions also the proportion which electric power represents of the total is unusually large, no very great difference appearing among the three divisions in this respect. The proportion of electric power is also high in the Mountain, Pacific, and West North Central divisions.

The individual states which lead in the use of gas engines to develop power are Pennsylvania, Indiana, Ohio, New York, Illinois, Kansas, and New Jersey, in the order named. The absolute amount of power of this character is greatest in Pennsylvania, and the proportion which such power represents of the total power used is greatest in Indiana. The power derived from water wheels owned by manufacturing establishments is greater in New York than in any other state, but the proportion which such power represents of the total power is greatest in Maine. Other leading states in respect to the absolute amount of such water power are Massachusetts, Wisconsin, New Hampshire, Vermont, Connecticut, Minnesota, Pennsylvania, Oregon, Virginia, North Carolina, and Michigan; the leading states in respect to the proportion which it represents of the total power are Vermont, New Hampshire, Oregon, Wisconsin, New York, Minnesota, Massachusetts, Connecticut, Virginia, and Montana.

In the absolute amount of electric power utilized for manufacturing, Pennsylvania leads and is followed by New York, Ohio, Massachusetts, Illinois, Indiana, and New Jersey, in the order named. With respect to the proportion which electric power represents of the total Nevada ranks first, and is followed by California, Utah, Illinois, New York, Montana, Arizona, Indiana, and Massachusetts in the order named. In Nevada the power of electric motors forms 54.1 per cent and in California 40.3 per cent of the total power reported for these states.

DIVISION AND STATE.	Total horsepower (excluding duplication).	OWNED BY ESTABLISHMENTS REPORTING—					RENTED.		ELECTRIC MOTORS.	
		Steam engines.	Gas engines.	Water wheels.	Water motors.	Other.	Electric motors.	Other.	Total.[1]	Run by current generated by establishment.
United States	**18,680,776**	**14,202,137**	**754,083**	**1,807,144**	**15,449**	**29,293**	**1,750,031**	**123,639**	**4,817,140**	**3,068,109**
GEOGRAPHIC DIVISIONS:										
New England	2,715,121	1,656,911	44,451	751,270	3,412	2,055	218,642	38,380	663,143	444,501
Middle Atlantic	5,531,502	4,151,662	274,274	466,541	3,947	11,736	568,723	54,619	1,737,236	1,108,513
East North Central	4,382,070	3,491,418	283,450	206,393	2,048	4,766	375,876	18,119	1,297,447	921,571
West North Central	1,101,990	838,988	57,434	82,791	3,539	930	115,002	3,297	266,534	151,532
South Atlantic	1,837,401	1,434,221	36,688	184,431	1,082	5,321	171,146	4,512	343,393	172,247
East South Central	1,036,560	953,511	12,270	29,040	275	1,630	38,580	1,194	108,409	69,829
West South Central	873,350	805,640	29,291	3,060	48	2,513	31,807	991	78,893	47,086
Mountain	400,766	306,786	4,188	21,345	108	224	66,956	1,069	113,934	47,628
Pacific	802,016	563,000	12,037	62,273	900	49	162,299	1,458	308,101	45,862
NEW ENGLAND:										
Maine	459,599	168,595	6,583	253,830	1,912	179	27,203	1,297	54,266	27,063
New Hampshire	293,991	139,128	1,238	127,490	521	30	21,269	4,375	45,351	24,142
Vermont	159,445	64,252	2,160	78,881	181	415	12,917	639	21,233	8,316
Massachusetts	1,175,071	834,701	18,326	185,996	520	895	109,936	24,037	462,492	292,496
Rhode Island	226,740	175,293	3,300	31,376	41	39	13,697	2,994	42,130	28,433
Connecticut	400,275	274,942	12,844	73,697	237	497	33,620	4,438	97,671	64,051
MIDDLE ATLANTIC:										
New York	1,997,662	1,080,877	99,809	304,221	1,397	3,583	389,945	27,740	689,976	300,031
New Jersey	612,203	529,668	20,807	18,558	1,118	180	33,157	8,745	182,475	140,318
Pennsylvania	2,921,547	2,541,117	153,508	53,762	1,432	7,973	145,621	18,134	864,785	719,164
EAST NORTH CENTRAL:										
Ohio	1,583,155	1,362,134	103,801	15,777	330	1,586	93,592	5,935	417,844	324,252
Indiana	633,377	448,523	109,105	7,446	447	599	65,548	1,704	233,103	167,645
Illinois	1,013,071	838,199	37,025	12,178	513	1,433	117,007	6,716	398,621	281,614
Michigan	598,288	465,520	13,988	41,442	577	16	74,270	2,475	133,064	58,791
Wisconsin	554,179	377,037	19,531	129,550	181	1,132	25,459	1,289	114,725	89,266
WEST NORTH CENTRAL:										
Minnesota	207,670	190,777	7,174	56,631	2,939	25	30,207	827	52,212	21,915
Iowa	155,384	121,882	8,025	6,326	85	147	18,463	456	49,736	22,273
Missouri	340,467	280,489	11,150	3,532	266	5	44,056	1,020	106,941	62,885
North Dakota	13,196	10,170	1,304	530	.....	.....	1,164	28	1,698	534
South Dakota	17,666	12,257	2,784	927	12	.....	1,683	3	2,084	401
Nebraska	64,406	44,806	4,408	7,361	75	76	7,530	210	15,942	8,412
Kansas	213,141	169,007	22,580	7,484	222	686	11,809	753	46,021	35,112
SOUTH ATLANTIC:										
Delaware	52,779	42,206	766	5,183	12	.....	4,502	50	17,010	13,408
Maryland	218,244	181,326	5,736	11,953	121	1,069	17,108	931	44,021	27,813
District of Columbia	16,563	12,169	1,073	775	.....	43	2,433	70	4,527	2,094
Virginia	283,928	221,303	3,004	45,122	33	38	13,356	412	42,043	28,687
West Virginia	222,896	187,389	16,952	12,901	71	.....	5,330	253	28,543	23,213
North Carolina	378,556	271,944	2,350	41,619	307	1,035	60,044	1,251	86,002	25,958
South Carolina	276,378	193,052	1,264	38,422	75	2,400	41,130	35	67,020	26,490
Georgia	298,241	240,264	3,380	28,288	460	536	23,890	1,423	44,264	20,374
Florida	89,816	84,508	1,497	168	3	200	3,353	87	7,563	4,210
EAST SOUTH CENTRAL:										
Kentucky	230,224	207,591	4,724	5,320	57	915	11,314	303	31,263	19,954
Tennessee	242,277	215,338	1,853	9,670	107	4	14,666	639	29,586	14,920
Alabama	357,837	328,275	4,616	13,812	111	732	10,104	187	39,928	29,824
Mississippi	206,222	202,307	1,077	238	.....	39	2,496	65	7,627	5,131
WEST SOUTH CENTRAL:										
Arkansas	173,088	168,152	1,374	639	35	52	2,581	255	7,417	4,836
Louisiana	346,652	331,370	3,496	65	10	2,401	9,077	233	27,139	18,062
Oklahoma	71,139	56,643	8,676	470	2	.....	5,281	67	7,887	2,606
Texas	282,471	249,475	15,745	1,886	1	60	14,868	436	36,450	21,582
MOUNTAIN:										
Montana	90,402	40,654	223	13,583	63	.....	20,504	375	27,301	797
Idaho	42,804	35,529	242	2,403	4	.....	4,606	20	8,469	3,803
Wyoming	7,028	6,407	182	456	9	.....	514	.....	801	287
Colorado	154,015	135,645	1,464	1,377	49	105	15,874	101	35,944	20,070
New Mexico	15,465	11,781	365	74	.....	.....	3,245	.....	4,580	1,341
Arizona	39,140	34,193	1,285	129	.....	19	3,314	200	15,100	11,786
Utah	42,947	28,984	226	2,926	71	100	10,502	48	15,402	4,810
Nevada	7,765	4,533	201	397	2	.....	2,307	325	6,441	4,134
PACIFIC:										
Washington	297,897	257,230	1,494	7,842	223	19	30,951	138	43,615	12,664
Oregon	175,019	112,244	428	47,041	397	.....	14,811	98	20,802	5,991
California	329,100	193,526	10,115	7,390	280	30	116,537	1,222	143,684	27,147

[1] Includes the horsepower of motors run by rented current and also of those run by current generated by the establishment.

SUPPLEMENTARY DATA REGARDING IMPORTANT INDUSTRIES.

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

For certain industries the Census Bureau collects, by means of special schedules, details regarding the quantity and value of materials and products and other information for securing which no provision is made on the general schedule. Certain data of this character are here presented for a number of important industries. As far as possible the statistics are grouped according to the character of the finished products.

FOOD AND KINDRED PRODUCTS.

Of the various industries forming this group, statistics as to the quantity and value of materials and products are shown for the butter, cheese, and condensed-milk industry, canning and preserving, the flour-mill and gristmill industry, the cleaning and polishing of rice, slaughtering and meat packing, and the manufacture of sugar.

Butter, cheese, and condensed milk.—The following table presents statistics for the butter, cheese, and condensed-milk industry. The figures cover only the manufacture of the factory products. The statistics for this class of products made on farms are not available for 1909; in 1899, however, 1,071,626,056 pounds of butter and 16,372,318 pounds of cheese were made on farms, of which 518,042,767 pounds of butter and 14,692,542 pounds of cheese were sold.

The value of the factory products of this industry more than doubled during the period 1899–1909. Condensed milk, for which the ratio of increase was highest, nearly trebled in value, while butter more than doubled. Since 1899 the increase in prices has been quite pronounced in this industry, as shown by the fact that the butter product increased 113.5 per cent in value and only 48.7 per cent in quantity, and the output of cheese 63 per cent in value and only 10.3 per cent in quantity. As shown by the note to the table, considerable quantities of butter, cheese, and condensed milk were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

	1909	1904	1899
MATERIALS.			
Total cost	$235,546,064	$142,920,277	$108,841,200
Milk:			
Pounds	9,888,727,303	12,147,304,550	11,678,082,821
Cost	$118,675,613	$99,720,745	$91,256,436
Cream:			
Pounds	1,406,143,903	588,186,471	203,673,958
Cost	$95,025,507	$28,371,040	$8,154,068
Skimmed milk:			
Pounds	50,974,760	36,071,335	(1)
Cost	$110,469	$59,398	(1)
Sugar:			
Pounds	78,457,978	67,810,031	50,873,859
Cost	$3,674,174	$3,315,892	$2,580,687
All other materials, cost	$18,060,301	$11,444,202	$6,841,009
PRODUCTS.			
Total value	[2] $274,557,718	[3] $168,182,780	$130,783,349
Butter:			
Pounds	624,764,653	531,478,141	420,126,546
Value	$179,510,619	$113,189,453	$84,079,754
Packed solid—			
Pounds	410,692,616	364,432,906	328,956,590
Value	$115,098,056	$74,483,306	$63,961,893
Prints and rolls—			
Pounds	214,072,037	167,045,145	91,169,956
Value	$64,412,563	$38,706,147	$20,117,861
Cheese:			
Pounds	311,126,317	317,144,872	281,972,324
Value	$43,239,024	$28,611,760	$26,510,829
Full cream—			
Pounds	287,110,363	239,052,634	225,770,105
Value	$40,817,073	$22,024,853	$21,363,477
Part cream—			
Pounds	10,803,392		
Value	$1,188,000		
PRODUCTS—continued.			
Cheese—Continued.			
Skimmed—			
Pounds	7,770,812	3,469,582	(1)
Value	$429,510	$148,568	(1)
Other kinds—			
Pounds	5,441,730	74,032,656	56,190,219
Value	$805,332	$6,438,339	$5,156,352
Condensed milk:			
Pounds	494,706,544	308,485,182	186,921,787
Value	$33,503,129	$20,140,282	$11,888,792
Sweetened—			
Pounds	214,518,310	198,355,189	(1)
Value	$17,345,278	$13,478,376	(1)
Unsweetened—			
Pounds	280,278,234	110,129,993	(1)
Value	$16,217,851	$6,670,906	(1)
Cream sold:			
Pounds	81,211,374	28,131,914	61,764,552
Value	$9,828,972	$2,364,407	$4,435,444
Skimmed milk sold:			
Pounds	352,594,574	1,101,414,457	2,253,494,156
Value	$629,135	$1,368,738	$2,531,460
Casein dried from skimmed milk:			
Pounds	13,018,208	11,581,874	12,208,405
Value	$795,544	$554,099	$383,581
All other products, value	$6,090,395	$1,945,050	$944,480
EQUIPMENT.			
Cream separators, number	5,624	8,842	9,701

[1] Not reported separately.
[2] In addition, 2,381,212 pounds of butter, to the value of $664,171; 49,413 pounds of part cream cheese, to the value of $5,745; 401,300 pounds of condensed milk, to the value of $24,078; and other dairy products to the value of $25,388 were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[3] In addition, 1,071,120 pounds of butter, to the value of $448,729, and other dairy products to the value of $71,588 were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

Canning and preserving.—The table on page 36 includes statistics for establishments engaged in the various branches of the canning industry and also for those manufacturing pickles, preserves, and sauces. The table does not include meats and other products canned in slaughtering and meat-packing establishments (see table on page 38). The total value of all classes of products of canning and preserving establishments in 1909 was $157,101,201 and in 1899, $99,335,464, the increase for the decade being 58.2 per cent.

Of the two groups of products listed separately in the table, fruits and vegetables show the largest ratio of increase in value from 1899 to 1909, 91.2

per cent. Fish and oysters show an increase of 47 per cent.

The statistics for dried fruits cover the product of fruit drying and packing establishments which buy the fruit or do drying and packing for others, and of cooperative associations, but do not include fruits dried by the grower on the farm. The bulk of the product is from California, the value of the factory dried-fruit product of that state in 1909 being $18,212,316, or 83.1 per cent of the total value of this class of products.

PRODUCT.	1909	1904	1899
Total value	[1] $157,101,201	[2] $130,465,976	$99,335,464
Fruits and vegetables.			
Value	$86,422,383	$72,998,756	$44,802,665
Canned vegetables:			
Cases	32,834,820	29,579,616	19,323,730
Value	$51,568,914	$45,610,993	$28,734,598
Tomatoes—			
Cases	12,980,828	9,411,084	8,700,538
Value	$18,747,941	$14,020,846	$13,666,560
Corn—			
Cases	7,451,265	11,209,597	6,336,984
Value	$10,332,136	$15,952,386	$8,191,383
Peas—			
Cases	5,901,703	4,694,492	2,543,722
Value	$10,247,363	$7,928,791	$4,465,673
Beans—			
Cases	3,393,200	2,588,015	1,493,517
Value	$6,013,098	$4,133,810	$2,025,123
Asparagus—			
Cases	229,742	[3]	[3]
Value	$1,975,775	[3]	[3]
Pumpkins—			
Cases	438,426	240,557	138,078
Value	$576,043	$346,497	$202,404
Sweet potatoes—			
Cases	317,186	192,997	83,526
Value	$531,651	$284,385	$124,245
All other—			
Cases	2,092,470	1,236,874	27,365
Value	$3,144,907	$2,944,278	$59,210
Canned fruits:			
Cases	5,461,233	4,628,241	4,407,817
Value	$12,938,474	$11,722,979	$11,311,062
Peaches—			
Cases	1,484,808	1,304,867	1,449,356
Value	$3,753,698	$3,902,441	$4,283,165
Apples—			
Cases	1,205,774	490,341	645,762
Value	$1,898,720	$738,013	$1,125,119
Apricots—			
Cases	562,811	539,815	531,648
Value	$1,825,311	$1,641,919	$1,583,252
Pears—			
Cases	641,291	789,120	672,485
Value	$1,833,214	$2,192,910	$2,188,201
Berries—			
Cases	880,324	489,637	600,419
Value	$1,783,020	$1,058,650	$1,092,975
Cherries—			
Cases	382,116	319,350	114,367
Value	$990,914	$825,522	$307,788
All other—			
Cases	354,109	695,111	453,780
Value	$853,591	$1,363,515	$730,562
Dried fruits:			
Pounds	484,328,767	343,579,623	85,439,406
Value	$21,914,995	$15,664,784	$4,757,005
Raisins—			
Pounds	195,774,767	121,409,881	14,984,221
Value	$6,912,533	$6,349,381	$1,062,268
Prunes—			
Pounds	138,498,490	117,808,181	25,413,763
Value	$5,130,412	$3,299,628	$970,927
Apples—			
Pounds	44,568,244	40,737,089	33,212,309
Value	$3,098,095	$1,758,610	$1,900,642
Peaches—			
Pounds	46,843,391	25,861,074	5,662,390
Value	$2,423,083	$1,702,205	$312,495
Apricots—			
Pounds	29,205,569	19,559,573	5,465,217
Value	$2,277,177	$1,410,838	$455,394
All other—			
Pounds	29,438,306	18,203,825	701,509
Value	$2,073,695	$1,144,122	$49,276
Fish and oysters.			
Value	$27,648,289	$22,194,635	$18,807,542
Canned fish and oysters:			
Pounds	235,418,713	207,077,976	
Value	$17,573,311	$13,531,786	$12,868,572
Salmon—			
Pounds	99,831,528	48,128,926	62,052,792
Value	$8,723,565	$4,251,387	$5,079,324
Sardines:			
Pounds	90,694,284	87,224,524	44,951,244
Value	$4,931,831	$4,380,498	$4,212,351
Oysters—			
Pounds	28,102,392	59,249,043	[4]
Value	$2,443,101	$3,799,412	$2,054,800
All other—			
Pounds	16,790,509	12,475,483	9,625,825
Value	$1,474,814	$1,100,489	$922,097
Smoked fish:			
Pounds	39,814,989	36,617,904	21,108,066
Value	$2,900,417	$2,528,240	$957,741
Herring—			
Pounds	21,369,856	19,737,537	12,576,429
Value	$931,611	$631,352	$330,590
Salmon—			
Pounds	6,836,099	6,833,560	1,975,647
Value	$950,540	$831,184	$136,331
Finnan haddie—			
Pounds	4,513,222	3,014,160	1,360,500
Value	$304,620	$174,234	$75,360
All other—			
Pounds	7,095,812	7,032,647	5,195,490
Value	$713,646	$891,470	$415,460
Salted fish:			
Pounds	128,539,299	111,728,665	117,780,031
Value	$7,174,561	$6,134,609	$4,981,229
Cod—			
Pounds	49,494,338	48,757,819	64,731,210
Value	$3,077,612	$3,013,320	$3,081,045
Mackerel—			
Pounds	9,045,469	8,326,566	10,458,313
Value	$740,513	$678,326	$662,008
Herring—			
Pounds	21,718,467	15,824,192	13,933,426
Value	$461,287	$409,223	$332,220
Haddock—			
Pounds	7,873,156	4,737,975	6,927,910
Value	$319,248	$213,394	$197,360
All other—			
Pounds	40,407,869	34,082,113	21,729,163
Value	$2,575,901	$1,820,346	$708,596
All other products, including pickles, preserves, and sauces.			
Value	$43,030,529	$35,272,585	$35,725,257

[1] In addition, products to the value of $5,423,199 were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation, as follows:

	Number.	Value.
Total		$5,423,199
Canned vegetables.....cases..	769,017	1,714,909
Canned fruits.....cases..	27,474	76,964
Dried fruits.....pounds..	1,007,033	53,159
Canned fish.....pounds..	531,054	19,649
Smoked fish.....pounds..	924,785	38,841
Salted fish.....pounds..	4,630,322	143,540
Pickles, preserves, and sauces		3,376,137

[2] In addition, 140,263 cases of fruits and vegetables, to the value of $288,138; 1,847,625 pounds of fish, to the value of $274,403; and oysters, to the value of $12,900, were canned and preserved by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

[3] Not reported separately.

[4] Not reported.

Flour and grist mill products.—The following table presents statistics for flour mills and gristmills, but does not include data for establishments engaged exclusively in custom grinding (see table on p. 73). The total quantity of all kinds of grain milled in 1909 was 806,247,961 bushels, as compared with 729,061,820 bushels in 1899, an increase of 10.6 per cent. The largest increases were in wheat and corn,

the former showing a gain of about 25,000,000 bushels and the latter a gain of about 29,000,000 bushels.

The increase in the value of all products of flour mills and gristmills for the period 1899–1909 was 76.2 per cent. This gain was due mainly to advances in price, for the increases in quantity were relatively much smaller. The value of the wheat flour produced increased 64.7 per cent, but its quantity only 6 per cent, while the production of rye flour increased 54 per cent in value and only 6.2 per cent in quantity. The figures in the table indicate that higher unit values prevailed for all classes of products during 1909 than during the two prior census years. For the decade as a whole the percentage of increase in cost of materials, which constitutes by far the greater part of the value of products, was, however, even higher than that in value of products.

	1909	1904	1899
MATERIALS.			
Total cost	$767,576,479	$619,971,161	$428,116,757
Grain ground or milled, bushels	806,247,961	754,945,729	729,061,820
Wheat	486,483,314	494,095,083	471,306,986
Corn	209,281,237	178,217,321	180,573,076
Rye	11,503,969	11,480,370	10,088,381
Buckwheat	7,156,062	6,531,305	5,490,156
Barley	24,509,770	18,628,552	10,067,348
Oats	50,241,598	45,381,009	47,175,766
Other	7,075,011	612,089	4,360,107
PRODUCTS.			
Total value	[1] $883,584,405	[2] $713,033,395	$501,396,304
Wheat flour:			
Barrels	105,756,045	104,013,278	99,763,777
Value	$550,116,254	$480,258,514	$333,997,686
White—			
Barrels	105,321,960	103,608,350	[3]
Value	$548,017,654	$478,484,601	[3]
Graham—			
Barrels	434,676	404,928	[3]
Value	$2,098,600	$1,773,913	[3]
Rye flour:			
Barrels	1,532,139	1,503,100	1,443,339
Value	$6,383,538	$5,892,108	$4,145,565
Buckwheat flour:			
Pounds	176,081,891	175,354,062	143,190,724
Value	$4,663,561	$4,379,359	$3,190,152
Barley meal:			
Pounds	28,550,952	68,508,055	91,275,646
Value	$486,000	$922,884	$963,710
Corn meal and corn flour:			
Barrels	21,552,737	23,624,693	27,838,811
Value	$66,941,095	$56,368,556	$52,167,739
Hominy and grits:			
Pounds	827,987,702	756,861,398	291,726,145
Value	$12,509,493	$8,455,420	$2,567,084
Feed:			
Tons (2,000 pounds)	5,132,369	3,456,786	3,993,080
Value	$140,541,915	$76,096,127	$63,011,421
Offal:			
Tons (2,000 pounds)	4,104,042	4,408,626	3,104,408
Value	$89,814,427	$76,105,532	$36,679,196
All other cereal products—"breakfast foods," oatmeal, rolled oats, etc., value	$4,726,106	[3]	[3]
All other products, value	$7,408,016	$4,554,895	$4,673,751
EQUIPMENT.			
Pairs of rolls	76,866	80,822	67,141
Runs of stone	11,185	10,609	10,939
Attrition mills	981	[4]	[4]

[1] In addition, merchant-ground products, valued at $1,637,228, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation. The items covered by this amount were wheat flour, 105,477 barrels, valued at $614,952; corn meal, 32,804 barrels, valued at $87,507; rye flour, 2,620 barrels, valued at $12,330; feed, 33,765 tons, valued at $907,165; and offal, 627 tons, valued at $15,274; and in addition, "breakfast foods," to the value of $36,978,613, were made by establishments engaged primarily in the manufacture of food preparations. See note to table on page 73, for custom ground by-products.

[2] In addition, "breakfast foods," to the value of $23,904,952, were made by establishments engaged primarily in the manufacture of food preparations.

[3] Not reported separately.

[4] Not reported.

Rice, cleaning and polishing.—The following table presenting statistics for the cleaning and polishing of rice includes the quantity of rice milled, whether on a custom or exchange basis or in merchant mills. In 1909 there were 974,747,475 pounds of rice treated, as compared with 398,602,018 pounds in 1899, an increase of 144.5 per cent. The amount for 1909, however, was a little less than that for 1904. In 1909 there were only 3,873,735 pounds of foreign rough rice treated, as against 39,414,459 pounds in 1899. Attention is called to the fact that in 1909 whole rice formed 76.3 per cent of the total quantity of cleaned rice and broken rice 23.7 per cent, whereas in 1904 whole rice formed 65.9 per cent and broken rice 34.1 per cent of the cleaned-rice product.

	1909	1904	1899
MATERIALS.			
Rough rice milled, pounds	974,747,475	999,727,650	398,602,018
Domestic	970,873,740	990,473,625	359,187,559
Foreign	3,873,735	9,254,025	39,414,459
PRODUCTS.			
Total value	[1] $22,371,457	$16,296,916	$8,723,726
Clean rice:			
Pounds	626,089,489	623,900,245	243,031,200
Value	$20,685,982	$15,357,133	[2]
Whole—			
Pounds	477,589,004	411,208,943	[2]
Value	$17,398,736	$12,077,124	[2]
Broken—			
Pounds	148,500,485	212,691,302	[2]
Value	$3,287,246	$3,280,009	[2]
Polish:			
Pounds	29,821,813	33,290,331	15,134,048
Value	$362,052	$267,647	[2]
Bran:			
Pounds	91,208,529	120,694,130	69,265,012
Value	$736,215	$501,193	[2]
Hulls and waste, value	$166,147	$116,360	[2]
All other products, value	$421,061	$54,583	[2]

[1] In addition, 48,150 pounds of clean rice, valued at $1,449, were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

[2] Not reported separately.

Slaughtering and meat packing.—The table on page 38 presents statistics for the wholesale slaughtering and meat-packing industry. It includes the manufacture of sausage when done in connection with slaughtering or meat packing or when carried on in independent establishments, but it does not include the rendering of lard in independent establishments or the operations of retail butchers. The cost of all materials reported for the industry was $1,201,827,784 in 1909 and $685,310,099 in 1899, an increase of 75.4 per cent. The total value of products increased from $788,367,647 in 1899 to $1,370,568,101 in 1909, or 73.8 per cent.

A portion of the dressed meat reported as material was obtained from slaughtering establishments included in the tabulation, and therefore is duplicated in the total value of products.

On account of the higher prices in 1909, the percentages of increase in value from 1899 to 1909 for the different kinds of products are somewhat greater than the percentages of increase in quantity. This is

especially marked in the case of pork, which shows an increase of only 16,421,398 pounds, or less than 1 per cent, from 1899 to 1909, while the value of the product increased $166,376,042, or 51.9 per cent. The quantity of lard increased 223,785,765 pounds, or 21.9 per cent, while its value increased $73,256,353, or 119.8 per cent.

	1909	1904	1899
MATERIALS.			
Total cost	$1,201,827,784	$811,425,563	$685,310,099
Animals slaughtered, cost	$960,725,581	$675,893,676	$570,183,432
Beeves—			
Number	8,114,860	7,147,835	5,525,324
Cost	$392,127,010	$289,040,930	$247,146,262
Weight, pounds—			
On the hoof	8,265,991,836	7,485,407,944	5,908,165,706
Dressed	4,409,718,922	4,066,264,877	3,222,733,617
Calves—			
Number	2,504,728	1,568,130	883,857
Cost	$25,030,014	$12,665,557	$7,252,545
Weight, pounds—			
On the hoof	419,604,080	261,683,572	124,354,340
Dressed	262,315,076	161,049,581	79,498,483
Sheep—			
Number	12,255,501	10,875,339	9,110,172
Cost	$59,924,931	$44,359,804	$36,859,832
Weight, pounds—			
On the hoof	987,566,521	930,168,367	764,269,802
Dressed	496,640,869	464,872,621	389,132,646
Hogs—			
Number	33,870,616	30,977,639	30,595,522
Cost	$483,383,848	$329,765,480	$278,370,494
Weight, pounds—			
On the hoof	6,856,832,417	6,586,349,782	6,676,709,331
Dressed	5,201,902,778	5,048,832,850	5,203,280,487
Goats and kids—			
Number	33,224	(1)	(1)
Cost	$121,230	(1)	(1)
All other, cost	$138,548	$61,905	$554,299
Dressed meat, purchased	$93,409,286	$53,114,957	$54,247,986
All other materials, cost	$147,092,917	$82,416,929	$60,878,081
PRODUCTS.			
Total value	$1,370,568,101	$922,037,528	$788,367,647
Beef:[2]			
Pounds	4,335,674,330	3,884,952,074	3,055,241,979
Value	$339,742,608	$255,204,676	$220,495,401
Fresh—			
Pounds	4,209,196,668	3,748,055,377	2,917,653,476
Value	$327,583,456	$247,096,724	$210,833,647
Salted or cured—			
Pounds	126,477,662	136,896,697	137,588,503
Value	$12,159,152	$8,107,952	$9,661,754
Veal, fresh:			
Pounds	252,997,078	154,212,652	84,548,128
Value	$25,058,886	$12,856,369	$7,709,772
Mutton, fresh:			
Pounds	495,457,894	460,754,244	400,812,014
Value	$50,735,116	$36,880,455	$32,681,457
Pork:[2]			
Pounds	4,377,127,187	4,147,834,872	4,360,705,789
Value	$486,845,161	$340,586,644	$320,469,119
Fresh—			
Pounds	1,547,494,184	1,224,932,010	1,222,007,411
Value	$158,714,862	$91,749,323	$83,934,324

	1909	1904	1899
PRODUCTS—continued.			
Pork[2]—Continued.			
Salted—			
Pounds	952,130,557	1,558,886,256	1,371,384,591
Value	$95,959,048	$116,626,710	$88,363,629
Hams—			
Pounds	789,861,744		
Value	$101,089,390		
Shoulders—			
Pounds	346,294,769	1,364,015,706	1,767,313,787
Value	$33,225,458	$132,210,611	$148,171,166
Bacon and sides—			
Pounds	741,345,933		
Value	$97,856,403		
Sausage, fresh or cured, value	$59,504,582	$33,179,235	$25,982,709
All other fresh meat:			
Pounds	257,809,083	124,307,681	80,387,411
Value	$16,592,768	$9,579,718	$7,810,553
Canned goods:			
Pounds	121,376,837	(1)	112,443,021
Value	$15,345,543	$16,114,665	$9,166,931
Lard:			
Pounds	1,243,567,604	1,169,086,400	1,019,781,839
Value	$134,396,587	$82,540,964	$61,140,234
Tallow or oleo stock:			
Pounds	202,844,139	(1)	(1)
Value	$13,499,659	(1)	(1)
Oleo oil:			
Gallons	19,692,172	19,454,799	19,111,120
Value	$16,475,726	$10,201,911	$11,482,542
Other oils:			
Gallons	11,343,186	4,893,133	8,240,569
Value	$6,350,745	$2,595,951	$3,438,358
Oleomargarine:			
Pounds	42,912,466	(1)	(1)
Value	$5,963,981	(1)	(1)
Stearin:			
Pounds	54,957,997	(1)	(1)
Value	$6,871,935	(1)	(1)
Glue and gelatine:			
Pounds	27,936,035	17,526,456	(1)
Value	$1,944,338	$1,087,719	(1)
Fertilizers and fertilizer materials:			
Tons (2,000 pounds)	362,136	369,074	168,505
Value	$8,726,818	$7,204,061	$3,309,042
Hides:			
Number	9,560,138	8,039,204	6,249,414
Pounds	504,563,930	456,443,857	335,968,207
Value	$68,401,515	$44,206,107	$33,883,026
Sheep pelts:			
Number	11,691,308	11,344,544	(1)
Value	$11,404,556	$8,964,643	(1)
Goat and kid skins:			
Number	33,359	(1)	(1)
Value	$20,679	(1)	(1)
Wool:			
Pounds	21,858,926	16,377,333	13,176,686
Value	$8,327,095	$5,229,521	$3,334,439
Amount received for custom or contract work	$1,329,739	$198,825	$141,154
All other products, value	$93,170,064	$55,406,064	$47,331,910

[1] Figures not available.

[2] Includes only the products specified.

Sugar.—The three accompanying tables show the quantity and value of the products made from sugar beets and sugar cane of domestic growth, and the quantity of beets grown and the acreage devoted to this crop. They do not include statistics for maple sugar and sirup, or for sirup produced on farms from sugar and sorghum cane, or the data for establishments engaged primarily in the refining of cane sugar or molasses. The value of products of the domestic beet-sugar and cane-sugar mills amounted to $77,991,683. In 1909 the value of products of the refineries above mentioned aggregated $248,628,659. Of this value the cost of materials, which consist chiefly of raw sugar imported from Cuba, Porto Rico, Hawaii, and the Philippines, represented 90.9 per cent. The combined value of products of all establishments producing raw or refined sugar was $326,620,342 in 1909. This amount includes some duplication in the case of raw sugar produced by cane mills and used as material for the refineries.

As shown by the three following tables, the total production of sugar in 1909 from beets and cane of domestic growth was 828,540 tons, of which beet sugar constituted 60.6 per cent and cane sugar 39.4 per cent. The output of beet sugar increased more than fivefold in quantity since 1899, while the production of cane sugar, for which statistics for previous censuses can not be presented in comparable form, has increased but slightly. The *ton of 2,000 pounds* is used in showing quantities.

PRODUCT.	1909	
	Tons.	Value.
Total		$77,991,683
Beet-sugar industry		48,122,383
Cane-sugar industry		29,869,300
Sugar	828,540	72,033,302
Beet	501,682	45,937,629
Cane	326,858	26,095,673
Molasses, sirup, and all other products		5,958,381
Beet		2,184,754
Cane		3,773,627

The following table presents the statistics for the beet-sugar industry for the censuses of 1909, 1904, and 1899:

	1909	1904	1899
Acreage of sugar beets, total planted	415,964	240,757	135,305
Directly by factory	20,459	20,484	10,239
By tenants of factory	18,166	20,223	13,074
On contract by others than tenants of factory	368,339	200,050	111,992
Beets used, tons	3,965,356	2,175,417	794,658
Grown directly by factory	266,768	169,830	23,241
Grown by tenants of factory	163,843	210,247	95,071
Grown on contract by others than tenants of factory	3,534,745	1,795,331	676,346
PRODUCTS.			
Total value	$48,122,383	$24,393,794	$7,323,857
Sugar:			
Granulated—			
Tons	496,807	248,309	57,843
Value	$45,645,810	$23,493,373	$5,580,527
Raw—			
Tons	4,875	5,612	23,886
Value	$291,819	$431,229	$1,642,054
Molasses or sirup:			
Gallons	20,812,747	9,609,542	[1] 3,551,856
Value	$1,129,905	$221,097	$25,102
Beet pulp, value	$795,000	$202,070	$21,822
All other products, value	$258,949	$40,025	$54,352

[1] Includes quantities for which no value could be given; also wastage.

The statistics for cane mills for 1909 are shown in detail in the table in the next column.

PRODUCT.	1909
Total value	[1] $30,620,738
Sugar: [2]	
Tons	326,858
Value	$26,095,673
Vacuum pan—	
Tons	323,180
Value	$25,794,287
Brown (open-kettle process)—	
Tons	3,678
Value	$301,386
Molasses (liquid product from which more or less sugar has been extracted):	
Gallons	24,587,581
Value	$2,845,559
Sirup (liquid product from which no sugar has been extracted):	
Gallons	1,449,860
Value [3]	$365,632
All other products, value [3]	$1,313,874

[1] Does not include the operations of four establishments which manufacture sugar, two of which were operated in connection with penal institutions and two of which were engaged primarily in the manufacture of products other than those covered by the industry designation. The output of these establishments was 7,281 tons of sugar and 180,784 gallons of molasses.

[2] Cane sugar manufactured direct from cane, not including the refining of raw sugar purchased.

[3] The value of sirup produced by establishments which manufacture no sugar is included under "All other products."

TEXTILES.

Statistics are presented for several branches of the textile and allied manufacturing industries, designated as follows: Carpets and rugs, other than rag; cordage and twine and jute and linen goods; cotton goods, including cotton small wares; hats, fur-felt; hosiery and knit goods; oilcloth and linoleum; shoddy; silk and silk goods, including throwsters; and woolen, worsted, and felt goods, and wool hats.

The next table shows the development of the textile industry since 1850. It covers all the industries mentioned above except the manufacture of fur-felt hats and of oilcloth and linoleum, for which statistics are shown in separate tables, and also includes the dyeing and finishing of textiles.

CENSUS.	Number of establishments.	NUMBER ENGAGED IN INDUSTRY.[1]		Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
		Salaried employees.	Wage earners (average number).						
1909 (census of 1910)	5,352	31,208	881,128	$1,841,242,131	$49,123,634	$335,308,736	$992,635,209	$1,684,636,499	$665,001,290
1904 (census of 1905)	4,737	24,372	742,520	1,351,451,715	32,862,121	250,514,233	753,174,981	1,225,686,444	472,511,463
1899 (census of 1900)	4,521	17,024	664,429	1,049,636,201	23,532,773	210,069,411	527,209,771	940,052,688	412,842,917
1889 (census of 1890)	4,420	[2] 10,851	520,196	772,673,605	[2] 12,743,405	169,422,053	454,372,489	768,357,254	314,084,765
1879 (census of 1880)	4,143	[3]	[4] 387,557	414,179,946	[3]	105,642,824	306,495,799	538,401,222	231,905,423
1869 (census of 1870)	4,855	[3]	275,655	208,611,518	[3]	86,784,211	354,452,813	522,312,413	167,859,600
1859 (census of 1860)	3,053	[3]	194,394	150,205,852	[3]	40,410,946	113,082,036	215,166,444	102,084,408
1849 (census of 1850)	3,025	[3]	146,877	112,513,947	[3]	[5]	76,715,959	128,769,971	52,054,012

[1] Not including proprietors and firm members. [2] Includes proprietors and firm members with their salaries. [3] Not reported separately.
[4] Includes 2,115 officers and clerks whose salaries were not reported. [5] Not reported fully.

The combined products of the industry in 1909 were valued at $1,684,636,499, an increase of $744,583,811, or 79.2 per cent, over the total for 1899. The total includes considerable duplication of values, but probably no more, relatively, than at previous censuses.

The percentage of increase since 1899 is the highest for any decade since that from 1859–1869. In 1909 cotton goods contributed 37.3 per cent of the value of all products represented in the total; the products of the woolen industries, including carpets and rugs, 30.1 per cent; hosiery and knit goods, 11.9 per cent; silk goods, 11.7 per cent; cordage and twine and jute and linen goods, 3.6 per cent; shoddy, four-tenths of 1 per cent; and the dyeing and finishing of textiles by independent establishments, 5 per cent.

The following table gives the number of producing spindles in active textile mills at the time of each census from 1869 to 1909, inclusive. It does not include spindles in establishments engaged primarily in the manufacture of products other than textiles, nor spindles employed on flax, hemp, jute, and allied fibers, of which latter class 142,169 were returned in 1909.

CENSUS.	NUMBER OF SPINDLES.				
	Total.	Cotton.	Silk.	Woolen.	Worsted.
1909 (census of 1910)	33,856,479	28,178,862	1,767,962	2,156,849	1,752,806
1904 (census of 1905)	28,721,742	23,672,064	1,394,020	2,456,389	1,199,269
1899 (census of 1900)	23,001,557	19,463,984	1,213,493	2,229,181	994,899
1889 (census of 1890)	[1] 18,092,133	14,384,180	718,360	2,332,269	657,324
1879 (census of 1880)	[1] 13,170,743	10,653,435	262,312	1,915,070	339,926
1869 (census of 1870)	[1] 9,338,953	7,280,800	12,040	1,845,496	200,617

[1] Includes some accessory spindles, except for silk.

The percentage of increase in the total number of spindles was greater from 1899 to 1909 than for any other decade shown. In 1909 cotton spindles formed 83.2 per cent of the total number, silk spindles 5.2 per cent, and woolen and worsted spindles combined 11.5 per cent. In 1909 cotton spindles represented a slightly larger proportion of all spindles than in 1904 and 1899 and woolen and worsted spindles a slightly smaller proportion.

The loom equipment of active establishments at the time of the several censuses, beginning with that of 1869, is presented in the following table. It does not include looms in establishments engaged primarily in the manufacture of products other than textiles, nor looms employed on flax, hemp, jute, and similar fibers. Cotton looms operated by power formed 80.6 per cent of the total number of power looms in 1909; silk looms, 9.1 per cent; and those employed in the woolen industry, which includes the manufacture of woolen and worsted goods and carpets and rugs, 10.2 per cent. In 1899 the corresponding percentages were 79.5 for cotton looms, 7.7 for silk, and 12.8 for those in the woolen industries.

CLASS OF LOOMS AND CENSUS.	NUMBER OF LOOMS.					
	Total.	Used in the manufacture of—				
		Cotton goods.	Silk goods.	Woolen goods.	Worsted goods.	Carpets and rugs.
Power:						
1909 (census of 1910)	825,478	665,052	75,406	33,148	39,476	11,796
1904 (census of 1905)	696,785	559,781	59,775	38,104	28,123	11,002
1899 (census of 1900)	573,214	455,752	44,257	36,734	26,630	9,841
1889 (census of 1890)	412,441	324,866	20,822	38,523	19,929	8,301
1879 (census of 1880)	285,494	227,383	5,321	32,955	11,703	8,132
1869 (census of 1870)	200,791	157,748	1,281	34,183	6,128	1,451
Hand:						
1909 (census of 1910)	248	[1]	[2]	41		207
1904 (census of 1905)	1,039	[1]	283	66		690
1899 (census of 1900)	1,311	[1]	173	83		1,055
1889 (census of 1890)	4,823	[1]	1,747	448		2,628
1879 (census of 1880)	7,929	[1]	3,153	781		3,995
1869 (census of 1870)	4,163	[1]	188	[1]		3,975

[1] Not reported. [2] Included with power looms.

Carpets and rugs.—The following table presents statistics for the manufacture of carpets and rugs, exclusive of rag and grass carpets and rugs.

	1909	1904	1899
MATERIALS.			
Total cost	$39,563,004	$37,047,954	$27,228,719
Wool, in condition purchased:			
Pounds	64,135,020	51,320,521	51,871,334
Cost	$11,752,396	$10,431,146	$8,104,107
Equivalent of above in scoured condition, pounds	51,474,353	31,551,895	37,560,231
Animal hair:			
Pounds	5,400,944	6,805,802	6,189,757
Cost	$474,057	$593,588	$549,610
Cotton:			
Pounds	5,147,130	1,997,369	1,943,942
Cost	$533,302	$251,112	$129,449
Partly manufactured materials not made in mill reporting:			
Waste and noils—			
Pounds	2,732,034	2,172,481	2,325,954
Cost	$513,302	$341,309	$305,733
Yarns—			
Woolen—			
Pounds	25,718,747	32,431,400	32,996,316
Cost	$5,036,118	$6,048,001	$5,030,654
Worsted—			
Pounds	11,202,749	11,355,993	9,218,267
Cost	$5,588,915	$5,405,072	$3,544,869
Cotton—			
Pounds	26,166,241	27,421,831	19,823,561
Cost	$4,772,594	$4,757,850	$2,744,028
Linen—			
Pounds	8,792,876	8,228,200	8,388,211
Cost	$1,606,009	$1,355,892	$1,164,826
Jute, ramie, and other vegetable fiber—			
Pounds	55,502,343	49,119,558	38,846,413
Cost	$3,926,694	$3,404,516	$2,476,029
Chemicals and dyestuffs, cost	$1,729,492	$1,467,476	$1,151,725
All other materials, cost	$3,630,035	$3,291,992	$2,026,707
PRODUCTS.			
Total value	[1] $71,188,152	[1] $61,536,433	$48,192,351
Carpets:			
Square yards	57,176,729	66,426,032	64,238,761
Value	$48,475,889	$43,991,125	$35,405,926
Axminster and Moquette—			
Square yards	12,507,261	6,413,686	5,026,778
Value	$13,680,806	$6,368,757	$4,762,269
Wilton—			
Square yards	4,576,368	1,297,872	[2] 3,587,126
Value	$8,737,768	$2,726,667	[2] $4,030,842
Brussels—			
Square yards	3,960,626	3,024,162	2,686,493
Value	$5,216,607	$3,898,675	$2,079,867
Tapestry velvet—			
Square yards	[2] 6,927,193	[2] 8,033,288	4,280,666
Value	[2] $5,514,130	[2] $7,751,681	$3,743,353
Tapestry Brussels—			
Square yards	11,405,514	14,099,073	8,737,449
Value	$8,576,906	$9,955,043	$5,520,665
Ingrain—			
Square yards	17,799,762	33,557,951	39,920,849
Value	$6,749,672	$13,287,302	$14,368,930
Rugs, woven whole:			
Square yards	24,042,152	16,244,810	12,171,289
Value	$18,490,449	$12,870,050	$8,145,232
Axminster and Moquette—			
Square yards	3,184,097	1,767,920	327,508
Value	$3,691,900	$2,107,383	$342,202
Wilton—			
Square yards	767,218	1,097,186	339,784
Value	$1,381,562	$1,983,777	$545,967
Brussels—			
Square yards	475,831	[3]	[3]
Value	$333,582	[3]	[3]
Tapestry velvet—			
Square yards	3,732,972	[3]	[3]
Value	$3,513,063	[3]	[3]
Tapestry Brussels—			
Square yards	5,672,962	2,009,834	18,750
Value	$4,422,427	$1,509,673	$9,000
Ingrain art squares—			
Square yards	6,131,862	7,135,546	2,722,323
Value	$2,408,960	$2,785,457	$1,175,951
Smyrna—			
Square yards	1,400,233	3,828,282	3,051,661
Value	$1,660,322	$4,134,500	$3,680,618
Other—			
Square yards	2,676,947	406,042	5,111,173
Value	$1,078,633	$349,860	$2,391,434
All other products, value	$4,221,814	$4,724,653	$4,641,193
MACHINERY.			
Sets of cards	745	686	[4] 468
Woolen	456	389	.....
Worsted	180	238	.....
Cotton	109	59	.....
Spindles	252,096	255,347	209,200
Producing	211,472	211,331	167,123
Doubling and twisting	40,624	44,016	42,083
Looms, all classes	12,271	13,353	12,511

[1] In addition, in 1909 carpets and rugs, to the value of $479,161, and in 1904, to the value of $70,000, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] Includes Wilton velvet.
[3] Not reported separately.
[4] Not reported fully.

The aggregate production of carpets and rugs increased from 76,410,050 square yards in 1899 to 81,218,881 square yards in 1909, or only 6.3 per cent, but the value of the output increased from $43,551,158 in 1899 to $66,966,338 in 1909, or 53.8 per cent. The increase has been in all classes of rugs except Smyrna and "other rugs" and in all classes of carpets except ingrain. The cost of materials used increased at a rate almost equal to that of the value of products. The total carpet product decreased 11 per cent in quantity during the decade, but increased 36.9 per cent in value. The output of pile carpets increased 61.9 per cent in quantity and 98.3 per cent in value, while that of woven ply or ingrain carpets decreased 55.4 per cent in quantity and 53 per cent in value. The production of rugs woven whole increased 97.5 per cent in quantity and 127 per cent in value. More than two-thirds of the fiber material used in the manufacture of carpets is yarn purchased, and to the extent that this yarn is manufactured by carpet mills there is a duplication in the products.

Cordage and twine and jute and linen goods.—The following table presents statistics for the manufacture of cordage and twine and jute and linen goods, including nets and seines, but does not include the figures for these classes of goods produced in penal institutions or in establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

The principal products manufactured in this country from flax, hemp, and jute fibers are twine, rope, and thread, and yarns for sale to establishments using chiefly cotton, wool, and silk fibers.

The production of linen toweling and other linen woven goods increased decidedly between 1899 and 1909, but this item is not shown separately in the table, because a very large proportion of the total product is manufactured by one establishment.

The output of gunny bagging decreased from 74,090,760 square yards in 1899 to 69,311,288 square yards in 1909, while its value increased from $3,462,479 to $3,507,482. The aggregate rope and twine product in 1909 was 504,020,697 pounds, valued at $42,864,658, as compared with 343,656,384 pounds, valued at $31,250,468, in 1899. In 1899 cotton rope and twine formed 3 per cent of the total output of the cordage and twine industry, and in 1909, 7.4 per cent. This class of products increased 260.6 per cent in quantity and 372.9 per cent in value during the decade, while rope and twine of all other fiber increased 40 per cent in quantity and 21.6 per cent in value. In addition to the cotton rope and twine product included in the figures given above, 7,603,907 pounds, valued at $1,164,526, were made in 1909 in mills engaged primarily in the manufacture of cotton goods.

	1909	1899
MATERIALS.		
Total cost	**$40,914,810**	**$33,063,798**
Hard fibers:		
Sisal and manila hemp—		
Pounds	335,469,574	269,594,673
Cost	$19,314,306	$17,743,624
Other kinds—		
Pounds	17,222,998	6,344,371
Cost	$707,802	$352,528
Soft fibers:		
Jute—		
Pounds	121,992,427	87,443,201
Cost	$4,134,265	$2,431,429
Jute butts—		
Pounds	138,364,122	118,806,625
Cost	$2,033,176	$1,795,653
Flax and flax tow—		
Pounds	26,954,785	16,980,646
Cost	$3,174,609	$2,080,862
Hemp and hemp tow—		
Pounds	19,724,070	25,588,715
Cost	$1,496,125	$1,404,653
Cotton:		
Pounds	27,624,490	13,022,755
Cost	$2,922,933	$849,426
Yarns, purchased:		
Cotton—		
Pounds	7,077,959	4,973,080
Cost	$1,291,599	$709,889
Flax, hemp, jute, and ramie—		
Pounds	2,676,367	1,788,170
Cost	$445,378	$262,156
All other materials, cost	$5,394,617	$5,433,573
PRODUCTS.		
Total value	[1] **$61,019,986**	**$49,077,629**
Rope and binder twine, value	$33,930,306	$26,909,027
Sisal—		
Pounds	225,755,526	172,238,291
Value	$15,960,280	$14,005,566
Manila—		
Pounds	150,169,682	123,584,201
Value	$12,892,347	$12,102,798
Cotton rope—		
Pounds	16,760,763	1,615,824
Value	$3,011,613	$247,250
Jute rope—		
Pounds	27,740,512	10,012,165
Value	$1,566,160	$463,413
All other—		
Pounds	7,767,561	[2]
Value	$499,906	[2]
Twine, not including binder, value	$8,934,352	$4,341,441
Cotton—		
Pounds	20,412,631	8,691,707
Value	$3,518,036	$1,133,640
Jute—		
Pounds	35,516,217	1,672,127
Value	$2,557,744	$117,530
Hemp—		
Pounds	8,013,349	9,065,024
Value	$1,091,291	$1,019,590
Flax—		
Pounds	2,967,053	3,845,078
Value	$830,969	$969,469
Flax or hemp mixed with jute—		
Pounds	8,907,403	12,924,067
Value	$936,312	$1,101,203
Yarns for sale, value	$5,434,037	$4,455,734
Jute—		
Pounds	62,512,247	54,271,860
Value	$4,361,550	$3,230,835
Flax and hemp—		
Pounds	5,486,891	8,259,053
Value	$982,742	$1,125,971
Other—		
Pounds	732,120	946,567
Value	$89,745	$98,928
Linen thread:		
Pounds	6,530,503	4,021,044
Value	$3,407,008	$2,332,287
Gunny bagging:		
Square yards	69,311,288	74,090,760
Value	$3,507,482	$3,462,479
Jute carpets and rugs:		
Square yards	2,206,114	2,953,658
Value	$549,221	$357,568
All other products, value	$5,257,580	$7,219,093

[1] In addition, cordage and twine and jute and linen goods to the value of $2,567,135 were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] Not reported.

Cotton goods, including cotton small wares.—The table on the following page presents the statistics for cotton manufactures, not including cotton hosiery and knit goods.

The aggregate value of cotton woven goods manufactured, exclusive of narrow weaves, such as tape and webbing, was $456,089,401 in 1909, compared with $243,253,155 in 1899, an increase of 87.5 per cent for the decade. The rate of increase, however, in quantity was very much less, 6,348,568,593 square yards of woven goods being reported in 1909, compared with 4,523,430,616 in 1899, an increase of 40.3 per cent. The output of almost every class of woven goods increased during the decade.

The total production of yarn in cotton mills in 1909 amounted to 2,040,290,743 pounds, of which 470,370,995 pounds, valued at $109,314,953, were made for sale. Part of this yarn was sold to other cotton mills, thus involving duplication in the total value of products for the industry. Some of it was sold to woolen and silk mills and a large quantity to knitting mills.

	1909	1904	1899
MATERIALS.			
Total cost	**$371,009,470**	**$286,255,303**	**$176,551,527**
Cotton:			
Pounds	2,335,344,906	1,876,437,150	1,817,643,390
Cost	$274,724,210	$222,212,749	$125,169,616
Domestic—			
Pounds	2,259,312,974	1,832,736,744	1,761,798,458
Cost	$261,547,820	$214,615,844	$119,098,443
Foreign—			
Pounds	76,031,932	43,700,406	55,844,932
Cost	$13,176,390	$7,596,905	$6,071,173
Cotton yarn:			
Pounds	126,707,003	105,411,516	94,692,864
Cost	$34,384,791	$24,611,200	$17,622,568
Cotton waste:			
Pounds	80,044,061	76,678,645	41,234,900
Cost	$4,225,790	$3,814,290	$1,515,591
Starch:			
Pounds	71,774,574	54,489,534	53,800,734
Cost	$2,114,756	$1,506,804	$1,227,010
Chemicals and dyestuffs, cost	$4,886,514	$4,573,375	$5,718,107
All other materials, cost	$50,673,409	$29,536,885	$25,298,635
PRODUCTS.			
Total value	[1] **$628,391,813**	**$450,467,704**	**$339,200,320**
Woven goods:			
Square yards	6,348,568,593	5,110,308,812	4,523,430,616
Value	$456,089,401	$324,747,837	$243,253,155
Plain cloths for printing or converting—			
Square yards	2,224,677,848	1,818,216,172	1,581,613,827
Value	$111,097,889	$80,311,612	$57,780,940
Brown or bleached sheetings and shirtings—			
Square yards	1,484,353,529	1,172,309,182	1,212,403,048
Value	$88,802,985	$61,253,376	$55,513,032
Twills and sateens—			
Square yards	388,314,961	366,142,513	235,860,518
Value	$34,274,107	$23,701,305	$14,301,302
Fancy woven fabrics—			
Square yards	426,710,359	306,254,685	237,841,603
Value	$47,498,713	$28,486,342	$21,066,310
Ginghams—			
Square yards	537,430,463	302,316,132	278,392,708
Value	$37,939,040	$22,471,867	$16,179,200
Duck—			
Square yards	102,476,322	122,601,212	129,234,076
Value	$27,485,892	$17,005,982	$14,263,008
Drills—			
Square yards	238,869,407	194,735,303	237,206,549
Value	$17,750,151	$12,596,063	$11,862,794
Ticks, denims, and stripes—			
Square yards	264,870,508	256,375,486	181,800,853
Value	$27,350,162	$23,797,578	$16,446,633
Cottonades—			
Square yards	25,676,286	25,362,346	26,323,047
Value	$3,343,533	$2,993,971	$2,791,431

	1909	1904	1899
PRODUCTS—continued.			
Woven goods—Continued			
Napped fabrics—			
Square yards	305,655,864	330,808,140	268,852,716
Value	$25,695,367	$26,108,315	$18,231,044
Corduroy, cotton, velvet, and plush—			
Square yards	19,706,438	16,014,556	7,961,523
Value	$6,965,634	$4,790,573	$2,682,017
Mosquito and other netting—			
Square yards	59,100,819	36,232,918	41,885,023
Value	$2,103,560	$794,953	$875,868
Upholstering goods—			
Square yards	94,840,051	65,592,212	51,314,609
Value	$14,882,842	$12,111,698	$8,705,384
Tapestries (piece goods and curtains)—			
Square yards	10,657,385	9,605,006	10,166,538
Value	$4,723,907	$4,242,506	$4,168,660
Lace and lace curtains—			
Square yards	81,007,314	53,511,222	37,825,198
Value	$8,922,082	$7,208,211	$3,585,138
Other—			
Square yards	3,175,352	2,475,984	3,322,873
Value	$1,236,853	$660,981	$961,646
Bags and bagging—			
Square yards	63,107,503	57,007,663	32,739,616
Value	$4,862,451	$3,953,732	$2,554,192
Cotton towels and toweling—			
Square yards	52,778,170	40,280,292	[2]
Value	$6,037,075	$4,365,470	[2]
Tape and webbing, value	$5,531,674	$4,060,488	$2,521,402
Yarns for sale:			
Pounds	470,370,995	364,634,753	332,302,621
Value	$109,314,953	$79,039,687	$55,216,966
Thread:			
Pounds	23,700,957	17,163,741	15,907,058
Value	$20,516,269	$15,043,043	$11,908,671
Twine:			
Pounds	13,715,771	7,301,589	11,642,713
Value	$2,417,391	$1,428,994	$1,546,611
Cordage and rope:			
Pounds	7,603,907	[2]	[2]
Value	$1,164,526	[2]	[2]
Cotton waste for sale:			
Pounds	310,513,348	247,649,640	270,862,613
Value	$10,874,386	$10,062,057	$5,563,570
All other products, value	$22,463,213	$15,185,598	$19,190,845
MACHINERY.			
Producing spindles, number	27,425,608	23,195,143	19,050,952
Looms, all classes, number	665,049	559,296	455,752

[1] In addition, cotton goods to the value of $2,224,096 were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] Not reported separately.

Felt goods.—The following table covers the statistics for all establishments engaged primarily in the manufacture of felt goods except those making hats. The aggregate value of products of the three felting industries—the manufacture of felt goods, fur-felt hats, and wool-felt hats—was $64,099,667 in 1909, $48,035,213 in 1904, and $37,864,818 in 1899, the increase in value from 1899 to 1909 being 69.3 per cent.

The value of products for the felt-goods industry, exclusive of the making of felt hats, was $11,852,626 in 1909 and $6,461,691 in 1899, an increase for the decade of 83.4 per cent.

The increase in the production of endless belts during the decade was particularly large, amounting to 191 per cent in quantity and 215.1 per cent in value.

	1909	1904	1899
MATERIALS.			
Total cost	**$6,967,206**	**$5,754,028**	**$3,801,028**
Wool, in condition purchased:			
Pounds	12,409,826	11,868,238	9,606,263
Cost	$3,927,393	$3,388,588	$2,196,440
Equivalent of above in scoured condition, pounds	9,308,172	8,131,082	6,468,097
Animal hair, etc.:			
Pounds	8,144,011	6,974,634	2,819,521
Cost	$239,244	$373,797	$125,803
Cotton:			
Pounds	1,375,670	1,982,624	1,225,850
Cost	$155,815	$217,200	$77,683
Shoddy, mungo, and wool extracts:			
Pounds	2,536,243	1,532,127	712,373
Cost	$261,878	$157,031	$80,737
Waste and noils:			
Pounds	4,874,712	1,948,960	2,653,590
Cost	$1,220,110	$452,509	$552,992
Chemicals and dyestuffs, cost	$219,891	$180,750	$128,296
All other materials, cost	$942,875	$975,151	$639,077
PRODUCTS.			
Total value	**$11,852,626**	**$8,948,594**	**$6,461,691**
Felt cloths:			
Square yards	3,764,408	3,689,610	2,056,002
Value	$1,381,854	$1,330,627	$548,543
Trimming and lining felts, felt skirts, etc.:			
Square yards	5,953,410		
Value	$1,329,686		
Saddle felts:		5,145,340	2,469,830
Pounds	1,650,991	$1,188,908	$796,718
Value	$575,349		
Endless belts:			
Pounds	3,243,034	1,770,124	1,114,357
Value	$3,417,822	$1,707,216	$1,084,835
Boot and shoe linings:			
Square yards	1,661,090	2,823,137	1,052,538
Value	$514,456	$781,450	$540,110
Hair felting:			
Square yards	1,159,090	605,214	125,000
Value	$531,045	$191,998	$56,950
All other felts, value	$3,549,876	$2,592,894	$2,261,918
All other products, value	$552,038	$655,501	$1,172,617
MACHINERY.			
Sets of cards	473	463	[1]302
Woolen	472	451	.....
Cotton	1	12	.....
Spindles	30,353	17,817	24,286
Producing	29,463	17,457	23,235
Doubling and twisting	890	360	1,051
Looms, all classes	403	265	284

[1] Not fully reported.

Hats, fur-felt and wool-felt.—The total output in 1909 of establishments engaged primarily in the manufacture of fur-felt or wool-felt hats was 42,962,508 hats of all varieties, valued at $47,089,253; in 1904 it was 36,695,952 hats, valued at $36,604,304; and in 1899, 32,325,564 hats, valued at $28,546,867. Fur-felt hats, generally known as felt hats, formed 83.5 per cent of the total number in 1909 and 69.9 per cent in 1899, while wool-felt hats, generally known as wool hats, formed 16.5 per cent of the total in 1909 and 30.1 per cent in 1899.

There is some duplication in value of products, due to the use of felt hat bodies and hats in the rough made at one establishment as material at another.

The following table gives the quantity and value of the materials and products of the fur-felt hat industry in 1909, 1904, and 1899. The products increased in value 72.1 per cent during the decade, and the number of finished hats increased 58.8 per cent.

	1909	1904	1899
MATERIALS.			
Total cost	**$22,109,231**	**$15,975,206**	**$13,513,668**
Hatters' fur:			
Pounds	8,645,576	6,718,359	6,166,269
Cost	$9,278,922	$6,743,936	$6,376,991
Fur-felt hat bodies and hats in the rough:			
Dozens	406,447	211,760	148,212
Cost	$2,575,243	$1,351,372	$882,986
Chemicals and dyestuffs, cost	$843,587	$1,140,281	$656,794
All other materials, cost	$9,411,474	$6,739,617	$5,596,897
PRODUCTS.			
Total value	[1] **$47,864,630**	[1] **$36,629,353**	**$27,811,187**
Fur-felt hats:			
Dozens	2,939,252	2,611,875	1,882,372
Value	$43,442,466	$34,314,224	$25,385,506
Fur-felt hat bodies and hats in the rough:			
Dozens	366,370	88,986	165,010
Value	$2,703,738	$660,959	$992,730
All other products, value	$1,164,872	$1,093,361	$941,032
Work on materials for others	$553,554	$560,799	$491,919

[1] In addition, in 1909, fur-felt hats, to the value of $806,601, and in 1904, to the value of $333,441, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

The statistics for the manufacture of wool-felt hats are given in the following table. The increase in the total value of all products for the decade was 22.1 per cent. The output of finished wool hats in 1909, though greater than in 1904, showed a decrease of 27.2 per cent as compared with 1899.

	1909	1904	1899
MATERIALS.			
Total cost	**$2,472,263**	**$1,369,810**	**$2,042,202**
Wool, in condition purchased:			
Pounds	1,203,498	1,633,525	2,713,374
Cost	$404,127	$495,594	3788,973
Equivalent of above in scoured condition, pounds	939,110	1,231,576	1,898,605
Wool waste and noils:			
Pounds	1,281,764	287,363	862,982
Cost	$661,172	$119,407	$370,792
Wool-felt hat bodies and hats in the rough:			
Dozens	21,864	12,089	4,939
Cost	$83,020	$25,997	$13,920
Chemicals and dyestuffs, cost	$104,593	$63,905	$108,502
All other materials, cost	$1,219,441	$664,907	$760,015
PRODUCTS.			
Total value	[1] **$4,382,411**	**$2,457,266**	**$3,591,940**
Wool-felt hats:			
Dozens	590,957	446,121	811,425
Value	$3,646,787	$2,290,070	$3,161,361
Wool-felt hat bodies and hats in the rough:			
Dozens	53,896	18,587	56,006
Value	$309,492	$100,491	$120,262
All other products, value	$426,132	$66,705	$310,317

[1] In addition, wool-felt hats, to the value of $904,643, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

Hosiery and knit goods.—The table on page 44 presenting the statistics for hosiery and knit goods includes hand-knit as well as machine-knit goods. The total cost of materials in the hosiery and knit-goods industry was $110,241,053 in 1909, $76,789,348 in 1904, and $51,195,868 in 1899. The cost of cotton and cotton yarn represented 51.7 per cent of the total cost of material used in 1909, 52.4 per cent in 1904, and 50.3 per cent in 1899. A portion of the yarn reported as material was purchased from other establishments in-

cluded in this classification and is therefore duplicated in the value of products. The increase in the total cost of materials in 1909 over the cost for 1899 was 115.3 per cent, and the increase in the total value of products was 108.8 per cent. Of the total value of the products, shirts and drawers contributed 34.8 per cent in 1909 and 47.7 per cent in 1899, while hosiery contributed 34.3 per cent in 1909 and 28.6 per cent in 1899. The hosiery product increased in value from $27,420,029 in 1899 to $68,721,825 in 1909, or 150.6 per cent, and shirts and drawers from $45,675,594 to $69,592,817, or 52.4 per cent. Sweaters, cardigan jackets, etc., show the largest relative increase in value for the decade, and combination suits the next largest, the value of the former increasing from $3,498,837 to $22,430,817, or more than fivefold, and that of the latter from $3,691,847 to $14,853,536, or about threefold.

	1909	1904	1899
MATERIALS.			
Total cost	$110,241,053	$76,789,348	$51,195,868
Cotton:			
Pounds	75,416,023	50,586,760	49,451,301
Cost	$8,803,509	$5,869,317	$3,561,592
Wool, in condition purchased:			
Pounds	7,068,788	17,360,616	17,953,907
Cost	$2,919,055	$6,153,858	$5,202,135
Equivalent of above in scoured condition, pounds	5,582,839	13,909,144	13,031,308
Shoddy, purchased:			
Pounds	7,482,553	7,489,358	3,770,626
Cost	$919,970	$923,719	$488,792
Wool waste and noils, purchased:			
Pounds	8,586,261	6,020,459	5,270,454
Cost	$2,813,129	$1,711,669	$1,487,907
Yarns, purchased:			
Cotton—			
Pounds	216,987,611	161,500,466	131,820,068
Cost	$48,165,749	$34,372,910	$22,204,918
Worsted—			
Pounds	10,370,004	8,789,570	5,823,215
Cost	$10,116,325	$7,457,699	$4,865,304
Woolen—			
Pounds	6,140,265	4,839,343	2,621,893
Cost	$3,834,094	$2,795,454	$1,257,587
Merino—			
Pounds	4,014,609	2,568,890	1,981,484
Cost	$2,667,051	$1,118,999	$642,535
Silk and spun silk—			
Pounds	982,753	520,671	266,247
Cost	$3,696,599	$1,260,259	$946,801
Chemicals and dyestuffs, cost	$2,541,939	$1,677,252	$1,023,161
All other materials, cost	$23,853,633	$13,505,221	$9,455,136
Yarns made in mill for use therein.			
Cotton, pounds	69,171,277	39,954,890	40,845,889
Woolen (carded), pounds	8,316,349	(1)	(1)
Worsted (carded), pounds	223,494	(1)	(1)
Merino, pounds	20,856,989	(1)	(1)
PRODUCTS.			
Total value	[2] $200,143,527	[2] $137,076,454	$95,834,782
Hosiery:			
Dozen pairs	62,825,069	44,186,063	29,903,899
Value	$68,721,825	$44,113,260	$27,420,029
Cotton, merino, and woolen—			
Hose—			
Dozen pairs	34,499,562	25,999,813	16,641,769
Value	$37,963,011	$26,152,043	$16,203,372
Cotton—			
Dozen pairs	32,499,104	24,169,804	15,028,173
Value	$34,078,622	$22,764,799	$13,275,732
Merino or mixed—			
Dozen pairs	834,029	746,226	436,891
Value	$1,466,283	$1,182,164	$659,959
Woolen or worsted—			
Dozen pairs	1,166,429	1,083,783	1,176,705
Value	$2,358,106	$2,205,080	$2,267,681
Half hose—			
Dozen pairs	27,891,093	18,144,155	13,249,558
Value	$27,218,398	$17,438,914	$11,030,244
Cotton—			
Dozen pairs	24,805,017	15,223,243	11,352,081
Value	$21,831,365	$11,821,830	$7,906,945
Merino or mixed—			
Dozen pairs	2,023,641	1,611,066	957,520
Value	$3,299,912	$2,214,078	$1,384,764
Woolen or worsted—			
Dozen pairs	1,061,535	1,309,876	939,957
Value	$2,087,121	$3,402,406	$1,738,535
PRODUCTS—continued.			
Hosiery—Continued:			
Silk—			
Dozen pairs	434,414	42,065	12,572
Value	$3,600,416	$522,303	$156,413
Shirts and drawers:			
Dozens	25,337,779	19,723,141	15,873,700
Value	$69,592,817	$56,043,860	$45,675,594
All cotton—			
Dozens	22,567,121	17,107,958	12,058,431
Value	$50,007,598	$39,658,762	$26,882,902
Merino or mixed—			
Dozens	2,536,473	2,113,810	2,675,416
Value	$17,055,624	$13,031,754	$13,293,829
All wool—			
Dozens	178,163	485,328	1,085,040
Value	$1,820,521	$3,647,934	$4,980,818
Silk and silk mixed—			
Dozens	56,022	16,045	54,807
Value	$709,074	$305,410	$518,045
Combination suits:			
Dozens	2,473,103	1,440,420	986,855
Value	$14,853,536	$6,793,947	$3,691,847
All cotton—			
Dozens	2,047,637	1,260,301	824,632
Value	$9,713,597	$4,478,664	$2,240,566
Merino or mixed—			
Dozens	364,387	105,242	139,994
Value	$4,217,432	$1,199,949	$1,133,328
All wool—			
Dozens	50,102	68,067	9,501
Value	$683,289	$965,132	$201,667
Silk or silk mixed—			
Dozens	10,077	6,810	12,728
Value	$239,218	$150,202	$116,286
Sweaters, cardigan jackets, etc.:			
Dozens	2,221,410	811,629	594,690
Value	$22,430,817	$8,345,369	$3,498,837
Gloves and mittens:			
Dozen pairs	2,527,889	2,260,508	1,898,587
Value	$7,296,887	$5,556,260	$4,244,046
Hoods, scarfs, nubias, etc.:			
Dozens	888,223	589,315	343,420
Value	$3,217,985	$1,774,862	$1,002,392
Shawls:			
Dozens	218,923	435,306	157,623
Value	$916,294	$1,293,348	$328,720
Boot and shoe linings:			
Square yards	9,726,770	11,768,961	10,466,440
Value	$1,209,464	$1,240,491	$2,265,003
Yarns for sale, value	$1,785,531	$1,000,083	$498,790
Cotton—			
Pounds	7,457,412	3,304,615	2,419,282
Value	$1,568,417	$654,234	$422,100
Woolen, worsted, and merino—			
Pounds	488,322	401,559	134,529
Value	$217,114	$345,849	$76,690
All other products, value	$10,118,371	$10,306,064	$7,269,584
MACHINERY.			
Sets of cards	2,081	2,601	1,161
Cotton	1,827	1,600	(1)
Woolen	735	927	1,161
Worsted	10	24	(1)
Shoddy	59	50	(1)
Spindles	736,774	603,180	521,871
Producing	720,935	595,362	510,172
Doubling and twisting	6,839	6,818	11,699
Knitting machines, all classes	112,206	88,374	59,047
Sewing machines, all classes	43,895	30,410	24,535

[1] Not reported.
[2] In addition, in 1909, hosiery and knit goods, to the value of $2,975,749, and in 1904, to the value of $1,579,633, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

Oilcloth and linoleum.—The table on page 45 presents the statistics of the production of oilcloth, linoleum, and artificial leather. Artificial leather, which at former censuses was included under upholstering materials, was reported separately for the first time at the census of 1909. At the census of 1899 oilcloth and linoleum were not reported in detail, but the total value of these products was $11,402,620. This had increased to $13,977,137 in 1904 and to $22,525,940 in 1909. The production of oilcloth in 1909 was in the aggregate 96,862,068 square yards and in 1904 71,057,684 square yards, an increase for the five years of 36.3 per cent. The linoleum product increased relatively much more; it amounted to 30,676,254 square yards in 1909 and 16,891,462 square yards in 1904, an increase of 81.6 per cent.

PRODUCT.	1909	1904
Total value	[1] $26,253,796	$14,792,246
Oilcloth, value	$11,681,012	$8,648,337
Floor—		
Square yards	18,354,851	21,456,615
Value	$3,776,660	$3,565,689
Enameled—		
Square yards	17,338,440	11,574,986
Value	$2,265,146	$1,542,467
Table—		
Square yards	61,168,777	38,026,083
Value	$5,639,206	$3,540,181
Value	$10,844,928	$5,328,800
Linoleum, value	26,215,979	14,765,284
Linoleum, including cork carpet—		
Square yards	$7,850,437	$4,223,992
Value		
Inlaid linoleum—	4,460,275	2,126,178
Square yards	$2,994,491	$1,104,808
Value		
Artificial leather:	11,869,875	[2]
Square yards	$3,448,617	[2]
Value		
All other products, value	$279,239	$315,109

[1] In addition, products to the value of $33,328 were reported by establishments engaged primarily in the manufacture of products other than those covered by the industry designation. The production of artificial leather is included under "upholstering materials" in Table I.
[2] Figures not available.

Shoddy.—The statistics given in the following table relate only to establishments primarily engaged in the manufacture of shoddy, mungo, and wool extract, and do not include those for spinning and weaving mills and hosiery and knit-goods factories which manufacture shoddy for their own use or for sale. Mills engaged in the cutting of flocks and the cleaning and garnetting of waste are included, as in previous censuses. The total cost of materials used was $5,000,706 in 1909, and the total value of the products was $7,446,364, both of these amounts being somewhat larger than in 1899 but smaller than in 1904. The total output of the products specifically classified was 57,888,999 pounds in 1909, 63,787,770 pounds in 1904, and 47,684,714 pounds in 1899.

	1909	1904	1899
MATERIALS.			
Total cost	$5,000,706	$6,055,731	$4,875,192
Tailors' clippings, rags, etc.:			
Pounds	64,561,713	63,921,097	79,623,312
Cost	$3,051,045	$4,205,641	$3,558,706
Waste and noils of wool, mohair, camel's hair, etc.:			
Pounds	7,567,579	8,177,846	4,236,028
Cost	$917,976	$909,754	$603,972
Wool, in condition purchased:			
Pounds	237,097	597,492	422,349
Cost	$98,032	$127,927	$127,099
Equivalent of above in scoured condition, pounds	196,097	421,492	242,997
Chemicals and dyestuffs, cost	$138,241	$142,455	$111,095
All other materials, cost	$795,412	$579,954	$384,320
PRODUCTS.			
Total value	[1] $7,446,364	$8,406,425	$6,730,974
Shoddy and mungo:			
Pounds	48,375,724	54,401,295	39,014,661
Value	$5,099,260	$6,831,689	$5,388,378
Wool extract:			
Pounds	5,637,514	6,375,768	4,980,825
Value	$865,528	$727,912	$620,594
Waste:			
Pounds	2,237,748	42,504	1,608,470
Value	$275,545	$1,544	$148,043
Flocks:			
Pounds	1,638,013	2,968,203	2,080,758
Value	$107,697	$143,536	$131,894
All other products, value	$268,708	$365,805	$151,494
Work on materials for others	$229,626	$335,939	$290,661
MACHINERY.			
Pickers, number	346	317	[2]
Garnett machines, number	158	116	[2]

[1] In addition, shoddy to the value of $367,278 was made for sale by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] Not reported.

Silk and silk goods.—The following table, which presents statistics for the manufacture of silk and silk goods, includes data for establishments that make a specialty of throwing and winding silk:

	1909	1904	1899
MATERIALS.			
Total cost	$107,766,916	$75,861,188	$62,406,685
Silk:			
Raw—			
Pounds	17,472,204	11,572,783	9,760,770
Cost	$67,787,037	$45,318,416	$40,721,877
Spun—			
Pounds	2,212,972	1,951,201	1,550,291
Cost	$4,848,780	$4,310,061	$3,406,059
Artificial—			
Pounds	914,494	466,151	6,056
Cost	$1,926,894	$1,623,473	$10,380
Organzine and tram, purchased—			
Pounds	3,377,972	3,236,744	2,338,464
Cost	$14,679,719	$14,552,425	$10,539,632
Fringe and floss, including waste, noils, etc., purchased—			
Pounds	2,402,960	[1] 49,811	1,735,179
Cost	$1,637,187	[1] $187,159	$1,008,947
Yarns, other than silk:			
Cotton, including mercerized—			
Pounds	14,111,878	9,018,295	6,664,069
Cost	$5,811,582	$3,057,989	$1,996,233
Woolen or worsted—			
Pounds	610,588	443,155	239,461
Cost	$765,989	$409,807	$167,770
Mohair—			
Pounds	710,108	138,389	104,810
Cost	$640,529	$137,097	$107,365
All other—			
Pounds	353,780	130,930	108,388
Cost	$456,597	$108,841	$134,986
Chemicals and dyestuffs, cost	$1,062,313	$666,992	[2]
All other materials, cost	$8,150,280	$5,488,868	$4,313,416
PRODUCTS.			
Total value	[3] $196,911,667	$133,288,072	$107,256,258
Broad silks:			
Yards	185,707,316	124,871,215	87,636,883
Value	$107,881,146	$66,917,762	$52,152,816
Plain and fancies—			
All silk—			
Yards	81,934,158	68,393,042	53,573,488
Value	$53,282,704	$40,741,480	$33,852,111
Silk mixed—			
Yards	24,742,556	9,061,025	8,963,315
Value	$14,207,861	$5,343,472	$5,450,710
Jacquard—			
All silk—			
Yards	13,249,090	8,143,091	7,532,229
Value	$9,835,345	$5,927,063	$5,379,001
Silk mixed—			
Yards	6,043,686	2,336,120	1,677,466
Value	$3,473,799	$1,229,648	$1,269,321
Piece-dyed—			
All silk—			
Yards	19,693,393	21,334,584	7,331,501
Value	$11,353,242	$9,276,445	$3,342,167
Silk mixed—			
Yards	40,044,433	15,603,353	8,558,884
Value	$15,728,195	$4,399,654	$2,868,506
Velvets:			
Yards	10,093,583	7,262,315	5,122,340
Value	$4,707,990	$3,161,206	$2,479,903
Plushes:			
Yards	2,759,411	2,547,367	3,848,684
Value	$2,104,708	$1,340,815	$2,480,668
Tapestries and upholstery:			
Yards	226,717	1,766,210	1,333,119
Value	$382,820	$1,559,982	$1,099,835
Ribbons, value	$32,744,873	$21,890,694	$18,467,179
Laces, nets, veils, veiling, etc., value	$1,350,850	$745,489	$803,104
Embroideries, value	$485,322	$112,382	$57,625
Fringes and gimps, value	$824,527	$1,016,954	$444,787
Braids and bindings, value	$4,483,248	$3,403,977	$1,522,565
Trimmings, value	$3,850,448	$3,107,697	$2,034,076
Machine twist:			
Pounds	1,038,780	932,998	987,917
Value	$6,341,719	$5,521,055	$5,997,974
Sewing, embroidery, wash, fringe, and floss silks:			
Pounds	747,246	811,711	739,301
Value	$4,179,355	$4,625,016	$4,248,216
Organzine and tram, for sale:			
Pounds	2,740,319	2,025,645	2,468,387
Value	$12,550,510	$9,190,050	$11,167,191
Spun silk, for sale:			
Pounds	779,462	570,529	437,459
Value	$2,104,066	$1,660,647	$1,626,227
All other products, value	$4,495,675	$5,227,800	$1,027,472
Work done on materials for others	$8,364,350	$3,716,056	$2,237,220

[1] Does not include waste, noils, etc.
[2] Not reported separately.
[3] In addition, silk and silk goods to the value of $1,218,101 were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

The increase in the cost of materials and in the value of products for the period 1899–1909 was 72.7 and 83.6 per cent, respectively. Considerable duplication occurs in the total cost of materials and in the total value of products shown in the preceding table. To eliminate this duplication the following method may be used: (1) organzine and tram, reported as material and product, is deducted from both materials and products, respectively; (2) spun silk, reported as a product, is deducted from both materials and products; (3) fringe and floss, reported as material, is deducted from both materials and products; and (4) amount received for contract work, reported as product, is deducted from products.

The total production of broad weaves in 1909 was 198,787,027 running yards, single width, valued at $115,136,724, compared with 97,940,935 yards, valued at $58,122,622, in 1899, the increase in quantity being 103 per cent and that in value 98.1 per cent. Broad silks formed over nine-tenths of all broad weaves in 1909, the increase in the output between 1899 and 1909 being 111.9 per cent. The increase in the output of all other broad weaves combined—velvets, plushes, tapestries, and upholsteries—was only 26.9 per cent.

In 1899 all-silk goods constituted 78.1 per cent of the broad-silk product, and silk-mixed goods 21.9 per cent, whereas in 1909 the proportion for the latter had risen to 38.1 per cent and that for the former had fallen to 61.9 per cent. The change was due to an increase during the decade of 268.9 per cent in the output of silk-mixed broad silks, while that for all-silk was only 67.9 per cent.

Between 1899 and 1909 the rate of increase in the output of broad woven silk goods was much greater than that for either broad woven cotton or broad woven woolen goods, the increases for the three classes being 103, 40.3, and 33.8 per cent, respectively.

Woolen and worsted goods.—The following table presents statistics for establishments engaged primarily in the manufacture of woolen and worsted goods. The total value of products for the industry involves considerable duplication, due to the use of partly finished products of some establishments as material for others. In 1909 the establishments in this industry produced 570,743,797 square yards of woven goods, exclusive of upholstery goods and sundries, compared with 505,821,956 square yards in 1904 and 426,572,856 in 1899, the increase for the decade being 33.8 per cent. The value of these goods was $296,447,594 in 1909, $234,737,036 in 1904, and $183,306,664 in 1899, an increase for the decade of 61.7 per cent. The highest rate of increase was reported for the all-wool woven group, the output of which increased 49.3 per cent in quantity. The output of unions decreased decidedly, while that of cotton-warp woven goods increased 37.6 per cent in quantity. The all-wool yardage constituted 56.6 per cent of the total in 1909 and 50.7 per cent in 1899, while the union yardage constituted 6.6 per cent of the total in 1909, as compared with 13.4 per cent in 1899. Cotton-warp fabrics formed about the same proportion of the total in both years—somewhat over one-third. There has thus been a considerable shift during the decade from the manufacture of cotton-mixed to that of all-wool goods.

	1909	1904	1899
MATERIALS.			
Total cost	**$273,438,570**	**$197,489,306**	**$148,087,178**
Wool:			
In condition purchased—			
Pounds	474,755,366	418,703,811	330,178,552
Cost	$136,666,917	$105,433,451	$78,803,830
Domestic—			
Pounds	310,602,279	319,800,490	250,393,205
Cost	$85,018,238	$78,673,136	$59,046,158
Foreign—			
Pounds	164,153,087	98,903,321	79,785,347
Cost	$51,648,679	$26,760,315	$19,757,672
Equivalent in scoured condition, pounds	290,706,970	241,280,065	192,705,519
Mohair, camel, alpaca, and vicuna hair:			
Pounds	7,805,422	6,507,631	5,003,966
Cost	$2,399,123	$1,957,581	$1,857,707
Cow and other animal hair:			
Pounds	17,356,100	22,987,332	20,535,079
Cost	$932,911	$1,369,776	$1,170,756
Cotton:			
Pounds	20,024,061	32,613,403	40,244,710
Cost	$2,515,499	$4,072,907	$3,280,000
Tailor's clippings, rags, etc.:			
Pounds	40,402,460	79,367,290	(1)
Cost	$2,856,966	$5,668,634	(1)
Shoddy, mungo, and wool extract purchased:			
Pounds	21,454,187	31,919,456	33,036,767
Cost	$3,058,214	$4,472,666	$4,070,836
Waste and noils of wool, mohair, camel hair, etc., purchased:			
Pounds	26,473,311	26,032,838	15,714,171
Cost	$7,523,283	$6,056,227	$3,891,369
Tops purchased:			
Pounds	20,828,245	9,160,929	5,566,108
Cost	$14,614,527	$5,073,078	$2,865,546
MATERIALS—continued.			
Yarns purchased:			
Woolen—			
Pounds	931,222	5,750,088	5,906,862
Cost	$558,270	$2,622,882	$2,675,143
Worsted—			
Pounds	59,148,771	31,047,516	25,110,939
Cost	$56,033,701	$24,904,511	$19,495,251
Merino—			
Pounds	1,971,709	2,458,085	3,634,679
Cost	$318,456	$531,107	$664,527
Cotton—			
Pounds	39,169,388	32,598,072	35,342,726
Cost	$10,402,185	$8,032,773	$6,814,279
Silk and spun silk—			
Pounds	282,536	412,307	131,915
Cost	$1,142,663	$1,679,883	$529,789
All other—			
Pounds	1,046,735	411,779	1,127,926
Cost	$40,739	$21,118	$65,434
Chemicals and dyestuffs, cost	$8,820,923	$7,456,550	$6,595,160
All other materials, cost	$25,464,278	$18,086,162	$15,307,551
PRODUCTS.			
Total value	**[2] $419,743,521**	**[2] $307,941,710**	**$238,744,503**
All-wool woven goods:			
Square yards	322,944,365	260,567,488	216,359,702
Value	$219,853,767	$158,390,336	$117,757,169
Wool cloths, doeskins, cassimeres, cheviots, etc.—			
Square yards	40,843,979	42,487,566	34,298,426
Value	$29,291,059	$29,556,252	$22,645,869
Worsted coatings, serges, and suitings—			
Square yards	119,655,069	59,592,811	54,033,679
Value	$101,903,153	$56,731,196	$43,003,550

[1] Not reported separately.

[2] In addition, in 1909, woolen and worsted goods, to the value of $1,281,292, and in 1904, to the value of $362,966, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

	1909	1904	1899
PRODUCTS—continued.			
All-wool woven goods—Continued.			
Woolen overcoatings, cloakings, kerseys, etc.—			
Square yards	14,697,770	22,411,530	18,729,194
Value	$11,230,855	$16,934,112	$16,131,709
Worsted overcoatings and cloakings—			
Square yards	654,404	1,057,668	877,133
Value	$821,688	$546,170	$567,390
Wool dress goods, sackings, tricots, etc., and opera and similar flannels—			
Square yards	29,099,956	48,874,396	33,594,212
Value	$16,385,498	$19,826,017	$12,976,489
Worsted dress goods, cashmeres, serges, bunting, etc.—			
Square yards	105,801,340	66,428,825	57,712,086
Value	$54,030,376	$27,802,181	$16,316,392
Carriage cloths—			
Square yards	1,782,855	1,741,765	1,220,408
Value	$947,862	$964,557	$696,999
Flannels for underwear—			
Square yards	3,856,353	8,710,131	9,324,720
Value	$1,257,271	$2,045,858	$2,344,559
Blankets—			
Square yards	5,137,903	7,316,179	5,454,173
Value	$3,228,797	$2,751,029	$2,316,968
Horse blankets—			
Square yards	247,395	740,237	514,952
Value	$185,430	$418,219	$256,211
Woven shawls—			
Square yards	704,153	895,777	600,104
Value	$404,583	$557,370	$500,523
All other—			
Square yards	463,179	310,603	615
Value	$167,194	$257,375	$510
Union, or cotton mixed, woven goods:			
Square yards	37,453,351	63,197,407	57,394,570
Value	$14,327,973	$26,283,407	$23,111,696
Unions, tweeds, cheviots, cassimeres, etc.—			
Square yards	13,917,478	35,103,110	30,767,915
Value	$7,780,854	$15,050,726	$13,695,830
Overcoatings and cloakings—			
Square yards	4,281,739	5,373,053	6,087,366
Value	$2,363,381	$3,353,758	$3,518,613
Sackings, tricots, dress goods, and opera and similar flannels—			
Square yards	4,319,539	11,690,740	11,176,752
Value	$1,776,721	$4,926,596	$3,669,584
Flannels for underwear—			
Square yards	7,063,572	7,273,761	6,217,094
Value	$1,308,369	$1,528,928	$1,284,578
Blankets—			
Square yards	1,717,758	3,114,110	1,530,696
Value	$950,714	$1,198,706	$561,649
All other—			
Square yards	1,153,265	642,633	1,554,747
Value	$447,934	$229,093	$381,442
Cotton-warp woven goods:			
Square yards	210,346,081	182,057,061	152,878,584
Value	$92,265,854	$50,058,293	$42,437,799
Wool fillings, cassimeres, doeskins, jeans, tweeds, coatings, etc.—			
Square yards	45,244,866	34,602,165	37,160,449
Value	$12,107,320	$10,877,081	$11,024,538
Worsted fillings, cassimeres, doeskins, jeans, tweeds, coatings, etc.—			
Square yards	20,220,252	16,688,620	12,663,719
Value	$15,009,081	$6,969,402	$7,267,508
Wool fillings, overcoats, and cloakings—			
Square yards	2,075,502	3,198,406	3,917,408
Value	$771,879	$2,478,878	$1,430,430
Satinets and linseys—			
Square yards	5,102,460	22,339,112	13,051,729
Value	$912,182	$4,074,800	$2,873,181

	1909	1904	1899
PRODUCTS—continued.			
Cotton-warp woven goods—Contd.			
Worsted fillings, dress goods, cashmeres, serges, mohairs, etc.—			
Square yards	65,112,931	49,300,369	45,784,011
Value	$14,798,965	$12,711,554	$10,423,206
Wool fillings, dress goods, and repellants—			
Square yards	12,916,060	12,130,080	7,496,893
Value	$2,741,816	$3,230,561	$1,890,493
Domett flannels and shirtings—			
Square yards	4,571,765	4,285,838	4,555,013
Value	$911,967	$769,476	$976,465
Linings, Italian cloths, and lastings—			
Square yards	28,923,143	17,619,325	10,157,030
Value	$3,008,799	$4,505,927	$2,228,434
Blankets—			
Square yards	9,746,341	9,267,144	11,107,104
Value	$2,684,919	$2,218,243	$2,241,342
Horse blankets—			
Square yards	4,210,093	6,207,836	5,702,315
Value	$1,676,942	$1,083,154	$1,252,824
Carriage robes—			
Square yards	2,889,444	1,309,166	1,250,233
Value	$1,396,595	$1,139,217	$815,233
All other—			
Square yards	327,664	.....	32,576
Value	$245,380	.....	$14,150
Upholstering goods and sundries, value	$1,986,330	$1,625,233	$3,259,727
Woolen and worsted—			
Square yards	1,175,542	1,060,739	447,503
Value	$1,528,648	$908,937	$742,121
All other, value	$457,682	$716,296	$2,517,606
Partially manufactured products for sale, value	$115,032,485	$66,466,672	$47,589,422
Yarns:			
Woolen—			
Pounds	28,520,493	42,878,320	32,699,851
Value	$7,505,412	$9,993,894	$6,804,626
Worsted—			
Pounds	88,323,953	55,475,235	[1]43,003,343
Value	$80,395,543	$40,142,077	[1]$30,081,425
Woolen, union or merino—			
Pounds	10,249,625	8,824,004	15,974,567
Value	$2,143,416	$2,538,018	$4,668,125
Worsted, union or merino—			
Pounds	3,761,737	3,314,549	
Value	$3,522,812	$2,460,558	
All other—			
Pounds	3,195,553	2,799,060	4,536,105
Value	$974,570	$1,162,795	$1,451,300
Worsted tops and slubbing—			
Pounds	11,321,279	4,772,582	(1)
Value	$8,027,231	$2,855,171	(1)
Noils—			
Pounds	27,479,293	15,379,600	12,176,843
Value	$8,938,589	$4,865,976	$3,354,187
Waste—			
Pounds	24,057,580	17,946,076	8,163,294
Value	$3,524,912	$2,449,183	$1,229,669
All other products, value	$3,250,857	$3,924,232	$3,019,906
Work on materials for others	$3,026,255	$1,188,537	$1,568,783
MACHINERY.			
Sets of cards	6,315	6,990	[2]5,695
Woolen	4,500	5,178	.....
Worsted	1,581	1,387	.....
Cotton	234	425	.....
Spindles	4,287,640	3,747,934	3,277,607
Producing	3,553,194	3,228,423	2,873,528
Doubling and twisting	734,446	519,511	404,079
Looms, all classes	72,532	63,867	61,395
Wool-combing machines	1,978	1,440	1,317

[1] Worsted tops and slubbing included with worsted yarn.

[2] Cards not fully reported.

IRON AND STEEL.

The following tables present statistics for blast furnaces, steel works and rolling mills, tin and terne plate plants, and wire mills. In many establishments other industries are carried on in connection with the operations of steel works and rolling mills. In these cases a separation of the data for the industries as defined by the Census Bureau was secured by taking separate reports for the different departments of the respective establishments. In this way the statistics for blast furnaces operated in connection with steel works were segregated and combined with those for furnaces independently operated, and the statistics for the tin and terne plate dipping departments of establishments which also roll the black plate were separated and combined with those for establishments which dip only purchased plate. Statistics for the finished wire products of mills which roll wire rods as well as draw wire and manufacture wire nails, fencing, etc., were secured and are given in combination with those for wire mills which manufacture only from purchased wire rods. The finished wire products manu-

factured in rolling mills are, however, included in the products of these mills, so that the statistics for wire mills and rolling mills to this extent duplicate each other. It should also be explained that the rolling-mill departments of tin and terne plate establishments are credited with their entire output of black plate, as if it were produced for sale instead of for further treatment at the same establishment.

Blast furnaces.—The statistics for the blast-furnace industry are given in the following table.

In 1909, 25,651,798 tons of pig iron, valued at $387,830,443, were produced and in 1899, 14,447,791 tons, valued at $206,512,755, the increase in quantity during the decade being 77.5 per cent and that in value 87.8 per cent. Since 1904 was a year of partial depression in the iron and steel industry and the pig-iron product was less in that year than in 1903 or 1902, 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. Features in the development of the industry are the increase in the proportion of pig iron produced for consumption in other departments of the works of the producing company and the increase in the proportion of the product passed on in a molten condition to undergo further processes without being cast into pigs. The *ton of 2,240 pounds* is used in showing quantities except when otherwise stated.

	1909	1904 [1]	1899 [1]
MATERIALS.			
Total cost	**$320,637,889**	**$178,941,918**	**$131,503,655**
Iron ore:			
Tons	48,353,677	30,032,862	25,366,894
Cost	$187,264,601	$100,945,369	$65,902,922
Domestic—			
Tons	46,605,930	29,202,944	24,612,511
Cost	$177,589,789	$96,206,246	$61,795,473
Foreign—			
Tons	1,747,747	829,918	754,383
Cost	$9,674,812	$4,739,123	$4,107,449
Mill cinder, scrap, etc.:			
Tons	1,982,530	1,865,385	1,600,313
Cost	$5,544,859	$3,830,961	$3,772,385
Fluxes:			
Tons	13,570,845	8,325,209	7,324,743
Cost	$12,239,493	$6,888,647	$5,054,725
Fuel, total cost [2]	$105,994,112	$62,802,660	$44,199,382
Coke—			
Tons (2,000 pounds)	31,456,536	19,739,671	16,461,533
Cost	$102,134,423	$57,126,997	$38,976,770
Charcoal—			
Bushels	38,032,618	37,273,569	30,677,585
Cost	$2,787,026	$2,521,887	$1,823,881
Anthracite coal [2]—			
Tons	265,401	560,637	886,564
Cost	$904,102	$1,812,779	$2,297,419
Bituminous coal [2]—			
Tons	102,833	801,640	832,235
Cost	$168,561	$1,340,997	$1,101,312
All other materials, cost	$9,594,824	$4,474,281	$12,574,241
PRODUCTS.			
Total value	**$391,429,283**	**$231,822,707**	**$206,756,557**
Pig iron:			
Tons	25,651,798	16,623,625	14,447,791
Value	$387,830,443	$228,911,116	$206,512,755
All other products, value	$3,598,840	$2,911,591	$243,802
Pig iron, classified according to fuel used:			
Bituminous, chiefly coke—			
Tons	[3] 24,608,572	14,999,029	12,253,818
Value	$369,684,636	$208,814,049	$173,763,091
Anthracite coal and coke mixed and anthracite alone—			
Tons	670,991	1,305,094	1,841,857
Value	$10,902,150	$18,103,982	$26,678,705
Charcoal—			
Tons	372,235	409,502	[4] 352,116
Value	$7,183,657	$6,993,085	$5,070,959
Pig iron, classified according to disposition:			
Produced for consumption in works of company reporting—			
Tons	15,858,203	9,926,545	[5]
Value	$239,387,017	$138,867,586	[5]
PRODUCTS—continued.			
Pig iron, classified according to disposition—Continued.			
Produced for sale—			
Tons	9,793,595	6,697,080	[5]
Value	$148,443,426	$90,043,530	[5]
Pig iron, classified by grades (tons):			
Bessemer, (0.04 to 0.10 per cent in phosphorus)	10,147,052	8,894,584	8,475,530
Low phosphorus (below 0.04 per cent in phosphorus)	248,720	192,795	[5]
Basic	7,741,759	2,553,940	937,439
Foundry	5,539,410	3,675,310	3,510,360
Forge or mill	586,685	601,677	1,057,616
Malleable Bessemer	934,211	316,964	[5]
White, mottled, and miscellaneous	110,810	98,627	208,323
Direct castings	16,181	9,469	7,123
Ferro alloys	326,970	280,259	251,460
Spiegeleisen	142,223	109,630	163,672
Ferromanganese	82,203	57,072	51,878
Ferrosilicon, including Bessemer ferrosilicon (7 per cent or over in silicon) and ferrophosphorus	102,539	53,557	35,910
Pig iron, classified by method of delivery or casting (tons):			
Delivered in molten condition	12,197,686	5,898,744	[5]
Sand cast	7,655,508	6,078,844	[5]
Machine cast	5,096,797	4,307,108	[5]
Chill cast	685,566	329,460	[5]
Direct castings	16,181	9,469	7,123
EQUIPMENT.			
Furnaces in active establishments:			
Completed stacks at end of year—			
Number	388	343	343
Daily capacity, tons	101,447	78,180	54,425
Active during the year—			
Number	370	317	325
Daily capacity, tons	98,973	73,884	[5]
In course of construction at end of year—			
Number	10	4	16
Daily capacity, tons	4,100	1,375	7,275
Pig-casting machines, number	104	[5]	[5]
Granulated slag pits:			
Number	85	47	[5]
Annual capacity, tons	5,699,259	3,338,200	[5]
Gas engines operated with blast-furnace gas:			
Number	85	[5]	[5]
Horsepower	198,040	[5]	[5]

[1] Not including the statistics for a blast furnace operated by a penal institution.
[2] The figures for 1909 cover fuel for smelting only; those for 1904 and 1899 include fuel for steam raising.
[3] Coal and coke mixed, 86,420 tons; balance coke.
[4] Includes 52,992 tons of mixed charcoal and coke pig iron.
[5] Not reported.

Steel works and rolling mills.—The following table presents comparative statistics of steel works and rolling mills, including those of forges and bloomeries. Section I of the table deals with materials. The second section deals with products. It shows separately each of the products properly designated as rolled and forged steel and iron, but contains also a miscellaneous item, which includes the value added to such products in their conversion into more highly manufactured articles by the same establishment; so that the total includes the entire value of output of the establishments in the industry. This total and

also the separate total for rolled and forged produc alone include no duplication of quantity or value of products within any given establishment itself, but there is considerable duplication due to the use of the product of one establishment as raw material for another establishment, whether the latter be owned by a separate concern or by the same company.

Section III of the table, headed "Steel," gives the entire quantity of crude steel produced by the steel works, including that subjected to further processes of manufacture whether by the establishment in which produced or by other establishments. The value of this steel appears, therefore, distributed among various items under Section II. Section IV of the table gives in detail the quantity and value of the more highly elaborated products made by the rolling mills themselves from the rolling-mill products specified in Section II. The entire value of these products appears in Section II, either as part of the various items of rolled products or in the miscellaneous item of value added to rolling-mill products by further manufacture. The fifth section of the table deals with products sold for export by rolling-mill concerns; it includes only the products so sold directly by the establishments producing them and not such as may be sent abroad by others who purchase from the manufacturer. The sixth section deals with equipments.

In 1909 the rolled, forged, and cast-steel products specifically classified aggregated 26,723,274 tons, valued at $863,342,711, and in 1899, 15,055,626 tons, valued at $510,906,040, the increase in tonnage being 77.5 per cent and in value 69 per cent. The *ton of 2,240 pounds* is used in showing quantities except when otherwise stated.

	1909	1904	1899
I. MATERIALS.			
Total cost	$657,500,856	$441,204,432	$390,895,277
Iron and steel:[1]			
For furnaces and hot rolls—			
Tons	30,388,755	22,235,082	18,414,717
Cost	$515,769,588	$349,971,512	$315,726,895
Pig iron and ferroalloys—			
Tons	19,076,889	12,191,228	10,411,281
Cost	$297,471,122	$172,101,436	$151,064,348
Pig iron—			
Tons	18,712,304	(2)	(2)
Cost	$282,693,740	(2)	(2)
Ferroalloys—spiegeleisen, ferromanganese, etc.—			
Tons	364,585	(2)	(2)
Cost	$14,807,382	(2)	(2)
Scrap, including old rails not intended for rerolling—			
Tons	4,803,617	5,124,277	4,126,980
Cost	$72,722,831	$67,601,248	$66,852,621
Ingots, blooms, billets, slabs, muck and scrap bar, rerolling rails, and sheet and tin-plate bars—			
Tons	6,508,249	4,920,177	3,876,456
Cost	$145,575,635	$110,208,828	$97,809,926
Rolled forms for further manufacture—			
Skelp—			
Tons	176,717	259,643	(2)
Cost	$5,704,856	$7,331,935	(2)
Wire rods—			
Tons	146,425	161,914	136,725
Cost	$4,252,695	$4,774,383	$5,419,617
Iron ore:			
Tons	835,338	549,995	346,310
Cost	$4,292,963	$2,396,792	$1,348,809
All other materials, cost	$127,480,754	$76,729,810	$68,399,956

	1909	1904	1899
II. PRODUCTS.			
Total value	[3] $985,722,634	[3] $673,965,026	$597,211,716
Rolled, forged, and other classified products, steel and iron:			
Tons	26,723,274	18,218,233	15,055,626
Value	$863,342,711	$585,288,243	$510,906,040
Rails—			
Tons	2,858,599	[4] 2,194,605	[4] 2,251,337
Value	$81,128,295	$58,256,750	$46,533,159
Bessemer steel—			
Tons	1,643,527	2,065,024	2,250,457
Value	$44,727,515	$54,627,488	$46,501,979
Open-hearth steel, basic—			
Tons	1,215,072	128,681	
Value	$36,400,780	$3,608,562	
Rerolled or renewed rails—			
Tons	100,352	99,530	(2)
Value	$2,683,017	$2,480,328	(2)
Rail fastenings (splice bars, tie-plates, fishplates, etc.)—			
Tons	396,911	174,055	(2)
Value	$14,488,412	$5,663,052	(2)
Structural shapes, not including plates used for making girders—			
Tons	2,123,630	954,537	856,983
Value	$65,564,593	$32,730,901	$29,361,522
Steel—			
Tons	2,102,360	950,062	829,892
Value	$64,853,466	$32,585,701	$28,309,966
Open-hearth—			
Tons	[5] 1,934,230	618,391	556,092
Value	$59,789,943	$21,495,531	$19,928,249
Bessemer—			
Tons	168,070	331,671	263,800
Value	$5,063,518	$11,089,170	$8,381,717
Iron—			
Tons	21,330	4,475	27,091
Value	$711,127	$145,200	$1,051,556
Bars and rods, including merchant, shovel, finger, and horseshoe bars, spike, chain, bolt, and nut rods, etc. (but not including wire rods, sheet and tin-plate bars, splice bars, and bars for reenforced concrete):			
Tons	3,784,248		
Value	$121,488,423	2,442,810	2,493,159
Bars for reenforced concrete:		$84,069,122	$100,597,221
Tons	191,358		
Value	$5,588,963		
Wire rods:			
Tons	2,295,279	1,792,704	916,587
Value	$61,947,958	$52,995,031	$35,520,520
Plates and sheets, not including black plates or sheets for tinning, nail and tack plates, tie-plates, fishplates or armor plates:			
Tons	3,332,733	1,856,469	1,488,066
Value	$133,272,393	$77,802,001	$68,109,223
Black plates, or sheets, for tinning:			
Tons	631,435	504,025	394,014
Value	$30,955,967	$25,207,079	$20,967,806
Skelp, flue and pipe:			
Tons	2,084,286	1,557,690	1,195,189
Value	$64,514,728	$46,780,202	$49,159,747
Hoops, bands, and cotton ties:			
Tons	341,043	337,223	
Value	$10,429,081	$12,760,010	
Nail and tack plates:			
Tons	68,557	86,601	97,664
Value	$2,540,022	$2,462,076	$3,116,558
Axles, car, locomotive, automobile, wagon, carriage, etc., rolled or forged:			
Tons	102,348	83,585	102,606
Value	$3,831,344	$2,875,829	$4,482,937
Armor plates, gun forgings, and ordnance:			
Tons	26,845	24,433	15,302
Value	$10,649,079	$10,549,620	$7,526,479
Blooms, billets, and slabs, produced for sale or for transfer to other works of same company:			
Tons	4,887,796		
Value	$108,514,747		
Rolled forging blooms and billets produced for sale or for transfer to other works of same company:			
Tons	84,383	4,823,585	4,172,286
Value	$2,247,133	$109,611,104	$96,321,887
Sheet and tin-plate bars produced for sale or for transfer to other works of same company:			
Tons	1,652,761		
Value	$37,745,269		
Muck and scrap bar produced for sale or for transfer to other works of same company:			
Tons	174,496	150,926	203,681
Value	$4,986,211	$3,040,998	$5,040,587
All other rolled steel or iron:			
Tons	566,627	377,065	506,880
Value	$39,570,061	$16,743,727	$19,202,606

For footnotes, see page 50.

	1909	1904	1899
II. PRODUCTS—continued.			
Rolled, forged, and other classified products, steel and iron—Continued.			
Ingots produced for sale or for transfer to other works of same company:			
Tons	142,745	196,404	103,707
Value	$3,593,726	$3,985,310	$2,781,145
Direct steel castings:			
Tons	504,856	287,325	177,156
Value	$38,862,448	$20,600,136	$14,609,893
All other forged steel and iron, not including remanufactures of rolling-mill products:			
Tons	365,986	274,061	81,009
Value	$18,740,241	$15,684,967	$6,665,741
All other products, value	$122,379,823	$88,676,783	$86,305,676
Miscellaneous steel and iron products not rolled, including value added to iron and steel rolling-mill products by further manufacture, value	$86,534,369	$61,977,284	(2)
Scrap steel or iron produced for sale or for transfer to other works of same company:			
Tons	1,238,554	877,177	(2)
Value	$18,163,624	$11,079,831	(2)
All products other than steel and iron, value	$17,681,830	$15,619,668	(2)
III. STEEL.			
Total production:			
Tons	[6] 23,473,718	[6] 13,666,408	10,685,000
Value (included above)	$478,736,983	$260,884,712	$212,538,875
Classified according to process:			
Open-hearth—			
Tons	14,176,054	5,817,957	3,044,356
Value	$292,360,129	$120,322,707	$71,855,172
Basic—			
Tons	13,210,419	5,062,152	2,153,835
Value	$262,529,822	$94,396,927	$43,509,506
Acid—			
Tons	965,635	755,805	890,521
Value	$29,830,307	$25,931,780	$28,345,666
Bessemer—			
Tons	9,100,291	7,768,141	7,532,023
Value	$173,232,848	$134,549,550	$132,113,984
Crucible and miscellaneous—			
Tons	107,373	80,310	108,616
Value	$8,144,011	$6,012,425	$8,569,719
Classified according to form:			
Ingots—			
Tons	22,968,362	13,379,083	10,507,844
Value	$439,874,540	$240,284,576	$197,928,982
Castings—			
Tons	504,856	287,325	177,156
Value	$38,862,448	$20,600,136	$14,609,893
Duplex process—open-hearth steel partly purified in Bessemer converters before finishing in open-hearth furnaces (included above), tons	522,682	(7)	(7)
Alloyed steels, nickel, tungsten, titanium, chrome, vanadium, etc. (included above), tons	153,216	(7)	(7)
Classified according to process:			
Open-hearth	100,335	(7)	(7)
Basic	86,242	(7)	(7)
Acid	14,093	(7)	(7)
Bessemer	45,324	(7)	(7)
Crucible and miscellaneous	12,557	(7)	(7)
Classified according to form:			
Ingots	151,300	(7)	(7)
Castings	6,916	(7)	(7)
IV. MANUFACTURES FROM ROLLING-MILL PRODUCTS. (Made in mill producing, value previously included.)			
Wire and wire products:			
Tons (2,000 pounds)	1,634,855	1,416,494	879,296
Value	$71,024,024	$67,551,443	$47,728,784
Pipes and tubes:			
Wrought welded—			
Tons	1,314,771	849,047	(7)
Value	$68,471,573	$43,985,728	(7)
Seamless, hot-rolled or drawn—			
Tons	54,273		
Value	$5,650,739		
All other, including clinched, riveted, etc., but not including cast:		20,636	(7)
Tons	17,561	$2,290,234	(7)
Value	$986,699		
Bolts, nuts, rivets, forged spikes, washers, etc.:			
Kegs (200 pounds)	4,471,985	3,105,827	(7)
Value	$20,538,858	$13,854,635	(7)
Cut nails and spikes:			
Kegs (100 pounds)	1,009,319	1,311,549	1,658,443
Value	$2,218,207	$2,894,108	$3,292,063

	1909	1904	1899
IV. MANUFACTURES FROM ROLLING-MILL PRODUCTS—continued.			
Horse and mule shoes:			
Kegs (200 pounds)	996,383	768,253	(7)
Value	$7,202,897	$5,483,137	(7)
Springs, car, furniture, and all other, not including wire springs:			
Tons	6,191	22,022	(7)
Value	$374,924	$1,708,632	(7)
Switches, frogs, crossings, etc.:			
Tons	28,603	(7)	(7)
Value	$2,471,008	(7)	(7)
Galvanized plates or sheets:			
Tons	431,659	(7)	(7)
Value	$25,912,656	(7)	(7)
Stamped ware:			
Tons	24,612	(7)	(7)
Value	$2,290,707	$292,923	(7)
Shovels, spades, scoops, etc., value	$540,321	$410,500	(7)
V. PRODUCTS SOLD FOR EXPORT. (By establishments producing.)			
Total tons	867,646	(7)	(7)
Rails	317,455	(7)	(7)
Rail fastenings	20,118	(7)	(7)
Pipes and tubes	89,377	(7)	(7)
Sheet and tin-plate bars	85,123	(7)	(7)
Plates and sheets	30,706	(7)	(7)
Galvanized plates or sheets	79,246	(7)	(7)
Structural shapes	69,764	(7)	(7)
Bars and rods	48,938	(7)	(7)
Wire rods	18,733	(7)	(7)
Blooms, billets, and slabs	18,021	(7)	(7)
Skelp	10,703	(7)	(7)
Miscellaneous	20,457	(7)	(7)
VI. EQUIPMENT.			
Steel plants: Daily capacity of steel furnaces and converters, tons of steel, double turn	108,716	76,482	53,745
Open-hearth furnaces—			
Number	687	481	307
Daily capacity, tons of steel, double turn	61,601	34,243	18,245
Basic—			
Number	549	339	168
Daily capacity, tons of steel, double turn	55,273	26,902	12,151
Acid—			
Number	138	142	139
Daily capacity, tons of steel, double turn	6,328	7,341	6,094
Converters, Bessemer or modified Bessemer—			
Number	99	81	70
Daily capacity, tons of steel, double turn	45,983	41,448	34,925
Crucible furnaces—			
Number	257	146	159
Number of pots that can be used at a heat	3,840	2,457	2,528
Daily capacity, tons of steel, double turn	840	693	575
All other steel furnaces—			
Number	16	36	(7)
Daily capacity, tons of steel, double turn	202	98	56
Metal mixers—			
Number	59	(7)	(7)
Capacity, tons	14,343	(7)	(7)
Rolling mills: Daily capacity of rolled steel and iron, double turn, tons	159,403	105,591	86,964

[1] Includes materials purchased or transferred to the establishment reporting from other works of the company.

[2] Not reported separately.

[3] In addition, steel castings and rolled steel valued at $6,627,039 in 1909 and $347,264 in 1904 were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

[4] Includes 900 tons of iron rails, valued at $20,700, in 1904, and 880 tons, valued at $31,180, in 1899.

[5] Includes 149,688 tons of steel, valued at $4,537,625, not distributable by kind into open-hearth or Bessemer.

[6] In addition, 49,481 tons of steel, valued at $4,140,344, in 1909, and 4,184 tons, valued at $347,264, in 1904, distributed as to tonnage as indicated below, were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation:

	1909	1904
Tons of steel	49,481	4,184
Classified according to process:		
Open-hearth	36,099	2,440
Bessemer	6,066	774
Crucible and miscellaneous	7,316	970
Classified according to form:		
Ingots	5,102	.....
Castings	44,379	4,184

[7] Not reported.

The following table gives for 1909 statistics of materials consumed, classified as purchased or as produced by the establishment consuming, and statistics of products, classified as sold or as consumed by the establishment producing. This information was not secured at former censuses. Eighty per cent of the pig iron used was made in blast furnaces operated by the consumer. The difference between the 15,252,736 tons of pig-iron material reported as produced by the consumer and the 15,858,203 tons reported in the table for blast furnaces as made for consumption in works of the producer—a little over 600,000 tons—represents the consumption in foundries and other shops owned by the producing companies but not covered by the preceding table.

MATERIAL.	QUANTITY (TONS).			
	Total.	Produced by the company reporting—		Purchased.
		In the works where consumed.	Transferred from other works of the company.	
Produced and purchased.				
Pig iron and ferroalloys	19,076,889		15,252,736	3,824,153
Pig iron	18,712,304		15,108,244	3,604,060
Ferroalloys—spiegeleisen, ferromanganese, etc.	364,585		144,492	220,093
Scrap	9,929,710	5,126,093	773,843	4,029,774
Ingots, blooms, billets, slabs, muck and scrap bar, rerolling rails, and sheet and tin-plate bars, not produced in the works	6,508,249		3,080,672	3,427,577
Skelp	1,578,290	1,401,573	35,221	141,496
Wire rods	1,405,221	1,318,796	128,291	18,134

PRODUCT.	QUANTITY (TONS).			
	Total.	For consumption—		For sale.
		In the works producing.	Transferred to other works of the company	
Consumed and sold.				
Steel ingots	22,968,862	22,820,117	112,301	30,444
Open-hearth	13,725,783	13,626,241	72,433	27,109
Basic	12,952,840	12,864,514	69,815	18,511
Acid	772,943	761,727	2,618	8,598
Bessemer	9,145,542	9,103,816	39,726	2,000
Crucible and miscellaneous	97,537	96,060	142	1,335
Blooms, billets, and slabs	16,263,418	11,375,622	3,045,977	1,841,819
Rolled forging blooms and billets	160,997	76,614		84,383
Muck and scrap bar	1,366,324	1,191,828	20,065	154,431
Sheet and tin-plate bars	2,094,398	441,637	27,353	1,625,408
Bars and rods	3,784,248	632,679		3,151,569
Wire rods	2,295,279	1,318,796	465,161	511,322
Plates and sheets	3,332,733	463,665	61,954	2,807,114
Black plates and sheets	631,435		575,160	56,275
Skelp	2,084,280	1,401,573	102,027	580,680
Nail and tack plates	68,557	42,690		25,867
Miscellaneous rolled iron or steel	462,071	66,581	2,113	393,377
Miscellaneous forged iron or steel	365,986	64,548		301,438
Scrap	6,364,647	5,126,093	398,436	840,118

Tin and terne plate.—The statistics for the tin and terne plate industry are given in the following table. Nearly 98 per cent of the black plates dipped were rolled by the establishment reporting. The value of all products was $47,969,645 in 1909 as compared with $31,892,011 in 1899, an increase of 50.4 per cent. The development of the tin and terne plate industry has taken place almost entirely within the last 20 years, the production in 1891 being only about 2,236,000 pounds, or less than one five-hundredth of the 1909 output.

	1909	1904	1899
MATERIALS.			
Total cost	**$41,889,434**	**$31,375,714**	***$26,728,150***
Black plates or sheets:			
Pounds	[1] 1,321,071,691	[2] 1,019,608,657	[3] 827,915,599
Cost	$28,981,151	$22,992,006	$20,608,848
Produced by the establishment reporting:			
Pounds	1,291,048,109	943,798,583	[4]
Cost	$28,245,234	$21,154,388	[4]
Purchased:			
Pounds	30,023,582	[5] 75,810,074	[4]
Cost	$735,917	$1,837,618	[4]
Coating metals:			
Pounds	40,927,759	32,445,104	27,154,258
Cost	$9,670,037	$7,075,722	$4,927,090
Tin, including tin contents of terne mixture purchased—			
Pounds	31,077,651	24,243,851	20,282,778
Cost	$9,235,718	$6,709,164	$4,528,473
Lead, including lead contents of terne mixture purchased—			
Pounds	9,850,108	8,201,253	6,871,480
Cost	$434,310	$366,558	$393,617
In condition purchased—			
Pig tin—			
Pounds	28,586,267	[6]	[6]
Cost	$8,490,794		
Pig lead—			
Pounds	2,708,496	[6]	[6]
Cost	$117,656		
Terne mixture—			
Pounds	9,632,996	[6]	[6]
Cost	$1,061,587		
All other materials, cost	$3,238,246	$1,307,986	$1,132,212
PRODUCTS.			
Total value	[7] **$47,969,645**	**$35,283,360**	**$31,892,011**
Tin and terne plates:			
Pounds	1,315,313,132	1,026,384,851	849,004,022
Value	$45,815,146	$34,549,543	$31,284,145
Tin plates—			
Pounds	1,123,968,875	867,526,985	707,718,239
Value	$38,259,885	$28,429,971	$25,553,021
Terne plates—			
Pounds	191,344,257	158,857,866	141,285,783
Value	$7,555,261	$6,119,572	$5,731,124
Other sheet iron or sheet steel tinned or terne-plated, taggers tin, etc.:			
Pounds	19,400,934	6,555,855	1,000,473
Value	$520,405	$217,476	$86,492
All other products, value	$1,634,034	$516,341	$521,374
EQUIPMENT.			
Tin or terne sets at end of year:			
Completed—			
Number	563	598	[8] 585
Usually employed on tin plates	450	478	[4]
Usually employed on terne plates	113	120	[4]
Daily capacity, single turn, pounds	2,795,972	3,425,948	2,732,901
Tin plates	2,055,915	2,800,898	2,003,538
Terne plates	740,057	625,050	729,363
Daily capacity as operated, whether on single, double, or triple turn, pounds	7,016,293	7,121,350	[4]
Building, number	49	[4]	[8] 53
Black-plate department of establishments making their black plates:			
Hot black-plate mills at end of year—			
Completed—			
Number	335	315	[8] 332
Annual capacity on triple turn, long tons	1,042,088	707,405	641,450
Building—			
Number	20	[4]	[8] 23
Annual capacity on triple turn, long tons	36,600	[4]	51,275
Cold mills, completed, number	268	272	[8] 308

[1] Domestic; no foreign plates reported; includes 8,726,538 pounds of iron plates; balance steel, not distributable by kind of steel.

[2] Includes 83,900 pounds of foreign plates, costing $3,769; the domestic plates reported were distributed by kind as follows: Bessemer steel, 911,663,989 pounds; open-hearth steel, 100,911,401 pounds; iron, 83,900 pounds.

[3] Includes 2,358,607 pounds of foreign plates, costing $78,282.

[4] Not reported.

[5] Consumption of establishments not equipped for the manufacture of black plates.

[6] Terne mixture purchased not reported separately; contents reported as tin and lead.

[7] In addition 8,359,200 pounds of tin and terne plate and taggers tin, valued at $398,143, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

[8] Includes idle establishments.

Wire.—The following table presents the statistics for wire manufactures in 1909. Comparable statistics in detail for 1904 and 1899 are not available for the total wire production, as special reports were not secured prior to the present census from wire mills drawing wire from purchased rods. The total value of the steel and iron wire product more than doubled from 1899 to 1909. The total value of all wire and manufactures of wire reported in 1909 was $173,349,614, of which 69.6 per cent represents the value of products made from steel and iron, 27.2 per cent that of products made from copper, and 3.2 per cent that of products made from other metal, chiefly brass. Establishments rolling wire from rods manufactured by them reported 54.3 per cent of the wire products in value, and mills drawing wire from purchased rods produced 45.7 per cent. The *ton of 2,000 pounds* is used in showing quantities.

	Total.	Wire mills (wire rods purchased).	Wire departments of rolling mills[1] (wire rods rolled).
PRINCIPAL MATERIALS.			
Metal used, cost	**$115,655,427**	**$51,240,373**	**$64,415,054**
Wire rods, cost	$112,799,516	$50,810,983	$61,988,533
Steel—			
Tons	2,514,504	850,729	1,663,775
Cost	$67,439,887	$23,021,867	$44,418,020
Open-hearth—			
Tons	1,359,256	285,961	1,073,295
Cost	$38,532,177	$8,536,361	$29,995,816
Basic—			
Tons	1,255,747	233,105	1,022,642
Cost	$35,046,106	$6,695,310	$28,350,796
Acid—			
Tons	103,509	52,856	50,653
Cost	$3,486,071	$1,841,051	$1,645,020
Bessemer—			
Tons	1,148,353	558,048	590,305
Cost	$28,340,445	$13,936,178	$14,404,267
Crucible and other steel—			
Tons	6,895	6,720	175
Cost	$567,205	$549,328	$17,937
Iron—			
Tons	4,849	1,055	3,794
Cost	$207,846	$62,203	$145,643
Copper—			
Tons	151,951	102,394	49,557
Cost	$40,916,084	$27,462,312	$13,453,772
Other metal—[2]			
Tons	17,044	935	17,009
Cost	$4,235,699	$264,601	$3,971,098
Purchased wire, plain or coated:			
Tons	57,922	8,943	48,979
Cost	$2,855,911	$429,390	$2,426,521
PRODUCTS.			
Total value	**$180,083,522**	**$84,486,518**	**$95,597,004**
Wire, and manufactures of wire, value	$173,349,614	$79,249,869	$94,099,745
Steel and iron—			
Tons	2,471,854	821,925	1,649,929
Value	$120,585,637	$47,934,204	$72,651,433
Wire drawn for sale—			
Tons	826,451	343,905	482,546
Value	$38,345,081	$18,323,035	$20,022,046
Plain—			
Tons	472,046	188,846	283,200
Value	$22,632,230	$11,349,868	$11,282,362
Coated—			
Tons	354,405	155,059	199,346
Value	$16,212,851	$7,473,167	$8,739,684
Wire nails and spikes—			
Kegs (100 pounds)	13,926,861	3,449,753	10,477,108
Value	$27,575,774	$7,142,047	$20,433,727
Wire brads, tacks, and staples—			
Tons	28,125	7,334	20,791
Value	$1,324,170	$320,224	$1,003,946

	Total.	Wire mills (wire rods purchased).	Wire departments of rolling mills[1] (wire rods rolled).
PRODUCTS—continued.			
Wire and manufactures of wire—Contd.			
Steel and iron—Continued.			
Barb wire—			
Tons	323,565	76,268	247,297
Value	$13,881,517	$3,343,856	$10,537,661
Woven wire, fencing, and poultry netting—			
Tons	422,127	115,889	306,238
Value	$21,419,170	$6,724,077	$14,695,093
Wire rope and strand—			
Tons	45,303	34,140	11,163
Value	$6,683,771	$5,450,064	$1,233,707
Other manufactures—springs, bale ties, cold-rolled flat wire, etc.—			
Tons	129,940	71,901	58,039
Value	$10,856,154	$6,130,901	$4,725,253
Copper—			
Tons	154,231	102,604	51,627
Value	$47,184,164	$30,831,646	$16,352,518
Wire drawn for sale—			
Tons	139,482	102,418	37,064
Value	$42,336,274	$30,736,728	$11,599,546
Manufactures of wire—			
Tons	14,749	186	14,563
Value	$4,847,890	$94,918	$4,752,972
Other metal—[2]			
Tons	17,526	1,048	16,359
Value	$5,579,813	$484,019	$5,095,794
Wire drawn for sale—			
Tons	15,702	1,008	14,575
Value	$4,993,376	$459,583	$4,533,793
Manufactures of wire—			
Tons	1,824	40	1,784
Value	$586,437	$24,436	$562,001
All other products	$6,733,908	$5,236,649	$1,497,259
Wire drawn, whether for consumption or for sale, tons:			
Steel and iron	2,380,136	787,322	1,601,814
Copper	147,156	101,890	45,266
Other metal[2]	17,262	902	16,360
EQUIPMENT.			
Wire-drawing blocks:			
Number[3]	43,607	28,119	15,573
Annual capacity, tons	3,213,574	1,065,250	2,148,324
Wire-nail machines:			
Number	4,428	1,207	3,221
Annual capacity (kegs of 100 pounds)	18,756,995	4,693,513	14,063,482
Woven-wire fence machines:			
Number	446	198	248
Annual capacity, tons	481,373	134,803	346,570

[1] Includes the wire departments of iron and steel, copper and brass rolling mills.
[2] Brass, bronze, German silver, zinc, etc., chiefly brass.
[3] Includes rod, redrawing, and fine wire blocks.

The comparative statistics for steel and iron wire products, 1909, 1904, and 1899, are as follows:

PRODUCT.	1909	1904	1899
Total value	**$120,585,637**	**$83,353,956**	**$52,871,387**
Wire mills	$47,964,204	$15,802,513	$5,142,603
Wire departments of rolling mills:			
Tons	1,649,929	1,416,494	879,296
Value	$72,651,433	$67,551,443	$47,728,784

LEATHER AND ITS PRODUCTS.

The primary or underlying industry of this group is the converting of hides and skins into leather by the various processes of tanning, tawing, currying, and finishing. The designation employed for this industry is "leather, tanned, curried, and finished." The group also includes the manufacture of boots and shoes and the manufacture of leather gloves and mittens.

Leather.—The following table gives the statistics of the leather industry in detail for 1909, 1904, and 1899.

The number of hides and skins treated, including those treated as custom work for others not tanners, curriers, or finishers, as well as those used in further manufacture by the establishments treating them, was 146,328,586 in 1909 and 131,011,956 in 1904. Comparative figures for this aggregate for 1899 are not available. Exclusive of custom work, 116,040,986 hides and skins, costing $195,058,557, were treated by tanneries in 1909, and 99,709,343, costing $123,545,969, in 1899, the increase in number being 16.4 per cent and that in cost 57.9 per cent. The increase for the decade in the number of hides used was 15.9 per cent; that in calf and kip skins, 120.6 per cent; that in sheepskins, 6.4 per cent; and that in goatskins, less than 1 per cent.

The cost of purchased rough leather used increased 43.4 per cent and that of all other materials, which include tanning and finishing materials, 76.1 per cent.

The value of leather manufactured in 1909 was $306,476,720, as compared with $194,202,063 in 1899, an increase of 57.8 per cent, which is practically the same as the percentage of increase in the cost of hides and skins treated. There is considerable duplication in the value of products, due to the sale of leather in the rough as product of one establishment and its use as material in another.

	1909	1904	1899
MATERIALS.			
Total cost	$248,278,933	$191,179,073	$155,000,004
Tanning.			
Hides[1] (all kinds):			
Number	[2] 18,360,415	17,581,613	15,838,862
Cost	$119,410,767	$89,126,593	$77,784,760
Skins:[1]			
Number	97,650,571	90,625,004	83,870,481
Cost	$75,647,790	$56,341,332	$45,761,209
Calf and kip—			
Number	19,732,638	12,481,221	8,944,454
Cost	$31,799,572	$15,725,616	$10,792,485
Goat—			
Number	48,077,604	47,605,903	48,016,897
Cost	$27,833,214	$26,756,012	$24,950,223
Sheep—			
Number	26,082,060	27,402,359	24,507,042
Cost	$12,231,618	$10,547,883	$8,457,995
All other—			
Number	[3] 3,738,209	2,985,881	2,371,488
Cost	$3,792,386	$3,311,821	$1,560,506
Currying.			
Purchased rough leather used, cost	$3,556,257	$10,852,655	$6,663,395
Sides—			
Number	1,468,213	2,414,102	1,036,592
Cost	$4,967,781	$8,136,661	$3,534,097
Grains—			
Sides	525,786	342,332	165,938
Cost	$1,201,842	$980,260	$467,125
Splits—			
Number	2,043,253	1,365,720	1,721,187
Cost	$1,442,505	$1,108,243	$1,320,589
All other—			
Cost	$1,944,129	$627,491	$1,341,584
All other materials, cost	$43,664,119	$34,858,493	$24,790,040
PRODUCTS.			
Total value	[4] $327,874,187	[4] $252,620,986	$204,038,127
Leather, value	$306,476,720	$230,765,803	$194,202,063
Sold in rough, value	$6,335,599	$10,180,949	$6,864,345
Sides—			
Number	828,887	2,054,281	1,397,140
Value	$3,539,617	$7,801,249	$4,256,471
Grains—			
Sides	317,814	258,624	322,147
Value	$718,502	$584,418	$806,422
Splits—			
Number	2,912,904	2,365,387	2,510,347
Value	$2,077,420	$1,795,282	$1,801,452
Sole, value	$88,331,713	$69,205,600	$55,481,625
Hemlock—			
Sides	7,903,728	9,029,904	9,810,996
Value	$32,237,151	$32,676,015	$29,305,561
Oak—			
Sides	3,805,861	3,607,963	2,562,814
Value	$26,083,793	$19,157,805	$13,359,836
Union—			
Sides	5,756,227	4,490,011	3,096,162
Value	$28,375,815	$17,371,780	$12,807,262
PRODUCTS—continued.			
Leather—Continued.			
Sole—Continued.			
Chrome—			
Sides	279,436	[5]	2,100
Value	$1,634,954	[5]	$8,966
Upper, other than calf or kip skins, value	$39,951,460	$24,815,835	$25,311,838
Grain, satin, pebble, etc. (side leather)—			
Sides	7,940,769	6,850,469	8,141,093
Value	$24,198,993	$15,487,252	$17,478,802
Finished splits—			
Number	8,134,229	6,205,050	8,790,382
Value	$7,410,740	$5,993,231	$6,740,502
Patent and enameled shoe—			
Sides	2,705,291	1,356,777	236,943
Value	$8,341,727	$3,235,352	$1,092,534
Horsehides and coltskins—			
Number	1,342,938	1,529,395	223,378
Value	$4,953,145	$4,596,065	$843,118
Calf and kip skins, tanned and finished—			
Number	19,012,004	12,014,223	8,264,272
Value	$42,412,256	$22,508,335	$14,619,150
Grain finished—			
Number	17,516,910	10,211,885	7,112,859
Value	$39,982,447	$18,996,551	$12,127,439
Flesh finished—			
Number	1,495,154	1,802,338	1,151,413
Value	$2,429,809	$3,511,784	$2,491,711
Goatskins, tanned and finished—			
Number	47,907,211	45,601,492	47,043,932
Value	$40,882,640	$37,887,349	$35,672,981
Black—			
Number	40,351,192	40,019,614	38,176,816
Value	$33,949,575	$32,822,282	$29,050,886
Colored—			
Number	7,556,019	5,671,878	8,867,116
Value	$6,933,065	$5,065,067	$6,622,095
Sheepskins, tanned and finished—			
Number	19,065,155	20,597,598	20,290,985
Value	$12,236,687	$11,168,829	$8,353,755
Belting—			
Sides	1,042,070	859,564	1,472,016
Value	$6,995,133	$4,754,456	$7,092,778
Harness—			
Sides	3,946,235	4,369,561	3,444,616
Value	$24,802,734	$20,274,188	$16,712,056
Carriage, automobile, and furniture—			
Sides	1,398,842	827,104	619,741
Value	$14,266,742	$7,780,804	$5,748,387
Trunk, bag, and pocketbook, value	$6,198,544	$4,920,750	$2,611,326
Bookbinder's, value	$2,450,155	$2,283,761	$1,088,413
Glove, value	$4,913,543	$3,344,614	$3,084,837
All other, value	$11,746,369	$13,044,268	$10,117,454
All other products, value	$8,632,689	$7,605,223	$5,514,395
Work on materials for others	$12,764,778	$8,189,960	$4,321,669

[1] In addition, in 1909, 1,903,278 hides and 27,936,887 skins and in 1904, 961,431 hides and 21,702,110 skins, were treated for others, not tanners, curriers, or finishers; and in 1909, 252,639 hides and 194,796 skins and in 1904, 12,453 hides and 30,285 skins were treated by establishments using the leather for further manufacture.
[2] Cattle hides only.
[3] Includes horsehides.
[4] In addition, in 1909, leather to the value of $6,231,374, and in 1904 to the value of $154,932, was tanned, curried, or finished and consumed by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[5] Not reported separately.

Boots and shoes.—The full designation for this industry is "boots and shoes, including cut stock and findings." The total value of products was $512,797,642 in 1909, as compared with $357,688,160 in 1904 and $290,047,087 in 1899, an increase for the decade of $222,750,555, or 76.8 per cent. In addition, in 1909 there were boot and shoe products to the value of $1,439,280, and in 1904 to the value of $89,000,

made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation. The schedule employed did not call for segregation of value of products. The following table shows the number of pairs of the different kinds of shoes and slippers reported at each of the last three censuses.

KIND.	NUMBER OF PAIRS.		
	1909	1904	1899
Boots and shoes	247,643,197	216,039,401	195,589,173
Men's	93,888,892	83,434,322	67,742,839
Boys' and youths'	23,838,626	21,717,236	21,030,479
Women's	86,595,314	69,470,876	64,972,653
Misses' and children's	43,320,365	41,416,967	41,843,202
Slippers	17,507,834	17,518,291	17,092,841
Men's, boys', and youths'	4,802,841	4,403,097	4,446,965
Women's, misses', and children's	12,704,993	13,115,194	12,645,876
Infants' shoes and slippers	15,000,721	(1)	(1)
All other	4,865,429	8,552,343	5,283,405

[1] Not reported separately.

There were 247,643,197 pairs of boots and shoes manufactured in 1909, 216,039,401 pairs in 1904, and 195,589,173 pairs in 1899, the increase being 26.6 per cent for the decade and 14.6 per cent for the 1904–1909 period. In 1909 men's boots and shoes formed 37.9 per cent of the total number of boots and shoes; women's, 35 per cent; misses' and children's, 17.5 per cent; and boys' and youths', 9.6 per cent.

The total output of slippers reported for 1909 was 17,507,834 pairs, practically the same as at each of the two preceding censuses. The figures indicate a considerable decrease since 1904 in women's, misses', and children's slippers, but it is probable that infants' shoes and slippers, reported separately in 1909, were to some extent included with children's slippers in 1904.

The number of pairs of the different kinds of boots, shoes, and slippers manufactured by the various methods was reported for the first time in 1909, and is shown in the next table. Of the total number manufactured, 43.2 per cent were of the McKay type, 35.3 per cent machine or hand welt, 10.6 per cent turned, 8.8 per cent wire-screw or metal-fastened, and 2.1 per cent wooden-pegged.

KIND.	NUMBER OF PAIRS.					
	Total.	Machine or hand welt.	Turned.	McKay.	Wooden-pegged.	Wire-screw or metal-fastened.
Boots and shoes	247,643,197	87,391,763	26,317,990	107,063,644	5,226,161	21,643,639
Men's	93,888,892	53,212,450	989,240	20,438,585	3,921,652	15,326,965
Boys' and youths'	23,838,626	4,423,934	50,377	15,016,611	567,939	3,779,765
Women's	86,595,314	25,871,890	14,281,764	44,518,966	533,579	1,389,106
Misses' and children's	43,320,365	3,883,480	10,996,609	27,089,482	202,991	1,147,803
Slippers	17,507,834	1,318,995	7,611,748	8,396,874	28,918	151,299
Men's, boys', and youths'	4,802,841	648,007	1,733,742	2,286,052	16,851	117,589
Women's, misses', and children's	12,704,993	670,988	5,878,006	6,110,822	12,067	33,710
Infants' shoes and slippers	15,000,721	1,979,593	11,447,508	1,520,072	41,731	11,817
All other	4,865,429	1,429,249	1,189,742	1,286,281	321,082	639,075

Gloves and mittens, leather.—The quantity and value of the different kinds of products reported for this branch of the leather industry for 1909, 1904, and 1899 are shown in the following table:

PRODUCT.	1909	1904	1899[1]
Total value	[2] $23,630,598	[2] $17,740,385	[2] $16,926,156
Gloves, mittens, and gauntlets:			
Dozen pairs	3,368,655	3,370,146	[3] 2,895,661
Value	$22,525,861	$17,122,772	[3] $16,039,168
Men's—			
Dozen pairs	2,585,977	2,915,415	2,267,327
Value	$17,060,797	$14,515,770	$12,418,253
Lined—			
Dozen pairs	921,259	1,317,083	952,820
Value	$5,222,174	$6,333,081	$4,959,902
Unlined—			
Dozen pairs	1,664,718	1,598,332	1,314,507
Value	$11,838,623	$8,182,689	$7,458,356
Women's and children's:			
Dozen pairs	782,678	454,731	604,330
Value	$5,465,064	$2,607,002	$3,470,253
Lined—			
Dozen pairs	365,477	241,361	267,149
Value	$1,718,198	$1,030,843	$1,247,916
Unlined—			
Dozen pairs	417,201	213,370	337,181
Value	$3,746,866	$1,576,159	$2,222,342
All other products, value	$1,104,737	$617,613	$886,988

[1] Does not include $204,922, the value of gloves and mittens other than leather which were included in general tables.

[2] In addition, in 1909, 36,944 dozen pairs of gloves, mittens, and gauntlets, to the value of $264,961; in 1904, gloves, mittens, and gauntlets, to the value of $166,164; and in 1899, gloves, mittens, and gauntlets, to the value of $217,157, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

[3] Includes 24,004 dozen pairs of gauntlets, valued at $150,052, not distributed by kinds.

The greater increase in value was due to the higher prices paid for hides and skins, and an increased production of the better grades of gloves.

The number of men's gloves manufactured largely outnumbered that of women's and children's at each census, but importations of kid gloves for women probably greatly reduce the demand for American makes. The number of men's gloves increased during the decade 14.1 per cent, and the number of women's and children's 29.5 per cent.

CHEMICALS AND ALLIED PRODUCTS.

The industries in this group comprise those which produce chemicals as products or which employ to a large extent chemical processes in manufacture. The grouping is necessarily somewhat arbitrary. Separate tables present the statistics for each of the following industries:

- Chemicals.
- Coke.
- Dyestuffs and extracts.
- Explosives.
- Fertilizers.
- Gas, illuminating and heating.
- Glucose and starch.
- Oil, cottonseed, and cake.
- Oil, essential.
- Paint and varnish.
- Petroleum, refining.
- Salt.
- Soap.
- Sulphuric, nitric, and mixed acids.
- Turpentine and rosin.

Chemicals.—The following table presents the statistics for the general chemical industry as classified by the Bureau of the Census, but reference should be made to the groups and items specified in the table for information as to the products included under this head. It does not include products listed independently in the preceding paragraph, nor does it include the products of wood distillation or chemicals made by establishments engaged in the manufacture of pharmaceutical preparations.

The value of all products of the "chemical" industry, including the same commodities made by establishments engaged primarily in the manufacture of other products, was $126,794,345 in 1909 and $78,285,646 in 1904. The products of establishments classified as chemical factories proper were valued at $117,688,887 in 1909 and $48,039,595 in 1899, an increase for the decade of $69,649,292, or 145 per cent. Some of the groups show very large gains, notably products made with the aid of electricity, many of which can not be be shown separately without disclosing individual operations. The value of these products increased from $1,305,368 in 1899 to $17,968,277 in 1909 and the value of the output of sodas, the leading group of products in this respect, increased from $11,596,915 to $21,417,982.

The value of the sulphuric, nitric, and mixed acid product, shown in the table on page 62, should be added to the value of the acids given in the following table in order to ascertain the total production of the principal acids. Including these acids, the value of the acid product (not including acids consumed by establishments making the same or those produced as by-products of other industries) was $19,498,663 in 1909, $14,538,137 in 1904, and $9,371,615 in 1899, the increase for the decade being 108 per cent. The *ton of 2,000 pounds* is used in showing quantities.

PRODUCT.	1909	1904	1899
Total value	**[1] $117,688,887**	**[2] $75,283,249**	**$48,039,595**
Acids,[3] value	$11,926,389	$7,583,059	$3,161,743
Acetic—			
Pounds	51,963,788	27,001,322	24,945,558
Value	$1,136,134	$537,542	$396,323
Boric—			
Pounds	5,554,414	6,956,896	2,684,935
Value	$295,739	$527,190	$198,212
Citric—			
Pounds	2,102,206	2,265,631	(4)
Value	$777,200	$598,718	(4)
Hydrofluoric—			
Pounds	4,790,063	2,932,358	698,000
Value	$244,657	$151,218	$34,890
Muriatic—			
Pounds	128,394,736	127,502,682	116,675,100
Value	$1,171,082	$1,180,910	$1,015,915
Oleic—			
Pounds	13,337,717	(4)	(4)
Value	$680,015	(4)	(4)
Phosphoric—			
Pounds	25,702,606	991,050	(4)
Value	$505,791	$68,541	(4)
Other, value	$7,145,771	$4,518,940	$1,516,403
Sodas, value	$21,417,982	$16,858,929	$11,596,915
Soda ash—			
Tons	646,007	518,789	380,361
Value	$10,301,756	$8,202,292	$4,768,383
Sal soda—			
Tons	76,285	56,870	63,231
Value	$977,712	$792,248	$779,166
Bicarbonate of soda—			
Tons	82,800	68,867	68,185
Value	$1,515,031	$1,135,610	$1,324,843
Caustic soda[5]—			
Tons	112,152	80,159	78,779
Value	$4,230,954	$2,924,182	$2,917,955
Sodas—Continued.			
Borax—			
Tons	20,154	20,882	5,637
Value	$1,766,910	$2,122,808	$502,480
Other, value	$2,565,619	$1,681,789	$1,304,088
Potashes—			
Pounds	1,866,570	5,113,706	3,764,806
Value	$88,940	$563,489	$174,476
Alums, value	$2,578,842	$2,126,612	$2,013,607
Alum cake—			
Pounds	26,884,880	(4)	(4)
Value	$273,711	(4)	(4)
Potash alum—			
Pounds	7,939,702	(4)	(4)
Value	$128,623	(4)	(4)
All other, value	$2,176,508	(6)	(6)
Coal-tar products, value	$2,675,327	$844,817	$1,322,094
Coal-tar distillery products, value	$2,462,330	$340,641	$809,830
Chemicals made from coal-tar distillery products, value	$212,997	$504,176	$512,264
Cyanides, value	$1,941,893	$1,170,104	$1,584,923
Yellow prussiate of potash—			
Pounds	3,510,208	5,027,264	6,140,406
Value	$463,683	$683,277	$933,514
All other, value	$1,477,910	$495,827	$591,409
Bleaching materials, value	$1,635,046	$777,750	$492,086
Hydrogen peroxide—			
Pounds	9,403,717	(4)	(4)
Value	$850,417	(4)	(4)
Bisulphites—			
Tons	5,999	(4)	(4)
Value	$202,504	(4)	(4)
All other, value	$582,125	$777,750	$492,086
Chemical substances produced by the aid of electricity, value	$17,968,277	$5,896,632	$1,305,368
Calcium carbide—			
Pounds	121,946,967	(4)	(4)
Value	$2,984,001	(4)	(4)
Caustic soda—			
Tons	19,428	(4)	(4)
Value	$1,032,647	(4)	(4)
Chlorates—			
Pounds	11,568,915	(4)	(4)
Value	$904,525	(4)	(4)
Hydrochlorites—			
Tons	68,016	(4)	(4)
Value	$1,506,831	(4)	(4)
All other, value	$11,540,273	$5,896,632	(6)
Plastics, value	$7,180,172	$4,755,761	$2,099,400
Pyroxylin plastics—			
Pounds	6,206,177	(6)	(6)
Value	$5,389,819	$2,857,093	$1,070,387
All other—			
Pounds	10,234,928	(6)	(6)
Value	$1,790,353	$1,898,668	$129,013
Compressed or liquefied gases, value	$4,969,805	$2,787,089	$1,215,011
Anhydrous ammonia—			
Pounds	11,802,076	(6)	(6)
Value	$2,503,315	$1,173,184	$448,157
Carbon dioxide—			
Pounds	47,238,367	35,991,627	(6)
Value	$2,317,808	$1,343,966	$696,104
Laughing gas—			
Pounds	72,675	(4)	(4)
Value	$33,089	(4)	(4)
Oxygen—			
Gallons	4,777,977	(4)	(4)
Value	$98,150	(4)	(4)
All other—			
Pounds	364,014	(6)	(6)
Value	$16,843	$270,539	$70,690
Fine chemicals, value	$10,956,666	$9,145,853	$4,220,339
Alkaloids—			
Ounces	3,482,492	4,949,525	3,387,522
Value	$3,188,691	$2,925,780	$1,743,264
Gold salts—			
Ounces	42,544	50,969	8,594
Value	$430,944	$449,864	$90,145
Silver salts—			
Ounces	2,027,719	1,743,882	1,252,604
Value	$726,222	$683,761	$499,345
Platinum salts—			
Ounces	1,561	19,068	7,312
Value	$19,123	$175,082	$64,600
Chloroform—			
Pounds	1,861,435	616,670	396,540
Value	$472,759	$165,604	$98,070
Ether—			
Pounds	1,177,886	660,783	263,238
Value	$199,448	$334,935	$129,876
Acetone—			
Pounds	6,927,886	1,300,395	1,638,715
Value	$719,895	$161,320	$178,666
All other, value	$5,199,584	$4,248,898	$1,426,373
Chemicals not elsewhere specified:			
Glycerin—			
Pounds	33,980,974	18,791,997	15,383,798
Value	$4,838,826	$2,345,205	$2,012,886
Epsom salts—			
Pounds	47,785,318	15,935,837	6,072,309
Value	$357,728	$145,801	$45,966
Blue vitriol—			
Pounds	810,958	50,100	7,500,000
Value	$37,626	$2,500	$375,000

For footnotes, see page 56.

PRODUCT.	1909	1904	1899
Chemicals not elsewhere specified—Continued.			
Copperas—			
Pounds	24,199,526	8,815,059	14,097,905
Value	$71,081	$28,061	$58,581
Phosphates of soda—			
Pounds	35,178,354	12,018,815	3,478,350
Value	$634,292	$243,822	$104,554
Tin salts—			
Pounds	12,992,233	9,573,719	4,077,471
Value	$1,194,546	$904,679	$470,159
Zinc salts—			
Pounds	43,204,052	(4)	(4)
Value	$1,477,486	(4)	(4)
Other chemicals, value	$21,207,930	$13,289,416	$15,786,497
By-products and residues sold to other industries, value	$4,530,024	$5,743,070	

[1] In addition, products to the value of $9,105,458 were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation, including the following:

	Pounds.	Value.		Pounds.	Value.
Acids:			Pyroxylin plastics	292,582	$282,560
Acetic	4,959,985	$200,740	Compressed or liquefied gases:		
Hydrofluoric	2,051,951	79,722	Anhydrous ammonia[c]	167,710	40,923
Muriatic	74,805,743	587,253	Carbon dioxide	454,354	19,262
Oleic	2,959,346	165,091	Laughing gas	24,500	4,900
Stearic	5,004,774	399,336	Oxygen, gallons	23,526,325	79,319
Other[a]		49,530	Other		9,072
Sodas:			Chloroform	8,250	4,779
Sal soda....tons	10,822	184,297	Acetone	2,007,560	210,287
Other[b].....tons	75,902	1,835,292	Glycerin[d]	1,022,920	123,472
Potashes	14,293,552	525,054	Blue vitriol	37,185,585	1,496,045
Alums	49,450,266	443,513	Copperas	3,031,566	53,372
Coal-tar distillery products		1,610,702	Phosphates of soda	310,538	27,034
Bleaching materials:			Zinc salts	4,312,988	103,503
Hydrogen peroxide	521,851	20,124	Other chemicals		505,183
Bisulphite	3,062,000	23,650			
Other		20,703			

[a] Not including acids reported by manufacturers of explosives and fertilizers.
[b] Including sodas reported by manufacturers of paints and varnishes and fertilizers.
[c] Not including 4,871,014 pounds, value $448,455, reported by manufacturers of coke.
[d] Not including 52,518,919 pounds, value $6,790,264, reported by manufacturers of soap.
[2] In addition, products to the value of $3,063,397 were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation, including the following:

	Pounds.	Value.		Pounds.	Value.
Acid:			Bleaching materials:		
Muriatic	47,018,080	$431,938	Bisulphite, tons	536	$11,937
Stearic	1,750,000	140,000	Glycerin	520,000	53,000
Hydrofluoric	1,217,578	71,668	Ether	193,628	92,466
Other		146,716	Epsom salts	1,350,000	13,500
Sodas:			Blue vitriol	107,160	5,994
Sal soda....tons	1,763	29,561	Copperas	81,816	586
Caustic....tons	14	668	Tin salts	1,103,222	188,301
Other.....tons	14,209	363,765	Other chemicals		742,467
Alums	33,074,349	532,185			
Coal-tar distillery products		238,645			

[3] See table on page 62 for sulphuric, nitric, and mixed acids.
[4] Not reported separately.
[5] See chemical substances produced by the aid of electricity for additional product.
[6] Not reported.

Coke.—The following table, which presents the statistics for the manufacture of coke, does not include those for gas-house coke, which are shown in the table on page 59. The total production of coke, including gas-house coke sold and that made and consumed in gas manufacture, was 41,947,949 tons in 1909 as compared with 27,857,441 tons in 1904, an increase of 50.6 per cent. The gas-house coke included in these figures formed 6.3 per cent of the total product in 1909 and 9.9 per cent in 1904.

The value of all products of the coke industry proper was $98,078,383 in 1909, $51,728,647 in 1904, and $35,585,445 in 1899, an increase for the decade of 175.6 per cent. A marked feature of the industry is the increasing use of retort ovens. Although the retort coke product was not reported separately in 1899, the by-products of this branch of the industry were given and aggregated $952,027 in value. In 1909 the value of the retort by-products was $8,073,948. The value of the coke and by-products made by retort ovens constituted 29.1 per cent of the total value of all products of the industry in 1909. Of the total value of the products made by retort ovens, two-fifths is contributed by the by-products. The *ton of 2,000 pounds* is used in showing quantities.

	1909	1904	1899
MATERIALS.			
Total cost	[1] $65,388,124	$29,884,532	$19,665,532
Coal charged into ovens:			
Tons	[1] 59,354,937	36,781,006	30,157,829
Run of mine—			
Unwashed	40,594,842	24,872,731	20,844,637
Washed	6,007,760	2,649,251	1,457,951
Slack—			
Unwashed	6,926,484	4,414,326	5,036,675
Washed	5,825,851	4,844,698	2,818,556
Cost	[1] $62,203,382	$28,360,121	$18,355,252
All other materials, cost	$3,184,742	$1,524,411	$1,310,280
PRODUCTS.			
Total value	[1] $98,078,383	[2] $51,728,647	$35,585,445
Coke: [3]			
Tons	39,315,065	24,733,063	19,640,798
Value	$89,965,483	$49,002,051	$34,633,418
Made in beehive ovens—			
Tons	33,060,421	22,516,280	(4)
Value	$69,530,794	$42,885,773	(4)
Made in retort or by-product ovens—			
Tons	6,254,644	2,216,783	(4)
Value	$20,434,689	$6,116,278	(4)
By-products obtained from retort or by-product ovens—			
Gas made, cubic feet (thousands)	76,590,763	18,761,101	(4)
Used in process or wasted, cubic feet (thousands)	60,799,543	14,878,301	(4)
Sold—			
Cubic feet (thousands)	15,791,220	3,882,800	1,171,943
Value	$2,609,211	$684,464	$225,022
Tar—			
Gallons	60,126,006	23,074,225	10,468,733
Value	$1,408,611	$551,836	$207,952
Ammonia, sulphate or reduced to equivalent in sulphate—			
Pounds	123,111,197	26,050,713	11,984,931
Value	$3,227,316	$681,427	$330,921
Anhydrous ammonia—			
Pounds	4,871,014	(4)	(4)
Value	$448,455	(4)	(4)
Ammonia liquor—			
Gallons	(5)	4,339,679	1,572,325
Value	(5)	$697,644	$180,642
All other, value	$419,307	$111,225	$7,490
EQUIPMENT.			
Ovens, number in existence at end of year	103,982	76,099	47,142
Building at end of year	2,950	2,127	(4)
Abandoned during the year	201	178	(4)

[1] Includes coal and coking products produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation, viz: Coal used, unwashed, 566,539 tons, cost, $1,363,597; products valued at $2,381,761, comprising retort coke, 415,472 tons, valued at $1,464,162; tar, 4,393,576 gallons, valued at $87,639; ammonium sulphate, 9,952,744 pounds, valued at $235,605; gas sold, 2,160,915 thousand cubic feet, valued at $534,075; and other products, $60,280.
[2] In addition, 410,225 tons of coke, valued at $1,302,572, were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[3] The statement for coke made in gas establishments will be found in detail under the classification "Gas, illuminating and heating."
[4] Not reported.
[5] Reported in part as anhydrous ammonia and in part as ammonium sulphate or reduced equivalents.

Dyestuffs and extracts.—The statistics for dyestuffs and extracts given in the following table cover the products of establishments manufacturing the same for sale, and do not include those made by dye and print works or tanneries and consumed by the same in further processes of manufacture.

The total value of products was $15,954,574 in 1909 and $7,350,748 in 1899, an increase of 117 per cent. The chief products were oak and chestnut extract,

which together increased tenfold in quantity and even more in value during the decade. Artificial dyestuffs nearly doubled in quantity and in value, but the production of natural dyestuffs (included under "All other products") has fallen off greatly, the value of the product being $1,035,711 in 1899 and only $233,935 in 1904. It was materially less in 1909, but can not be shown separately without disclosing individual operations. The census report on Forest Products for 1909 gives 386,817,895 pounds as the total consumption of tanning extracts in that year, which quantity exceeds the quantity of oak, chestnut, hemlock, and sumac extracts here reported by over 83,000,000 pounds. This difference can be taken as representing approximately the amount of tanning extract imported or made and consumed in tanning establishments.

PRODUCT.	1909	1904	1899
Total value	[1] $15,954,574	[1] $10,893,113	$7,350,748
Artificial dyestuffs:			
Pounds	12,267,399	4,600,462	6,581,850
Value	$3,462,436	$1,764,454	$1,806,730
Extracts:			
Hemlock—			
Pounds	12,588,078	18,833,450	26,011,714
Value	$280,467	$406,619	$563,591
Logwood—			
Pounds	22,317,248	29,799,606	39,252,743
Value	$991,974	$1,472,047	$1,495,971
Oak and chestnut—			
Pounds	287,908,285	156,520,123	28,983,036
Value	$6,061,162	$2,411,184	$529,670
Sumac—			
Pounds	3,148,780	4,093,619	4,349,742
Value	$107,456	$95,958	$103,085
Ground sumac:			
Pounds	554,032	5,061,333	9,284,000
Value	$24,531	$65,190	$114,660
Ground bark:			
Pounds	25,142,076	38,001,017	27,028,000
Value	$176,510	$249,101	$149,365
Ground and chipped wood:			
Pounds	15,046,954	9,999,906	12,690,037
Value	$143,720	$95,237	$201,931
Gums and dextrins:			
Pounds	16,148,931	6,651,731	[2]
Value	$610,999	$231,708	[2]
Iron liquors:			
Pounds	3,079,418	1,860,744	954,240
Value	$30,282	$30,757	$7,525
Mordants:			
Pounds	1,735,887	733,245	734,000
Value	$69,515	$64,656	$85,466
Sizes:			
Pounds	54,054,711	7,812,433	101,920
Value	$1,735,600	$217,859	$2,548
Tannic acid:			
Pounds	5,085,748	5,165,500	1,326,515
Value	$249,297	$200,136	$149,602
Turkey-red oil:			
Pounds	1,048,719	3,022,470	2,210,000
Value	$72,053	$159,666	$14,757
Other tanning liquors:			
Pounds	9,285,048	44,418,929	16,144,292
Value	$305,304	$1,704,243	$405,659
All other products [3]	$1,573,248	$1,724,298	$1,730,128

[1] In addition, dyestuffs and extracts, to the value of $834,102, in 1909 and $19,111 in 1904, were produced by establisments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] Not reported separately.
[3] Including a small production of natural dyestuffs in 1909, a production in 1904 valued at $233,935, and a production in 1899 valued at $1,035,711.

NOTE.—The following products were made and consumed in establishments where produced:

	1909	1904
Ground and chipped wood.....pounds..	936,578,482	524,505,744
Ground bark.....pounds..	293,062,168	40,390,040
Ground leaves.....pounds..	1,055,040	3,586,171

Explosives.—The following table presents the statistics for the explosives industry. The value of all products was $40,139,661 in 1909 as compared with $17,125,418 in 1899, an increase of 134.4 per cent.

The production of explosives in the industry proper was 469,481,252 pounds in 1909, 360,980,734 pounds in 1904, and 215,980,720 pounds in 1899, an increase for the decade of 117.4 per cent. If the explosives made by establishments operated by the Federal Government and by establishments engaged primarily in the manufacture of other products be added, the total production in 1909 was 471,446,006 pounds. The output of dynamite formed about three-eighths of the total output of explosives, and its value approximately one-half of the total value of explosives reported. The most important product in respect to quantity of output was blasting powder, including "permissible explosives." Permissible explosives, known in Pennsylvania as safety explosives, were reported separately for the first time in 1909. They are specially designed for use in dusty and gaseous coal mines. The *ton of 2,000 pounds* is used in showing quantities.

	1909	1904	1899
MATERIALS.			
Total cost	$22,811,548	$17,203,667	$10,334,974
Nitrate of soda:			
Tons	188,880	133,034	88,524
Cost	$7,892,336	$5,608,557	$2,902,866
Acids:			
Mixed—			
Pounds	51,764,604	105,552,401	66,906,146
Cost	$1,512,626	$3,093,429	$1,805,754
Nitric—			
Pounds	7,591,756	2,699,500	467,587
Cost	$541,314	$122,047	$17,171
Sulphuric—			
Tons	22,501	18,208	7,864
Cost	$406,204	$247,301	$130,699
Sulphur or brimstone:			
Tons	17,380	19,574	12,742
Cost	$367,866	$507,469	$317,383
All other materials, cost	$12,091,202	$7,624,864	$5,461,101
PRODUCTS.			
Total value	[1] $40,139,661	[2] $29,602,884	$17,125,418
Dynamite:			
Pounds	177,155,851	130,920,829	85,846,456
Value	$18,699,746	$12,900,193	$8,247,223
Nitroglycerin, sold as such:			
Pounds	28,913,253	7,935,936	3,618,692
Value	$3,162,434	$1,620,117	$783,299
Blasting powder:			
Kegs (25 pounds)	9,339,087		
Value	$9,608,265	$8,217,443 [3]	$3,907,012 [3]
Permissible explosives:		$7,377,977	$3,857,974
Pounds	9,607,448		
Value	$863,209		
Gunpowder:			
Pounds	12,862,700	10,383,944	25,638,894
Value	$1,736,427	$1,541,493	$1,452,377
Other explosives: [4]			
Pounds	7,464,825	6,303,825	3,201,468
Value	$3,913,787	$4,256,193	$2,610,103
All other products, value	$2,155,793	$1,905,921	$174,442

[1] In addition, 1,481,042 pounds, to the value of $802,948, were made by Federal establishments, and 219,356 pounds, to the value of $135,979, by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] In addition, 1,104,532 pounds, to the value of $690,032, were made by Federal establishments and by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[3] Kegs (25 pounds).
[4] Includes smokeless powder and guncotton or pyroxylin, to avoid disclosing operations of individual establishments.

NOTE.—The following products were made and consumed in the establishments where produced:

	1909	1904
Saltpeter.....pounds..	12,050,225	3,550,376
Nitroglycerin.....pounds..	70,289,067	44,077,828
Sulphuric acid.....tons..	42,555	30,934
Nitric acid.....tons..	31,484	18,988
Charcoal.....bushels..	737,884	1,156,918
Cellulose nitrates.....pounds..	5,090,226	.....
Nitrate of ammonia.....pounds..	10,904,319	6,299,317

Fertilizers.—The following table giving statistics for the fertilizer industry does not include the product of establishments engaged primarily in the manufacture of products other than fertilizers, chief of which are slaughtering and meat-packing establishments and cottonseed-oil mills. The value of all products of the industry proper, which includes some that are not fertilizers, was $103,960,213 in 1909, as compared with $44,657,385 in 1899, an increase of 132.8 per cent. Including the fertilizer by-products of other industries, the total production of fertilizers in 1909 was 5,614,718 tons, valued at $100,048,096. During the period 1899–1909 the tonnage of the fertilizer products of the establishments engaged primarily in the manufacture of fertilizers increased 100.9 per cent. Some of the materials, such as sulphuric acid, are the products of establishments engaged in this industry, and therefore are duplicated in the total value of products. The *ton of 2,000 pounds* is used in showing quantities.

	1909	1904	1899
MATERIALS.			
Total cost	$69,521,920	$39,287,914	$28,956,473
Ammoniates:			
Tons	778,639	.....	.....
Cost	$16,065,978	[1]$9,915,648	[1]$9,934,145
Ammonium sulphates:			
Tons	63,381	10,540	4,120
Cost	$3,640,592	$600,850	$186,699
Kainit:			
Tons	322,720	190,493	54,700
Cost	$2,783,658	$1,591,073	$520,833
Nitrate of soda:			
Tons	85,714	42,213	19,518
Cost	$3,730,070	$1,760,432	$709,841
Phosphate rock:			
Tons	1,529,124	888,571	787,927
Cost	$8,621,094	$4,244,554	$3,554,174
Potash salts:			
Tons	257,766	122,107	[2]
Cost	$7,327,549	$3,606,701	$3,698,400
Pyrites:			
Tons	456,574	342,962	288,778
Cost	$2,831,994	$2,020,759	$1,466,285
Sulphuric acid:			
Tons	603,672	197,865	231,527
Cost	$3,312,687	$1,084,304	$1,355,382
Sulphur or brimstone:			
Tons	4,236	4,210	12,728
Cost	$68,924	$92,234	$208,070
Superphosphates:			
Tons	415,656	320,559	286,898
Cost	$3,946,440	$2,912,010	$2,176,245
Fish, cost	$3,031,437	$847,142	$183,542
All other materials, cost	$14,161,497	$10,312,201	$5,504,347

	1909	1904	1899
PRODUCTS.			
Total value	[3]$103,960,213	[3]$56,541,253	$44,657,385
Fertilizers:			
Tons	5,240,104	3,267,777	2,704,705
Value	$92,369,681	$50,460,694	$40,545,661
Superphosphates from minerals, bones, etc.—			
Tons	1,201,354	766,388	923,198
Value	$13,318,529	$7,515,257	$8,471,943
Ammoniated—			
Tons	472,757	775,987	142,898
Value	$10,061,193	$12,901,057	$2,449,388
Concentrated phosphate—			
Tons	313,888	[2]	[2]
Value	$3,638,210	[2]	[2]
Complete—			
Tons	2,717,797	1,320,149	1,436,682
Value	$57,243,899	$25,673,511	$25,446,046
Other—			
Tons	534,368	394,703	291,927
Value	$8,107,800	$4,370,869	$4,178,284
Sulphuric acid (reduced to 50° Baumé):			
Tons	153,057	24,502	71,176
Value	$923,492	$194,578	$437,925
Other acids—			
Tons	30,651	45,689	[2]
Value	$611,288	$241,506	$17,872
All other products, value	$10,055,802	$5,044,475	$3,655,927

[1] Includes for 1904, 125,868 tons of ammoniates classified as such, valued at $2,445,051; cottonseed meal, valued at $2,376,448; and bones, tankage, and offal, valued at $5,094,149; and for 1899, cottonseed meal, valued at $167,410; and bones, tankage, and offal, valued at $9,766,735.

[2] Not reported.

[3] In addition, in 1909, 231,287 tons of complete fertilizer, valued at $4,806,832; 49,632 tons of ammoniated fertilizer, valued at $943,197; 22,615 tons of superphosphates, valued at $426,302; 63,581 tons of "other" fertilizer, valued at $1,365,931; 10,955 tons of concentrated phosphate, valued at $178,078; and other products to the value of $190,928; and in 1904, fertilizers, to the value of $2,069,714, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

NOTE.—The following products were made and consumed in establishments where produced:

	1909	1904
Acid phosphate.....tons..	1,838,865	884,211
Sulphuric acid.....tons..	841,935	692,904

Gas, illuminating and heating.—The statistics for the gas industry presented in the following table include only those establishments which made gas as their main product. The total production of gas made for sale by such establishments and by retort coke ovens combined—but not including the by-products of establishments outside these two industries—was in 1909, 166,627,013 thousand cubic feet, valued at $141,224,520; in 1904, 116,432,779 thousand cubic feet, valued at $113,347,032; and in 1899, 68,265,496 thousand cubic feet, valued at $69,657,604. The increase in quantity for the period 1899–1909 was thus 144.1 per cent, and that in value 102.7 per cent. In addition to the product above reported for 1909, 1,730,563 thousand cubic feet were made and consumed in gas plants and 60,799,543 thousand cubic feet were made and consumed or wasted by retort coking establishments. There is also a large consumption of producer gas and blast-furnace gas by establishments in other industries which produced the gas themselves.

The value of products of the illuminating-gas industry proper aggregated $166,814,371 in 1909 as compared with $75,716,693 in 1899, an increase of 120.3 per cent. Only about four-fifths of this value represents that of the gas itself. The industry shows a progressive decrease from census to census in unit values for all kinds of gas with the exception of acetylene gas. The *ton of 2,000 pounds* is used for showing quantities.

	1909	1904	1899
MATERIALS.			
Total cost	$52,427,844	[1] $37,180,066	$20,605,356
Coal:			
Tons	4,940,598	4,431,774	2,487,287
Cost	$16,304,832	$14,607,485	$7,164,472
Oil:			
Gallons	579,657,152	410,989,504	194,857,206
Cost	$17,345,750	$15,015,602	$8,168,657
Coke:			
Tons	591,919	435,534	217,354
Cost	$2,667,706	$1,602,762	$726,736
All other materials, cost	$16,109,556	$5,954,217	$4,545,491
PRODUCTS.			
Total value	[2] $166,814,371	$125,144,945	$75,716,693
Gas: [3]			
Cubic feet (thousands)	150,835,793	112,549,979	67,093,553
Value	$138,615,309	$112,662,568	$69,432,582
Straight coal—			
Cubic feet (thousands)	19,985,253	12,603,034	(4)
Value	$18,065,841	$12,808,604	(4)
Straight water—			
Cubic feet (thousands)	1,726,082	715,550	(4)
Value	$1,289,031	$832,440	(4)
Carburetted water—			
Cubic feet (thousands)	79,418,486	54,687,418	(4)
Value	$69,513,749	$48,071,180	(4)
Mixed coal and water—			
Cubic feet (thousands)	40,775,283	40,980,414	(4)
Value	$36,953,543	$45,605,263	(4)
Oil—			
Cubic feet (thousands)	8,688,860	3,441,352	(4)
Value	$12,111,458	$5,141,460	(4)
Acetylene—			
Cubic feet (thousands)	25,186	7,881	(4)
Value	$361,348	$104,267	(4)
All other—			
Cubic feet (thousands)	216,643	24,330	(4)
Value	$320,339	$39,354	(4)
Coke:			
Bushels	82,049,683	89,146,434	
Value	$5,723,215	$5,195,401	
Tar:			$4,283,204
Gallons	92,152,938	67,515,421	
Value	$1,875,549	$2,064,343	
All other products, value	[5] $13,556,908	$972,992	
Receipts from rents and sales of lamps and appliances	$7,043,390	$4,249,581	$2,000,907

[1] Does not include $4,013,885 paid for lamps and appliances.
[2] In addition, products of gas manufacture to the value of $261,802 were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation. The items covered by these products were 27,558 (thousands) cubic feet of coal gas, valued at $29,419; 13,070 (thousands) cubic feet of acetylene gas, valued at $224,618; 44,347 bushels of coke, valued at $3,399; 38,370 gallons of tar, valued at $1,372; and receipts from sale of lamps and appliances to the amount of $2,994.
[3] Statistics of the gas made in coke establishments are shown in detail under the classification "Coke."
[4] Not reported separately.
[5] Includes 40,720,220 gallons of ammonia liquor, valued at $725,702, and 1,154,319 pounds of hydrocarbons, valued at $44,509.

NOTE.—The following products were made and consumed in establishments where produced:

	1909	1904
Coke.....bushels	49,550,153	46,561,185
Tar.....gallons	31,590,178	14,772,878
Gas, cubic feet.....thousands	1,730,563	1,363,757
Benzine or benzol	302,994	.....

Glucose and starch.—Statistics are presented in the following table for the glucose and starch industry for the years 1909 and 1904.

Corn is the principal material used. The value of all products of the industry was $48,799,311 in 1909 and $32,649,836 in 1904, the increase for the five-year period being 49.5 per cent. The starch product (gross, including duplication), increased in quantity 89.9 per cent and in value 60.3 per cent, the entire gain being in cornstarch. The percentages of increase in the value of glucose, grape sugar, and corn oil are large, notably that for corn oil. In 1899 the production of starch (in part estimated) was 543,040,000 pounds, greatly exceeding the figures for 1904. The decrease in production from 1899 to 1904 was due in large measure to the decrease in the export trade of this commodity.

Some establishments included in the industry are engaged primarily in reprocessing starch, resulting in a duplication of products. In 1909 105,299,010 pounds of cornstarch were used as material by such factories, 104,597,648 pounds of cornstarch being obtained as products. The deduction of this duplication from the total gives the quantity of marketable cornstarch produced in 1909 as 534,227,718 pounds.

	1909	1904
MATERIALS.		
Total cost	$36,898,771	$25,518,876
Corn:		
Pounds	2,240,503,015	(1)
Cost	$20,674,779	$19,074,728
Wheat and roots:		
Pounds	1,940,000	(2)
Cost	$21,435	(2)
Potatoes:		
Pounds	210,608,127	209,372,549
Cost	$541,359	$503,651
Cornstarch:		
Pounds	105,299,010	(2)
Cost	$1,763,173	(2)
Wheat flour:		
Pounds	19,545,824	(2)
Cost	$482,263	(2)
All other materials, cost	$7,415,762	$5,330,497
PRODUCTS.		
Total value	$48,799,311	$32,649,836
Starch:		
Pounds	677,535,647	356,695,335
Value	$17,514,823	$10,927,538
Corn—		
Pounds	638,825,366	341,140,814
Value	$15,962,916	$8,878,450
Wheat and roots—		
Pounds	12,127,686	17,845,121
Value	$626,337	$1,121,612
Potatoes—		
Pounds	26,582,595	27,709,400
Value	$925,570	$924,476
Glucose, including all sirups:		
Pounds	769,660,210	(1)
Value	$17,922,514	$12,352,616
Grape sugar:		
Pounds	159,060,478	(1)
Value	$3,620,816	$2,254,745
Corn oil:		
Gallons	8,164,175	(1)
Value	$2,802,768	$1,164,466
Stock food, value	$6,013,968	$4,446,479
All other products, value	$924,422	$1,503,992

[1] Not reported. [2] Not reported separately.

Cottonseed, oil, and cake.—The following table presents the statistics for cottonseed products:

	1909 [1]	1904 [2]	1899
Cottonseed crushed.....tons	3,798,549	3,308,930	2,479,386
PRODUCTS.			
Total value	$147,867,894	$96,407,621	$58,726,632
Primary products manufactured, whether for sale or for further use:			
Oil.....gallons	157,115,689	132,051,801	93,325,729
Meal and cake.....tons	1,661,734	1,343,977	884,391
Hulls.....tons	1,258,612	1,201,679	1,160,286
Linters.....pounds	174,620,099	116,707,293	57,272,053

[1] In addition, products to the value of $2,017,305 were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation; these establishments crushed 28,752 tons of seed and produced 1,212,852 gallons of crude oil, 12,811 tons of meal and cake, 8,926 tons of hulls, and 1,152,978 pounds of linters.
[2] In addition, establishments engaged primarily in the manufacture of products other than those covered by the industry designation crushed 36,449 tons of seed and produced 1,765,971 gallons of crude oil, 16,195 tons of meal and cake, 12,265 tons of hulls, and 1,085,671 pounds of linters.

The amount of seed crushed in mills engaged primarily in the industry increased from 2,479,386 tons in 1899 to 3,798,549 tons in 1909, or 53.2 per cent, while the value

of all products, including fertilizer, ice, feed, etc., where carried on in connection with the manufacture of cottonseed products, increased from $58,726,632 to $147,867,894, or 151.8 per cent. A marked feature of the industry is the progressive increase in quantity of oil, meal, and linters, and decrease in quantity of hulls per ton of seed crushed. The *ton of 2,000 pounds* is used for showing quantities.

Oil, essential.—The products of the essential-oil industry, given in the following table, increased in value from $813,495 in 1899 to $1,737,234 in 1909, or 113.6 per cent. The output of natural oils increased in value 58.2 per cent, and of witch-hazel over sevenfold.

PRODUCT.	1909	1904	1899
Total value	[1] $1,737,234	[1] $1,464,662	$813,495
Natural oils, value	$1,108,603	$1,023,937	$700,709
Peppermint—			
Pounds	305,781	130,022	202,550
Value	$519,079	$470,037	$188,559
Black birch—			
Pounds	67,053	(2)	(2)
Value	$102,045	(2)	(2)
Spearmint—			
Pounds	33,400	(2)	(2)
Value	$83,223	(2)	(2)
Wintergreen—			
Pounds	22,281	4,737	2,166
Value	$68,983	$15,579	$3,638
Other—			
Pounds	(3)	327,908	638,024
Value	$335,213	$538,321	$508,512
Witch-hazel:			
Gallons	679,190	797,700	110,200
Value	$412,322	$367,873	$54,649
All other products, value	$216,309	$72,852	$58,137

[1] In addition, essential oils to the value of $117,489 in 1909 and $14,500 in 1904 were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] Not reported separately.
[3] The products classified under this head include 49,327 pounds, valued at $44,494; quantities not reported for the remainder.

Paint and varnish.—The inquiry at the present census in regard to specific materials used in the manufacture of paints and varnishes was confined to pig lead and alcohol, the comparative statistics for which, including establishments engaged primarily in the manufacture of products other than those covered by the industry designation, are as follows:

MATERIAL.	1909	1904	1899
Pig lead:			
Tons (2,000 pounds)	145,917	129,629	99,052
Cost	$12,014,859	$11,214,961	$8,585,688
Alcohol:			
Gallons	1,683,382	1,416,746	388,368
Cost	$920,086	$928,946	$461,417
Wood—			
Gallons	1,327,157	1,357,682	310,059
Cost	$693,362	$790,243	$285,510
Grain—			
Gallons	356,225	59,064	78,309
Cost	$226,724	$138,703	$175,907

The statistics for paint and varnish products are given in the following table, which does not include the pigments ground in establishments classified as engaged in the manufacture of kaolin and ground earths, the blacks made by establishments classified as engaged in the manufacture of bone, carbon, and lamp black, nor lead or zinc oxide made by lead and zinc smelters. During the period 1899 to 1909 the value of all products increased from $69,562,235 to $124,889,422, or 79.5 per cent. Paints in oil constitute the most important group. The output of pigments, including white lead in oil, increased 141.9 per cent, and that of varnishes and japans 69 per cent in value.

PRODUCT.	1909	1904	1899
Total value	[1] $124,889,422	[1] $90,839,609	$69,562,235
Pigments, value	$16,985,588	$11,965,806	[2] $13,319,487
White lead, dry—			
Pounds	85,234,414	62,395,808	[2] 116,102,316
Value	$3,921,803	$2,877,109	$4,211,181
Oxides of lead—			
Pounds	68,344,813	49,734,330	50,759,623
Value	$3,958,460	$2,591,772	$2,550,340
Lampblack and other blacks—			
Pounds	1,810,445	757,244	1,065,000
Value	$105,063	$49,869	$60,250
Iron oxides and other earth colors—			
Pounds	111,674,675	48,345,978	33,453,896
Value	$876,331	$331,416	$318,242
Other dry colors—			
Pounds	157,469,598	98,194,081	167,479,090
Value	$6,577,935	$5,066,083	$5,317,943
Barytes—			
Pounds	49,496,025	22,299,980	
Value	$268,757	$134,174	
Pulp colors, sold moist—			
Pounds	28,435,722	25,351,515	20,060,935
Value	$1,277,239	$915,383	$861,531
Paints in oil, value	$56,763,296	$40,390,059	.....
White lead in oil—			
Pounds	246,567,570	216,496,450	(3)
Value	$15,234,411	$11,228,889	(3)
Paste—			
Pounds	162,356,330	131,940,464	306,410,398
Value	$11,279,459	$8,713,183	$17,601,459
Already mixed for use—			
Gallons	33,273,461	22,379,020	10,879,595
Value	$30,249,426	$20,447,987	$14,864,126
Varnishes and japans, value	$31,262,535	$22,871,486	$18,502,219
Oleoresinous varnishes—			
Gallons	18,476,523		
Value	$17,350,113		
Damar and similar turpentine and benzine varnishes—		17,162,719	14,282,851
Gallons	3,481,231	$15,702,997	$14,333,554
Value	$2,836,341		
Spirit varnishes not turpentine—			
Gallons	1,181,746	1,553,562	549,811
Value	$1,408,048	$2,180,713	$905,229
Pyroxylin varnishes—			
Gallons	1,880,141	148,320	109,127
Value	$2,351,425	$162,163	$178,826
Dryers, japans and lacquers—			
Gallons	9,474,930	(4)	(4)
Value	$5,094,973	$3,346,355	$3,084,610
All other, value	$2,221,635	$1,479,258	(3)
Fillers, value	$3,126,271	$2,344,636	(3)
Liquid—			
Gallons	1,159,569	1,051,148	(3)
Value	$823,063	$785,617	(3)
Paste—			
Pounds	14,050,329		
Value	$887,948		
Dry—			
Pounds	50,983,472	68,761,174	(3)
Value	$295,728	$1,559,019	(3)
Putty—			
Pounds	63,502,048		
Value	$1,119,532		
Water paints and kalsomine:			
Dry or in paste—			
Pounds	47,405,265	27,932,447	(3)
Value	$1,917,038	$924,807	(3)
Already mixed for use—			
Gallons	522,283	123,400	(3)
Value	$61,969	$9,230	(3)
Linseed oil:			
Gallons	3,477,004	(4)	(4)
Value	$1,912,594	(3)	(3)
Bleached shellac:			
Pounds	3,014,195	(3)	(3)
Value	$578,650	(3)	(3)
All other products, value	$12,281,481	$12,333,585	$5,274,944

[1] In addition paints and varnishes, to the value of $2,583,397 in 1909 and $1,221,333 in 1904 were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] Includes white lead in oil. [3] Not reported separately. [4] Not reported.

NOTE.—The following products were made and consumed in establishments where produced:

	1909	1904
White lead, dry.....pounds..	162,702,089	122,288,487
Lead oxides.....pounds..	4,526,425	13,589,147
Varnishes.....gallons..	4,497,312	1,202,674
Drying japans and dryers.....gallons..	3,090,756	988,979
Collodion and other cellulose nitrate solutions.....gallons..	20,600	1,576,442
Pyroxylin and other cellulose nitrates.....pounds..	24,750	12,000
Copperas.....pounds..	11,531,006	.....

Petroleum refining.—The products of the petroleum-refining industry, statistics for which are presented in the following table, aggregated $236,997,659 in value in 1909 as compared with $123,929,384 in 1899, the increase during the decade being 91.2 per cent. This conforms closely to the increase in the cost of crude petroleum used, which was 89.4 per cent. The crude petroleum used increased in quantity from 52,011,005 barrels of 42 gallons in 1899 to 120,775,439 barrels in 1909, or 132.2 per cent, and the refined-oil products aggregated 40,290,985 barrels of 50 gallons in 1899, 46,454,062 barrels in 1904, and 89,082,810 barrels in 1909, an increase for the decade of 136.2 per cent.

	1909	1904	1899
Crude petroleum used:			
Barrels (42 gallons)	120,775,439	66,982,862	52,011,005
Cost	$152,307,040	$107,467,091	$80,424,207
PRODUCTS.[1]			
Total value	$236,997,659	$175,005,320	$123,929,384
Oils:			
Illuminating—			
Barrels (50 gallons)	33,495,798	27,135,094	25,171,289
Value	$94,547,010	$91,366,434	$74,694,297
Fuel (including gas oils)—			
Barrels	34,034,577	7,209,428	6,095,224
Value	$36,462,883	$9,205,361	$7,550,664
Lubricating—			
Barrels	10,745,885	6,288,251	3,408,918
Value	$38,884,236	$23,553,091	$10,897,214
Naphtha and gasoline (including gas naphtha)—			
Barrels	10,806,550	5,811,289	5,615,554
Value	$39,771,959	$21,314,837	$15,991,742
Paraffin wax—			
Barrels	946,830	794,068	774,924
Value	$9,388,812	$10,007,274	$7,791,149
Oil asphaltum—			
Tons (2,000 pounds)	233,328	(2)	(2)
Value	$2,724,752	(2)	(2)
Residuum or tar—			
Barrels	1,787,008	3,187,921	596,615
Value	$2,215,623	$3,138,361	$688,455
Greases (lubricating, etc.)—			
Barrels	138,302	202,439	572,140
Value	$1,567,647	$1,394,120	$2,454,617
Coke and black naphtha—			
Value	$507,695	$149,653	$176,281
Sludge acid—			
Tons (2,000 pounds)	133,215	165,104	(2)
Value	$402,295	$499,489	(2)
All other products, value	$10,524,747	$14,475,669	$3,684,965
EQUIPMENT.			
Stills, number	2,395	1,907	1,774
Heated by steam—			
Number	451	282	200
Capacity (barrels 42 gallons)	424,564	(3)	(3)
Heated by superheated steam—			
Number	16	15	26
Capacity (barrels 42 gallons)	6,200	(3)	(3)
Heated by fire—			
Number	1,928	1,610	1,458
Capacity (barrels 42 gallons)	1,650,534	(3)	(3)
Agitators, number	529	374	327
Chilling houses for paraffin, number	79	67	48
Hydraulic or other presses, number	357	311	510
Storage tanks for crude petroleum:			
Number	678	304	257
Capacity, gallons	242,590,505	245,760,493	(3)
Storage tanks for refined petroleum:			
Number	6,476	3,575	2,869
Capacity, gallons	1,041,627,444	576,458,825	(3)
Cooper shops, number	53	64	48
Tin shops, number	14	17	13

[1] In 1909 48,580 tons of sulphuric acid, and in 1904 49,379 tons, were made and consumed in establishments where produced.
[2] Not reported separately.
[3] Not reported.

The largest gain was that in the output of fuel oils, which increased from 7,209,428 barrels in 1904 to 34,034,577 barrels in 1909, as the result of the increase in the refining of low-grade crude oils. The output of lubricating oils and naphtha also increased very rapidly. The decrease in the value of "all other products" in 1909 as compared with 1904 is due in part to the fact that the products of the box, cooperage, tinware, and paint shops operated by the refineries were included in 1904, but when possible separate reports were obtained for these departments in 1909 and the statistics for them were included with those for other industries at this census.

Salt.—The statistics for the salt industry are given in the following table.[1] The value of all products increased from $7,966,897 in 1899 to $11,327,834 in 1909, or 42.2 per cent. The production of salt increased from 15,187,819 barrels in 1899 to 29,933,060 barrels in 1909, or 97.1 per cent, while the value of the product increased from $5,869,362 to $8,311,729, or 41.6 per cent, the average value per barrel decreasing from 39 cents in 1899 to 28 cents in 1909 on account of the greatly increased proportion of the lower grades of salt manufactured. The *barrel of 280 pounds* is used in showing quantities.

PRODUCT.	1909	1904	1899
Total value	$11,327,834	[1] $9,437,662	$7,966,897
Salt:			
Barrels	29,933,060	17,128,572	15,187,819
Value	$8,311,729	$6,955,734	$5,869,362
Bromine:			
Pounds	[2] 728,875	261,665	270,437
Value	$92,735	$72,584	$64,921
All other products, value	$2,923,370	$2,409,344	$2,032,614
Salt, classified by grade (barrels).			
Table and dairy	3,042,824	3,119,091	1,866,058
Common fine	7,745,204	6,254,293	6,860,126
Common coarse	2,843,393	1,878,666	2,035,282
Packers	385,202	492,943	182,330
Coarse solar	1,109,336	1,677,152	910,974
Rock salt, mined	5,938,721	3,416,835	2,543,679
Milling, other grades, and brine	8,807,720	283,562	182,770
Process employed.			
Total number of establishments	124	146	159
Number reporting:			
Solar	46	63	(3)
Kettle	1	7	(3)
Grainer	50	70	(3)
Open pan	11	12	(3)
Vacuum pan	21	20	(3)

[1] In addition, 25,043 barrels of salt, to the value of $8,415, were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] Includes potassium bromide.
[3] Not reported.

Soap.—The statistics for the soap industry given in the following table for 1909 and 1904 include those for the soap factories operated by the owners of slaughtering and meat-packing establishments as well as for establishments engaged primarily in the manufacture of soap. In 1899 the manufacture of soap and of candles was reported as one industry, the value of products being $53,231,017. In 1904 the value of the combined products of these industries was $72,164,062 and in 1909, $114,488,298.

The cost of the materials used in the soap industry was $72,179,418 in 1909 and $43,625,608 in 1904, the

[1] The statistics differ from those published by the United States Geological Survey, which include Hawaii and Porto Rico.

increase for the five-year period being 65.5 per cent. The value of all products was $111,357,777 in 1909 and $68,274,700 in 1904, the increase for the five-year period being 63.1 per cent. With the addition of the by-products from establishments in other industries the total value of soap products was $115,455,172 in 1909. The chief soap product was hard soap, which, including that made in establishments engaged primarily in the manufacture of products other than soap, aggregated 883,583 net tons in 1909. Glycerin is an important product of the soap industry. Reference should be made to the table on page 55 for the glycerin product of chemical establishments.

	1909	1904
MATERIALS.		
Total cost	**$72,179,418**	**$43,625,608**
Tallow, grease, and other fats:		
Pounds	413,969,787	475,618,277
Cost	$23,341,905	$19,723,311
Cocoanut and palm-kernel oil:		
Gallons	11,856,837	6,833,132
Cost	$5,875,294	$2,692,034
Cottonseed oil:		
Gallons	24,221,712	13,276,006
Cost	$9,718,988	$3,832,987
Rosin:		
Pounds	207,296,447	168,107,246
Cost	$4,362,412	$2,734,848
Foots:		
Pounds	94,050,892	59,761,740
Cost	$2,453,609	$1,222,982
Caustic soda:		
Tons (2,000 pounds)	52,172	71,551
Cost	$2,212,232	$2,843,988
Soda ash:		
Tons (2,000 pounds)	121,016	53,777
Cost	$2,281,787	$1,011,694
All other materials, cost	$21,933,191	$9,513,764
PRODUCTS.		
Total value	**[1] $111,357,777**	**[1] $68,274,700**
Hard soap:		
Pounds	1,736,740,466	1,355,358,649
Value	$88,550,830	$56,878,486
Soft soap:		
Pounds	44,052,615	33,613,416
Value	$943,676	$667,064
Glycerin:		
Pounds	45,286,819	27,660,661
Value	$5,713,558	$2,953,115
Special soap articles:		
Value	$731,823	$554,881
All other products, value	$15,417,890	$7,216,154

[1] In addition, the following products were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation:

	1909	1904
Soap:		
Hard—		
Pounds	30,424,855	31,251,795
Value	$1,279,004	$1,148,920
Soft—		
Pounds	15,984,055	10,285,839
Value	$325,511	$94,017
Glycerin:		
Pounds	7,232,100	565,000
Value	$1,076,706	$45,200
All other products, value	$1,416,174	$148,981

NOTE.—The following products were made and consumed in establishments where produced:

	1909	1904
Red oil, gallons	3,175,795	1,149,346
Tallow, pounds	17,709,219	10,613,271
Cottonseed oil, gallons	2,422,843	920,410
Caustic lye, 20° Baumé, gallons	15,931,639	9,568,522
Sodium silicate, pounds	37,466,246	1,597,886
Glycerin, pounds	5,816,279	3,433,359
Framed soap, pounds	527,370,128	114,452,424

Sulphuric, nitric, and mixed acids.—Comparative statistics for the products of establishments engaged primarily in the manufacture of sulphuric, nitric, and mixed acids are given in the following table. The total value of products was $9,884,057 in 1909, as compared with $8,596,390 in 1899, an increase of 15 per cent. This increase was chiefly in sulphuric acid, the output of which increased in quantity (on the basis of 50° acid) 88.8 per cent and in value 38.3 per cent. The *ton of 2,000 pounds* is used in showing quantities.

PRODUCT.	1909	1904	1899
Total value	**[1] $9,884,057**	**[1] $9,052,646**	**$8,596,390**
Acids, value	$7,567,274	$6,955,078	$6,209,872
Sulphuric:			
Tons, reduced to 50° Baumé	855,191	467,614	452,942
Tons	703,185	364,374	324,365
Value	$5,629,496	$4,286,312	$4,071,848
66° Baumé—			
Tons	267,476	199,663	250,328
Value	$3,158,097	$2,886,179	$3,244,586
60° Baumé—			
Tons	73,073	13,634	13,650
Value	$401,734	$121,432	$199,380
50° Baumé—			
Tons	[2] 362,636	[3] 151,077	60,387
Value	$2,069,665	$1,278,701	$627,882
Nitric:			
Pounds	8,396,326	30,306,555	20,402,570
Value	$490,303	$1,446,471	$1,028,286
Mixed:			
Pounds	45,361,626	42,812,894	42,301,319
Value	$1,438,475	$1,222,295	$1,109,758
All other products, value	$2,316,783	$2,097,568	$2,386,518

[1] In addition, the following products were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation:

	1909	1904
Acids:		
Sulphuric (50°)—		
Tons	621,801	433,377
Value	$4,455,263	$3,655,899
Nitric—		
Pounds	18,920,620	15,957,520
Value	$857,795	$804,473
Mixed—		
Pounds	11,820,542	22,518,433
Value	$422,312	$735,061
All other products, value	$511,532	.....

[2] Includes the equivalent of 27,602 tons of oleum.
[3] Includes the equivalent of 13,268 tons of oleum.

NOTE.—In 1909, 1,271,535 tons of sulphuric acid (50°) and 110,760,619 pounds of nitric acid, and in 1904, 968,455 tons of sulphuric acid (50°) and 62,116,396 pounds of nitric acid were made and consumed in establishments where produced.

Including by-products from establishments engaged primarily in the manufacture of products other than those covered by the industry designation, the total production of these acids for sale in 1909 and 1904 was as follows:

KIND.	1909	1904
Sulphuric acid (50°):		
Tons	1,470,092	900,991
Value	$10,084,759	$7,942,211
Nitric acid:		
Pounds	27,325,946	46,264,081
Value	$1,357,098	$2,250,944
Mixed acids:		
Pounds	57,182,168	65,331,327
Value	$1,860,787	$1,957,356

A large amount of sulphuric acid made and consumed in the establishments where manufactured, particularly in fertilizer factories, must be taken into

account in considering the total production. The following table gives the total production for the three census years:

SULPHURIC ACID.	1909	1904	1899
Total, reduced to 50° Baumé acid....tons..	2,748,527	1,869,437	1,548,123
For sale.....	1,476,992	909,992	783,768
For consumption.....	1,271,535	968,445	764,355

Turpentine and rosin.—The products of the turpentine and rosin industry for which statistics are presented in the following table increased in value from $20,344,888 in 1899 to $25,295,017 in 1909, or 24.3 per cent, but the gain was due wholly to the great increase in the price of rosin. The turpentine product decreased in both quantity and value during the decade. The output of rosin also decreased 24.9 per cent, but its value increased 145.2 per cent. The average value of rosin per barrel increased from $1.18 in 1899 to $3.85 in 1909.

PRODUCT.	1909	1904	1899
Total value.....	[1] $25,295,017	$23,937,024	$20,344,888
Turpentine:			
Gallons.....	28,988,954	30,687,051	38,488,170
Value.....	$12,654,228	$15,170,499	$14,960,235
Rosin:			
Barrels (280 pounds).....	3,263,857	3,508,347	4,348,094
Value.....	$12,576,721	$8,725,619	$5,129,268
Dross and other products, value.....	$64,068	$40,906	$255,385

[1] In addition, 682,702 gallons of turpentine, valued at $243,491, was produced by wood distillation.

CLAY, GLASS, AND STONE PRODUCTS.

Under this general head are assembled the industries using clay, sand, and stone as basic materials, namely, the manufacture of brick, tile, pottery, terra-cotta, and fire-clay products, and that of cement, glass, and lime.

The statistics for all these industries, except glass manufacture, were collected in 1909 in cooperation with the United States Geological Survey, and the tables include, except as otherwise stated, the respective products made by establishments engaged primarily in the manufacture of other products as well as those establishments making such products as their principal business.

Brick and tile, and pottery, terra-cotta, and fire-clay products.[1]—The following table summarizes the statistics in regard to the products of the brick and tile, pottery, and terra-cotta and fire-clay products industries. The total value of these classes of products was $168,895,365 in 1909 and $95,533,862 in 1899, the increase during the decade being 76.8 per cent. Of the total value of products in 1909, that of brick formed 57.5 per cent, that of tile and allied products 23.2 per cent, and that of pottery 18.4 per cent. The percentages were practically the same in 1904 and 1899. Some of the classes show large ratios of increase, notably porcelain electrical supplies and building terra cotta, including architectural terra cotta, fireproofing, and tiling.

[1] The statistics differ from those published by the United States Geological Survey, which include Porto Rico.

PRODUCT.	1909	1904	1899
Total value.....	$168,895,365	$135,352,854	$95,533,862
Brick and tile, terra-cotta, and fire-clay products, value.....	$136,387,846	$109,003,306	$76,551,645
Brick, value.....	$97,137,844	$78,728,083	$53,640,228
Common—			
Thousand.....	9,787,671	8,683,897	7,654,528
Value.....	$57,216,789	$51,239,871	$39,674,749
Fire—			
Thousand.....	838,167	673,362	800,862
Value.....	$16,620,695	$11,752,625	$8,636,562
Vitrified, paving, etc.—			
Thousand.....	1,023,654	715,559	590,720
Value.....	$11,269,586	$7,256,088	$4,828,456
Front, including fancy colored and fancy or ornamental—			
Thousand.....	821,641	626,142	451,420
Value.....	$9,886,292	$7,335,511	$5,170,492
Sand lime, value.....	$1,150,530	$698,603	(1)
Enameled, value.....	$993,902	$445,985	$329,969
Drain tile, value.....	$9,798,978	$5,622,198	$3,662,184
Sewer pipe, value.....	$10,322,324	$8,416,009	$4,560,334
Architectural terra cotta, value...	$6,251,625	$3,792,763	$2,027,532
Fireproofing, terra-cotta lumber and hollow building tile, or blocks, value.....	$4,466,708	$4,317,312	$1,665,031
Tile, not drain, value.....	$5,291,963	$2,725,717	$1,276,300
Stove lining, value.....	$423,583	(1)	$416,235
Other, value.....	$2,694,821	$5,501,224	$4,303,801
Pottery, value.....	$31,048,341	$25,834,513	$17,222,040
White ware, including C. C. ware, white granite, semiporcelain ware, and semivitreous porcelain ware, value.....	$13,728,316	$9,195,703	$6,376,351
Sanitary ware, value.....	$5,989,295	$3,932,596	$2,211,877
Stoneware and yellow and Rockingham ware, value.....	$3,993,859	$3,481,521	$2,130,263
Porcelain electrical supplies, value.	$3,047,499	$1,500,283	$470,355
China, bone china, Delft and Belleek ware, value.....	[2] $1,766,766	$3,478,627	$1,297,973
Red earthenware, value	$804,806	$321,605	$762,260
Other, value.....	$1,717,800	$3,424,178	$3,972,956
All other products, value.....	$1,459,178	$515,035	$1,760,177

[1] Not reported separately.
[2] Product of Ohio included in "other" pottery.

Cement.—The statistics of products for the cement industry for 1909 and 1904, given in the following table, show a total value of $63,205,455 in 1909 as compared with $29,873,122 in 1904, the rate of increase for the five-year period being 111.6 per cent. In 1899 the statistics for the lime and cement industries were combined, the products aggregating $28,673,735 in value. The value of the combined lime and cement product in 1909 was $81,157,442, the increase for the decade being 183 per cent.

During the period 1904–1909 the output of cement increased 110.5 per cent in quantity, all of the increase being in Portland cement, while the output of natural cement and of puzzolan cement decreased greatly. Portland cement formed 97.5 per cent of the total in 1909, as compared with 83.7 per cent in 1904.

PRODUCT.	1909	1904
Total value.....	$63,205,455	$29,873,122
Cement:		
Barrels.....	66,089,715	31,675,257
Value.....	$53,610,563	$26,031,920
Portland—		
Barrels.....	64,991,431	26,505,881
Value.....	$52,858,354	$23,355,119
Natural—		
Barrels.....	1,537,638	4,866,331
Value.....	$652,756	$2,450,150
Puzzolan—		
Barrels.....	160,646	303,045
Value.....	$99,453	$226,651
All other products, value.....	$9,594,892	$3,841,202

Glass.—The following table presents comparative statistics for the glass industry, giving the total cost of materials and the total value of products, together with the quantities of the principal materials and products, for the years 1909, 1904, and 1899. There was an increase of 62.9 per cent in the value of all products for 1909 as compared with 1899. The increase in the value of building glass amounted to 53.9 per cent; that in the value of pressed and blown glass to 60.4 per cent; and that in the value of bottles and jars to 66.2 per cent. The *ton of 2,000 pounds* is used in showing quantities.

	1909	1904	1899
PRINCIPAL MATERIALS.			
Total cost	$32,119,499	$26,145,522	$16,731,009
Glass sand, tons	1,004,066	769,792	581,720
Soda ash (carbonate of soda), tons	373,764	215,462	157,779
Salt cake (sulphate of soda), tons	76,540	53,905	53,257
Nitrate of soda, tons	19,676	11,915	10,770
Limestone, tons	156,377	115,655	91,015
Lime, bushels	1,256,117	1,166,342	993,349
Arsenic, pounds	3,140,720	2,676,650	2,349,261
Carbon, tons	5,480	3,750	4,155
Manganese, pounds	3,882,465	3,096,039	1,493,538
Litharge and red lead, pounds	11,653,149	9,613,649	8,386,166
Potash or pearlash, pounds	6,938,355	5,446,338	4,406,211
Grinding sand, tons	706,689	410,856	265,438
Rouge, pounds	1,383,182	1,098,566	837,536
PRODUCTS.			
Total value	[1] $92,095,203	[2] $79,607,998	$56,539,712
Building glass, value	$26,308,438	$21,697,861	$17,096,234
Window—			
50-foot boxes	6,921,611	4,852,315	4,341,282
Value	$11,742,959	$11,610,851	$10,879,355
Plate—			
Total cast, square feet	60,105,694	34,804,986	21,172,129
Polished—			
Square feet	47,370,254	27,203,138	16,883,578
Value	$12,204,875	$7,978,253	$5,158,598
Rough, made for sale—			
Square feet	205,690	17,784	628,684
Value	$37,431	$3,529	$75,887
Cathedral—			
Square feet	7,405,980	6,615,093	8,846,361
Value	$560,848	$293,623	$567,252
PRODUCTS—continued.			
Building glass—Continued.			
Skylight—			
Square feet	15,409,966	15,255,541	3,679,634
Value	$788,726	$678,391	$165,086
All other, value	$964,599	$1,133,214	$260,056
Pressed and blown glass, value	$27,308,445	$21,956,158	$17,076,125
Tableware, 100 pieces	1,286,656	1,293,974	655,141
Jellies, tumblers, and goblets, dozen	11,687,036	7,346,214	8,544,050
Lamps, dozen	322,492	487,017	807,765
Chimneys, dozen	6,652,967	7,039,756	6,501,192
Lantern globes, dozen	952,620	1,765,247	1,044,816
Globes and other electrical goods, dozen	11,738,793	1,901,415	[3]
Shades, globes, and other gas goods, dozen	1,541,449	878,244	2,673,854
Blown tumblers, stem ware, and bar goods, dozen	9,182,060	6,282,606	6,127,367
Opal ware, dozen	3,095,666	1,091,208	3,750,443
Cut ware, dozen	206,336	83,736	134,726
Bottles and jars, value	$36,018,333	$33,631,063	$21,676,791
Prescriptions, vials, and druggists' wares, gross	3,624,022	3,202,586	2,423,932
Beer, soda, and mineral, gross	2,345,204	2,351,852	1,351,118
Liquors and flasks, gross	1,887,344	2,157,801	985,374
Milk jars, gross	440,302	253,651	146,142
Fruit jars, gross	1,124,495	1,061,829	789,298
Battery jars and other electrical goods, gross	9,081	19,974	[3]
Patent and proprietary, gross	1,637,798	1,657,372	1,296,131
Packers and preservers, gross	1,237,175	1,237,065	784,588
Demijohns and carboys, dozen	122,570	64,450	83,243
All other products, value	$2,369,987	$2,322,916	$690,562

[1] In addition, 42,639 gross of bottles and jars, valued at $90,490, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] In addition, glassware to the value of $9,663 was made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[3] Not reported.

Lime.[1]—The total value of the lime reported as manufactured in 1909 was $13,763,604 as compared with $9,951,456 in 1904, an increase for the five-year period of 38.3 per cent. The quantity reported in 1909 was 3,467,523 tons (2,000 pounds), of which 1,904,202 tons was used for building or structural purposes; 591,792 tons for fertilizing; and the remainder in various manufacturing establishments, such as paper mills, tanneries, sugar factories, and alkali works. The value of all products reported by establishments engaged primarily in the manufacture of lime was $17,951,987 in 1909 and $14,751,170 in 1904.

VEHICLES FOR LAND TRANSPORTATION.

Under the above heading are given statistics for the manufacture of automobiles, bicycles, motorcycles, and carriages and wagons, and the construction of steam and electric railroad cars, and also for the operations of the construction and repair shops of railroads.

Automobiles.—The statistics for automobiles are presented in the table on page 65. Under "all other products" are included the products of establishments engaged in the manufacture of automobile bodies and parts, which are sold largely to automobile manufacturers, as well as the value of bodies and parts made and sold separately by automobile manufacturers. The total value of products for the industry thus involves considerable duplication. The growth of the automobile industry has been phenomenal. In 1899 the general statistics for the industry were included with those for carriage and wagon manufacture, and only 3,897 automobiles were reported. In 1904 the total number, including automobiles made by concerns classified under other industries, was 22,830, while in 1909 the number was 127,287, or nearly thirty-three times the number reported in 1899.

The value of all products of the industry proper was $249,202,075 in 1909 and $30,033,536 in 1904. Gasoline machines formed 95.1 per cent of the total number made in 1909 and 86.2 per cent in 1904. Of the total number manufactured in 1909, 3,226, or 2.5 per cent, were rated at 50 horsepower or more; 51,218, or 40.5 per cent, at from 30 to 49 horsepower; 35,257, or 27.8 per cent, at from 20 to 29 horsepower; 29,353, or 23.2 per cent, at from 10 to 19 horsepower; and 7,539, or 6 per cent, at less than 10 horsepower. Passenger vehicles constituted 97.4 per cent of the total number and business vehicles 2.6 per cent.

[1] The statistics differ from those published by the United States Geological Survey, which includes Hawaii and Porto Rico.

PRODUCT.	1909		1904	
	Number.	Value.	Number.	Value.
Total value		[1] $249,202,075		[2] $30,033,536
Automobiles	126,593	164,269,324	21,692	23,751,234
Gasoline	120,393	153,529,053	18,699	19,566,941
Electric	3,826	7,259,430	1,425	2,496,255
Steam	2,374	3,480,241	1,568	1,688,038
Passenger vehicles (pleasure, family, and public conveyances)	123,338	150,039,301	21,281	22,804,287
Gasoline	117,633	140,530,232	18,504	19,300,654
Electric	3,331	6,023,828	1,211	1,819,595
Steam	2,374	3,480,241	1,566	1,684,038
Buggies	4,582	2,301,250	[3]	
Gasoline	4,314	2,039,129	[3]	
Electric	268	352,121	[3]	
Runabouts	36,204	28,030,479	12,131	8,831,504
Gasoline	35,347	27,116,901	10,999	7,976,821
Electric	496	648,630	455	453,304
Steam	361	264,948	677	401,379
Touring cars	76,114	113,403,188	7,220	11,781,521
Gasoline	73,883	109,844,295	6,444	10,576,023
Electric	243	387,526	39	55,038
Steam	1,988	3,171,367	737	1,150,460
Closed (limousine, cabs, etc.)	5,205	12,729,304	[3]	
Gasoline	3,290	8,762,768	[3]	
Electric	1,915	3,966,536	[3]	
All other (omnibuses, sightseeing wagons, ambulances, patrol wagons, etc.)	1,233	2,485,080	1,930	2,191,262
Gasoline	799	1,767,139	1,061	747,810
Electric	409	674,015	717	1,311,253
Steam	25	43,926	152	132,199
Business vehicles (merchandise)	3,255	5,230,023	411	946,947
Gasoline	2,760	3,999,421	195	266,237
Electric	495	1,230,602	214	676,660
Steam			2	4,000
Delivery wagons	1,862	1,918,856	251	455,457
Gasoline	1,645	1,474,063	140	215,897
Electric	217	444,793	109	235,560
Steam			2	4,000
Trucks	1,366	3,165,512	160	491,490
Gasoline	1,090	2,384,703	55	50,390
Electric	276	780,809	105	441,100
All other	27	145,655	[4]	
Gasoline	25	140,655	[4]	
Electric	2	5,000	[4]	
All other products, including bodies and parts		[5] 78,584,753		5,431,249
Amount received for custom work and repairing		6,347,998		851,053

[1] In addition, 694 automobiles, valued at $830,080, and bodies and parts valued at $4,415,266, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] In addition, 1,138 automobiles, valued at $879,205, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[3] Not reported separately.
[4] None reported.
[5] Includes custom work and repairing by establishments manufacturing bodies and parts.

Bicycles and motorcycles, and parts.—The following table presents the comparative statistics of products for the bicycle and motorcycle industry. It does not include children's bicycles and tricycles. A marked feature is the decline in the manufacture of bicycles and tricycles and the increase in the manufacture of motorcycles.

PRODUCT.	1909	1904	1899
Total value	[1] $10,698,567	[1] $5,153,240	[1] $31,915,908
Bicycles:			
Number	168,824	225,309	1,112,88
Value	$2,436,996	$3,203,505	$22,127,310
Tricycles:			
Number	[2]	32	328
Value		$3,350	$17,261
Motorcycles:			
Number	18,628	2,300	160
Value	$3,015,988	$354,980	$33,674
All other products, including parts	$5,245,583	$1,591,405	$9,737,663

[1] In addition, the following products were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation: In 1909, 64,883 bicycles, valued at $791,193, and other products, including parts, etc., valued at $579,927; in 1904, 25,178 bicycles, valued as $537,418; 28 motorcycles, valued at $4,200; and other products, including parts, valued at $34,341; and in 1899, 69,811 bicycles, valued at $1,529,177, and other products valued at $24,000.
[2] None reported.

The total value of products of the industry decreased from $31,915,908 in 1899 to $5,153,240 in 1904, but by 1909 it had risen again to $10,698,567, or more than double the figures for 1904.

Carriages and wagons and materials.—The following table presents statistics for the manufacture of carriages and wagons, including under "All other products" the products of establishments engaged in the manufacture of carriage and wagon materials, but not including children's carriages and sleds. The total value of products increased from $138,261,763 in 1899 to $159,892,547 in 1909, or 15.6 per cent. The value of wagons increased $8,852,172, or 28.5 per cent, though the number manufactured was very little larger in 1909 than in 1899. The carriages reported were both fewer in number and lower in value in 1909 than in 1899. Public conveyances also show a decrease in value, but a slight increase in number. In each of these three classes the decreases that appear for the decade as a whole have taken place entirely since 1904, in which year the numbers and values reported exceeded those for 1899. The decreases are presumably due to the growth of the automobile industry.

PRODUCTS.	1909	1904	1899
Total value	[1] $159,892,547	[2] $155,868,849	$138,261,763
Carriages (family and pleasure):			
Number	823,411	937,409	904,639
Value	$47,756,118	$55,750,276	$51,205,393
Wagons:			
Number	587,685	643,755	570,428
Value	$39,932,910	$37,195,230	$31,080,738
Business—			
Number	154,631	133,422	[3]
Value	$16,440,816	[3]	[3]
Farm—			
Number	429,952	505,025	[3]
Value	$22,615,875	[3]	[3]
Government, municipal, etc.—			
Number	3,102	5,308	[3]
Value	$876,219	[3]	[3]
Public conveyances (cabs, hacks, hansoms, hotel coaches, omnibuses, etc.):			
Number	2,243	2,711	2,218
Value	$939,267	$1,314,952	$1,114,090
Sleighs and sleds:			
Number	100,899	127,455	117,006
Value	$2,065,850	$2,694,560	$2,290,903
Automobiles:[4]			
Number	544	199	174
Value	$569,119	$235,675	$129,053
All other products, including parts, and amount received for repair work	$68,629,283	$58,678,156	$52,351,586

[1] In addition, 14,908 carriages, valued at $1,078,935; 42,112 wagons, valued at $2,093,288; 104 public conveyances, valued at $5,615; 8,209 sleighs and sleds, valued at $165,017; and parts and materials, valued at $1,184,256, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] In addition, carriages and wagons, valued at $612,173, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[3] Not reported separately.
[4] Automobiles manufactured in establishments devoted primarily to the manufacture of carriages and wagons.

Cars and general shop construction and repairs by steam-railroad companies.—The following table presents statistics of the work done by construction and repair shops operated by steam-railroad companies, not including roundhouses where running repairs are made. The total value of such work was $405,600,727 in 1909 and $218,238,277 in 1899, the rate of increase

for the decade being 85.9 per cent. Most of the value represents that of repairs, comparatively little representing new construction.

CLASS OF WORK.	1909	1904	1899[1]
Total value	$405,600,727	$309,775,089	$218,238,277
Motive power and machinery department, value	$184,971,870	$149,643,953	$94,447,260
Locomotives built:			
Number	215	148	272
Value	$3,289,140	$1,853,939	$3,276,393
Repairs to locomotives, motors, etc.	$127,923,773	$101,326,805	$57,383,143
Work for other corporations	$4,735,004	$5,681,307	$3,338,589
All other products or work	$49,018,953	$40,781,902	$30,449,135
Car department, value	$199,768,939	$149,748,820	$118,376,552
Cars built, value	$13,326,171	$12,990,011	$16,521,352
Passenger—			
Number	218	414	390
Value	$1,291,354	$2,337,977	$1,441,733
Freight—			
Number	13,972	14,742	26,543
Value	$11,767,664	$10,006,642	$15,079,619
Other—			
Number	359	2,000	(2)
Value	$267,153	$645,392	(2)
Repairs to cars of all kinds	$147,194,065	$105,319,032	$74,665,500
Work for other corporations	$3,784,239	$6,946,990	$7,064,857
All other products or work	$30,464,464	$24,492,787	$20,104,843
Bridge and building departments (shopwork), value	$2,799,898	$5,096,141	$5,414,465
Repairs and renewals	$1,906,737	$4,351,487	$3,937,170
Work for other corporations	$46,496	$40,581	$241,626
All other products or work	$846,665	$704,073	$1,235,669
All other products and work, not classified, value	$18,060,020	$5,286,175	(2)

[1] Includes Alaska. [2] None reported.

Cars and general shop construction and repairs by street-railroad companies.—The following table presents statistics of the operations of the construction and repair shops of street-railroad companies, including all electric systems and interurban electric lines—all railroads, in fact, except steam roads. The work done, which consists almost wholly of repairs, was not reported in detail in 1899, but its aggregate value in that year was $9,370,811, as compared with $13,437,121 in 1904 and $31,962,561 in 1909, an increase for the decade of 241.1 per cent.

CLASS OF WORK.	1909	1904
Total value	$31,962,561	$13,437,121
Motive power and machinery department, value	$4,510,332	$510,946
Repairs to motors, etc.	$4,004,336	
Work for other corporations	$88,070	$2,626
All other products or work	[1] $417,926	$508,320
Car department, value	$25,835,463	$12,581,365
Cars built, value	$626,752	$605,144
Passenger—		
Number	129	288
Value	$498,709	$580,669
Freight—		
Number	63	13
Value	$59,102	$11,360
Other—		
Number	51	9
Value	$68,941	$13,109
Repairs to cars of all kinds	$22,869,777	$11,254,505
Work for other corporations	$624,895	$36,714
All other products or work	$1,714,129	$685,002
Bridge and building department (shopwork), value	$330,948	$327,855
Repairs and renewals	$273,581	$253,133
Work for other corporations	$5,093	
All other products or work	$52,274	$74,722
All other products and work not classified, value	$1,235,818	$16,955

[1] Includes value of three electric locomotives.

Cars, steam-railroad.—The statistics of establishments constructing steam-railroad cars given in the following table do not include the work of steam-railroad companies in their repair shops or that of concerns primarily engaged in the construction of street cars. The total value of products of this industry was $123,729,627 in 1909, as compared with $90,510,180 in 1899, an increase for the decade of 36.7 per cent. The freight cars made in 1909 were fewer in number and lower in aggregate value than those made in either 1904 or 1899, and the cars for passenger service made in 1909 were fewer in number and lower in aggregate value than those made in 1904. In fact, while there are a number of classes of products, such as passenger cars (day coaches) and ore cars, which show an increase in number and value for the five-year period 1904–1909, the increase in value for the total is more than covered by the increase in the value of "all other products."

PRODUCT.	1909	1904	1899
Total value	[1] $123,729,627	[2] $111,175,310	$90,510,180
Steam-railroad cars:			
Passenger service—			
Total number	1,601	2,030	979
Value	$13,829,607	$18,140,203	$7,368,299
Baggage and express—			
Number	216	199	72
Value	$1,105,779	$896,185	$238,554
Mail—			
Number	95	95	42
Value	$600,912	$576,230	$197,465
Passenger—			
Number	957	428	331
Value	$7,209,425	$2,955,517	$1,975,469
Chair, dining and buffet, parlor, sleeping, and all other—			
Number	333	1,308	534
Value	$4,913,491	$13,712,361	$4,956,811
Freight service—			
Total number	73,177	100,616	116,590
Value	$61,691,825	$69,148,955	$62,161,013
Box—			
Number	29,723	38,184	47,838
Value	$23,982,446	$28,508,632	$26,562,893
Coal and coke—			
Number	11,473	27,998	23,857
Value	$9,419,655	$21,367,218	$18,414,713
Flat—			
Number	3,232	5,412	4,525
Value	$2,033,801	$2,803,154	$1,923,525
Fruit—			
Number	900	2,840	1,620
Value	$784,476	$1,727,771	$965,354
Furniture—			
Number	90	801	1,717
Value	$70,515	$505,000	$1,148,265
Gondola or ore—			
Number	10,607	9,518	11,821
Value	$18,128,186	$5,518,084	$6,873,145
Refrigerator—			
Number	2,618	3,353	2,354
Value	$2,747,957	$3,042,835	$1,956,097
Stock—			
Number	2,349	4,235	2,760
Value	$1,586,008	$2,453,123	$1,426,800
Caboose—			
Number	537	160	193
Value	$525,605	$150,977	$184,865
Other—			
Number	2,643	8,115	14,905
Value	$2,413,176	$2,982,161	$3,005,351
Street-railroad cars:			
Number	603	418	935
Value	$2,023,922	$994,654	$1,090,854
Passenger—			
Number	558	331	902
Value	$1,903,317	$930,791	$1,062,172
Other—			
Number	45	87	33
Value	$120,605	$63,863	$28,682
All other products, value	$40,184,273	$22,891,408	$19,590,014

[1] In addition, 8,977 cars, valued at $5,924,871, and parts and repairs to the value of $210,487, were reported by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] In addition, 2,541 cars, valued at $1,012,820, and parts and repairs to the value of $101,073, were reported by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

Cars, street-railroad.—The following table presenting comparative statistics of products for establishments constructing street or electric railroad cars does not include cars made in the shops of railroad companies or by concerns primarily engaged in making steam-railroad cars. In 1899 the value of all products was $7,305,368 and in 1909 only $7,809,866, a slight increase thus being shown for the decade. The value of products in 1904, however, exceeded that in 1909. The decrease in the construction of open cars since 1904 is especially marked.

PRODUCT.[1]	1909	1904
Total value	[2] $7,809,866	[3] $10,844,196
Electric-railroad cars:		
Number	1,922	3,066
Value	$4,602,435	$8,302,512
Closed—		
Number	1,323	2,021
Value	$3,500,781	$5,777,257
Combination—		
Number	369	502
Value	$704,309	$1,240,864
Open—		
Number	95	554
Value	$141,008	$860,349
Freight, express, and mail—		
Number	92	16
Value	$179,293	$24,022
Other varieties—		
Number	43	[4] 273
Value	$77,044	$400,020
Steam-railroad cars:		
Freight service, all classes—		
Number	167	136
Value	$111,813	$59,663
All other products, value	$3,095,018	$2,482,021

[1] Products were not shown in detail for 1899; the total value was $7,305,368.
[2] In addition, 607 cars, valued at $2,033,922, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[3] In addition, 418 cars, valued at $994,654, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[4] Includes 38 horse cars, valued at $20,182.

Summary for railroad cars.—The following table assembles the statistics of all railroad cars constructed, including those made in establishments not engaged primarily in the construction of railroad cars:

PRODUCT.	1909	1904	1899
Total value	$102,137,366	$110,249,222	
Steam-railroad cars, value	$94,874,287	$100,346,912	$86,050,664
Passenger service—			
Number	1,819	2,446	1,369
Value	$15,120,961	$20,486,260	$8,810,032
Freight service [1]—			
Number	96,648	117,494	143,133
Value	$79,753,326	$79,860,652	$77,240,632
Street-railroad cars: [2]			
Number	2,772	4,694	[3]
Value	$7,263,109	$9,902,310	[3]

[1] Including all service not passenger.
[2] Chiefly electric.
[3] Not reported separately; the total value of products of establishments engaged primarily in the construction of street-railroad cars amounted to $7,305,368.

MISCELLANEOUS INDUSTRIES.

Statistics for all industries that can not properly be classified with any of the groups before presented, on account of the character either of the products or of the raw materials used, are given under the above head.

Agricultural implements.—The following table presents comparative statistics of the production of agricultural implements. The value of all products increased from $101,207,428 in 1899 to $146,329,268 in 1909, or 44.6 per cent. This includes the value of miscellaneous agricultural implements and parts not classifiable under either of the four groups shown separately and of a large number of products not distinctively agricultural, but made by manufacturers of agricultural implements, such as windmills, carriages and wagons, engines, presses, castings, lawn swings, etc. In 1909 the aggregate value of the four groups of agricultural implements—seeders and planters, implements of cultivation, harvesting implements, and separators—was $94,524,494, compared with $79,335,400 in 1904, an increase of 19.1 per cent.

PRODUCT.	1909	1904	1899
Total value	[1] $146,329,268	[1] $112,007,344	$101,207,428
Implements of cultivation	$35,246,030	$30,607,960	$98,010,506
Seeders and planters	$13,679,921	$11,225,122	
Harvesting implements	$34,568,131	$30,862,435	
Seed separators	$11,030,412	$6,639,883	
All other products	$48,690,082	$30,703,648	
Amount received for repair work	$3,114,092	$1,968,296	$3,196,922
Principal kind of implements, by number.			
Implements of cultivation:			
Cultivators—			
Beet	3,172	3,459	2,008
Small	469,696	230,173	207,171
Wheeled	435,429	313,088	295,799
Cotton scrapers	20,150	22,519	15,230
Harrows—			
Disk	103,020	104,323	97,261
Spring-tooth	112,832	86,408	380,259
Spike-tooth	394,988	262,442	
Listers	44,840	23,012	26,395
Plows—			
Disk	22,132	39,146	17,345
Gang	91,086	(2)	(2)
Shovel	254,737	121,899	102,320
Steam	2,355	1,599	207
Sulky or wheel	134,936	138,899	136,105
Walking	1,110,005	956,808	819,022
Seeders and planters:			
Seeders—			
Broadcast	38,007	33,546	36,862
Combination	23,963		
Corn planters—			
Hand	96,465	86,553	129,515
Horse	122,780	90,920	78,335
Cotton planters	79,271	127,052	45,575
Potato planters	23,092	35,756	25,338
Drills—			
Corn	20,137	28,228	21,940
Disk	21,292	(2)	(2)
Grain	68,611	76,929	91,635
All other	32,507	606	5,802
Seed sowers	7,847	59,910	83,283
Harvesting implements:			
Grain cradles	22,635	30,056	36,163
Harvesters—			
Bean	1,409	665	1,425
Corn	19,693	6,924	20,707
Grain	129,274	108,810	233,542
Harvesters and thrashers combined	543	(2)	(2)
Other	1,707	3,161	6,283
Hay carriers	45,064	85,121	54,393
Hayforks, horse	43,675	62,801	51,770
Hay loaders	34,705	27,174	7,273
Hayrakes, horse	266,230	236,297	216,345
Haystackers	17,212	8,670	12,060
Hay tedders	34,396	35,745	14,510
Mowers	359,264	273,385	398,616
Potato diggers, horse	25,632	11,703	(2)
Reapers	58,294	60,996	35,945
Seed separators:			
Clover hullers	437	351	661
Corn huskers	372	1,327	10,726
Corn huskers and shredders	1,240		
Corn shellers—			
Hand	74,223	47,189	103,381
Power	9,049	6,082	8,185
Fanning mills	33,805	22,991	30,360
Thrashers—			
Horsepower	822	2,237	1,314
Steam power	23,586	7,950	3,551

[1] In addition, agricultural implements, to the value of $2,989,276, in 1909, and to the value of $1,349,679, in 1904, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] Not reported separately.

Electrical machinery, apparatus, and supplies.—The following table summarizes the statistics of the output of electrical machinery, apparatus, and supplies, and

includes figures for such products made by establishments engaged primarily in the manufacture of other products, as well as for all products of establishments engaged primarily in the manufacture of electrical machinery, apparatus, and supplies. The value of all products was $243,965,093 in 1909, as compared with $105,831,865 in 1899, an increase for the decade of 130.5 per cent. Among the leading groups the highest rate of increase is for incandescent lamps, the value of which was $3,515,118 in 1899 and $15,714,809 in 1909.

PRODUCT.	1909	1904	1899
Total value	[1] $243,965,093	[1] $159,551,402	[1] $105,831,865
Dynamos:			
Number	16,791	15,080	10,527
Kilowatt capacity	1,405,950	996,182	578,124
Value	$13,081,048	$11,094,234	$10,472,576
Dynamotors, motor generators, boosters, rotary converters, and double current generators	$3,154,733	$1,740,534	$379,747
Transformers	$8,801,019	$4,468,567	$2,962,871
Switchboards, panel boards, and cut-out cabinets	$5,971,804	$3,766,044	$1,846,624
Motors:			
Total number	504,030	206,343	159,780
Horsepower	2,733,418	1,493,012	1,221,482
Value	$32,087,482	$22,370,626	$19,505,504
For power—			
Number	243,423	79,877	35,604
Horsepower	1,683,677	678,910	515,705
Value	$18,306,451	$13,120,948	$7,551,480
For automobiles—			
Number	2,796	1,819	3,017
Horsepower	12,471	19,907	8,220
Value	$294,152	$152,085	$192,030
For fans—			
Number	199,113	102,535	97,577
Horsepower	178,033	80,796	12,766
Value	$2,450,739	$1,108,254	$1,055,369
For elevators—			
Number	4,938	1,333	385
Horsepower	63,585	18,398	6,730
Value	$1,188,653	$688,473	$2,523,901
For railways, and miscellaneous services, including value of parts and supplies—			
Number	53,710	20,779	23,197
Horsepower	795,652	750,601	678,961
Value	$9,847,487	$7,290,266	$8,182,724
Storage batteries, including value of parts and supplies:			
Weight of plates in pounds	23,119,331	16,113,073	[2]
Value	$4,678,209	$2,645,749	$2,559,601
Primary batteries, including value of parts and supplies:			
Number	34,333,531	6,623,162	2,654,765
Value	$5,034,261	$1,598,144	$1,119,444
Arc lamps:			
Number	123,935	195,157	158,187
Value	$1,706,959	$1,574,422	$1,827,771
Searchlights, projectors, and focusing lamps	$935,874	$114,705	$225,635
Incandescent lamps	$15,714,809	$6,953,205	$3,515,118
Carbon filament	$6,157,066		
Tungsten	$6,241,133	$6,703,454	$3,442,183
Gem, tantalum, glower, and vacuum and vapor lamps	$2,715,991		
Decorative and miniature lamps, X-ray bulbs, vacuum tubes, etc.	$600,619	$249,751	$72,935
Sockets, receptacles, bases, etc.	$4,521,729	$2,010,860	$593,929
Electric-lighting fixtures of all kinds	$6,128,282	$3,294,606	$3,756,670
Telegraph apparatus	$1,957,432	$1,111,194	$1,642,266
Telephone apparatus	$14,259,357	$15,863,698	$10,512,412
Insulated wires and cables	$51,624,737	$34,519,699	$21,292,001
Electric conduits	$5,093,264	$2,416,245	$1,066,163
Annunciators—domestic, hotel, and office	$235,567	$185,870	$224,885
Electric clocks and time mechanisms	$352,513	$373,926	$132,149
Fuses	$1,601,719	$868,079	$595,497
Lightning arresters	$940,171	$587,124	
Rheostats and resistances	$2,674,963	$932,925	
Heating, cooking, and welding apparatus	$1,003,038	$395,827	$1,186,878
Electric flatirons	$951,074		
Electric measuring instruments	$7,800,010	$5,004,763	$1,842,135
Electrical therapeutic apparatus	$1,107,858	$1,036,962	[3]
Magneto-ignition apparatus, sparks, coils, etc.	$6,092,943	$678,077	[3]
Electric switches, signals, and attachments	$5,377,843	$1,451,337	$1,129,891
Circuit fittings of all kinds	$1,080,287	$3,525,446	[3]
All other products, value	$39,691,708	$28,978,444	$17,448,098

[1] Includes values of electrical machinery, apparatus, and supplies made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation, as follows: 1909, $22,656,530; 1904, $18,742,033; and 1899, $13,397,430.
[2] Not reported separately.

Ice, manufactured.—The following table includes the product of all establishments engaged primarily in manufacturing ice for sale, but does not include establishments making ice for their own use. Ice made for sale by establishments engaged chiefly in some other business, such as breweries, is reported in a footnote.

The value of all products of the industry proper increased from $13,874,513 in 1899 to $42,953,055 in 1909, or 209.6 per cent. The quantity of ice produced increased at about the same rate, and amounted to 12,647,949 tons in 1909.

	1909	1904	1899
MATERIALS.			
Ammonia used, cost	$1,021,913	$613,138	$359,540
Compressor system—			
Anhydrous—			
Pounds	3,097,191	[1] 1,044,266	946,666
Cost	$826,223	[1] $493,524	$249,338
Absorption system—			
Anhydrous—			
Pounds	369,093	136,604	109,869
Cost	$100,283	$37,506	$29,842
Aqua—			
Pounds	1,670,693	1,347,561	1,323,454
Cost	$95,408	$82,108	$79,869
PRODUCTS.			
Total value	[2] $42,953,055	[2] $23,790,045	[3] $13,874,513
Ice:			
Tons (2,000 pounds)	12,647,949	7,199,448	4,294,439
Value (2,000 pounds)	$39,889,263	$22,450,503	$13,303,874
Can—			
Tons (2,000 pounds)	11,671,547	6,695,789	4,139,704
Value (2,000 pounds)	$37,085,533	$21,020,547	$12,863,160
Plate—			
Tons (2,000 pounds)	976,402	503,659	154,675
Value (2,000 pounds)	$2,803,730	$1,429,956	$440,714
All other products, value	$3,063,792	$1,339,542	$570,639

[1] Includes 148,373 pounds of aqua ammonia, costing $8,755.
[2] In addition, in 1909, 1,582,259 tons of ice, valued at $4,249,790, and in 1904, 814,689 tons, valued at $1,899,912, were produced by establishments engaged primarily in the manufacture of products other than ice.
[3] Includes, for purposes of comparison, products valued at $93,535, not included in the general tables for this industry at census of 1900.

Lumber and timber products.—Beginning with 1906 an annual canvass of forest products has been made by the Bureau of the Census in cooperation with the Forest Service of the Department of Agriculture. The statistics for the year 1909 given in the following table are compiled from this annual report; those for 1904 and 1899 are from the regular census reports.

The totals for 1909 include statistics for some small neighborhood mills sawing chiefly or exclusively for local consumption, also a relatively small number of establishments using logs or bolts as material and engaged primarily in the manufacture of products other than those covered by the classified lumber and timber product industry, which classes are not represented in the totals for the other two years. Detailed statistics for the lumber and other forest-products industries will be found in the several annual reports published by the Bureau of the Census. The figures given in the table can not be compared with those given in Table I, on page 74, because in the latter table the statistics cover not only the products of the sawmills, shingle and lath mills, but also the products of planing mills operated independently of sawmills, logging camps, veneer mills, and box factories.

PRODUCT.	1909	1904	1899
Total value	$724,705,760	$465,153,662	$414,058,487
Lumber:			
Total quantity (M feet, board measure)	44,509,761	34,135,139	[1] 35,084,166
Total value	$684,479,859	$435,708,084	[1] $300,489,873
Softwoods—			
Quantity	33,896,959	27,353,312	26,153,063
Value	$477,345,046	$319,835,746	$268,481,112
Yellow pine—			
Quantity	16,277,185	11,521,781	9,658,548
Value	$206,505,297	$114,780,600	$81,740,300
Western pine—			
Quantity	1,499,985	1,290,526	944,560
Value	$23,077,854	$14,586,149	$9,163,256
White pine—			
Quantity	3,900,034	5,332,704	7,742,391
Value	$70,830,131	$79,594,717	$98,002,555
Douglas fir—			
Quantity	4,856,378	2,928,409	1,736,507
Value	$60,435,793	$27,862,228	$15,050,038
Hemlock—			
Quantity	3,051,360	3,268,787	3,420,673
Value	$42,580,800	$38,938,154	$34,136,892
Spruce—			
Quantity	1,748,547	1,303,886	1,448,001
Value	$29,561,315	$18,289,327	$16,322,666
Cypress—			
Quantity	955,635	749,592	495,836
Value	$19,549,741	$13,115,339	$6,604,495
Redwood—			
Quantity	521,630	519,267	360,167
Value	$7,720,124	$6,661,499	$3,645,608
Cedar—			
Quantity	346,008	223,035	232,978
Value	$6,901,948	$3,201,331	$2,542,818
All other—			
Quantity	740,158	215,325	113,312
Value	$10,182,043	$2,806,402	$1,271,884
Hardwoods—			
Quantity	10,612,802	6,781,827	8,634,021
Value	$207,134,813	$115,872,338	$116,817,192
Oak—			
Quantity	4,414,457	2,902,855	4,438,027
Value	$90,512,069	$50,832,303	$61,174,129
Maple—			
Quantity	1,100,604	587,558	633,466
Value	$17,447,814	$8,780,727	$7,495,052
Red gum—			
Quantity	706,945	523,990	285,417
Value	$9,334,268	$5,693,555	$2,747,080
Chestnut—			
Quantity	663,891	243,537	206,688
Value	$10,703,130	$3,356,054	$2,764,089
Birch—			
Quantity	452,370	224,009	132,601
Value	$7,666,186	$3,459,501	$1,057,021
Basswood—			
Quantity	399,151	228,041	308,069
Value	$7,781,563	$3,845,885	$3,054,625
Elm—			
Quantity	347,456	258,330	456,731
Value	$6,088,098	$3,732,609	$5,240,530
Cottonwood—			
Quantity	265,600	321,574	415,124
Value	$4,794,424	$4,797,779	$4,303,544
Ash—			
Quantity	201,209	169,178	260,120
Value	$7,110,080	$3,174,861	$4,203,599
Hickory—			
Quantity	333,920	106,824	96,636
Value	$10,283,776	$2,557,601	$1,814,500
Walnut—			
Quantity	46,108	31,455	38,681
Value	$1,972,835	$1,435,509	$1,411,611
Sycamore—			
Quantity	56,511	18,002	29,715
Value	$834,612	$230,856	$327,933
All other—			
Quantity	1,528,571	1,166,474	1,323,746
Value	$32,599,949	$23,969,098	$19,662,279
Lath:			
Quantity (thousands)	3,703,195	2,647,847	2,523,998
Value	$9,963,439	$5,435,968	$4,698,909
Shingles:			
Quantity (thousands)	14,907,371	14,547,477	12,102,017
Value	$30,202,462	$24,009,010	$18,699,705

[1] Includes 297,082 M feet of lumber, board measure, valued at $5,191,569, reported as "other sawed products," and not by kinds of wood.

Pianos and organs, and materials.—The following table includes the statistics for pianos and organs, and materials therefor, but does not include the products of establishments engaged primarily in the manufacture of other musical instruments. The value of all products increased from $41,024,244 in 1899 to $89,789,544 in 1909, or 118.9 per cent, the increase being almost wholly in the value of pianos and player attachments for pianos. A marked feature is the gain in the number of pianos with player attachments manufactured, the output of which increased during the period 1904 to 1909 from 1,863 to 34,495, or seventeen fold. A large decrease occurred between 1904 and 1909 in the number of reed organs made.

PRODUCT.	1909	1904	1899
Total value	[1] $89,789,544	[1] $66,092,630	[1] $41,024,244
Pianos:			
Number	374,154	261,197	171,011
Value	$59,501,225	$41,476,479	$27,062,852
Upright—			
Number	365,413	253,825	166,760
Value	$55,462,556	$37,815,056	$25,397,433
Without player attachment—			
Number	330,918	251,957	166,536
Value	$46,187,555	$37,397,674	$25,256,687
For or with player attachment—			
Number	34,495	1,868	224
Value	$9,275,001	$417,382	$44,745
Grand—			
Number	[2] 8,741	7,372	4,251
Value	$4,038,669	$3,661,423	$1,701,420
Player attachments made separate from pianos:			
Number	10,898	20,301	6,158
Value	$1,474,630	$2,004,266	$607,573
Organs:			
Number	65,335	113,066	107,258
Value	$5,309,016	$6,152,032	$5,217,261
Pipe—			
Number	1,224	901	564
Value	$2,713,587	$1,989,979	$1,177,021
Reed—			
Number	64,111	113,065	106,694
Value	$2,595,429	$4,162,053	$4,040,240
Parts and materials, value	$20,417,762	$12,626,892	$8,196,258
All other products, value	$3,086,911	$3,832,961	

[1] In addition, in 1909, parts and materials to the value of $680,183; in 1904, 1,695 organs, valued at $140,114; and in 1899, 250 pianos, valued at $37,610; and 1,144 organs, valued at $59,508, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] Includes a few pianos with player attachments.

Paper and wood pulp.—The following table includes statistics for all establishments engaged in the manufacture of wood pulp and in the manufacture of paper, either separately or in conjunction. The total production of wood pulp in 1909 was 2,495,523 tons; in 1904, 1,921,768 tons; and in 1899, 1,179,535 tons. The percentage of increase for the decade was 111.6. Sulphite fiber shows the highest rate of increase, 144.6 per cent. An increasing proportion of the wood pulp is made by establishments which themselves consume it in making paper; in 1909, 63.5 per cent was so consumed by the establishments making it.

The value of all products, which includes some duplication, increased from $127,326,162 in 1899 to $267,656,964 in 1909, or 110.2 per cent. The output of paper products increased from 2,167,593 tons in 1899 to 4,216,708 tons in 1909, or 94.5 per cent, and their value from $107,909,046 to $232,741,049, or 115.7 per cent. Paper stock used for which quantities are reported aggregated 4,588,160 tons in 1909, of which wood pulp formed 61.6 per cent; old and waste paper, 21.4 per cent; rags, 7.8 per cent; straw, 6.6 per cent; and manila stock, 2.6 per cent. The *ton of 2,000 pounds* is used for showing quantities.

	1909	1904	1899
MATERIALS.			
Total cost	**$165,442,341**	**$111,251,476**	**$70,530,236**
Pulp wood, cost	$33,772,475	$20,800,871	$9,837,516
Wood pulp, purchased:			
Tons	1,241,914	877,702	644,006
Cost	$43,861,357	$27,633,164	$18,369,464
Ground—			
Tons	452,849	317,286	261,962
Cost	$9,487,508	$5,754,259	$4,361,211
Soda fiber—			
Tons	154,626	120,978	94,042
Cost	$6,862,864	$5,047,105	$3,430,809
Sulphite fiber—			
Tons	626,029	433,160	273,194
Cost	$27,184,726	$16,567,122	$10,112,189
Other chemical fiber—			
Tons	8,410	6,278	14,808
Cost	$326,259	$264,678	$465,255
Rags, including cotton, flax waste and sweepings:			
Tons	357,470	294,552	234,514
Cost	$10,721,559	$8,804,607	$6,595,427
Old and waste paper:			
Tons	983,882	588,543	356,193
Cost	$13,691,120	$7,430,335	$4,869,409
Manila stock, including jute bagging, rope, waste, threads, etc.:			
Tons	117,080	107,029	99,301
Cost	$3,560,033	$2,502,332	$2,437,256
Straw:			
Tons	303,137	304,585	367,305
Cost	$1,460,282	$1,502,886	$1,395,659
All other materials, cost	$58,375,515	$42,517,283	$27,025,505
PRODUCTS.			
Total value	**[1] $267,656,964**	**$188,715,189**	**$127,326,162**
News paper:			
In rolls for printing—			
Tons	1,091,017	840,802	454,572
Value	$42,807,064	$32,763,308	$15,754,992
In sheets for printing—			
Tons	84,537	72,020	114,640
Value	$4,048,496	$3,143,152	$4,336,882
Book paper:			
Book—			
Tons	575,616	434,500	282,093
Value	$42,840,674	$31,156,728	$19,466,804
Coated—			
Tons	95,213	[2]	[2]
Value	$9,413,961	[2]	[2]
Plate, lithograph, map, wood-cut, etc.—			
Tons	6,498	19,837	22,366
Value	$555,352	$1,458,343	$2,018,958
Cover—			
Tons	17,578	22,150	18,749
Value	$1,982,853	$2,023,986	$1,665,376
Cardboard, bristol board, card middles, tickets, etc.—			
Tons	51,449	39,060	28,494
Value	$3,352,151	$2,764,444	$1,719,813
Fine paper:			
Writing—			
Tons	169,125	131,934	90,204
Value	$24,966,102	$19,321,045	$12,222,870
All other—			
Tons	29,088	14,898	22,503
Value	$4,110,536	$2,928,125	$3,673,104
Wrapping paper:			
Manila (rope, jute, tag, etc.)—			
Tons	73,731	86,826	89,419
Value	$6,989,436	$6,136,080	$5,929,764
Heavy (mill wrappers, etc.)—			
Tons	108,561	96,992	82,875
Value	$4,380,794	$4,035,588	$4,143,240
Straw—			
Tons	32,988	54,232	91,794
Value	$870,419	$1,389,348	$2,027,518
PRODUCTS—continued.			
Wrapping paper—Continued.			
Bogus or wood manila, all grades—			
Tons	367,932	228,371	203,826
Value	$19,777,707	$10,099,772	$9,148,677
All other—			
Tons	179,855	177,870	67,338
Value	$10,202,035	$8,774,804	$3,293,174
Boards:			
Wood pulp—			
Tons	71,036	60,863	44,187
Value	$2,639,496	$2,347,250	$1,406,130
Straw—			
Tons	171,789	167,278	157,534
Value	$3,750,851	$4,367,560	$3,187,342
News—			
Tons	74,606	38,560	32,119
Value	$2,215,469	$1,174,216	$930,531
All other—			
Tons	514,208	253,950	131,777
Value	$17,539,768	$9,070,531	$4,829,316
Other paper products:			
Tissues—			
Tons	77,745	43,925	28,406
Value	$8,553,654	$5,056,438	$3,486,652
Blotting—			
Tons	9,577	8,702	4,351
Value	$1,186,180	$1,046,790	$580,750
Building roofing, asbestos, and sheathing—			
Tons	225,824	145,024	96,915
Value	$9,251,368	$4,845,028	$3,025,907
Hanging—			
Tons	92,158	62,606	54,330
Value	$4,431,514	$3,013,464	$2,265,345
Miscellaneous—			
Tons	96,577	106,296	49,101
Value	$6,869,169	$6,729,820	$2,705,841
Wood pulp made for sale or for consumption in mills other than where produced:			
Ground—			
Tons	310,747	273,400	280,052
Value	$5,649,466	$4,323,495	$4,433,699
Soda fiber—			
Tons	155,844	130,366	99,014
Value	$6,572,152	$5,159,615	$3,612,602
Sulphite fiber—			
Tons	444,255	376,940	271,585
Value	$17,955,748	$13,661,464	$10,451,400
All other products, value	$4,738,549	$1,024,195	$919,415
Wood pulp.			
Quantity produced (including that used in mills where manufactured), total tons	2,495,523	1,921,768	1,179,535
Ground, tons	1,179,266	908,976	586,374
Soda fiber, tons	298,626	196,770	177,124
Sulphite fiber, tons	1,017,631	756,022	416,037
EQUIPMENT.			
Paper machines:			
Total number	1,480	1,369	1,232
Capacity, yearly, tons	5,293,397	3,857,903	2,782,219
Fourdrinier—			
Number	804	752	663
Capacity per 24 hours, tons	10,508	8,569	[3]
Cylinder—			
Number	676	617	569
Capacity per 24 hours, tons	6,316	4,740	[3]
Pulp:			
Grinders, number	1,435	1,362	1,168
Digesters, total number	542	517	426
Sulphite fiber, number	348	309	[2]
Soda fiber, number	194	208	[2]
Capacity, yearly, tons of pulp	3,405,621	2,644,753	1,536,431
Ground, tons	1,809,685	1,515,088	[2]
Sulphite, tons	1,250,983	885,092	[2]
Soda, tons	344,953	244,573	[2]

[1] In addition, paper and wood pulp to the value of $2,567,267 was made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] Not reported separately.
[3] Not reported.

Phonographs and graphophones.—The following table gives comparative statistics for the manufacture of phonographs and graphophones. The value of all products increased from $2,246,274 in 1899 to $11,725,996 in 1909, or over fivefold, the bulk of the increase being in the first half of the decade. An important feature of the industry is the manufacture of records and blanks, the value of which formed 42.7 per cent of the total value of products in 1909, 45.7 per cent in 1904, and 24 per cent in 1899.

PRODUCT.	1909	1904	1899
Total value	**[1] $11,725,996**	**$10,237,075**	**$2,246,274**
Phonographs and graphophones:			
Number	344,681	[2]	[2]
Value	$5,406,684	$2,966,343	$1,240,503
Records and blanks:			
Number	27,183,959	[2]	[2]
Value	$5,007,104	$4,678,547	$530,370
All other products, value	$1,312,208	$2,592,185	$466,401

[1] In addition, records and parts to the value of $31,889 were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.
[2] Not reported.

Printing and publishing.—The statistics for printing and publishing given in the following table include book and job printing and publishing; the printing and publishing of music; newspapers and periodicals; bookbinding and blank-book making; engraving, including plate printing; and lithographing.

Under the head of job printing is included the job printing done by newspaper, periodical, and other establishments, as well as that of regular job-printing establishments. The value of products reported for the bookbinding and blank-book industry includes the value of all products of concerns engaged primarily in these branches, as well as the value of bookbinding and blank books reported by printing and publishing establishments. In like manner there is included under electrotyping, engraving, and lithographing the value of all products of establishments engaged primarily in these branches.

The value of all products was $737,876,087 in 1909, $552,473,353 in 1904, and $395,186,629 in 1899, the rate of increase for the period 1899–1909 being 86.7 per cent. The income of newspapers and periodicals from subscriptions, sales, and advertising was $337,596,285 in 1909, as compared with $175,789,610 in 1899, the rate of increase for the decade being 92 per cent. Of the total income from these sources, that from advertising formed 60 per cent in 1909 and 54.5 per cent in 1899, having increased much faster than that from subscriptions and sales.

Newspapers and periodicals increased in number from 18,793 in 1899 to 22,141 in 1909, or 17.8 per cent, and their aggregate circulation increased 53.9 per cent. The average circulation per issue was 7,428 in 1909, as compared with 6,866 in 1904 and 5,688 in 1899. The greatest relative increases in circulation during the decade were reported for dailies and monthlies. In the circulation of the latter, however, there was a decrease between 1904 and 1909.

PRODUCT.	1909	1904	1899
Total value	$737,876,087	$552,473,353	$395,186,629
Publications:			
Newspapers and periodicals	$337,596,288	$256,816,282	$175,789,610
Subscriptions and sales	$135,063,043	$111,298,691	$79,928,483
Advertising	$202,533,245	$145,517,591	$95,861,127
Newspapers	$232,993,094	(1)	(1)
Subscriptions and sales	$84,438,702		
Advertising	$148,554,392		
Periodicals	$104,603,194	(1)	(1)
Subscriptions and sales	$50,624,341		
Advertising	$53,978,853		
Ready prints, patent insides and outsides	$2,203,077	(1)	
Books and pamphlets—			
Published, or printed and published	$62,930,394	$53,312,492	
Printed for publication by others	$10,209,509	(1)	
Sheet music and books of music—			
Published or printed and published	$5,510,698	$4,673,685	$219,397,019
Printed for publication by others	$1,000,966	(1)	
Products for sale and in execution of orders:			
Job printing	$207,940,227	$149,262,070	
Book binding and blank books	$50,552,808	$40,788,768	
Electrotyping, engraving, and lithographing	$47,956,979	$35,018,234	
All other products	$11,885,141	$12,601,822	
NEWSPAPERS AND PERIODICALS.			
Number	**22,141**	**21,848**	**18,793**
Aggregate circulation	**164,463,040**	**150,099,723**	**106,889,384**
By period of issue:			
Daily (exclusive of Sunday)—			
Number	2,600	2,452	2,226
Aggregate circulation	24,211,977	19,632,603	15,102,156
Sunday—			
Number	520	494	567
Aggregate circulation	13,347,282	12,022,341	(2)
Semiweekly and triweekly—			
Number	708	703	699
Aggregate circulation	2,648,308	3,233,658	3,061,478
Weekly—			
Number	15,097	15,006	12,979
Aggregate circulation	40,822,965	36,226,717	34,242,052
Monthly—			
Number	2,491	2,500	1,817
Aggregate circulation	63,280,535	64,306,155	37,809,697
All other—			
Number	725	693	505
Aggregate circulation	20,151,973	14,588,249	16,613,751
By character:			
News, politics, and family reading—			
Number	17,698	17,032	15,506
Aggregate circulation	61,074,990	53,355,893	(3)
Religious—			
Number	1,251	1,287	952
Aggregate circulation	29,523,777	22,383,631	(3)
Agricultural, horticultural, dairy, stock raising, etc.—			
Number	316	360	307
Aggregate circulation	11,327,253	8,106,275	(3)
Commerce, finance, insurance, railroads, etc.—			
Number	264	364	190
Aggregate circulation	1,411,738	2,470,832	(3)
Trade journals generally—			
Number	665	627	520
Aggregate circulation	3,572,441	3,428,596	(3)
General literature, including monthly and quarterly magazines—			
Number	340	328	239
Aggregate circulation	31,322,035	30,615,577	(3)
Medicine and surgery—			
Number	197	192	111
Aggregate circulation	931,584	1,054,948	(3)
Law—			
Number	56	81	62
Aggregate circulation	151,346	194,035	(3)
Science and mechanics—			
Number	139	83	66
Aggregate circulation	1,421,955	525,523	(3)
Fraternal organizations—			
Number	419	450	200
Aggregate circulation	6,982,235	5,356,427	(3)
Education and history—			
Number	202	173	129
Aggregate circulation	1,870,383	2,119,797	(3)
Society, art, music, fashions, etc.—			
Number	164	155	88
Aggregate circulation	13,495,661	15,289,431	(3)
College and school periodicals—			
Number	271	178	139
Aggregate circulation	330,705	248,240	(3)
Miscellaneous—			
Number	139	538	293
Aggregate circulation	1,087,937	4,860,518	(3)
By language:			
English—			
Number	20,744	20,599	17,761
Aggregate circulation	155,432,243	142,441,068	(3)
Foreign (including foreign and English)—			
Number	1,397	1,249	1,032
Aggregate circulation	9,030,797	7,568,655	(3)
French—			
Number	39	46	31
Aggregate circulation	446,739	252,135	(3)
German—			
Number	692	700	633
Aggregate circulation	4,434,146	3,922,227	(3)
Italian—			
Number	104	63	35
Aggregate circulation	500,475	319,450	(3)
Scandinavian—			
Number	161	162	115
Aggregate circulation	1,118,601	1,149,619	(3)
Slavonic—			
Number	169	128	75
Aggregate circulation	917,649	605,987	(3)
All other—			
Number	232	150	143
Aggregate circulation	1,613,187	1,319,237	(3)

[1] Not reported separately.

[2] Included with circulation of dailies.

[3] Not reported.

The statistics in regard to the number of books and pamphlets published in 1909, classified by character, are given below. Comparative statistics for earlier censuses are not available.

BOOKS AND PAMPHLETS, CLASSIFIED BY CHARACTER.	Titles or editions.	Volumes.	Copies.
Total number published	**46,739**	**54,620**	**161,361,844**
Biography, correspondence	554	616	657,464
Description, geography, travel	847	952	4,540,647
Domestic and rural	330	336	2,023,193
Education	10,390	12,159	41,636,847
Fiction	14,606	15,772	46,942,359
Fine arts, illustrated gift books	541	587	2,849,371
History	613	954	2,923,187
Humor and satire	208	211	885,262
Juvenile	4,167	4,202	10,184,030
Law	535	862	1,496,194
Literature and collected works	2,047	3,841	5,037,972
Medical, hygiene	681	738	1,519,480
Philosophy	222	252	265,077
Physical and mathematical science	291	307	356,413
Poetry and the drama	1,387	1,574	1,980,824
Political and social science	658	689	1,862,429
Scientific and similar associations	1,082	1,141	1,258,562
Sports and amusements	412	423	2,430,074
Theology and religion	5,096	6,539	23,608,230
Useful arts	512	528	1,104,599
Works of reference	1,560	1,927	7,799,590

Shipbuilding, including boat building.—The following table shows the value of work done on the different classes of water craft during the several census years, not including that done in Government establishments, and also the value of repair work and all other products of the shipbuilding industry. The total value of products was lower in 1909 than in 1904 or 1899.

PRODUCT.[1]	1909	1904	1899
Total value	[2] **$73,360,315**	[3] **$82,769,239**	**$74,532,277**
Work done during the year on vessels and boats	42,310,925	56,121,227	37,719,308
Vessels of 5 gross tons and over	37,718,018	53,119,935	35,750,473
Boats of less than 5 gross tons	4,592,907	3,001,292	1,968,835
Steam	20,800	.....	.....
Motor, gasoline, electric, and other	3,155,375	1,879,288	1,059,365
Sailboats, rowboats, canoes, scows, etc.	1,416,732	1,122,004	909,470
Repair work	26,678,043	22,829,040	23,134,436
All other products	4,370,747	3,818,972	13,678,533

[1] Not including work done in Government shipyards, valued in 1909 at $25,872,033; in 1904, at $17,265,469; and in 1899, at $11,022,312.

[2] In addition, the following items were reported by establishments engaged primarily in the manufacture of products other than those covered by the industry designation: Work done on vessels of 5 tons and over, launched, $418,905; vessels building but not launched, $30,184; boats of under 5 tons, $145,155; and other boat products and repairs, $182,462; or a total of $776,706.

[3] In addition, the following items were reported by establishments engaged primarily in the manufacture of products other than those covered by the industry designation: Work done on vessels of 5 tons and over, launched, $463,018; boats of under 5 tons, $147,542; and other boat products and repairs, $46,782; or a total of $657,342.

The value of the products of governmental shipyards in 1909 was $25,872,033; in 1904, $17,265,469; and in 1899, $11,022,312. Thus the total value of products reported for all establishments, governmental and private, was $99,232,348 in 1909, $100,034,708 in 1904, and $85,554,589 in 1899. The increase of $13,677,759, or 16 per cent, shown for the period 1899–1909, was due entirely to work of governmental establishments.

The following table shows the number of vessels of each class launched during the census years 1909, 1904, and 1899. These figures are not strictly comparable with those giving values presented in the preceding table, since the former cover all work done during the year, both on vessels launched during the year and on those not yet launched at its close. The number of vessels of nearly every class was less in 1909 than at the two preceding censuses, but the number of boats, increased greatly, the number made by all establishments aggregating 8,989, of which number 97.4 per cent were gasoline motor boats.

CLASS OF VESSELS.	1909	1904	1899
Vessels of 5 gross tons and over launched during the year:[1]			
Number	[2] 1,584	[3] 2,114	2,031
Gross tons	467,219	504,020	687,159
Net tons	331,193	424,703	542,324
Steel vessels—			
Number	153	155	134
Gross tons	254,936	154,314	262,516
Net tons	193,144	106,826	186,609
Steam—			
Number	96	122	123
Gross tons	219,617	140,047	237,379
Net tons	159,297	93,365	164,313
Motor—			
Number	15	.....	.....
Gross tons	2,466	.....	.....
Net tons	2,078	.....	.....
Sail, with and without auxiliary—			
Number	3	8	6
Gross tons	2,046	4,779	21,085
Net tons	1,735	4,591	18,348
Unrigged—			
Number	44	25	5
Gross tons	30,857	9,488	4,052
Net tons	30,034	8,870	3,848
Wooden vessels—			
Number	1,426	1,959	1,947
Gross tons	212,283	349,706	424,643
Net tons	188,054	317,882	355,815
Steam—			
Number	85	186	396
Gross tons	15,016	35,048	48,932
Net tons	9,662	23,365	32,845
Motor—			
Number	430	307	.....
Gross tons	6,923	3,157	.....
Net tons	5,146	2,333	.....
Sail, with and without auxiliary—			
Number	116	341	642
Gross tons	15,413	59,836	59,209
Net tons	12,955	50,483	51,772
Unrigged—			
Number	795	1,125	909
Gross tons	174,881	251,065	316,502
Net tons	160,291	241,701	271,193
Boats of less than 5 gross tons, number[4]	[5] 8,577	[6] 3,499	1,687
Steam	8	.....	.....
Motor	8,569	3,499	1,687
Gasoline	8,342	(7)	(7)
Electric	12	(7)	(7)
Other	215	(7)	(7)

[1] Not including vessels launched in Government shipyards as follows: In 1909, 3 steel and 28 wooden vessels, the steel vessels having a total of 350 gross tons and the wooden a total of 1,709 gross tons, and in 1904, 17 steel and 14 wooden vessels, the steel vessels having a total of 23,850 gross tons and the wooden a total of 3,402 gross tons.

[2] In addition, there were built by establishments engaged primarily in the manufacture of products other than those covered by the industry designation, 8 steel and 14 wooden vessels, the steel vessels having a total of 5,429 gross tons and the wooden a total of 7,106 gross tons.

[3] In addition, there were built by establishments engaged primarily in the manufacture of products other than those covered by the industry designation, 3 steel and 131 wooden vessels, the steel vessels having a total of 403 gross tons and the wooden a total of 21,919 gross tons.

[4] Not including 53 boats built in Government shipyards in 1909 and 52 in 1904.

[5] In addition, 412 boats were built by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

[6] In addition, 365 boats were built by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

[7] Not reported separately.

Laundries.—Steam laundries are not generally considered as manufacturing establishments, and therefore statistics for them have been excluded from prior censuses. Since the industry has, however, developed so rapidly, large amounts of capital now being invested, and many wage earners being employed, it should no longer be omitted from the industrial census. The establishments are conducted according to factory methods, and therefore the statistics are associated with those for the manufacturing industries of the Thirteenth Census. They are not included, however, in the general tables or in the totals for manufacturing industries.

During the year 1909 there were in the United States 5,186 laundries operated by the use of mechanical power. The capital reported by these establishments as invested in the industry amounted to $68,935,000. In addition, such establishments rent a great deal of property, the annual rental paid by laundries for plant and equipment amounting in 1909 to $2,277,000. The value of the work done was $104,680,086.

In addition to ascertaining the average number of wage earners employed during the entire year, the census calls for the actual number of wage earners, by sex and age periods, employed on December 15, 1909, or the nearest representative day. On that date there were employed 112,064 wage earners, of whom 31,947, or 28.5 per cent, were men; 79,152, or 70.6 per cent, women; and 965, or 0.9 per cent, children under 16 years of age.

The following statement summarizes the statistics:

Number of establishments	5,186
Capital invested	$68,935,000
Cost of materials used	$17,696,000
Salaries and wages, total	$53,007,747
Salaries	$8,180,769
Wages	$44,826,978
Miscellaneous expenses	$14,483,497
Value of products or amount received for work done	$104,680,086
Employees:	
Number of salaried officials and clerks	9,170
Average number of wage earners employed during the year	109,484
Actual number of wage earners employed on Dec. 15, 1909, or nearest representative day	112,064
Men 16 years and over	31,947
Women 16 years and over	79,152
Children under 16 years—	
Male	274
Female	691
Primary power used, horsepower	123,477

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

MONTH.	WAGE EARNERS. Number.	Per cent of maximum.	MONTH.	WAGE EARNERS. Number.	Per cent of maximum.
January	103,746	90.6	July	114,211	99.7
February	103,937	90.7	August	114,539	100.0
March	104,970	91.6	September	113,733	99.3
April	105,422	92.0	October	111,500	97.3
May	108,149	94.4	November	110,479	96.5
June	111,313	97.2	December	110,805	96.7

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

KIND.	Number of engines or motors.	Horsepower.
Primary power, total		123,477
Owned	4,527	109,870
Steam	4,119	105,272
Gas	379	4,073
Water wheels	18	456
Water motors	11	69
Rented		13,607
Electric	2,401	11,157
Other		2,450

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

KIND.	Unit.	Quantity.
Anthracite coal	Tons (2,240 lbs.)	178,640
Bituminous coal	Tons (2,000 lbs.)	886,734
Coke	Tons (2,000 lbs.)	14,785
Wood	Cords	94,723
Oil	Barrels	372,526
Gas	1,000 feet	2,729,324

Small custom saw and grist mills.—Statistics for small 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. The cost of materials and value of products for gristmills include an estimate of the grain ground, but it was impossible to estimate the value of the lumber sawed in the custom sawmills.

	Small custom sawmills.	Small custom gristmills.
Number of establishments	4,133	11,961
Persons engaged in industry	12,836	22,596
Proprietors and firm members	5,702	15,435
Salaried employees	44	147
Wage earners (average number)	7,090	7,014
Primary horsepower	93,280	272,763
Capital	$5,655,145	$21,258,510
Expenses	2,160,271	43,110,505
Services	1,696,152	1,186,540
Materials	97,574	[1] 40,314,868
Miscellaneous	366,545	609,157
Value of products	4,515,881	[2] 55,115,553

[1] Includes estimated value of all grain ground.
[2] Includes estimate of value of products from all grain ground. In addition, custom ground products, valued at $1,170,751, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

TABLE I.—COMPARATIVE SUMMARY FOR THE UNITED STATES, BY SPECIFIED INDUSTRIES: 1909, 1904, AND 1899.

NOTES.—The figures for some industries do not represent the total production, because important establishments that manufacture the same class of products may be included in other industries. (See Introduction.)

Primary horsepower includes power generated in manufacturing establishments plus electric and other power rented from outside sources; it does not include electric power generated by primary units of the establishments reporting.

In the statistics of power for 1899 there is a difference of 154,723 horsepower between the total and the sum of the figures for the various industries. This is due to the impossibility of making a correct revision of the figures for each industry for comparison with 1904 and 1909.

A minus sign (−) denotes decrease

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).	PER CENT OF INCREASE. Wage earners (average number).	Value of products.
								Expressed in thousands.							
All industries	1909	268,491	7,678,578	273,565	790,267	6,615,046	18,680,770	$18,428,270	$936,575	$3,427,036	$12,141,731	$20,672,052	$8,530,321	21.0	39.7
	1904	216,180	6,213,612	225,673	519,556	5,468,383	13,497,707	12,675,581	574,439	2,610,445	8,590,363	14,793,963	6,203,595	16.0	29.7
	1899	207,514	.....	.....	364,120	4,712,763	10,097,893	8,975,253	380,771	2,008,861	6,575,851	11,406,927	4,831,076	.....	.....
Agricultural implements	1909	640	69,229	465	9,213	59,551	109,601	256,281	10,140	28,609	69,307	146,329	86,022	6.7	30.6
	1904	648	55,089	496	7,199	47,394	89,738	196,741	7,573	25,003	48,281	112,607	63,726	1.7	10.7
	1899	715	.....	.....	10,046	46,582	70,646	157,703	8,363	22,451	43,945	101,207	57,262	.....	.....
Artificial flowers and feathers and plumes	1909	412	11,583	520	1,047	10,016	334	9,693	1,160	3,974	13,627	23,931	10,354	130.6	357.0
	1904	213	4,913	289	281	4,343	184	2,568	232	1,397	2,014	5,247	3,233	−13.5	−16.6
	1899	224	.....	.....	285	5,331	113	3,633	291	1,561	2,763	6,293	3,530	.....	.....
Artificial stone [1]	1909	3,439	15,202	4,208	1,037	9,957	12,185	16,010	785	5,342	7,043	18,596	11,553	297.3	350.5
	1904	477	3,417	571	340	2,506	2,776	3,316	261	1,403	1,430	4,128	2,698	.....	.....
Artists' materials	1909	46	865	25	182	658	1,628	1,730	202	307	1,360	2,340	980	140.1	105.4
	1904	28	372	30	68	274	568	876	67	137	687	1,139	452	37.0	129.2
	1899	21	.....	.....	32	200	280	377	38	79	249	497	248	.....	.....
Automobiles, including bodies and parts	1909	743	85,359	405	9,233	75,721	75,550	173,837	9,479	48,604	131,646	249,202	117,556	528.4	729.7
	1904	178	13,333	103	1,181	12,049	10,109	23,034	1,257	7,159	13,151	30,034	16,883	437.7	532.6
	1899	57	.....	.....	268	2,241	.....	5,769	295	1,321	1,804	4,748	2,944	.....	.....
Awnings, tents, and sails	1909	621	5,747	648	857	4,242	2,022	7,865	809	2,188	8,377	14,499	6,122	23.6	28.7
	1904	390	4,406	442	532	3,432	1,105	4,793	507	1,757	6,670	11,269	4,599	2.9	23.2
	1899	340	.....	.....	416	3,335	921	3,537	325	1,569	5,228	9,144	3,916	.....	.....
Axle grease	1909	28	334	13	145	176	492	935	155	88	828	1,481	653	47.9	68.5
	1904	25	196	22	55	119	210	608	55	62	368	879	511	−6.3	22.4
	1899	20	.....	.....	85	127	181	577	83	55	360	718	358	.....	.....
Babbitt metal and solder	1909	109	1,491	66	528	897	2,203	7,418	739	561	16,270	19,768	3,498	57.6	50.9
	1904	75	882	70	243	560	1,138	4,129	265	338	10,864	13,100	2,236	0.4	42.5
	1899	51	.....	.....	145	535	999	3,116	172	295	7,998	9,191	1,193	.....	.....
Bags, other than paper	1909	109	8,838	72	798	7,968	6,855	24,625	1,068	2,942	46,264	54,882	8,518	39.3	46.7
	1904	79	6,308	54	532	5,722	4,522	12,387	602	1,829	30,753	37,339	6,641	45.9	90.3
	1899	73	.....	.....	336	3,922	1,755	7,418	379	1,102	16,439	19,652	3,213	.....	.....
Bags, paper	1909	74	3,683	42	429	3,212	3,885	10,780	714	1,306	10,355	15,698	5,343	29.9	55.6
	1904	62	2,886	53	360	2,473	2,927	11,441	405	930	6,595	10,087	3,492	24.3	43.4
	1899	63	.....	.....	340	1,989	2,148	6,917	369	628	4,490	6,790	2,300	.....	.....
Baking powders and yeast	1909	144	3,531	110	1,266	2,155	3,335	33,647	1,710	1,046	9,338	20,775	11,437	−12.0	9.1
	1904	164	3,355	150	756	2,449	2,965	13,233	939	1,042	8,940	19,043	10,103	26.4	30.7
	1899	191	.....	.....	749	1,938	2,446	8,338	835	717	7,127	14,568	7,441	.....	.....
Baskets, and rattan and willow ware	1909	456	5,419	476	279	4,664	7,196	4,199	244	1,747	2,335	5,695	3,360	−8.7	9.8
	1904	436	5,867	525	236	5,106	6,252	3,609	203	1,731	1,803	5,187	3,384	21.1	42.7
	1899	454	.....	.....	182	4,217	5,997	2,844	140	1,213	1,335	3,636	2,301	.....	.....
Beet sugar	1909	58	8,389	1	1,184	7,204	57,202	129,629	1,769	4,808	27,265	48,122	20,857	81.8	97.3
	1904	51	4,726	.....	763	3,963	35,490	55,923	1,005	2,487	14,437	24,394	9,957	101.2	283.1
	1899	30	.....	.....	350	1,970	14,460	20,142	357	1,092	4,804	7,324	2,520	.....	.....
Belting and hose, leather	1909	139	4,370	100	1,264	3,006	5,038	17,457	1,502	1,861	15,623	23,692	8,069	43.7	66.6
	1904	117	2,860	94	614	2,092	3,220	10,785	787	1,165	9,317	14,220	4,903	25.5	33.9
	1899	104	.....	.....	443	1,667	2,162	7,408	485	914	7,500	10,623	3,123	.....	.....
Belting and hose, woven and rubber	1909	46	7,304	11	974	6,319	20,547	24,260	1,384	2,956	14,505	24,729	10,224	43.9	39.0
	1904	39	5,019	15	614	4,390	13,491	15,909	984	2,057	10,787	17,791	7,004	116.8	158.4
	1899	25	.....	.....	231	2,025	5,612	6,020	380	982	4,528	6,886	2,358	.....	.....
Bicycles, motor cycles, and parts	1909	95	5,017	78	502	4,437	5,932	9,780	582	2,908	5,083	10,699	5,616	33.7	107.6
	1904	101	3,761	81	361	3,319	5,730	5,883	351	1,971	2,628	5,153	2,525	−31.1	−83.9
	1899	312	.....	.....	2,034	17,525	19,847	20,784	1,753	8,190	16,792	31,916	15,124	.....	.....
Billiard tables and materials	1909	54	1,776	48	233	1,495	2,642	4,705	352	1,011	3,369	5,878	2,509	87.8	164.4
	1904	48	964	52	116	796	631	1,618	151	501	937	2,223	1,286	75.7	34.9
	1899	74	.....	.....	88	453	277	884	105	278	729	1,648	919	.....	.....
Blacking and cleansing and polishing preparations	1909	501	4,407	434	1,556	2,417	3,977	7,557	1,780	1,146	6,962	14,670	7,717	35.6	69.7
	1904	294	2,786	281	723	1,782	2,708	4,560	774	788	4,383	8,651	4,268	1.4	29.2
	1899	275	.....	.....	686	1,758	1,873	3,662	713	634	3,152	6,698	3,546	.....	.....
Bluing	1909	82	545	94	138	313	242	556	112	114	494	1,074	580	51.9	58.2
	1904	56	306	53	47	206	284	570	45	77	266	679	413	−6.4	17.9
	1899	65	.....	.....	54	220	116	415	41	70	245	576	331	.....	.....
Bone, carbon, and lamp black	1909	27	302	7	67	228	1,023	1,842	78	149	445	1,093	648	14.0	68.7
	1904	25	258	11	47	200	1,085	1,663	48	105	203	648	445	135.3	80.0
	1899	15	.....	.....	21	85	365	782	24	46	106	360	254	.....	.....
Boots and shoes, including cut stock and findings	1909	1,918	215,923	1,838	15,788	198,297	96,302	222,324	18,629	98,463	332,738	512,798	180,060	23.7	43.4
	1904	1,895	171,940	2,128	9,518	160,294	63,968	136,802	9,412	73,072	225,288	357,688	132,400	6.0	23.3
	1899	2,253	.....	.....	8,348	151,231	55,489	110,363	8,159	61,924	191,456	290,047	98,591	.....	.....

[1] Included in "marble and stone" in 1899.

TABLE I.—COMPARATIVE SUMMARY FOR UNITED STATES, BY SPECIFIED INDUSTRIES: 1909, 1904, AND 1899—Contd.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products, less cost of materials).	PER CENT OF INCREASE. Wage earners (average number).	Value of products.
								Expressed in thousands.							
Boots and shoes, rubber	1909	22	18,899	.....	1,287	17,612	25,903	$43,905	$1,415	$8,544	$29,577	$49,721	$20,144	−7.3	−29.0
	1904	22	19,815	2	822	18,991	26,084	39,442	874	8,867	32,000	70,065	38,065	32.0	70.5
	1899	22	.....	.....	483	14,301	25,017	33,668	597	6,427	22,683	41,090	18,407	.....	.....
Boxes, cigar	1909	274	6,852	301	436	6,115	6,049	5,403	471	2,234	4,313	8,491	4,178	−2.7	9.1
	1904	297	7,036	384	370	6,282	5,548	4,457	333	2,120	3,810	7,786	3,976	36.3	32.9
	1899	315	.....	.....	216	4,609	4,274	3,288	172	1,440	3,061	5,857	2,796	.....	.....
Boxes, fancy and paper	1909	949	43,568	815	3,239	39,514	23,323	35,475	3,709	14,015	25,716	54,450	28,734	23.2	47.7
	1904	796	35,194	786	2,326	32,082	15,117	22,691	2,313	10,208	16,686	36,867	20,181	16.0	35.0
	1899	729	.....	.....	1,368	27,653	9,286	14,979	1,269	8,152	11,765	27,316	15,551	.....	.....
Brass and bronze products.	1909	1,021	45,441	828	3,995	40,618	106,120	109,319	5,540	23,677	99,228	149,989	50,761	22.5	46.5
	1904	813	36,952	784	3,000	33,168	69,494	77,438	3,778	17,666	65,653	102,407	36,754	22.1	15.5
	1899	695	.....	.....	1,313	27,166	47,257	51,120	2,297	13,599	61,189	88,654	27,465	.....	.....
Bread and other bakery products.	1909	23,926	144,322	26,982	17,124	100,216	65,298	212,910	13,764	59,351	238,034	396,865	158,831	23.3	47.2
	1904	18,226	109,673	20,037	8,358	81,278	37,241	122,353	6,273	43,172	155,989	269,583	113,594	35.0	53.7
	1899	14,836	.....	.....	9,167	60,192	22,472	80,902	6,063	27,864	95,052	175,369	80,317	.....	.....
Brick and tile	1909	4,215	85,764	4,285	4,951	76,528	341,109	174,673	5,439	37,139	23,736	92,776	69,040	15.9	30.4
	1904	4,634	75,006	5,295	3,690	66,021	255,362	119,957	3,530	28,646	16,317	71,152	54,835	6.5	38.8
	1899	5,423	.....	.....	2,426	61,979	176,700	82,086	2,025	21,883	11,006	51,270	40,264	.....	.....
Brooms and brushes [1]	1909	1,282	15,143	1,451	1,539	12,153	8,800	18,982	1,661	5,404	15,578	29,126	13,548	6.4	38.0
	1904	1,316	13,958	1,551	982	11,425	6,441	12,052	925	4,380	10,999	21,104	10,105	10.4	14.2
	1899	1,523	.....	.....	900	10,346	4,482	9,616	758	3,788	9,544	18,484	8,940	.....	.....
Butter, cheese, and condensed milk.	1909	8,479	31,506	8,019	5,056	18,431	101,349	71,284	3,591	11,081	235,546	274,558	39,012	18.5	63.2
	1904	8,926	25,865	6,801	3,507	15,557	93,845	47,256	1,376	8,413	142,920	168,183	25,263	21.5	28.6
	1899	9,242	.....	.....	2,818	12,799	88,062	36,303	912	6,146	108,841	130,783	21,942	.....	.....
Butter, reworking	1909	24	418	10	113	295	1,471	3,543	128	186	7,424	8,200	776	−27.0	12.8
	1904	35	526	32	90	404	1,684	1,719	85	252	6,247	7,271	1,024	173.0	243.8
	1899	10	.....	.....	29	148	631	256	30	68	1,345	2,115	770	.....	.....
Buttons	1909	444	18,004	519	1,058	16,427	12,831	15,640	1,209	6,789	9,541	22,708	13,167	55.5	104.0
	1904	275	11,637	302	768	10,567	6,982	7,784	711	3,680	4,144	11,134	6,990	21.7	44.7
	1899	238	.....	.....	339	8,685	4,165	4,213	296	2,826	2,803	7,696	4,893	.....	.....
Calcium lights	1909	10	20	7	4	15	53	55	4	11	24	52	28	−63.4	−61.5
	1904	22	85	28	16	41	132	144	12	24	35	135	100	−25.5	13.4
	1899	19	.....	.....	6	55	80	95	6	24	35	119	84	.....	.....
Candles [2]	1909	16	649	7	103	539	799	2,959	161	246	2,176	3,130	954	−33.9	−19.5
	1904	17	930	25	89	816	931	3,004	135	294	2,911	3,889	978	.....	.....
Canning and preserving	1909	3,767	71,972	4,244	7,760	59,968	81,179	119,207	7,864	19,082	101,823	157,101	55,278	5.3	20.4
	1904	3,168	66,022	3,450	5,628	56,944	60,831	79,246	5,231	16,336	83,147	130,466	47,319	−0.1	31.3
	1899	2,570	.....	.....	4,199	57,012	38,624	55,481	3,479	13,705	63,668	99,335	35,667	.....	.....
Card cutting and designing.	1909	68	702	79	98	525	269	684	93	238	374	1,031	657	−24.6	−4.8
	1904	60	834	72	66	696	222	488	52	261	478	1,083	605	114.2	75.2
	1899	43	.....	.....	25	325	219	338	22	135	313	618	305	.....	.....
Carpets and rugs, other than rag.	1909	139	34,706	134	1,265	33,307	38,553	75,627	2,209	15,536	39,563	71,188	31,625	0.3	15.6
	1904	139	34,393	149	1,023	33,221	33,045	56,781	1,397	13,724	37,948	61,586	23,638	16.9	27.8
	1899	133	.....	.....	687	28,411	26,740	44,449	881	11,121	27,229	48,192	20,963	.....	.....
Carpets, rag	1909	428	2,688	489	217	1,982	2,651	1,546	182	860	689	2,568	1,879	14.2	33.9
	1904	363	2,331	458	137	1,736	1,667	1,100	87	675	489	1,918	1,429	31.7	9.3
	1899	805	.....	.....	57	1,318	599	867	30	443	622	1,755	1,133	.....	.....
Carriages and sleds, children's.	1909	84	5,769	50	419	5,300	5,281	6,883	490	2,217	4,129	8,805	4,676	32.4	38.2
	1904	78	4,379	52	324	4,003	3,633	4,336	341	1,783	2,840	6,371	3,531	46.8	48.5
	1899	77	.....	.....	172	2,726	2,462	2,907	159	1,090	1,996	4,290	2,294	.....	.....
Carriages and wagons and materials.	1909	5,492	82,944	6,213	6,803	69,928	126,032	175,474	7,960	37,595	81,951	159,893	77,942	−10.2	2.6
	1904	5,588	90,751	6,575	6,294	77,882	106,159	152,345	6,581	38,363	77,528	155,869	78,341	5.5	12.7
	1899	6,792	.....	.....	5,026	73,812	83,771	128,962	4,759	33,565	66,772	138,262	71,490	.....	.....
Cars and general shop construction and repairs by steam-railroad companies.	1909	1,145	301,273	2	19,097	282,174	293,361	238,317	17,339	181,344	199,413	405,601	206,188	19.1	30.9
	1904	1,140	250,199	.....	13,329	236,870	167,973	146,886	11,920	142,153	151,105	309,775	158,670	36.4	42.0
	1899	1,292	.....	.....	7,094	173,595	95,087	110,473	6,208	96,007	109,472	218,114	108,642	.....	.....
Cars and general shop construction and repairs by street-railroad companies.	1909	541	23,699	.....	1,281	22,418	35,794	38,899	1,204	14,486	15,168	31,963	16,795	102.8	137.9
	1904	86	11,551	.....	499	11,052	3,154	12,906	543	7,013	5,463	13,437	7,974	57.3	43.4
	1899	108	.....	.....	201	7,025	6,443	10,782	194	4,405	4,337	9,371	5,034	.....	.....
Cars, steam-railroad, not including operations of railroad companies.	1909	110	47,094	7	4,001	43,086	97,797	139,805	5,138	27,135	78,753	123,730	44,977	26.5	11.3
	1904	73	36,367	6	2,303	34,058	55,994	88,179	2,855	20,248	75,657	111,175	35,518	1.8	22.8
	1899	65	.....	.....	1,360	33,453	33,395	88,324	1,538	16,987	61,743	90,510	28,767	.....	.....
Cars, street-railroad, not including operations of railroad companies.	1909	14	4,005	1	421	3,583	15,161	14,163	594	2,177	4,260	7,810	3,550	−24.2	−28.0
	1904	14	4,997	3	264	4,730	7,054	12,976	398	2,840	5,341	10,844	5,503	31.9	48.4
	1899	20	.....	.....	144	3,585	4,865	7,615	235	1,951	3,967	7,305	3,338	.....	.....
Cash registers and calculating machines.	1909	50	9,249	7	1,777	7,465	6,944	27,224	2,736	5,312	3,552	23,708	20,156	83.0	140.1
	1904	32	5,012	10	923	4,079	4,139	7,588	1,109	2,442	1,516	9,875	8,359	97.3	74.0
	1899	18	.....	.....	327	2,007	1,340	5,242	329	1,250	921	5,675	4,754	.....	.....
Cement [3]	1909	135	20,511	17	2,719	26,775	371,799	187,398	3,653	15,320	29,344	63,205	33,861	53.2	111.6
	1904	129	18,887	26	1,383	17,478	149,604	85,759	1,858	8,814	12,215	29,873	17,658	.....	.....
Charcoal	1909	76	731	75	25	631	165	641	23	253	448	872	424	−31.6	−32.5
	1904	74	1,025	77	25	923	355	717	22	343	612	1,232	650	−48.3	13.9
	1899	183	.....	.....	23	1,786	164	811	16	431	405	1,134	729	.....	.....

[1] Includes 898 establishments reported as "brooms" and 384 as "brushes" in 1909.

[2] Included in "soap" in 1899.

[3] Included in "lime" in 1899.

TABLE I.—COMPARATIVE SUMMARY FOR UNITED STATES, BY SPECIFIED INDUSTRIES: 1909, 1904, AND 1899—Contd.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).	PER CENT OF INCREASE. Wage earners (average number).	Value of products.
								Expressed in thousands.							
Chemicals[1]	1909	349	27,791	154	3,923	23,714	208,604	$155,144	$6,137	$14,085	$64,122	$117,689	$53,567	19.7	56.5
	1904	275	22,707	123	2,778	19,806	132,262	96,621	4,048	10,799	42,063	75,222	33,159	4.1	20.1
	1899	433	.....	.....	2,123	19,020	90,349	89,069	2,923	9,393	34,546	62,637	28,091	.....	.....
China decorating	1909	40	456	45	63	328	18	559	80	191	311	786	475	45.8	140.4
	1904	28	273	30	18	225	6	261	16	99	108	327	219	−24.5	−32.6
	1899	49	.....	.....	31	298	.....	269	21	122	207	485	278	.....	.....
Chocolate and cocoa products.	1909	27	3,404	10	568	2,826	10,503	13,685	970	1,269	15,523	22,390	6 867	35.2	55.6
	1904	25	2,396	15	291	2,090	5,217	8,379	463	822	9,723	14,390	4,667	59.1	48.9
	1899	24	.....	.....	289	1,314	2,756	6,891	371	526	6,877	9,666	2,789	.....	.....
Clocks and watches, including cases and materials.	1909	120	25,439	53	1,529	23,857	14,057	57,500	2,181	12,944	11,131	35,197	24,066	5.7	18.2
	1904	97	23,891	63	1,249	22,579	10,731	42,189	1,638	11,892	9,872	29,790	19,918	31.6	34.7
	1899	109	.....	.....	676	17,155	7,251	31,514	957	8,315	8,819	22,110	13,291	.....	.....
Cloth, sponging and refinishing.	1909	57	1,167	67	125	975	704	629	127	651	85	1,544	1,459	22.6	46.6
	1904	55	922	68	59	795	322	401	62	504	39	1,053	1,014	48.9	86.0
	1899	46	.....	.....	30	534	109	289	35	208	17	566	549	.....	.....
Clothing, horse	1909	33	1,830	40	142	1,648	1,454	3,279	171	492	2,773	4,135	1,362	55.0	93.2
	1904	29	1,168	32	73	1,063	656	1,499	72	342	1,329	2,140	811	84.9	64.0
	1899	26	.....	.....	55	575	271	654	47	177	848	1,305	457	.....	.....
Clothing, men's, including shirts.	1909	6,354	271,437	8,502	23,239	239,696	42,725	275,320	26,723	106,277	297,515	568,077	270,562	38.0	39.7
	1904	5,145	196,366	7,006	15,671	173,689	29,829	176,557	15,740	68,459	211,433	406,768	195,335	10.2	25.6
	1899	6,419	.....	.....	11,906	157,549	20,457	140,191	12,032	56,391	168,169	323,839	155,670	.....	.....
Clothing, men's, buttonholes.	1909	146	1,031	181	20	830	176	225	12	389	105	781	676	−8.1	11.6
	1904	141	1,075	164	8	903	137	262	5	389	95	700	605	−4.3	2.8
	1899	149	.....	.....	11	944	113	247	6	332	98	691	593	.....	.....
Clothing, women's	1909	4,558	179,021	6,482	18,796	153,743	22,294	129,301	20,418	78,568	208,788	384,752	175,964	32.9	55.4
	1904	3,351	131,538	4,913	10,920	115,705	14,916	73,948	9,976	51,180	130,720	247,662	116,942	38.2	55.4
	1899	2,701	.....	.....	6,715	83,739	9,962	48,432	6,574	32,586	84,705	159,340	74,635	.....	.....
Coffee and spice, roasting and grinding.[2]	1909	607	13,516	497	5,529	7,490	22,334	46,042	6,596	3,676	83,205	110,533	27,328	25.7	31.3
	1904	421	9,245	442	2,844	5,959	15,703	38,735	3,216	2,830	65,847	84,183	18,341	−3.7	21.1
	1899	458	.....	.....	2,749	6,387	16,270	28,437	2,951	2,487	55,112	69,527	14,415	.....	.....
Coffins, burial cases, and undertakers' goods.	1909	284	11,448	161	1,948	9,339	16,490	25,843	2,411	4,633	11,964	24,526	12,562	10.3	21.0
	1904	239	9,707	168	1,161	8,468	13,178	18,532	1,345	4,120	9,591	20,266	10,765	23.8	45.3
	1899	217	.....	.....	948	6,840	8,927	13,585	1,023	3,077	6,945	13,952	7,007	.....	.....
Coke	1909	315	31,226	101	1,852	29,273	62,602	152,321	2,072	15,454	64,025	95,697	31,672	54.2	85.0
	1904	278	20,440	73	1,386	18,981	66,669	90,713	1,247	9,304	29,885	51,729	21,844	11.7	45.4
	1899	241	.....	.....	915	16,999	34,767	36,503	797	7,086	19,666	35,585	15,919	.....	.....
Confectionery	1909	1,944	54,854	1,832	8,384	44,638	35,870	68,326	9,137	15,615	81,151	134,796	53,645	23.2	54.8
	1904	1,348	42,729	1,366	5,124	36,239	24,292	43,125	4,840	11,699	48,810	87,087	38,277	34.9	43.6
	1899	962	.....	.....	4,304	26,866	19,410	26,319	3,525	8,020	35,354	60,644	25,290	.....	.....
Cooperage and wooden goods, not elsewhere specified.	1909	1,693	29,717	1,760	1,088	26,269	65,108	50,342	2,047	11,715	36,928	60,248	23,320	−5.3	4.0
	1904	1,719	31,133	1,853	1,537	27,743	56,988	36,756	1,752	11,843	34,971	57,956	22,985	9.6	37.9
	1899	1,798	.....	.....	969	25,323	38,462	25,602	963	9,869	23,619	42,025	18,406	.....	.....
Copper, tin, and sheet-iron products.	1909	4,228	86,934	4,423	8,896	73,615	62,366	217,532	10,288	39,501	112,582	199,824	87,242	38.8	66.6
	1904	2,540	60,713	2,851	4,827	53,035	30,229	147,608	6,070	26,269	63,921	119,933	56,012	38.4	53.1
	1899	1,985	.....	.....	2,924	38,317	28,829	49,679	2,810	16,924	42,602	78,359	35,757	.....	.....
Cordage and twine and jute and linen goods.	1909	164	27,214	80	1,314	25,820	78,549	76,020	1,863	9,133	40,915	61,020	20,105	1.9	−5.6
	1904	145	26,442	60	1,050	25,332	66,244	56,467	1,597	8,824	46,031	64,664	18,633	17.0	31.8
	1899	160	.....	.....	682	21,651	47,999	43,153	1,021	6,554	33,064	49,078	16,014	.....	.....
Cordials and sirups	1909	117	1,638	94	449	1,095	1,154	4,804	627	503	5,341	9,662	4,321	65.9	175.3
	1904	63	899	68	171	660	782	1,666	242	295	2,149	3,510	1,361	82.3	66.6
	1899	39	.....	.....	112	362	573	1,153	121	117	1,595	2,107	602	.....	.....
Cork, cutting	1909	62	3,376	49	185	3,142	3,746	5,327	207	1,098	3,435	5,940	2,505	8.5	32.3
	1904	50	3,080	49	136	2,895	2,589	4,099	198	888	2,459	4,491	2,032	23.7	2.3
	1899	62	.....	.....	136	2,340	1,563	2,684	195	698	2,404	4,392	1,988	.....	.....
Corsets	1909	138	19,611	91	1,956	17,564	4,581	18,033	2,871	6,404	15,640	33,257	17,617	60.0	123.8
	1904	109	11,948	96	877	10,975	3,284	9,589	1,010	3,600	6,135	14,862	8,727	−10.8	2.8
	1899	138	.....	.....	815	12,297	3,638	7,290	966	3,645	6,357	14,451	8,094	.....	.....
Cotton goods, including cotton small wares.	1909	1,324	387,771	377	8,514	378,880	1,296,517	822,238	14,412	132,859	371,009	628,392	257,383	19.9	39.5
	1904	1,154	323,287	432	6,981	315,874	986,604	613,111	10,238	96,206	286,255	450,468	164,213	4.3	32.8
	1899	1,055	.....	.....	4,902	302,861	795,834	467,240	7,350	86,690	176,552	330,200	162,648	.....	.....
Crucibles	1909	12	398	4	59	335	816	2,051	130	180	1,089	1,849	760	19.6	37.7
	1904	11	340	3	57	280	627	1,577	116	159	702	1,343	581	−58.3	−48.5
	1899	11	.....	.....	89	671	760	1,844	154	251	1,673	2,607	934	.....	.....
Cutlery and tools, not elsewhere specified.	1909	959	37,161	814	3,351	32,996	68,294	67,380	4,182	17,581	18,270	53,266	34,987	26.0	36.5
	1904	838	29,004	827	1,989	26,188	54,397	43,729	2,333	13,125	13,278	39,022	25,744	33.3	38.6
	1899	721	.....	.....	1,464	19,642	38,283	30,152	1,606	9,434	9,748	28,146	18,398	.....	.....
Dairymen's, poulterers', and apiarists' supplies.[3]	1909	233	6,431	206	1,354	4,871	6,898	15,188	1,416	2,671	6,089	15,463	9,374	86.8	136.3
	1904	176	3,273	165	500	2,608	3,994	5,030	359	1,107	3,203	6,545	3,342	.....	.....
Dentists' materials	1909	87	1,982	69	340	1,573	865	6,258	545	744	8,101	10,836	2,735	−18.2	38.7
	1904	80	2,291	79	290	1,922	1,113	4,681	334	949	5,510	7,810	2,300	89.0	109.9
	1899	68	.....	.....	182	1,017	375	2,112	184	509	2,109	3,721	1,612	.....	.....

[1] Includes "sulphuric, nitric, and mixed acids" and "wood distillation, not including turpentine and rosin" in 1899.
[2] Includes "peanuts, grading, roasting, cleaning, and shelling" in 1899.
[3] Included in other classifications in 1899.

TABLE I.—COMPARATIVE SUMMARY FOR UNITED STATES, BY SPECIFIED INDUSTRIES: 1909, 1904, AND 1899—Contd.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).	PER CENT OF INCREASE.	
			Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).								Wage earners (average number).	Value of products.
								Expressed in thousands.							
Drug grinding	1909	25	1,152	16	214	922	3,322	$5,187	$208	$464	$3,454	$6,097	$2,553	−6.0	16.7
	1904	27	1,111	23	107	981	2,866	4,991	155	483	3,024	5,146	2,122	52.3	19.5
	1899	26	.....	.....	102	644	4,097	2,838	127	292	3,315	4,308	993	.....	.....
Dyeing and finishing textiles.	1909	426	47,303	318	2,939	44,046	107,746	114,093	5,035	21,227	35,261	83,556	48,295	23.8	64.3
	1904	360	38,071	310	2,196	35,565	84,868	88,709	3,407	15,469	19,621	50,850	31,229	19.4	13.1
	1899	298	.....	.....	1,318	29,776	69,238	60,643	2,267	12,726	17,958	44,963	27,005	.....	.....
Dyestuffs and extracts	1909	107	3,015	65	553	2,397	22,213	17,935	942	1,291	9,684	15,955	6,271	−11.5	46.5
	1904	98	3,150	82	361	2,707	17,671	14,904	699	1,264	6,829	10,893	4,064	64.4	48.2
	1899	77	.....	.....	229	1,647	11,409	7,839	312	788	4,746	7,351	2,605	.....	.....
Electrical machinery, apparatus, and supplies.	1909	1,009	105,660	439	17,995	87,256	158,768	267,844	20,193	49,381	108,566	221,369	112,743	44.3	57.2
	1904	784	71,485	400	10,619	60,466	105,376	174,666	11,091	31,842	66,837	140,809	73,972	43.9	52.3
	1899	581	.....	.....	5,067	42,013	43,674	83,660	4,632	20,579	49,458	92,434	42,976	.....	.....
Electroplating	1909	461	3,558	554	287	2,717	4,461	2,324	243	1,052	1,205	4,510	3,305	30.8	52.1
	1904	312	2,458	371	144	1,943	2,588	1,257	132	1,093	747	2,965	2,218	−6.9	9.0
	1899	302	.....	.....	115	2,086	2,933	1,322	93	949	784	2,720	1,936	.....	.....
Emery and other abrasive wheels.	1909	51	2,446	20	483	1,943	4,005	6,231	657	1,156	2,651	6,711	4,060	142.6	225.5
	1904	34	1,000	11	188	801	1,965	2,249	217	451	705	2,062	1,357	46.7	49.2
	1899	34	.....	.....	125	546	1,044	1,490	127	303	509	1,382	873	.....	.....
Enameling and japanning.[1]	1909	108	2,418	105	188	2,125	1,695	2,880	204	922	1,496	3,316	1,820	−78.7	−79.7
	1904	124	10,657	99	595	9,963	7,856	18,571	814	3,830	7,391	16,316	8,922	27.2	60.1
	1899	107	.....	.....	307	7,835	3,052	9,302	309	2,334	5,522	10,194	4,672	.....	.....
Engravers' materials	1909	18	189	13	47	129	549	393	68	96	609	921	312	163.3	438.6
	1904	10	68	13	6	49	135	98	11	31	96	171	75	−35.5	−39.4
	1899	11	.....	.....	13	76	105	101	22	45	142	282	140	.....	.....
Engraving and diesinking	1909	253	1,782	300	174	1,308	768	1,449	168	821	351	2,250	1,899	−16.8	−7.1
	1904	305	2,100	352	175	1,573	1,032	1,211	160	1,032	376	2,422	2,046	63.2	65.0
	1899	277	.....	.....	75	964	616	720	63	543	203	1,468	1,265	.....	.....
Engraving, wood	1909	82	480	89	73	318	39	193	82	259	126	711	585	−5.9	9.7
	1904	114	505	129	38	338	45	185	42	245	60	648	583	0.6	5.5
	1899	144	.....	.....	22	336	47	231	23	206	63	614	551	.....	.....
Explosives	1909	86	7,058	21	763	6,274	28,601	50,168	1,134	4,304	22,812	40,140	17,328	8.2	35.6
	1904	124	7,113	24	1,289	5,800	29,665	42,307	1,797	3,309	17,204	29,603	12,399	28.8	72.9
	1899	97	.....	.....	768	4,502	19,195	19,466	914	2,384	10,335	17,125	6,790	.....	.....
Fancy articles, not elsewhere specified.	1909	494	14,194	477	1,526	12,191	8,310	15,768	1,728	5,096	10,361	22,632	12,271	19.5	28.6
	1904	435	11,743	483	1,066	10,199	5,886	9,501	1,037	4,080	7,537	17,504	10,057	20.7	36.4
	1899	496	.....	.....	875	8,451	4,386	6,854	739	3,023	5,943	12,896	6,953	.....	.....
Fertilizers	1909	550	21,950	323	3,317	18,310	64,711	121,537	4,406	7,477	69,522	103,960	34,438	29.1	83.9
	1904	399	16,091	294	1,613	14,184	47,989	68,917	1,934	5,127	39,288	56,541	17,253	22.5	26.6
	1899	422	.....	.....	1,712	11,581	38,680	60,686	2,125	4,185	28,958	44,657	15,699	.....	.....
Files	1909	57	4,521	47	316	4,158	7,383	10,413	338	1,978	1,590	5,691	4,095	26.9	29.6
	1904	62	3,450	65	109	3,276	5,697	5,866	170	1,514	1,311	4,392	3,081	3.7	29.0
	1899	86	.....	.....	127	3,160	4,835	3,858	154	1,277	1,166	3,404	2,238	.....	.....
Firearms and ammunition.	1909	66	16,042	30	1,207	14,715	17,840	39,377	1,920	8,427	17,021	34,112	17,091	7.9	20.9
	1904	62	14,400	38	728	13,634	21,408	22,493	1,100	7,755	12,339	28,206	15,867	40.4	52.7
	1899	65	.....	.....	432	9,713	7,470	13,635	614	5,103	8,742	18,472	9,730	.....	.....
Fire extinguishers, chemical.	1909	31	300	10	95	195	215	527	134	127	305	754	449	9.6	20.6
	1904	35	267	23	66	178	140	338	59	108	220	582	353	178.1	167.0
	1899	17	.....	.....	47	64	26	137	39	33	71	218	147	.....	.....
Fireworks	1909	42	1,567	22	142	1,403	517	2,209	217	579	896	2,269	1,373	−5.2	14.2
	1904	34	1,637	25	132	1,480	347	1,543	141	536	769	1,987	1,218	−9.6	11.3
	1899	46	.....	.....	136	1,638	219	1,086	146	507	628	1,785	1,157	.....	.....
Flags, banners, regalia, society badges and emblems.	1909	211	4,522	207	743	3,572	1,173	5,781	710	1,489	3,810	8,114	4,304	24.4	44.7
	1904	171	3,517	169	476	2,872	949	3,916	482	1,128	2,506	5,608	3,102	38.2	57.2
	1899	145	.....	.....	306	2,078	435	2,406	259	620	2,144	4,088	1,944	.....	.....
Flavoring extracts	1909	420	2,634	377	1,026	1,229	1,060	5,341	1,082	558	4,458	8,828	4,370	−20.4	13.6
	1904	377	2,599	384	672	1,543	873	4,405	698	653	3,936	7,772	3,836	23.3	23.2
	1899	350	.....	.....	594	1,251	704	3,314	654	478	3,291	6,308	3,017	.....	.....
Flax and hemp, dressed	1909	16	216	22	30	164	1,147	785	29	64	336	467	131	−23.4	34.6
	1904	17	246	17	15	214	600	239	9	60	233	347	114	1.4	118.2
	1899	4	.....	.....	12	211	187	72	7	46	91	159	68	.....	.....
Flour-mill and gristmill products.	1909	11,691	66,054	14,570	12,031	39,453	653,584	349,152	12,517	21,464	767,576	883,584	116,008	0.9	23.9
	1904	10,051	59,623	13,098	7,415	39,110	775,318	265,117	7,352	19,822	619,971	713,033	93,062	21.4	42.2
	1899	9,476	.....	.....	5,522	32,226	670,719	189,281	5,258	16,285	428,117	501,396	73,279	.....	.....
Food preparations	1909	1,213	20,965	1,131	4,866	14,968	55,106	61,685	5,865	7,043	83,942	125,331	41,389	32.1	104.9
	1904	766	14,739	749	2,657	11,333	28,102	51,784	2,999	4,398	37,668	61,180	23,512	38.0	53.6
	1899	645	.....	.....	1,538	8,214	15,485	21,401	1,495	3,099	24,777	39,837	15,060	.....	.....
Foundry and machine-shop products.[2]	1909	13,253	615,485	9,851	74,623	531,011	869,305	1,514,332	62,795	321,521	540,011	1,228,475	688,464	19.8	39.5
	1904	10,765	502,185	9,370	49,406	443,409	606,165	1,034,135	50,703	246,573	367,412	880,514	512,102	3.8	10.3
	1899	11,046	.....	.....	34,286	426,985	443,085	790,741	39,318	219,870	363,036	798,454	435,418	.....	.....
Foundry supplies	1909	49	710	27	219	464	4,995	2,688	255	276	1,272	2,208	1,026	47.3	117.0
	1904	34	414	22	77	315	3,543	1,516	73	156	625	1,059	434	13.3	−6.2
	1899	30	.....	.....	75	278	3,505	982	79	136	628	1,120	501	.....	.....
Fuel, manufactured [3]	1909	11	112	2	22	88	1,290	432	22	50	155	311	156	.....	.....

[1] Totals for 1899 and 1904 include some establishments classed as "copper, tin, and sheet-iron products" in 1909.
[2] Includes "locomotives, not made by railroad companies" and "stoves and furnaces, including gas and oil stoves," in 1899.
[3] Not reported separately in 1904 or 1899.

TABLE I.—COMPARATIVE SUMMARY FOR UNITED STATES, BY SPECIFIED INDUSTRIES: 1909, 1904, AND 1899—Contd.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).	PER CENT OF INCREASE. Wage earners (average number).	Value of products.
								Expressed in thousands.							
Fur goods	1909	1,241	16,152	1,717	2,508	11,927	2,120	$29,249	$2,553	$7,788	$31,777	$55,938	$24,161	27.3	50.7
	1904	867	11,787	1,245	1,172	9,370	1,994	17,990	1,229	5,123	21,202	37,119	15,917	20.8	43.3
	1899	734	.....	.....	1,141	7,758	907	12,484	1,006	3,927	14,281	25,899	11,618	.....	.....
Furnishing goods, men's.	1909	900	43,935	1,022	4,431	38,482	12,116	49,009	5,210	15,093	49,125	87,710	38,585	41.6	78.9
	1904	547	30,476	694	2,597	27,185	5,421	28,044	2,158	8,760	26,565	49,032	32,467	−10.3	10.6
	1899	457	.....	.....	2,149	30,322	3,552	20,576	2,188	9,730	23,670	44,346	20,676	.....	.....
Furniture and refrigerators.	1909	3,155	144,140	2,657	13,031	128,452	221,451	227,134	15,561	65,618	108,775	239,886	131,111	12.5	34.9
	1904	2,593	125,093	2,286	8,642	114,165	169,774	158,986	9,524	51,788	76,892	177,795	100,903	26.0	36.1
	1899	1,909	.....	.....	6,751	90,591	119,608	109,267	6,692	36,920	57,406	130,634	73,228	.....	.....
Furs, dressed	1909	93	1,472	115	116	1,241	2,103	1,672	135	806	811	2,391	1,580	12.3	−25.7
	1904	85	1,324	109	110	1,105	1,260	1,206	110	755	1,642	3,216	1,574	32.3	129.7
	1899	92	.....	.....	46	835	1,063	798	40	478	520	1,400	880	.....	.....
Galvanizing	1909	46	1,689	26	216	1,447	1,367	4,197	257	787	5,719	7,338	1,619	15.2	14.3
	1904	30	1,457	34	167	1,256	1,603	2,690	192	620	4,745	6,419	1,674	134.8	159.8
	1899	28	.....	.....	52	535	409	1,776	47	229	1,678	2,471	793	.....	.....
Gas and electric fixtures and lamps and reflectors.	1909	619	22,906	431	3,614	18,861	15,862	36,835	4,340	10,393	20,467	45,057	24,590	50.0	60.6
	1904	405	14,653	334	1,749	12,570	8,444	28,002	2,198	6,408	11,078	26,560	15,482	11.9	34.0
	1899	377	.....	.....	1,294	11,238	6,991	15,855	1,492	5,188	7,962	19,821	11,859	.....	.....
Gas, illuminating and heating.	1909	1,296	51,007	277	13,515	37,215	128,350	915,537	12,385	20,931	52,428	106,814	114,386	21.8	33.3
	1904	1,019	40,043	71	9,406	30,566	73,101	725,035	8,464	17,058	37,180	125,145	87,965	36.1	65.3
	1899	877	.....	.....	5,904	22,459	31,797	567,001	5,273	12,436	20,605	75,717	55,112	.....	.....
Glass	1909	363	72,573	87	3,575	68,911	128,532	129,288	4,994	39,300	32,119	92,095	59,976	7.7	15.7
	1904	399	67,105	96	3,040	63,969	91,476	89,389	3,940	37,288	26,146	79,608	53,462	21.1	40.8
	1899	355	.....	.....	2,268	52,818	52,943	61,424	2,792	27,085	16,731	56,540	39,809	.....	.....
Glass, cutting, staining, and ornamenting.	1909	583	11,090	617	1,111	9,362	4,897	10,296	1,295	5,249	6,246	16,101	9,855	11.7	22.6
	1904	453	9,626	594	743	8,379	3,973	7,365	776	4,359	4,845	13,138	8,293	70.5	50.1
	1899	411	.....	.....	475	4,914	2,098	4,001	487	2,394	3,535	8,750	5,215	.....	.....
Gloves and mittens, leather.	1909	377	12,950	458	1,138	11,354	2,889	16,909	1,256	4,764	13,208	23,631	10,423	6.7	33.2
	1904	339	11,712	427	640	10,645	2,725	10,706	585	3,846	10,001	17,740	7,739	−25.8	4.8
	1899	394	.....	.....	659	14,345	2,165	9,090	547	4,183	9,483	16,926	7,443	.....	.....
Glucose and starch	1909	118	5,827	86	968	4,773	28,257	38,866	1,413	2,666	36,899	48,799	11,900	2.0	49.5
	1904	140	5,409	111	619	4,679	35,086	24,053	655	2,641	25,519	32,650	7,131	−21.3	5.6
	1899	132	.....	.....	553	5,943	26,642	52,683	732	2,855	21,580	30,927	9,347	.....	.....
Glue	1909	65	3,840	45	530	3,265	15,596	14,289	747	1,571	7,525	13,718	6,193	14.0	36.7
	1904	58	3,258	42	352	2,864	14,280	10,673	465	1,529	6,186	10,035	3,849	77.0	86.2
	1899	61	.....	.....	159	1,618	6,806	6,144	192	685	3,767	5,389	1,622	.....	.....
Gold and silver, leaf and foil.	1909	88	1,553	108	62	1,383	250	1,184	78	637	1,518	2,630	1,112	−1.4	−2.4
	1904	83	1,594	106	86	1,402	278	1,072	85	663	1,476	2,695	1,219	20.6	1.1
	1899	93	.....	.....	35	1,163	140	1,087	36	499	1,604	2,666	1,062	.....	.....
Gold and silver, reducing and refining, not from the ore.	1909	62	690	61	173	456	1,735	3,894	249	346	21,984	23,612	1,628	58.9	26.1
	1904	41	439	57	95	287	1,068	2,326	127	206	17,538	18,724	1,186	31.0	53.5
	1899	57	.....	.....	76	219	765	1,944	83	141	10,932	11,812	880	.....	.....
Graphite and graphite refining.	1909	9	262	4	96	162	1,472	1,786	115	80	405	1,140	735	−25.7	233.3
	1904	11	257	6	33	218	922	478	30	108	117	342	225	59.1	−20.3
	1899	11	.....	.....	16	137	805	411	21	64	217	429	212	.....	.....
Grease and tallow	1909	353	5,504	364	783	4,357	14,613	16,676	991	2,620	15,543	23,419	7,876	20.1	24.5
	1904	300	4,415	306	481	3,628	11,738	10,284	583	2,114	12,369	18,815	6,446	77.8	57.4
	1899	287	.....	.....	256	2,040	8,031	7,071	266	1,067	8,752	11,953	3,201	.....	.....
Grindstones	1909	14	1,485	6	85	1,394	5,700	4,939	159	638	468	1,688	1,220	91.4	114.2
	1904	23	766	10	50	706	2,602	1,860	81	275	264	788	524	−39.5	−27.6
	1899	25	.....	.....	60	1,167	2,677	903	58	407	264	1,089	825	.....	.....
Haircloth [1]	1909	14	621	11	72	538	995	2,281	72	252	1,614	2,230	616	.....	.....
Hair work	1909	250	4,383	298	551	3,534	218	4,716	434	1,610	6,081	11,216	5,135	309.5	529.4
	1904	125	1,137	148	126	863	62	1,132	98	335	728	1,782	1,054	5.2	26.7
	1899	158	.....	.....	44	820	23	760	33	287	496	1,406	910	.....	.....
Hammocks	1909	15	325	14	39	272	157	344	34	95	311	578	267	0.4	20.3
	1904	14	316	19	26	271	171	290	27	91	190	447	257	−20.1	−6.9
	1899	13	.....	.....	21	339	113	308	16	102	243	480	237	.....	.....
Hand stamps and stencils and brands.	1909	361	2,539	375	513	1,651	903	2,439	433	952	1,127	3,673	2,546	9.6	30.7
	1904	327	2,149	363	280	1,506	721	1,915	224	797	737	2,811	2,074	2.4	7.7
	1899	360	.....	.....	171	1,470	462	1,736	141	696	663	2,611	1,948	.....	.....
Hat and cap materials	1909	74	2,618	63	188	2,367	2,922	6,183	231	947	5,380	8,236	2,856	−1.9	27.9
	1904	65	2,615	87	114	2,414	2,239	4,265	127	849	4,217	6,440	2,223	76.1	67.3
	1899	70	.....	.....	50	1,371	1,770	1,744	60	434	2,798	3,849	1,051	.....	.....
Hats and caps, other than felt, straw, and wool. [2]	1909	494	7,609	688	720	6,201	990	5,275	783	3,421	6,690	13,689	6,999	−6.0	5.7
	1904	415	7,617	605	418	6,594	797	4,185	436	3,354	6,308	12,956	6,648	−47.4	−39.4
	1899	644	.....	.....	643	12,544	3,252	8,394	675	5,025	10,907	21,393	10,486	.....	.....
Hats, fur-felt	1909	273	27,091	264	1,763	25,064	19,245	35,734	2,097	14,223	22,109	47,865	25,756	13.7	30.7
	1904	216	23,666	252	1,367	22,047	16,630	23,258	1,488	11,282	15,975	36,629	20,654	16.8	31.7
	1899	171	.....	.....	726	18,880	11,843	16,701	944	9,119	13,514	27,811	14,297	.....	.....
Hats, straw [3]	1909	98	9,704	91	799	8,814	3,482	11,538	1,427	4,471	11,468	21,424	9,956	58.3	106.9
	1904	68	6,084	79	438	5,567	2,366	6,036	487	2,434	5,510	10,357	4,847	.....	.....

[1] Included in other classifications in 1904 and 1899. [2] Includes "hats, straw," in 1899. [3] Included in "hats and caps, other than felt, straw, and wool," in 1899.

TABLE I.—COMPARATIVE SUMMARY FOR UNITED STATES, BY SPECIFIED INDUSTRIES: 1909, 1904, AND 1899—Contd.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).	PER CENT OF INCREASE. Wage earners (average number).	Value of products.
								Expressed in thousands.							
Hones and whetstones	1909	18	173	13	8	152	677	$382	$6	$72	$110	$268	$158	−30.9	−13.0
	1904	17	251	12	19	220	684	423	20	94	103	308	205	16.4	57.1
	1899	18	.....	.....	19	189	593	217	6	73	64	196	132	.....	.....
Horseshoes, not made in steel works or rolling mills.	1909	19	360	7	60	293	1,045	1,396	99	166	356	1,015	659	26.3	−27.0
	1904	8	273	1	40	232	1,014	1,227	54	127	256	799	543	0.4	60.4
	1899	7	.....	.....	18	231	545	463	36	117	211	498	287	.....	.....
Hosiery and knit goods	1909	1,374	136,130	1,134	5,721	129,275	103,709	103,641	7,691	44,740	110,241	200,143	89,902	24.2	46.0
	1904	1,144	109,489	1,067	4,330	104,092	78,769	106,943	4,455	31,615	76,789	137,076	60,287	24.4	43.0
	1899	1,006	.....	.....	2,831	83,691	57,346	82,066	3,138	24,434	51,195	95,834	44,639	.....	.....
House-furnishing goods, not elsewhere specified.	1909	260	5,916	236	773	4,907	9,328	12,784	1,007	2,035	12,371	18,509	6,138	2.7	23.3
	1904	237	5,555	234	543	4,778	8,748	9,872	582	1,860	9,627	15,011	5,384	−8.3	5.1
	1899	209	.....	.....	584	5,212	8,531	10,634	628	1,838	9,198	14,278	5,080	.....	.....
Ice, manufactured	1909	2,004	21,107	1,006	3,927	16,114	317,789	118,041	3,868	9,779	11,317	42,953	31,636	59.5	80.6
	1904	1,320	13,179	746	2,332	10,101	191,660	66,592	2,001	5,549	6,011	23,790	17,779	46.8	72.6
	1899	775	.....	.....	1,531	6,880	100,421	38,020	1,226	3,403	3,312	13,781	10,469	.....	.....
Ink, printing	1909	71	1,854	38	695	1,121	5,857	7,144	1,092	773	4,175	8,865	4,690	57.7	53.5
	1904	60	1,117	45	361	711	3,384	4,610	530	475	2,613	5,774	3,161	41.4	87.5
	1899	60	.....	.....	253	503	1,895	2,945	345	298	1,530	3,080	1,544	.....	.....
Ink, writing	1909	47	824	37	282	505	169	2,114	376	203	1,078	2,505	1,427	17.4	33.2
	1904	42	607	36	141	430	224	1,287	191	170	853	1,881	1,023	50.9	46.5
	1899	44	.....	.....	148	285	359	877	134	114	573	1,293	720	.....	.....
Instruments, professional and scientific.	1909	263	6,175	222	1,136	4,817	4,856	11,724	1,233	2,925	2,918	10,504	7,586	40.2	95.3
	1904	225	4,145	200	508	3,437	2,110	5,383	532	1,823	1,350	5,378	4,028	23.9	10.8
	1899	261	.....	.....	389	2,775	2,471	4,476	402	1,429	1,363	4,853	3,490	.....	.....
Iron and steel, blast furnaces.	1909	208	43,061	48	4,584	38,429	1,173,422	487,581	6,525	24,607	320,638	391,429	70,791	9.6	68.8
	1904	190	37,335	26	2,231	35,078	773,278	236,146	2,891	18,935	178,942	231,823	52,881	−10.6	12.1
	1899	223	.....	.....	1,757	39,241	497,272	143,159	2,304	18,484	131,504	206,757	75,253	.....	.....
Iron and steel, steel works and rolling mills.	1909	446	260,762	47	20,639	240,076	2,100,978	1,004,735	20,191	163,201	657,501	985,723	328,222	15.7	46.3
	1904	415	221,956	64	14,330	207,562	1,649,299	700,182	17,860	122,492	441,204	673,965	232,761	13.3	12.9
	1899	445	.....	.....	7,454	183,249	1,100,801	430,232	9,433	102,336	390,395	597,212	206,817	.....	.....
Iron and steel, bolts, nuts, washers, and rivets, not made in steel works or rolling mills.	1909	108	12,395	38	1,012	11,345	22,113	30,250	1,373	5,793	12,804	24,485	11,681	40.2	66.7
	1904	88	8,771	49	632	8,090	13,825	18,913	912	3,042	7,807	14,687	6,880	5.6	5.1
	1899	72	.....	.....	420	7,660	9,165	10,800	571	2,992	8,021	13,978	5,907	.....	.....
Iron and steel, doors and shutters.	1909	29	1,816	13	197	1,601	1,997	3,045	224	874	1,283	3,006	1,723	129.0	103.5
	1904	24	811	19	93	699	969	1,120	117	407	602	1,477	875	497.4	361.6
	1899	13	.....	.....	20	117	223	262	19	86	116	320	204	.....	.....
Iron and steel forgings	1909	172	9,193	90	935	8,168	27,803	27,755	1,300	5,003	10,240	20,293	10,053	44.2	67.6
	1904	138	6,347	77	605	5,665	16,069	28,246	824	3,428	5,752	12,110	6,358	20.8	16.0
	1899	90	.....	.....	322	4,688	7,697	9,676	411	2,559	5,213	10,438	5,225	.....	.....
Iron and steel, nails and spikes, cut and wrought, including wire nails, not made in steel works or rolling mills.	1909	57	3,239	42	432	2,765	7,723	8,898	562	1,353	3,972	8,192	4,220	−24.9	−8.2
	1904	76	4,147	60	406	3,681	10,533	8,742	454	1,684	4,686	8,923	4,237	−17.8	−30.6
	1899	102	.....	.....	431	4,477	12,853	10,751	444	2,042	8,562	14,777	6,215	.....	.....
Iron and steel pipe, wrought.	1909	28	7,309	17	475	6,817	20,656	22,266	657	3,963	22,942	30,886	7,944	25.9	77.5
	1904	27	5,723	11	296	5,416	15,094	13,053	369	2,473	12,747	17,401	4,654	−2.2	−18.3
	1899	19	.....	.....	193	5,536	11,717	18,344	266	2,496	15,524	21,292	5,768	.....	.....
Jewelry	1909	1,537	36,992	1,846	4,799	30,347	11,204	63,811	5,838	18,358	36,675	80,350	43,675	37.4	51.0
	1904	1,023	20,119	1,436	2,603	22,080	7,872	39,679	2,939	12,593	24,177	53,226	29,049	7.9	15.4
	1899	851	.....	.....	1,866	20,468	6,656	27,872	1,842	10,644	22,235	46,129	23,894	.....	.....
Jewelry and instrument cases.	1909	120	2,441	139	232	2,070	527	1,841	232	954	1,221	3,116	1,895	23.5	36.0
	1904	97	1,923	126	121	1,676	359	1,438	107	624	843	2,292	1,449	104.6	98.1
	1899	63	.....	.....	52	319	208	548	35	323	436	1,157	721	.....	.....
Kaolin and ground earths	1909	119	2,351	53	308	1,990	20,920	13,226	417	897	2,042	4,681	2,639	−7.7	5.5
	1904	131	2,501	91	253	2,157	17,325	10,196	329	899	1,869	4,432	2,570	3.0	19.3
	1899	145	.....	.....	232	2,094	18,404	12,212	257	821	1,651	3,722	2,071	.....	.....
Labels and tags	1909	96	2,880	85	482	2,313	1,589	3,857	541	1,123	1,910	4,670	2,760	71.6	89.7
	1904	67	1,610	65	197	1,348	919	2,118	258	609	957	2,462	1,505	78.8	122.8
	1899	47	.....	.....	96	754	392	848	120	289	388	1,105	717	.....	.....
Lapidary work	1909	77	886	90	169	627	679	4,608	196	889	6,560	9,173	2,613	23.7	20.0
	1904	54	681	72	162	507	554	2,384	109	657	6,224	7,647	1,423	1.8	32.2
	1899	60	.....	.....	43	498	212	3,087	51	499	4,656	5,786	1,130	.....	.....
Lard, refined, not made in slaughtering and meat-packing establishments.	1909	7	515	6	110	399	723	1,434	108	180	9,631	10,326	695	−9.5	68.5
	1904	9	523	10	77	441	598	1,163	108	219	5,640	6,129	489	−11.6	−29.0
	1899	19	.....	.....	54	499	714	1,336	80	238	7,497	8,631	1,134	.....	.....
Lasts	1909	60	2,029	47	254	1,728	3,386	3,061	412	1,203	1,324	4,159	2,835	43.0	65.0
	1904	55	1,453	59	186	1,208	2,865	2,069	223	798	768	2,520	1,752	6.8	34.0
	1899	65	.....	.....	97	1,131	1,951	1,485	108	650	527	1,880	1,353	.....	.....
Lead, bar, pipe, and sheet.	1909	33	1,044	8	234	802	3,179	20,587	360	510	7,412	9,145	1,733	24.3	−1.4
	1904	32	834	11	177	646	2,487	5,015	239	405	7,910	9,277	1,367	6.8	24.1
	1899	34	.....	.....	151	605	2,007	3,949	202	322	6,280	7,478	1,198	.....	.....
Leather goods	1909	2,375	43,525	2,552	6,066	34,907	28,148	69,814	6,701	17,921	60,027	104,719	44,692	2.1	27.5
	1904	1,918	40,508	2,148	4,171	34,189	16,257	50,919	4,148	15,707	44,435	82,121	37,686	16.8	35.9
	1899	1,568	.....	.....	3,207	29,274	10,947	33,895	2,829	11,892	33,195	60,414	27,219	.....	.....

TABLE I.—COMPARATIVE SUMMARY FOR UNITED STATES, BY SPECIFIED INDUSTRIES: 1909, 1904, AND 1899—Contd.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).	PER CENT OF INCREASE. Wage earners (average number).	Value of products.
								Expressed in thousands.							
Leather, tanned, curried, and finished.	1909	919	67,100	784	4,114	62,202	148,140	$332,727	$6,744	$32,103	$248,279	$327,874	$79,595	8.7	29.8
	1904	1,049	61,602	1,112	3,251	57,239	117,450	242,584	4,452	27,049	191,179	252,621	61,442	9.8	23.8
	1899	1,306	.....	.....	2,442	52,109	88,860	173,977	3,159	22,591	155,000	204,038	49,038	.....	.....
Lime [1]	1909	853	15,659	794	968	13,897	27,671	32,520	1,080	5,980	6,731	17,952	11,221	24.6	21.7
	1904	526	12,383	500	731	11,152	18,198	22,596	703	4,597	5,437	14,751	9,314	−41.6	−48.6
	1899	998	.....	.....	1,406	19,085	93,540	48,787	1,416	7,741	11,040	28,674	17,634	.....	.....
Liquors, distilled	1909	613	8,328	563	1,335	6,430	46,120	72,450	1,988	3,074	35,077	204,699	168,722	20.1	55.9
	1904	805	7,229	794	1,080	5,355	42,349	50,161	1,393	2,657	25,626	131,270	105,644	44.0	35.6
	1899	965	.....	.....	661	3,720	31,427	32,540	890	1,733	15,145	96,794	81,649	.....	.....
Liquors, malt	1909	1,414	66,725	639	11,507	54,579	347,726	671,158	22,804	41,206	96,596	374,730	278,134	13.4	25.6
	1904	1,530	58,068	876	9,055	48,137	266,159	515,630	17,316	34,541	74,907	298,346	223,439	22.0	25.9
	1899	1,507	.....	.....	7,146	39,459	197,901	413,767	13,038	25,776	51,598	236,915	185,317	.....	.....
Liquors, vinous	1909	290	2,726	236	579	1,911	6,771	27,908	863	972	6,626	13,121	6,495	−0.1	18.2
	1904	435	2,801	396	492	1,913	6,713	17,775	573	1,002	5,693	11,098	5,405	64.5	69.5
	1899	359	.....	.....	344	1,163	3,416	9,838	305	446	3,689	6,547	2,858	.....	.....
Locomotives, not made by railroad companies. [2]	1909	16	16,945	7	2,029	14,909	35,102	52,060	2,297	8,914	15,060	31,582	16,522	−39.9	−47.0
	1904	15	25,979	9	1,164	24,806	29,806	38,421	1,675	15,798	27,703	59,552	31,849	.....	.....
Looking-glass and picture frames.	1909	437	7,470	431	1,018	6,021	5,330	9,058	1,119	3,261	5,525	13,475	7,950	−0.1	1.5
	1904	442	8,076	467	984	6,625	4,653	7,034	955	3,315	4,975	13,270	8,295	9.9	22.3
	1899	362	.....	.....	884	6,029	3,357	5,500	789	2,550	4,729	10,847	6,118	.....	.....
Lumber and timber products.	1909	40,671	784,989	48,825	41,145	695,019	2,840,082	1,176,675	47,428	318,739	508,118	1,156,129	648,011	30.5	30.7
	1904	25,153	593,342	30,738	30,038	532,566	1,886,624	733,708	31,737	245,834	360,325	884,267	523,942	4.7	16.2
	1899	28,133	.....	.....	20,940	508,766	1,658,594	541,595	18,715	188,395	364,964	760,992	396,028	.....	.....
Malt	1909	114	2,237	52	425	1,760	26,441	60,286	884	1,348	30,464	38,252	7,788	−14.3	26.3
	1904	141	2,594	96	444	2,054	20,288	47,934	747	1,457	23,621	30,289	6,668	3.2	56.3
	1899	146	.....	.....	290	1,990	13,834	39,288	471	1,183	14,817	19,374	4,557	.....	.....
Marble and stone work [3]	1909	4,964	77,275	6,026	5,646	65,603	187,686	114,842	6,386	42,546	37,397	113,093	75,696	28.4	33.3
	1904	2,608	57,866	3,300	3,456	51,110	102,887	79,170	4,000	31,890	26,569	84,844	58,275	22.6	33.3
	1899	2,952	.....	.....	2,606	41,686	83,119	52,982	2,440	22,843	21,546	63,667	42,121	.....	.....
Matches	1909	26	4,220	46	543	3,631	6,224	11,953	723	1,390	4,599	11,353	6,754	14.0	101.0
	1904	23	3,368	7	176	3,185	3,539	5,334	178	1,101	3,285	5,647	2,362	55.6	−6.0
	1899	22	.....	.....	66	2,047	2,666	3,893	87	613	3,421	6,006	2,585	.....	.....
Mats and matting	1909	12	1,040	18	85	937	1,433	4,051	95	385	1,067	2,432	1,365	49.9	95.7
	1904	12	696	13	58	625	1,524	839	67	249	574	1,243	669	−47.8	6.7
	1899	9	.....	.....	42	1,197	1,733	994	31	237	516	1,165	649	.....	.....
Mattresses and springbeds.	1909	930	14,109	869	1,918	11,322	17,689	23,735	2,039	5,771	20,483	35,783	15,300	8.6	28.9
	1904	716	12,438	757	1,254	10,427	13,220	14,514	1,253	4,816	15,326	27,755	12,429	36.3	54.6
	1899	589	.....	.....	851	7,649	7,980	7,999	770	3,102	10,227	17,956	7,729	.....	.....
Millinery and lace goods	1909	1,579	46,301	1,934	5,166	39,201	7,918	35,705	5,381	16,308	45,040	85,894	40,854	42.5	69.2
	1904	860	31,417	1,163	2,754	27,500	4,737	17,850	2,296	10,307	26,259	50,778	24,519	63.0	72.3
	1899	591	.....	.....	1,592	16,871	1,852	10,765	1,393	5,818	15,654	29,469	13,815	.....	.....
Mineral and soda waters	1909	4,916	22,060	5,743	3,170	13,147	19,392	42,305	2,846	6,902	16,466	43,508	27,042	20.8	43.8
	1904	3,468	16,554	4,099	1,576	10,879	12,214	28,098	1,393	5,488	10,002	30,251	20,249	23.8	30.0
	1899	2,763	.....	.....	1,423	8,788	8,037	19,727	1,161	4,080	8,565	23,269	14,704	.....	.....
Mirrors	1909	148	3,509	131	384	2,994	3,862	4,890	450	1,763	5,905	9,571	3,666	13.0	25.9
	1904	119	3,068	117	302	2,649	2,795	3,859	332	1,375	4,587	7,605	3,018	3.7	−5.0
	1899	103	.....	.....	269	2,555	2,333	3,184	277	1,232	4,996	8,004	3,008	.....	.....
Models and patterns, not including paper patterns.	1909	709	5,450	840	439	4,171	5,486	5,576	490	2,929	2,876	8,868	5,992	50.0	95.1
	1904	547	3,678	656	242	2,780	4,358	2,896	238	1,788	922	4,545	3,623	6.6	18.5
	1899	530	.....	.....	118	2,607	3,021	2,250	113	1,565	825	3,834	3,009	.....	.....
Moving pictures	1909	16	718	5	207	506	486	19,428	396	335	2,192	4,206	2,014	.....	.....
Mucilage and paste	1909	127	901	108	255	538	2,335	2,717	353	280	3,283	4,918	1,635	14.5	38.3
	1904	111	728	100	158	470	1,505	2,430	166	237	2,301	3,556	1,255	2.6	39.1
	1899	116	.....	.....	166	458	1,426	1,220	155	193	1,613	2,556	943	.....	.....
Musical instruments and materials, not specified.	1909	187	2,269	187	260	1,822	1,423	3,298	343	992	890	3,228	2,338	−14.8	−7.3
	1904	181	2,554	190	225	2,139	1,603	3,743	252	1,102	1,130	3,482	2,352	−11.1	2.6
	1899	229	.....	.....	158	2,405	1,417	3,896	142	1,232	1,205	3,395	2,190	.....	.....
Musical instruments, pianos and organs and materials.	1909	507	41,882	297	3,565	38,020	41,623	103,234	5,552	22,762	43,765	89,790	46,025	14.9	35.9
	1904	444	36,106	303	2,722	33,081	30,134	68,482	3,228	18,527	27,987	66,093	38,106	55.2	61.1
	1899	300	.....	.....	1,518	21,309	20,789	43,810	2,015	11,543	17,371	41,024	23,653	.....	.....
Needles, pins, and hooks and eyes.	1909	49	4,978	27	313	4,638	4,542	6,705	393	2,064	2,329	6,694	4,365	17.0	40.9
	1904	46	4,196	31	200	3,965	2,440	5,332	253	1,596	1,584	4,751	3,167	49.5	46.7
	1899	52	.....	.....	135	2,653	2,103	4,618	147	1,067	1,228	3,238	2,010	.....	.....
Oakum	1909	6	129	7	9	113	289	342	14	42	232	338	106	−20.4	−6.4
	1904	6	158	5	11	142	367	488	14	49	241	361	120	−17.0	−18.0
	1899	7	.....	.....	10	171	375	416	17	51	284	440	156	.....	.....
Oil, castor	1909	4	70	4	12	54	385	1,038	27	32	661	905	244	25.6	40.7
	1904	4	57	.....	14	43	500	625	27	28	487	643	156	−12.2	62.8
	1899	3	.....	.....	12	49	260	539	17	29	293	395	102	.....	.....
Oil, cottonseed, and cake	1909	817	21,273	110	4,092	17,071	192,342	91,086	4,295	5,835	119,833	147,868	28,035	9.9	53.4
	1904	715	18,832	63	3,229	15,540	150,246	73,770	3,062	4,838	80,030	96,408	16,378	41.2	64.2
	1899	369	.....	.....	1,569	11,007	73,071	34,451	1,579	3,143	45,166	58,727	13,561	.....	.....

[1] Includes "cement" and "wall plaster" in 1899. [2] Included in "foundry and machine-shop products" in 1899. [3] Includes "artificial stone" in 1899.

TABLE I.—COMPARATIVE SUMMARY FOR UNITED STATES, BY SPECIFIED INDUSTRIES: 1909, 1904, AND 1899—Contd.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).	PER CENT OF INCREASE. Wage earners (average number).	Value of products.
								Expressed in thousands.							
Oil, essential	1909	68	408	73	45	290	1,218	$1,365	$61	$123	$1,255	$1,737	$482	119.7	18.6
	1904	52	237	68	37	132	849	723	40	70	1,111	1,465	354	−21.4	80.2
	1899	47	.....	.....	39	168	1,048	576	25	61	589	813	224	.....	.....
Oil, linseed	1909	29	1,753	9	292	1,452	13,211	18,932	740	893	31,035	36,739	5,704	7.6	33.2
	1904	30	1,518	13	156	1,349	9,473	9,850	423	786	23,153	27,577	4,424	1.6	1.4
	1899	48	.....	.....	285	1,328	8,491	15,461	446	693	24,396	27,184	2,788	.....	.....
Oil, not elsewhere specified.	1909	189	3,144	118	1,311	1,715	5,772	18,441	1,923	1,060	21,407	30,805	9,458	31.4	34.6
	1904	186	2,116	148	663	1,305	5,207	11,229	882	752	14,438	22,923	8,485	−10.4	23.2
	1899	201	.....	.....	810	1,456	3,432	9,889	991	738	10,975	18,612	7,637	.....	.....
Oilcloth and linoleum	1909	31	5,557	11	345	5,201	16,125	19,634	649	2,826	15,550	23,339	7,789	33.9	57.8
	1904	27	4,112	12	217	3,883	10,112	13,803	361	1,944	10,050	14,792	4,742	20.2	29.7
	1899	27	.....	.....	153	3,230	7,561	8,879	295	1,628	7,550	11,403	3,853	.....	.....
Oleomargarine	1909	12	773	1	166	606	2,408	3,558	276	413	6,497	8,148	1,651	16.1	46.2
	1904	14	730	2	206	522	1,560	1,551	253	316	4,308	5,574	1,176	−51.8	−55.4
	1899	24	.....	.....	394	1,084	1,356	3,024	412	534	7,040	12,500	4,860	.....	.....
Optical goods	1909	217	7,809	163	1,248	6,398	5,725	10,147	1,157	3,394	4,187	11,735	7,548	47.8	91.8
	1904	122	4,742	96	316	4,330	3,410	5,381	427	1,923	2,320	6,117	3,797	16.6	17.4
	1899	91	.....	.....	375	3,715	2,544	4,212	287	1,599	2,101	5,211	3,110	.....	.....
Paint and varnish	1909	791	21,896	456	7,200	14,240	56,162	103,995	10,378	8,271	79,016	124,889	45,873	22.4	37.5
	1904	639	16,480	439	4,408	11,633	41,288	75,486	5,677	6,264	59,827	90,840	31,013	20.0	30.6
	1899	600	.....	.....	3,710	9,697	30,443	60,053	5,017	4,926	44,739	69,562	24,823	.....	.....
Paper and wood pulp	1909	777	81,473	250	5,245	75,978	1,304,265	400,348	9,510	40,805	165,442	267,657	102,215	15.2	41.8
	1904	761	70,051	309	3,778	65,964	1,093,708	277,444	6,097	32,019	111,252	188,715	77,463	32.9	48.2
	1899	763	.....	.....	2,935	49,646	762,118	167,508	4,501	20,746	70,530	127,326	56,796	.....	.....
Paper goods, not elsewhere specified.	1909	403	22,385	228	2,946	19,211	27,067	48,662	3,701	8,169	31,249	55,171	23,922	30.5	62.5
	1904	308	16,696	236	1,734	14,726	16,228	27,345	1,993	5,577	19,645	33,946	14,301	51.4	39.4
	1899	246	.....	.....	1,092	9,727	10,421	18,152	1,342	3,658	14,191	24,355	10,164	.....	.....
Paper patterns	1909	27	1,755	22	812	921	751	4,578	675	407	646	2,611	1,965	−14.9	15.3
	1904	26	1,790	15	693	1,082	38	2,237	490	445	337	2,265	1,928	20.6	303.0
	1899	15	.....	.....	92	835	9	256	72	262	125	562	437	.....	.....
Patent medicines and compounds and druggists' preparations.	1909	3,642	41,101	2,802	15,404	22,895	25,659	99,942	17,007	9,897	50,376	141,942	91,566	11.8	20.9
	1904	2,777	32,248	2,293	9,483	20,472	17,008	75,607	9,975	7,913	39,494	117,436	77,942	7.6	32.3
	1899	2,154	.....	.....	8,094	19,028	12,707	56,173	8,265	6,910	31,950	88,791	56,841	.....	.....
Paving materials	1909	49	1,731	31	281	1,419	5,757	11,410	373	750	3,478	6,229	2,751	−26.1	23.8
	1904	54	2,106	30	157	1,919	5,156	5,218	197	953	2,666	5,033	2,367	−21.2	27.9
	1899	99	.....	.....	173	2,436	34,397	13,464	184	1,144	1,582	3,936	2,354	.....	.....
Peanuts, grading, roasting, cleaning, and shelling. [1]	1909	46	2,177	35	193	1,949	2,827	3,646	209	351	8,612	9,737	1,125	43.7	34.1
	1904	30	1,490	18	116	1,356	1,602	1,109	122	205	6,324	7,261	937	.....	.....
Pencils, lead	1909	11	4,513	4	375	4,134	3,448	7,867	697	1,712	3,596	7,379	3,783	34.9	66.7
	1904	8	3,351	3	283	3,065	2,625	4,981	396	1,059	1,804	4,426	2,622	41.8	99.2
	1899	7	.....	.....	81	2,102	1,360	2,227	112	683	1,031	2,222	1,191	.....	.....
Pens, fountain, stylographic and gold.	1909	65	1,820	51	544	1,225	569	3,121	554	712	2,246	4,739	2,493	31.3	70.8
	1904	49	1,196	39	224	933	349	1,545	198	533	1,166	2,774	1,608	34.1	62.6
	1899	45	.....	.....	146	606	527	1,087	148	371	664	1,706	1,042	.....	.....
Pens, steel	1909	5	755	.....	56	699	244	804	86	230	95	577	482	5.4	21.7
	1904	5	736	1	72	663	204	576	60	205	103	474	371	40.2	61.2
	1899	3	.....	.....	13	473	138	357	21	138	52	294	242	.....	.....
Petroleum, refining	1909	147	16,640	42	2,669	13,929	90,268	181,916	3,929	9,830	199,273	236,998	37,725	−16.9	35.4
	1904	98	18,768	24	1,974	16,770	46,019	136,281	2,724	9,989	139,387	175,005	35,618	37.4	41.2
	1899	67	.....	.....	1,201	12,199	36,127	95,328	1,811	6,717	102,859	123,929	21,070	.....	.....
Phonographs and graphophones.	1909	18	5,928	2	727	5,199	6,371	14,363	945	2,841	3,099	11,726	8,627	53.0	14.5
	1904	14	3,940	6	537	3,397	2,522	8,741	666	1,684	4,161	10,237	6,076	108.1	355.8
	1899	11	.....	.....	144	1,267	1,082	3,348	179	608	828	2,246	1,418	.....	.....
Photographic apparatus and materials.	1909	103	6,596	59	1,342	5,195	8,637	18,918	1,462	3,037	6,708	22,561	15,853	36.3	73.2
	1904	130	5,041	74	1,155	3,812	5,061	7,720	1,109	1,796	4,162	13,023	8,861	10.7	67.0
	1899	153	.....	.....	469	3,444	3,412	5,518	453	1,443	3,378	7,799	4,421	.....	.....
Photo-engraving	1909	313	7,277	233	1,701	5,343	2,638	5,474	1,849	4,750	2,134	11,624	9,490	37.8	59.9
	1904	223	5,071	227	968	3,876	1,925	4,071	934	2,916	1,303	7,268	5,965	44.0	73.5
	1899	203	.....	.....	484	2,691	1,040	1,994	450	1,750	725	4,190	3,465	.....	.....
Pipes, tobacco	1909	62	3,090	70	245	2,775	1,506	3,528	283	1,255	2,459	5,312	2,853	42.5	87.4
	1904	68	2,111	82	82	1,947	1,058	1,256	81	831	1,354	2,834	1,480	22.8	14.6
	1899	98	.....	.....	120	1,585	855	1,111	109	738	1,106	2,472	1,366	.....	.....
Pottery, terra-cotta, and fire-clay products.	1909	822	61,022	452	4,402	56,168	110,017	141,350	5,813	29,753	21,911	76,119	54,208	7.1	18.6
	1904	873	56,730	550	3,752	52,428	104,918	110,926	4,628	25,178	16,591	64,201	47,610	19.9	45.0
	1899	1,000	.....	.....	2,777	43,714	75,802	65,952	3,012	17,692	11,915	44,263	32,348	.....	.....
Printing and publishing	1909	31,445	388,466	30,424	99,608	258,434	297,763	588,346	103,458	104,628	201,775	737,876	536,101	18.0	33.6
	1904	27,793	316,047	28,368	68,592	219,087	166,380	432,854	67,748	127,196	142,514	552,473	409,959	12.2	39.8
	1899	23,814	.....	.....	40,685	195,260	119,775	333,003	39,475	99,816	103,654	395,187	291,533	.....	.....
Pulp goods	1909	14	882	1	98	783	3,125	2,680	124	377	971	1,770	799	12.5	20.7
	1904	17	759	7	56	696	2,368	3,198	83	284	719	1,467	748	0.7	15.8
	1899	22	.....	.....	75	691	1,314	2,317	92	284	647	1,267	620	.....	.....

[1] Included in "coffee and spice, roasting and grinding," in 1899.

TABLE I.—COMPARATIVE SUMMARY FOR UNITED STATES, BY SPECIFIED INDUSTRIES: 1909, 1904, AND 1899—Contd.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).	PER CENT OF INCREASE. Wage earners (average number).	Value of products.
								Expressed in thousands.							
Pumps, not including steam pumps.	1909	102	2,623	87	400	2,136	4,214	$6,018	$420	$1,258	$2,487	$5,583	$3,096	52.1	95.7
	1904	115	1,721	113	204	1,404	2,569	3,230	215	719	1,193	2,853	1,660	122.2	112.6
	1899	130	.....	.....	95	632	1,245	1,201	84	247	638	1,342	704	.....	.....
Rice, cleaning and polishing.	1909	71	1,777	38	500	1,239	19,519	13,347	613	564	19,501	22,371	2,870	−17.0	37.3
	1904	74	1,961	33	436	1,492	15,866	8,821	549	641	13,315	16,297	2,982	129.2	86.8
	1899	80	.....	.....	169	651	7,546	2,601	182	266	7,576	8,724	1,148	.....	.....
Roofing materials	1909	117	3,530	46	1,019	2,465	9,431	15,349	1,381	1,339	12,458	19,204	6,746	−72.0	−3.4
	1904	307	10,162	314	1,029	8,819	23,022	16,925	1,162	4,008	10,842	19,871	9,029	16.1	45.1
	1899	267	.....	.....	695	7,593	18,217	10,814	663	3,072	6,886	13,691	6,805	.....	.....
Rubber goods, not elsewhere specified.	1909	227	31,284	102	4,661	26,521	79,062	98,507	5,406	14,120	82,192	128,436	46,244	25.2	103.9
	1904	224	23,651	103	2,364	21,184	48,381	46,298	2,857	9,412	38,912	62,906	24,084	3.8	19.7
	1899	261	.....	.....	1,825	20,404	40,835	39,302	2,216	8,082	33,482	52,622	19,140	.....	.....
Rules, ivory and wood	1909	9	127	9	9	109	167	104	11	51	31	144	113	−26.8	−42.2
	1904	13	177	13	15	149	318	253	15	55	55	249	194	−30.0	19.7
	1899	11	.....	.....	14	213	303	203	12	67	73	208	135	.....	.....
Safes and vaults	1909	42	4,060	8	709	3,343	5,546	8,944	1,058	2,072	3,443	8,491	5,048	−4.2	8.0
	1904	31	3,918	15	415	3,488	4,090	7,326	723	2,162	3,211	7,861	4,650	71.6	100.1
	1899	35	.....	.....	272	2,033	2,209	5,480	283	1,017	1,689	3,928	2,239	.....	.....
Salt	1909	124	5,580	74	570	4,936	27,263	29,012	719	2,531	5,203	11,328	6,125	5.8	20.0
	1904	146	5,171	87	418	4,666	19,434	25,586	487	2,066	4,166	9,438	5,272	−2.3	18.5
	1899	159	.....	.....	406	4,774	23,865	27,123	500	1,911	3,336	7,967	4,631	.....	.....
Sand and emery paper and cloth.	1909	10	779	9	169	611	3,351	4,400	210	370	2,382	4,358	1,976	100.3	105.1
	1904	8	356	11	40	305	1,133	1,206	78	183	1,055	1,477	422	11.3	25.6
	1899	9	.....	.....	63	274	898	1,372	98	144	681	1,176	495	.....	.....
Saws	1909	96	5,757	84	841	4,832	11,852	14,855	966	2,856	4,912	11,536	6,624	3.9	17.5
	1904	83	5,301	75	576	4,650	7,401	11,288	623	2,707	4,036	9,820	5,784	44.6	52.4
	1899	96	.....	.....	312	3,215	5,493	8,509	329	1,693	2,600	6,444	3,844	.....	.....
Scales and balances	1909	87	4,275	44	672	3,559	6,183	10,183	815	2,186	2,704	8,786	6,082	13.6	46.4
	1904	85	3,641	77	431	3,133	3,251	8,513	477	1,755	1,633	6,003	4,370	12.9	14.6
	1899	86	.....	.....	305	2,775	2,466	6,308	297	1,437	1,533	5,240	3,707	.....	.....
Screws, machine	1909	43	1,863	32	164	1,667	3,319	3,728	199	970	1,160	3,014	1,854	−15.2	11.1
	1904	26	2,189	15	209	1,965	3,201	4,133	244	942	951	2,712	1,761	26.2	31.7
	1899	25	.....	.....	108	1,557	1,407	2,467	126	703	797	2,059	1,262	.....	.....
Screws, wood	1909	11	3,758	1	293	3,464	5,618	9,570	375	1,454	2,309	6,199	3,899	132.8	190.5
	1904	7	1,647	1	158	1,488	3,715	5,969	193	556	732	2,134	1,402	−24.5	−17.9
	1899	8	.....	.....	139	1,970	3,490	5,465	169	721	923	2,600	1,677	.....	.....
Sewing machines, cases, and attachments.	1909	47	20,556	14	1,246	19,296	19,426	33,104	1,423	11,102	11,455	28,262	16,807	12.7	8.1
	1904	54	18,064	19	924	17,121	17,162	32,583	1,152	9,493	10,701	26,142	15,441	28.1	23.7
	1899	64	.....	.....	704	13,365	10,069	20,804	933	7,331	9,468	21,125	11,657	.....	.....
Shipbuilding, including boat building.	1909	1,353	44,949	1,463	2,980	40,506	88,063	126,118	4,035	25,268	31,214	73,360	42,146	−20.2	−11.4
	1904	1,097	54,424	1,190	2,480	50,754	78,127	121,624	3,340	29,241	37,463	82,769	45,306	8.6	11.1
	1899	1,107	.....	.....	1,405	46,747	61,797	77,341	2,007	24,825	33,475	74,532	41,057	.....	.....
Shoddy	1909	88	2,320	83	196	2,041	13,820	6,887	290	907	5,001	7,446	2,445	−2.3	−11.4
	1904	97	2,371	110	172	2,089	12,244	5,804	245	835	6,056	8,406	2,350	8.5	24.9
	1899	105	.....	.....	139	1,926	11,455	5,273	167	749	4,875	6,731	1,856	.....	.....
Show cases	1909	149	3,943	154	399	3,390	4,746	5,369	505	2,017	3,140	7,167	4,027	10.0	25.3
	1904	141	3,522	135	305	3,082	4,087	3,143	330	1,681	2,374	5,722	3,348	126.1	131.8
	1899	102	.....	.....	106	1,363	1,232	1,153	88	708	1,058	2,468	1,410	.....	.....
Signs and advertising novelties.[1]	1909	288	7,277	211	1,526	5,540	3,790	9,647	1,476	3,105	4,709	13,546	8,837	.....	.....
Silk and silk goods, including throwsters.	1909	852	105,238	664	5,537	99,037	97,947	152,158	7,527	38,570	107,767	196,912	89,145	24.4	47.7
	1904	624	84,153	525	4,027	79,601	71,760	109,557	4,742	26,768	75,861	133,288	57,427	21.7	24.3
	1899	483	.....	.....	2,657	65,410	57,397	81,082	3,134	20,982	62,407	107,256	44,849	.....	.....
Silverware and plated ware.	1909	183	18,774	114	2,050	16,610	15,183	46,759	2,745	10,282	18,332	42,229	23,897	11.8	28.6
	1904	158	16,305	120	1,324	14,861	12,873	37,732	1,730	8,625	14,459	32,840	18,381	21.8	25.8
	1899	169	.....	.....	1,120	12,205	8,486	30,628	1,457	6,531	11,659	26,114	14,455	.....	.....
Slaughtering and meat packing.	1909	1,641	108,716	1,659	17,329	89,728	208,767	383,249	20,054	51,645	1,201,828	1,370,568	168,740	19.0	48.6
	1904	1,221	88,819	1,324	12,096	75,399	119,317	240,419	13,453	41,067	811,426	922,038	110,612	8.9	17.0
	1899	1,080	.....	.....	10,317	69,264	87,060	190,209	10,211	33,846	685,310	788,368	103,058	.....	.....
Smelting and refining, copper.	1909	38	16,832	7	1,197	15,628	158,126	111,443	2,419	13,396	333,532	378,806	45,274	22.6	57.3
	1904	40	18,562	1	809	12,752	76,524	76,825	1,527	10,827	196,737	240,780	44,043	12.6	45.8
	1899	47	.....	.....	488	11,324	61,630	53,063	955	8,529	122,174	165,132	42,958	.....	.....
Smelting and refining, lead.	1909	28	8,059	.....	635	7,424	26,054	132,310	1,476	5,431	151,963	167,406	15,443	−2.0	−9.9
	1904	32	8,102	5	524	7,573	25,067	63,823	888	5,375	168,958	185,827	16,869	−9.0	5.9
	1899	39	.....	.....	425	8,319	16,342	72,149	755	5,089	144,195	175,466	31,271	.....	.....
Smelting and refining, zinc.	1909	29	7,156	3	498	6,655	21,457	27,760	993	4,210	25,230	34,206	8,976	1.9	38.0
	1904	31	6,884	2	354	6,528	18,404	23,702	581	3,856	17,028	24,791	7,763	34.1	36.3
	1899	31	.....	.....	208	4,869	11,145	14,142	440	2,356	13,286	18,188	4,902	.....	.....
Smelting and refining, not from the ore.	1909	89	2,596	73	376	2,147	10,705	13,834	570	1,281	23,162	28,072	4,910	25.4	61.3
	1904	65	1,994	57	225	1,712	17,111	9,807	354	995	13,760	17,403	3,643	74.2	123.5
	1899	61	.....	.....	203	983	8,633	5,201	229	532	5,900	7,785	1,885	.....	.....

[1] Included in other classifications in 1904 and 1899.

TABLE I.—COMPARATIVE SUMMARY FOR UNITED STATES, BY SPECIFIED INDUSTRIES: 1909, 1904, AND 1899—Contd.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).	PER CENT OF INCREASE. Wage earners (average number).	Value of products.
								Expressed in thousands.							
Soap[1]	1909	420	18,303	320	5,065	12,999	28,360	$71,951	$5,506	$6,227	$72,179	$111,358	$30,179	17.7	63.1
	1904	436	14,501	399	3,058	11,044	20,228	54,816	3,503	4,763	43,626	68,275	24,649	16.4	28.3
	1899	558	.....	.....	2,738	9,487	17,514	38,068	2,777	3,755	33,143	53,231	20,088	.....	.....
Soda-water apparatus	1909	63	2,399	40	562	1,797	2,894	8,589	624	1,239	2,443	5,556	4,113	22.3	41.5
	1904	37	1,829	27	333	1,469	1,533	3,415	296	835	1,924	4,634	2,710	52.5	53.7
	1899	30	.....	.....	227	963	1,183	4,202	244	550	997	3,015	2,018	.....	.....
Sporting and athletic goods.	1909	180	5,993	155	517	5,321	3,243	6,617	617	2,165	5,565	11,052	5,487	24.9	57.2
	1904	152	4,757	136	361	4,260	2,995	4,249	319	1,641	2,963	7,032	4,069	91.5	93.8
	1899	143	.....	.....	168	2,225	1,133	2,015	167	810	1,802	3,628	1,826	.....	.....
Springs, steel, car and carriage.	1909	54	3,573	24	353	3,196	7,349	8,784	590	1,853	4,727	9,005	4,278	29.1	56.9
	1904	52	2,774	28	270	2,476	5,510	4,016	353	1,243	2,742	5,741	2,999	17.8	0.9
	1899	48	.....	.....	166	2,102	3,185	4,684	275	1,061	3,025	5,690	2,665	.....	.....
Stationery goods, not elsewhere specified.	1909	153	7,938	103	1,629	6,206	6,842	13,508	1,897	2,736	7,744	16,647	8,903	44.5	87.7
	1904	143	5,095	115	685	4,295	3,396	6,929	751	1,500	3,920	8,867	4,947	41.7	75.0
	1899	113	.....	.....	453	3,032	1,700	4,495	412	958	2,128	5,066	2,938	.....	.....
Statuary and art goods[2]	1909	194	2,172	275	198	1,699	462	2,221	225	1,339	680	3,442	2,762	12.7	42.4
	1904	135	1,812	191	114	1,507	466	1,669	127	1,030	392	2,417	2,025	.....	.....
Steam packing	1909	153	4,968	82	1,238	3,648	11,129	14,126	1,356	1,811	6,650	12,160	5,510	33.4	35.8
	1904	106	3,240	66	450	2,734	8,846	12,253	594	1,273	3,806	8,952	5,056	138.4	156.2
	1899	97	.....	.....	290	1,147	4,488	2,691	326	525	1,546	3,494	1,948	.....	.....
Stereotyping and electrotyping.	1909	174	3,661	133	678	2,850	4,076	3,826	800	2,312	1,765	6,384	4,619	6.4	27.6
	1904	146	3,301	132	490	2,679	2,878	3,298	517	1,993	1,032	5,005	3,973	11.3	32.7
	1899	140	.....	.....	330	2,408	1,470	2,389	312	1,459	767	3,772	3,005	.....	.....
Stoves and furnaces, including gas and oil stoves.[3]	1909	576	42,921	244	5,547	37,130	45,524	86,944	6,975	22,944	20,338	78,853	49,515	11.2	26.9
	1904	494	37,292	306	3,582	33,404	32,017	62,953	4,499	19,770	22,271	62,133	39,862	.....	.....
Sugar and molasses, not including beet sugar.[4]	1909	233	15,658	204	1,928	13,526	160,603	153,167	2,392	7,484	247,583	279,249	31,666	−0.2	0.7
	1904	344	15,790	364	1,886	13,549	140,650	165,408	2,154	7,576	244,753	277,285	32,532	−4.1	15.7
	1899	657	.....	.....	1,867	14,129	152,569	184,033	1,682	6,918	221,385	239,711	18,326	.....	.....
Sulphuric, nitric, and mixed acids.[5]	1909	42	2,582	.....	330	2,252	6,494	18,726	551	1,495	5,386	9,884	4,498	−8.0	9.2
	1904	32	2,757	2	308	2,447	5,416	12,702	556	1,505	4,973	9,053	4,080	.....	.....
Surgical appliances and artificial limbs.	1909	324	5,805	316	1,248	4,241	5,752	11,045	1,488	2,129	5,372	12,399	7,027	34.5	70.6
	1904	284	4,049	289	607	3,153	3,214	5,825	594	1,376	2,866	7,269	4,403	76.3	55.3
	1899	306	.....	.....	440	1,788	1,254	2,778	414	767	1,418	4,682	3,264	.....	.....
Tin plate and terneplate	1909	31	5,846	4	490	5,352	8,154	10,995	620	3,315	41,889	47,970	6,081	10.4	36.0
	1904	36	5,132	1	284	4,847	8,990	10,813	310	2,383	31,376	35,283	3,907	32.0	10.6
	1899	57	.....	.....	333	3,671	3,515	6,650	291	1,890	26,728	31,892	5,164	.....	.....
Tin foil	1909	10	762	8	71	683	1,699	2,505	92	304	2,277	3,419	1,142	−10.8	22.3
	1904	14	847	11	70	766	1,388	1,918	86	303	1,888	2,795	907	31.6	75.5
	1899	15	.....	.....	45	582	854	2,094	59	228	1,074	1,593	519	.....	.....
Tobacco manufactures	1909	15,822	197,637	17,634	13,193	166,810	28,514	245,660	16,779	69,355	177,186	416,695	239,509	4.6	25.8
	1904	16,827	187,652	19,011	9,235	159,406	24,604	323,982	8,800	62,639	126,086	331,111	205,025	20.3	25.6
	1899	14,959	.....	.....	7,836	132,526	22,296	111,517	8,593	47,975	92,807	263,713	170,846	.....	.....
Toys and games	1909	226	6,072	185	582	5,305	5,323	6,541	661	2,227	3,554	8,264	4,710	22.5	48.2
	1904	161	4,792	133	320	4,330	4,757	4,831	366	1,615	2,289	5,578	3,289	30.6	39.1
	1899	169	.....	.....	204	3,316	3,155	3,279	184	1,119	1,665	4,010	2,345	.....	.....
Turpentine and rosin	1909	1,585	44,524	2,567	2,446	39,511	4,129	12,401	1,655	9,363	4,911	25,295	20,384	18.4	5.7
	1904	1,287	37,526	1,997	2,147	33,382	1,175	6,901	1,152	8,383	3,775	23,937	20,162	−20.3	17.7
	1899	1,503	.....	.....	1,889	41,864	866	11,848	779	8,394	6,186	20,345	14,159	.....	.....
Type-founding and printing materials.	1909	122	2,597	78	493	2,026	1,948	6,793	560	1,191	1,772	4,703	2,931	12.4	19.5
	1904	98	2,255	84	368	1,803	1,497	5,926	387	1,123	1,119	3,935	2,816	−9.1	0.1
	1899	92	.....	.....	247	1,984	1,331	3,175	274	1,036	1,270	3,931	2,661	.....	.....
Typewriters and supplies	1909	89	12,101	34	2,489	9,578	6,845	26,300	2,707	6,221	4,077	19,719	15,642	53.7	85.3
	1904	66	7,509	29	1,248	6,232	4,455	16,642	1,246	3,469	1,870	10,640	8,770	43.3	53.5
	1899	47	.....	.....	532	4,340	2,272	8,400	480	2,404	1,402	6,932	5,530	.....	.....
Umbrellas and canes	1909	256	6,505	290	734	5,472	2,413	9,556	915	2,253	10,056	15,864	5,808	1.6	19.3
	1904	204	6,155	242	527	5,386	2,122	8,951	474	1,826	8,250	13,296	5,046	−4.5	−2.7
	1899	202	.....	.....	587	5,640	1,457	4,605	504	1,869	8,381	13,669	5,288	.....	.....
Upholstering materials	1909	230	4,777	214	496	4,067	17,456	10,297	587	1,689	8,069	13,054	4,985	−13.7	3.0
	1904	236	5,405	244	449	4,712	15,604	9,293	526	1,867	7,977	12,678	4,701	−7.6	26.2
	1899	270	.....	.....	358	5,098	11,351	7,594	364	1,715	5,882	10,048	4,166	.....	.....
Vault lights and ventilators.	1909	37	453	27	99	327	234	607	109	228	338	957	619	47.3	97.7
	1904	24	278	28	28	222	174	241	31	154	161	484	323	60.9	43.2
	1899	14	.....	.....	11	138	103	121	13	81	141	338	197	.....	.....
Vinegar and cider	1909	963	3,073	1,050	481	1,542	16,681	10,879	539	723	4,964	8,448	3,484	0.9	10.3
	1904	568	2,514	645	341	1,528	10,556	7,520	359	725	3,852	7,265	3,413	−1.9	22.5
	1899	613	.....	.....	451	1,557	16,849	5,630	391	652	3,134	5,932	2,798	.....	.....
Wall paper	1909	45	4,746	10	699	4,037	5,680	14,153	1,054	2,039	7,023	14,449	6,826	3.2	14.3
	1904	44	4,425	15	497	3,913	4,867	12,354	692	1,868	6,058	12,637	5,979	−6.2	18.5
	1899	51	.....	.....	512	4,172	4,573	8,890	817	2,074	6,073	10,663	4,590	.....	.....

[1] Includes "candles" in 1899.
[2] Included in other classifications in 1899.
[3] Included in "foundry and machine-shop products" in 1899.
[4] Includes 214 establishments reported as "sugar and molasses" and 19 as "sugar and molasses, refining, not including beet sugar," in 1909.
[5] Included in "chemicals" in 1899.

TABLE I.—COMPARATIVE SUMMARY FOR UNITED STATES, BY SPECIFIED INDUSTRIES: 1909, 1904, AND 1899—Contd.

INDUSTRY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).	PER CENT OF INCREASE. Wage earners (average number).	Value of products.
								Expressed in thousands.							
Wall plaster[1]	1909	198	5,624	60	773	4,791	25,892	$16,885	$1,049	$2,391	$6,007	$12,804	$6,797	27.5	26.0
	1904	176	4,459	72	629	3,758	20,054	13,204	620	1,890	4,726	10,164	5,438	.....	.....
Washing machines and clothes wringers.	1909	100	2,294	76	383	1,835	3,351	5,318	466	904	2,837	5,825	2,988	13.1	51.7
	1904	92	1,861	68	171	1,622	3,564	2,952	148	684	2,213	3,839	1,626	7.5	2.8
	1899	118	.....	.....	164	1,509	2,732	2,405	104	549	2,175	3,735	1,560	.....	.....
Waste	1909	53	2,129	41	191	1,897	4,286	6,125	290	716	8,837	11,398	2,561	21.7	36.6
	1904	41	1,716	41	116	1,559	3,363	3,586	164	495	6,825	8,343	1,518	42.9	71.0
	1899	25	.....	.....	58	1,091	2,193	2,437	85	327	4,000	4,880	880	.....	.....
Wheelbarrows	1909	24	775	17	94	664	1,486	1,510	81	321	715	1,625	910	13.7	37.9
	1904	26	665	12	69	584	1,282	1,045	76	296	494	1,178	684	81.9	159.5
	1899	15	.....	.....	31	321	762	514	27	127	180	454	274	.....	.....
Whips	1909	57	1,946	90	310	1,546	1,321	3,900	323	704	1,585	3,049	2,364	−0.5	25.5
	1904	58	1,771	43	174	1,554	1,068	3,368	184	603	1,253	3,147	1,894	20.7	18.1
	1899	60	.....	.....	228	1,287	818	1,894	246	478	1,278	2,734	1,456	.....	.....
Windmills	1909	34	2,742	18	387	2,337	3,301	5,636	479	1,403	3,331	6,677	3,346	21.2	39.2
	1904	53	2,341	25	387	1,929	3,694	5,837	392	969	2,308	4,795	2,487	−5.7	10.1
	1899	68	.....	.....	281	2,045	2,214	4,309	250	940	2,172	4,354	2,182	.....	.....
Window shades and fixtures.	1909	219	4,770	194	646	3,930	5,737	10,334	807	1,918	12,653	18,571	5,918	40.8	107.9
	1904	144	3,165	132	409	2,624	2,705	5,977	480	1,086	5,047	8,931	2,984	45.7	10.6
	1899	96	.....	.....	292	1,801	1,927	5,184	323	752	5,575	8,072	2,497	.....	.....
Wire	1909	56	19,945	15	1,846	18,084	71,959	60,157	2,199	10,316	60,543	84,486	23,943	281.8	122.8
	1904	25	5,325	7	581	4,737	25,856	14,899	703	2,859	30,063	37,914	7,851	195.5	302.4
	1899	29	.....	.....	94	1,603	9,979	4,242	136	860	7,014	9,421	2,407	.....	.....
Wirework, including wire rope and cable.	1909	611	14,994	484	2,162	12,348	20,131	34,970	2,074	6,331	24,394	41,938	17,544	−7.7	20.9
	1904	649	15,967	652	1,936	13,379	18,280	26,894	2,117	6,100	17,856	33,038	15,182	46.3	66.5
	1899	596	.....	.....	995	9,142	12,772	16,345	940	3,894	10,813	19,840	9,027	.....	.....
Wood distillation, not including turpentine and rosin.[2]	1909	120	3,005	56	318	2,721	9,854	13,017	355	1,463	5,876	9,737	3,861	19.8	24.6
	1904	141	2,655	82	301	2,272	4,620	10,507	298	1,067	4,848	7,813	2,965	.....	.....
Wood carpet	1909	10	221	9	28	184	269	423	33	138	228	490	262	−50.7	−38.8
	1904	20	445	22	50	373	473	330	45	269	351	801	450	−38.7	−24.2
	1899	31	.....	.....	49	608	534	412	35	302	418	1,057	639	.....	.....
Wood preserving	1909	53	2,875	1	471	2,403	10,647	12,408	517	1,066	9,328	14,099	4,771	226.1	318.6
	1904	26	850	7	115	737	3,439	2,935	158	315	2,403	3,368	905	54.2	40.6
	1899	21	.....	.....	54	478	1,007	1,230	57	205	1,825	2,396	571	.....	.....
Wood, turned and carved.	1909	1,050	16,243	1,097	1,007	14,139	48,447	18,334	1,045	6,213	9,744	22,199	12,455	−3.7	10.1
	1904	1,097	16,837	1,226	924	14,687	47,595	16,842	829	6,031	8,578	20,169	11,591	27.1	40.9
	1899	1,166	.....	.....	565	11,558	31,133	10,280	488	4,371	5,830	14,318	8,488	.....	.....
Wool pulling	1909	37	759	37	91	631	1,366	3,248	132	387	4,103	5,181	1,078	−7.3	487.4
	1904	34	786	40	65	681	1,324	2,534	74	365	104	882	778	43.4	66.1
	1899	34	.....	.....	35	475	820	945	35	248	54	531	477	.....	.....
Wool scouring	1909	28	1,262	18	102	1,142	6,782	3,258	143	558	2,122	3,280	1,167	46.6	212.3
	1904	27	852	18	55	779	3,478	1,188	78	398	215	1,053	838	8.2	18.3
	1899	25	.....	.....	45	720	2,900	1,061	72	339	194	890	696	.....	.....
Woolen, worsted, and felt goods, and wool hats.	1909	985	175,176	732	5,722	168,722	362,209	430,579	10,097	72,427	282,878	435,979	153,101	15.0	36.5
	1904	1,074	152,306	958	4,593	146,755	288,960	314,081	6,781	57,073	204,613	319,348	114,735	12.3	28.4
	1899	1,281	.....	.....	3,808	130,697	244,825	265,730	5,574	46,812	153,030	248,798	94,868	.....	.....
All other industries[3]	1909	8	132	11	25	96	136	254	30	67	115	300	275	−78.0	−63.1
	1904	15	494	8	50	436	1,767	3,860	59	203	386	1,058	672	−64.1	−60.1
	1899	17	.....	.....	97	1,215	2,354	4,078	113	687	988	2,650	1,662	.....	.....

[1] Included in "lime" in 1899.
[2] Included in "chemicals" in 1899.
[3] Includes the following industries, with number of establishments indicated: "Millstones," 1; "ordnance and accessories," 2; "pulp, from fiber other than wood," 2; "straw goods, not elsewhere specified," 2; and "whalebone cutting," 1, in 1909. "Millstones," 2; "ordnance and accessories," 4; "pulp, from fiber other than wood," 1; "straw goods, not elsewhere specified," 6; "whalebone cutting," 2, in 1904. "Millstones," 3; "ordnance and accessories," 4; "pulp, from fiber other than wood," 3; "straw goods, not elsewhere specified," 4; "whalebone cutting," 3, in 1899.

TABLE II.—COMPARATIVE SUMMARY FOR THE UNITED STATES, BY STATES: 1909, 1904, AND 1899.

NOTES.—Primary horsepower includes power generated in manufacturing establishments plus electric and other power rented from outside sources; it does not include electric power generated by primary units of the establishments reporting.
A minus sign (—) denotes decrease.

DIVISION AND STATE.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).	PER CENT OF INCREASE. Wage earners (average number).	Value of products.
								Expressed in thousands.							
United States	1909	268,491	7,678,578	273,265	790,267	6,615,046	18,680,776	$18,428,270	$938,575	$3,427,038	$12,141,791	$20,672,052	$8,530,261	21.0	39.7
	1904	216,180	6,213,612	225,673	519,556	5,468,383	13,437,707	12,675,581	574,439	2,610,445	8,500,208	14,793,903	6,293,695	16.0	39.7
	1899	207,514	.....	.....	364,120	4,712,763	10,097,893	8,975,256	380,771	2,008,361	6,575,851	11,406,927	4,831,076	.....	.....
GEOGRAPHIC DIVISIONS:															
New England	1909	25,351	1,212,158	24,171	86,697	1,101,290	2,715,121	2,503,854	112,284	557,631	1,476,297	2,670,065	1,193,768	17.1	31.8
	1904	22,279	1,023,708	22,698	60,258	940,752	2,125,815	1,870,995	72,799	439,050	1,116,273	2,025,999	909,726	10.4	22.0
	1899	22,576	.....	.....	45,402	851,903	1,792,342	1,507,630	53,396	367,674	904,037	1,660,348	756,311	.....	.....
Middle Atlantic	1909	81,315	2,576,677	85,516	283,414	2,207,747	5,531,502	6,505,675	345,266	1,182,568	4,159,498	7,141,761	2,982,263	17.0	30.9
	1904	67,699	2,148,379	74,525	187,289	1,886,565	4,255,264	4,742,357	213,371	926,145	2,961,935	5,218,266	2,256,271	17.6	28.1
	1899	65,834	.....	.....	127,326	1,004,844	3,139,128	3,450,619	141,943	729,365	2,311,404	4,074,719	1,763,315	.....	.....
East North Central	1909	60,013	1,786,808	57,271	215,773	1,513,764	4,382,070	4,547,225	250,508	827,152	3,034,472	5,211,702	2,177,230	23.6	44.6
	1904	51,754	1,415,388	50,531	140,829	1,224,528	3,120,369	2,895,446	151,992	615,643	2,045,537	3,605,368	1,559,831	14.1	26.4
	1899	50,521	.....	.....	103,350	1,073,322	2,401,808	2,056,117	101,500	473,040	1,647,577	2,853,056	1,205,479	.....	.....
West North Central	1909	27,171	464,460	26,683	63,440	374,337	1,101,990	1,171,572	69,504	204,792	1,241,855	1,803,899	562,044	19.8	40.4
	1904	21,492	374,787	21,394	41,032	312,361	753,700	857,904	41,303	157,843	862,011	1,284,446	422,435	17.4	32.0
	1899	20,732	.....	.....	30,606	266,051	605,098	577,453	29,127	117,209	647,565	972,969	325,404	.....	.....
South Atlantic	1909	28,088	745,830	30,783	52,032	663,015	1,837,401	1,368,475	57,272	244,378	790,005	1,381,186	591,181	26.9	41.8
	1904	19,564	578,989	21,745	34,633	522,611	1,221,040	930,420	34,201	175,461	550,102	974,028	423,926	14.0	36.3
	1899	19,144	.....	.....	24,368	458,344	851,050	583,328	22,408	130,864	395,686	711,800	316,114	.....	.....
East South Central	1909	15,381	305,465	17,208	26,485	261,772	1,036,560	586,276	29,008	102,191	336,163	630,488	294,325	18.3	35.3
	1904	10,311	249,892	11,449	17,214	221,229	753,928	405,361	17,417	83,942	252,156	464,336	212,180	24.8	42.8
	1899	10,058	.....	.....	11,204	177,208	513,425	234,014	10,385	56,003	176,506	325,086	148,580	.....	.....
West South Central	1909	12,339	240,902	12,944	23,438	204,520	873,350	547,739	25,382	97,646	382,131	625,443	243,312	42.6	50.6
	1904	8,279	166,640	8,299	14,871	143,470	555,717	328,906	15,190	67,128	246,832	415,232	168,400	26.5	64.6
	1899	7,174	.....	.....	8,255	113,388	397,471	193,969	7,334	42,715	153,510	252,314	98,804	.....	.....
Mountain	1909	5,254	89,862	4,849	9,578	75,435	400,766	348,977	12,522	56,870	228,692	363,996	135,304	42.9	42.9
	1904	3,610	61,812	3,302	5,720	52,790	241,825	220,560	7,541	39,046	152,813	254,663	101,850	18.6	32.8
	1899	3,146	.....	.....	3,486	44,497	123,012	126,724	3,897	27,714	115,606	191,825	76,219	.....	.....
Pacific	1909	13,579	256,416	13,840	29,410	213,166	802,010	848,477	36,829	153,810	492,678	843,512	350,834	29.9	52.0
	1904	11,192	193,517	11,730	17,710	164,077	460,049	423,623	20,625	106,187	312,489	551,565	239,076	33.2	51.2
	1899	8,329	.....	.....	10,123	123,206	274,559	245,402	10,781	63,777	223,960	364,810	140,850	.....	.....
NEW ENGLAND:															
Maine	1909	3,546	88,476	3,661	4,860	79,955	459,599	202,260	5,707	37,032	97,101	176,029	78,923	6.7	22.2
	1904	3,145	82,109	3,379	3,772	74,958	343,627	143,708	3,989	32,692	80,042	144,020	63,978	7.2	27.5
	1899	2,878	.....	.....	3,103	69,914	259,232	114,008	3,051	25,731	61,210	112,959	51,749	.....	.....
New Hampshire	1909	1,961	84,191	2,014	3,519	78,658	293,991	139,990	4,191	36,200	98,157	164,581	66,424	20.3	33.1
	1904	1,618	69,758	1,726	2,666	65,366	218,344	109,495	2,972	27,093	73,216	123,611	50,395	−3.4	14.9
	1899	1,771	.....	.....	2,068	67,646	200,975	92,140	2,200	25,850	60,163	107,591	47,428	.....	.....
Vermont	1909	1,958	38,580	2,113	2,679	33,788	159,445	73,470	2,803	17,272	34,823	68,310	33,487	2.1	8.3
	1904	1,699	37,015	1,856	2,053	33,106	140,616	62,659	2,103	15,221	32,430	63,084	30,654	17.5	22.5
	1899	1,938	.....	.....	1,695	28,179	126,124	43,500	1,610	11,426	26,395	51,515	25,130	.....	.....
Massachusetts	1909	11,684	644,399	11,194	48,646	584,559	1,175,071	1,279,687	63,279	301,174	830,765	1,490,529	659,764	19.7	32.6
	1904	10,723	532,481	11,258	32,824	488,399	938,007	965,949	39,654	232,389	626,411	1,124,092	497,681	11.4	23.8
	1899	10,929	.....	.....	25,256	438,234	796,061	781,868	29,480	195,278	498,655	907,627	408,972	.....	.....
Rhode Island	1909	1,951	122,641	1,721	7,382	113,538	226,740	200,901	10,577	55,234	158,192	280,344	122,152	16.7	38.7
	1904	1,617	104,299	1,561	5,420	97,318	181,017	215,901	7,041	43,113	112,872	202,110	89,238	10.3	22.1
	1899	1,678	.....	.....	4,022	88,197	153,619	176,901	5,300	35,995	87,952	165,550	77,598	.....	.....
Connecticut	1909	4,251	233,871	3,468	19,611	210,792	400,275	517,546	25,637	110,119	257,259	490,272	233,013	16.1	32.8
	1904	3,477	198,046	2,918	13,523	181,605	304,204	373,283	17,040	87,942	191,302	369,082	177,780	13.7	17.1
	1899	3,382	.....	.....	9,258	159,733	256,331	299,207	11,755	73,394	169,672	315,106	145,434	.....	.....
MIDDLE ATLANTIC:															
New York	1909	44,935	1,203,241	47,569	151,691	1,003,981	1,997,062	2,779,497	186,032	557,231	1,856,904	3,369,490	1,512,586	17.2	35.4
	1904	37,194	996,725	41,766	98,012	856,947	1,516,592	2,031,460	111,145	430,015	1,348,603	2,488,346	1,139,743	17.9	32.9
	1899	35,957	.....	.....	68,030	726,909	1,099,931	1,523,503	76,740	337,324	1,018,377	1,871,831	853,454	.....	.....
New Jersey	1909	8,817	371,265	8,204	36,838	326,223	612,293	977,172	48,337	169,710	720,034	1,145,529	425,495	22.5	47.9
	1904	7,010	296,262	6,730	23,196	266,336	436,274	715,060	28,957	128,169	470,449	774,369	303,920	24.5	40.0
	1899	6,415	.....	.....	15,361	213,975	322,503	477,301	19,058	95,165	334,726	553,006	218,280	.....	.....
Pennsylvania	1909	27,563	1,002,171	29,743	94,885	877,543	2,921,547	2,749,006	110,807	455,627	1,582,560	2,626,742	1,044,182	15.0	34.3
	1904	23,495	855,392	26,029	66,081	763,282	2,302,398	1,995,837	73,269	367,961	1,142,943	1,955,551	812,608	15.0	18.5
	1899	23,462	.....	.....	43,935	663,960	1,716,694	1,449,815	46,145	296,876	958,301	1,649,882	691,581	.....	.....
EAST NORTH CENTRAL:															
Ohio	1909	15,138	523,004	14,719	61,351	446,934	1,583,155	1,300,733	72,147	245,450	824,202	1,437,936	613,734	22.7	49.7
	1904	13,785	417,946	13,657	39,991	364,298	1,116,932	856,989	43,435	182,429	527,637	960,812	433,175	18.2	28.3
	1899	13,868	.....	.....	28,109	308,109	783,665	570,909	28,151	136,428	409,303	748,671	339,368	.....	.....
Indiana	1909	7,969	218,263	7,674	23,605	186,984	633,377	508,717	26,305	95,510	334,375	579,075	244,700	21.3	47.0
	1904	7,044	176,227	7,191	14,862	154,174	380,758	312,071	15,029	72,058	220,507	393,954	173,447	10.9	16.9
	1899	7,128	.....	.....	10,447	139,017	325,919	219,321	9,971	59,280	195,163	337,072	141,909	.....	.....
Illinois	1909	18,026	561,044	17,357	77,923	465,764	1,013,071	1,548,171	91,449	273,319	1,160,927	1,919,277	758,350	22.8	36.1
	1904	14,921	447,947	13,990	54,521	379,436	741,555	975,845	60,560	208,405	840,057	1,410,342	570,285	14.0	25.8
	1899	14,374	.....	.....	40,964	332,871	559,347	732,830	40,549	159,104	681,450	1,120,868	439,418	.....	.....

TABLE II.—COMPARATIVE SUMMARY FOR THE UNITED STATES, BY STATES: 1909, 1904, AND 1899—Continued.

DIVISION AND STATE.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).	PER CENT OF INCREASE. Wage earners (average number).	Value of products.
								Expressed in thousands.							
EAST NORTH CENTRAL—Continued.															
Michigan	1909	9,159	271,071	8,965	30,607	231,499	598,288	$583,947	$34,870	$118,968	$368,612	$685,109	$316,497	32.1	59.7
	1904	7,446	200,196	7,732	17,235	175,229	440,890	337,894	17,470	81,279	230,081	420,120	190,039	12.5	34.2
	1899	7,310	.....	.....	13,350	155,800	368,497	246,996	12,336	62,532	175,966	319,692	143,726	.....	.....
Wisconsin	1909	9,721	213,426	8,556	22,287	182,583	554,179	605,657	25,737	93,905	346,356	590,305	243,949	20.6	43.6
	1904	8,558	173,572	7,961	14,220	151,391	440,234	412,647	15,498	71,472	227,255	411,140	183,885	10.1	25.8
	1899	7,841	.....	.....	10,480	137,525	364,380	286,061	10,493	55,696	185,695	326,753	141,058	.....	.....
WEST NORTH CENTRAL:															
Minnesota	1909	5,561	104,406	5,76	14,263	84,767	297,670	275,416	15,451	47,471	281,622	409,420	127,798	21.7	33.0
	1904	4,756	83,301	4,24	9,141	69,636	220,934	184,903	9,033	35,843	210,554	307,858	97,304	7.9	37.6
	1899	4,096	.....	.....	6,625	64,557	180,124	133,077	6,064	20,029	150,299	223,693	73,394	.....	.....
Iowa	1909	5,528	78,360	5,323	11,402	61,635	155,384	171,219	10,972	32,542	170,707	259,238	88,531	24.6	61.4
	1904	4,785	61,361	4,758	7,122	49,481	118,065	111,428	5,948	22,907	102,844	160,572	57,728	11.4	20.8
	1899	4,828	.....	.....	5,159	44,420	106,664	85,668	4,233	18,021	85,779	132,871	47,092	.....	.....
Missouri	1909	8,375	185,705	8,226	24,486	152,993	340,467	444,343	28,994	80,843	354,411	574,111	219,700	14.9	30.6
	1904	6,464	156,585	6,299	17,119	133,167	247,861	379,369	19,002	66,644	252,258	439,549	187,291	23.6	39.0
	1899	6,853	.....	.....	12,474	107,704	189,117	223,781	13,295	46,714	184,189	316,304	132,115	.....	.....
North Dakota	1909	752	4,148	723	636	2,789	13,196	11,585	629	1,787	13,674	19,137	5,463	58.9	87.3
	1904	507	2,545	494	296	1,755	9,873	5,704	258	1,032	7,096	10,218	3,122	29.2	63.2
	1899	337	.....	.....	152	1,358	7,351	3,512	130	671	4,151	6,260	2,109	.....	.....
South Dakota	1909	1,020	5,226	942	682	3,602	17,666	13,018	616	2,207	11,476	17,870	6,394	44.5	36.6
	1904	686	3,582	649	441	2,492	11,154	7,585	294	1,422	8,697	13,086	4,389	12.0	37.3
	1899	624	.....	.....	288	2,224	11,775	6,051	175	1,130	6,484	9,530	3,046	.....	.....
Nebraska	1909	2,500	31,966	2,522	5,108	24,336	64,466	99,901	5,491	13,948	151,081	199,019	47,938	20.1	28.5
	1904	1,819	25,356	1,904	3,192	20,260	46,372	80,235	3,075	11,022	124,052	154,918	30,866	8.5	18.9
	1899	1,695	.....	.....	2,296	18,669	41,825	65,906	2,107	8,842	95,925	130,302	34,377	.....	.....
Kansas	1909	3,435	54,649	3,571	6,863	44,215	213,141	156,090	7,351	25,904	258,884	325,104	66,220	24.3	64.0
	1904	2,475	42,057	2,766	3,721	35,570	99,441	88,080	3,603	18,883	156,510	198,245	41,735	31.2	28.7
	1899	2,299	.....	.....	3,612	27,119	68,242	59,458	3,123	12,802	120,738	154,009	33,271	.....	.....
SOUTH ATLANTIC:															
Delaware	1909	726	23,984	722	2,024	21,238	52,779	60,906	2,322	10,206	30,938	52,840	21,902	15.0	28.4
	1904	631	20,567	641	1,451	18,475	49,490	50,926	1,629	8,158	24,884	41,160	16,276	−10.2	−0.4
	1899	633	.....	.....	1,189	20,562	40,134	38,791	1,337	8,457	24,725	41,321	16,596	.....	.....
Maryland	1909	4,837	125,489	5,376	12,192	107,921	218,244	251,227	13,617	45,436	199,049	315,660	116,620	14.6	29.7
	1904	3,852	107,303	4,505	8,624	94,174	165,449	201,878	8,844	36,144	150,024	243,376	93,352	(1)	15.3
	1899	3,886	.....	.....	6,741	94,170	132,052	149,155	6,845	32,414	129,355	211,076	81,721	.....	.....
District of Columbia	1909	518	9,758	475	1,576	7,707	16,563	30,553	1,846	4,980	10,247	25,289	15,042	22.4	37.7
	1904	482	7,778	473	1,006	6,299	12,592	20,200	1,207	3,659	7,732	18,359	10,627	2.3	11.8
	1899	491	.....	.....	957	6,155	10,255	17,951	872	3,023	7,475	16,426	8,951	.....	.....
Virginia	1909	5,685	120,797	6,570	8,551	105,676	283,928	216,392	9,101	38,154	125,583	219,704	94,211	31.6	47.7
	1904	3,187	88,898	3,643	4,970	80,285	176,998	147,980	4,875	27,943	83,649	148,857	65,208	21.2	37.0
	1899	3,186	.....	.....	3,828	66,223	136,696	92,300	3,630	20,274	59,360	108,644	49,284	.....	.....
West Virginia	1909	2,586	71,463	2,599	4,971	63,893	222,896	150,922	5,710	33,000	92,878	161,949	69,071	46.0	63.5
	1904	2,109	48,880	2,230	2,892	43,758	138,578	86,821	2,899	21,153	54,419	99,041	44,622	32.3	47.8
	1899	1,824	.....	.....	1,744	33,080	91,894	49,103	1,519	12,640	37,228	67,007	29,779	.....	.....
North Carolina	1909	4,931	133,453	5,451	6,529	121,473	378,556	217,185	6,903	34,355	121,861	216,656	94,795	42.3	52.0
	1904	3,272	93,142	3,731	4,072	85,339	216,622	141,001	3,795	21,375	79,268	142,521	63,253	18.0	67.1
	1899	3,405	.....	.....	2,894	72,322	154,467	68,283	2,395	14,052	44,854	85,274	40,420	.....	.....
South Carolina	1909	1,854	78,040	1,737	3,257	73,046	276,378	173,221	3,756	20,361	66,351	113,236	46,885	22.9	42.7
	1904	1,399	63,071	1,241	2,389	59,441	197,479	113,422	2,355	13,869	49,969	79,376	29,407	26.4	48.8
	1899	1,369	.....	.....	1,419	47,025	112,697	62,750	1,307	9,130	30,486	53,336	22,850	.....	.....
Georgia	1909	4,792	118,036	5,141	8,307	104,588	298,241	202,778	9,062	34,805	116,970	202,863	85,893	12.8	34.3
	1904	3,219	102,365	3,512	6,104	92,749	220,419	135,211	5,927	27,393	83,625	151,040	67,415	11.3	39.8
	1899	3,015	.....	.....	3,815	83,336	136,499	79,303	3,204	19,958	49,356	94,532	45,176	.....	.....
Florida	1909	2,159	64,810	2,712	4,625	57,473	80,816	65,291	4,955	22,982	26,128	72,890	46,762	36.5	44.9
	1904	1,413	46,985	1,769	3,125	42,091	43,413	32,972	2,670	15,767	16,532	50,208	33,766	18.7	47.1
	1899	1,275	.....	.....	1,781	35,471	30,356	25,682	1,299	10,916	12,847	34,184	21,337	.....	.....
EAST SOUTH CENTRAL:															
Kentucky	1909	4,776	79,060	5,050	8,610	65,400	230,224	172,779	9,603	27,888	111,779	223,754	111,975	9.4	40.1
	1904	3,734	69,755	4,108	5,853	59,794	174,625	147,282	5,871	24,439	86,545	159,754	73,209	15.6	26.3
	1899	3,648	.....	.....	4,356	51,735	144,161	87,996	4,185	18,454	67,406	126,599	59,193	.....	.....
Tennessee	1909	4,609	87,672	5,415	8,417	73,840	242,277	167,924	9,186	28,251	104,016	180,217	76,201	21.0	30.6
	1904	3,175	69,287	3,805	4,910	60,572	175,780	102,440	5,081	22,806	79,352	137,961	58,609	31.8	48.7
	1899	3,116	.....	.....	3,329	45,963	130,318	63,140	3,048	14,727	54,559	92,749	38,190	.....	.....
Alabama	1909	3,398	81,972	3,769	6,055	72,148	357,837	173,180	6,565	27,284	83,442	145,962	62,520	16.0	33.7
	1904	1,882	67,884	1,948	3,703	62,173	293,185	105,383	3,867	21,878	60,453	109,170	48,712	18.0	51.4
	1899	2,000	.....	.....	2,259	52,711	173,208	60,166	2,059	14,912	37,998	72,110	34,112	.....	.....
Mississippi	1909	2,598	56,761	2,974	3,403	50,384	206,222	72,393	3,654	18,768	36,926	80,555	43,629	30.2	40.2
	1904	1,520	42,966	1,588	2,688	38,690	110,338	50,256	2,598	14,819	25,801	57,451	31,650	44.4	70.4
	1899	1,294	.....	.....	1,260	26,799	65,738	22,712	1,093	7,910	16,543	33,718	17,175	.....	.....

(1) Less than one-tenth of 1 per cent.

TABLE II.—COMPARATIVE SUMMARY FOR THE UNITED STATES, BY STATES: 1909, 1904, AND 1899—Continued.

DIVISION AND STATE.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).	PER CENT OF INCREASE. Wage earners (average number).	Value of products.
								Expressed in thousands.							
WEST SOUTH CENTRAL:															
Arkansas	1909	2,925	51,730	3,455	3,293	44,982	173,088	$70,174	$3,461	$19,113	$34,935	$74,916	$39,981	35.9	39.1
	1904	1,907	37,557	2,140	2,328	33,080	109,509	46,306	2,310	14,544	21,799	53,865	32,066	5.0	35.0
	1899	1,746	.....	.....	1,549	31,525	79,560	25,385	1,262	10,184	18,288	39,888	21,600	.....	.....
Louisiana	1909	2,516	86,563	2,295	8,103	76,165	346,052	221,816	9,008	33,386	134,865	223,949	89,084	36.4	20.2
	1904	2,091	63,735	1,899	5,977	55,859	251,963	150,811	6,044	25,316	117,035	186,380	69,345	36.6	67.3
	1899	1,826	.....	.....	3,576	40,878	190,182	100,875	2,934	14,725	75,404	111,398	35,994	.....	.....
Oklahoma	1909	2,310	18,034	2,698	2,193	13,143	71,139	38,873	2,045	7,240	34,153	53,682	19,529	140.9	119.5
	[1]1904	1,123	7,456	1,187	813	5,456	29,608	16,124	718	2,799	16,394	24,459	8,065	129.1	200.7
	[1]1899	495	.....	.....	269	2,381	11,572	4,054	219	894	5,430	8,134	2,704	.....	.....
Texas	1909	4,588	84,575	4,496	9,849	70,230	282,471	216,876	10,868	37,007	178,178	272,896	94,718	43.1	81.3
	1904	3,158	57,892	3,073	5,753	49,066	164,637	115,665	6,118	24,469	91,604	150,528	58,924	27.1	62.0
	1899	3,107	.....	.....	2,861	33,604	116,157	63,655	2,919	16,912	54,388	92,894	38,506	.....	.....
MOUNTAIN:															
Montana	1909	677	13,694	659	1,380	11,655	90,402	14,588	2,054	10,901	49,180	73,272	24,092	30.1	10.3
	1904	332	10,196	334	905	8,957	46,736	52,590	1,506	8,052	40,930	66,415	25,485	—9.1	25.9
	1899	395	.....	.....	508	9,854	43,679	38,225	786	7,377	30,068	52,745	22,677	.....	.....
Idaho	1909	725	9,909	831	858	8,220	42,804	32,477	984	5,498	9,920	22,400	12,480	168.5	155.4
	1904	364	3,791	371	359	3,061	16,987	9,689	370	2,059	4,069	8,769	4,700	97.2	192.2
	1899	287	.....	.....	92	1,552	5,649	2,130	66	818	1,439	3,001	1,562	.....	.....
Wyoming	1909	268	3,393	263	263	2,867	7,028	6,195	311	2,081	2,608	6,249	3,641	56.3	77.4
	1904	169	2,163	150	179	1,834	3,604	2,696	206	1,261	1,301	3,523	2,222	—11.0	7.8
	1899	139	.....	.....	87	2,060	3,320	2,048	91	1,209	1,370	3,268	1,898	.....	.....
Colorado	1909	2,034	34,115	1,722	4,326	28,067	154,615	162,668	5,648	19,912	80,491	130,044	49,553	28.7	29.9
	1904	1,606	25,888	1,398	2,677	21,813	124,907	107,664	3,549	15,100	63,114	100,144	37,030	11.9	12.4
	1899	1,323	.....	.....	1,870	19,498	43,434	58,173	2,059	11,708	60,751	89,068	28,317	.....	.....
New Mexico	1909	313	4,766	288	335	4,143	15,465	7,743	383	2,591	3,261	7,898	4,637	19.1	38.4
	1904	199	3,891	189	224	3,478	5,948	4,638	264	2,153	2,236	5,706	3,470	39.7	40.5
	1899	174	.....	.....	88	2,490	3,658	2,161	91	1,199	1,999	4,061	2,062	.....	.....
Arizona	1909	311	7,202	261	500	6,441	39,140	32,873	798	5,505	33,600	50,257	16,657	34.4	79.0
	1904	160	5,217	133	291	4,793	21,412	14,396	472	3,969	14,595	23,083	13,488	53.3	37.4
	1899	154	.....	.....	205	3,126	8,537	9,517	269	2,287	7,877	20,439	12,562	.....	.....
Utah	1909	749	14,133	688	1,660	11,785	42,947	52,627	1,966	8,400	41,266	61,989	20,723	46.4	59.2
	1904	606	9,650	619	979	8,052	19,397	26,004	1,030	5,158	24,940	38,927	13,987	48.8	116.5
	1899	575	.....	.....	599	5,413	12,674	13,219	501	2,763	11,440	17,982	6,542	.....	.....
Nevada	1909	177	2,650	137	256	2,257	7,705	9,806	378	1,982	8,366	11,887	3,521	181.4	283.9
	1904	115	1,016	108	106	802	2,834	2,892	126	694	1,628	3,096	1,468	59.1	145.5
	1899	99	.....	.....	37	504	1,561	1,251	34	353	662	1,261	599	.....	.....
PACIFIC:															
Washington	1909	3,674	80,118	3,264	7,734	69,120	297,897	222,261	9,827	49,766	117,888	220,746	102,858	52.9	71.4
	1904	2,751	51,459	2,602	3,658	45,199	168,342	96,953	4,093	30,087	66,166	128,822	62,656	43.4	81.9
	1899	1,926	.....	.....	2,103	31,523	87,601	41,575	2,064	17,065	38,277	70,831	32,554	.....	.....
Oregon	1909	2,246	34,722	2,499	3,473	28,750	175,019	89,082	4,047	19,902	49,552	93,005	43,453	55.2	67.5
	1904	1,602	22,018	1,726	1,769	18,523	81,348	44,023	2,133	11,443	30,597	55,525	24,928	28.1	51.7
	1899	1,406	.....	.....	1,143	14,459	60,005	28,359	1,222	6,822	20,789	36,593	15,804	.....	.....
California	1909	7,659	141,576	8,077	18,203	115,296	329,100	537,134	22,955	84,142	325,238	529,761	204,523	14.9	44.3
	1904	6,839	120,040	7,402	12,283	100,355	210,359	282,647	14,399	64,057	215,726	367,218	151,492	30.0	42.7
	1899	4,997	.....	.....	6,877	77,224	126,953	175,468	7,495	39,890	164,894	257,386	92,492	.....	.....

[1] Includes Indian Territory.

TABLE III.—COMPARATIVE SUMMARY FOR THE 25 PRINCIPAL CITIES: 1909, 1904, AND 1899.

NOTES.—The figures for some cities 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 cities. A minus sign (−) denotes decrease.

CITY.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).	PER CENT OF INCREASE. Wage earners (average number).	Value of products.
								Expressed in thousands.							
New York, N. Y.	1909	25,938	680,510	29,055	97,453	554,002	429,003	$1,364,353	$122,074	$323,698	$1,092,155	$2,020,693	$937,538	19.2	33.0
	1904	20,839	552,952	24,050	63,586	464,716	.....	1,042,946	73,028	248,128	818,029	1,526,523	708,494	19.6	30.2
	1899	19,243	.....	.....	43,783	388,586	.....	853,238	51,656	196,656	634,210	1,172,870	538,660	.....	.....
Chicago, Ill.	1909	9,656	356,954	8,156	54,821	293,977	525,236	971,841	65,925	174,112	793,470	1,281,171	487,701	21.5	34.1
	1904	8,159	289,529	7,269	40,276	241,984	.....	637,743	45,601	136,405	589,914	955,036	365,122	9.4	19.7
	1899	7,608	.....	.....	32,406	221,191	.....	511,249	32,068	108,727	502,222	797,879	295,657	.....	.....
Philadelphia, Pa.	1909	8,379	294,498	9,162	33,452	251,884	365,950	691,397	39,446	126,381	429,092	746,076	316,984	10.0	26.2
	1904	7,087	259,878	8,140	22,839	228,899	.....	520,179	25,396	107,640	333,352	591,388	258,036	6.6	13.7
	1899	7,503	.....	.....	17,498	214,775	.....	445,725	18,931	94,737	295,175	519,982	224,807	.....	.....
St. Louis, Mo.	1909	2,667	104,587	1,869	15,347	87,371	103,615	269,392	19,671	48,535	188,189	328,495	140,306	5.6	22.9
	1904	2,482	95,962	1,883	11,381	82,698	.....	265,937	13,475	42,642	137,740	267,307	129,567	27.6	38.0
	1899	2,646	.....	.....	8,867	64,832	.....	150,526	10,079	29,145	101,838	193,733	91,895	.....	.....
Cleveland, Ohio.	1909	2,148	98,686	1,718	12,240	84,728	199,898	227,397	15,593	48,053	153,801	271,961	118,160	32.3	58.2
	1904	1,616	72,362	1,445	6,876	64,041	.....	156,321	8,299	33,456	97,578	171,924	74,346	15.7	23.4
	1899	1,350	.....	.....	5,064	55,341	.....	101,243	5,453	26,518	76,465	139,356	62,891	.....	.....
Detroit, Mich.	1909	2,036	95,841	1,804	13,026	81,011	114,190	190,125	15,260	43,007	130,218	252,992	122,774	67.1	97.3
	1904	1,362	55,718	1,312	5,923	48,483	.....	91,038	6,126	22,558	66,581	128,247	61,666	26.3	45.1
	1899	1,250	.....	.....	4,947	38,373	.....	67,224	4,726	15,317	47,007	88,366	41,359	.....	.....
Pittsburgh, Pa.	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	−5.8	15.2
	1904	1,562	81,407	1,516	8,273	71,618	.....	260,765	9,753	39,805	124,581	211,259	86,678	−0.2	−3.2
	1899	1,301	.....	.....	5,850	71,794	.....	211,774	6,351	37,635	128,458	218,198	89,740	.....	.....
Boston, Mass.	1909	3,155	85,158	2,873	12,648	69,637	68,419	175,182	15,641	39,910	124,577	237,457	112,880	17.7	28.8
	1904	2,747	71,421	2,833	9,428	59,160	.....	131,563	10,464	31,873	94,603	184,351	89,748	11.9	13.3
	1899	2,878	.....	.....	7,691	52,853	.....	130,143	8,180	28,209	82,295	162,765	80,470	.....	.....
Buffalo, N. Y.	1909	1,753	61,246	1,489	8,345	51,412	121,791	193,041	9,347	28,727	136,538	218,804	82,266	18.0	48.5
	1904	1,538	50,390	1,559	5,264	43,567	.....	137,023	5,542	21,622	88,367	147,378	59,011	27.1	39.5
	1899	1,478	.....	.....	3,707	34,275	.....	95,740	3,429	15,678	65,939	105,627	39,688	.....	.....
Milwaukee, Wis.	1909	1,764	68,933	1,472	7,959	59,502	94,254	219,391	9,405	31,437	119,821	208,324	88,503	37.2	51.0
	1904	1,527	49,843	1,393	5,084	43,366	.....	161,494	5,837	20,809	71,103	137,995	66,892	5.2	24.5
	1899	1,419	.....	.....	4,077	41,220	.....	105,504	4,305	17,102	59,694	110,854	51,160	.....	.....
Newark, N. J.	1909	1,858	69,986	1,704	8,327	59,955	78,263	154,233	11,777	33,076	114,670	202,511	87,832	18.3	35.0
	1904	1,600	57,463	1,631	5,135	50,697	.....	119,026	6,685	25,622	80,689	150,055	69,366	18.2	33.1
	1899	1,573	.....	.....	4,146	42,878	.....	97,182	5,256	20,365	60,772	112,728	51,956	.....	.....
Cincinnati, Ohio.	1909	2,184	72,488	2,015	10,281	60,192	88,597	150,254	12,759	31,101	101,932	194,516	92,584	2.7	17.1
	1904	2,171	68,954	2,180	8,190	58,584	.....	130,272	9,077	27,390	83,258	166,059	82,801	6.6	17.2
	1899	2,454	.....	.....	6,164	54,942	.....	103,464	6,437	23,104	71,391	141,678	70,287	.....	.....
Baltimore, Md.	1909	2,502	83,473	2,660	9,369	71,444	76,764	164,437	10,571	31,171	107,024	186,978	79,954	9.8	24.5
	1904	2,158	74,234	2,432	6,752	65,050	.....	146,961	6,997	25,567	80,555	150,171	69,616	−2.3	11.1
	1899	2,274	.....	.....	5,501	66,571	.....	107,217	5,871	23,493	75,223	135,108	59,885	.....	.....
Minneapolis, Minn.	1909	1,102	33,923	1,012	5,949	26,962	89,247	90,382	6,277	15,638	119,993	165,405	45,412	24.4	36.5
	1904	876	26,045	847	3,527	21,671	.....	66,135	3,536	11,418	88,882	121,163	32,281	10.5	28.3
	1899	789	.....	.....	2,158	19,620	.....	50,177	2,113	9,383	68,910	94,408	25,498	.....	.....
Kansas City, Kans.	1909	165	14,333	142	1,897	12,294	31,885	42,817	2,138	7,027	144,390	164,681	19,601	16.8	70.1
	1904	100	11,761	82	1,150	10,529	.....	27,773	1,216	5,449	83,883	96,473	12,590	11.0	20.6
	1899	114	.....	.....	2,063	9,483	.....	18,236	1,911	4,259	68,875	80,023	11,148	.....	.....
San Francisco, Cal.	1909	1,796	36,910	2,544	6,122	28,244	49,934	133,824	8,086	22,381	76,217	133,041	56,824	−26.5	−3.4
	1904	2,251	46,666	3,047	5,190	38,429	.....	102,362	6,630	25,015	75,946	137,788	61,842	18.0	28.7
	1899	1,748	.....	.....	3,413	32,555	.....	69,643	3,929	17,259	65,535	107,024	41,489	.....	.....
Jersey City, N. J.	1909	745	30,239	614	4,171	25,454	35,917	79,794	5,049	13,216	89,317	128,775	39,458	25.1	70.0
	1904	628	23,312	580	2,379	20,353	.....	82,395	2,990	10,021	48,799	75,741	26,942	17.0	3.9
	1899	536	.....	.....	1,614	17,391	.....	78,612	2,039	7,965	50,266	72,930	22,664	.....	.....
Indianapolis, Ind.	1909	855	37,929	631	5,483	31,815	50,872	76,497	6,494	16,557	84,151	126,522	42,371	19.0	53.9
	1904	810	31,431	591	4,115	26,725	.....	53,420	4,096	12,620	51,763	82,228	30,465	27.4	38.6
	1899	697	.....	.....	2,325	20,985	.....	34,736	2,248	8,844	38,287	59,322	21,035	.....	.....
Providence, R. I.	1909	1,080	51,667	1,017	4,269	46,381	56,410	118,512	5,650	24,449	64,770	120,241	55,471	16.5	30.7
	1904	881	43,748	893	3,051	39,804	.....	95,666	3,819	19,555	49,973	91,981	42,008	3.7	16.9
	1899	929	.....	.....	2,493	38,368	.....	79,686	3,053	16,931	42,551	78,657	36,106	.....	.....
Rochester, N. Y.	1909	1,203	46,617	1,042	6,467	39,108	38,460	95,708	7,734	21,518	50,674	112,676	62,002	23.1	38.9
	1904	1,109	37,128	1,084	4,265	31,779	.....	69,807	4,529	14,702	37,948	81,109	43,191	13.3	35.9
	1899	1,221	.....	.....	3,061	28,049	.....	45,210	3,131	11,366	28,245	59,669	31,424	.....	.....
Louisville, Ky.	1909	903	32,397	669	4,705	27,023	49,926	79,437	5,533	12,460	54,128	101,284	47,156	8.2	21.7
	1904	842	28,817	706	3,126	24,985	.....	79,999	3,367	10,812	45,682	83,204	37,522	8.3	25.9
	1899	860	.....	.....	2,491	23,062	.....	44,016	2,595	8,436	34,876	66,110	31,234	.....	.....
South Omaha, Nebr.	1909	71	7,659	63	1,290	6,306	11,859	19,877	1,559	3,544	77,673	92,436	14,763	11.4	37.1
	1904	41	6,571	34	875	5,662	.....	20,564	950	3,210	59,193	67,415	8,222	−10.5	−3.0
	1899	41	.....	.....	769	6,327	.....	16,382	736	3,115	61,018	69,509	8,491	.....	.....
Youngstown, Ohio.	1909	115	11,851	94	1,259	10,498	140,907	87,160	1,593	7,835	62,292	81,271	18,979	29.7	73.5
	1904	113	8,903	86	722	8,095	.....	40,956	870	5,460	35,183	46,853	11,670	−6.7	38.2
	1899	103	.....	.....	414	8,679	.....	22,064	478	4,730	23,133	33,908	10,775	.....	.....
Lawrence, Mass.	1909	162	31,589	145	902	30,542	73,066	79,550	1,581	13,787	45,438	79,993	34,555	39.4	66.5
	1904	187	22,726	183	633	21,910	.....	60,063	971	8,908	29,416	48,057	18,621	4.8	15.1
	1899	167	.....	.....	648	20,899	.....	48,827	997	8,197	24,842	41,742	16,900	.....	.....
New Orleans, La.	1909	848	20,938	754	2,998	17,186	38,145	56,934	3,240	8,020	48,732	78,794	30,062	−1.6	−3.2
	1904	690	20,406	606	2,332	17,468	.....	56,995	2,386	7,396	58,828	81,411	22,583	7.9	41.7
	1899	688	.....	.....	1,579	16,185	.....	42,858	1,667	6,176	40,385	57,446	17,061	.....	.....

TABLE IV.—CITIES OF 10,000 INHABITANTS OR OVER—NUMBER OF ESTABLISHMENTS, AVERAGE NUMBER OF WAGE EARNERS, VALUE OF PRODUCTS, AND VALUE ADDED BY MANUFACTURE: 1909, 1904, AND 1899.

NOTE.—The figures for some cities 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 cities. Figures for 1904 and 1899 are available for cities which had between 8,000 and 10,000 inhabitants in 1900 and are included, but for cities having less than 8,000 inhabitants in 1900 comparative data are not available.

CITY.	NUMBER OF ESTABLISHMENTS.			AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS. (Expressed in thousands.)			VALUE ADDED BY MANUFACTURE (VALUE OF PRODUCTS LESS COST OF MATERIALS). (Expressed in thousands.)		
	1909	1904	1899	1909	1904	1899	1909	1904	1899	1909	1904	1899
ALABAMA:												
Anniston	39	35	25	2,167	2,005	1,445	$4,333	$3,327	$1,863	$1,509	$1,449	$894
Bessemer	31	.....	.....	1,816	.....	.....	6,106	.....	.....	1,867	.....	.....
Birmingham	248	122	109	8,999	3,987	3,490	24,128	7,593	8,599	10,118	3,644	4,619
Gadsden	27	.....	.....	786	.....	.....	1,525	.....	.....	621	.....	.....
Mobile	126	139	113	2,362	2,496	2,371	5,429	4,942	3,486	2,490	2,620	1,944
Montgomery	73	59	52	2,284	1,940	1,528	5,443	3,878	2,944	2,420	1,089	1,229
Selma	35	26	32	813	668	699	2,382	1,139	1,419	787	512	567
ARIZONA:												
Phoenix	57	.....	.....	304	.....	.....	1,467	.....	.....	603	.....	.....
Tucson	35	.....	.....	555	.....	.....	2,037	.....	.....	767	.....	.....
ARKANSAS:												
Argenta	18	.....	.....	2,157	.....	.....	4,842	.....	.....	2,157	.....	.....
Fort Smith	83	63	66	1,455	1,049	677	3,739	2,329	1,401	1,733	1,216	750
Hot Springs	71	22	21	335	239	94	844	597	191	541	309	106
Little Rock	125	104	62	2,017	1,971	1,397	6,882	4,690	3,379	2,808	2,131	1,600
Pine Bluff	42	34	37	1,118	1,425	990	2,387	2,500	1,541	1,033	1,079	752
CALIFORNIA:												
Alameda	51	30	23	915	279	372	2,554	697	1,335	1,625	464	547
Bakersfield	27	.....	.....	746	.....	.....	2,819	.....	.....	1,119	.....	.....
Berkeley	84	44	22	1,084	338	211	4,435	1,474	651	1,748	692	259
Eureka	48	.....	.....	946	.....	.....	3,012	.....	.....	1,518	.....	.....
Fresno	76	80	62	1,938	1,915	819	11,090	9,754	2,752	3,098	2,926	1,048
Long Beach	51	.....	.....	277	.....	.....	927	.....	.....	429	.....	.....
Los Angeles	1,325	814	534	17,327	10,424	5,173	68,586	34,814	15,134	29,673	10,125	7,046
Oakland	441	248	195	6,905	3,353	2,476	22,343	9,015	5,368	10,496	4,708	2,664
Pasadena	68	46	28	499	318	177	1,724	967	331	870	546	20
Pomona	30	.....	.....	224	.....	.....	560	.....	.....	330	.....	.....
Redlands	37	.....	.....	147	.....	.....	518	.....	.....	279	.....	.....
Riverside	53	.....	.....	267	.....	.....	1,178	.....	.....	511	.....	.....
Sacramento	211	156	111	4,514	4,203	3,686	13,077	10,073	9,495	7,083	4,929	4,150
San Bernardino	41	.....	.....	729	.....	.....	1,660	.....	.....	897	.....	.....
San Diego	117	89	57	1,071	541	255	4,741	1,974	670	2,074	838	389
San Francisco	1,796	2,251	1,748	28,244	38,429	32,555	133,041	137,788	107,024	50,824	61,842	41,489
San Jose	153	153	124	1,430	1,260	1,221	5,611	4,208	3,292	2,368	1,786	1,442
Santa Barbara	51	.....	.....	265	.....	.....	1,169	.....	.....	473	.....	.....
Santa Cruz	34	.....	.....	274	.....	.....	1,101	.....	.....	493	.....	.....
Stockton	144	110	91	1,594	1,333	1,185	11,849	8,030	5,525	3,529	2,180	1,538
Vallejo	23	.....	.....	203	.....	.....	1,896	.....	.....	492	.....	.....
COLORADO:												
Colorado Springs	59	49	34	516	410	409	1,733	1,101	845	910	690	480
Cripple Creek	.....	22	35	.....	51	167	.....	223	441	.....	147	266
Denver	766	722	574	12,058	9,672	8,500	51,538	36,660	37,906	20,611	15,660	13,434
Leadville	.....	32	34	.....	861	1,227	.....	5,446	5,883	.....	1,562	1,043
Pueblo	94	80	69	1,320	941	790	3,345	2,197	1,440	1,848	1,256	768
Trinidad	30	.....	.....	220	.....	.....	814	.....	.....	503	.....	.....
CONNECTICUT:												
Ansonia	53	49	49	4,127	3,394	3,288	20,088	19,132	18,515	5,477	3,824	3,559
Bridgeport	367	306	286	25,775	19,492	17,038	65,609	44,586	33,536	27,662	22,252	16,249
Danbury	131	103	104	4,810	4,515	3,939	10,318	8,066	6,527	5,439	4,371	3,269
Hartford	396	340	322	14,627	11,221	10,677	40,680	25,974	23,829	22,817	14,487	12,460
Meriden	120	97	92	7,845	7,281	6,689	16,317	13,764	11,751	9,374	8,120	6,645
Middletown	58	65	60	2,434	2,318	2,495	4,955	4,351	4,152	2,012	1,788	1,799
Naugatuck borough	24	22	22	3,404	3,628	3,160	11,033	11,010	8,887	3,704	3,750	2,815
New Britain	111	95	82	13,513	10,073	8,019	22,021	14,960	11,096	13,693	9,292	6,500
New Haven	590	490	437	23,547	21,437	17,594	51,071	39,666	34,900	26,752	21,145	18,764
New London	70	57	54	2,225	2,554	1,963	4,483	4,710	4,221	1,952	2,183	1,959
Norwich	91	87	89	4,470	3,706	3,172	9,389	6,022	5,935	4,587	2,979	2,889
Stamford	86	62	49	3,984	3,341	2,445	8,739	5,890	3,920	5,035	3,560	2,220
Torrington borough	54	43	37	4,488	4,025	3,161	12,550	9,674	9,178	5,087	3,759	2,917
Waterbury	169	143	124	20,170	15,406	13,225	50,350	32,367	30,330	21,624	14,597	12,128
Willimantic	47	35	30	3,020	2,852	2,258	6,733	4,902	3,023	3,539	2,832	1,663
DELAWARE:												
Wilmington	201	245	262	14,663	13,508	14,498	38,069	30,285	30,587	16,093	12,164	12,711
DISTRICT OF COLUMBIA	518	482	491	7,707	6,299	6,155	25,289	18,359	16,426	15,042	10,627	8,951
FLORIDA:												
Jacksonville	114	125	74	1,988	2,650	1,238	6,722	5,340	1,799	2,725	2,550	993
Key West	56	73	53	2,431	2,466	1,809	3,965	4,254	3,088	2,322	2,448	1,857
Pensacola	60	39	32	961	1,206	578	1,963	1,037	1,053	1,008	1,117	551
Tampa	215	141	70	8,996	5,831	3,919	17,653	11,264	7,083	10,280	6,713	3,717
GEORGIA:												
Athens	37	28	27	962	599	589	2,112	1,158	678	783	405	264
Atlanta	483	294	196	12,302	11,891	7,966	33,038	25,746	14,419	16,620	12,305	6,976
Augusta	71	64	80	5,073	4,839	5,563	10,456	8,829	7,984	3,854	2,876	2,837
Brunswick	23	29	25	385	254	351	672	407	703	414	220	304
Columbus	55	52	58	4,661	4,434	4,110	8,552	7,080	5,051	2,990	2,796	2,105
Macon	80	61	66	3,729	3,661	2,994	10,703	7,297	5,452	3,833	3,181	2,301
Rome	36	.....	.....	1,014	.....	.....	1,864	.....	.....	786	.....	.....
Savannah	137	122	82	2,727	3,230	2,249	6,734	6,340	3,750	3,385	3,086	1,942
Waycross	21	.....	.....	1,130	.....	.....	1,203	.....	.....	591	.....	.....
IDAHO:												
Boise	50	.....	.....	411	.....	.....	1,661	.....	.....	766	.....	.....

TABLE IV.—CITIES OF 10,000 INHABITANTS OR OVER—NUMBER OF ESTABLISHMENTS, AVERAGE NUMBER OF WAGE EARNERS, VALUE OF PRODUCTS, AND VALUE ADDED BY MANUFACTURE: 1909, 1904, AND 1899—Contd.

CITY.	NUMBER OF ESTABLISHMENTS.			AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS. (Expressed in thousands.)			VALUE ADDED BY MANUFACTURE (VALUE OF PRODUCTS LESS COST OF MATERIALS). (Expressed in thousands.)		
	1909	1904	1899	1909	1904	1899	1909	1904	1899	1909	1904	1899
ILLINOIS:												
Alton	69	62	59	2,429	3,069	2,174	$10,096	$8,697	$4,250	$2,834	$3,274	$1,778
Aurora	165	103	97	5,095	4,078	3,949	10,954	7,329	5,638	5,373	3,791	3,046
Belleville	119	96	80	1,872	1,765	1,335	4,615	4,357	2,873	2,291	2,570	1,938
Bloomington	107	81	68	2,077	2,275	1,671	4,868	5,777	3,012	2,341	2,285	1,417
Cairo	56	57	53	1,237	1,436	1,501	4,440	4,382	3,116	1,483	1,544	1,216
Canton	33			1,262			2,942			1,759		
Champaign	42	36	33	273	289	245	846	486	354	427	328	222
Chicago	9,656	8,159	7,663	293,977	241,984	221,191	1,281,171	955,036	797,879	487,701	365,122	295,057
Chicago Heights	79			3,953			10,839			5,227		
Cicero town[1]	7			658			1,461			728		
Danville	76	70	72	1,744	1,884	957	3,351	3,304	1,914	1,921	1,639	867
Decatur	157	116	108	2,699	2,340	1,920	9,708	8,667	5,134	3,850	3,074	1,775
East St. Louis	139	91	58	5,252	4,505	3,106	13,228	10,586	6,241	6,749	4,890	2,663
Elgin	115	76	80	6,094	4,885	4,376	11,120	9,349	6,386	6,582	5,259	3,772
Evanston	60	33	27	837	738	400	3,778	2,551	830	1,428	968	468
Freeport	69	61	51	2,853	1,516	1,333	7,811	3,109	2,708	3,294	1,686	1,394
Galesburg	62	58	39	1,465	1,447	1,070	2,919	2,218	1,450	1,503	1,282	830
Jacksonville	57	55	55	947	899	1,066	2,209	1,982	1,684	992	880	834
Joliet	137	104	135	6,383	5,792	5,792	38,817	32,897	26,132	11,059	11,638	8,939
Kankakee	55	49	36	1,349	1,038	877	2,723	2,089	649	1,230	1,063	360
La Salle	29	24	26	1,293	1,197	917	5,308	3,158	3,309	2,380	1,280	912
Lincoln	40	39	36	220	236	188	570	784	375	280	409	219
Mattoon	35	34	39	948	1,022	632	1,434	1,309	764	765	787	418
Moline	66	62	55	5,449	3,987	4,138	20,892	13,158	9,302	9,703	6,263	4,704
Oak Park village	23			282			1,118			727		
Ottawa		54	57		1,127	1,020		2,078	1,738		1,305	987
Peoria	283	263	291	5,981	5,834	5,996	63,061	60,420	44,569	45,288	44,585	31,884
Quincy	235	234	198	4,032	4,602	3,815	11,436	10,748	7,919	5,644	5,560	3,568
Rock Island	74	72	66	1,754	1,703	1,885	5,387	5,333	4,622	2,569	2,753	1,939
Rockford	205	130	159	9,309	7,239	5,851	22,266	15,276	11,022	11,084	7,210	4,820
Springfield	171	122	106	3,652	3,071	2,199	8,497	5,797	3,467	4,293	3,307	2,055
Streator	45	34	42	1,275	1,544	1,283	2,137	1,889	1,245	1,320	1,305	883
Waukegan	59	41	32	3,090	825	495	19,084	3,902	733	5,820	1,004	395
INDIANA:[2]												
Anderson	116	102	96	4,393	3,079	3,537	13,765	8,181	8,206	5,638	3,321	3,856
East Chicago	16			2,370			5,483			2,423		
Elkhart	69	58	57	3,010	2,265	2,123	6,932	4,345	3,933	3,911	2,329	2,051
Elwood	37	32	46	2,073	1,779	2,745	8,408	6,111	9,433	2,159	1,714	2,678
Evansville	299	268	273	8,997	7,758	6,284	22,929	18,091	12,168	10,135	7,969	5,623
Fort Wayne	230	193	178	10,298	7,729	6,519	23,687	14,011	11,263	12,272	6,992	5,231
Hammond	49	38	21	3,841	1,548	2,683	15,580	7,671	25,070	8,929	5,126	4,808
Huntington	33	36	30	1,376	1,311	1,246	2,228	2,081	1,725	1,008	985	758
Indianapolis	855	810	697	31,815	26,725	20,985	126,522	82,228	59,322	42,371	30,405	21,035
Jeffersonville	35	33	34	706	1,492	1,516	1,916	4,526	3,772	833	1,699	1,336
Kokomo	72	61	62	2,051	1,917	1,355	5,451	3,651	2,062	2,369	2,057	1,052
Lafayette	69	80	85	1,960	1,786	1,343	5,542	4,631	3,514	2,096	1,928	1,524
Laporte	41			1,674			3,972			2,158		
Logansport	68	61	68	2,169	1,720	1,316	4,201	2,956	2,100	2,219	1,394	1,074
Marion	89	96	81	2,260	2,219	2,843	4,442	4,034	4,593	2,118	2,296	2,304
Michigan City	48	52	41	2,887	3,140	2,912	8,200	6,314	6,032	2,925	2,384	2,071
Mishawaka	42			3,445			10,883			5,613		
Muncie	102	97	90	4,033	2,855	3,848	9,684	5,891	7,042	4,210	2,571	3,194
New Albany	95	93	95	1,910	2,240	2,137	3,493	3,835	3,638	1,607	1,794	1,522
Peru	31	43	39	619	912	1,136	1,097	1,343	1,338	615	718	667
Richmond	107	98	88	3,621	2,970	2,688	10,374	6,732	4,754	5,256	3,731	2,523
South Bend	218	156	131	11,789	8,997	7,678	27,854	15,180	12,960	12,601	7,010	6,119
Terre Haute	170	178	143	4,359	4,044	4,079	21,793	18,008	20,290	13,136	10,361	18,027
Vincennes	84	62	48	1,233	1,354	906	4,234	3,029	1,970	1,818	1,288	1,038
IOWA:												
Boone	34	34	35	330	367	485	682	714	620	399	415	315
Burlington	128	109	125	4,199	2,015	2,054	8,443	5,779	4,450	3,798	3,073	2,008
Cedar Rapids	153	134	89	3,565	3,259	2,374	24,824	16,280	11,130	6,174	4,000	2,973
Clinton	69	83	81	2,414	2,153	2,502	7,480	4,906	6,203	2,850	2,260	2,293
Council Bluffs	101	71	74	1,434	1,001	788	3,769	1,924	1,092	1,812	994	868
Davenport	232	173	165	4,231	3,840	3,403	18,802	13,696	9,872	7,231	4,857	3,815
Des Moines	387	291	218	5,383	4,155	3,479	23,585	15,085	8,397	10,020	6,441	4,259
Dubuque	156	156	161	5,168	4,274	4,658	15,376	9,279	9,051	6,266	4,573	4,293
Fort Dodge	44	42	30	1,115	961	390	2,975	3,026	1,000	1,163	1,324	327
Iowa City	44			282			805			465		
Keokuk	91	80	88	1,541	1,533	1,362	7,399	4,226	3,049	2,715	1,992	1,488
Marshalltown	49	44	44	1,365	888	1,112	4,822	3,090	3,957	1,643	950	1,161
Mason City	49			807			2,881			1,035		
Muscatine	113	107	105	3,496	2,763	2,589	6,166	5,040	5,220	3,428	2,025	1,705
Ottumwa	93	62	61	2,650	2,304	1,820	14,838	10,374	8,683	2,672	1,841	1,783
Sioux City	136	106	123	3,750	2,299	2,463	37,425	14,761	14,227	7,037	3,365	4,067
Waterloo	108	90	55	3,124	1,674	804	8,999	4,694	2,088	4,357	1,945	745
KANSAS:												
Atchison	68	60	39	824	798	583	4,405	3,820	2,093	1,268	873	591
Coffeyville	47			1,069			4,752			1,260		
Fort Scott	36	46	32	266	244	389	1,010	786	714	340	323	335
Galena		15	19		130	114		797	421		109	105
Hutchinson	67	44	42	667	510	536	3,614	2,031	1,541	941	644	503
Independence	31			252			757			365		
Kansas City	165	100	114	12,294	10,529	9,483	164,081	96,473	80,023	19,691	12,590	11,148
Lawrence	49	39	39	422	402	461	1,653	668	1,239	498	341	347
Leavenworth	79	89	89	1,311	1,321	1,141	4,875	4,152	3,251	1,677	1,564	1,270
Parsons	25			1,130			1,626			891		
Pittsburg	49	34	33	972	919	882	1,817	1,494	1,434	1,093	848	523
Topeka	202	154	145	4,244	3,953	2,874	17,821	14,449	8,357	5,562	4,216	3,079
Wichita	225	110	103	2,783	1,262	863	22,564	7,390	3,329	5,570	1,963	973

[1] While the population for 1900 was in excess of 10,000, statistics for that census are not available.
[2] Does not include statistics for Gary.

TABLE IV.—CITIES OF 10,000 INHABITANTS OR OVER—NUMBER OF ESTABLISHMENTS, AVERAGE NUMBER OF WAGE EARNERS, VALUE OF PRODUCTS, AND VALUE ADDED BY MANUFACTURE: 1909, 1904, AND 1899—Contd.

CITY.	NUMBER OF ESTABLISHMENTS.			AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS. (Expressed in thousands.)			VALUE ADDED BY MANUFACTURE (VALUE OF PRODUCTS LESS COST OF MATERIALS). (Expressed in thousands.)		
	1909	1904	1899	1909	1904	1899	1909	1904	1899	1909	1904	1899
KENTUCKY:												
Covington	196	199	204	3,942	3,703	3,212	$8,712	$6,100	$5,479	$4,241	$3,490	$2,962
Frankfort	31	30	34	537	525	281	3,083	1,747	1,327	1,115	614	498
Henderson	43	34	26	1,083	459	352	2,932	1,365	1,032	1,210	603	451
Lexington	85	84	88	1,032	1,114	797	2,851	2,775	1,889	1,602	1,389	903
Louisville	903	842	860	27,023	24,985	23,062	101,284	83,204	66,110	47,156	37,522	31,234
Newport	144	105	134	2,632	1,958	1,955	6,491	5,231	3,548	3,125	2,259	2,075
Owensboro	69	60	51	1,064	1,392	890	3,505	3,319	1,740	1,253	1,504	825
Paducah	91	84	70	2,613	2,841	2,061	4,967	4,443	2,977	2,619	2,598	1,642
LOUISIANA:												
Alexandria	30	.....	.....	513	.....	.....	1,279	.....	.....	681	.....	.....
Baton Rouge	33	37	13	357	620	329	658	1,383	718	322	785	331
Lake Charles	33	.....	.....	736	.....	.....	2,251	.....	.....	982	.....	.....
Monroe	23	.....	.....	681	.....	.....	1,255	.....	.....	710	.....	.....
New Orleans	848	690	688	17,186	17,468	16,185	78,794	81,411	57,446	30,062	22,583	17,061
Shreveport	61	63	46	1,114	1,162	736	3,643	2,838	1,556	1,554	1,554	655
MAINE:												
Auburn	83	72	67	3,452	2,652	2,749	8,843	6,407	5,965	3,053	1,960	1,976
Augusta	40	44	52	2,096	1,800	2,018	4,662	3,887	3,313	2,178	2,000	2,101
Bangor	122	87	101	1,327	1,496	1,511	3,346	3,408	3,336	1,499	1,671	1,431
Bath	.....	46	54	.....	1,950	2,097	.....	3,654	3,697	.....	1,672	1,759
Biddeford	43	33	39	5,076	4,764	4,375	9,012	6,949	5,472	4,114	2,813	2,506
Lewiston	83	81	84	6,788	6,167	6,677	10,475	8,528	7,779	5,200	3,811	4,061
Portland	271	243	234	4,902	4,345	3,763	11,950	9,133	7,334	5,941	4,778	3,731
Waterville	33	40	29	1,812	2,011	1,926	3,179	3,069	2,284	1,408	1,296	1,238
MARYLAND:												
Baltimore	2,502	2,158	2,274	71,444	65,050	66,571	186,978	150,171	135,108	79,954	69,616	59,885
Cumberland	71	72	56	1,936	2,276	1,643	4,534	4,595	2,900	1,858	1,917	1,226
Frederick	55	56	54	1,026	1,032	939	2,911	1,938	1,438	836	715	519
Hagerstown	76	67	80	1,718	2,210	1,515	3,197	3,027	1,820	1,399	1,376	721
MASSACHUSETTS:												
Adams town	31	23	26	3,991	3,994	3,182	6,410	5,492	3,894	3,328	2,894	2,181
Arlington town	19	18	12	283	209	122	695	493	256	384	267	144
Attleborough town	128	108	108	6,429	5,044	4,811	15,160	10,050	8,751	8,347	5,399	4,955
Beverly	63	71	73	4,487	2,083	2,275	8,653	4,101	3,781	5,362	1,778	1,632
Boston	3,155	2,747	2,878	69,637	59,160	52,853	237,457	184,351	162,765	112,880	89,748	80,470
Brockton	196	201	186	14,737	13,889	10,296	45,972	37,791	24,855	17,407	15,238	9,522
Brookline town	16	13	8	340	405	324	532	733	485	336	462	266
Cambridge	275	262	243	15,260	14,586	11,070	44,227	42,407	29,092	20,661	17,290	12,319
Chelsea	110	130	120	5,954	4,930	2,959	17,003	13,879	9,519	6,434	5,572	4,058
Chicopee	58	40	46	7,260	4,670	4,085	19,219	7,716	5,389	8,267	3,386	2,689
Clinton town	39	35	22	4,123	3,482	3,836	7,845	5,458	5,043	3,629	2,050	2,328
Everett	62	51	52	2,680	2,186	1,877	8,747	6,136	4,437	4,241	3,013	1,963
Fall River	288	234	240	37,139	26,836	30,646	64,146	43,473	39,103	28,622	17,377	21,033
Fitchburg	122	107	115	8,497	6,498	6,218	23,252	15,391	13,008	8,810	5,970	5,528
Framingham town	27	36	34	3,069	2,484	2,207	6,917	4,174	3,007	3,506	1,657	1,315
Gardner town	52	50	46	3,617	3,168	2,896	6,485	5,019	4,386	3,652	2,449	2,102
Gloucester	102	132	137	2,181	1,703	2,307	7,753	6,921	6,293	2,983	2,239	2,061
Greenfield town	47	.....	.....	1,251	.....	.....	2,801	.....	.....	1,767	.....	.....
Haverhill	346	320	390	11,689	9,574	9,761	35,377	24,447	23,419	13,691	10,190	8,425
Holyoke	187	179	158	16,513	14,685	12,519	40,097	30,731	24,093	17,796	14,152	11,387
Hyde Park town	40	40	33	4,320	3,991	2,483	7,336	6,739	4,384	3,985	3,158	1,877
Lawrence	162	187	167	30,542	21,910	20,899	79,993	48,037	41,742	34,555	18,621	16,960
Leominster town	94	65	70	5,601	4,127	3,412	10,531	7,502	5,397	4,955	3,538	2,628
Lowell	320	256	286	32,575	20,303	29,254	60,271	46,879	41,203	27,440	19,908	20,924
Lynn	431	431	423	27,368	21,540	16,377	71,503	55,003	39,347	30,142	22,387	14,876
Malden	86	59	53	2,900	2,954	2,416	8,206	11,236	6,602	3,818	7,191	2,518
Marlboro	59	46	50	4,265	3,479	2,524	10,382	7,469	4,498	4,007	2,883	1,664
Medford	40	37	36	560	484	575	2,045	872	1,132	795	486	592
Melrose	25	24	16	1,038	1,571	1,180	2,825	9,451	3,416	1,236	6,536	1,270
Methuen town	19	.....	.....	1,572	.....	.....	3,476	.....	.....	1,250	.....	.....
Milford town	53	44	50	1,801	1,782	1,357	4,442	3,390	2,552	2,053	1,614	1,086
New Bedford	207	176	171	26,566	17,855	15,263	53,238	29,409	23,397	24,674	13,378	11,614
Newburyport	74	69	64	3,215	2,955	2,801	6,931	6,810	5,141	3,150	2,548	2,090
Newton	46	48	45	2,174	1,893	1,823	6,279	4,141	3,679	2,896	1,899	1,785
North Adams	60	58	68	5,414	5,502	6,312	10,315	8,036	10,741	4,739	4,025	5,694
Northampton	71	77	66	3,150	2,903	2,635	6,999	5,756	4,707	3,836	2,714	2,167
Peabody town	74	76	86	4,850	3,953	2,661	15,549	10,237	6,944	5,357	3,489	1,870
Pittsfield	71	44	69	6,353	4,455	3,198	15,215	8,577	5,754	6,687	3,948	2,676
Plymouth town	32	35	27	2,912	2,300	1,511	11,618	11,116	5,530	3,143	2,548	1,966
Quincy	183	161	153	5,492	5,371	2,128	10,505	8,982	3,012	6,661	5,278	2,103
Revere town	14	12	17	101	125	87	407	355	156	115	106	105
Salem	155	143	162	6,338	5,945	5,625	14,576	12,202	10,711	5,936	4,281	4,127
Somerville	114	78	85	5,280	3,474	3,528	38,687	22,955	20,065	6,764	3,779	3,344
Southbridge town	36	32	32	4,037	3,223	2,687	6,269	4,202	3,512	3,144	1,922	1,730
Springfield	346	296	278	11,855	10,523	8,152	31,773	25,860	18,155	17,410	13,480	9,263
Taunton	146	127	114	7,407	6,698	6,590	15,380	13,045	11,544	7,605	5,958	6,004
Wakefield town	23	22	25	2,230	1,804	1,436	5,527	4,808	2,647	2,692	1,970	1,393
Waltham	80	60	74	6,037	6,208	4,861	7,814	7,150	5,890	5,370	5,083	4,001
Watertown town	25	20	27	4,335	3,322	1,935	11,546	15,525	5,330	5,083	9,996	1,831
Webster town	23	16	20	3,409	3,107	2,377	11,296	5,868	4,008	3,476	1,927	1,546
Westfield town	91	86	97	3,060	2,634	2,370	7,362	5,818	4,441	4,494	3,567	2,356
Weymouth town	41	46	51	1,991	1,841	1,922	6,627	4,922	5,389	2,423	1,924	2,211
Winthrop town	7	.....	.....	7	.....	.....	42	.....	.....	17	.....	.....
Woburn	59	52	47	1,653	1,482	1,356	5,408	4,654	4,003	2,294	1,846	1,124
Worcester	580	470	465	28,221	22,798	22,593	77,148	52,145	46,793	34,547	25,134	23,523

TABLE IV.—CITIES OF 10,000 INHABITANTS OR OVER—NUMBER OF ESTABLISHMENTS, AVERAGE NUMBER OF WAGE EARNERS, VALUE OF PRODUCTS, AND VALUE ADDED BY MANUFACTURE: 1909, 1904, AND 1899—Contd.

CITY.	NUMBER OF ESTABLISHMENTS.			AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS. (Expressed in thousands.)			VALUE ADDED BY MANUFACTURE (VALUE OF PRODUCT LESS COST OF MATERIALS). (Expressed in thousands.)		
	1909	1904	1899	1909	1904	1899	1909	1904	1899	1909	1904	1899
MICHIGAN:												
Adrian	80	65	63	1,059	1,502	1,030	$6,085	$4,897	$2,125	$1,935	$2,068	$1,227
Alpena	58	57	46	1,432	1,245	1,202	3,964	2,905	2,273	1,663	1,220	997
Ann Arbor	63	65	71	573	549	623	1,866	1,386	1,377	856	612	592
Battle Creek	105	120	75	4,175	3,389	2,051	20,174	12,298	6,301	13,106	8,314	4,201
Bay City	182	173	177	4,737	4,456	4,309	10,294	8,869	9,011	4,647	3,861	3,776
Detroit	2,036	1,362	1,259	81,011	48,483	38,373	252,992	128,247	88,366	122,774	61,666	41,359
Escanaba	30	34	26	720	949	520	1,074	1,333	610	710	929	360
Flint	104	70	63	7,088	2,161	1,960	24,118	6,177	4,713	10,127	2,468	1,959
Grand Rapids	524	388	382	17,590	15,514	12,929	42,231	30,690	22,229	22,495	16,268	11,108
Holland	59	.....	.....	1,940	.....	.....	4,622	.....	.....	2,038	.....	.....
Ironwood	14	13	14	201	87	90	377	202	145	176	124	90
Ishpeming	19	15	14	66	73	80	132	247	195	80	105	100
Jackson	169	147	117	4,797	3,967	3,715	14,006	8,348	6,710	5,833	4,076	2,902
Kalamazoo	193	157	129	6,272	5,666	3,870	17,904	13,142	7,186	8,399	6,240	3,293
Lansing	169	98	74	5,285	2,982	1,425	16,567	6,857	2,942	7,765	3,414	1,310
Manistee	64	47	56	2,125	2,084	2,103	3,344	3,257	3,625	2,055	1,953	2,249
Marquette	34	31	29	498	738	836	1,254	2,364	1,585	698	972	772
Menominee	52	45	38	1,700	1,489	1,703	3,728	2,974	4,076	2,071	1,601	2,239
Muskegon	101	70	67	4,522	3,078	3,078	9,648	6,319	4,528	4,710	2,793	2,259
Pontiac	42	47	47	1,739	1,296	1,092	5,894	3,047	2,471	2,654	1,312	869
Port Huron	82	74	78	1,580	2,136	2,026	3,588	3,715	3,627	1,639	1,963	1,875
Saginaw	203	179	184	5,990	4,445	4,205	18,833	10,079	8,653	8,424	4,712	3,569
Sault Ste. Marie	47	38	33	1,005	895	317	4,619	2,412	728	1,496	985	449
Traverse City	61	46	36	1,220	1,108	909	2,289	2,177	1,201	1,106	1,079	686
MINNESOTA:												
Duluth	194	163	126	6,083	3,987	3,658	17,180	10,139	7,811	8,336	5,505	4,152
Mankato	63	54	47	807	724	520	3,723	3,422	1,887	995	893	532
Minneapolis	1,102	876	789	26,962	21,671	19,620	165,405	121,163	94,408	45,412	32,281	25,498
St. Cloud	69	39	30	626	414	507	2,299	1,809	1,561	957	583	484
St. Paul	719	614	537	19,339	14,363	13,019	58,990	38,310	30,056	23,690	18,831	14,144
Stillwater	38	36	32	688	955	829	2,686	2,784	1,801	1,038	1,300	751
Virginia	21	.....	.....	188	.....	.....	519	.....	.....	357	.....	.....
Winona	99	86	72	2,032	1,953	1,965	11,199	7,850	6,013	3,869	2,576	2,012
MISSISSIPPI:												
Hattiesburg	29	.....	.....	648	.....	.....	1,251	.....	.....	626	.....	.....
Jackson	45	.....	.....	799	.....	.....	3,113	.....	.....	1,145	.....	.....
Meridian	54	53	42	1,524	1,346	834	4,238	3,267	1,924	1,704	1,215	809
Natchez	27	24	16	428	316	648	1,114	820	1,115	425	317	534
Vicksburg	47	32	24	1,202	1,031	987	2,229	1,888	1,368	1,081	895	652
MISSOURI:												
Hannibal	66	58	66	2,445	1,811	1,238	6,195	3,504	2,690	1,879	1,408	964
Jefferson City	35	45	41	1,336	262	299	5,446	3,927	3,061	1,704	1,440	930
Joplin	77	56	45	830	680	682	4,136	3,006	2,325	1,778	1,046	769
Kansas City	902	612	585	14,643	11,039	9,699	54,704	35,573	23,588	23,742	16,048	11,657
Moberly	31	28	32	999	496	556	1,934	801	792	892	402	432
St. Joseph	261	219	184	5,390	4,663	5,095	17,626	11,574	11,362	6,573	4,754	4,420
St. Louis	2,667	2,482	2,046	87,371	82,698	64,832	328,495	267,307	193,733	140,306	129,567	91,895
Sedalia	75	50	57	935	974	909	2,333	1,692	1,283	1,117	867	608
Springfield	108	82	70	2,131	2,158	1,710	5,382	5,293	3,434	2,334	1,901	1,443
Webb City	25	19	12	170	138	126	777	638	354	264	243	140
MONTANA: [1]												
Anaconda	13	12	17	97	105	2,392	591	503	21,002	434	377	9,044
Billings	37	.....	.....	226	.....	.....	1,243	.....	.....	478	.....	.....
Butte	66	54	56	662	478	411	2,464	1,760	1,517	1,544	1,192	739
Helena	44	34	27	420	340	264	1,303	1,163	776	810	735	440
Missoula	26	.....	.....	428	.....	.....	1,171	.....	.....	769	.....	.....
NEBRASKA:												
Grand Island	44	.....	.....	616	.....	.....	1,837	.....	.....	826	.....	.....
Lincoln	167	128	81	2,140	1,617	1,104	7,010	5,222	2,764	3,146	2,531	1,168
Omaha	432	318	307	8,023	5,822	5,276	60,854	54,004	38,074	17,439	11,111	18,146
South Omaha	71	41	41	6,306	5,662	6,327	92,436	67,415	69,509	14,763	8,222	8,491
NEVADA:												
Reno	40	.....	.....	310	.....	.....	1,862	.....	.....	691	.....	.....
NEW HAMPSHIRE:												
Berlin	20	17	17	1,700	2,282	2,810	5,897	5,989	5,985	2,243	2,324	2,874
Concord	111	80	86	2,693	2,654	2,432	6,477	5,374	4,211	2,931	2,543	2,123
Dover	51	42	40	3,030	2,859	2,797	6,370	6,043	5,440	3,134	2,173	2,167
Keene	64	50	57	1,709	1,685	1,576	3,483	2,691	2,584	1,646	1,314	1,138
Laconia	43	55	53	2,146	1,957	1,535	3,818	3,097	2,152	1,805	1,377	958
Manchester	175	155	166	24,735	17,579	17,862	46,812	30,697	24,628	16,315	11,990	10,825
Nashua	104	78	72	7,312	6,159	5,777	17,320	12,858	10,096	6,947	4,375	3,970
Portsmouth	36	27	38	992	638	1,323	2,871	2,602	3,961	1,510	1,714	2,086
NEW JERSEY:												
Asbury Park	27	.....	.....	264	.....	.....	602	.....	.....	308	.....	.....
Atlantic City	94	62	36	726	381	305	2,260	975	608	1,124	610	327
Bayonne	97	58	63	7,519	7,057	4,670	73,041	60,634	38,661	14,709	13,650	4,807
Bloomfield town	45	33	39	2,957	1,893	1,612	5,895	4,645	3,371	3,594	2,895	1,665
Bridgeton	74	61	62	2,387	2,276	2,182	4,070	2,964	2,259	2,073	1,725	1,216
Camden	365	298	322	16,527	12,661	7,742	49,138	33,587	17,970	21,754	13,104	7,528
East Orange	42	17	22	1,386	854	690	3,725	2,327	2,087	1,957	1,219	1,176
Elizabeth	163	124	141	12,737	12,335	9,498	29,147	29,301	22,861	12,718	12,320	9,948
Garfield borough	25	.....	.....	2,530	.....	.....	8,894	.....	.....	2,919	.....	.....
Hackensack town	46	23	21	738	812	487	1,978	1,488	782	1,079	801	411
Harrison town	54	41	41	6,500	4,040	2,859	13,142	8,409	6,087	7,729	4,780	2,885
Hoboken	244	279	194	8,100	7,227	5,712	20,413	14,077	10,483	10,944	7,497	5,457
Irvington town	51	.....	.....	540	.....	.....	3,018	.....	.....	675	.....	.....

[1] Does not include statistics for Great Falls.

TABLE IV.—CITIES OF 10,000 INHABITANTS OR OVER—NUMBER OF ESTABLISHMENTS, AVERAGE NUMBER OF WAGE EARNERS, VALUE OF PRODUCTS, AND VALUE ADDED BY MANUFACTURE: 1909, 1904, AND 1899—Contd.

CITY.	NUMBER OF ESTABLISHMENTS.			AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS. (Expressed in thousands.)			VALUE ADDED BY MANUFACTURE (VALUE OF PRODUCTS LESS COST OF MATERIALS). (Expressed in thousands.)		
	1909	1904	1899	1909	1904	1899	1909	1904	1899	1909	1904	1899
NEW JERSEY—Continued.												
Jersey City	745	628	536	25,454	20,353	17,391	$128,775	$75,741	$72,930	$39,458	$26,942	$22,664
Kearny town	18	11	16	2,820	1,303	986	8,306	4,428	1,007	3,043	923	623
Long Branch	34	26	11	415	234	96	1,117	577	281	533	370	172
Millville	39	35	18	2,761	2,767	2,235	4,182	3,719	2,514	2,583	2,335	1,595
Montclair town	23	19	23	252	151	169	1,026	621	664	357	202	278
Morristown town	31	26	22	291	307	252	724	705	596	455	496	286
New Brunswick	93	71	72	5,264	4,590	3,836	10,005	8,917	5,791	5,456	4,759	2,707
Newark	1,858	1,600	1,573	59,955	50,697	42,878	202,511	150,055	112,728	87,832	69,366	51,956
Orange	85	66	74	4,383	2,450	1,640	9,176	6,151	2,996	5,488	3,509	1,416
Passaic	169	95	70	15,086	11,000	6,399	41,729	22,783	12,805	17,304	9,673	5,337
Paterson	702	513	487	32,004	28,599	28,542	69,584	54,673	48,502	34,856	27,232	23,447
Perth Amboy	80	53	47	5,866	3,950	2,035	73,093	34,800	14,061	9,161	4,484	2,714
Phillipsburg town	39	32	34	3,432	3,148	2,216	9,150	6,684	4,585	4,380	3,118	1,782
Plainfield	60	49	32	1,758	1,986	1,384	3,649	3,572	2,437	2,119	2,418	1,024
Trenton	340	311	240	18,543	14,130	13,138	49,009	32,360	28,468	21,336	14,809	11,877
Union town	83	77	57	2,894	1,856	1,376	7,941	3,512	3,403	4,402	2,120	1,995
West Hoboken town	137	95	65	2,782	3,562	2,733	5,577	5,947	4,769	3,089	2,825	2,240
West New York town	66	.....	.....	1,508	.....	.....	9,274	.....	.....	1,865	.....	.....
West Orange town	10	.....	.....	476	.....	.....	748	.....	.....	349	.....	.....
NEW MEXICO:												
Albuquerque	31	.....	.....	587	.....	.....	1,288	.....	.....	704	.....	.....
NEW YORK:[1]												
Albany	395	490	511	9,861	8,976	8,106	22,826	20,209	17,269	12,305	10,832	9,762
Amsterdam	97	89	98	10,284	7,993	6,261	22,419	15,007	10,643	9,254	6,154	4,653
Auburn	140	111	120	6,497	6,660	5,895	15,961	13,421	9,575	7,024	5,176	4,363
Batavia village	59	51	54	2,007	1,603	1,573	4,401	3,589	2,573	2,620	1,805	1,327
Binghamton	266	241	219	6,823	5,633	5,011	17,114	13,997	10,539	8,388	7,486	5,177
Buffalo	1,753	1,538	1,478	51,412	43,567	34,275	218,804	147,378	105,627	82,266	59,011	39,688
Cohoes	103	98	112	8,269	6,910	8,273	14,831	10,290	11,031	6,655	4,006	5,123
Corning	45	57	49	2,074	2,355	1,600	3,650	3,084	2,273	2,186	2,009	1,353
Cortland	51	53	46	2,356	2,282	1,412	6,395	4,574	3,064	2,821	1,976	1,268
Dunkirk	57	38	41	2,756	3,395	2,533	6,576	9,909	5,226	3,338	5,160	2,211
Elmira	154	142	144	3,647	3,208	3,570	8,057	6,308	6,597	4,477	3,307	2,695
Fulton	45	.....	.....	2,799	.....	.....	7,867	.....	.....	3,010	.....	.....
Genova	56	54	49	1,526	1,580	1,180	5,154	4,952	2,716	2,163	1,956	1,066
Glens Falls	68	40	57	2,774	2,052	3,101	4,877	2,825	3,904	2,568	1,533	2,135
Gloversville	187	180	183	5,741	5,043	7,813	14,171	9,341	9,070	6,109	4,089	3,816
Hornell	45	45	48	2,183	2,209	1,549	3,648	3,163	2,431	1,770	1,699	1,123
Hudson	45	48	45	1,302	1,524	1,132	3,506	4,116	2,604	1,443	2,038	1,270
Ithaca	81	67	62	873	873	861	1,920	2,080	1,504	1,089	1,281	845
Jamestown	156	149	108	6,789	5,237	4,529	14,720	10,350	7,731	7,336	6,099	3,937
Johnstown	138	100	115	2,589	2,426	3,695	6,574	4,543	5,123	2,649	1,982	2,138
Kingston	99	95	109	3,281	2,636	2,042	5,986	4,812	3,952	3,404	2,700	2,049
Little Falls	55	49	52	4,211	2,621	2,980	8,460	4,471	4,071	3,537	1,936	1,838
Lockport	109	109	124	2,138	2,323	2,359	8,168	5,808	5,353	2,818	2,492	2,256
Middletown	59	50	51	1,733	1,596	1,395	4,658	3,356	2,155	1,753	1,400	830
Mount Vernon	90	54	37	1,207	670	438	3,376	1,877	910	2,090	1,092	582
Newburgh	104	79	93	4,344	4,013	3,074	9,928	7,036	5,358	5,085	3,760	2,710
New Rochelle	42	28	25	735	517	198	1,669	1,103	508	855	641	230
New York	25,933	20,839	19,243	554,002	464,716	388,586	2,029,693	1,526,523	1,172,870	937,538	708,494	538,660
Niagara Falls	150	85	93	6,089	4,574	2,840	28,652	16,916	8,540	14,381	7,724	3,652
North Tonawanda	81	38	34	2,824	2,025	1,656	9,600	6,499	6,294	3,211	1,965	2,050
Ogdensburg	75	55	74	1,259	929	909	4,948	3,057	2,261	1,440	794	760
Olean	54	41	47	2,259	1,175	1,793	10,005	4,677	6,210	2,277	1,380	1,395
Ossining village	34	.....	.....	356	.....	.....	1,329	.....	.....	853	.....	.....
Oswego	81	77	75	3,817	3,746	3,457	10,413	7,592	7,487	4,710	2,875	3,175
Peekskill village	52	46	37	2,055	1,057	1,281	7,888	7,252	1,783	4,946	4,970	1,022
Plattsburg	41	39	39	1,049	750	621	3,137	1,057	1,043	1,392	547	519
Port Chester village	34	.....	.....	2,122	.....	.....	6,243	.....	.....	1,689	.....	.....
Poughkeepsie	111	108	118	3,299	3,775	2,810	9,151	7,207	5,576	5,284	3,674	2,595
Rensselaer	33	.....	.....	763	.....	.....	2,206	.....	.....	1,130	.....	.....
Rochester	1,203	1,109	1,221	39,108	31,770	28,049	112,676	81,109	59,069	62,002	43,191	31,424
Rome	119	89	87	3,633	3,209	2,274	14,423	8,631	5,549	4,219	2,937	2,087
Saratoga Springs village	39	35	44	833	590	602	2,337	1,709	1,334	1,454	1,007	656
Schenectady	134	103	83	14,931	14,316	8,494	38,165	33,084	17,605	16,213	16,587	7,620
Syracuse	738	637	630	18,148	14,554	11,809	49,435	34,687	26,546	27,659	18,605	13,998
Troy	363	311	327	20,020	19,114	22,933	37,980	31,861	28,739	22,354	18,115	17,277
Utica	317	333	311	13,153	10,882	8,898	31,199	22,880	16,479	14,553	10,106	8,285
Watertown	107	85	91	3,291	3,020	3,223	8,527	7,251	6,688	4,706	3,999	3,180
Watervliet	36	36	41	753	1,111	1,000	1,669	1,738	1,507	853	899	774
White Plains village	33	.....	.....	249	.....	.....	816	.....	.....	444	.....	.....
Yonkers	158	106	107	12,711	9,779	7,555	59,334	33,549	17,304	16,132	10,219	7,762
NORTH CAROLINA:												
Asheville	52	45	37	984	792	804	3,250	1,918	1,360	955	671	479
Charlotte	108	73	57	4,199	2,234	2,787	10,460	4,856	4,187	3,929	1,981	1,583
Durham	61	.....	.....	3,718	.....	.....	23,271	.....	.....	13,461	.....	.....
Greensboro	61	63	43	952	1,098	677	2,031	1,744	926	925	766	418
Raleigh	55	42	39	1,023	585	549	2,376	1,087	947	1,103	575	514
Wilmington	64	53	50	1,213	1,594	1,553	3,005	2,904	2,283	1,102	1,189	831
Winston	52	47	30	6,708	4,850	2,894	16,778	11,353	4,888	9,882	7,510	3,255
NORTH DAKOTA:												
Fargo	61	47	36	510	386	307	2,477	1,161	1,231	1,067	606	442
Grand Forks	38	.....	.....	350	.....	.....	1,910	.....	.....	959	.....	.....

[1] Does not include statistics for Lackawanna.

TABLE IV.—CITIES OF 10,000 INHABITANTS OR OVER—NUMBER OF ESTABLISHMENTS, AVERAGE NUMBER OF WAGE EARNERS, VALUE OF PRODUCTS, AND VALUE ADDED BY MANUFACTURE: 1909, 1904, AND 1899—Contd.

CITY.	NUMBER OF ESTABLISHMENTS.			AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS. (Expressed in thousands.)			VALUE ADDED BY MANUFACTURE (VALUE OF PRODUCTS LESS COST OF MATERIALS). (Expressed in thousands.)		
	1909	1904	1899	1909	1904	1899	1909	1904	1899	1909	1904	1899
OHIO:[1]												
Akron	246	186	178	15,831	9,626	8,250	$73,158	$33,559	$22,016	$30,087	$13,149	$9,296
Alliance	44	40	39	2,524	1,442	1,486	6,135	3,547	3,203	3,282	1,646	1,555
Ashtabula	44	30	29	1,471	846	373	3,459	1,895	884	1,375	899	357
Bellaire	36	37	30	2,597	2,183	1,928	10,091	10,712	8,838	2,932	3,396	2,851
Cambridge	32	34	28	1,230	814	768	4,291	2,441	2,202	1,406	921	885
Canton	204	158	164	9,964	5,938	5,149	28,583	10,591	9,575	13,939	5,997	5,226
Chillicothe	57	64	46	1,674	1,553	1,112	4,345	3,147	1,616	1,307	1,219	738
Cincinnati	2,184	2,171	2,454	60,192	58,584	54,942	194,516	160,059	141,678	92,584	82,801	70,287
Cleveland	2,148	1,616	1,350	84,728	64,041	55,341	271,961	171,924	139,356	118,160	74,346	62,891
Columbus	586	459	408	16,428	14,350	13,787	49,032	39,530	34,748	23,828	20,286	16,406
Dayton	513	431	425	21,549	17,093	14,408	60,378	39,597	31,015	32,850	21,092	16,685
East Liverpool	82	81	75	4,873	5,228	4,171	6,629	6,437	4,749	4,108	4,330	3,286
Elyria	58	50	32	2,673	1,144	638	8,065	2,933	1,221	3,570	1,338	481
Findlay	74	71	80	1,376	1,343	1,107	3,487	2,925	1,686	1,393	1,346	935
Hamilton	125	113	97	6,895	6,107	5,147	18,184	13,811	10,656	8,544	7,427	5,653
Ironton	63	57	53	1,920	1,800	1,577	7,118	4,755	5,411	2,124	1,332	2,206
Lancaster	42	42	36	1,532	1,095	1,069	4,074	3,848	1,905	1,023	1,347	846
Lima	85	77	76	3,607	2,733	1,980	7,754	4,828	6,223	3,885	2,573	2,287
Lorain	57	43	26	6,697	3,102	2,233	38,987	14,491	9,481	14,765	4,783	2,996
Mansfield	121	109	95	3,204	3,021	2,622	8,173	7,354	6,076	3,817	3,831	3,371
Marietta	66	73	77	1,288	1,314	1,511	3,214	2,590	2,398	1,427	1,233	1,248
Marion	55	47	34	2,619	1,721	1,171	5,667	3,228	2,426	3,090	1,876	1,490
Massillon	56	52	49	1,934	1,995	1,474	4,788	3,707	2,749	2,498	2,125	1,486
Middletown	41	47	41	2,576	1,814	1,578	16,517	8,538	5,800	8,567	4,846	3,327
Newark	72	78	69	3,913	3,627	2,075	7,851	5,613	2,879	3,869	3,180	1,699
Norwood	49			3,907			9,684			5,663		
Piqua	82	76	68	2,683	2,044	1,955	6,931	4,036	5,552	3,079	2,128	1,942
Portsmouth	75	81	100	3,728	4,072	4,153	7,277	6,645	6,659	3,383	3,125	3,254
Sandusky	91	93	81	2,118	2,323	1,453	5,947	4,879	2,834	3,112	2,743	1,627
Springfield	195	157	164	7,405	6,258	6,200	19,246	13,382	12,116	10,327	7,620	6,827
Steubenville	55	72	54	4,267	4,184	1,773	21,187	12,370	4,547	6,744	4,127	2,141
Tiffin	75	87	75	1,632	1,645	1,238	3,254	2,434	1,902	2,002	1,434	1,094
Toledo	760	597	445	18,878	15,697	12,747	61,230	44,501	31,976	27,146	19,035	12,579
Warren	68	53	44	1,798	1,505	1,332	5,988	4,414	4,585	2,924	2,366	2,042
Youngstown	115	113	103	10,498	8,095	8,679	81,271	46,853	33,008	18,979	11,670	10,775
Zanesville	109	99	115	3,150	3,008	3,405	9,145	6,347	5,708	3,641	3,056	2,622
OKLAHOMA:												
Chickasha	30			364			1,867			582		
Enid	65			303			2,453			646		
Guthrie	34	34	33	282	333	241	1,443	1,200	649	496	499	312
McAlester	29			180			451			256		
Muskogee	64			881			2,279			801		
Oklahoma City	171	89	36	1,398	720	220	7,868	3,671	845	2,722	1,309	328
Shawnee	40			1,014			2,081			918		
Tulsa	53			462			1,563			680		
OREGON:												
Portland	649	437	408	12,214	8,171	5,380	46,861	28,651	16,904	21,785	11,627	6,727
Salem	62			597			2,208			1,031		
PENNSYLVANIA:												
Allentown	274	257	216	11,481	8,984	7,355	26,263	16,841	14,990	10,682	6,968	6,013
Altoona	44	73	57	8,409	9,540	6,573	16,763	14,350	11,273	7,629	7,102	4,390
Beaver Falls borough	44	42	47	2,180	2,232	2,174	6,400	4,908	6,229	3,385	2,666	2,370
Bethlehem borough[2]	49			1,583			3,712			1,382		
Braddock borough	41	38	30	1,040	1,225	815	5,094	4,125	4,091	1,747	1,387	1,526
Bradford	82	80	65	1,318	1,490	1,200	3,857	3,192	3,125	1,445	1,599	1,490
Butler borough	61	48	41	2,823	2,093	792	11,058	6,832	1,403	3,464	2,172	883
Carbondale	34	32	26	1,503	1,475	1,023	2,523	2,316	1,146	1,270	1,203	676
Carlisle borough	50	48	39	1,334	1,340	1,121	2,496	1,986	1,708	1,055	857	661
Carnegie borough	19			422			3,099			658		
Chambersburg borough	57	47	44	1,364	843	612	2,456	1,085	815	1,286	516	337
Chester	128	131	121	6,986	7,061	6,072	19,373	16,045	14,940	7,797	6,223	6,369
Columbia borough	47	44	53	2,773	3,034	2,519	4,807	3,887	4,214	2,136	1,434	1,642
Connellsville borough	39			1,035			1,971			1,154		
Dubois borough	37	34	24	1,015	1,057	817	1,800	2,607	1,768	964	882	615
Dunmore borough	18	15	18	1,308	1,133	614	1,851	1,460	1,132	1,181	910	642
Easton	126	97	106	3,388	2,720	3,202	6,915	5,059	5,425	3,491	2,375	2,232
Erie	391	261	260	9,796	8,415	8,032	24,226	18,639	16,493	12,162	9,212	8,285
Greensburg borough	47			310			726			396		
Harrisburg	199	175	175	9,743	7,955	6,439	22,725	16,571	14,996	8,642	6,244	5,991
Hazleton	77	62	45	2,682	1,406	822	4,707	2,186	999	2,005	1,056	706
Homestead borough	26	27	15	171	307	164	659	713	266	337	448	165
Johnstown	97	82	66	10,574	6,914	5,600	48,106	28,892	21,365	15,758	9,137	7,457
Lancaster	306	300	284	7,957	8,693	7,504	15,979	14,048	12,750	7,138	7,050	6,297
Lebanon	109	103	97	5,591	4,387	4,475	11,429	6,978	7,658	4,651	3,699	2,913
McKeesport	68	75	67	8,246	8,848	7,213	42,495	23,054	36,058	15,199	10,744	14,223
McKees Rocks borough	31			3,591			9,787			4,380		
Mahanoy City borough	33	29	29	590	238	301	868	431	401	485	298	288
Meadville	62	52	46	2,048	1,300	1,201	3,559	2,075	1,668	1,843	1,111	779
Mount Carmel borough	20	19	9	600	197	106	785	620	393	369	193	133
Nanticoke borough	17	12	17	348	229	140	423	358	310	243	198	128
New Castle	82	71	71	5,339	5,433	4,529	38,038	28,923	20,016	7,064	7,711	6,870
Norristown borough	111	84	77	3,818	3,517	2,944	7,413	5,925	4,107	4,139	3,058	1,948
Oil City	34	36	42	1,338	1,557	1,683	4,122	3,082	5,164	1,822	1,748	1,476
Philadelphia	8,379	7,087	7,503	251,884	228,899	214,775	746,076	591,388	519,982	316,984	258,086	224,807
Phoenixville borough	31	31	32	2,599	2,888	2,249	5,876	5,500	3,822	2,159	2,477	1,475
Pittsburgh	1,659	1,562	1,301	67,474	71,618	71,794	243,454	211,259	218,198	94,927	86,678	89,740
Pittston	40	40	27	792	830	357	1,969	1,475	998	902	747	375

[1] Does not include statistics for Lakewood.
[2] While the population for 1900 was in excess of 10,000, statistics for that census are not available.

TABLE IV.—CITIES OF 10,000 INHABITANTS OR OVER—NUMBER OF ESTABLISHMENTS, AVERAGE NUMBER OF WAGE EARNERS, VALUE OF PRODUCTS, AND VALUE ADDED BY MANUFACTURE: 1909, 1904, AND 1899—Contd.

CITY.	NUMBER OF ESTABLISHMENTS.			AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS. (Expressed in thousands.)			VALUE ADDED BY MANUFACTURE (VALUE OF PRODUCTS LESS COST OF MATERIALS). (Expressed in thousands.)		
	1909	1904	1899	1909	1904	1899	1909	1904	1899	1909	1904	1899
PENNSYLVANIA—Continued.												
Plymouth borough	23	23	24	908	827	756	$1,179	$860	$533	$475	$413	$292
Pottstown borough	78	77	65	3,050	3,457	2,661	12,505	8,145	7,357	3,506	2,707	2,512
Pottsville borough	91	79	77	2,872	1,904	1,699	9,138	5,806	4,830	3,211	1,781	1,400
Reading	482	402	403	24,145	18,058	16,892	51,135	30,491	32,682	21,287	13,782	15,686
Scranton	293	258	247	12,851	10,912	11,139	26,385	20,453	24,742	12,083	9,200	7,522
Shamokin borough	39	48	46	1,623	897	762	3,544	1,444	1,147	1,415	418	447
Sharon borough	45	37	35	3,316	1,812	1,827	9,881	5,671	3,765	3,198	1,880	1,501
Shenandoah borough	29	30	22	242	170	107	887	595	302	551	414	208
South Bethlehem borough	49	46	38	7,985	5,754	4,645	26,417	15,275	9,964	10,450	8,014	5,102
Steelton borough [1]	.....	18	18	.....	4,656	4,762	.....	15,746	14,034	.....	4,996	4,098
Sunbury borough	39	32	29	2,069	1,457	968	4,450	2,593	1,868	2,222	891	710
Uniontown borough	41	.....	.....	335	.....	.....	1,347	.....	.....	968	.....	.....
Warren borough	72	63	43	1,489	1,174	1,050	5,744	4,666	3,681	2,068	1,947	1,527
Washington borough	75	.....	.....	2,126	.....	.....	4,837	.....	.....	2,390	.....	.....
West Chester borough	35	35	35	916	849	497	2,146	2,121	859	1,479	1,447	543
Wilkes-Barre	176	129	138	7,553	5,020	4,749	13,526	11,000	8,617	7,093	5,735	4,308
Wilkinsburg borough	24	30	16	185	184	100	538	472	246	276	237	120
Williamsport	159	115	142	5,641	5,296	4,717	13,348	11,307	9,726	6,288	5,351	4,125
York	218	228	241	10,492	7,952	6,851	18,022	13,333	10,560	9,756	6,853	5,100
All other cities [2]	99	.....	.....	18,283	.....	.....	103,288	.....	.....	25,328	.....	.....
RHODE ISLAND:												
Central Falls	43	33	36	2,475	2,443	2,372	5,471	5,091	4,511	2,090	1,761	1,785
Cranston	28	13	13	1,711	587	493	5,625	1,630	1,403	2,738	1,043	790
Cumberland town	29	19	10	5,389	4,574	1,500	9,827	5,965	1,756	5,209	2,858	1,164
East Providence town	26	21	15	2,041	1,361	836	7,146	5,544	5,347	2,086	1,290	1,059
Newport	54	46	43	726	849	881	1,379	1,347	1,575	809	791	922
Pawtucket	217	186	191	15,275	12,054	10,712	37,690	25,847	19,272	16,156	11,735	9,295
Providence	1,080	881	929	46,381	39,804	38,368	120,241	91,951	78,057	55,471	42,008	36,106
Warwick town	49	37	27	6,471	6,153	5,465	10,589	7,052	6,020	5,195	3,204	3,579
Woonsocket	130	103	104	10,703	8,672	7,591	28,218	10,261	14,745	11,456	8,682	7,576
SOUTH CAROLINA:												
Charleston	116	108	104	2,874	3,450	3,187	6,951	6,007	5,713	2,722	2,259	2,206
Columbia	55	41	41	2,522	2,303	2,091	5,872	4,677	3,134	2,294	2,035	1,286
Greenville	41	36	22	1,152	1,204	770	2,142	1,677	997	914	576	249
Spartanburg	36	35	28	1,773	1,650	1,361	3,276	2,127	1,591	1,191	583	685
SOUTH DAKOTA:												
Aberdeen	37	.....	.....	295	.....	.....	1,575	.....	.....	564	.....	.....
Sioux Falls	83	61	48	677	465	311	2,889	1,898	884	1,260	832	562
TENNESSEE:												
Chattanooga	185	177	149	6,410	6,420	4,729	16,036	14,201	10,518	7,602	6,787	4,097
Jackson	42	42	33	1,405	1,268	1,018	2,710	2,318	1,577	1,495	1,135	884
Knoxville	159	138	102	2,773	2,999	4,203	8,149	6,699	6,202	3,043	2,598	2,650
Memphis	320	289	223	7,927	7,374	6,626	30,242	20,043	14,233	12,391	8,704	6,354
Nashville	384	257	237	9,721	8,032	6,726	29,650	21,567	15,301	12,194	9,085	6,274
TEXAS:												
Austin	108	62	84	754	641	495	2,845	1,560	765	1,218	798	308
Beaumont	56	40	30	863	732	1,005	4,831	2,610	1,913	1,387	1,098	816
Brownsville	9	.....	.....	51	.....	.....	121	.....	.....	75	.....	.....
Cleburne	24	.....	.....	825	.....	.....	1,577	.....	.....	718	.....	.....
Dallas	305	247	177	4,882	3,445	2,842	26,959	15,628	9,488	9,993	6,421	4,090
Denison	29	25	29	833	725	668	1,314	1,235	840	721	644	461
El Paso	88	54	38	1,752	1,158	716	3,637	2,378	1,213	2,141	1,247	674
Fort Worth	147	102	68	2,059	1,423	943	8,661	5,668	3,488	3,305	2,479	1,341
Galveston	81	67	100	1,094	761	1,422	6,308	2,997	3,675	2,041	1,308	1,650
Houston	249	209	145	5,338	5,056	3,188	23,015	13,564	7,492	8,694	5,947	3,297
Laredo	23	18	14	213	515	372	221	454	331	147	268	192
Marshall	22	.....	.....	977	.....	.....	1,787	.....	.....	984	.....	.....
Palestine	20	17	19	745	544	481	1,313	735	704	691	430	355
Paris	45	29	27	541	210	263	1,430	855	743	568	327	282
San Angelo	26	.....	.....	115	.....	.....	318	.....	.....	185	.....	.....
San Antonio	194	141	113	3,105	2,457	2,683	13,435	7,402	5,989	6,483	3,661	3,038
Sherman	36	39	31	273	307	314	4,676	2,641	1,461	629	492	391
Temple	37	.....	.....	366	.....	.....	1,346	.....	.....	512	.....	.....
Tyler	23	21	16	484	368	431	996	629	682	459	318	330
Waco	92	76	80	1,033	947	1,004	4,769	2,980	2,294	1,804	1,201	968
UTAH:												
Ogden	68	63	51	1,323	1,013	678	3,713	2,507	1,242	1,648	1,109	563
Salt Lake City	245	192	154	4,287	2,776	2,154	13,351	7,544	4,279	6,736	4,029	2,302
VERMONT:												
Barre	139	105	146	2,340	2,198	1,875	3,852	3,373	2,761	2,744	2,464	1,978
Burlington	82	67	78	2,371	2,300	2,232	6,800	6,356	6,066	2,477	2,552	2,772
Rutland	63	51	61	1,636	1,803	1,496	2,680	2,523	1,959	1,473	1,361	1,124
VIRGINIA: [3]												
Alexandria	54	51	57	1,470	1,291	859	4,420	2,187	1,539	1,689	1,195	869
Danville	52	34	46	3,076	3,018	2,933	5,389	4,775	3,604	2,153	2,009	1,827
Lynchburg	82	55	61	4,026	2,534	1,487	10,188	4,965	2,994	3,729	2,082	1,460
Norfolk	215	121	140	4,749	2,935	2,638	10,341	5,739	4,692	4,859	2,537	2,150
Petersburg	72	72	77	3,887	3,288	3,008	8,896	5,891	5,293	3,137	2,097	2,178
Portsmouth	31	28	22	842	551	471	1,528	945	960	752	459	346
Richmond	380	300	262	14,840	12,444	12,868	47,358	27,745	23,048	23,106	13,982	12,673
Roanoke	62	54	38	3,544	3,089	2,431	7,261	5,545	5,398	3,217	2,313	1,805
Staunton	44	.....	.....	339	.....	.....	1,223	.....	.....	327	.....	.....

[1] Included in "all other cities" for 1909.
[2] Includes: Coatesville, Duquesne, Monessen, North Braddock, Old Forge, South Sharon, and Steelton boroughs, to avoid disclosure of individual operations.
[3] Does not include statistics for Newport News.

TABLE IV.—CITIES OF 10,000 INHABITANTS OR OVER—NUMBER OF ESTABLISHMENTS, AVERAGE NUMBER OF WAGE EARNERS, VALUE OF PRODUCTS, AND VALUE ADDED BY MANUFACTURE: 1909, 1904, AND 1899—Contd.

CITY.	NUMBER OF ESTABLISHMENTS.			AVERAGE NUMBER OF WAGE EARNERS.			VALUE OF PRODUCTS. (Expressed in thousands.)			VALUE ADDED BY MANUFACTURE (VALUE OF PRODUCTS LESS COST OF MATERIALS). (Expressed in thousands.)		
	1909	1904	1899	1909	1904	1899	1909	1904	1899	1909	1904	1899
WASHINGTON:												
Aberdeen	43			1,509			$3,590			$1,418		
Bellingham	96	73	47	1,566	1,314	1,502	4,600	$3,204	$2,629	2,178	$1,643	$1,076
Everett	94			2,375			7,423			3,564		
North Yakima	36			602			2,175			1,225		
Seattle	751	467	352	11,331	6,390	4,440	50,569	25,406	15,323	22,550	11,048	6,459
Spokane	286	188	84	3,989	2,428	1,060	13,880	8,831	3,756	8,637	4,131	1,723
Tacoma	276	236	174	5,765	4,457	3,552	22,450	14,264	10,301	8,734	6,107	3,960
Walla Walla	48	33	34	388	242	213	2,317	1,486	964	932	557	343
WEST VIRGINIA:												
Bluefield	15			670			1,465			576		
Charleston	63	54	48	951	887	686	3,235	2,101	1,262	1,098	1,103	603
Huntington	67	44	29	3,156	2,229	1,717	6,511	4,407	3,642	3,129	1,731	1,144
Martinsburg	39			1,420			2,516			1,239		
Parkersburg	75	68	72	1,495	1,444	1,237	5,499	3,778	3,101	1,639	1,290	1,215
Wheeling	176	195	178	7,809	7,127	6,190	27,077	21,797	15,074	11,052	9,308	6,668
WISCONSIN:												
Appleton	97	108	88	2,125	2,486	1,561	6,734	6,073	3,861	2,477	2,647	1,504
Ashland	38	37	41	1,116	1,361	1,812	2,748	4,210	3,600	1,202	2,018	2,084
Beloit	51	44	43	2,986	2,471	1,845	5,886	4,485	2,800	3,447	2,650	1,462
Eau Claire	75	73	64	2,524	1,985	1,758	5,855	3,602	3,876	2,881	1,803	1,764
Fond du Lac	97	85	74	2,707	2,566	1,520	8,227	5,600	2,861	3,153	2,289	1,226
Green Bay	102	103	79	2,579	2,111	1,427	6,235	4,873	2,709	2,342	2,177	1,346
Janesville	78	73	72	1,451	1,348	1,398	5,156	3,846	3,184	2,279	1,790	1,415
Kenosha	62	45	38	6,449	4,354	3,090	23,182	12,363	7,334	8,409	4,071	2,311
La Crosse	151	150	131	3,329	2,644	2,703	14,103	8,139	7,677	6,306	3,414	3,032
Madison	116	84	69	1,792	1,476	1,365	5,467	3,201	2,689	3,130	1,908	1,551
Manitowoc	80	76	62	1,525	1,321	975	5,939	4,428	1,935	1,976	1,488	1,099
Marinette	43	37	45	1,491	1,645	2,485	3,309	3,633	4,411	1,606	2,052	2,697
Milwaukee	1,764	1,527	1,419	59,502	43,366	41,220	208,324	137,995	110,854	88,503	66,892	51,160
Oshkosh	159	134	120	5,778	4,840	4,226	14,730	8,652	8,081	7,658	4,220	3,709
Racine	142	148	135	8,381	6,504	6,138	24,673	16,459	11,676	13,161	9,316	5,750
Sheboygan	109	96	80	5,088	5,903	4,992	11,209	9,751	6,907	5,210	4,198	3,195
Superior	99	72	75	1,847	1,343	1,765	6,574	6,357	6,836	2,302	1,709	1,810
Wausau	67	58	56	2,092	1,945	1,716	6,287	4,645	3,381	2,902	2,096	1,473
WYOMING:												
Cheyenne	22	18	17	853	552	423	1,577	925	722	970	617	433
All other cities[1]	142	54	71	16,331	8,401	6,892	82,537	22,346	15,272	22,218	11,380	6,666

[1] Includes Gary, Ind., Great Falls, Mont., Lackawanna, N. Y., Lakewood, Ohio, and Newport News, Va., in 1909, and Great Falls, Mont., and Newport News, Va., in 1904 and 1899.

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THIRTEENTH CENSUS OF THE UNITED STATES: 1910

DEPARTMENT OF COMMERCE

BULLETIN

BUREAU OF THE CENSUS
WM. J. HARRIS, DIRECTOR

MANUFACTURES : 1909

STATISTICS FOR THE MANUFACTURE OF CHEMICALS AND ALLIED PRODUCTS

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

[Reprint of pages 527-624 of Volume X of the Thirteenth Census Reports]

CONTENTS.

INTRODUCTION.

This bulletin contains special reports for the manufacture of chemicals and allied products for the calendar year 1909. It embraces the following industries: General chemicals; bone, carbon, and lamp black; dyestuffs and extracts; explosives; fertilizers; essential oils; paint and varnish; sulphuric, nitric, and mixed acids; and wood distillation. These special reports have been printed as a part of Volume X of the final reports of the Thirteenth Census. Acknowledgment is made of the services of Prof. Charles E. Munroe, who was consulted in their preparation.

The general results of the census inquiry are summarized in certain tables presented in connection with the text, while other tables give statistics in detail by states. Special tables are also presented in which the statistics for establishments engaged in the manufacture of chemicals and allied products are classified according to character of ownership, value of products, number of wage earners, and prevailing hours of labor, while still another set of tables gives detailed information in regard to the quantity and cost of the materials used and the quantity and value of the products.

Scope of census.—Census statistics of manufactures are compiled primarily for the purpose of showing the absolute and relative magnitude of the different branches of industry covered and their growth or decline. Incidentally, the effort is made to present data throwing light upon character of ownership, size of establishments, and similar subjects. When use is made of the data for these purposes it is imperative that due attention should be given to the limitations of the figures, particularly in any attempt to derive from them figures purporting to show average wages, cost of production, or profits. These limitations are fully discussed in the general report on manufactures for the United States as a whole (Volume VIII of Thirteenth Census Reports) and need not be repeated here.

The census did not cover establishments which were idle during the entire year or had a value of products of less than $500, nor the manufacturing done in educational, eleemosynary, and penal institutions.

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

The establishment.—As a rule, the term "establishment" represents a single plant or factory, but in some cases it represents two or more plants which were operated under a common ownership or for which one set of books of account was kept.

If, however, the plants constituting an establishment as thus defined were not all located within the same city or state, separate reports were secured in order that the figures for each plant might be included in the statistics for the city or state in which it was located.

Persons engaged in the industry.—At the censuses of 1899, 1904, and 1909 the following general classes of persons engaged in manufacturing industries were distinguished: (1) Proprietors and firm members, (2) salaried officers of corporations, (3) superintendents and managers, (4) clerks (including other subordinate salaried employees), and (5) wage earners. In the reports for the censuses of 1904 and 1899 these five classes were shown according to the three main groups: (1) Proprietors and firm members, (2) salaried officials, clerks, etc., and (3) wage earners. The second group included the three classes of salaried officers of corporations, superintendents and managers, and clerks. In certain tables relating exclusively to the present census a somewhat different grouping is employed—that into (1) proprietors and officials, (2) clerks, and (3) wage earners, the first group including proprietors and firm members, salaried officers of corporations, and superintendents and managers. In comparative tables covering the censuses of 1899 and 1904 it is of course necessary to group the figures for 1909 according to the classification that was employed at the earlier censuses.

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

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

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

In 1899 and 1904 the schedule called for the average number of wage earners of each sex 16 years of age and over, and the average number under 16 years of age without distinction of sex, for each month, and these monthly statements were combined in an annual average. Comparatively few manufacturing concerns, however, keep their books in such way as to show readily the number of men, women, and children employed on the average each month. These monthly returns by sex and age were, in fact, largely estimates. It was believed that a more accurate and reliable sex and age distribution could be secured by taking as a basis of estimate the actual numbers employed on a single day. In 1889 the time the plant was in operation was used as a basis for computing the average number of employees, whether such time was the entire year or only a fraction of a year. These differences in method have but little effect upon the comparability of the statistics, however, except for certain seasonal industries like canning and preserving.

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

Capital.—For reasons stated in the general report on manufactures for the United States as a whole (Volume VIII of Thirteenth Census Reports) the statistics of capital secured by the census canvass are so defective as to be of little value, except as indicating very general conditions. The instructions on the schedule for securing data relating to capital were as follows:

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

Materials.—The statistics as to cost of materials relate to the materials used during the year, which may be more or less than the materials purchased during the year. The term "materials" includes fuel, rent of power and heat, mill supplies, and containers, as well as materials forming a constituent part of the product.

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

Value of products.—The amounts given under this heading represent the selling value at the factory of all products manufactured during the year, which may differ from the value of those sold.

Value added by manufacture.—The value of products is not a satisfactory measure of either the absolute or the relative importance of a given industry, because only a part of this value is actually created by the manufacturing processes carried on in the industry itself. Another part of it, and often by far the larger part, represents the value of the materials used. For many purposes, therefore, the best measure of the importance of an industry is the value created by the manufacturing operations carried on within the industry. This value is obtained by deducting the cost of the materials used from the value of the products. The figure thus obtained is termed in the census reports "value added by manufacture."

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

Primary horsepower.—This item represents the total primary power generated by the manufacturing establishments plus the amount of power, principally electric, rented by them from other concerns. It does not cover the electric power developed by the primary power of the establishments themselves, the inclusion of which would evidently result in duplication.

CHEMICALS

THE MANUFACTURE OF CHEMICALS AND ALLIED INDUSTRIES.

INTRODUCTION.

The first special report on the manufacture of chemicals and allied products issued by the Bureau of the Census was that presented in connection with the reports of the census of manufactures for 1879. This report, like those for succeeding censuses, covered the operations of establishments engaged in the manufacture of acids, sodas, potashes, alums, glycerin, dyestuffs and tanning materials, explosives, fertilizers, pigments, wood distillation products, salts, and certain elementary substances, such as bromine and phosphorus, and in addition, embraced the statistics for establishments engaged primarily in the manufacture of soap, candles, castor oil, glucose, and sulphur, which have not been included in the reports for subsequent censuses. At the census of 1889, the manufacture of pharmaceutical preparations and of paint and varnish were added to the group of industries covered by the special report, and at the census of 1899, the manufacture of essential oils and of bone, ivory, and lamp black were added, while the manufacture of pharmaceutical preparations was dropped from the group.

Tables 1 and 2 of the present report cover practically the same ground as those for 1904 and 1899, containing statistics for nine separate industries, according to the classification employed by the Bureau of the Census, taken together, and for each individual industry separately, as follows:

The general chemical industry.
The manufacture of sulphuric, nitric, and mixed acids.
Wood distillation.
The paint and varnish industry.
The fertilizer industry.
The manufacture of explosives.
The manufacture of dyestuffs and extracts.
The manufacture of essential oils.
The manufacture of bone, carbon, and lamp black.

Separate reports containing detailed statistics are presented for each of the nine industries.

SUMMARY FOR THE NINE INDUSTRIES.

Comparison with earlier censuses for the group as a whole.—Table 1 summarizes the statistics of the nine industries covered by this report for the censuses of 1909, 1904, and 1899.

The number of establishments in the nine industries combined increased from 1,691 in 1899 to 2,140 in 1909, or 26.6 per. cent, and the number of wage earners employed from 46,700 to 70,426, or 50.8 per cent. The value of products for the combined industries necessarily involves a considerable amount of duplication, because of the use of the products of establishments in some industries as material for establishments in others. The amount of this duplication may vary materially at different censuses, and for this reason the increase in the value added by manufacture (value of products less cost of materials) is a better measure of the growth of the industries than that in the value of products. The value added by manufacture was $166,968,565 in 1909, as compared with $78,488,032 in 1899, an increase of $88,480,533, or 112.7 per cent for the decade. Although the absolute increase in value of products during the 10 years ($222,578,464) was much greater than that in value added by manufacture, the relative increase, 109.9 per cent, was slightly less.

Table 1 CHEMICALS AND ALLIED INDUSTRIES.

	Number or amount.			Per cent of increase.		
	1909	1904	1899	1899–1909	1904–1909	1899–1904
Number of establishments	2,140	1,785	1,691	26.6	19.9	5.6
Persons engaged in the industries	88,097	71,448	(1)	.....	23.3	.....
Proprietors and firm members	1,155	1,125	(1)	.....	2.7	.....
Salaried employees	16,516	11,142	8,602	92.0	48.2	29.5
Wage earners (average number)	70,426	59,181	46,700	50.8	19.0	26.7
Primary horsepower	398,880	280,765	191,489	108.3	42.1	46.6
Capital	$483,729,410	$323,891,131	$238,471,290	102.8	49.3	35.8
Expenses	359,425,126	247,107,481	171,963,827	109.0	45.5	43.7
Services	62,700,767	44,508,161	33,122,930	89.3	40.9	34.4
Salaries	24,042,566	15,007,298	11,339,595	112.0	60.2	32.3
Wages	38,658,201	29,500,863	21,783,335	77.5	31.0	35.4
Materials	258,115,975	176,344,680	124,018,044	108.1	46.4	42.2
Miscellaneous	38,608,384	26,254,640	14,822,853	160.5	47.1	77.1
Value of products	425,084,540	282,077,616	202,506,076	109.9	50.7	39.3
Value added by manufacture (value of products less cost of materials)	166,968,565	105,732,936	78,488,032	112.7	57.9	34.7

(1) Figures not available.

Summary, by industries.—Table 2 presents for 1909 a summary of the statistics of the several industries constituting the group as a whole.

Table 2

	CHEMICALS AND ALLIED INDUSTRIES: 1909									
	Total.	Chemicals.	Sulphuric, nitric, and mixed acids.	Wood distillation, not including turpentine and rosin.	Paint and varnish.	Fertilizers.	Explosives.	Dyestuffs and extracts.	Essential oils.	Bone, carbon, and lamp black.
Number of establishments	2,140	349	42	120	791	550	86	107	68	27
Persons engaged in the industries	88,097	27,791	2,582	3,095	21,896	21,950	7,058	3,015	408	302
Proprietors and firm members	1,155	154	.....	56	456	323	21	65	73	
Salaried employees	16,516	3,923	330	318	7,200	3,317	763	553	45	7
Wage earners (average number)	70,426	23,714	2,252	2,721	14,240	18,310	6,274	2,397	290	67
Primary horsepower	398,880	208,604	6,494	9,854	56,162	64,711	28,601	22,213	1,218	228
Capital	$483,729,410	$155,143,739	$18,726,195	$13,017,192	$103,994,908	$121,537,451	$50,167,976	$17,934,545	$1,365,438	1,023
Expenses	359,425,126	93,991,193	8,347,722	8,473,558	111,202,408	90,101,293	31,460,284	13,492,987	1,522,171	$1,841,966
Services	62,700,767	20,221,089	2,045,894	1,818,059	18,649,074	11,882,815	5,437,976	2,233,705	184,495	833,510
Salaries	24,042,566	6,136,588	551,000	355,211	10,378,361	4,405,636	1,133,606	942,326	61,505	227,660
Wages	38,658,201	14,084,501	1,494,894	1,462,848	8,270,713	7,477,179	4,304,370	1,291,379	122,990	78,333
Materials	258,115,975	64,121,536	5,385,828	5,875,851	79,015,555	69,521,920	22,811,548	9,683,651	1,255,478	149,327
Miscellaneous	38,608,384	9,648,568	916,000	779,648	13,537,779	8,696,558	3,210,760	1,575,631	82,198	444,608
Value of products	425,084,540	117,688,887	9,884,057	9,736,998	124,889,422	103,960,213	40,139,661	15,954,574	1,737,234	161,242
Value added by manufacture (value of products less cost of materials)	166,968,565	53,567,351	4,498,229	3,861,147	45,873,867	34,438,293	17,328,113	6,270,923	481,756	1,093,494
										648,886

"Chemicals" was the leading branch in number of wage earners, reporting 33.7 per cent of the total for the combined chemical industry, followed by "fertilizers" and "paint and varnish," with 26 per cent and 20.2 per cent, respectively. Paint and varnish led in value of products with 29.4 per cent of the total for the industry as a whole, followed by chemicals and fertilizers with 27.7 per cent and 24.5 per cent, respectively. In value added by manufacture, "chemicals" is first with 32.1 per cent of the total, followed by "paint and varnish" and "fertilizers," with 27.5 per cent and 20.6 per cent, respectively. These three branches together reported 79.9 per cent of the average number of wage earners in the combined industry, 81.5 per cent of the value of products, and 80.2 per cent of the value added by manufacture.

THE GENERAL CHEMICAL INDUSTRY.

GENERAL STATISTICS.

Scope of the industry.—The classification "chemicals," as employed in the census statistics of manufactures, covers establishments engaged in the manufacture of a great variety of products, which may be grouped under the following heads:

I. Acids, except sulphuric, nitric, and mixed acids and such as are made by establishments in the wood distillation industry.
II. Sodas.
III. Potashes.
IV. Alums.
V. Coal-tar products.
VI. Cyanides.
VII. Bleaching materials.
VIII. Electrochemicals (substances produced by the aid of electricity, including metals and alloys produced by electrolytic or electrometallurgic processes).
IX. Plastics.
X. Compressed or liquefied gases.
XI. Fine chemicals.
XII. Chemicals not otherwise specified.

The classification, however, does not cover the production of all substances coming under the head of chemicals in the ordinary acceptance of the term, as in many instances the manufacture of such products is included under some more distinctive industry classification. Thus establishments engaged in the manufacture of sulphuric, nitric, or mixed acids as a primary product are included under the separate classification "sulphuric, nitric, and mixed acids"; the production of alcohol by wood distillation is included under the classification "wood distillation, not including turpentine and rosin"; and the production of chemical substances for use as fertilizers is included under the classification "fertilizers." The manufacture of dyestuffs and extracts, explosives, essential oils, and paint and varnish may also properly be classed as chemical. The statistics for the chemical industry, as defined by the Census Bureau, thus fall considerably short of constituting a complete presentation of the business of manufacturing chemical substances for sale, although it is probable that the classification covers the production of the great majority of the substances which are included under the term "chemicals" as popularly understood.

The scope of the classification was the same in 1909 as in 1904; in 1899 and at prior censuses, however, the classification included the manufacture of sulphuric, nitric, and mixed acids and wood distillation, which were classified as independent industries at the censuses of 1909 and 1904.

Comparison with earlier censuses.—Table 1 summarizes the statistics of the chemical industry for each census from 1899 to 1909, inclusive.

The statistics shown for 1899 in the table do not include those for the manufacture of sulphuric, nitric, and mixed acids and the wood distillation industry, which were included under the general classification "chemicals" at that census and the figures for which are included with those for the chemical industry in some of the other tables of this report. The value of products shown in the table conveys no precise idea of the magnitude or extent of the industry, since it involves considerable duplication due to the use of the products of some establishments in the industry as materials in other establishments, and also because it does not include the products of the kind embraced in the enumeration which are produced in establishments engaged primarily in manufacturing other products. The number of establishments increased 17.5 per cent during the decade from 1899 to 1909; the average number of wage earners employed, 57 per cent; the value of products, 145 per cent; and the value added by manufacture, 155.3 per cent.

Table 1 CHEMICAL INDUSTRY.

	Number or amount.			Per cent of increase.[1]		
	1909	1904	1899[2]	1899–1909	1904–1909	1899–1904
Number of establishments	349	275	297	17.5	26.9	—7.4
Persons engaged in the industry	27,791	22,707	(3)	.....	22.4	.....
Proprietors and firm members	154	123	(3)	.....	25.2	.....
Salaried employees	3,923	2,778	1,590	146.7	41.2	74.7
Wage earners (average number)	23,714	19,806	15,108	57.0	19.7	31.1
Primary horsepower	208,604	132,262	(3)	.....	57.7	.....
Capital	$155,143,739	$96,021,294	$68,358,817	127.0	60.6	41.3
Expenses	93,991,193	64,493,132	40,323,799	133.1	45.7	59.9
Services	20,221,089	14,837,669	9,686,865	108.7	36.3	53.2
Salaries	6,136,588	4,047,889	2,321,662	164.3	51.6	74.4
Wages	14,084,501	10,789,780	7,365,203	91.2	30.5	46.5
Materials	64,121,530	42,062,011	27,057,309	137.0	52.4	55.5
Miscellaneous	9,648,568	7,592,852	3,579,325	169.6	27.1	112.1
Value of products	117,688,887	75,222,249	48,039,595	145.0	56.6	56.6
Value added by manufacture (value of products less cost of materials)	53,567,351	33,159,638	20,981,986	155.3	61.5	58.0

[1] A minus sign (—) denotes decrease. Where percentages are omitted, comparable figures are not available.
[2] Excluding statistics for the manufacture of sulphuric, nitric, and mixed acids and wood distillation, which were included under the classification "chemicals" in 1899.
[3] Comparable figures not available.

Table 2 gives statistics for the chemical industry, the manufacture of sulphuric, nitric, and mixed acids, and wood distillation combined (the chemical industry as constituted at censuses prior to 1904), for each census from 1849 to 1909, inclusive.

Table 2 CHEMICALS, SULPHURIC, NITRIC, AND MIXED ACIDS, AND WOOD DISTILLATION INDUSTRIES.

CENSUS.	Number of establishments.	Wage earners (average number).	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
1909	511	28,687	$17,042,243	$75,383,215	$137,309,942	$61,926,727
1904	448	24,525	13,361,972	51,883,219	92,088,378	40,205,159
1899	433	19,020	9,393,236	34,545,862	62,637,008	28,091,146
1889	563	15,038	7,308,411	33,694,927	59,352,548	25,657,621
1879	595	9,724	4,222,663	24,665,766	38,640,458	13,974,692
1869	408	5,119	2,252,856	12,010,576	20,091,575	8,080,999
1859	299	2,014	637,156	3,086,681	5,419,791	2,333,110
1849	170	1,389	422,560	3,235,380	4,979,630	1,744,250

Summary, by states.—Table 3 summarizes the more important statistics of the industry, by states, the states being arranged according to the value of products reported for 1909. Some states for which data can not be shown separately ranked higher than some named in the table.

Table 3

CHEMICAL INDUSTRY.

STATE.	Number of establishments: 1909	Wage earners. Average number: 1909	Wage earners. Per cent distribution: 1909	Wage earners. Rank. 1909	Wage earners. Rank. 1904	Value of products. Amount: 1909	Value of products. Per cent distribution: 1909	Value of products. Rank. 1909	Value of products. Rank. 1904	Value added by manufacture. Amount: 1909	Value added by manufacture. Per cent distribution: 1909	Value added by manufacture. Rank. 1909	Value added by manufacture. Rank. 1904	Per cent of increase: 1904-1909[1]. Wage earners (average number).	Value of products.	Value added by manufacture.
United States	**349**	**23,714**	**100.0**	.....	.....	**$117,688,887**	**100.0**	.....	.....	**$53,567,351**	**100.0**	.....	.....	**19.7**	**56.5**	**61.5**
New York	74	5,746	24.2	1	1	35,346,072	30.0	1	1	15,637,518	29.2	1	1	15.7	53.5	55.4
New Jersey	50	5,046	21.3	2	2	22,824,140	19.4	2	2	10,566,662	19.7	2	2	40.3	75.2	65.3
Pennsylvania	37	3,185	13.4	3	3	15,978,162	13.6	3	3	5,778,241	10.8	4	4	−5.6	35.7	28.1
Michigan	36	3,174	13.4	4	4	12,890,206	11.0	4	4	7,817,825	14.6	3	3	−4.8	42.6	68.7
Ohio	33	1,132	4.8	6	5	7,742,045	6.6	5	5	2,993,749	5.6	5	6	10.4	68.7	88.7
Massachusetts	24	1,358	5.7	5	6	5,916,451	5.0	6	6	2,868,199	5.4	6	5	57.9	68.6	43.8
Illinois	19	836	3.5	8	7	4,656,274	4.0	7	8	1,760,474	3.3	7	8	16.0	103.9	89.7
Missouri	9	619	2.6	9	8	3,640,116	3.1	8	7	1,416,152	2.6	8	7	−3.3	11.0	27.9
Maryland	3	285	1.2	11	9	1,313,103	1.1	11	10	620,115	1.2	11	9	−11.8	21.3	27.6
California	13	244	1.0	12	11	1,306,373	1.1	12	9	544,788	1.0	12	10	−5.8	16.2	28.3
Wisconsin	5	76	0.3	15	15	513,099	0.4	13	14	270,962	0.5	14	12	*	93.6	111.7
Louisiana	4	36	0.2	19	19	248,815	0.2	17	22	76,877	0.1	19	21	.....	.....	.....
Georgia	4	53	0.2	17	16	245,725	0.2	18	15	185,750	0.3	16	13	.....	85.0	.....
Kentucky	5	39	0.2	18	.....	94,710	0.1	22	.....	54,205	0.1	22	.....	.....	.....	.....
All other states	33	1,885	7.9	.....	.....	4,973,596	4.2	.....	.....	2,966,834	5.5	.....	.....	.....	.....	.....

[1] Percentages of increase are based on figures in Table 51. A minus sign (−) denotes decrease. Percentages not shown where base is less than 100 for wage earners or less than $100,000 for value of products or value added by manufacture, or where comparative figures can not be given without disclosing individual operations.

New York reported 30 per cent of the total value of products for the industry in 1909, New Jersey 19.4 per cent, Pennsylvania 13.6 per cent, and Michigan 11 per cent. These four states together contributed nearly three-fourths (74 per cent) of the total value of products and gave employment to 72.3 per cent of the average number of wage earners. Of the states which reported products valued at $1,000,000 or over in 1909, Illinois shows the highest rate of increase in value of products from 1904 to 1909, 103.9 per cent, followed by New Jersey, Ohio, and Massachusetts in the order named.

PERSONS ENGAGED IN THE INDUSTRY.

Summary: 1909.—Table 4 shows, for 1909, the number of persons engaged in the industry, classified according to occupational status and sex, and in the case of wage earners, according to age also. It should be borne in mind 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.

Table 4

CLASS.	PERSONS ENGAGED IN THE CHEMICAL INDUSTRY: 1909. Total.	Male.	Female.
All classes	**27,791**	**26,215**	**1,576**
Proprietors and officials	1,086	1,072	14
Proprietors and firm members	154	146	8
Salaried officers of corporations	367	361	6
Superintendents and managers	565	565	.....
Clerks	2,991	2,492	499
Wage earners (average number)	23,714	22,651	1,063
16 years of age and over	23,548	22,555	993
Under 16 years of age	166	96	70

The average number of persons engaged in the industry during 1909 was 27,791, of whom 23,714, or 85.3 per cent, were wage earners, 1,086, or 3.9 per cent, proprietors and officials, and 2,991, or 10.8 per cent, clerks, this class including other subordinate salaried employees. Of the total number of persons engaged in the industry, 26,215, or 94.3 per cent, were males, and 1,576, or 5.7 per cent, females.

The average number of wage earners in each state for 1909, 1904, and 1899 is given in Table 51. The average number distributed by sex and age is not shown for the individual states, but Table 52 gives such a distribution of the number employed on December 15, or the nearest representative day.

In order to compare the distribution of the persons engaged in the industry in 1909 according to occupational status with that in 1904, it is necessary to use the classification employed at the earlier census (see Introduction). Such a comparison is made in Table 5.

Table 5

CLASS.	PERSONS ENGAGED IN THE CHEMICAL INDUSTRY. 1909. Number.	1909. Per cent distribution.	1904. Number.	1904. Per cent distribution.	Per cent of increase: 1904-1909
Total	**27,791**	**100.0**	**22,707**	**100.0**	**22.4**
Proprietors and firm members	154	0.6	123	0.5	25.2
Salaried employees	3,923	14.1	2,778	12.2	41.2
Wage earners (average number)	23,714	85.3	19,806	87.2	19.7

Table 6 shows the average number of wage earners in the industry, distributed according to age, and in the case of those 16 years of age and over, according to sex, for 1909 and 1904. Comparable figures for 1899 are not available.

Table 6 — AVERAGE NUMBER OF WAGE EARNERS IN THE CHEMICAL INDUSTRY.

CLASS.	1909		1904	
	Number.	Per cent distribution.	Number.	Per cent distribution.
Total	**23,714**	**100.0**	**19,806**	**100.0**
16 years of age and over	23,548	99.3	19,732	99.6
Male	22,555	95.1	18,651	94.2
Female	993	4.2	1,081	5.4
Under 16 years of age	166	0.7	74	0.4

Wage earners employed, by months.—Table 7 gives the number of wage earners employed in the industry on the 15th (or the nearest representative day) of each month during the year 1909 for eight of the states in which an average of 500 or more wage earners were employed during the year.

There was comparatively little variation from month to month in the number of wage earners employed. The largest number reported for any month of 1909 was 25,073, in December, and the smallest, 22,609, in January, the minimum number being equal to 90.2 per cent of the maximum. In 1904 the maximum number, 20,236, was shown for June, and the minimum number, 19,402, for August, the latter number being equal to 95.9 per cent of the former.

Table 7 — WAGE EARNERS EMPLOYED IN THE CHEMICAL INDUSTRY: 1909[1]

STATE.	Average number during the year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
United States	**23,714**	**22,609**	**22,772**	**22,968**	**23,241**	**23,661**	**23,782**	**23,747**	**23,540**	**23,943**	**24,355**	**24,873**	**25,073**
Illinois	836	707	*660*	735	805	899	853	868	858	863	917	**993**	968
Massachusetts	1,358	1,317	*1,287*	1,333	1,346	1,412	1,364	1,365	1,375	1,354	1,411	1,397	1,341
Michigan	3,174	2,960	2,997	3,039	*2,889*	3,077	3,156	3,248	3,350	3,330	3,292	3,347	3,405
Missouri	619	*601*	*601*	603	609	616	625	624	631	603	637	648	632
New Jersey	5,046	4,858	4,968	5,067	5,147	5,072	5,094	4,990	*4,780*	5,038	5,109	5,173	**5,252**
New York	5,746	5,561	5,621	*5,480*	5,625	5,680	5,795	5,797	5,706	5,763	5,824	5,965	**6,130**
Ohio	1,132	1,077	1,070	1,106	1,147	1,143	*1,051*	1,078	1,123	1,138	1,172	**1,242**	1,237
Pennsylvania	3,185	3,101	3,117	*3,072*	3,087	3,201	3,311	3,195	3,193	3,167	3,207	3,277	3,292

[1] The month of maximum employment for each state is indicated by boldface figures and that of minimum employment by italic figures.

In Massachusetts the greatest number of wage earners was employed in May, and in Pennsylvania, in June; but in the six other states shown in the table either November or December was the month of maximum employment. The months of maximum and minimum employment for 1909, and the number of wage earners reported for these months, are given for a larger number of states in Table 52.

Prevailing hours of labor.—In Table 8 the wage earners in the industry have been classified according to the hours of labor per week prevailing in the establishments in which they were employed. In making this classification the average number of wage earners employed during the year in each establishment was classified as a total according to the hours prevailing in that establishment, even though a few employees worked a greater or smaller number of hours.

Table 8 — AVERAGE NUMBER OF WAGE EARNERS IN THE CHEMICAL INDUSTRY: 1909

STATE.	Total.	In establishments with prevailing hours—						
		48 and under.	Between 48 and 54.	54.	Between 54 and 60.	60.	Between 60 and 72.	72 and over.
United States	**23,714**	**77**	**703**	**383**	**9,213**	**6,581**	**2,050**	**4,707**
Illinois	836	10	.....	14	38	180	487	107
Massachusetts	1,358	8	8	16	1,033	241	.....	52
Michigan	3,174	.....	.....	2	1,426	35	174	1,537
Missouri	619	.....	374	7	.....	210	.....	28
New Jersey	5,046	6	20	90	2,804	992	198	936
New York	5,746	38	190	61	3,599	1,324	37	497
Ohio	1,132	2	.....	3	164	586	13	364
Pennsylvania	3,185	5	98	.....	68	2,130	177	707

Over half (56.2 per cent) of the wage earners employed in the industry in 1909 were in establishments where the prevailing hours were 60 or more per week. The largest single group shown in the table is that made up of the wage earners in establishments where the prevailing hours were between 54 and 60 per week, such wage earners constituting 38.8 per cent of the total number. Between 54 and 60 hours per week was the most common working time reported in Massachusetts, New Jersey, and New York. In Ohio and Pennsylvania the most common working time was 60 hours per week, in Illinois it was between 60 and 72 hours per week, and in Michigan it was 72 hours or over, while in Missouri it was between 48 and 54 hours per week.

CHARACTER OF OWNERSHIP.

Table 9 presents statistics with respect to the character of ownership of the establishments in the industry in the United States.

Table 9 — CHEMICAL INDUSTRY.

CHARACTER OF OWNERSHIP.	Number of establishments.		Value of products.	
	1909	1904	1909	1904
Total	**349**	**275**	**$117,688,887**	**$75,222,249**
Individual	58	30	1,176,233	1,581,911
Firm	25	38	1,222,277	7,854,209
Corporation	266	207	115,290,377	65,786,129
Per cent of total	**100.0**	**100.0**	**100.0**	**100.0**
Individual	16.6	10.9	1.0	2.1
Firm	7.2	13.8	1.0	10.4
Corporation	76.2	75.3	98.0	87.5

In 1909, 76.2 per cent of the total number of establishments were under corporate ownership, as compared with 75.3 per cent in 1904. In 1909 the value of products of these establishments represented 98 per cent of the total for the industry, and in 1904, 87.5 per cent.

Table 10 gives statistics for establishments classified according to form of ownership for the eight states employing an average of more than 500 wage earners in 1909 for which figures can be shown without disclosing individual operations.

Table 10

CHEMICAL INDUSTRY.

STATE.	Number of establishments owned by—			Wage earners in establishments owned by—			Value of products of establishments owned by—			Value added by manufacture in establishments owned by—		
	Individuals.	Firms.	Corporations.	Individuals.	Firms.	Corporations.	Individuals.	Firms.	Corporations.	Individuals.	Firms.	Corporations.
United States	**58**	**25**	**266**	**233**	**206**	**23,275**	**$1,176,233**	**$1,222,277**	**$115,290,377**	**$501,470**	**$365,495**	**$52,700,386**
Illinois	.....	1	18	.....	(X)	*830*	.....	(X)	*4,650,274*	.....	(X)	*1,760,474*
Massachusetts	5	2	17	*18*	(X)	1,340	*146,992*	(X)	5,769,459	*43,053*	(X)	2,825,146
Michigan	19	3	14	20	5	3,149	46,873	6,456	12,836,877	35,420	4,064	7,778,341
Missouri	.....	1	8	.....	(X)	*619*	.....	(X)	*3,640,116*	.....	(X)	*1,416,162*
New Jersey	2	1	47	7	.....	5,039	*65,225*	(X)	22,753,915	*28,438*	(X)	10,538,224
New York	12	4	58	105	12	5,629	749,025	74,218	34,522,829	303,022	46,259	15,288,237
Ohio	9	2	22	*28*	(X)	1,104	*100,069*	(X)	7,641,976	*35,688*	(X)	2,958,067
Pennsylvania	4	6	27	55	94	3,036	63,209	770,822	15,144,131	48,219	144,048	5,585,974

NOTE.—In some states, in order to avoid disclosing the returns for individual establishments, the figures for establishments under firm ownership have been consolidated with those for establishments under some other forms of ownership. In such cases an (X) is placed in the column from which the figures have been omitted and the figures for the group with which they have been combined are printed in italics.

In 1909, 23,275 wage earners, or 98.1 per cent of the total, were employed in establishments under corporate ownership; 206, or nine-tenths of 1 per cent, in those under firm ownership; and 233, or 1 per cent, in those owned by individuals. Establishments operated by corporations were the most numerous class in every state for which figures are given in the table except Michigan, and in every state corporations reported all but an insignificant proportion of the value of products.

SIZE OF ESTABLISHMENTS.

Classification by value of products.—Table 11 presents statistics for 1909 and 1904 for establishments grouped according to the value of their products.

Table 11

CHEMICAL INDUSTRY.

VALUE OF PRODUCTS PER ESTABLISHMENT.	Number of establishments.		Value of products.	
	1909	1904	1909	1904
Total	**349**	**275**	**$117,688,887**	**$75,222,249**
Less than $5,000	51	17	110,922	48,778
$5,000 and less than $20,000	50	46	558,731	531,215
$20,000 and less than $100,000	97	95	4,985,195	4,722,925
$100,000 and less than $1,000,000	120	99	41,227,479	33,622,414
$1,000,000 and over	31	18	70,806,560	36,296,917
Per cent of total	**100.0**	**100.0**	**100.0**	**100.0**
Less than $5,000	14.6	6.2	0.1	0.1
$5,000 and less than $20,000	14.3	16.7	0.5	0.7
$20,000 and less than $100,000	27.8	34.5	4.2	6.3
$100,000 and less than $1,000,000	34.4	36.0	35.0	44.7
$1,000,000 and over	8.9	6.5	60.2	48.3

In 1909, 8.9 per cent of the establishments in the industry manufactured products valued at $1,000,000 or over, as against 6.5 per cent in 1904. While such establishments represented a small proportion of the total number at both censuses, they reported 60.2 per cent of the total value of products in 1909 and 48.3 per cent in 1904. Establishments manufacturing products valued at $100,000 but less than $1,000,000 reported 35 per cent of the total value for the industry for 1909, as compared with 44.7 per cent for 1904.

The average value of products per establishment increased from $273,535 in 1904 to $337,217 in 1909, and the average value added by manufacture, as computed from the figures in Table 1, from $120,581 to $153,488. The average number of wage earners per establishment shows a decrease from 72 in 1904 to 67.9 in 1909.

Classification by number of wage earners.—Table 12 classifies the establishments in the 10 leading states according to the number of wage earners employed.

Of the 349 establishments reported for 1909, 3.2 per cent employed no wage earners, 32.7 per cent employed from 1 to 5 wage earners each, 25.5 per cent from 6 to 20, 17.8 per cent from 21 to 50, 7.4 per cent from 51 to 100, and 6.6 per cent from 101 to 250. There were only 24 establishments that employed more than 250 wage earners. Of these, 11 employed over 500. More than three-fifths (61 per cent) of the wage earners in the industry worked in establishments employing over 250 wage earners, and about two-fifths (40.7 per cent) in establishments employing over 500.

Table 12

CHEMICAL INDUSTRY: 1909

STATE.	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.	
	Establishments.	Wage earners (average number)	Establishments.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.
United States	**349**	**23,714**	**11**	**114**	**305**	**89**	**1,127**	**62**	**2,138**	**26**	**1,866**	**23**	**3,816**	**13**	**4,810**	**7**	**4,838**	**4**	**4,814**
Illinois	19	836	.....	2	9	11	138	3	102	2	114	.....	.....	1	473	.....	.....	.....	.....
Indiana	4	504	.....	1	3	.....	.....	2	58	.....	.....	.....	.....	1	443	.....	.....	.....	.....
Massachusetts	24	1,358	.....	14	33	4	52	2	89	.....	.....	2	355	2	829	.....	.....	.....	.....
Michigan	36	3,174	7	18	26	3	38	1	24	1	96	3	495	1	328	.....	.....	2	2,167
Missouri	9	619	.....	.....	.....	3	25	4	143	1	85	.....	.....	1	366	.....	.....	.....	.....
New Jersey	50	5,046	1	11	38	9	138	13	445	8	645	2	333	3	977	2	1,296	1	1,174
New York	74	5,746	.....	22	74	17	222	15	546	8	537	8	1,490	2	690	1	714	1	1,473
Ohio	33	1,132	2	13	27	12	160	2	57	1	58	1	126	2	704	.....	.....	.....	.....
Pennsylvania	37	3,185	.....	9	28	10	137	10	374	2	128	3	496	.....	.....	3	2,022	.....	.....
Virginia	4	895	.....	.....	.....	1	11	2	78	.....	.....	.....	.....	.....	.....	1	806	.....	.....

EXPENSES.

As stated in the Introduction, the census figures representing expenses do not purport to show the total cost of manufacture, since they take no account of interest or depreciation; hence they can not properly be used for determining profits. Facts of interest can be brought out, however, concerning the relative importance of the different classes of expenses which were reported. Table 1 shows the total expenses in 1909 to have been $93,991,193, distributed as follows: Cost of materials, $64,121,536, or 68.2 per cent; wages, $14,084,501, or 15 per cent; salaries, $6,136,588 or 6.5 per cent; and miscellaneous expenses, made up of advertising, ordinary repairs of buildings and machinery, insurance, traveling expenses, and other sundry expenses, $9,648,568, or 10.3 per cent.

The variations among the states in the proportions represented by the several classes of expenses (see Table 52) are due largely to diversity of products and to differences with respect to the amount of duplication in the cost of materials reported.

ENGINES, POWER, AND FUEL.

Engines and power.—Table 13 shows statistics of power used in the industry as reported at the censuses of 1909, 1904, and 1899. The figures for 1899 include those for establishments engaged primarily in the manufacture of sulphuric, nitric, and mixed acids, and in wood distillation. As the total primary power reported for these industries in 1909 amounted to only 16,348 horsepower, this inclusion does not seriously affect the comparability of the figures.

The total primary power used in the chemical industry more than doubled during the decade. In 1909, as in 1904 and 1899, power generated by steam engines was the most important form of power used in the industry, although such power represented a much smaller proportion of the total primary power in 1909 than in 1899, this decrease being due mainly to the great increase in the amount of rented electric power used. The horsepower of electric motors used for distributing power by means of current generated in the establishment reporting shows a great increase for the decade.

Table 13

CHEMICAL INDUSTRY.

POWER.	Number of engines or motors.			Horsepower.			Per cent distribution of horsepower.		
	1909	1904	1899[1]	1909	1904	1899[1]	1909	1904	1899[1]
Primary power, total	**2,202**	**1,397**	**1,173**	**208,604**	**132,262**	**90,349**	**100.0**	**100.0**	**100.0**
Owned	1,304	1,134	1,173	115,701	78,198	71,866	55.5	59.1	79.5
Steam	1,231	1,081	1,091	103,273	70,194	69,560	49.5	53.1	77.0
Gas	34	25	17	1,147	438	361	0.5	0.3	0.4
Water wheels	30	25	65	10,913	6,455	1,915	5.2	4.9	2.1
Water motors	9	3	(2)	153	14	(2)	0.1	(3)	(2)
Other	.....	.....	.....	215	1,097	30	0.1	0.8	(3)
Rented	898	263	(2)	92,903	54,064	18,483	44.5	40.9	20.5
Electric	898	263	(2)	[4] 92,057	10,078	[4] 18,231	44.1	7.6	20.2
Other	.....	.....	.....	846	[4] 43,986	252	0.4	33.3	0.3
Electric motors.	**2,179**	**672**	**79**	**156,699**	**18,188**	**20,263**	**100.0**	**100.0**	**100.0**
Run by current generated by establishment	1,281	409	79	64,642	8,110	2,032	41.3	44.6	10.0
Run by rented power	898	263	(2)	92,057	10,078	18,231	58.7	55.4	90.0

[1] Figures include those for establishments engaged in the manufacture of sulphuric, nitric, and mixed acids, and in wood distillation.
[2] Not reported.
[3] Less than one-tenth of 1 per cent.
[4] In some instances includes electric energy used in electrolytic and electrometallurgic processes.

Table 14 shows, for 1909, the amount of each of the several kinds of power and of the different kinds of fuel used in the industry in eight of the leading states.

Table 14 CHEMICAL INDUSTRY: 1909

STATE.	Number of establishments reporting.	Primary horsepower. Total horsepower.	Owned by establishments reporting. Total.	Steam engines.	Gas engines.	Water wheels and motors.	Other.	Rented. Electric.	Other.	Electric horsepower. Total, rented and generated by establishment.	Generated in the establishment reporting.	Fuel used. Coal. Anthracite (long tons).	Bituminous (short tons).	Coke (short tons).	Wood (cords).	Oil, including gasoline (barrels).	Gas (1,000 feet).
United States	**285**	**208,604**	**115,701**	**103,273**	**1,147**	**11,066**	**215**	**92,057**	**846**	**156,699**	**64,642**	**650,480**	**2,161,768**	**63,520**	**3,644**	**110,276**	**1,300,265**
Illinois	18	5,907	5,639	5,625	14	.....	.....	43	225	3,913	3,870	.....	150,942	1,026	.....	38	13,840
Massachusetts	21	3,731	2,494	2,264	150	15	65	1,232	5	1,855	623	6,234	35,099	9,764	17	357	159
Michigan	14	26,594	23,835	23,681	4	150	.....	2,759	.....	5,281	2,522	1	1,065,882	320	2,194	2,440	.....
Missouri	9	886	855	855	.....	.....	.....	31	.....	221	190	.....	40,069	786	.....	.....	2,852
New Jersey	47	13,880	13,821	13,751	20	.....	50	8	51	3,835	3,827	215,265	76,734	1,863	50	3,939	1,850
New York	64	116,197	30,264	26,086	78	4,000	100	85,713	220	136,519	50,806	366,505	105,056	3,514	54	6,872	220,978
Ohio	28	11,715	11,706	11,473	232	1	.....	9	.....	395	386	.....	160,558	23,231	360	403	876,615
Pennsylvania	32	9,771	9,271	8,671	600	.....	.....	500	.....	1,875	1,375	57,575	298,534	6,008	126	27,378	35,723
All other states	52	19,923	17,816	10,867	49	6,900	.....	1,762	345	2,805	1,043	4,900	228,894	17,008	843	68,849	139,248

In 1909 New York alone reported 116,197 horsepower, or 55.7 per cent of the aggregate for the industry. The most important form of power reported from New York was rented electric power, a predominance due in the main to the importance of electrochemical establishments supplied with power from Niagara Falls. Steam power was the most important form of power in all of the other states shown separately.

Fuel consumed.—Bituminous coal was the principal class of fuel used in the industry in 1909, Michigan reporting nearly one-half of the total. In New York and New Jersey anthracite coal was chiefly used.

SPECIAL STATISTICS RELATING TO MATERIALS AND PRODUCTS.

MATERIALS.

Summary for the United States.—Table 15 shows statistics of the materials used in the industry for 1909, 1904, and 1899, only such specific materials being shown as were separately reported in 1909. In order to make the figures for 1899 comparable with those for the other two censuses, the figures for establishments engaged in the manufacture of sulphuric, nitric, and mixed acids, and in wood distillation have been excluded from the figures for that year in all tables giving comparative statistics of materials and products.

The relative increase in the cost of all materials for the decade 1899–1909 was 137 per cent. Detailed information is available for but a few of the numerous materials consumed in the industry, and the cost of these represented less than one-twelfth (7.8 per cent) of the total cost of all materials in 1909.

The expenditures for sulphuric, nitric, and mixed acids purchased and for raw materials for making such acids—sulphur, pyrites, and nitrate of soda—increased from $2,035,276 in 1899 to $4,277,550 in 1909, or 110.2 per cent, and represented 85.2 per cent of the total cost of the materials shown separately, other than fuel and rent of power, in 1909. These amounts do not include, of course, the quantity of such materials used in establishments engaged primarily in the manufacture of sulphuric, nitric, and mixed acids.

The quantity of acids and other chemicals that establishments in the industry made for their own use in the manufacture of their finished products was reported in the majority of cases, and is given in connection with the statistics as to products.

Table 15 MATERIALS USED IN THE CHEMICAL INDUSTRY.

MATERIAL.	1909	1904	1899
Total cost	**$64,121,536**	**$42,062,611**	**$27,057,609**
Sulphur:			
Tons	50,523	28,482	30,438
Cost	$1,030,345	$591,700	$621,614
Pyrites:			
Tons	227,358	136,360	127,002
Cost	$1,060,256	$778,209	$558,810
Nitrate of soda:			
Tons	25,818	17,615	8,591
Cost	$1,147,296	$751,968	$276,091
Sulphuric acid:			
Tons	58,552	104,489	37,832
Cost	$504,390	$945,486	$429,903
Nitric acid:			
Tons	1,525	3,068	1,220
Cost	$139,591	$320,818	$127,811
Mixed acids:			
Tons	4,546	1,734	275
Cost	$335,672	$156,005	$21,047
Ammonium sulphate:			
Tons	1,675	5,670	4,373
Cost	$88,013	$356,109	$471,117
Alcohol:			
Grain—			
Gallons	479,428	187,380	120,474
Cost	$287,416	$449,604	$263,472
Wood—			
Gallons	949,212	601,077	(1)
Cost	$370,017	$307,223	(1)
Fuel and rent of power	$8,046,840	$4,541,589	$24,287,744
All other materials	$51,051,700	$32,803,300	

[1] Comparable figures not available.

Materials, by states.—Table 16 gives, by states, statistics for the materials shown separately for the chemical industry in Table 15, with the exception of fuel and rent of power, for 1909.

Table 16

MATERIAL AND STATE.	SPECIFIED MATERIALS USED IN THE CHEMICAL INDUSTRY: 1909	
	Quantity.	Cost.
	Tons.	
Sulphur	**50,523**	**$1,030,345**
Massachusetts	2,914	61,843
New Jersey	16,038	340,212
New York	16,352	326,926
Pennsylvania	6,419	141,931
All other states	8,800	159,433
Pyrites	**227,358**	**1,060,256**
New Jersey	52,507	269,547
Pennsylvania	92,364	412,047
All other states	82,487	378,662
Nitrate of soda	**25,818**	**1,147,296**
Massachusetts	4,262	191,594
New Jersey	10,604	446,284
Pennsylvania	4,259	184,947
All other states	6,693	324,471
Sulphuric acid	**58,552**	**564,390**
Illinois	5,308	37,305
Massachusetts	1,480	15,266
Missouri	3,214	28,756
New Jersey	13,038	135,049
New York	7,288	119,240
Ohio	2,510	27,221
Pennsylvania	3,262	34,406
All other states	22,452	167,147

MATERIAL AND STATE.	SPECIFIED MATERIALS USED IN THE CHEMICAL INDUSTRY: 1909	
	Quantity.	Cost.
	Tons.	
Nitric acid	**1,525**	**$139,591**
New Jersey	893	93,916
New York	405	34,261
All other states	227	11,414
Mixed acids	**4,546**	**335,672**
New Jersey	2,644	193,850
All other states	1,902	141,822
Ammonium sulphate	**1,675**	**88,013**
	Gallons.	
Alcohol, grain	**479,428**	**287,416**
Missouri	18,251	30,112
New Jersey	232,174	105,268
New York	153,414	101,914
All other states	75,589	50,122
Alcohol, wood	**949,212**	**370,017**
New Jersey	801,570	299,937
New York	25,451	12,018
All other states	122,191	58,062

PRODUCTS.

Summary for the United States.—Table 17 shows the quantity and value of the leading individual classes of chemical products manufactured in 1909, 1904, and 1899 by establishments in the industry. As previously noted, the figures for 1899 are exclusive of those for establishments engaged primarily in the manufacture of sulphuric, nitric, and mixed acids and in wood distillation. The quantities and values of some of the products in this table do not agree with those in the Abstract of the Thirteenth Census and in Volume VIII, because it was found necessary to revise the figures.

The total value of products for the industry in 1909 amounted to $117,688,887, as compared with $48,039,595 in 1899, the increase for the decade being $69,649,292, or 145 per cent. Each of the groups of products shown in the table contributed to the increase except potashes, which show a decrease. The group showing the largest relative increase in value for the decade is that comprising chemical substances produced by the aid of electricity (Group VIII), the value of which was nearly fourteen times as great in 1909 as in 1899, the absolute increase amounting to $16,662,909. Compressed and liquefied gases (Group X) rank next in respect to relative increase in value during the decade, the value in 1909 being more than four times as great as in 1899. The value of plastics more than trebled during the decade, that of fine chemicals more than doubled, and that of acids was almost four times as great. Sodas rank next to chemicals produced by the aid of electricity in amount of absolute increase in value for the decade ($9,821,067).

Table 17

Group.	PRODUCT.	PRODUCTS OF THE CHEMICAL INDUSTRY. 1909	1904	1899
	Total value	**[1] $117,688,887**	**[2] $75,222,249**	**$48,039,595**
I	Acids [3]	$11,926,389	$7,583,059	$3,161,743
	Acetic—			
	Pounds	51,963,788	27,001,322	24,945,558
	Value	$1,136,134	$537,542	$390,323
	Boric—			
	Pounds	5,554,414	6,956,896	2,684,935
	Value	$295,739	$527,190	$198,212
	Citric—			
	Pounds	2,102,206	2,265,631	[4]
	Value	$777,200	$598,718	[4]
	Hydrofluoric—			
	Pounds	4,790,963	2,932,358	698,000
	Value	$214,657	$151,218	$34,890
	Muriatic—			
	Pounds	128,394,736	127,502,682	116,075,109
	Value	$1,171,082	$1,180,910	$1,015,915
	Oleic—			
	Pounds	13,337,717	[4]	[4]
	Value	$680,015	[4]	[4]
	Phosphoric—			
	Pounds	25,702,606	991,050	[4]
	Value	$505,791	$68,541	[4]
	Other	$7,145,771	$4,518,940	$1,516,403
II	Sodas	$21,417,982	$16,858,929	$11,596,915
	Soda ash—			
	Tons	646,007	518,789	386,361
	Value	$10,361,756	$8,202,292	$4,768,383
	Sal soda—			
	Tons	76,285	56,870	63,231
	Value	$977,712	$792,248	$779,166
	Bicarbonate of soda—			
	Tons	82,800	68,867	68,185
	Value	$1,515,031	$1,135,610	$1,324,843
	Caustic soda [5]—			
	Tons	112,152	80,159	78,779
	Value	$4,230,954	$2,924,182	$2,917,955
	Borax—			
	Tons	20,154	20,882	5,637
	Value	$1,766,910	$2,122,808	$502,480
	Other	$2,565,619	$1,681,789	$1,304,088
III	Potashes:			
	Pounds	1,866,570	1,811,037	3,764,806
	Value	$88,940	$104,655	$174,476
IV	Alums	$2,578,842	$2,126,612	$2,013,607
	Alum cake—			
	Pounds	26,884,880	[6]	[6]
	Value	$273,711	[6]	[6]
	Potash alum—			
	Pounds	7,939,702	[6]	[6]
	Value	$128,623	[6]	[6]
	Other	$2,176,508	[6]	[6]
V	Coal-tar products	$2,675,327	$844,817	$1,322,094
	Coal-tar distillery products	$2,462,330	$340,641	$809,830
	Chemicals made from coal-tar distillery products	$212,997	$504,176	$512,264
VI	Cyanides	$1,941,893	$1,179,104	$1,584,923
	Yellow prussiate of potash—			
	Pounds	3,510,208	5,027,264	6,140,406
	Value	$463,983	$683,277	$993,514
	Other	$1,477,910	$495,827	$591,409
VII	Bleaching materials	$1,635,046	$777,750	$492,086
	Hydrogen peroxide—			
	Pounds	9,403,717	[4]	[4]
	Value	$850,417	[4]	[4]
	Bisulphites—			
	Pounds	28,656,000	[4]	[4]
	Value	$202,504	[4]	[4]
	Other	$582,125	[4]	[4]
VIII	Chemical substances produced by the aid of electricity	$17,968,277	$5,896,632	$1,305,368
	Calcium carbide—			
	Pounds	121,946,967	[4]	[4]
	Value	$2,984,001	[4]	[4]
	Caustic soda—			
	Tons	19,428	[4]	[4]
	Value	$1,032,647	[4]	[4]
	Chlorates—			
	Pounds	11,568,915	[4]	[4]
	Value	$904,525	[4]	[4]
	Hydrochlorites—			
	Tons	45,976	[4]	[4]
	Value	$1,506,831	[4]	[4]
	Other	$11,540,273	[4]	[4]

NOTE.—For notes corresponding to the reference figures in Table 17, refer to the end of table on page 10.

Table 17—Continued.

Group.	PRODUCT.	PRODUCTS OF THE CHEMICAL INDUSTRY. 1909	1904	1899
IX	Plastics	$7,180,172	$4,755,761	$2,099,400
	Pyroxylin plastics—			
	Pounds	6,206,177	(7)	(7)
	Value	$5,389,819	$2,857,093	$1,970,387
	Other—			
	Pounds	10,234,928	(7)	(7)
	Value	$1,790,353	$1,898,668	$129,013
X	Compressed or liquefied gases	$4,969,805	$2,787,689	$1,215,011
	Anhydrous ammonia—			
	Pounds	11,802,076	(7)	(7)
	Value	$2,503,315	$1,173,184	$448,157
	Carbon dioxide—			
	Pounds	47,498,937	35,991,627	(7)
	Value	$2,326,481	$1,343,966	$696,164
	Laughing gas—			
	Pounds	72,675	(4)	(4)
	Value	$33,689	(4)	(4)
	Oxygen—			
	Cubic feet	637,064	(4)	(4)
	Value	$98,150	(4)	(4)
	Other—			
	Value	$8,170	$270,539	$70,690
XI	Fine chemicals	$10,956,666	$9,145,853	$4,220,339
	Alkaloids—			
	Ounces	3,482,492	4,949,525	3,387,522
	Value	$3,188,691	$2,925,789	$1,743,264
	Gold salts—			
	Ounces	42,544	59,969	8,594
	Value	$430,944	$449,864	$90,145
	Silver salts—			
	Ounces	2,027,719	1,743,882	1,252,604
	Value	$726,222	$683,761	$499,345
	Platinum salts—			
	Ounces	1,561	19,068	7,312
	Value	$19,123	$175,682	$54,600
	Chloroform—			
	Pounds	1,861,435	616,670	396,540
	Value	$472,759	$165,604	$98,070
XI	Fine chemicals—Continued.			
	Ether—			
	Pounds	1,177,886	660,783	263,238
	Value	$199,448	$334,935	$129,876
	Acetone—			
	Pounds	6,927,886	1,300,395	1,638,715
	Value	$719,895	$161,320	$178,666
	Other	$5,199,584	$4,248,898	$1,426,373
XII	Chemicals, not elsewhere specified:			
	Glycerin—			
	Pounds	33,986,974	18,791,997	15,383,798
	Value	$4,838,826	$2,345,205	$2,012,886
	Epsom salts—			
	Pounds	21,546,297	15,935,837	6,073,309
	Value	$189,291	$145,801	$45,966
	Blue vitriol—			
	Pounds	810,958	50,100	7,500,000
	Value	$37,626	$2,500	$375,000
	Copperas—			
	Pounds	24,199,526	8,815,059	14,097,905
	Value	$71,081	$28,061	$58,581
	Phosphates of soda—			
	Pounds	24,541,801	12,018,815	3,478,350
	Value	$539,001	$243,822	$104,554
	Tin compounds—			
	Pounds	10,293,377	9,573,719	4,677,471
	Value	$1,535,350	$904,679	$470,169
	Zinc salts—			
	Pounds	20,741,225	(4)	(4)
	Value	$868,799	(4)	(4)
	Other chemicals	$22,239,550	$13,748,250	$15,786,487
	By-products and residues sold to other industries	$4,530,024	$5,743,070	

[1] In addition, the following products were produced in 1909 by establishments engaged primarily in the manufacture of products other than those covered by the industry designation:

	Pounds.	Value.		Pounds.	Value.
Total		$9,105,458	Pyroxylin plastics		$292,560
Acids:			Compressed or liquefied gases:		
Acetic	4,959,985	200,740	Anhydrous ammonia [c]	167,770	40,923
Hydrofluoric	2,051,951	79,722	Carbon dioxide	454,354	19,202
Muriatic	74,820,143	587,253	Laughing gas	24,500	4,900
Oleic	2,959,346	165,091	Oxygen, gallons	23,826,325	79,319
Stearic	5,094,774	399,386	Other		9,072
Other [a]		49,530	Chloroform	8,250	4,779
Sodas:			Acetone	2,007,564	210,287
Sal soda, tons	10,822	184,297	Glycerin [d]	1,022,920	123,472
Other [b], tons		778,237	Blue vitriol	37,185,585	1,496,645
Alums	33,854,100	251,393	Copperas	3,031,566	53,372
Coal-tar distillery products		1,610,792	Phosphates of soda	310,588	27,034
Bleaching materials:			Zinc salts	4,312,988	103,503
Hydrogen peroxide	521,851	20,124	Other chemicals		2,269,412
Bisulphite	3,062,000	23,650			
Other		20,703			

[a] Not including acids reported by manufacturers of explosives and fertilizers.
[b] Including sodas reported by manufacturers of paints and varnishes and fertilizers.
[c] Not including 4,871,014 pounds, valued at $448,455, reported by manufacturers of coke.
[d] Not including 52,518,919 pounds, valued at $6,790,264, reported by manufacturers of soap.

[2] In addition, similar products to the value of $3,063,397 were produced in 1904 by establishments engaged primarily in the manufacture of products other than those covered by the industry designation:

	Pounds.	Value.		Pounds.	Value.
Total		$3,063,397	Coal-tar distillery products		$238,645
Acids:			Bleaching materials:		
Muriatic	47,018,080	431,938	Bisulphite, tons	536	$11,937
Stearic	1,750,000	140,000	Glycerin	520,000	53,000
Hydrofluoric	1,217,578	71,668	Ether	193,628	92,466
Other		146,716	Epsom salts	1,350,000	13,500
Sodas:			Blue vitriol	107,100	5,994
Sal soda, tons	1,763	20,561	Copperas	81,816	588
Caustic, tons	14	668	Tin salts	1,103,222	188,301
Other, tons	14,200	363,765	Other chemicals		742,467
Alums	33,074,340	532,185			

[3] For sulphuric, nitric, and mixed acids, see special report therefor.
[4] Not reported separately.
[5] See "Chemical substances produced by the aid of electricity" for additional product.
[6] Figures not available.
[7] Not reported.

Table 18 shows the per cent distribution of the total value of products by groups for 1909, 1904, and 1899.

Table 18

Group.	PRODUCT.	PER CENT OF TOTAL VALUE OF PRODUCTS. 1909	1904	1899
	Total value of products	100.0	100.0	100.0
I	Acids	10.1	10.1	6.6
II	Sodas	18.2	22.4	24.1
III	Potashes	0.1	0.7	0.4
IV	Alums	2.2	2.8	4.2
V	Coal-tar products	2.3	1.1	2.8
VI	Cyanides	1.7	1.6	3.3
VII	Bleaching materials	1.4	1.0	1.0
VIII	Chemicals produced by the aid of electricity	15.3	7.8	2.7
IX	Plastics	6.1	6.3	4.4
X	Compressed and liquefied gases	4.2	3.7	2.5
XI	Fine chemicals	9.3	12.2	8.8
XII	Chemicals not elsewhere specified	25.3	22.6	39.2
XIII	By-products and residues	3.8	7.6	

Leaving out of consideration Group XII (chemicals not elsewhere specified), which is a miscellaneous group including a number of widely differing products, sodas (Group II) constitute the most important group, contributing nearly one-fifth (18.2 per cent) of the total value of products for the industry in 1909, although the proportion was somewhat less than in either 1904 or 1899.

Chemicals produced by the aid of electricity (Group VIII) rank second in importance in 1909, representing 15.3 per cent of the total value, as against only 2.7 per cent in 1899, while acids rank third with 10.1 per cent of the total, the same proportion as in 1904. Fine chemicals (Group XI), which ranked next to sodas in 1904, had dropped to fourth place in 1909.

Products, by states.—Table 19 shows, by states, the quantities and values of such of the more important products of the chemical industry in 1909 as can be shown by states, and the quantities produced in 1904 and 1899, so far as this can be done without disclosing individual operations.

Table 19

SPECIFIED PRODUCTS OF THE CHEMICAL INDUSTRY, BY STATES.

PRODUCT AND STATE.	Value: 1909	Quantity. 1909	1904	1899
		Pounds.	*Pounds.*	*Pounds.*
Potashes	$88,940	1,866,570	[1] 1,811,037	3,764,806
Michigan	53,319	1,049,102	.....	1,869,116
Ohio	5,760	91,117	.....	852,200
All other states	29,861	726,351	.....	1,043,490
		Tons.	*Tons.*	*Tons.*
Alums	2,578,842	113,422	84,516	76,260
Pennsylvania	1,139,000	42,137	50,416	38,216
All other states	1,439,842	71,285	34,100	38,044
Coal-tar products	2,675,327	.....	.....	.....
Ohio	607,514	.....	.....	.....
Pennsylvania	318,946	.....	.....	.....
All other states	1,748,867	.....	.....	.....
Bleaching materials:				
Hydrogen peroxide	850,417	4,702	(2)	(2)
New York	691,008	3,434	.....	.....
All other states	159,409	1,268	.....	.....
Bisulphites	202,504	14,328	(2)	(2)
Massachusetts	142,841	9,450	.....	.....
All other states	59,663	4,878	.....	.....
Electrochemical products:				
Caustic soda	1,032,647	19,428	(2)	(2)
New York	925,638	16,145	.....	.....
All other states	107,009	3,283	.....	.....
Hypochlorites	1,506,831	45,976	(2)	(2)
New York	1,113,887	28,591	.....	.....
All other states	392,944	17,385	.....	.....
Compressed and liquefied gases:		*Pounds.*	*Pounds.*	*Pounds.*
Anhydrous ammonia	2,503,315	11,802,076	(2)	(2)
New Jersey	319,590	1,386,927	.....	.....
All other states	2,183,725	10,415,149	.....	.....
Compressed and liquefied gases—Continued.				
Carbon dioxide (carbonic acid gas)	$2,317,808	*Pounds.* 47,238,267	*Pounds.* (2)	*Pounds.* (2)
California	121,491	2,798,230	.....	.....
Illinois	399,746	11,169,540	.....	.....
New York	548,893	10,738,557	.....	.....
Ohio	158,888	2,588,738	.....	.....
Pennsylvania	163,330	3,067,480	.....	.....
All other states	925,460	16,875,722	.....	.....
		Cubic feet.		
Oxygen	98,150	637,000	(2)	(2)
Massachusetts	15,409	82,000	.....	.....
New York	58,110	392,000	.....	.....
All other states	24,631	163,000	.....	.....
Fine chemicals:		*Ounces.*	*Ounces.*	*Ounces.*
Gold salts	430,944	42,544	59,969	8,594
Pennsylvania	35,630	3,059	6,435	2,500
All other states	395,314	39,485	53,534	6,094
Silver salts	726,222	2,027,719	1,743,882	1,252,604
Pennsylvania	299,414	863,128	521,161	650,907
All other states	426,808	1,164,591	1,222,721	601,697
		Pounds.	*Pounds.*	*Pounds.*
Chloroform	472,759	1,861,435	616,670	396,540
New York	417,204	1,647,506	150,000	62,540
All other states	55,555	213,929	466,670	334,000
Chemicals not otherwise specified:				
Copperas	71,081	24,199,526	8,815,059	14,097,905
Pennsylvania	48,062	21,531,000	6,932,050	3,000,000
All other states	23,019	2,668,526	1,883,009	11,097,905
Phosphates of soda	539,001	24,541,801	12,018,815	3,478,350
New Jersey	377,667	17,212,576	6,428,552	.....
All other states	161,334	7,329,225	5,590,263	3,478,350
Tin compounds	1,535,350	10,293,377	9,573,719	4,677,471
New Jersey	741,893	7,458,981	2,869,500	3,130,578
All other states	793,457	2,834,396	6,704,219	1,546,893

[1] Exclusive of 3,302,669 pounds of potash salts which were combined with potashes in general report.

[2] Figures not available.

Individual groups of products.—*Group I—Acids.*—The first of the groups into which the products of the chemical industry are divided comprises the acids of commerce. The production of sulphuric, nitric, and mixed acids by establishments manufacturing them as primary products is, however, not included, such establishments constituting a separate industry under the classification employed by the Bureau of the Census. A considerable amount of these acids (chiefly sulphuric acid) was, however, produced by establishments engaged primarily in the chemical industry as defined by the Bureau of the Census, and this production is included in Table 17 under the heading of "Other acids," contributing the greater part of the value shown for this item. The total production of sulphuric, nitric, and mixed acids in all industries, so far as reported, is shown in the special report on the manufacture of these acids.

Muriatic or hydrochloric acid is the most important of the acids shown separately in Table 17, its value representing 9.8 per cent of the total for the group in 1909. Table 20 shows statistics for 1909, 1904, and 1899 of the production of muriatic acid by all establishments, including that consumed in the establishments where produced; the latter constituting 17 per cent of total production in 1909 and 13.1 per cent in 1899.

Table 20

TOTAL PRODUCTION OF MURIATIC ACID—ALL INDUSTRIES.

	1909	1904	1899	Per cent of increase.[1] 1899–1909	1904–1909	1899–1904
Number of establishments reporting	38	36	31	22.6	5.6	16.1
Total quantity (pounds)	244,719,817	188,538,396	134,229,012	82.3	29.8	40.5
For sale:						
Quantity (pounds)	203,200,479	127,502,682	116,675,109	74.2	59.4	9.3
Value	$1,758,335	$1,180,910	$1,015,915	73.1	48.9	16.2
Consumed in establishments where produced (pounds)	41,519,338	61,035,714	17,553,903	136.5	–32.0	247.7

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

Table 21 shows, by states, the number of all establishments manufacturing muriatic acid in 1909, 1904, and 1899.

Table 21

STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING MURIATIC ACID. 1909	1904	1899	STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING MURIATIC ACID. 1909	1904	1899
United States	38	36	31	Maryland	.....	1	.....
California	4	4	3	Massachusetts	2	3	2
Colorado	1	1	1	Michigan	3	3	1
Connecticut	3	.....	1	Missouri	1	.....	1
Illinois	3	1	3	New Jersey	6	5	6
Indiana	1	1	2	New York	6	5	4
Kansas	1	1	.....	Ohio	3	2	2
Louisiana	1	.....	.....	Pennsylvania	3	9	5

Table 22 shows statistics for 1909, 1904, and 1899 for all establishments manufacturing acetic acid, including that consumed in the establishments where produced.

Table 22

	TOTAL PRODUCTION OF ACETIC ACID—ALL INDUSTRIES.					
	1909	1904	1899	Per cent of increase.[1]		
				1899–1909	1904–1909	1899–1904
Number of establishments reporting	13	12	14	−7.1	8.3	−14.3
Total quantity (pounds)	58,000,602	29,506,021	27,875,222	108.1	90.6	5.8
For sale:						
Quantity (pounds)	56,923,773	27,074,280	26,660,555	113.5	110.2	1.6
Value	$1,336,874	$568,600	$426,892	213.2	135.1	33.2
Consumed in establishments where produced (pounds)	1,076,829	2,431,741	1,214,667	−11.3	−55.7	100.2

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

Acetic acid, as considered in the census returns, does not include the acetic acid produced by the oxidation of alcohol through fermentation or otherwise, and known as vinegar. The commercial grades of acetic acid contain from 28 to 90 per cent of real acetic acid.

Table 23 shows, by states, the number of all establishments manufacturing acetic acid in 1909, 1904, and 1899.

Table 23

STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING ACETIC ACID.			STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING ACETIC ACID.		
	1909	1904	1899		1909	1904	1899
United States	13	12	14	Michigan	1	.....	.....
Connecticut	2	.....	.....	Missouri	1	.....	.....
Illinois	1	.....	2	New Jersey	2	5	2
Indiana	1	.....	.....	New York	1	1	3
Maryland	.....	1	.....	Pennsylvania	1	2	3
Massachusetts	3	3	2				

Of the 13 establishments reported in 1909, 8 were in the chemical industry and 5 were engaged primarily in the manufacture of other products, reporting this acid as a subsidiary product.

Table 24 shows statistics for all establishments manufacturing minor acids in 1909, 1904, and 1899, including those consumed in the establishments where produced, so far as statistics thereof are available.

Table 24

PRODUCT.	TOTAL PRODUCTION OF MINOR ACIDS—ALL INDUSTRIES.					
	1909	1904	1899	Per cent of increase.[1]		
				1899–1909	1904–1909	1899–1904
Boric acid:						
Number of establishments reporting	5	7	3	.....	.....	.....
Quantity (pounds)	5,554,914	6,956,896	2,684,935	106.9	−20.2	159.1
Value	$295,776	$527,190	$198,212	49.2	−43.9	166.0
Citric acid:						
Number of establishments reporting	5	4	[2] 3	.....	.....	.....
Quantity (pounds)	2,102,256	2,265,691	[2] 3,886,382	(3)	−7.2	(3)
Value	$777,235	$598,718	[2] $335,297	(3)	29.8	(3)
Lactic acid:						
Number of establishments reporting	4	3	(4)	.....	.....	.....
Quantity (pounds)	4,200,025	2,906,555	(4)	.....	44.5	.....
Value	$176,654	$158,911	(4)	.....	11.2	.....
Hydrofluoric acid:						
Number of establishments reporting	10	6	4	.....	.....	.....
Total quantity (pounds)	8,027,290	.....	.....	.....	.....	.....
For sale—						
Quantity (pounds)	6,842,914	2,932,358	698,000	880.4	133.4	320.1
Value	$294,379	$151,218	$34,890	743.7	94.7	333.4
Consumed in establishments where produced (pounds)	1,184,376	(5)	(5)	.....	.....	.....
Oleic acid:						
Number of establishments reporting	8	(6)	(6)	.....	.....	.....
Quantity (pounds)	16,377,063	.....	.....	.....	.....	.....
Value	$845,106	(5)	(5)	.....	.....	.....

PRODUCT.	TOTAL PRODUCTION OF MINOR ACIDS—ALL INDUSTRIES.					
	1909	1904	1899	Per cent of increase.[1]		
				1899–1909	1904–1909	1899–1904
Phosphoric acid:						
Number of establishments reporting	9	9	(6)	.....	.....	.....
Total quantity (pounds)	50,290,006	.....	.....	.....	.....	.....
For sale—						
Quantity (pounds)	26,282,839	991,050	.....	.....	2,552.0	.....
Value	$508,163	$68,541	(5)	.....	641.4	.....
Consumed in establishments where produced (pounds)	24,007,167	(5)	(5)	.....	.....	.....
Stearic acid:						
Number of establishments reporting	11	(6)	(6)	.....	.....	.....
Quantity (pounds)	12,381,601	.....	.....	.....	.....	.....
For sale—						
Quantity (pounds)	11,933,692	.....	.....	.....	.....	.....
Value	$975,327	(6)	(6)	.....	.....	.....
Consumed in establishments where produced (pounds)	447,909	(5)	(5)	.....	.....	.....
Other acids:						
Number of establishments reporting	22	15	16	.....	.....	.....
Value [7]	$2,466,283	$1,172,119	$1,287,481	.....	.....	.....

[1] A minus sign (−) denotes decrease.
[2] Includes lactic acid.
[3] Figures not strictly comparable.
[4] Included in citric acid.
[5] Not reported.
[6] Included in "other acids."
[7] Includes, for 1909, tartaric, chromic, hydrofluosilicic, carbolic, pyroligneous, and molybdic acids in the order named to the value of $759,708, and undesignated acids to the value of $1,706,575.

Group II—Sodas.—The class of sodas, as shown in Table 17, comprises soda ash, including white or refined alkali; sal soda, including natural soda, mild mineral alkali, soda crystals, washing soda, or crystalized sodium carbonate; bicarbonate of soda, including baking soda, saleratus, and sodium hydrogen carbonate; caustic soda, including soda lye and sodium hydroxide; borax, including borax glass, lime and sodium borates, and sodium biborate; and other soda products, under which heading are included nitrate, sulphate, and sulphide of soda made by soda establishments, and in addition the products of compounders or packers who give an added value to soda lye or the carbonate.

Table 25 shows statistics for all establishments manufacturing sodas for each census from 1889 to 1909, inclusive. In order to make the statistics for 1909 comparable with those for earlier censuses, the figures are confined to the major soda products, viz, bicarbonate of soda, caustic soda, sal soda, and soda ash.

Table 25

KIND AND CENSUS.	TOTAL PRODUCTION OF SPECIFIED SODAS—ALL INDUSTRIES.		
	Number of establishments reporting.	Quantity (tons).	Value.
Total:			
1909	**65**	**947,576**	**$18,304,583**
1904	**63**	**734,209**	**13,357,983**
1899	**50**	**680,541**	**10,237,944**
1889	**32**	**166,562**	**5,432,400**
Bicarbonate of soda:			
1909	7	82,800	1,515,031
1904		68,867	1,135,610
1899		68,856	1,332,765
1889		30,339	2,009,800
Caustic soda:			
1909	17	[1] 131,612	[1] 5,264,887
1904		86,840	3,185,959
1899		166,783	3,170,280
1889		16,501	661,114
Sal soda:			
1909	50	87,107	1,162,009
1904		59,548	831,869
1899		63,249	875,243
1889		72,322	1,581,766
Soda ash:			
1909	11	646,057	10,362,656
1904		518,954	8,204,545
1899		390,653	4,859,656
1889		47,400	1,179,720
Per cent of increase: [2]			
Total—			
1899–1909		**37.4**	**78.8**
1904–1909		**29.1**	**37.0**
1899–1904		**8.5**	**30.5**
1889–1899		**314.0**	**88.5**
Bicarbonate of soda:			
1899–1909		20.2	13.7
1904–1909		20.2	33.4
1899–1904		[3]	−14.8
1889–1899		127.0	−33.7
Caustic soda:			
1899–1909		−21.1	66.1
1904–1909		51.6	65.3
1899–1904		−47.9	0.5
1889–1899		910.7	379.5
Sal soda:			
1899–1909		37.7	32.8
1904–1909		46.3	39.7
1899–1904		−5.9	−5.0
1889–1899		−12.5	−44.7
Soda ash:			
1899–1909		65.4	113.2
1904–1909		24.5	26.3
1899–1904		32.8	68.8
1889–1899		724.2	311.9

[1] Includes 19,428 tons of caustic soda, valued at $1,032,647, reported under "chemicals produced by the aid of electricity."
[2] A minus sign (−) denotes decrease.
[3] Less than one-tenth of 1 per cent.

Soda ash is the most important of these products, both in quantity and value, while caustic soda ranks next. There has been a steady growth since 1889 in the quantity and value of the sodas produced, the total tonnage of these products in 1909 being more than five times and the value more than three times that in 1889. Each class with the exception of caustic soda shows a considerable relative increase in quantity for the decade 1899–1909, the largest increase (65.4 per cent) being that for soda ash.

Table 26 shows, by states, the number of all establishments manufacturing sodas in 1909, 1904, and 1899.

Table 26

STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING SODAS.			STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING SODAS.		
	1909	1904	1899		1909	1904	1899
United States	[1] 65	63	55	Montana	1	1	.....
California	8	6	6	Nevada	1	2	5
Colorado	1	1	.....	New Jersey	3	7	3
Georgia	2	.....	.....	New York	8	9	12
Illinois	6	4	4	Ohio	3	4	1
Indiana	3	3	2	Pennsylvania	3	8	9
Iowa	2	.....	.....	Rhode Island	1	.....	1
Kansas	2	1	.....	Virginia	1	1	1
Maryland	4	1	1	Washington	1	.....	.....
Massachusetts	3	3	1	Wisconsin	3	4	4
Michigan	5	5	3	Wyoming	1	1	.....
Missouri	3	2	2				

[1] Includes 5 establishments producing caustic soda reported under "chemicals produced by the aid of electricity."

Group III—Potashes.—Properly speaking, the term "potash" includes only potassium carbonate in its various forms and degrees of purity. The term has long been applied, however, to potassium hydroxide or caustic potash and this substance has been included with potassium carbonate in the statistics of products given in this report. The group "potashes" covers four products commercially distinguished, namely, (1) Potash or black salts, or black flux, which is the unrefined potassium carbonate produced by calcining stone ash, argols, or wine lees; (2) pearlash, or white flux, which is refined potassium carbonate; (3) stone ash, known also as crude potash or lump potash, which is a mixture of potassium carbonate, potassium hydroxide, and potassium sulphate with various organic and inorganic matter; and (4) potassium hydroxide, or caustic potash. There is included in Table 17 such of these potashes as were reported.

Table 27 shows statistics of all establishments manufacturing potashes for each census from 1849 to 1909, inclusive, such establishments being assigned to the chemical industry.

Table 27

CENSUS.	PRODUCTION OF POTASHES IN THE CHEMICAL INDUSTRY.		
	Number of establishments reporting.	Quantity (pounds).	Value.
1909	31	1,866,570	$88,940
1904	39	1,811,037	104,655
1899	67	3,884,766	178,180
1889	75	5,106,939	197,507
1870	68	4,571,671	232,643
1860	105	[1]	327,671
1859	212	[1]	538,550
1849	569	[1]	1,401,533

[1] Not reported.

There was a steady decrease in the value of potash products from 1849 to 1909. Statistics as to quantity of output were not obtained until the census of 1879. From 1879 to 1904 the output decreased, but between 1904 and 1909 it increased slightly.

Of the total quantity of potashes reported for 1909, 1,049,102 pounds, valued at $53,319, were reported from Michigan.

The product shown in the table for 1909 includes the solid and liquid potash produced electrolytically by one establishment in New York.

Group IV—Alums.—The group of alums comprises alum cake, or crude aluminum sulphate; concentrated alum, or crystalized aluminum sulphate; potash, ammonia, and soda alums and all other double sulphates of aluminum with alkali metals or their isomorphs, such as chrome alum; burnt alum; porous alum, which is effloresced soda alum in various degrees of purity; alumino-ferric cake, or alum cake containing a considerable amount of iron; and aluminum hydrate or hydroxide.

In addition to the production, as shown in Table 19, for 1909 (113,422 tons), there was a large production by establishments engaged primarily in the manufacture of sulphuric, nitric, and mixed acids and of paint and varnish. Table 28 shows statistics for all establishments producing alums in 1909, 1904, and 1899, including that consumed in the establishments where produced in 1909 and 1899.

Table 28 TOTAL PRODUCTION OF ALUMS—ALL INDUSTRIES.

	1909	1904	1899	Per cent of increase.[1] 1899-1909	1904-1909	1899-1904
Total quantity (tons)	**139,917**	**112,772**	**92,323**	**51.6**	**24.1**	**21.1**
For sale:						
Quantity (tons)	138,147	112,772	89,734	54.0	22.5	25.7
Value	$3,022,355	$2,956,844	$2,446,576	23.5	2.2	20.9
Consumed in establishments where produced (tons)	1,770	(2)	2,589	-31.6	.....	.....

[1] A minus sign (—) denotes decrease. [2] Figures not available.

The quantity of alums consumed in the establishments where produced was not reported in 1904, and it is probable that such alums were not in all cases reported for 1909. Table 29 shows the quantity and value of the several kinds of alum produced for sale in 1909, 1904, and 1899.

Table 29 TOTAL PRODUCTION OF ALUMS—ALL INDUSTRIES.

PRODUCT.	1909		1904		1899	
	Quantity (tons).	Value.	Quantity. (tons).	Value.	Quantity. (tons).	Value.
Total	**138,147**	**$3,022,355**	**112,772**	**$2,956,844**	**89,734**	**$2,446,576**
Alum cake	13,501	274,307	9,748	161,906	2,024	34,047
Burnt alum	5,873	209,904	7,929	364,328	3,315	174,600
Concentrated alum	27,439	468,795	40,460	972,892	51,508	1,062,547
Potash alum	5,127	155,319	5,154	156,448	7,100	215,004
Soda alum	359	14,360	41	4,923	4,700	228,500
Other alums	85,848	1,899,670	49,440	1,296,347	21,087	731,878

It seems probable that the statistics for the products shown separately in the table may not in all cases represent the total output of the specified product, as some establishments making these products may not have reported them separately but included them under "other alums." Some manufacturers, moreover, do not consider soda alum, which is known in the trade as "C. T. S.," or cream of tartar substitute, as an alum, and hence may have reported it under Group XII (chemicals, not elsewhere specified). As the extent to which the different products were reported under other headings may have varied at different censuses, the figures for the different years may not be entirely comparable. Of the products shown separately in the table, concentrated alum was the most important in 1909, both in quantity and in value of output, alum cake coming next.

The 85,848 tons of "other alums" shown for 1909 include 50,298 tons of aluminum sulphate, valued at $843,956; 11,758 tons of porous alum, valued at $471,378; 3,672 tons of sodic aluminum sulphate, valued at $119,581; 950 tons of aluminum hydroxide, valued at $46,917; and 19,170 tons of unspecified kinds of alum, valued at $417,838.

Table 30 shows, by states, for 1909, 1904, and 1899, the total value of the alums produced for sale both in the chemical and in other industries.

Table 30 TOTAL VALUE OF ALUMS MANUFACTURED—ALL INDUSTRIES.

STATE.	1909	1904	1899
United States	**$3,022,355**	**$2,956,844**	**$2,446,576**
Massachusetts	(1)	270,614	306,754
Illinois	440,976	481,754	(1)
New York	646,437	(1)	(1)
Pennsylvania	1,390,589	1,479,340	1,411,052
All other states [2]	544,353	725,136	728,170

[1] Included with "all other states."
[2] Includes, for 1909, Massachusetts, Michigan, Nebraska, and New Jersey; for 1904, California, Michigan, New York, and Ohio; for 1899, Illinois, New York, and Michigan.

Pennsylvania is the leading state in the production of alums, reporting 46 per cent of the total value for 1909, as compared with 50 per cent in 1904, and 57.7 per cent in 1899; the alum output of the state, however, shows a decrease of 6 per cent in value between 1904 and 1909.

Table 31 shows, by states, the number of establishments manufacturing alums in 1909, 1904, and 1899.

Table 31

STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING ALUMS. 1909	1904	1899	STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING ALUMS. 1909	1904	1899
United States	**19**	**17**	**13**	Nebraska	1	.....	.....
California	.....	1	.....	New Jersey	1	.....	.....
Illinois	2	3	1	New York	4	2	2
Massachusetts	2	3	3	Ohio	.....	1	.....
Michigan	2	1	1	Pennsylvania	7	6	6

Group V—Coal-tar products.—Coal tar is produced in the destructive distillation of bituminous coal, and is, therefore, a by-product of the coal-gas industry and of the coke industry when by-product ovens are used. The products obtained from it are reported under two heads: (1) The direct products of the distillation of coal-tar sold as such, which include pitch, creosote oil, dead oil, and other tar oils, benzol (benzene), toluol, xylol, naphthalene, anthracene, and other coal-tar hydrocarbons, phenol (carbolic acid), cresol, naphthol,

resorcin, or resorcinol, and other coal-tar tertiary alcohols, and aniline, toluidine, xylidine, and other coal-tar amines; and (2) chemicals made from coal-tar distillery products, which include the aldehydes, acids, ketones, salts, and various other so-called benzene derivatives. The latter cover the coal-tar dyes, which are also produced by establishments assigned to the classification "dyestuffs and extracts," and many nitro-substitution compounds and synthetic preparations which are also made by establishments assigned to the classification "oil, essential," and also a number of substances, such as are included under the heading of "fine chemicals" in Table 17. Many establishments distilling coal tar consume part of the product in the manufacture of roofing felt, roofing paper, and roofing preparations or paints, and hence are classified as engaged in other industries. On account of the great diversity existing in the kind and the value of the products, only the total value is given.

Table 32 shows, by states, for 1909, 1904, and 1899, the total value of the coal-tar products reported by all establishments, whether in the chemical industry or in other industries.

Table 32

STATE.	TOTAL VALUE OF COAL-TAR PRODUCTS—ALL INDUSTRIES.		
	1909	1904	1899
United States	$4,286,119	$3,984,821	$1,421,720
Massachusetts	526,025	175,978	(1)
Missouri	183,473	284,637	415,600
New York	262,299	926,329	44,016
Ohio	607,514	463,001	(1)
Pennsylvania	783,382	375,757	396,759
All other states [2]	1,923,426	1,759,119	565,345

[1] Included in "all other states."
[2] Includes for 1909: Alabama, Illinois, Kentucky, Louisiana, Michigan, Minnesota, Nebraska, New Jersey, Tennessee, and Wisconsin; for 1904, California, Illinois, Maine, Michigan, New Jersey, Rhode Island, and Tennessee; and for 1899, California, Louisiana, Massachusetts, Minnesota, New Jersey, Ohio, and Tennessee.

The total value of coal-tar products increased from $1,421,720 to $4,286,119, or 201.5 per cent, during the decade. Of the states shown separately in the table, Pennsylvania leads, followed by Ohio and Massachusetts. New Jersey and Illinois, which are included under "all other states," were also important states in the manufacture of coal-tar products in 1909. The value of the coal-tar products reported from New York shows a considerable decrease, amounting to 71.7 per cent for the five-year period 1904–1909. Missouri also shows a decrease from 1904 to 1909. Massachusetts, Pennsylvania, and Ohio, on the other hand, show considerable increases.

Table 33 shows, by states, the total number of establishments reporting coal-tar products in 1909, 1904, and 1899.

Table 33

STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING COAL-TAR PRODUCTS.			STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING COAL-TAR PRODUCTS.		
	1909	1904	1899		1909	1904	1899
United States	42	39	22	Minnesota	2	.....	1
Alabama	1	.....	.....	Missouri	3	3	3
California and Maine	.....	4	1	Nebraska	1	.....	.....
Connecticut	1	.....	.....	New Jersey	3	8	2
District of Columbia	1	.....	.....	New York	5	8	3
Georgia	1	.....	.....	Ohio	3	3	2
Illinois	1	1	.....	Pennsylvania	7	6	6
Indiana	1	.....	.....	Rhode Island	1	1	.....
Kentucky	2	.....	.....	Tennessee	1	1	1
Louisiana	1	.....	1	Washington	1	.....	.....
Massachusetts	3	3	2	Wisconsin	1	.....	.....
Michigan	2	1	.....				

Group VI—Cyanides.—The cyanides reported for 1909 comprise sodium cyanide, yellow prussiate of potash (prussiate of soda), and potassium cyanide. Only the production of yellow prussiate of potash, however, can be given separately, 3,510,208 pounds of this product, valued at $463,983, being reported for 1909.

Table 34 shows the quantity and value of cyanides produced by establishments in all industries in 1909, 1904, and 1899.

Table 34

	TOTAL PRODUCTION OF CYANIDES—ALL INDUSTRIES.					
	1909	1904	1899	Per cent of increase.		
				1899–1909	1904–1909	1899–1904
Total quantity (pounds)	13,291,080	11,196,318	8,460,989	57.1	18.7	32.3
Value	$1,941,893	$1,710,823	$1,595,505	21.7	13.5	7.2

In 1909 the entire production was reported by establishments assigned to the chemical industry, as defined by the Bureau of the Census, but in 1904 cyanides to the value of $531,719, and in 1899 cyanides to the value of $10,582, were produced as secondary products by establishments in other industries, these amounts being included in the above table.

Table 35 shows, by states, the total number of establishments manufacturing cyanides in 1909, 1904, and 1899.

Table 35

STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING CYANIDES.			STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING CYANIDES.		
	1909	1904	1899		1909	1904	1899
United States	7	11	18	Ohio	2	2	3
Massachusetts	1	1	1	Pennsylvania	2	3	4
New Jersey	1	1	6	Maryland, Michigan, and Missouri	.....	2	4
New York	1	2	.....				

Group VII—Bleaching materials.—This group of products includes chlorine, chloride of lime (bleaching powder), chloride of soda and other hypochlorites, hydrogen dioxide (peroxide), sodium, magnesium, calcium, barium, and other dioxides (peroxides), sulphur dioxide or sulphurous acid, sulphites, and sodium, potassium, calcium, and other bisulphites. Many of these substances are now manufactured by the aid of electricity, and the products made in this manner are included in Group VIII (chemicals produced by the aid of electricity) in Tables 17 and 19.

Table 36 gives statistics of the bleaching materials reported as made in 1909, 1904, and 1899 by all establishments, whether in the chemical industry or in other industries. Bleaching materials manufactured by the aid of electricity are included.

Table 36

PRODUCT.	TOTAL PRODUCTION OF BLEACHING MATERIALS—ALL INDUSTRIES.					
	1909	1904	1899	Per cent of increase. 1899–1909	1904–1909	1899–1904
Total value	**$3,206,354**	**$1,158,064**	**$592,658**	**441.0**	**176.9**	**95.4**
Hypochlorites: [1]						
Quantity (tons)	58,401	19,588	10,979	431.9	198.1	78.4
Value	$1,786,846	$535,835	$462,949	286.0	233.5	15.7
Hydrogen peroxide:						
Quantity (tons)	4,963	2,185	294	1,588.1	127.1	643.2
Value	$870,541	$413,221	$63,754	1,265.5	110.7	548.1
Bisulphites:						
Quantity (tons)	16,059	6,223	1,461	999.2	158.1	325.9
Value	$226,154	$110,155	$34,486	555.8	105.3	219.4
Other bleaching agents [1]	$322,813	$98,853	$31,469	925.8	226.6	214.1

[1] Includes electrolytic products.

Hypochlorites constitute the most important class of bleaching materials manufactured, contributing 55.7 per cent of the total value of this class of products in 1909, while hydrogen peroxide ranks next. Under "other bleaching agents" are included liquid chlorine, sulphur dioxide, sodium bisulphate, aluminum chloride, and other agents not specified. There was a marked increase during the decade 1899–1909 in the manufacture of each class of bleaching materials, the output of hydrogen peroxide being nearly seventeen times as great in 1909 as in 1899, and that of bisulphites nearly eleven times as great.

Table 37 shows, by states, the total value of bleaching materials manufactured in 1909, 1904, and 1899.

Table 37

STATE.	TOTAL VALUE OF BLEACHING MATERIALS—ALL INDUSTRIES.		
	1909	1904	1899
United States	**$3,206,354**	**[1] $1,112,538**	**[2] $587,891**
Massachusetts	217,492	41,746	.....
Michigan	[3] 576,408	[4]	[4]
New Jersey	75,941	46,595	39,171
New York	[3] 2,045,893	799,521	407,327
All other states	[3] 290,620	224,676	141,493

[1] In addition, sulphur dioxide, valued at $45,526, was consumed in the establishment where produced.
[2] In addition, sulphur dioxide, valued at $4,667, was consumed in the establishment where produced.
[3] Includes electrolytic products.
[4] Included in "all other states."

New York reported nearly two-thirds of the value of the bleaching materials manufactured in 1909, and a little over two-thirds of the value in 1904 and 1899. The value of the bleaching materials manufactured in New York, the greater part of which consists of hypochlorites made by the electrolytic process, was more than five times as great in 1909 as in 1899.

Table 38 shows the total number of establishments manufacturing bleaching materials in 1909, 1904, and 1899.

Table 38

STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING BLEACHING MATERIALS.			STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING BLEACHING MATERIALS.		
	1909	1904	1899		1909	1904	1899
United States	**47**	**33**	**26**	Michigan	4	2	1
California	1	.....	.....	Missouri	2	2	2
Georgia	1	.....	.....	New Jersey	4	3	3
Indiana	1	.....	.....	New York	17	11	10
Illinois	3	.....	3	Ohio	2	3	1
Maryland	2	1	.....	Pennsylvania	2	7	6
Massachusetts	8	4	.....				

Group VIII—Chemicals produced by the aid of electricity.—The segregation of chemicals produced by the aid of electricity under a separate classification was made for the first time in the report on chemicals and allied products for the census of 1899. This branch of the chemical industry shows a rapid increase both in range of products and in their quantity and value. Many of the products are, or have until recently, been made under the protection of patents, the manufacture of a particular product being confined to one or two establishments; consequently detailed statistics of production can not be given for some of the most important products. The group includes some substances which are also made by other chemical processes, as, for example, caustic soda and hypochlorites, but only products produced by the aid of electricity are included in this group.

Table 39 shows the total production of chemicals produced by the aid of electricity in 1909, including that of establishments in other industries. The caustic soda product has also been included in the total production of sodas, as shown in Table 25, and the hypochlorites in the total production of bleaching materials, as shown in Table 36. As already explained, it is possible to give the output of only a few products without disclosing the operations of individual concerns.

The class "metals and alloys" includes aluminum, silicon, ferrovanadium, ferrosilicon, ferrotitanium, cuprovanadium, and other metals and alloys. Elements and compounds produced by the aid of electricity specifically reported and included under the heading of "all other" are phosphorus, sodium, aluminum, lead oxides, liquid chlorine, carbon disulphide, sodium carbonate, potash, and potassium bromide.

The most important class of products produced by the aid of electricity shown in the table, as measured

by value, is that comprising metals and alloys, which contributed 41.5 per cent of the total value of chemicals produced by the aid of electricity in 1909.

Table 39 TOTAL PRODUCTION OF CHEMICALS PRODUCED BY THE AID OF ELECTRICITY—ALL INDUSTRIES.

PRODUCT.	Number of establishments reporting.	Quantity (tons).	Value.
Total	**34**	.....	**$18,451,461**
Calcium carbide	4	60,973	2,984,001
Caustic soda [1]	5	19,428	1,032,647
Chlorates	5	5,785	904,550
Hypochlorites [2]	5	45,976	1,506,831
Metals and alloys	9	.....	7,053,084
Abrasives and electrodes	4	.....	1,415,799
All other	11	.....	2,953,649

[1] See Table 25 for total production of caustic soda, including that made in electrochemical establishments.
[2] See Table 36 for total production of hypochlorites, including those made in electrochemical establishments.

Table 40 shows, by geographic divisions, the value of products produced by the aid of electricity, for 1909, 1904, and 1899.

Table 40 TOTAL VALUE OF CHEMICALS PRODUCED BY THE AID OF ELECTRICITY—ALL INDUSTRIES.

DIVISION.	1909	1904	1899
United States	**$18,451,461**	**$7,068,246**	**$2,045,535**
North Atlantic	14,445,668	6,037,533	1,852,279
North Central	3,453,462	827,583	193,256
All other divisions	552,331	203,130	
Per cent of total	**100.0**	**100.0**	**100.0**
North Atlantic	78.3	85.4	90.6
North Central	18.7	11.7	9.4
All other divisions	3.0	2.9	

The value of all products produced by the aid of electricity in 1909 by all establishments, including those manufacturing them as secondary products, was $18,451,461, as compared with $7,068,246 in 1904 and $2,045,535 in 1899, an increase of 802 per cent for the decade, the increase for the five-year period 1899–1904, amounting to 245.5 per cent, and that for the five-year period 1904–1909 to 161 per cent.

Niagara Falls, N. Y., is the chief seat of the electrochemical industry, and it has held this position from the beginning, several large manufacturing establishments there employing electricity generated by the water power of the falls in the manufacture of chemical substances. The North Atlantic states reported 90.6 per cent of the total value of products produced by the aid of electricity in 1899 and 78.3 per cent in 1909. Of the total value of products produced by the aid of electricity in 1909, New York reported $13,401,878, or 72.6 per cent; Michigan, $1,513,198, or 8.2 per cent; Pennsylvania, $903,196, or 4.9 per cent; and all other states, $2,633,189, or 14.3 per cent.

Table 41 shows, by states, the number of establishments manufacturing products by the aid of electricity in 1909, 1904, and 1899.

Table 41

STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING PRODUCTS BY THE AID OF ELECTRICITY.			STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING PRODUCTS BY THE AID OF ELECTRICITY.		
	1909	1904	1899		1909	1904	1899
United States	**34**	**21**	**14**	New York	18	14	10
Illinois	1	.....	.....	Pennsylvania	3	.....	.....
Maine	1	1	1	Virginia	1	1	.....
Maryland	1	.....	.....	West Virginia	1	1	.....
Michigan	5	4	1	Connecticut	.....	.....	1
Minnesota	1	.....	.....	New Hampshire	.....	.....	1
New Jersey	2	.....	.....				

Group IX—Plastics.—This group embraces pyroxylin plastics (including those sold under such trade names as celluloid, xylonite, fiberloid, viscoloid, pegamoid, pyrolin, etc.), pyroxylin or soluble cotton, viscose, rubber substitutes, and all plastics formed by using caoutchouc, gutta-percha, casein, fibrin, gluten, gums, and glue, or other cementing material by which sawdust, wood pulp, bone dust, zinc oxide, antimony sulphide, kaolin, and other fillers are held in solid aggregations which may be molded or shaped. The value of the products reported under this head includes the value of finished goods manufactured from plastics in the establishments producing the plastic material. Table 42 shows the value of the production of plastics by establishments in all industries in 1909, 1904, and 1899.

Table 42 TOTAL VALUE OF PLASTICS PRODUCED IN ALL INDUSTRIES.

CLASS.	1909	1904	1899
Total value	**$7,472,732**	**[1] $3,949,124**	**[2] $3,191,330**
Pyroxylin plastics	5,682,379	2,136,976	1,526,572
Other plastics	1,790,353	1,812,148	1,664,758

[1] In addition, plastics valued at $3,244,553 were consumed in the establishments where produced.
[2] In addition, plastics valued at $2,009,185 were consumed in the establishments where produced.

The comparability of the returns for the different censuses may possibly be affected by variations in the extent to which manufactures of plastics were included; moreover, it is probable that some manufactured pyroxylin goods are included under "other plastics." The value of plastics, as reported, increased from $3,191,330 in 1899 to $7,472,732 in 1909, or 134.2 per cent, the relative increase being higher for the last half of the decade than for the first. Pyroxylin plastics are by far the most important class, contributing 76 per cent of the total in 1909. Of the total value reported for plastics in 1909, New Jersey contributed $4,634,200, or 62 per cent; Massachusetts, $2,127,742, or 28.5 per cent; New York, $556,005, or 7.4 per cent; and all other states, $154,785, or 2.1 per cent.

Table 43 shows, by states, the total number of establishments manufacturing plastics in 1909, 1904, and 1899.

Table 43

STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING PLASTICS.			STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING PLASTICS.		
	1909	1904	1899		1909	1904	1899
United States...	24	14	13				
California	1	.....	.....	Massachusetts	5	3	1
Connecticut	1	1	.....	Michigan	3	.....	.....
Florida	1	.....	.....	New Jersey	6	8	11
Illinois	1	.....	.....	New York	6	2	1

Group X—Compressed and liquefied gases.—This group of products embraces all gases that are compressed or liquefied for sale, with the exception of illuminating gases (acetylene and pintsch gas), the production of which is included under the gas industry. The gases of commerce which are handled in compressed form in considerable quantities are anhydrous ammonia, carbon dioxide (carbonic acid gas, CO_2), chlorine, oxygen, and laughing gas (nitrous oxide, N_2O). Others of minor importance are hydrogen, liquid air, and sulphur dioxide (sulphurous acid gas, SO_2). Table 44 shows statistics of the total production of these gases by establishments in all industries for 1909, 1904, and 1899.

Table 44

PRODUCT.	TOTAL PRODUCTION OF COMPRESSED AND LIQUEFIED GASES—ALL INDUSTRIES.					
	1909	1904	1899	Per cent of increase.		
				1899–1909	1904–1909	1899–1904
Total value	$5,571,820	$2,791,359	$1,230,797	352.0	99.6	126.8
Anhydrous ammonia:						
Quantity (pounds)...	16,840,860	5,752,233	2,443,729	589.1	192.8	135.4
Value	$2,992,693	$1,176,854	$438,157	583.0	154.3	168.6
Carbon dioxide (carbonic acid gas):						
Quantity (pounds)...	47,953,291	35,991,627	12,084,281	296.8	33.2	197.8
Value	$2,345,743	$1,343,966	$719,364	226.1	74.5	86.8
Laughing gas (nitrous oxide):						
Quantity (pounds)...	97,175	41,020	(1)	.....	136.9	.....
Value	$38,589	$28,311	(1)	.....	36.3	.....
Oxygen:						
Quantity (cubic feet).	3,814,000	(2)	(2)	.....	.....	.....
Value	$177,469	$69,246	$38,170	364.9	156.3	81.4
All other gases	$17,326	$172,982	$35,106	.....	.....	.....

[1] Included in "all other gases." [2] Comparable figures not available.

The growth in the production of compressed gases has been rapid, the value of all products of this group increasing during the decade from $1,230,797 to $5,571,820, or 352.7 per cent. This growth is chiefly due to the increasing amounts of anhydrous ammonia consumed in ice manufacture and refrigeration and of carbon dioxide consumed by the soda-fountain trade. The value of these two products represented 96 per cent of the total value of this class of products in 1909, that of anhydrous ammonia alone representing 53.8 per cent.

The anhydrous ammonia product for 1909 includes 4,871,014 pounds, valued at $448,455, reported by establishments engaged in the coke industry, where it is a product of the retort or by-product ovens. The value of compressed and liquefied gases, as shown in the table, does not include the value of the containers in which the gases are shipped to the consumers. These are returned to the factory, and the freight on the containers from and to the factory constitutes a considerable part of the cost of these products to the consumer.

The oxygen reported includes medicated oxygen, but the bulk of the product was straight oxygen; oxygen manufactured for use in the production of calcium lights is also included. Some establishments reported the quantity of oxygen in gallons, following the trade practice of former years, though most of the larger producers now use the cubic foot at atmospheric pressure as the unit of quantity; where the quantity was reported in gallons it was reduced to cubic feet on the basis of 7.5 gallons to 1 cubic foot.

Table 45 shows, by states, the total number of establishments manufacturing compressed and liquefied gases in 1909, 1904, and 1899, and the number manufacturing anhydrous ammonia and carbon dioxide in 1909. The manufacture of laughing gas was reported by 5 establishments in 1909 and oxygen by 20.

Table 45

STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING COMPRESSED AND LIQUEFIED GASES.				
	1909			1904	1899
	Total for all gases.	Anhydrous ammonia.	Carbon dioxide.		
United States	76	21	34	56	37
California	5	1	4	5	2
Colorado	1	1	1	1	.....
Connecticut	1	.....	.....	.....	.....
Delaware	.....	.....	.....	.....	1
Georgia	2	.....	2	2	.....
Illinois	7	2	4	3	3
Louisiana	1	.....	1	1	.....
Massachusetts	9	1	1	3	2
Michigan	.....	.....	.....	.....	1
Minnesota	4	1	2	3	.....
Missouri	5	2	3	4	2
New Jersey	7	5	2	6	7
New York	15	2	5	14	9
Ohio	4	1	3	3	3
Pennsylvania	9	4	3	7	5
Tennessee	1	.....	.....	.....	.....
Texas	1	.....	1	1	.....
Vermont	1	.....	.....	.....	1
Virginia	1	.....	1	1	.....
Washington	1	1	.....	.....	.....
Wisconsin	1	.....	1	2	1

Group XI—Fine chemicals.—This group of products embraces chemicals sold in the trade as chemically or absolutely pure; the chemicals which are more especially made use of in analytical operations, in scientific research, and in pharmacy; and chemicals like the salts of gold, of silver, and of platinum, for which the value per unit is high. Among the chemicals which are embraced here may be named chemically pure or "analyzed" acids, bases, and salts; acetone and other ketones; absolute alcohols and all alcohols other than commercial grain and wood alcohols; aldehydes, such as vanillin; alkaloids; elementary substances other than common and low-priced ones; enzymes, ferments, or diastases, such as pancreatin, pepsin, rennet, trypsin, lactose, sucrose, and zymose; esters

(ethereal salts or compound ethers); refined and artificial camphor; chloroform; and ethers, simple and mixed; rare earth compounds, such as the salts of cerium, lanthanum, thorium, radium, and uranium; terpenes; toxins and antitoxins; and urea and the ureides.

Table 46 shows the quantity and value of fine chemicals produced by establishments in all industries in 1909, 1904, and 1899, so far as they can be shown in detail.

Table 46

PRODUCT.	TOTAL PRODUCTION OF FINE CHEMICALS—ALL INDUSTRIES.		
	1909	1904	1899
Total value	**$11,532,086**	**$9,640,073**	.....
Alkaloids:			
Quantity (ounces)	3,482,617	5,797,925	4,054,478
Value	$3,188,914	$3,229,527	$1,750,503
Gold salts:			
Quantity (ounces)	42,544	47,041	12,347
Value	$430,944	$453,202	$120,690
Silver salts:			
Quantity (ounces)	2,030,399	1,899,081	1,606,108
Value	$727,428	$778,439	$627,252
Platinum salts:			
Quantity (ounces)	1,561	19,068	8,112
Value	$19,123	$175,682	$61,400
Refined camphor:			
Quantity (pounds)	[1] 821,030	[2] 1,166,372	[2] 598,708
Value	$431,616	$722,907	$254,190
Chloroform:			
Quantity (pounds)	1,869,685	616,670	[3]
Value	$477,538	$165,604	[3]
Ether:			
Quantity (pounds)	[4] 1,177,914	[5] 854,411	[6] 263,238
Value	$199,448	$427,401	$129,876
Acetone:			
Quantity (pounds)	8,935,446	[7] 1,300,395	1,638,715
Value	$930,182	$161,320	$178,666
All other	$5,126,893	$3,525,991	[3]

[1] Not including camphor consumed in the establishment where refined, which quantity exceeds that made for sale.
[2] Includes artificial camphor.
[3] Figures not available.
[4] In addition, 2,084,792 pounds were consumed in the establishments where produced.
[5] In addition, 3,384,763 pounds were consumed in the establishment where produced.
[6] In addition, 1,222,704 pounds were consumed in the establishment where produced.
[7] In addition, 288,820 pounds were consumed in the establishment where produced.

Alkaloids are the most important class of fine chemicals shown separately, contributing 27.7 per cent of the total value in 1909, while acetone ranked next. The production of alkaloids, however, decreased considerably during the five-year period 1904–1909, being less in 1909 than in 1899, although the value was nearly twice as great. There was also a marked decrease in the production of platinum salts, but chloroform, ether, and acetone show striking increases in output. The decrease in the average unit value of ether as reported, from 50 cents per pound in 1904 to 16 cents per pound in 1909, is chiefly due to the remission of the internal-revenue tax on alcohol used in chemical manufacture. Ether is largely, if not wholly, made from alcohol and the tax of $1.10 per proof gallon is theoretically equal to 36.7 cents per pound of ether.

The large proportion of the total value of this group of products included under the heading of "all other" suggests the possibility that a part of the output of some of the products shown specifically in the table may have been reported under this head and consequently that the statistics given do not show the total production of some of these substances. Among the numerous products included under the heading of "all other" for 1909 which were specifically reported were 43,660 pounds of thorium compounds, valued at $131,151; 1,470,568 pounds of amyl acetate, valued at $442,771; and 8,171 pounds of ethyl chloride, valued at $37,142.

Table 47 shows, by states, the total number of establishments manufacturing fine chemicals in 1909, 1904, and 1899.

Table 47

STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING FINE CHEMICALS.			STATE.	TOTAL NUMBER OF ESTABLISHMENTS MANUFACTURING FINE CHEMICALS.		
	1909	1904	1899		1909	1904	1499
United States	**63**	**67**	**49**	New Jersey	21	23	15
Colorado	1	1	1	New York	11	14	7
Connecticut	1	.....	.....	Ohio	8	3	2
Kentucky	1	.....	.....	Pennsylvania	7	11	13
Louisiana	1	.....	.....	Rhode Island	1	1	1
Massachusetts	4	2	1	Wisconsin	1	1	.....
Michigan	3	3	1	All other states	.....	4	6
Missouri	3	4	2				

Group XII—Chemicals, not elsewhere specified.—This class embraces all chemicals the production of which is covered by the chemical industry as defined by the Bureau of the Census and which are not included in the groups previously considered. Table 48 presents statistics of the total production by establishments in all industries of such of these chemicals as were reported separately.

Table 48

PRODUCT.	TOTAL PRODUCTION OF CHEMICALS NOT ELSEWHERE SPECIFIED—ALL INDUSTRIES.		
	1909	1904	1899
Total value	**$44,882,608**	.....	.....
Glycerin:			
Quantity (pounds)	[1] 81,885,536	46,972,658	26,512,454
Value	$11,752,562	$5,355,320	$3,096,601
Cream of tartar:			
Quantity (pounds)	15,592,937	15,650,000	10,981,680
Value	$2,925,883	$2,892,563	$2,117,704
Epsom salts:			
Quantity (pounds)	21,621,297	20,566,443	9,239,809
Value	$189,791	$215,088	$75,066
Blue vitriol:			
Quantity (pounds)	36,546,543	[2]	[2]
Value	$1,531,574	[2]	[2]
Copperas:			
Quantity (pounds)	25,637,092	9,700,104	27,595,909
Value	$78,467	$28,000	$199,869
Phosphate of soda:			
Quantity (pounds)	24,580,159	9,659,519	4,679,160
Value	$540,282	$244,373	$155,989
Tin compounds:			
Quantity (pounds)	10,293,377	11,621,378	6,259,794
Value	$1,535,350	$1,361,299	$603,937
Zinc salts:			
Quantity (pounds)	25,054,213	11,579,546	9,511,909
Value	$472,302	$201,771	$353,900
All other chemicals	$20,609,716	[2]	[2]
By-products and residues	$5,156,681	.....	.....

[1] In addition, there were 5,633,197 pounds with no value and 5,879,279 pounds used in establishments where produced.
[2] Figures not available.

Glycerin is the most important of the products shown separately in Table 48. Of the total production of glycerin shown in the table, which repre-

sents the output of establishments manufacturing chemicals either as chief or as secondary products, a large part was produced as a secondary product in the manufacture of soap. It was not manifest, in all cases, whether the product was refined or crude, and there is duplication in the figures representing the amount of the output to the extent that crude glycerin, the product of some establishments, was bought and refined by others, but the amount of this duplication can not be definitely ascertained.

Table 49 presents, by states, detailed statistics as to the glycerin produced in 1909. The total production, including that reported as of no value at the works, is given in order to show the total available supply in the United States.

Table 49 TOTAL PRODUCTION OF GLYCERIN—ALL INDUSTRIES: 1909

STATE.	Total quantity (pounds).	Reported with value.		Of no value at works (pounds).	Produced and consumed (pounds).
		Quantity (pounds).	Value.		
United States	**93,398,012**	**81,885,536**	**$11,752,562**	**5,633,197**	**5,879,279**
California	1,045,846	749,685	61,331	271,541	24,620
Illinois	15,671,677	13,767,008	1,858,320	514,684	1,389,985
Massachusetts	1,467,147	1,143,760	144,112	.....	323,387
Missouri	3,424,779	1,997,790	188,734	22,880	1,404,109
New Jersey	5,711,398	4,947,605	653,295	713,380	50,323
New York	28,829,614	27,785,268	3,979,485	1,044,346	.....
Ohio	18,722,210	17,185,148	2,891,709	966,372	570,690
Pennsylvania	2,646,169	1,967,823	256,460	545,307	133,039
All other states	15,879,172	12,341,359	1,719,107	1,554,687	1,983,126

Of the total production of glycerin in industries other than the soap industry (35,009,894 pounds), 31,725,366 pounds were reported as refined glycerin, and 923,296 pounds were reported as crude glycerin. The returns did not state whether the remaining 2,361,232 pounds were crude or refined. Soap factories reported the value for 46,896,021 pounds, with a total value of $6,790,264, the average value per pound ($0.14) indicating that it was chiefly refined glycerin. Although as stated the duplication due to the purchase of crude glycerin for refining can not be definitely determined, yet the quantity was considerable, amounting to at least 20,000,000 pounds. Allowing for this duplication, the production of marketable glycerin in 1909 (not including that used in the establishments where made) was approximately 60,000,000 pounds.

New York was the leading state in the production of glycerin in 1909, reporting 30.9 per cent of the total output, while Ohio and Illinois ranked second and third, respectively, these three states together contributing 67.7 per cent of the total.

California and New York were the only states reporting the manufacture of cream of tartar.

Maryland, Ohio, and Georgia, in the order named, were the leading states in respect to the manufacture of Epsom salts. Blue vitriol is chiefly a by-product of copper refining, and all but a small part of the production was reported by establishments in the copper and lead smelting and refining industries located in New York, New Jersey, Nebraska, California, and Illinois.

More than four-fifths of the copperas was produced in Pennsylvania, though considerable amounts were also reported from California and Indiana.

The phosphate of soda reported was the product of 10 establishments located in New Jersey, Maryland, Missouri, New York, Pennsylvania, Connecticut, and Massachusetts, named in order of output.

The chief states in the manufacture of tin compounds were New Jersey, Pennsylvania, Ohio, and Massachusetts, and the leading states in the production of zinc salts were Indiana, Ohio, and Illinois.

Table 50 gives the reported quantities and values of such of the chief products included under the heading of "all other chemicals" in Table 48 as can be shown without disclosing individual operations.

Table 50 PRODUCTS INCLUDED UNDER "ALL OTHER CHEMICALS" IN TABLE 48.

PRODUCT.	Quantity.		Value.
	Unit.	Amount.	
Aqua ammonia	Pounds	20,983,476	$839,320
Blanc fixé	Tons	4,076	86,986
Calcium chloride	Tons	8,475	70,933
Formaldehyde	Pounds	3,794,486	363,717
Glauber's salt	Tons	46,471	512,464
Oxide of zinc	Tons	12,360	953,467
Refined sulphur	Tons	25,209	891,501
Silicate of soda	Tons	34,170	366,621
Sugar of milk	Pounds	[1] 7,099,992	637,503
Sulphides of soda	Tons	7,073	206,450

[1] In addition, approximately 2,000,000 pounds were reported by establishments in the butter, cheese, and condensed milk industry.

DETAILED STATE TABLES.

The principal statistics secured by the census inquiry concerning the chemical industry are presented, by states, in Tables 51 and 52.

Table 51 shows for 1909, 1904, and 1899 the number of establishments, number of persons engaged in the industry, primary horsepower, capital invested, salaries, wages, cost of materials, value of products, and value added by manufacture.

Table 52 gives more detailed statistics for the industry for 1909 only.

CHEMICALS—COMPARATIVE STATISTICS, BY STATES: *1909, 1904, AND 1899.*

Table 51

STATE.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).
								Expressed in thousands.					
United States	1909	349	27,791	154	3,923	23,714	208,604	$155,144	$6,137	$14,085	$64,122	$117,689	$53,567
	1904	275	22,707	123	2,778	19,806	132,262	96,621	4,048	10,790	42,063	75,222	33,159
	1899	[1] 433	.....	.....	2,123	19,020	90,349	89,069	2,923	9,393	34,546	62,637	28,091
California	1909	13	294	2	48	244	1,308	2,783	66	168	762	1,306	544
	1904	15	303	3	41	259	1,060	1,969	44	189	700	1,124	424
	1899	21	463	11	62	390	984	1,845	70	230	1,406	2,061	655
Georgia	1909	4	75	2	20	53	200	379	29	24	60	246	186
	1904	3	50	3	17	30	109	292	21	12	41	133	92
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Illinois	1909	19	972	2	134	836	5,907	4,639	181	531	2,896	4,656	1,760
	1904	14	846	2	123	721	2,874	4,280	186	392	1,355	2,283	928
	1899	26	688	13	96	579	1,461	2,384	119	309	1,176	2,086	910
Louisiana	1909	4	52	1	15	36	159	337	18	21	172	249	77
	1904	3	13	1	2	10	85	41	1	6	11	29	18
	1899	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maryland	1909	3	316	.....	31	285	1,855	1,676	37	158	684	1,313	629
	1904	3	366	2	41	323	625	1,628	52	141	589	1,082	493
	1899	7	511	3	33	475	455	1,806	51	246	782	1,271	489
Massachusetts	1909	24	1,604	9	237	1,358	3,731	5,185	385	811	3,048	5,916	2,868
	1904	14	969	3	106	860	3,281	2,652	188	504	1,514	3,509	1,995
	1899	17	722	8	92	622	2,169	1,877	133	339	1,081	2,011	930
Michigan	1909	36	3,512	25	313	3,174	26,594	20,015	560	2,012	5,072	12,890	7,818
	1904	14	3,657	2	322	3,333	22,860	14,797	388	1,848	4,403	9,037	4,634
	1899	25	.....	.....	143	2,863	21,967	7,482	216	1,154	2,689	5,325	2,636
Missouri	1909	9	845	42	184	619	886	3,950	338	333	2,224	3,640	1,416
	1904	11	827	1	186	640	1,330	4,366	233	310	2,172	3,279	1,107
	1899	8	419	1	78	340	344	1,970	112	162	1,336	1,804	468
New Jersey	1909	50	5,937	4	887	5,046	13,880	24,355	1,594	2,895	12,257	22,824	10,567
	1904	47	4,048	26	425	3,597	9,082	16,294	678	1,853	6,630	13,024	6,394
	1899	61	3,488	38	402	3,048	8,147	17,285	577	1,575	6,995	12,207	5,212
New York	1909	74	6,869	19	1,104	5,746	116,197	46,465	1,623	3,376	19,709	35,346	15,637
	1904	63	5,845	30	848	4,967	66,649	23,149	1,274	2,678	12,958	23,022	10,064
	1899	92	5,057	23	503	4,531	33,950	22,106	719	2,303	8,670	15,994	7,324
Ohio	1909	33	1,346	17	197	1,132	11,715	8,994	324	749	4,748	7,742	2,994
	1904	18	1,304	10	269	1,025	6,169	3,655	400	652	3,003	4,590	1,587
	1899	35	794	21	164	609	1,280	3,670	199	340	2,084	3,576	1,492
Pennsylvania	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	10,662	20,657	456	1,892	7,265	11,774	4,509
	1899	100	4,747	54	415	4,278	12,442	22,757	573	2,198	6,806	13,034	6,228
Wisconsin	1909	5	115	3	36	76	495	329	39	41	242	513	271
	1904	5	96	2	29	65	243	194	23	29	137	265	128
	1899	4	99	2	33	64	205	288	43	26	131	254	123
All other states	1909	38	2,281	9	348	1,924	15,906	12,497	384	1,074	2,048	5,070	3,022
	1904	24	691	9	79	603	7,233	2,647	104	284	1,285	2,071	786
	1899	37	.....	.....	102	1,221	5,633	5,599	111	511	1,390	3,014	1,624

[1] Includes establishments in the industries designated "sulphuric, nitric, and mixed acids" and "wood distillation, not including turpentine and rosin."

CHEMICALS—DETAILED STATISTICS, BY STATES: 1909.

Table 52

STATE.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks. Male.	Clerks. Female.	Wage earners. Average number.	Wage earners. Number, 15th day of— Maximum month.	Wage earners. Number, 15th day of— Minimum month.	WAGE EARNERS—DEC. 15, OR NEAREST REPRESENTATIVE DAY. Total.	16 and over. Male.	16 and over. Female.	Under 16. Male.	Under 16. Female.	Primary horsepower.
United States	**349**	**27,791**	**154**	**932**	**2,492**	**499**	**23,714**	De 25,073	Ja 22,609	**25,341**	**24,102**	**1,061**	**103**	**75**	**208,604**
California	13	294	2	22	19	7	244	No 361	Mh 195	360	350	10	.....	.....	1,308
Georgia	4	75	2	7	9	4	53	Oc 57	Jy 47	55	48	7	.....	.....	200
Illinois	19	972	2	37	69	28	836	No 993	Fe 660	976	964	12	.....	.....	5,907
Kentucky	5	49	2	7	1	.....	39	Au 44	Ja[1] 36	37	37	.....	.....	.....	102
Louisiana	4	52	1	3	10	2	36	Mh 56	Jy 29	37	37	.....	.....	.....	159
Maryland	3	316	.....	7	16	8	285	Oc[1] 321	Ja 231	315	313	2	.....	.....	1,855
Massachusetts	24	1,604	9	49	138	55	1,358	My 1,412	Fe 1,287	1,391	1,257	105	14	15	3,731
Michigan	36	3,512	25	89	199	25	3,174	De 3,405	Ap 2,889	3,406	3,372	26	8	.....	26,594
Missouri	9	845	42	48	112	24	619	No 648	Ja[1] 601	642	533	68	24	17	886
New Jersey	50	5,937	4	213	587	87	5,046	De 5,252	Au 4,780	5,267	4,758	458	17	34	13,880
New York	74	6,869	19	228	714	162	5,746	De 6,130	Mh 5,480	6,123	5,932	177	7	7	116,197
Ohio	33	1,346	17	60	107	30	1,132	No 1,242	Je 1,051	1,282	1,241	41	.....	.....	11,715
Pennsylvania	37	3,573	19	83	242	44	3,185	Je 3,311	Mh 3,072	3,286	3,174	110	.....	2	9,771
Wisconsin	5	115	3	4	26	6	76	Se 85	Ja 68	76	63	13	.....	.....	495
All other states[2]	33	2,232	7	75	248	17	1,885	.....	.....	2,088	2,023	32	33	.....	15,804

STATE.	Capital.	EXPENSES. Total.	Services. Officials.	Services. Clerks.	Services. Wage earners.	Materials. Fuel and rent of power.	Materials. Other.	Miscellaneous. Rent of factory.	Miscellaneous. Taxes, including internal revenue.	Miscellaneous. Contract work.	Miscellaneous. Other.	Value of products.	Value added by manufacture (value of products less cost of materials).
United States	**$155,143,739**	**$93,991,193**	**$3,134,056**	**$3,002,532**	**$14,084,501**	**$8,046,840**	**$56,074,696**	**$167,805**	**$689,074**	**$181,011**	**$8,610,678**	**$117,688,887**	**$53,567,351**
California	2,788,028	1,155,870	40,160	25,505	168,190	71,461	690,124	720	12,873	.....	146,837	1,306,373	544,788
Georgia	378,568	190,030	16,700	11,852	24,342	7,383	52,592	5,731	2,812	.....	68,618	245,725	185,750
Illinois	4,639,170	3,927,458	88,886	92,443	531,315	205,714	2,600,086	6,607	8,839	4,160	299,408	4,656,274	1,760,474
Kentucky	154,105	72,623	9,607	706	16,688	4,923	35,582	100	540	.....	4,477	94,710	54,205
Louisiana	337,320	242,806	7,840	10,542	21,430	7,392	164,546	920	1,993	.....	28,143	248,815	76,877
Maryland	1,675,900	943,885	18,400	18,391	158,346	60,006	623,982	.....	7,435	16,539	40,786	1,313,103	629,115
Massachusetts	5,185,221	5,048,399	164,928	219,742	811,378	187,060	2,861,192	9,147	44,009	.....	750,943	5,916,451	2,868,199
Michigan	20,015,346	8,592,007	322,015	237,725	2,012,122	2,487,283	2,585,098	1,215	93,476	.....	853,073	12,890,206	7,817,825
Missouri	3,950,186	3,356,570	119,832	218,444	333,338	61,982	2,161,982	9,300	20,806	.....	430,886	3,640,116	1,416,152
New Jersey	24,355,116	18,881,485	856,382	737,417	2,894,964	690,321	11,567,157	27,099	109,394	100,996	1,897,755	22,824,140	10,566,662
New York	46,464,550	27,482,455	792,610	830,270	3,375,688	2,707,706	17,000,848	66,760	250,819	7,864	2,449,890	35,346,072	15,637,518
Ohio	8,993,786	6,208,370	194,180	129,748	748,913	566,999	4,181,297	11,687	43,324	.....	392,222	7,742,045	2,993,749
Pennsylvania	23,534,639	13,503,136	304,829	254,228	1,892,313	509,580	9,690,341	10,990	42,142	269	798,444	15,978,162	5,778,241
Wisconsin	329,217	407,069	7,737	31,314	41,324	7,666	234,471	8,848	1,615	.....	74,094	513,099	270,962
All other states[2]	12,342,587	3,919,030	139,950	184,205	1,054,150	471,364	1,535,398	8,681	48,997	51,183	375,102	4,973,596	2,966,834

[1] Same number reported for one or more other months.
[2] "All other states" embrace: Connecticut, 3 establishments; District of Columbia, 1; Florida, 1; Indiana, 4; Kansas, 1; Maine, 1; Minnesota, 4; Montana, 1; Nebraska, 2; Rhode Island, 3; Texas, 2; Vermont, 1; Virginia, 4; Washington, 2; West Virginia, 2; Wyoming, 1.

BONE, CARBON, AND LAMP BLACK

MANUFACTURE OF BONE, CARBON, AND LAMP BLACK.

Scope of the industry.—The census classification "bone, carbon, and lamp black" covers establishments engaged primarily in the carbonization of bones in retorts, producing bone black; in the manufacture of carbon black by the burning of natural gas, the flame impinging upon slate or metallic slabs or revolving cylinders with a deposition of carbon; and in the production of lampblack by the imperfect combustion of coal and wood tar, petroleum, rosin, etc. The industry also includes establishments engaged primarily in the manufacture of ivory black, a pigment made by the carbonization of ivory scraps and waste. At prior censuses the industry was known as "bone, ivory, and lamp black."

Comparison with earlier censuses.—At the census of 1849, 5 establishments were reported as engaged in the manufacture of bone, ivory, and lamp black, these establishments giving employment on the average to 24 hands and turning out products valued at $42,250. At the census of 1859, 24 establishments were reported, with an average of 168 hands and products valued at $376,710; and at the census of 1869, 9 establishments were reported, employing on the average 56 hands and turning out products valued at $193,800. The variations from census to census may be due to differences in the classification of individual establishments.

Table 1 summarizes the statistics of the industry for each census from 1879 to 1909, inclusive.

Table 1

	NUMBER OR AMOUNT.					PER CENT OF INCREASE.[1]				
	1909	1904	1899	1889	1879	1899–1909	1904–1909	1899–1904	1889–1899	1879–1889
Number of establishments	27	25	15	24	18	80.0	8.0	66.7	−37.5	33.3
Persons engaged in the industry	302	258	123	(2)	(2)	145.5	17.1	109.8	.....	.....
Proprietors and firm members	7	11	17	(2)	(2)	−58.8	−36.4	−35.3	.....	.....
Salaried employees	67	47	21	(2)	(2)	219.0	42.6	123.8	.....	.....
Wage earners (average number)	228	200	85	323	224	168.2	14.0	135.3	(3)	(3)
Primary horsepower	1,023	1,085	365	(2)	(2)	180.3	−5.7	197.3	.....	.....
Capital	$1,841,966	$1,663,143	$782,247	$1,627,651	$627,350	135.5	10.8	112.6	−51.9	159.4
Expenses	933,510	426,499	251,147	787,027	520,317	231.9	95.4	69.8	−68.1	51.3
Services	227,660	153,649	69,757	216,288	80,249	226.4	48.2	120.3	−67.7	169.5
Salaries	78,333	48,490	23,650	(2)	(2)	231.2	61.5	105.0	.....	.....
Wages	149,327	105,159	46,107	(2)	(2)	223.9	42.0	128.1	.....	.....
Materials	444,608	203,396	105,712	485,867	440,068	320.6	118.6	92.4	−78.2	10.4
Miscellaneous	161,242	69,454	75,678	84,872	(2)	113.1	132.2	−8.2	−10.8	.....
Value of products	1,093,494	647,717	359,787	1,031,030	661,376	203.9	68.8	80.0	−65.1	55.9
Value added by manufacture (value of products less cost of materials)	648,886	444,321	254,075	545,163	221,308	155.4	46.0	74.9	−53.4	146.3

[1] A minus sign (−) denotes decrease. Where percentages are omitted, comparable figures are not available.
[2] Comparable figures not available.
[3] Figures not strictly comparable.

The statistics indicate that there was a general growth in the industry during each intercensal period covered by the table except the decade 1889–1899, for which period large decreases are shown. The decreases for this decade are no doubt due in part to changes in classification whereby establishments included under the classification "bone, ivory, and lamp black" in 1889 were assigned to other industries in 1899.

At the census of 1909, 27 establishments were reported as engaged primarily in the manufacture of bone black, carbon black, and lamp black, these establishments employing an average of 228 wage earners and paying out $149,327 in wages during the year. The value of their products amounted to $1,093,494, and the cost of materials used to $444,608, equal to 40.7 per cent of the value of products, the value added by manufacture being $648,886.

Persons engaged in the industry.—The average number of persons engaged in the industry during 1909 was 302, of whom 228, or 75.5 per cent were wage earners, 52, or 17.2 per cent, were proprietors and officials, and 22, or 7.3 per cent, clerks, the last-named class including other subordinate salaried employees. Of the total number of persons engaged in the industry, 286, or 94.7 per cent, were males and 16, or 5.3 per cent, females, 8 of the latter being employed as clerks and 8 as wage earners.

Wage earners employed, by months.—The largest number of wage earners reported for any month of 1909 was 243, for October, and the smallest number, 215, equal to 88.5 per cent of the maximum, was reported for both February and March. In 1904 the maximum number, 218, was reported for December and the minimum number, 182, for January, the latter number being equal to 83.5 per cent of the maximum.

Prevailing hours of labor.—Of the 228 wage earners in the industry, 85, or 37.3 per cent were employed in establishments where the prevailing hours of labor per week were from 54 to 60 inclusive, 79, or 34.6 per

cent, in establishments where the prevailing hours were 72 or more per week, and 64, or 28.1 per cent, in establishments where the prevailing hours were from 48 to 54 per week.

Character of ownership.—Of the 27 establishments in the industry in 1909, 22, with products valued at $928,242, or 84.9 per cent of the total for the industry, were under corporate ownership. There were 4 establishments under individual ownership and 1 under firm ownership. The average number of wage earners in the establishments owned by corporations was 192, and the value added by manufacture $546,357.

Size of establishments.—Table 2 presents statistics for 1909 and 1904 for establishments grouped according to the value of their products.

Table 2

VALUE OF PRODUCTS PER ESTABLISHMENT.	NUMBER OF ESTABLISHMENTS.		VALUE OF PRODUCTS.	
	1909	1904	1909	1904
Total	27	25	$1,093,494	$647,717
Less than $5,000	3	4	7,114	9,479
$5,000 and less than $20,000	7	7	86,163	74,142
$20,000 and less than $100,000	13	14	519,114	564,096
$100,000 and less than $1,000,000	4	.....	481,103	.....
Per cent of total	100.0	100.0	100.0	100.0
Less than $5,000	11.1	16.0	0.6	1.5
$5,000 and less than $20,000	25.9	28.0	7.9	11.4
$20,000 and less than $100,000	48.1	56.0	47.5	87.1
$100,000 and less than $1,000,000	14.8	.....	44.0	.....

[1] Percentage not shown where base is less than 100.

Establishments manufacturing products valued at $20,000 but less than $100,000 constituted the most important class at each census, both numerically and as measured by value of products, reporting 47.5 per cent of the total value of products for the industry in 1909 and 87.1 per cent in 1904. In 1904 no establishments with products valued at as much as $100,000 were reported; in 1909 there were four such establishments, which reported 44 per cent of the total value of products. The average value of products per establishment increased from $25,909 in 1904 to $40,500 in 1909 and the average value added by manufacture, as computed from the figures in Table 1, from $17,773 in 1904 to $24,033 in 1909. The average number of wage earners per establishment shows a slight increase, from 8 in 1904 to 8.4 in 1909.

Of the 27 establishments in 1909, 1 employed no wage earners; 15 employed from 1 to 5 wage earners; 9, from 6 to 20; and 2, from 21 to 50.

Expenses.—As stated in the Introduction, the census figures representing expenses do not purport to show the total cost of manufacture, since they take no account of interest or depreciation; hence they can not properly be used for determining profits. Facts of interest can be brought out, however, concerning the relative importance of the different classes of expenses which were reported. Table 4 shows the total expenses in 1909 to have been $833,510, distributed as follows: Cost of materials, $444,608, or 53.3 per cent; wages, $149,327, or 17.9 per cent; salaries, $78,333, or 9.4 per cent; and miscellaneous expenses, made up of advertising, ordinary repairs of buildings and machinery, insurance, traveling expenses, and other sundry expenses, $161,242, or 19.3 per cent.

Engines and power.—All of the establishments in the industry reported the use of power, a total of 1,023 horsepower being reported for 1909. Of the total primary power steam engines furnished 537 horsepower and gas engines 476 horsepower, while the remainder represented rented electric power.

Fuel consumed.—In 1909, 3,579 short tons of bituminous coal, 46,000 barrels of oil, and 12,516,733,000 cubic feet of gas were consumed in the industry for all purposes. The amount expended for fuel and rent of power in 1909, as shown in Table 4, was $158,604. The bulk of the oil and gas used was consumed as material in the manufacture of lampblack and carbon black, respectively, but little of either being employed in the generation of power.

Products.—In addition to the output of establishments manufacturing bone, carbon, and lamp black as their chief product a considerable quantity was reported by establishments engaged in the production of pigments in the paint and varnish industry, and by establishments in other industries. Table 3 shows the total production of these blacks in 1909, so far as statistics are available.

Table 3

PRODUCT.	Number of establishments reporting: 1909	VALUE: 1909			
		Total.	Reported by establishments engaged primarily in the manufacture of—		
			Bone, carbon, and lamp black	Paint and varnish.	Fertilizers and glue.
Bone, carbon, and lamp black	57	$2,135,554	$1,068,496	$105,063	$961,995
Bone black	7	1,070,333	108,338	.....	961,995
Carbon black	18	625,514	625,514	.....	.....
Lampblack	32	439,707	334,644	[1] 105,063	.....

[1] Reported as lamp and other blacks.

The total production of bone, carbon, and lamp black reported for 1909 was valued at $2,135,554, of which

amount approximately one-half was reported by establishments engaged primarily in the manufacture of fertilizers, glue, and paint and varnish. Approximately one-half of the total represented the value of bone black, three-tenths that of carbon black, and one-fifth that of lampblack.

Detailed state table.—The principal statistics secured for 1909 concerning the "bone, carbon, and lamp black" industry are presented in Table 4.

West Virginia ranked first among the states in the industry, as measured by value of products, in both 1909 and 1904, and Pennsylvania second, the prominence of these states in the industry resulting largely from their supply of natural gas, which is used in the manufacture of carbon black. New Jersey ranked third in 1909. The products of West Virginia, the only state for which statistics can be shown without disclosing individual operations, were valued at $596,058 in 1909, contributing 54.5 per cent of the total for the industry, as compared with products valued at $274,022, and representing 42.3 per cent of the total, in 1904. The increase in value of products for the industry as a whole during this five-year period amounted to 68.8 per cent, while for West Virginia alone, it amounted to 117.5 per cent.

Table 4	United States.	West Virginia.	All other states.[1]
Number of establishments	27	16	11
Persons engaged in the industry	302	137	165
Proprietors and firm members	*7*	*1*	*6*
Salaried officers, superintendents, and managers	45	28	17
Clerks	22	7	15
Male	14	5	9
Female	8	2	6
Wage earners (average number)	228	101	127
Number 15th day of month:			
Maximum—			
Month	*October.*	*January.*	.....
Number	243	104	.....
Minimum—			
Month	*February.*[2]	*November.*	.....
Number	215	95	.....
Wage earners—Dec. 15, or nearest representative day	243	102	141
16 years of age and over	243	102	141
Male	235	102	133
Female	8	.....	8
Primary horsepower	1,023	641	382
Capital	$1,841,966	$1,313,226	$528,740
Expenses	833,510	426,050	407,460
Services	227,660	101,379	126,281
Officials	*58,629*	*31,350*	*27,279*
Clerks	19,704	3,780	15,924
Wage earners	149,327	66,249	83,078
Materials	444,608	249,038	195,570
Fuel and rent of power	158,604	116,983	41,621
Other	286,004	132,055	153,949
Miscellaneous	161,242	75,633	85,609
Rent of factory	12,027	5,677	6,350
Taxes, including internal revenue	10,324	5,682	4,642
Other	138,891	64,274	74,617
Value of products	1,093,494	596,058	497,436
Value added by manufacture (value of products less cost of materials)	*648,886*	*347,020*	*301,866*

[1] Includes the following, with number of establishments as indicated: Massachusetts, 3; New Jersey, 1; New York, 1; Ohio, 1; Pennsylvania, 5.
[2] Same number reported for one or more other months.

DYESTUFFS AND EXTRACTS

THE MANUFACTURE OF DYESTUFFS AND EXTRACTS.

Scope of the industry.—The manufacture of dyestuffs and extracts used in the dyeing industry and that of extracts used in the tanning industry are so closely associated that since the census of 1879 the statistics for the two have been combined under the designation "dyestuffs and extracts." The class of dyestuffs comprises: (1) Natural dyestuffs, including logwood, fustic, quercitron, cochineal, lac dye, kermes, gambier, Persian berries, curcuma, Brazil wood, madder, cutch, and yellow oak bark, the ground and chipped wood, bark, or berries of these natural dyestuffs, and extracts such as logwood extract; (2) artificial dyestuffs, such as the aniline, phenol, azo, quinoline, and anthracene colors, including synthetic indigo, and the so-called coal tar dyes, special compositions or mixtures of dyes, and mineral dyes used in printing, such as chrome yellow, orange and green, iron buff or nankin yellow, prussian blue, ultramarine, and manganese brown; (3) mordants, such as myrobalans, valonia, divi-divi, chestnut, nutgalls, oak and hemlock barks, the ground product and the extracts of these materials, and special mordanting liquors containing inorganic compounds; and (4) assistants, such as turkey red oil, iron liquor (black liquor, pyrolignite of iron), red liquor (aluminum sulpho-acetate), gums, dextrins, and sizes.

The class of tanning materials includes the ground, chipped, or comminuted products of oak, chestnut, and hemlock wood or bark, palmetto roots, and sumac leaves; the fluid or solid extracts from these materials or from quebracho wood, quercitron bark, or other tannin-containing materials; tannic or gallic acid; and chrome tannage or other tannage solutions.

The statistics pertain only to establishments producing dyestuffs or tanning materials for sale, and do not represent the entire manufacture of these products, as there is also a large production by establishments that use them in their own processes. This is especially true of the various textile industries and is often true also in regard to the tanning industry.

Summary and comparison with earlier censuses.—Table 1 summarizes the statistics of the industry for each census from 1869 to 1909, inclusive. At the census of 1849 there were reported 41 establishments with 114 wage earners and products valued at $229,841, and at the census of 1859, 40 establishments with 76 wage earners and products valued at $171,253.

The financial figures for 1869 are given in currency, which at that time was worth only about 80 cents, gold, to the dollar. For strict comparison, therefore, these figures should be reduced about 20 per cent.

Table 1

	NUMBER OR AMOUNT.						PER CENT OF INCREASE.[1]					
	1909	1904	1899	1889	1879	1869	1899–1909	1904–1909	1899–1904	1889–1899	1879–1889	1869–1879
Number of establishments	107	98	77	62	41	73	39.0	9.2	27.3	24.2	51.2	-43.8
Persons engaged in the industry	3,015	3,150	(2)	(2)	(2)	(2)	.....	-4.3	.....	.....	.....	.....
Proprietors and firm members	65	82	(2)	(2)	(2)	(2)	.....	-20.7	.....	.....	.....	.....
Salaried employees	553	361	229	(2)	(2)	(2)	141.5	53.2	57.6	.....	.....	.....
Wage earners (average number)	2,397	2,707	1,647	2,111	992	803	45.5	-11.5	64.4	(3)	(3)	(3)
Primary horsepower	22,213	17,671	11,409	11,896	(2)	2,694	94.7	25.7	54.9	-3.9	.....	.....
Capital	$17,934,545	$14,904,150	$7,839,034	$8,645,458	$2,363,700	$1,802,710	128.8	20.3	90.1	-9.3	265.8	31.1
Expenses	13,492,987	9,646,982	6,304,175	8,170,945	(2)	(2)	114.0	39.9	53.0	-22.9	.....	.....
Services	2,233,705	1,873,282	1,100,051	1,289,987	512,097	398,649	103.1	19.2	70.3	-14.7	151.9	28.5
Salaries	942,326	608,790	312,109	252,336	(2)	(2)	201.9	54.8	95.1	23.7	.....	.....
Wages	1,291,379	1,264,492	787,942	1,037,651	(2)	(2)	63.9	2.1	60.5	-24.1	.....	.....
Materials	9,683,651	6,829,340	4,745,912	6,500,928	3,918,741	1,667,257	104.0	41.8	43.9	-27.0	65.9	135.0
Miscellaneous	1,575,631	944,360	458,212	380,030	(2)	(2)	243.9	66.8	106.1	20.6	.....	.....
Value of products	15,954,574	10,893,113	7,350,748	9,292,514	5,253,038	2,878,609	117.0	46.5	48.2	-20.9	76.9	82.5
Value added by manufacture (value of products less cost of materials)	6,270,923	4,063,773	2,604,836	2,791,586	1,334,297	1,211,352	140.7	54.3	56.0	-6.7	109.2	10.1

[1] A minus sign (-) denotes decrease. Where percentages are omitted, comparable figures are not available.
[2] Comparable figures not available.
[3] Figures not strictly comparable.

The value of products reported for 1909 was five and a half times the value reported for 1869, part of this increase, however, being attributable to the general advance in prices. With the exception of the decade 1889–1899, in which decreases took place in most of the items included in the table, the industry has shown a substantial growth at each successive census.

Summary, by states.—Table 2 summarizes the more important statistics, by states, the states being arranged according to the value of products reported for 1909. The states shown in this table are given their actual ranking among all states, the rank of certain states for which data can not be presented being higher than that of some named in the table.

In 1909 New York, New Jersey, and Pennsylvania, in order, were the three leading states when ranked by value of products, these states combined reporting 62.6 per cent of the total value of products, 60.1 per cent of the value added by manufacture, and 44.5 per cent of the average number of wage earners. New Jersey shows the largest relative increase in value of products and value added by manufacture during the decade 1899–1909, 522.6 per cent and 426.8 per cent, respectively.

Table 2

STATE.	Number of establishments: 1909	WAGE EARNERS. Average number: 1909	Per cent of total: 1909	Rank. 1909	Rank. 1904	VALUE OF PRODUCTS. Amount: 1909	Per cent of total: 1909	Rank. 1909	Rank. 1904	VALUE ADDED BY MANUFACTURE. Amount: 1909	Per cent of total: 1909	Rank. 1909	Rank. 1904	PER CENT OF INCREASE.[1] Wage earners (average number). 1899–1909	1904–1909	1899–1904	Value of products. 1899–1909	1904–1909	1899–1904	Value added by manufacture. 1899–1909	1904–1909	1899–1904
United States	107	2,397	100.0	....	....	$15,954,574	100.0	....	....	$6,270,923	100.0	....	....	45.5	−11.5	64.4	117.0	46.5	48.2	140.7	54.3	56.0
New York	18	418	17.4	1	1	4,505,310	28.2	1	1	1,638,233	26.1	1	1	−22.3	−19.5	−3.5	113.3	66.5	28.1	93.2	55.4	24.3
New Jersey	13	279	11.7	5	5	3,130,214	19.6	2	2	1,161,484	18.5	2	2	.....	11.6	.....	522.6	43.8	332.8	426.8	71.7	206.8
Pennsylvania	14	309	15.4	2	6	2,345,251	14.7	3	4	972,076	15.5	3	6	43.6	81.8	−21.0	84.8	142.7	−23.9	59.9	188.6	−44.6
Tennessee	6	336	14.0	4	4	1,313,020	8.2	4	6	671,089	10.7	4	4	.....	20.7	.....	.....	82.3	.....	.....	87.5	.....
Virginia	14	346	14.4	3	3	1,199,706	7.5	5	5	513,427	8.2	5	5	72.1	−18.4	110.9	150.3	62.9	53.7	198.7	49.3	100.0
Rhode Island	10	87	3.6	8	9	927,676	5.8	6	9	296,012	4.7	7	9	.....	.....	.....	.....	80.8	.....	.....	50.3	.....
Massachusetts	10	80	3.3	9	8	725,386	4.5	7	3	213,767	3.4	8	3	.....	−46.7	.....	−45.1	−27.4	−24.4	8.5	−44.1	94.2
All other states	22	482	20.1	....	....	1,808,011	11.4	....	....	804,835	12.8	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....

[1] A minus sign (−) denotes decrease. Percentage not shown where base is less than 100 for wage earners or less than $100,000 for value of products or value added by manufacture, or where comparative figures can not be given without disclosing individual operations.

Persons engaged in the industry.—Table 3 shows, for 1909, the number of persons engaged in the industry, classified according to occupational status and sex, and in the case of wage earners, according to age. It should be borne in mind 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.

Table 3

CLASS.	PERSONS ENGAGED IN THE INDUSTRY: 1909 Total.	Male.	Female.
All classes	3,015	2,901	114
Proprietors and officials	264	262	2
Proprietors and firm members	65	64	1
Salaried officers of corporations	91	91	.....
Superintendents and managers	108	107	1
Clerks	354	278	76
Wage earners (average number)	2,397	2,361	36
16 years of age and over	2,391	2,355	36
Under 16 years of age	6	6	.....

The average number of persons engaged in the industry during 1909 was 3,015, of whom 2,397, or 79.5 per cent, were wage earners; 264, or 8.8 per cent, were proprietors and officials; and 354, or 11.7 per cent, were clerks, this class including other subordinate salaried employees. Of the total number engaged in the industry, 96.2 per cent were males and 3.8 per cent were females. Of the wage earners, 2,355 were men, 36 were women, and 6 were boys under 16 years of age. In 1904 there were 2,707 wage earners, comprising 2,678 males and 25 females 16 years of age and over, and 4 children under 16 years of age.

Wage earners employed, by months.—The industry is not subject to any considerable seasonal variations. The largest number of wage earners employed during any month in 1909 was 2,478, reported for August, and the smallest number 2,293, reported for January, the latter number being equal to 92.5 per cent of the maximum number. In 1904 the maximum number of wage earners, 2,925, was reported for August, and the minimum, 2,340, for December, the latter number being equal to 80 per cent of the maximum.

Prevailing hours of labor.—The wage earners in the industry have been classified according to the hours of labor prevailing in the establishments in which they were employed. In making this classification the average number of wage earners employed during the year in each establishment is classified as a total, according to the hours prevailing in that establishment, even though some of the employees may have worked a greater or less number of hours. Of the 2,397 wage earners in the industry, 1,361, or 56.8 per cent of the total, were employed in establishments where the usual hours were 60 per week; 545, or 22.7 per cent, worked in establishments where less than 60 hours per week was the usual working time; and 491, or 20.5 per cent, were in establishments where the working time was over 60 hours per week.

Character of ownership.—Table 4 presents data with respect to the character of ownership of the establishments in the industry for 1909 and 1904.

Of the total number of establishments in the industry, 64.5 per cent were under corporate ownership in 1909, as compared with 56.1 per cent in 1904; these establishments reported 91.2 per cent of the total value of products in 1909 and 86.2 per cent in 1904.

Table 4 CHARACTER OF OWNERSHIP.	NUMBER OF ESTABLISHMENTS.		VALUE OF PRODUCTS.	
	1909	1904	1909	1904
Total	107	98	$15,954,574	$10,893,113
Individual	23	22	946,201	806,069
Firm	15	21	449,828	692,469
Corporation	69	55	14,558,545	9,394,575
Per cent of total	100.0	100.0	100.0	100.0
Individual	21.5	22.4	5.9	7.4
Firm	14.0	21.4	2.8	6.4
Corporation	64.5	56.1	91.2	86.2

Size of establishments.—Table 5 presents statistics for 1909 and 1904 for establishments grouped according to the value of their products.

Table 5 VALUE OF PRODUCTS PER ESTABLISHMENT.	NUMBER OF ESTABLISHMENTS.		VALUE OF PRODUCTS.	
	1909	1904	1909	1904
Total	107	98	$15,954,574	$10,893,113
Less than $5,000	10	9	25,838	(1)
$5,000 and less than $20,000	19	17	240,409	(1)
$20,000 and less than $100,000	36	39	1,892,747	1,856,948
$100,000 and over	42	33	13,795,580	[2] 7,596,825
Per cent of total	100.0	100.0	100.0	
Less than $5,000	9.3	9.2	0.2	
$5,000 and less than $20,000	17.8	17.3	1.5	
$20,000 and less than $100,000	33.6	39.8	11.9	17.0
$100,000 and over	39.3	33.7	86.5	69.7

[1] Figures can not be shown without disclosing individual operations.
[2] Excluding figures for one establishment to avoid disclosure of individual operations.

Of the 107 establishments in 1909 there were 42, or 39.3 per cent of the total, whose products were valued at more than $100,000, including 2 with products valued at $1,000,000 and over. These 42 establishments reported 86.5 per cent of the total value of products of the industry.

The average value of products per establishment increased from $111,154 in 1904 to $149,108 in 1909, and the value added by manufacture from $41,467 to $58,607, while the average number of wage earners per establishment decreased from 28 in 1904 to 22 in 1909.

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. From this standpoint, the majority of the establishments engaged in the industry are comparatively small. Of the 107 establishments in 1909, 3 employed no wage earners, 36 from 1 to 5 wage earners, 35 from 6 to 20, 20 from 21 to 50, 7 from 51 to 100, and 6 more than 100 wage earners. No establishments employed over 250 wage earners.

Of the 2,397 wage earners in 1909, 462, or 19.3 per cent, were in establishments employing from 1 to 20 wage earners; 687, or 28.7 per cent, in establishments employing from 21 to 50; 491, or 20.5 per cent, in establishments employing from 51 to 100; and 757, or 31.6 per cent, in establishments employing more than 100 wage earners.

Expenses.—As stated in the Introduction, the census figures for expenses do not purport to represent the total cost of manufacture, since they take no account of interest or depreciation, and consequently can not properly be used for determining profits. Facts of interest can be brought out, however, concerning the relative importance of the different classes of expenses which were reported.

Table 1 shows the total reported expenses to have been $13,492,987, distributed as follows: Cost of materials, $9,683,651, or 71.7 per cent; wages, $1,291,379, or 9.6 per cent; salaries, $942,326, or 7 per cent; and miscellaneous expenses, made up of traveling expenses, advertising, ordinary repairs of buildings and machinery, insurance, and other sundry expenses, $1,575,631, or 11.7 per cent.

Engines and power.—As shown by Table 1, the amount of primary power reported for this industry at the census of 1869 was 2,694, which had increased to 22,213 in 1909. Table 6 shows 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, as reported at the censuses of 1909, 1904, and 1899. It also shows the number and horsepower of electric motors, including those operated by current generated in the establishments reporting.

Table 6 POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899	1909	1904	1899	1909	1904	1899
Primary power, total	270	201	154	22,213	17,671	11,409	100.0	100.0	100.0
Owned	251	199	154	22,020	17,624	11,133	99.1	99.7	97.6
Steam	247	192	144	21,685	17,348	10,508	97.6	98.2	92.1
Gas	1	1	1	15	4	300	0.1	(1)	2.6
Water wheels	3	6	9	320	196	325	1.4	1.1	2.8
Other power	.....	.....	.....	.....	76	.....	.....	0.4	.....
Rented	19	2	.....	193	47	276	0.9	0.3	2.4
Electric motors	19	2	(2)	191	20	20	0.9	0.1	0.2
Other	.....	.....	.....	2	27	256	(1)	0.2	2.2
Electric motors.	106	35	15	1,664	659	179	100.0	100.0	100.0
Run by current generated by establishment	87	33	15	1,473	639	159	88.5	97.0	88.8
Run by rented power	19	2	.....	191	20	20	11.5	3.0	11.2

[1] Less than one-tenth of 1 per cent. [2] Not reported.

The total primary power used in the industry increased 94.7 per cent from 1899 to 1909, the increase being practically all in steam power. Of the total primary horsepower, 97.6 per cent was steam power in 1909, as compared with 92.1 per cent in 1899. The amount of rented electric power used in the industry is small. The horsepower of electric motors operated by current generated in the establishment reporting increased from 159 in 1899 to 1,473 in 1909.

Fuel consumed.—Table 7 shows the amount of each kind of fuel consumed in the industry in 1909. The amount expended for fuel and rent of power is shown, by states, in Table 10.

Table 7 KIND.	Unit.	Quantity.
Anthracite coal	Long tons	20,669
Bituminous coal	Short tons	164,789
Coke	Short tons	31
Wood	Cords	17,182
Oil, including gasoline	Barrels	2,200
Gas	1,000 feet	223,467

Materials and products.—The special schedule used in collecting the statistics from the manufacturers of dyestuffs and extracts called for the quantity and cost of acids (sulphuric, nitric, and mixed) and alcohol (grain and wood) consumed in this industry, the quantity and value of the different products, and the quantity of certain products made and consumed in the establishments producing them.

In 1909 there was reported the consumption of 8,303 tons of sulphuric acid, costing $72,638; 85 tons of nitric acid, costing $7,066; 242 tons of mixed acid, costing $17,291; 6,341 gallons of grain alcohol, costing $3,309; and 724 gallons of wood alcohol, costing $391. Comparative data for the consumption of these materials in former years are not available except with respect to sulphuric acid, the consumption of which in 1904 was 1,779 tons, costing $49,779. In 1909 certain specific materials were called for, but in 1904 the selection was left to the manufacturer.

Table 8 gives the quantity and value of the chief products reported by the establishments engaged primarily in the manufacture of dyestuffs and extracts in 1909, 1904, and 1899.

Table 8 PRODUCT.	1909	1904	1899
Total value	[1] $15,954,574	[1] $10,893,113	$7,350,748
Artificial dyestuffs:			
Pounds	12,267,399	4,600,462	6,581,850
Value	$3,462,436	$1,764,454	$1,806,730
Extracts:			
Hemlock—			
Pounds	12,588,078	18,833,450	26,011,714
Value	$220,487	$406,619	$563,591
Logwood—			
Pounds	22,317,248	29,799,606	39,252,743
Value	$991,974	$1,472,047	$1,485,971
Oak and chestnut—			
Pounds	287,908,285	156,520,123	28,983,036
Value	$6,061,162	$2,411,184	$529,670
Sumac—			
Pounds	3,148,790	4,093,619	4,349,742
Value	$107,456	$95,958	$103,085
Ground sumac:			
Pounds	554,032	5,061,333	9,284,000
Value	$24,531	$65,190	$114,660
Ground bark:			
Pounds	25,142,076	38,001,017	27,028,000
Value	$176,510	$249,101	$149,365
Ground and chipped wood:			
Pounds	15,046,954	9,999,906	12,690,037
Value	$143,720	$95,237	$201,931
Gums and dextrins:			
Pounds	16,148,931	6,651,731	[2]
Value	$610,999	$231,708	[2]
Iron liquors:			
Pounds	3,079,418	1,860,744	954,240
Value	$30,282	$30,757	$7,525
Mordants:			
Pounds	1,735,887	733,245	734,000
Value	$69,515	$64,656	$85,466
Sizes:			
Pounds	54,054,711	7,812,433	101,920
Value	$1,735,600	$217,859	$2,548
Tannic acid:			
Pounds	5,085,748	5,165,500	1,326,515
Value	$249,207	$200,136	$149,662
Turkey-red oil:			
Pounds	1,048,719	3,022,470	2,210,000
Value	$72,053	$159,666	$14,757
Chrome tannage solution:			
Pounds	7,361,008	2,847,400	[2]
Value	$298,830	$85,422	[2]
Other tanning liquors:			
Pounds	2,464,040	43,311,529	16,144,292
Value	$77,274	$1,653,621	$405,659
All other products [3]	$1,562,448	$1,689,498	$1,730,128

[1] In addition, dyestuffs and extracts to the value of $834,102 in 1909, and $19,111 in 1904, were produced by establishments engaged primarily in the manufacture of other products.
[2] Not reported separately.
[3] Including a small production of natural dyestuffs in 1909, a production in 1904 valued at $233,935, and a production in 1899 valued at $1,035,711.

In addition to the products shown above, the products shown in the following table were made and used in further processes of manufacture in the establishments where produced.

Table 9 PRODUCT.	1909	1904
Ground and chipped wood.....pounds..	930,578,482	524,505,744
Ground bark.....pounds..	293,062,168	40,390,640
Ground leaves.....pounds..	1,955,040	3,586,171

By far the most important products, both in quantity and value, in 1909, was oak and chestnut extracts. There has been a very great increase in the quantity and value of these products since 1899. Other important increases are shown by artificial dyestuffs, iron liquors, sizes, and tannic acid, while considerable decreases are shown in the production of hemlock and logwood extracts, and of ground sumac.

In addition to the items in the table, there was reported in 1909 a small production of natural dyestuffs which can not be given without disclosing individual operations and which was considerably less than in 1904, when the production was valued at $233,935, or in 1899, when it was valued at $1,035,711.

The report on Forest Products [1] for 1909 gives 386,817,895 pounds as the total consumption of tanning extracts in that year, which quantity exceeds the quantity of oak, chestnut, hemlock, and sumac extracts here reported by over 83,000,000 pounds. This difference may be assumed to represent the tanning extracts imported or made and consumed in tanning establishments.

In addition to the production above reported, dyestuffs and tanning materials to the value of $834,102 in 1909 and to the value of $19,111 in 1904 were produced as subsidiary products by establishments engaged primarily in the manufacture of chemicals, flavoring extracts, and miscellaneous products other than dyestuffs and extracts. Including the subsidiary products reported, which, however, presumably do not cover all such products made in other industries, the total production of artificial dyes in 1909 was approximately 12,759,000 pounds; of mordants, 1,788,000 pounds; of sizes, 57,400,000 pounds; of tannic acid, 8,000,000 pounds; and of turkey-red oil, 3,398,000 pounds.

[1] Department of Commerce and Labor, Bureau of the Census, Forest Products of the United States, 1909.

Table 10 gives for 1909 the production of the specific products reported by establishments manufacturing dyestuffs and tanning materials as their principal products for the United States and for individual states as far as such statistics can be presented without disclosing the operations of individual establishments.

Table 10

PRODUCT AND STATE.	Pounds.	Value.	PRODUCT AND STATE.	Pounds.	Value.
Artificial dyestuffs	12,267,399	$3,462,436	Iron liquors	3,079,418	$30,282
Massachusetts	1,848,980	239,495			
New Jersey	3,226,061	1,599,528	Turkey-red oil	1,048,719	72,053
New York	5,371,951	1,477,456			
All other states	1,820,407	145,957	Chrome tannage solution	7,361,008	298,830
			New Jersey	7,102,328	285,576
Hemlock extract	12,588,078	280,487	All other states	258,680	13,254
Logwood extract	22,317,248	991,974	Other tanning liquors	2,464,040	77,274
Oak and chestnut extract	287,908,285	6,061,162	Tannic acid	5,085,748	249,297
Pennsylvania	51,723,637	1,017,645			
Tennessee	85,053,193	1,205,390	Sizes	54,054,711	1,735,600
Virginia	69,310,711	903,289	Massachusetts	6,027,359	118,008
All other states	81,820,744	2,844,838	New Jersey	2,971,767	152,380
			Rhode Island	9,943,453	387,930
Sumac extract	3,148,790	107,456	All other states	35,112,132	1,077,192
Ground sumac	554,032	24,531	Gums and dextrins	16,148,931	610,999
			Massachusetts	5,103,361	216,829
Ground bark	25,142,076	176,510	All other states	11,045,570	394,170
Ground and chipped wood	15,046,954	143,720			
Mordants	1,735,887	69,515			
New Jersey	1,424,458	49,054			
All other states	311,429	20,461			

Detailed statistics, by states.—The principal data secured by the census inquiry concerning the dyestuff and extract industry are presented, by states, in Table 11, which gives detailed statistics for 1909 concerning the number of establishments, the number of persons engaged in the industry, the number of wage earners on December 15, or the nearest representative day, primary horsepower, capital, expenses, the total value of products, and the value added by manufacture.

Table 11

STATE.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.								WAGE EARNERS—DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horsepower.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners.			Total.	16 and over.		Under 16.		
					Male.	Female.	Average number.	Number, 15th day of— Maximum month.	Number, 15th day of— Minimum month.		Male.	Female.	Male.	Female.	
United States	107	3,015	65	199	278	76	2,397	Au 2,478	Ja 2,293	2,465	2,422	37	6	.....	22,213
Georgia	3	46	3	1	1	.....	41	Ja 53	My 34	44	44	.....	.....	.....	541
Massachusetts	10	114	6	14	11	3	80	Ja 85	Se 74	78	78	.....	.....	.....	325
New Jersey	13	429	7	36	90	17	279	Au 287	Ap 270	281	263	15	3	... ...	1,006
New York	18	579	7	38	84	32	418	Fe 444	Jy 392	404	390	14	.....	.....	3,647
Pennsylvania	14	439	10	30	21	9	369	Se 438	My 316	372	371	.....	1	.....	3,516
Rhode Island	10	118	7	13	7	4	87	Se [1] 97	Ja 70	97	97	.....	.....	.....	689
Tennessee	6	374	.....	18	19	1	330	De 371	My 307	371	368	1	2	.....	4,119
Virginia	14	399	10	17	22	4	346	No 363	Oc 308	363	362	1	.....	.....	4,209
West Virginia	3	81	11	6	1	.....	63	Au 70	My 57	63	63	.....	.....	.....	506
All other states [2]	16	436	4	26	22	6	378	.....	.....	392	386	6	.....	.....	3,655

STATE.	Capital.	EXPENSES.										Value of products.	Value added by manufacture (value of products less cost of materials).
		Total.	Services.			Materials.		Miscellaneous.					
			Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
United States	$17,934,545	$13,492,987	$570,075	$372,251	$1,201,379	$462,189	$9,221,462	$34,907	$71,508	$4,738	$1,464,478	$15,954,574	$6,270,923
Georgia	294,455	108,171	1,217	1,453	19,180	12,532	50,806	426	817	.....	21,740	125,353	62,015
Massachusetts	396,064	650,103	34,426	12,572	49,975	12,345	499,274	7,920	3,265	4,468	25,918	725,386	213,767
New Jersey	2,162,906	2,684,465	122,639	133,173	178,956	41,762	1,920,968	4,060	9,254	.....	267,653	3,130,214	1,161,484
New York	4,145,223	3,884,806	145,933	118,129	259,501	46,969	2,820,108	15,648	18,511	.....	460,007	4,505,310	1,638,233
Pennsylvania	3,009,245	1,909,192	58,424	18,278	186,826	95,805	1,277,310	1,245	10,263	.....	260,981	2,345,251	972,076
Rhode Island	607,057	832,562	36,965	19,630	81,753	16,141	615,523	3,600	1,376	.....	57,574	927,676	296,012
Tennessee	2,190,386	954,803	38,641	17,789	156,053	73,805	568,126	.....	6,932	.....	93,457	1,313,020	671,089
Virginia	1,873,916	1,018,718	34,828	24,842	123,032	71,599	614,680	63	8,280	.....	141,394	1,199,706	513,427
West Virginia	262,268	238,260	36,262	910	24,068	14,849	143,657	.....	647	.....	17,867	252,854	94,348
All other states [2]	2,993,025	1,211,847	60,740	25,475	212,035	76,322	705,010	1,945	12,163	270	117,887	1,429,804	648,472

[1] Same number reported for one or more other months.
[2] All other states embrace: California, 1 establishment; Connecticut, 1; Florida, 1; Illinois, 2; Indiana, 1; Maine, 2; Michigan, 2; North Carolina, 4; South Carolina, 1; Wisconsin, 1.

EXPLOSIVES

THE MANUFACTURE OF EXPLOSIVES.

GENERAL STATISTICS.

Scope of the industry.—The statistics for the manufacture of explosives cover the operations of commercial establishments engaged primarily in the manufacture of gunpowder and blasting powder, *nitroglycerin, dynamite, guncotton, nitrosubstitution* compounds and the explosives of which they are components, smokeless powder, and fulminates. Statistics for governmental establishments are not included except as specially noted. Establishments engaged primarily in the manufacture of cartridges, detonators and fuses, and other devices containing explosives are assigned to the industry bearing the designation "firearms and ammunition," while those making colored fires, rockets, railroad torpedoes, signal lights, and similar products, are included under the heading of "fireworks."

Comparison with earlier censuses.—At the census of 1859, 58 establishments, with 747 wage earners and *products valued at* $3,223,090, were reported as engaged in the manufacture of explosives, and at the census of 1849, 54 establishments, with 579 wage earners and products valued at $1,590,332. Table 1 summarizes the statistics relating to this industry for each census from 1869 to 1909, inclusive. The financial figures for 1869 are given in currency, which at that time was worth only about 80 cents, gold, to the dollar. For strict comparison, therefore, these figures should be reduced about 20 per cent.

Table 1

	NUMBER OR AMOUNT.						PER CENT OF INCREASE.[1]					
	1909	1904	1899	1889	1879	1869	1899–1909	1904–1909	1899–1904	1889–1899	1879–1889	1869–1879
Number of establishments	86	124	97	69	54	36	−11.3	−30.6	27.8	40.6	27.8	50.0
Persons engaged in the industry	7,058	7,113	5,293	(2)	(2)	(2)	33.3	−0.8	34.4	.....	.....	.....
Proprietors and firm members	21	24	23	(2)	(2)	(2)	−8.7	−12.5	4.3	.....	.....	.....
Salaried employees	763	1,289	768	(2)	(2)	(2)	−0.7	−40.8	67.8	.....	.....	.....
Wage earners (average number)	6,274	5,800	4,502	2,353	1,340	973	39.4	8.2	28.8	(3)	(3)	(3)
Primary horsepower	28,601	20,665	19,195	10,674	(2)	3,750	49.0	−3.6	54.5	79.8	.....	.....
Capital	$50,107,976	$42,307,163	$19,465,840	$13,539,478	$6,585,185	$4,099,900	157.7	18.6	117.3	43.8	105.6	60.6
Expenses	31,460,284	23,067,156	14,729,781	8,200,153	(2)	(2)	113.6	31.3	62.7	79.6	.....	.....
Services	5,437,976	5,105,824	3,298,203	1,549,510	675,414	594,379	64.9	6.5	54.8	112.9	129.4	13.6
Salaries	1,133,606	1,797,050	914,447	(2)	(2)	(2)	24.0	−36.9	96.5	.....	.....	.....
Wages	4,304,370	3,308,774	2,383,756	(2)	(2)	(2)	80.6	30.1	38.8	.....	.....	.....
Materials	22,811,548	17,203,667	10,334,974	5,481,723	3,271,549	2,398,407	120.7	32.6	66.5	88.5	67.6	36.4
Miscellaneous	3,210,760	1,057,665	1,096,604	1,168,920	(2)	(2)	192.8	93.7	51.2	−6.2	.....	.....
Value of products	40,139,661	29,002,884	17,125,418	11,352,615	5,802,029	4,237,539	134.4	35.6	72.9	50.8	95.7	36.9
Value added by manufacture (value of products less cost of materials)	17,328,113	12,399,217	6,790,444	5,870,892	2,530,480	1,839,132	155.2	39.8	82.6	15.7	132.0	37.6

[1] A minus sign (−) denotes decrease. Where percentages are omitted, comparable figures are not available.
[2] Comparable figures not available.
[3] Figures not strictly comparable.

The value of products reported for 1909 was more than nine times the value of products in 1869, the decade 1899–1909 showing the most rapid increase. The decrease between 1904 and 1909 in the number of establishments shown is due to the fact that a larger number of individual plants operated under a common ownership were combined and reported as single establishments in 1909 than in 1904. In 1909 there were 54 plants, located in 14 states, which were reported as 16 establishments.

Comparative summary, by states.—Table 2 gives, for the three states which can be shown separately, the number of establishments, average number of wage earners, primary horsepower, capital, salaries, wages, cost of materials, value of products, and value added by manufacture for 1909, 1904, and 1899.

The three states for which comparative statistics are given show increases during the decade 1899–1909 in the more important items, such as average number of wage earners, value of products, and value added by manufacture.

The presentation of statistics by states for the manufacture of explosives is unsatisfactory, because the totals for a number of states can not be shown without the possibility of disclosing the operations of individual establishments. New Jersey, the most important state in the industry, and several other states—notably California, Wisconsin, and Missouri—are of more importance than some for which figures are given but are omitted from the table for the reason stated, while Colorado and Iowa were also of considerable importance.

Table 2

STATE.	Census.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY. Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).	Primary horsepower.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture (value of products less cost of materials).
								Expressed in thousands.					
United States	**1909**	**86**	**7,058**	**21**	**763**	**6,274**	**28,601**	**$50,168**	**$1,134**	**$4,304**	**$22,812**	**$40,140**	**$17,328**
	1904	**124**	**7,113**	**24**	**1,289**	**5,800**	**29,665**	**42,307**	**1,797**	**3,309**	**17,204**	**29,603**	**12,399**
	1899	**97**	**5,293**	**23**	**768**	**4,502**	**19,195**	**19,466**	**914**	**2,384**	**10,335**	**17,125**	**6,790**
Illinois	1909	8	327	.....	37	290	1,828	1,562	44	190	935	1,469	534
	1904	5	174	.....	32	142	1,383	775	56	83	412	712	300
	1899	3	85	.....	14	71	560	493	14	32	144	290	146
Ohio	1909	11	424	.....	66	358	2,692	2,248	102	204	1,104	1,719	615
	1904	16	513	2	83	428	4,075	2,868	126	236	1,275	1,843	568
	1899	9	411	3	56	352	2,738	1,972	93	179	773	1,330	557
Pennsylvania	1909	27	1,225	20	172	1,033	4,594	6,313	231	629	4,088	6,388	2,300
	1904	40	1,079	19	163	897	5,609	5,320	233	527	2,517	4,013	1,496
	1899	36	748	17	102	629	3,673	2,819	130	320	1,500	2,595	1,095
All other states	1909	40	5,082	1	488	4,593	19,487	40,045	757	3,281	16,685	30,564	13,879
	1904	63	5,347	3	1,011	4,333	18,508	33,344	1,382	2,463	13,000	23,035	10,035
	1899	49	4,049	3	596	3,450	12,224	14,182	677	1,853	7,918	12,910	4,992

Persons engaged in the industry.—Table 3 shows, for 1909, the number of persons engaged in the industry, classified according to occupational status and sex and, in the case of wage earners, according to age. It should be borne in mind 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.

Table 3

CLASS.	PERSONS ENGAGED IN THE INDUSTRY: 1909 Total.	Male.	Female.
All classes	**7,058**	**6,787**	**271**
Proprietors and officials	242	232	10
Proprietors and firm members	21	13	8
Salaried officers of corporations	66	64	2
Superintendents and managers	155	155	.....
Clerks	542	488	54
Wage earners (average number)	6,274	6,067	207
16 years of age and over	6,267	6,060	207
Under 16 years of age	7	7	.....

The average number of persons engaged in the industry during 1909 was 7,058 of whom 6,274 or 88.9 per cent, were wage earners; 242, or 3.4 per cent, were proprietors and officials; and 542, or 7.7 per cent, were clerks, this class including other subordinate salaried employees. Of the total number of persons engaged in the industry, 6,787, or 96.2 per cent, were males and 271, or 3.8 per cent, females. The average number of wage earners under 16 years age was only seven.

Wage earners employed, by months.—Table 4 gives the number of wage earners employed in the industry on the 15th (or the nearest representative day) of each month during the year 1909. The number of wage earners for the months of maximum and minimum employment are shown for several states in Table 13.

The largest number, 7,106, was reported for December, and the smallest number, 5,504, for April, the minimum being equal to 77.5 per cent of the maximum. In 1904 the maximum number was reported for April, and the minimum number, reported for December, was equal to 95.7 per cent of the maximum.

Table 4

MONTH.	WAGE EARNERS IN THE INDUSTRY: 1909 Number.	Per cent of maximum.
January	5,813	81.8
February	5,737	80.7
March	5,771	81.2
April	5,504	77.5
May	5,893	82.9
June	6,138	86.4
July	6,407	90.2
August	6,548	92.1
September	6,680	94.0
October	6,799	95.7
November	6,899	97.1
December	7,106	100.0

Prevailing hours of labor.—In Table 5 the wage earners in the industry have been classified according to the number of hours of labor per week prevailing in the establishments in which they were employed. In making this classification the average number of wage earners employed during the year in each establishment was classified as a total according to the hours prevailing in that establishment, even though a few employees worked a greater or smaller number of hours.

Table 5

PREVAILING HOURS OF LABOR.	WAGE EARNERS IN THE INDUSTRY: 1909 Average number.	Per cent of total.
Total	**6,274**	**100.0**
48 and under	216	3.4
54	373	5.9
Between 54 and 60	205	3.3
60	5,344	85.2
Between 60 and 72	136	2.2

Of the 6,274 wage earners, 5,344, or 85.2 per cent, were employed in establishments where the prevailing

hours of labor were 60 per week; 794, or 12.6 per cent, in establishments where they were less than 60 hours per week; and 136, or 2.2 per cent, in establishments where the prevailing hours were over 60 per week.

Character of ownership.—Table 6 presents statistics with respect to the character of ownership of establishments in the explosive industry.

Table 6

CHARACTER OF OWNERSHIP.	NUMBER OF ESTABLISHMENTS.		VALUE OF PRODUCTS.	
	1909	1904	1909	1904
Total	86	124	$40,139,661	$29,602,884
Individual	5	8	210,103	277,030
Firm	4	7	129,563	138,748
Corporation	77	109	39,799,995	29,186,206
Per cent of total	100.0	100.0	100.0	100.0
Individual	5.8	6.5	0.5	0.9
Firm	4.7	5.6	0.3	0.5
Corporation	89.5	87.9	99.2	98.6

In 1909, of the total number of establishments, 89.5 per cent were under corporate ownership, as compared with 87.9 per cent in 1904. The proportions for 1909 are affected by the inclusion of a number of reports in that year which covered more than one plant, whereas in 1904 separate reports were received for each plant. The corporations reported 99.2 per cent of the value of products in 1909 and 98.6 per cent in 1904.

Expenses.—As stated in the Introduction, the census figures representing expenses do not purport to show the total cost of manufacture, since they take no account of interest or depreciation; hence they can not properly be used for determining profits. Facts of interest can be brought out, however, concerning the relative importance of the different classes of expenses which were reported. Table 1 shows the total expenses in 1909 to have been $31,460,284, distributed as follows: Cost of materials, $22,811,548, or 72.5 per cent; wages, $4,304,370, or 13.7 per cent; salaries, $1,133,606, or 3.6 per cent; and miscellaneous expenses, made up of advertising, ordinary repairs of buildings and machinery, insurance, traveling expenses, etc., $3,210,760, or 10.2 per cent.

Engines and power.—The amount of power was first reported for the industry at the census of 1869. The total horsepower increased from 3,750 in 1869 to 28,601 in 1909. Table 7 shows the statistics of power as reported at the censuses of 1909, 1904, and 1899.

Table 7

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899	1909	1904	1899	1909	1904	1899
Primary power, total	433	605	512	28,601	29,665	19,195	100.0	100.0	100.0
Owned	426	605	512	28,468	29,665	19,085	99.5	100.0	99.4
Steam	346	375	315	25,558	21,636	13,242	89.4	72.9	69.0
Gas	17	15	7	221	427	72	0.8	1.4	0.4
Water wheels	62	186	190	2,687	6,962	5,674	9.4	23.5	29.6
Water motors	1	29	(1)	2	215	(1)	(2)	0.7	.....
Other	.....	.....	.....	.....	425	97	.....	1.4	0.5
Rented—Electric	7	.....	(1)	133	.....	110	0.5	.....	0.6
Electric motors	885	428	177	14,836	7,889	2,995	100.0	100.0	100.0
Run by current generated by establishment	878	428	177	14,703	7,889	2,885	99.1	100.0	96.3
Run by rented power	7	.....	(1)	133	.....	110	0.9	.....	3.7

[1] Not reported. [2] Less than one-tenth of 1 per cent.

The total primary power increased 49 per cent from 1899 to 1909, steam power increasing 93 per cent, while water power decreased 52.6 per cent. In 1899 steam power formed 69 per cent and water power 29.6 per cent of the total power, but in 1909 the corresponding proportions were 89.4 and 9.4 per cent, respectively. Rented electric power is little used in this industry, and the 133 horsepower reported in 1909 formed only five-tenths of 1 per cent of the total primary power. The horsepower of motors used for the distribution of power by means of current generated in the establishments in the industry increased from 2,885 in 1899 to 14,703 in 1909.

Fuel consumed.—Table 8 shows the amount of each kind of fuel consumed in the industry in 1909. The amount expended for fuel and rent of power and heat is shown for the few states for which statistics can be given without disclosing individual operations in Table 13.

Table 8

KIND OF FUEL.	Unit.	Quantity.
Anthracite coal	Long tons	39,482
Bituminous coal	Short tons	926,700
Coke	Short tons	664
Wood	Cords	633
Oil, including gasoline	Barrels, 50 gallons	144,427
Gas	1,000 feet	284,797

SPECIAL STATISTICS RELATING TO MATERIALS AND PRODUCTS.

Materials.—Table 9 shows statistics for materials used in the industry for 1909, 1904, and 1899.

The figures in Table 9 relate only to materials purchased, and do not include acids or other materials produced in establishments where they were used in further processes of manufacture.

In addition to the materials purchased by establishments manufacturing explosives as their chief product in 1909, statistics for which are given in Table 9, 100,000 pounds of sulphuric acid, 137,400 pounds of nitric acid, and 300,140 pounds of mixed acid were used in the manufacture of explosives by establishments engaged primarily in the manufacture of other products; and 546 tons of pyrites, 619 tons of nitrate of soda, 386,000 pounds of sulphuric acid, 1,500 pounds of nitric acid, and 1,051,713 pounds of mixed acid in establishments operated by the United States Government.

Table 9 MATERIAL.	1909	1904	1899
Total cost	$22,811,548	$17,203,667	$10,334,974
Nitrate of soda:			
Tons	188,889	133,034	88,524
Cost	$7,892,336	$5,608,557	$2,902,866
Acids:			
Mixed—			
Pounds	51,764,694	105,552,404	66,906,146
Cost	$1,512,626	$3,093,429	$1,505,754
Nitric—			
Pounds	7,591,756	2,699,500	467,587
Cost	$541,314	$122,047	$17,171
Sulphuric—			
Pounds	45,002,000	36,596,000	15,728,000
Cost	$406,204	$247,301	$130,699
Sulphur or brimstone:			
Tons	17,389	18,570	12,742
Cost	$367,866	$501,820	$317,383
Pyrites:			
Tons	36,544	12,256	(1)
Cost	$183,509	$67,261	(1)
All other materials	$11,907,693	$7,563,252	$5,461,101

[1] Not reported.

In comparing statistics in regard to materials for different years the fact should not be overlooked that in addition to the materials which are purchased certain materials are also made in the establishments that used them. Table 10 shows the quantities of the most important materials which were manufactured in the establishments in which they were used in 1909 and 1904. The statistics given do not cover materials made and used in establishments engaged primarily in the manufacture of products other than explosives or in establishments operated by the Federal Government.

Table 10 MATERIAL.	QUANTITY OF SPECIFIED MATERIAL PRODUCED IN ESTABLISHMENTS WHERE USED.	
	1909	1904
Potassium nitrate, pounds	12,050,225	3,559,376
Nitroglycerin, pounds	70,289,667	44,077,828
Sulphuric acid, pounds	85,110,000	61,988,000
Nitric acid, pounds	62,968,000	37,976,000
Charcoal, bushels	737,884	1,156,918
Nitrate of ammonia, pounds	10,904,319	2,863,857
Ether, pounds	2,052,932	2,740,286

Products.—Table 11 shows the quantity and value of the different kinds of explosives reported by establishments engaged primarily in the manufacture of explosives in 1909, 1904, and 1899.

Including the product of the establishments operated by the Federal Government and the explosives made as secondary product by establishments not engaged primarily in the manufacture of explosives, the total production in 1909 was 489,171,650 pounds, and in 1904, 362,085,816 pounds.

The total production of smokeless powder by all classes of establishments in 1909 was 6,315,167 pounds, valued at $4,292,984, as compared with 7,009,720 pounds, valued at $4,406,477, in 1904, and 3,053,126 pounds, valued at $1,716,101, in 1899.

During the decade 1899–1909 the production of explosives by establishments engaged chiefly in their manufacture increased 271,500,533 pounds, or 125.7 per cent, in quantity, and $21,032,892, or 124.1 per cent, in value. Of the total increase in output, blasting powder and gunpowder contributed 123,025,772 pounds, and dynamite, including "permissible explosives," 118,916,843 pounds.

The production of guncotton in 1909 by all establishments was 257,212 pounds, valued at $124,660, as compared with 383,162 pounds, valued at $226,687, in 1904 and 848,342 pounds, valued at $403,702, in 1899.

Table 11 PRODUCT.	1909	1904	1899
Total:			
Pounds	[1] 487,461,252	[2] 360,980,734	215,980,719
Value	$37,983,868	$27,695,963	$16,950,976
Dynamite:			
Pounds	195,155,851	130,920,829	85,846,456
Value	$18,699,746	$12,900,193	$8,247,223
Permissible explosives:			
Pounds	9,607,448	[3]	[3]
Value	$863,209	[3]	[3]
Nitroglycerin, sold as such:			
Pounds	28,913,253	7,935,936	3,618,692
Value	$3,162,434	$1,620,117	$783,299
Blasting powder:			
Pounds	233,477,175	205,436,200	123,314,103
Value	$9,608,265	$7,377,977	$5,310,351
Gunpowder:			
Pounds	12,862,709	10,383,944	
Value	$1,736,427	$1,541,483	
Other explosives, including smokeless powder and guncotton or pyroxylin, sold as such:			
Pounds	[1] 7,464,825	[2] 6,303,825	3,201,468
Value	$3,913,787	[4] $4,256,193	[4] $2,610,103

[1] In addition, 1,471,042 pounds of "other explosives," valued at $656,999, were made by Federal establishments, and 219,356 pounds, valued at $135,979, by establishments not engaged primarily in the manufacture of explosives.
[2] In addition, 1,105,082 pounds, valued at $567,804, were made by Federal establishments and establishments not engaged primarily in the manufacture of explosives.
[3] Not reported separately.
[4] Includes the value of explosives for which no quantities were reported, as follows: In 1904, $150,798, and in 1899, $850,453.

From 1904 to 1909 the production of nitroglycerin sold as such increased 20,977,317 pounds, or 264.3 per cent, in quantity, and $1,542,317, or 95.2 per cent, in value. The larger part of the nitroglycerin manufactured, however, was used in the manufacture of dynamite and similar explosives in the establishments where it was produced (see Table 10), 70.9 per cent being so used in 1909, and 84.7 per cent in 1904.

Explosives which are intended for use in coal mines where there are inflammable gases and which have passed the prescribed tests of the United States Bureau of Mines are designated as "permissible explosives." These explosives were reported separately for the first time at the census of 1909. Generally they are similar in composition to dynamite, and such quantities as were manufactured in 1904 and 1899 were reported as dynamite. The aggregate production of dynamite and permissible explosives in 1909 by establishments engaged primarily in the industry was 204,763,299 pounds, valued at $19,562,955, as compared with 130,920,829 pounds, valued at $12,900,193, in 1904 and 85,846,456 pounds, valued at $8,247,223, in 1899, an increase for the decade of 138.5 per cent in quantity and 137.2 per cent in value.

In 1909, 44 establishments reported the manufacture of nitroglycerin, 25 the manufacture of dynamite, and 13 the manufacture of permissible explosives.

Table 12 shows the quantity of gunpowder and of blasting powder produced by establishments in the industry in 1909, 1904, and 1899.

The production of gunpowder and blasting powder in 1909 aggregated 246,339,875 pounds, valued at $11,344,692, as compared with 215,820,144 pounds, valued at $8,919,460, in 1904 and 123,314,103 pounds, valued at $5,310,351, in 1899. The manufacture of blasting powder was reported by 38 establishments in 1909, and that of gunpowder by 8 establishments.

Recovered acid constitutes an important by-product in the manufacture of explosives. In 1909 the commercial establishments engaged primarily in the industry reported the recovery of 14,137,857 pounds of acid, valued at $62,935, and the establishments operated by the Federal Government reported the recovery of 1,610,646 pounds.

Table 12

PRODUCT.	GUNPOWDER AND BLASTING POWDER PRODUCED (POUNDS).		
	1909	1904	1899
Total	246,339,875	215,820,144	123,314,103
Gunpowder	12,862,700	10,383,944	(1)
Blasting powder	233,477,175	205,436,200	(1)
Per cent of total	100.0	100.0	.....
Gunpowder	5.2	4.8	.....
Blasting powder	94.8	95.2	.....

[1] Figures not strictly comparable.

DETAILED STATE TABLE.

The principal statistics secured by the census inquiry concerning the manufacture of explosives are presented, by states, in Table 13, which gives detailed figures for 1909 for number of establishments, number of persons engaged in the industry, number of wage earners on December 15, or the nearest representative day, primary horsepower, capital, expenses, value of products, and value added by manufacture.

EXPLOSIVES—DETAILED STATISTICS, BY STATES: 1909.

Table 13

STATE.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.								WAGE EARNERS—DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Primary horsepower.
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks.		Wage earners.			Total.	16 and over.		Under 16.		
					Male.	Female.	Average number.	Number, 15th day of—			Male.	Female.	Male.	Female.	
								Maximum month.	Minimum month.						
United States	86	7,058	21	221	488	54	6,274	De 7,106	Ap 5,504	7,121	6,878	235	8	.....	28,601
Illinois	8	327	.....	15	15	7	290	De 326	Ap 251	326	326	.....	.....	.....	1,828
Ohio	11	424	.....	24	34	8	358	Au 385	Ap 323	378	355	23	.....	.....	2,692
Pennsylvania	27	1,225	20	59	97	16	1,033	Se 1,159	Mh 906	1,111	1,002	101	8	.....	4,594
All other states[1]	40	5,082	1	123	342	23	4,593	.....	.....	5,306	5,195	111	.....	.....	19,487

STATE.	Capital.	EXPENSES.										Value of products.	Value added by manufacture (value of products less cost of materials).
		Total.	Services.			Materials.		Miscellaneous.					
			Officials.	Clerks.	Wage earners.	Fuel and rent of power.	Other.	Rent of factory.	Taxes, including internal revenue.	Contract work.	Other.		
United States	$50,167,976	$31,460,284	$518,080	$615,526	$4,304,370	$826,981	$21,984,507	$4,600	$142,062	$3,065	$3,061,033	$40,139,661	$17,328,113
Illinois	1,561,612	1,250,894	28,030	15,190	189,558	29,226	906,066	150	4,414	1,503	76,157	1,469,469	534,177
Ohio	2,247,776	1,585,825	66,068	35,586	203,782	40,997	1,062,874	460	14,799	.....	160,659	1,718,871	615,000
Pennsylvania	6,313,397	5,479,440	119,973	111,357	629,643	84,780	4,002,780	2,485	21,008	127	507,281	6,387,869	2,300,303
All other states[1]	40,045,191	23,144,125	302,809	453,393	3,281,387	671,972	16,012,847	1,505	101,841	1,435	2,316,936	30,563,452	13,878,633

[1] All other states embrace: Alabama, 2 establishments; Arkansas, 1; California, 2; Colorado, 1; Connecticut, 1; Delaware, 1; Indiana, 3; Iowa, 1; Kansas, 2; Maryland, 1; Massachusetts, 2; Michigan, 3; Missouri, 3; New Jersey, 2; New York, 3; Oklahoma, 3; Tennessee, 2; Texas, 1; Washington, 2; West Virginia, 3; Wisconsin, 1.

FERTILIZERS

THE FERTILIZER INDUSTRY.

GENERAL STATISTICS.

Scope of industry.—This classification covers establishments making artificial fertilizers, the products being ordinarily ready for use without being subjected to further treatment. The production of certain kinds of products which are used more or less extensively for fertilizing without special manufacture is not covered by this report. For example, the production of raw phosphate rock, including the process of grinding it, is treated as a mining industry, and, while part of the phosphate rock is used as material by fertilizer factories, a great deal of it is used directly as such on the farms. Crude cottonseed, a farm product, is often used as a fertilizer without being subjected to any manufacturing process, and cottonseed meal and other products of cottonseed-oil mills are also so used. Tankage, which consists of various waste materials of slaughtering and meat-packing establishments, is also used to a considerable extent as a fertilizer without further preparation. Much cottonseed meal and tankage, however, are used as materials by the fertilizer factories included under the present classification.

The raw materials used by fertilizer factories include animal, vegetable, and mineral products, while sulphuric and other acids are employed extensively in the treatment of the basic materials. The finished products include a variety of classes, such as "complete" fertilizers, which consist of a mixture of superphosphates with both potash and ammoniates, superphosphates with or without ammoniates, concentrated phosphates, and other minor classes.

In addition to the production of fertilizers by establishments assigned to the present classification, there is a considerable production of similar finished fertilizers by concerns engaged primarily in the manufacture of other products, especially by slaughtering and meat-packing establishments and cottonseed-oil mills. In cases where the manufacture of fertilizers by concerns of this character was conducted as a separate department a separate report for this department was secured, and the statistics are included with those for the fertilizer industry, while in other cases separate reports were not secured, since the statistics of capital, labor, etc., for this branch of the business could not be segregated. As a rule, however, the quantity and value of the fertilizers produced and the quantity and cost of the fertilizer materials used by such establishments were given, making it possible to present more complete statistics for these items.

Summary and comparison with earlier censuses.—Table 1 summarizes the statistics for the fertilizer industry for each census from 1869 to 1909, inclusive. The financial figures for 1869 are given in currency, which at that time was worth only about 80 cents, gold, to the dollar. For strict comparison, therefore, these figures should be reduced about 20 per cent.

Table 1

	NUMBER OR AMOUNT.						PER CENT OF INCREASE.[1]					
	1909	1904[2]	1899	1889	1879	1869	1899–1909	1904–1909	1899–1904	1889–1899	1879–1889	1869–1879
Number of establishments	550	399	422	390	364	126	30.3	37.8	−5.5	8.2	7.1	188.9
Persons engaged in the industry	21,950	16,091	13,654	(3)	(3)	(3)	60.8	36.4	17.9	.....	.....	.....
Proprietors and firm members	323	294	361	(3)	(3)	(3)	−10.5	9.9	−18.6	.....	.....	.....
Salaried employees	3,317	1,613	1,712	(3)	(3)	(3)	93.8	105.6	−5.8	.....	.....	.....
Wage earners (average number)	18,310	14,184	11,581	9,026	8,598	2,501	58.1	29.1	22.5	(4)	(4)	(4)
Primary horsepower	64,711	47,989	38,680	(3)	(3)	2,951	67.3	34.8	24.1	.....	.....	.....
Capital	$121,537,451	$68,917,264	$60,685,753	$40,594,168	$17,913,660	$4,395,948	100.3	76.4	13.6	49.5	126.6	307.5
Expenses	90,101,203	51,264,749	39,003,019	32,575,787	(3)	(3)	131.0	75.8	31.4	19.7	.....	.....
Services	11,882,815	7,061,139	6,310,261	4,671,831	2,648,422	766,712	88.3	68.3	11.9	35.1	76.4	245.4
Salaries	4,405,036	1,933,992	2,124,972	(3)	(3)	(3)	107.3	127.8	−9.0	.....	.....	.....
Wages	7,477,179	5,127,147	4,185,289	(3)	(3)	(3)	78.7	45.8	22.5	.....	.....	.....
Materials	69,521,920	39,287,914	28,958,473	25,113,874	15,595,078	3,808,025	140.1	77.0	35.7	15.3	61.0	309.5
Miscellaneous	8,696,558	4,915,696	3,734,285	2,790,082	(3)	(3)	132.9	76.9	31.6	33.8	.....	.....
Value of products	103,960,213	56,541,253	44,657,385	39,180,844	23,650,795	5,815,118	132.8	83.9	26.6	14.0	65.7	306.7
Value added by manufacture (value of products less cost of materials)	34,438,293	17,253,339	15,698,912	14,066,970	8,055,717	2,007,093	119.4	99.6	9.9	11.6	74.6	301.4

[1] A minus sign (−) denotes decrease. Where percentages are omitted comparable figures are not available.
[2] Exclusive of the statistics for Alaska, which were included in the totals published at the census of 1904.
[3] Comparable figures not available.
[4] Figures not strictly comparable.

In 1859, statistics for which are not included in the table, 47 establishments were reported as making fertilizers, with 308 wage earners and products valued at $891,344. The growth of the industry from census to census has been continuous and for the most part rapid, the value of products reported for 1909 being nearly eighteen times as great as that for 1869. Between 1899 an 1909 the value of products increased 132.8 per cent, the number of wage earners 58.1 per cent, the amount paid in wages 78.7 per cent, and the value added by manufacture 119.4 per cent. The growth of the industry was greater during this decade than in any other decade covered by the table, except that from 1869 to 1879.

Summary, by states.—Table 2 summarizes the more important statistics for the fertilizer industry, by states, the states being arranged according to the value of products reported for 1909. The states shown in this table are given their actual ranking among all states, the rank of certain states for which data can not be presented being higher than that of some named in the table.

Table 2

STATE.	Number of establishments: 1909	WAGE EARNERS. Average number: 1909	Per cent of total: 1909	Rank. 1909	Rank. 1904	VALUE OF PRODUCTS. Amount: 1909	Per cent of total: 1909	Rank. 1909	Rank. 1904	VALUE ADDED BY MANUFACTURE. Amount: 1909	Per cent of total: 1909	Rank. 1909	Rank. 1904	PER CENT OF INCREASE.[1] Wage earners. 1899–1909	1904–1909	1899–1904	Value of products. 1899–1909	1904–1909	1899–1904	Value added by manufacture. 1899–1909	1904–1909	1899–1904
United States	550	18,310	100.0	....	....	$103,960,213	100.0	....	....	$34,438,293	100.0	....	....	58.1	29.1	22.5	132.8	83.9	26.5	119.4	99.6	9.9
Georgia	110	2,770	15.1	1	1	16,800,301	16.2	1	1	5,856,150	17.0	1	1	146.0	26.4	94.7	399.0	77.6	181.0	475.8	99.6	188.5
Maryland	41	1,439	7.9	3	3	9,672,786	9.3	2	2	2,710,061	7.9	3	3	41.6	14.6	23.6	76.5	45.9	21.0	47.4	65.2	−10.8
South Carolina	26	1,851	10.1	4	5	9,024,900	8.7	3	6	3,395,442	9.9	2	7	4.5	72.8	−39.6	84.8	148.1	−25.5	91.3	259.0	−46.7
Virginia	45	1,956	10.7	2	2	8,034,543	7.7	4	4	2,645,433	7.7	4	4	67.0	8.6	53.8	135.2	72.5	36.4	116.8	86.6	13.0
New Jersey	22	1,208	6.6	7	4	7,671,859	7.4	5	3	1,986,672	5.8	7	2	25.6	6.1	18.4	78.8	35.7	31.7	73.5	15.3	50.6
Pennsylvania	48	1,224	6.7	6	6	6,542,844	6.3	6	5	1,929,974	5.6	8	5	60.0	27.8	25.2	79.6	59.8	12.4	82.1	60.3	13.6
Alabama	42	1,233	6.7	5	10	6,423,233	6.2	7	9	2,158,868	6.3	5	11	180.9	123.8	25.5	210.6	174.4	13.2	217.0	193.7	7.9
North Carolina	34	933	5.1	8	7	6,316,485	6.1	8	7	2,133,282	6.2	6	9	118.5	2.8	112.6	321.6	103.8	106.9	369.8	142.1	94.1
Ohio	27	841	4.6	10	11	4,434,541	4.3	9	10	1,899,756	5.5	9	8	110.2	71.6	22.5	167.6	93.8	38.1	196.9	110.4	41.1
New York	15	908	5.0	9	9	4,250,568	4.1	10	11	1,595,801	4.6	10	10	−12.1	52.3	−42.3	35.0	104.2	−33.9	28.8	113.4	−39.6
Florida	12	589	3.2	11	16	3,878,290	3.7	11	13	1,003,679	2.9	13	16	403.4	143.4	106.8	675.6	143.9	218.0	493.5	278.5	56.8
Tennessee	12	559	3.1	12	8	3,249,343	3.2	13	8	1,127,615	3.3	12	6	26.2	−28.4	76.3	121.6	20.3	84.2	66.7	14.0	46.3
Illinois	11	444	2.4	15	23	2,385,951	2.3	14	22	961,434	2.8	14	22	31.8	.....	−85.8	28.6	1,721.4	−92.9	13.2	.....	−95.3
California	15	226	1.2	18	19	2,312,555	2.2	15	17	516,777	1.5	16	15	.....	83.7	.....	244.7	158.7	33.2	175.0	37.9	99.5
Mississippi	10	449	2.5	13	13	2,125,029	2.0	16	15	740,071	2.1	15	17	.....	29.0	.....	331.0	96.4	119.5	390.1	228.9	49.0
Louisiana	6	295	1.6	16	14	1,757,091	1.7	17	14	432,613	1.2	18	13	6.1	−14.2	23.7	93.1	12.9	71.0	46.3	−20.1	83.1
Connecticut	12	295	1.6	17	15	1,572,575	1.5	18	16	481,514	1.4	17	14	121.8	−4.8	133.1	302.3	66.8	141.2	195.7	15.3	156.4
Delaware	10	134	0.7	19	18	859,517	0.8	19	19	407,530	1.2	19	19	−9.5	−10.1	0.7	16.4	13.2	−49.8	20.4	.....	−75.2
Maine	5	95	0.5	22	24	596,623	0.6	21	24	165,787	0.5	23	24	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indiana	15	123	0.7	20	20	456,302	0.4	23	21	202,608	0.6	22	18	.....	.....	.....	78.8	52.5	17.3	.....	41.3	.....
All other states	32	738	4.0	....	....	5,594,811	5.4	....	....	2,087,226	6.1	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....

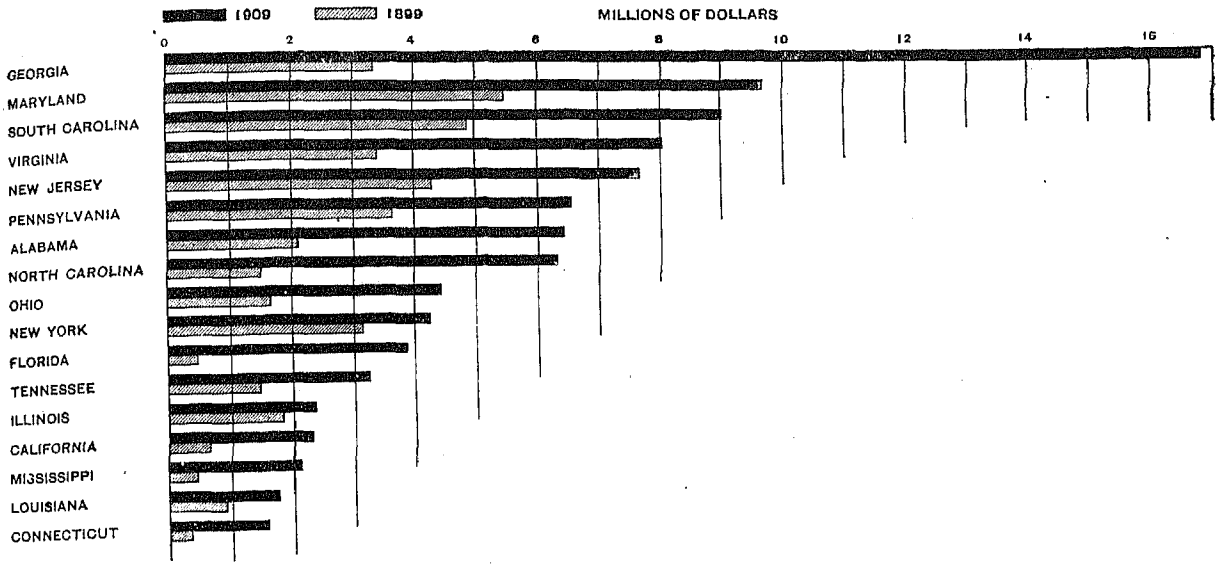
[1] Percentages of increase are based on figures in Table 19. A minus sign (−) denotes decrease. Percentage not shown where base is less than 100 for wage earners or less than $100,000 for value of products or value added by manufacture.

Although reported from 34 states, the industry is largely concentrated in the Southern states, the states of the South Atlantic division alone reporting more than half of the total value of products in 1909. In this connection it may be noted that, according to the census of agriculture, much the larger part of the expenditure of farmers for fertilizers is in the South. In 1909 the farmers of the United States reported the expenditure of $114,882,541 for fertilizers, of which $75,752,296, or 65.9 per cent, was spent by the farmers of the South. The farmers of the South Atlantic division alone spent $59,625,130, or more than half of the total. Most of the expenditure for fertilizers outside of the South was reported from the three northeastern divisions of the country—the New England, Middle Atlantic, and East North Central.

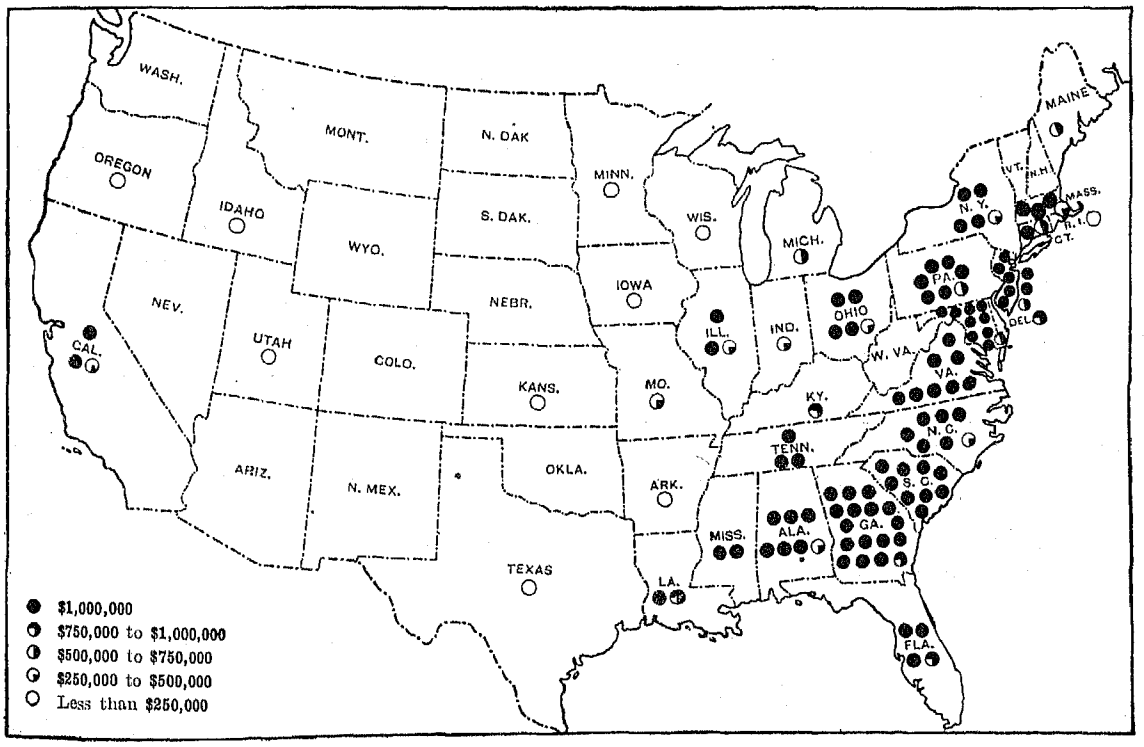
Georgia is by far the most important state in the production of fertilizers, the value of its product in 1909 representing nearly one-sixth of the total for the country. Maryland ranks second among the states in value of products of the fertilizer industry. Florida, one of the important states in this industry, shows the greatest rate of increase in value of products between 1899 and 1909, 675.6 per cent. In Georgia the increase was 399 per cent, and in Virginia, Alabama, North Carolina, Ohio, Tennessee, Mississippi, and Connecticut the rate of increase exceeded 100 per cent. Although the percentage of increase during the decade was less conspicuous for South Carolina, this state advanced from sixth place in value of products in 1904 to third place in 1909. The increase shown for Illinois from 1904 to 1909 has little significance, as the fertilizer business of certain establishments making fertilizers as a subsidiary product was classed with the fertilizer industry in 1899 and 1909 but not in 1904. The figures for other states also may have been affected by changes in the method of reporting the manufacture of fertilizers by concerns primarily engaged in other industries.

The following diagram shows graphically the value of products for the most important states in the industry in 1909 and 1899, while the map shows graphically the distribution, by states, of the value of products in 1909.

VALUE OF PRODUCTS FOR LEADING STATES: 1909 AND 1899.



VALUE OF PRODUCTS, BY STATES: 1909.



Persons engaged in the industry.—Table 3 shows, for 1909, the number of persons engaged in the industry, classified according to occupational status and sex, and in the case of wage earners, according to age also. It should be borne in mind that the sex and age classification of the average number of wage earners in this and other tables is an estimate obtained by the method described in the Introduction.

The average number of persons engaged in the industry during 1909 was 21,950, of whom 18,310, or 83.4 per cent, were wage earners, 1,323, or 6 per cent, proprietors and officials, and 2,317, or 10.6 per cent, clerks, this class including other subordinate salaried employees. Of the total number of persons engaged in the industry, 21,547, or 98.2 per cent, were males, and 403, or 1.8 per cent, females, most of the latter being clerks. The average number of wage earners under 16 years of age (all of whom were males) was only 67.

The average number of wage earners for each state in 1909, 1904, and 1899 is given in Table 19. The distribution of the average number by sex and age is not shown for the individual states, but Table 20 gives such a distribution of the number of wage earners employed on the representative day. No women were reported as wage earners in 12 of the 22

states for which separate figures are shown. The largest number of female wage earners, 47, was reported for the state of Illinois, and the next largest, 20, for Connecticut. More than one-half of the boys under 16 years of age were reported from Georgia.

Table 3

CLASS.	PERSONS ENGAGED IN THE INDUSTRY: 1909		
	Total.	Male.	Female.
All classes	**21,950**	**21,547**	**403**
Proprietors and officials	1,323	1,313	10
Proprietors and firm members	323	316	7
Salaried officers of corporations	406	404	2
Superintendents and managers	594	593	1
Clerks	2,317	2,042	275
Wage earners (average number)	18,310	18,192	118
16 years of age and over	18,243	18,125	118
Under 16 years of age	67	67	.....

In order to compare the distribution of the persons engaged in the industry in 1909 according to occupational status with that in 1904 it is necessary to use the classification employed at the earlier census. (See Introduction.) Such a comparison is made in Table 4.

Table 4

CLASS.	PERSONS ENGAGED IN THE INDUSTRY.				
	1909		1904		Per cent of increase: 1904–1909
	Number.	Per cent distribution.	Number.	Per cent distribution.	
Total	**21,950**	**100.0**	**16,091**	**100.0**	**36.4**
Proprietors and firm members	323	1.5	294	1.8	9.9
Salaried employees	3,317	15.1	1,613	10.0	105.6
Wage earners (average number)	18,310	83.4	14,184	88.1	29.1

Table 5 shows the average number of wage earners in the industry, distributed according to age, and in the case of those 16 years of age and over, according to sex, for 1909, 1904, and 1899. The number of women and children employed was so small that the increase from 1899 to 1909 has little significance.

Table 5

CLASS.	AVERAGE NUMBER OF WAGE EARNERS IN THE INDUSTRY.					
	1909		1904		1899	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
Total	**18,310**	**100.0**	**14,184**	**100.0**	**11,581**	**100.0**
16 years of age and over	18,243	99.6	14,158	99.8	11,566	99.9
Male	18,125	99.0	14,048	99.0	11,435	98.7
Female	118	0.6	110	0.8	131	1.1
Under 16 years of age	67	0.4	26	0.2	15	0.1

Wage earners employed, by months.—Table 6 gives the number of wage earners employed in the industry on the 15th (or the nearest representative day) of each month during the year 1909, for the 12 states in which an average of 500 or more wage earners were employed during the year.

The industry is considerably affected by the seasonal demand for fertilizers. The largest number of wage earners employed during any month of 1909 was 29,310 in March, and the smallest number 14,264 in July, the minimum number being equal to 48.7 per cent of the maximum. In 1904 the maximum number, 20,834, was shown for March, and the minimum number, 11,122, for June, the latter number forming 53.4 per cent of the former. In the more southern states—Alabama, Florida, Georgia, and South Carolina—the month of maximum employment was February or March and that of minimum employment July or August, and there was no marked renewal of activity in the fall, but rather a general increase in number employed from the month of minimum employment to the end of the year. In some of the other states, however, there were periods of considerable activity both in the spring and in the late summer, and in Maryland, New York, Ohio, and Virginia the maximum employment was in August or September.

The months of maximum and minimum employment in 1909, and the number of wage earners reported for these months, are given for a larger number of states in Table 21.

Table 6

STATE.	WAGE EARNERS EMPLOYED IN THE INDUSTRY: 1909 [1]												
	Average number during the year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
United States	**18,310**	**17,076**	**24,196**	**29,310**	**23,198**	**16,737**	**14,506**	**14,264**	**15,514**	**18,163**	**16,232**	**15,095**	**15,425**
Alabama	1,233	1,446	2,316	**2,785**	1,844	1,083	771	667	*658*	793	700	821	911
Florida	589	702	**820**	795	518	506	494	*471*	472	522	556	559	654
Georgia	2,770	3,006	5,619	**6,851**	3,697	2,003	1,392	*1,366*	1,402	1,679	1,904	2,076	2,240
Maryland	1,439	1,185	1,403	1,688	1,833	1,380	1,210	1,331	1,499	**2,115**	1,337	*1,110*	1,178
New Jersey	1,208	*1,086*	1,109	**1,518**	1,482	1,153	1,112	1,138	1,173	1,216	1,196	1,164	1,143
New York	908	771	809	908	946	857	897	1,089	**1,143**	1,110	988	*671*	709
North Carolina	933	686	1,227	1,642	**1,694**	879	743	*494*	644	817	954	672	744
Ohio	841	692	*676*	779	826	749	742	775	1,129	**1,522**	789	716	697
Pennsylvania	1,224	1,161	1,270	1,451	**1,473**	1,190	*1,109*	1,140	1,235	1,250	1,126	1,112	1,171
South Carolina	1,851	1,875	3,389	**4,356**	2,352	1,323	1,069	*922*	1,030	1,176	1,477	1,462	1,779
Tennessee	559	503	745	**893**	823	438	*372*	408	406	550	567	480	522
Virginia	1,956	1,221	1,579	1,926	2,388	2,492	2,199	2,130	2,166	**2,517**	2,065	1,757	*1,027*

[1] The month of maximum employment for each state is indicated by boldface figures and that of minimum employment by italic figures.

Prevailing hours of labor.—In Table 7 the wage earners in the industry have been classified according to the number of hours of labor per week prevailing in the establishments in which they were employed. In making this classification the average number of wage earners employed during the year in each establishment was classified as a total, according to the hours prevailing in that establishment, even though a few employees worked a greater or smaller number of hours.

Table 7

STATE.	AVERAGE NUMBER OF WAGE EARNERS IN THE INDUSTRY: 1909							
	Total.	In establishments with prevailing hours—						
		48 and under.	Between 48 and 54.	54.	Between 54 and 60.	60.	Between 60 and 72.	72 and over.
United States	**18,310**	**51**	**22**	**332**	**806**	**14,502**	**1,408**	**1,189**
Alabama	1,233	4	.....	16	.....	997	175	41
Florida	589	.....	.....	.....	12	562	15	.....
Georgia	2,770	4	7	7	159	2,146	87	360
Maryland	1,439	.....	3	30	.....	1,030	376	.....
New Jersey	1,208	9	.....	11	51	1,137	.....	.....
New York	908	11	.....	.....	1	578	258	60
North Carolina	933	.....	.....	2	70	686	36	139
Ohio	841	.....	.....	90	26	755	.....	.....
Pennsylvania	1,224	6	8	.....	197	425	169	419
South Carolina	1,851	.....	.....	4	.....	1,798	6	43
Tennessee	559	1	.....	.....	46	512	.....	.....
Virginia	1,956	4	3	14	108	1,465	255	107

More than nine-tenths (93.4 per cent) of the wage earners employed in the industry in 1909 worked in establishments where the prevailing hours were 60 or more per week. Less than 1 per cent were employed in establishments where the usual hours were less than 54 per week. In the industry as a whole, 14,502 wage earners, or 79.2 per cent of the total, were employed in establishments operating 60 hours per week, and this was the most common time of employment in every state for which data are shown in the table.

Character of ownership.—Table 8 presents statistics with respect to the character of ownership of the establishments in the fertilizer industry.

Table 8

CHARACTER OF OWNERSHIP.	NUMBER OF ESTABLISHMENTS.		VALUE OF PRODUCTS.	
	1909	1904	1909	1904
Total	**550**	**399**	**$103,960,213**	**$56,541,253**
Individual	95	99	1,907,199	1,809,406
Firm	86	73	4,046,342	3,409,295
Corporation	369	227	98,006,672	51,322,552
Per cent of total	**100.0**	**100.0**	**100.0**	**100.0**
Individual	17.3	24.8	1.8	3.2
Firm	15.6	18.2	3.9	6.0
Corporation	67.1	57.0	94.3	90.8

In 1909, of the total number of establishments reported for the industry, 67.1 per cent were under corporate ownership, as compared with 57 per cent in 1904. In 1909 the value of products of these establishments represented 94.3 per cent of the total, and in 1904, 90.8 per cent.

Table 9 gives statistics for establishments classified according to form of ownership for the 12 states employing an average of more than 500 wage earners in 1909. The table shows that in every state listed corporations controlled the great bulk of the business.

Table 9

STATE.	NUMBER OF ESTABLISHMENTS OWNED BY—			WAGE EARNERS IN ESTABLISHMENTS OWNED BY—			VALUE OF PRODUCTS OF ESTABLISHMENTS OWNED BY—			VALUE ADDED BY MANUFACTURE IN ESTABLISHMENTS OWNED BY—		
	Individuals.	Firms.	Corporations.	Individuals.	Firms.	Corporations.	Individuals.	Firms.	Corporations.	Individuals.	Firms.	Corporations.
United States	**95**	**86**	**369**	**354**	**790**	**17,166**	**$1,907,199**	**$4,046,342**	**$98,006,672**	**$512,731**	**$1,271,246**	**$32,654,316**
Alabama	*2*	*4*	*36*	(X)	*27*	*1,206*	(X)	*293,540*	*6,154,393*	(X)	*37,177*	*2,121,691*
Florida	.....	.....	12	.....	.....	589	.....	.....	3,878,296	.....	.....	1,003,679
Georgia	11	21	78	36	262	2,472	284,545	1,376,817	15,138,939	50,068	504,563	5,301,519
Maryland	10	10	21	55	61	1,323	392,939	222,175	9,057,672	97,138	75,500	2,537,423
New Jersey	5	6	11	18	53	1,137	104,590	180,535	7,386,734	18,776	70,140	1,897,756
New York	4	1	10	*18*	(X)	890	*129,284*	(X)	4,121,284	*31,600*	(X)	1,564,201
North Carolina	6	6	22	22	38	873	59,123	141,881	6,115,481	31,008	58,384	2,043,890
Ohio	4	4	19	13	12	816	41,245	84,200	4,309,096	19,716	21,481	1,858,559
Pennsylvania	22	12	14	65	110	1,049	312,432	561,916	5,668,496	97,295	116,367	1,716,312
South Carolina	.....	1	25	.....	(X)	*1,851*	.....	(X)	*9,024,900*	.....	(X)	*3,395,442*
Tennessee	1	3	8	(X)	*20*	539	(X)	*72,182*	3,177,161	(X)	*17,100*	1,110,515
Virginia	6	2	37	*147*	(X)	1,809	*327,941*	(X)	7,706,602	*161,486*	(X)	2,483,947

NOTE.—In some states, in order to avoid disclosing the returns for individual establishments, the figures for one group have been consolidated with those for establishments under some other form of ownership. In such cases an (X) is placed in the column from which the figures have been omitted and the figures for the group with which they have been combined are printed in italics.

Size of establishments.—Table 10 presents statistics reported for 1909 and 1904 for establishments in the fertilizer industry grouped according to the value of their products.

In 1909, 1.8 per cent of the establishments manufactured products valued at $1,000,000 or over, as against 1.5 per cent in 1904. These establishments reported 16.6 per cent of the value of products in 1909 and 15.6 per cent in 1904. By far the greater part of the value of products of the industry, 73.8 per cent in 1909 and 70.5 per cent in 1904, was reported by establishments having products valued at $100,000 but less than $1,000,000 each.

The average number of wage earners per establishment decreased from 36 in 1904 to 33 in 1909, but the average value of products per establishment increased from $141,707 to $189,019, and the average value added by manufacture from $43,241 to $62,615.

Table 10
VALUE OF PRODUCTS PER ESTABLISHMENT.

	NUMBER OF ESTABLISHMENTS.		VALUE OF PRODUCTS.	
	1909	1904	1909	1904
Total	**550**	**399**	**$103,960,213**	**$56,541,253**
Less than $5,000	54	46	134,901	126,587
$5,000 and less than $20,000	95	87	1,103,092	1,007,796
$20,000 and less than $100,000	180	131	8,668,288	6,643,941
$100,000 and less than $1,000,000	211	129	76,746,170	39,909,070
$1,000,000 and over	10	6	17,307,762	8,853,859
Per cent of total	**100.0**	**100.0**	**100.0**	**100.0**
Less than $5,000	9.8	11.5	0.1	0.2
$5,000 and less than $20,000	17.3	21.8	1.1	1.8
$20,000 and less than $100,000	32.7	32.8	8.3	11.8
$100,000 and less than $1,000,000	38.4	32.3	73.8	70.6
$1,000,000 and over	1.8	1.5	16.6	15.7

Table 11 classifies the establishments in 12 of the leading states according to the number of wage earners employed. It should be borne in mind that, because of the seasonal character of the industry, the average number of employees in any given establishment for the entire year is usually much less than the number employed during the busy months.

Of the 550 establishments reported in 1909, 2 per cent employed no wage earners, 38.2 per cent employed from 1 to 5, 24.2 per cent from 6 to 20, 27.1 per cent from 21 to 100, and 8.5 per cent more than 100 wage earners.

Table 11

STATE.	TOTAL.		ESTABLISHMENTS EMPLOYING IN 1909—											
			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.		Over 250 wage earners.	
	Establishments.	Wage earners (average number).	Establishments.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.
United States	**550**	**18,310**	**11**	**210**	**583**	**133**	**1,411**	**73**	**2,585**	**76**	**5,539**	**39**	**5,697**	**8**	**2,515**
Alabama	42	1,233	.....	16	58	11	88	5	163	7	532	3	392	.....	.....
Florida	12	589	.....	2	8	3	39	2	59	4	303	1	180	.....	.....
Georgia	110	2,770	1	49	149	27	262	14	507	14	1,093	5	759	.....	.....
Maryland	41	1,439	.....	21	52	7	87	4	150	5	354	3	447	1	349
New Jersey	22	1,208	.....	9	19	6	65	2	66	.....	.....	3	452	2	606
New York	15	908	2	4	5	3	37	1	44	2	149	2	304	1	369
North Carolina	34	933	.....	11	30	11	127	4	144	7	494	1	138	.....	.....
Ohio	27	841	2	9	30	7	66	2	83	4	288	3	374	.....	.....
Pennsylvania	48	1,224	1	28	66	11	110	2	75	3	254	2	300	1	419
South Carolina	26	1,851	.....	6	23	3	35	2	63	8	599	7	1,131	.....	.....
Tennessee	12	559	.....	4	11	1	13	2	96	3	192	2	247	.....	.....
Virginia	45	1,956	.....	10	20	11	135	9	332	10	676	4	541	1	252

Of the total number of wage earners reported, 10.9 per cent were reported by establishments employing on the average from 1 to 20; 14 per cent by establishments employing from 21 to 50; 30.3 per cent by establishments employing from 51 to 100; and 44.8 per cent by establishments employing more than 100 wage earners. There were no establishments in the industry employing an average of more than 500 wage earners during the year.

Expenses.—As stated in the Introduction, the census does not purport to furnish figures that can be used for determining the total cost of manufacture, since they take no account of interest or depreciation, and hence they can not properly be used for determining profits. Facts of interest can be brought out, however, concerning the relative importance of the different classes of expenses which were reported.

Table 1 shows the total expenses in 1909 to have been $90,101,293, distributed as follows: Cost of materials, $69,521,920, or 77.2 per cent; wages, $7,477,179, or 8.3 per cent; salaries, $4,405,636, or 4.9 per cent; and miscellaneous expenses, made up of advertising, ordinary repairs of buildings and machinery, insurance, traveling expenses, and other sundry expenses, $8,696,558, or 9.7 per cent.

Engines and power.—As shown in Table 1 the amount of power used in the fertilizer industry increased from 2,951 horsepower in 1869 to 64,711 in 1909. Table 12 shows the statistics of power as reported at the censuses of 1909, 1904, and 1899.

Table 12

POWER.	NUMBER OF ENGINES OR MOTORS.			HORSEPOWER.			PER CENT DISTRIBUTION OF HORSEPOWER.		
	1909	1904	1899	1909	1904	1899	1909	1904	1899
Primary power, total	**1,338**	**830**	**637**	**64,711**	**47,989**	**38,680**	**100.0**	**100.0**	**100.0**
Owned	900	752	637	51,967	45,456	37,980	80.3	94.7	98.2
Steam	804	720	591	49,740	44,672	37,121	76.9	93.1	96.0
Gas	83	17	30	1,825	246	410	2.8	0.5	1.1
Water wheels	10	15	16	300	353	359	0.5	0.7	0.9
Water motors	3	.....	.....	65	.....	.....	0.1	.....	.....
Other	.....	.....	.....	37	185	90	0.1	0.4	0.2
Rented	438	78	(1)	12,744	2,533	700	19.7	5.3	1.8
Electric	438	78	(1)	12,579	2,358	220	19.4	4.9	0.6
Other	.....	.....	.....	165	175	480	0.3	0.4	1.2
Electric motors	**761**	**204**	**36**	**19,238**	**5,275**	**1,061**	**100.0**	**100.0**	**100.0**
Run by current generated by establishment	323	126	36	6,659	2,917	841	34.6	55.3	79.3
Run by rented power	438	78	(1)	12,579	2,358	220	65.4	44.7	20.7

[1] Not reported.

The total primary power of the fertilizer factories increased from 38,680 horsepower in 1899 to 64,711 in 1909, or 67.3 per cent. The greater part of the increase was in steam power and rented electric power. In 1899 steam power formed 96 per cent of the total primary power, but in 1909 it formed only 76.9 per cent. The horsepower of electric motors operated by current generated in the establishments reporting increased from 841 in 1899 to 6,659 in 1909.

Table 13 shows, for 1909, the statistics of power and of the different kinds of fuel used in the fertilizer works in 12 of the leading states.

The largest amount of steam power, gas-engine power, and rented electric power was reported for Georgia. Rented electric power was reported for all the states listed, and formed more than one-third of the total primary power in Alabama, Georgia, and New York.

Table 13

STATE.	PRIMARY HORSEPOWER.									ELECTRIC HORSEPOWER.		FUEL USED.					
	Number of establishments reporting.	Total horsepower.	Owned by establishments reporting.					Rented.		Total, rented and generated by establishment.	Generated in the establishment reporting.	Coal.		Coke (short tons).	Wood (cords).	Oil, including gasoline (barrels).	Gas (1,000 feet).
			Total.	Steam engines.	Gas engines.	Water wheels and motors.	Other.	Electric.	Other.			Anthracite (long tons).	Bituminous (short tons).				
United States	**485**	**64,711**	**51,967**	**49,740**	**1,825**	**365**	**37**	**12,579**	**165**	**19,238**	**6,659**	**20,698**	**462,023**	**6,148**	**9,795**	**19,721**	**111,859**
Alabama	42	4,484	2,845	2,745	73	.....	27	1,614	25	1,684	70	.....	33,549	.....	420	85	.....
Florida	12	1,710	1,365	970	395	.....	.....	345	.....	1,279	934	290	4,956	.....	702	.....	.....
Georgia	91	10,488	6,493	5,893	600	.....	.....	3,995	.....	4,577	582	.....	43,977	25	4,333	377	848
Maryland	30	5,324	4,224	4,090	84	50	.....	1,100	.....	1,383	283	.....	25,183	10	10	61	150
New Jersey	18	2,459	2,459	2,424	35	.....	.....	.....	.....	1,368	1,368	11,479	30,304	.....	10	50	7
New York	14	2,799	1,650	1,625	25	.....	.....	1,039	110	1,114	75	2,177	18,645	4,507	.....	.....	.....
North Carolina	32	3,132	2,597	2,537	60	.....	.....	535	.....	547	12	.....	19,220	.....	1,270	74	.....
Ohio	24	3,059	2,819	2,689	130	.....	.....	240	.....	585	345	.....	34,111	.....	50	.....	11,306
Pennsylvania	46	5,174	4,997	4,852	10	105	.....	177	30	981	804	4,701	55,930	583	.....	17	.....
South Carolina	26	4,766	4,379	4,338	41	.....	.....	387	.....	607	220	.....	45,046	.....	986	27	.....
Tennessee	10	2,152	1,799	1,799	.....	.....	.....	353	.....	629	276	.....	16,100	1,000	12	48	.....
Virginia	38	5,560	5,335	5,228	72	35	.....	225	.....	573	348	1,937	49,289	.....	283	37	.....
All other states	102	13,604	11,035	10,550	300	175	10	2,569	.....	3,911	1,342	114	85,653	23	1,719	18,945	99,548

Fuel consumed.—The expenditures for fuel and rent of power in 1909 amounted to $1,452,809, this item being distributed by states in Table 20. Bituminous coal was by far the principal kind of fuel used, 462,023 tons being consumed during 1909. Anthracite coal was used to a considerable extent in New Jersey.

SPECIAL STATISTICS RELATING TO MATERIALS AND PRODUCTS.

Materials used by establishments in the fertilizer industry.—Table 14 shows the statistics of the materials used in the fertilizer industry for 1909, 1904, and 1899.

As judged by the amount expended for them, ammoniates, animal and vegetable, were in 1909 the most important materials, followed by phosphate rock, potash salts, superphosphates, nitrate of soda, ammonium sulphate, sulphuric acid, fish, pyrites, and kainit, in the order named.

The cost of the materials named specifically in the table aggregated $55,360,423 in 1909, $28,975,713 in 1904, and $23,454,126 in 1899. Of these totals, the cost of ammoniates formed 29 per cent in 1909 as compared with 34.2 per cent in 1904 and 42.4 per cent in 1899. The cost of phosphate rock shows only slight changes in its proportion of the total; it constituted 15.6 per cent of the total of the materials shown separately in 1909, 14.6 per cent in 1904, and 15.2 per cent in 1899. The cost of potash salts represented 13.2 per cent, 12.4 per cent, and 13.2 per cent of the respective totals, and the aggregate cost of sulphuric acid, pyrites, and sulphur constituted 11.2 per cent of the total in 1909, 11 per cent in 1904, and 13.2 per cent in 1899.

Table 15, on the next page, shows for 1909 statistics regarding the consumption of sulphuric acid in the fertilizer industry in 10 of the leading states.

Table 14

MATERIAL.	1909	1904	1899
Total cost	**$69,521,920**	**$39,287,914**	**$28,958,473**
Ammoniates:			
Tons	778,639	(1)	(1)
Cost	$16,065,978	$9,915,648	$9,934,145
Ammonium sulphate:			
Tons	63,381	10,540	4,120
Cost	$3,640,592	$600,856	$186,609
Kainit:			
Tons	322,720	190,493	54,700
Cost	$2,783,658	$1,891,073	$520,833
Nitrate of soda:			
Tons	85,714	42,213	19,518
Cost	$3,730,070	$1,760,432	$709,841
Phosphate rock:			
Tons	1,529,124	888,571	787,927
Cost	$8,621,094	$4,244,554	$3,554,174
Potash salts:			
Tons	257,766	122,107	(1)
Cost	$7,327,549	$3,606,701	$3,098,400
Pyrites:			
Tons	456,574	342,962	288,778
Cost	$2,831,994	$2,020,759	$1,466,285
Sulphuric acid:			
Tons	603,672	197,865	231,527
Cost	$3,312,687	$1,084,304	$1,355,382
Sulphur:			
Tons	4,236	4,210	12,728
Cost	$68,924	$92,234	$268,670
Superphosphates:			
Tons	415,656	320,559	286,898
Cost	$3,946,440	$2,912,010	$2,176,245
Fish	$3,031,437	$847,142	$183,542
All other materials	$14,161,497	$10,312,261	$5,504,347

[1] Figures not available.

Table 15 STATE.	SULPHURIC ACID (TONS). Total amount consumed in the industry.	Manufactured by fertilizer works. Number of establishments.	Consumed by establishment producing.	Sold.	Purchased.
United States	**1,445,607**	**94**	**841,935**	**153,057**	**603,672**
Alabama	124,681	12	97,015	36,843	27,666
California	13,509	3	6,740	8,334	6,769
Florida	34,189	4	28,232	8,527	5,957
Georgia	263,143	27	220,593	49,794	42,550
Maryland	210,483	4	22,495	15,359	187,988
Mississippi	41,647	5	37,420	.....	4,227
North Carolina	88,094	8	87,899	576	195
South Carolina	169,243	14	161,509	11,839	7,734
Tennessee	70,145	4	53,188	866	16,957
Virginia	74,503	6	53,253	933	21,250
All other states	355,970	7	73,591	19,986	282,379

Of the total quantity of sulphuric acid used in 1909 in the establishments engaged primarily in the manufacture of fertilizers, 58.2 per cent was manufactured in the establishments and 41.8 per cent was purchased. Of the sulphuric acid made in fertilizer works, 84.6 per cent was used and 15.4 per cent was sold.

All fertilizer establishments manufacturing sulphuric acid employed the chamber process, 16 using the Hoffman intensifier system, 11 the Pratt, 9 the Gilchrist, 3 the Meyer tangential system, and 1 the Luney. The manufacture, for consumption in their own works, of 1,826,358 tons of acid phosphate was reported by establishments engaged primarily in the fertilizer industry, and 12,507 tons were made and consumed by establishments manufacturing fertilizers as a subsidiary product.

Materials used by all establishments making fertilizers.—The data in Tables 14 and 15 relate to the materials reported by the establishments manufacturing fertilizers as their chief product. There is a considerable consumption of these materials by establishments in other industries which make fertilizers as a subsidiary product. Table 16 shows the total consumption of these materials in 1909 by all establishments manufacturing fertilizers, whether as a primary or subsidiary product.

Table 16 MATERIAL.	CONSUMPTION BY ALL ESTABLISHMENTS MANUFACTURING FERTILIZERS WHETHER AS PRIMARY OR SUBSIDIARY PRODUCTS: 1909 Quantity (tons).	Cost.
Ammoniates	842,557	$17,200,611
Ammonium sulphate	65,592	3,732,112
Kainit	347,104	3,008,183
Nitrate of soda	89,846	3,916,320
Phosphate rock	1,549,497	8,828,834
Potash rock	270,459	7,714,367
Pyrites	456,574	2,831,994
Sulphuric acid	620,708	3,460,132
Sulphur	4,236	68,924
Superphosphates	532,886	5,175,157
Fish	242,045	3,076,613

Products of all establishments making fertilizers.—The total production of fertilizers in 1909, including those manufactured by slaughtering and meat-packing establishments and as a subsidiary product by other industries, was 5,618,234 tons, valued at $100,089,971. The total production by all establishments in 1904 was 3,440,171 tons, valued at $56,882,034, and in 1899, 2,887,004 tons, valued at $42,097,673.

It should be noted in considering these statistics that the superphosphates purchased for use as material represent a duplication, the value of such superphosphates being reported as part of the value of product of other establishments in the industry, and the same may be true to some extent of sulphuric acid purchased. In 1909 there were purchased and used as material 532,886 tons of superphosphates, costing $5,175,157 (see Table 16), which leaves 5,095,348 tons, valued at $94,914,814, for the net production of fertilizers by all establishments.

Products of establishments in the fertilizer industry.—Table 17 shows the statistics of the products of establishments engaged primarily in the manufacture of fertilizers for 1909, 1904, and 1899.

Table 17 PRODUCT.	1909	1904	1899
Total value	[1] $103,960,213	[1] $56,541,253	$44,657,385
Fertilizers:			
Tons	5,240,164	3,267,777	2,794,705
Value	$92,369,031	$50,460,694	$40,545,661
Superphosphates from minerals, bones, etc.—			
Tons	1,201,354	766,338	923,198
Value	$13,318,529	$7,515,257	$8,471,943
Ammoniated fertilizers—			
Tons	472,757	775,987	142,898
Value	$10,061,193	$12,901,057	$2,449,388
Concentrated phosphate fertilizers—			
Tons	313,888	[2]	[2]
Value	$3,638,210	[2]	[2]
Complete fertilizers—			
Tons	2,717,797	1,329,149	1,436,682
Value	$57,243,899	$25,673,511	$25,446,046
Other fertilizers—			
Tons	534,368	394,703	291,927
Value	$8,107,800	$4,370,869	$4,178,284
Sulphuric acid, for sale (reduced to 50° Baumé):			
Tons	153,057	24,502	71,176
Value	$923,492	$194,578	$427,925
Other acids for sale:			
Tons	30,651	45,689	[2]
Value	$611,288	$241,506	$17,872
All other products	$10,055,802	$5,644,475	$3,655,927

[1] In addition, in 1909, fertilizers and allied products to the value of $7,911,268, and in 1904 to the value of $6,467,340, were made by establishments engaged primarily in the manufacture of products other than fertilizers, including those in the slaughtering and meat-packing industry.
[2] Not reported.

In addition to the products covered by Table 17, the products shown in the following table were made and used in further processes of manufacture in the establishment where produced:

Table 18 PRODUCT.	1909	1904
Acid phosphate.....tons..	1,838,865	884,211
Sulphuric acid.....tons..	841,935	692,904

The total quantity of fertilizers reported by fertilizer factories proper in 1909 was 5,240,164 tons, an increase of 2,445,459 tons, or 87.5 per cent, over the production in 1899. The highest rate of increase for