

LEATHER AND ITS FINISHED PRODUCTS.

THE GROUP AS A WHOLE.

The following table shows the industries included in this general group and the number of establishments, average number of wage earners, capital, total wages paid, cost of materials, value of products, and value added by manufacture for each, as reported for the census of 1914.

The total value of products for the group, which represents 4.6 per cent of the total value of manufactured products for the country, involves much duplication, the products of the tanneries being used as materials for the other industries listed.

INDUSTRY.	LEATHER AND ITS FINISHED PRODUCTS: 1914.						
	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
	Expressed in thousands.						
Total.....	6,758	307,060	\$743,347	\$169,358	\$753,135	\$1,104,595	\$351,460
Leather, tanned, curried, and finished.....	741	55,936	332,180	31,915	284,245	367,202	82,957
Finished products of leather.....	6,017	251,124	411,167	137,443	468,890	737,393	268,503
Belting, leather.....	151	2,951	20,139	2,070	15,480	23,036	7,556
Boots and shoes, not including rubber boots and shoes.....	1,355	191,555	254,591	105,695	310,357	501,760	191,403
Regular factory product.....	1,248	139,774	253,117	104,857	309,241	499,145	189,904
Contract work.....	18	354	53	209	65	355	290
Stitching.....	24	571	93	263	48	382	334
Crimping.....	4	6	9	4	-----	10	10
Buttonholes.....	8	50	16	24	6	50	44
Overgaiters, moccasins, and leggings.....	53	790	1,303	338	997	1,818	821
Boot and shoe cut stock, exclusive of that produced in boot and shoe factories.....	236	7,819	30,455	4,052	51,451	59,964	8,513
Boot and shoe findings, exclusive of those produced in boot and shoe factories.....	369	6,714	12,563	3,226	20,304	28,308	7,999
Gloves and mittens, leather.....	352	10,668	17,080	4,558	12,171	21,614	9,443
Pocketbooks.....	64	1,466	1,610	702	1,784	3,551	1,507
Saddlery and harness.....	2,551	12,969	45,207	7,996	33,086	53,559	20,473
Trunks and valises.....	561	9,911	18,571	5,540	13,625	26,472	12,847
Leather goods, not elsewhere specified.....	378	7,071	10,951	3,604	10,632	19,334	8,702

LEATHER, TANNED, CURRIED, AND FINISHED.

The establishments included in this classification manufacture leather from hides and skins of all kinds, domestic and imported, by various methods of tanning, such as the oak, the hemlock, and the chrome or other chemical processes. The classification also includes the currying and finishing of leather to be used for various purposes, as in the manufacture of shoes, belting, gloves and mittens, bags, harness, and trunks; in the automobile, carriage, and furniture industries; and in the binding of books. Many establishments tan or curry and finish leather under contract for concerns other than those engaged in the leather industry. The total value of products for the industry does not include the value of leather thus made for concerns in other industries, but only the amount received for the processes performed.

Table 88 gives the statistics of materials and products for the leather industry for 1914, 1909, 1904, and 1899.

The number of hides and skins treated, including those treated as custom work for others not tanners, carriers, or finishers, as well as those used in further manufacture by the establishments treating them, was 138,547,692 in 1914, 146,328,586 in 1909, and 131,011,956 in 1904. Comparative figures for this aggregate for 1899 are not available.

The total value of products reported, including that shown by establishments engaged primarily in other industries, but making leather for further manufacture in the same establishment, was \$374,512,936 for 1914 as compared with \$334,105,561 for

1909, an increase of 12.1 per cent. Of this total \$25,556,064 in 1914 and \$21,533,735 in 1909 represent the value of "all other products" and amounts received for tanning and finishing done for others.

Table 88	LEATHER, TANNED, CURRIED, AND FINISHED.			
	1914	1909	1904	1899
HIDES AND SKINS TREATED.¹				
Cattle hides:				
Number.....	17,457,591	18,360,415	17,581,613	15,833,862
Cost.....	\$148,761,002	\$119,410,707	\$89,126,593	\$77,784,760
Skins:				
Calf and kip—				
Number.....	16,067,793	19,732,638	12,481,221	8,944,454
Cost.....	\$33,117,713	\$31,790,572	\$15,725,616	\$10,792,485
Goat and kid—				
Number.....	37,755,867	48,077,664	47,665,603	48,046,897
Cost.....	\$23,916,965	\$27,833,214	\$20,756,012	\$24,950,223
Sheep and lamb—				
Number.....	40,090,198	26,082,060	27,492,359	24,507,642
Cost.....	\$19,247,682	\$12,231,618	\$10,547,883	\$8,457,995
All other raw stock, cost.....	\$7,917,469	\$3,792,386	\$3,311,821	\$1,560,566
PRODUCTS.				
Total value.....	² \$367,201,705	² \$327,874,187	² \$252,620,986	\$204,038,127
Leather, value.....	\$341,796,436	\$306,470,720	\$236,765,803	\$194,202,003
Sole—				
Sides.....	18,075,482	17,805,252	17,937,938	15,472,072
Value.....	\$116,188,059	\$88,331,713	\$69,205,600	\$55,481,625
Hemlock—				
Sides.....	5,626,696	7,963,728	9,929,964	9,810,996
Value.....	\$31,007,435	\$32,237,151	\$32,676,015	\$29,305,561
Union—				
Sides.....	6,588,799	5,756,227	4,400,011	3,096,162
Value.....	\$42,457,755	\$28,375,815	\$17,371,780	\$12,807,262
Oak—				
Sides.....	5,267,936	3,805,861	3,607,963	2,562,814
Value.....	\$38,384,062	\$26,083,793	\$19,157,805	\$13,359,836
Chrome—				
Sides.....	592,051	279,436	(³)	2,100
Value.....	\$4,338,807	\$1,634,954	(³)	\$8,966
Belting—				
Butts.....	647,224	521,035	429,782	736,008
Value.....	\$8,369,584	\$6,995,133	\$4,754,456	\$7,092,778
Harness—				
Sides.....	2,777,312	3,946,235	4,369,561	3,444,616
Value.....	\$20,969,169	\$24,802,734	\$20,274,188	\$16,712,056
Upholstery, value.....	\$14,328,358	\$14,266,742	\$7,780,804	\$5,748,387
Bookbinders', value.....	\$1,362,673	\$2,450,155	\$2,283,761	\$1,688,413
Cattle side upper (other than patent)—				
Sides.....	8,245,964	7,946,769	6,850,469	8,141,093
Value.....	\$32,939,139	\$24,198,993	\$15,487,252	\$17,478,802
Sold in rough, value.....	\$4,494,985	\$6,335,599	\$10,180,949	\$6,864,345
Sides—				
Number.....	584,652	828,887	2,054,281	1,397,140
Value.....	\$2,115,432	\$3,539,617	\$7,801,249	\$4,256,471
Grains—				
Sides.....	144,259	317,814	258,624	322,147
Value.....	\$538,464	\$718,562	\$584,418	\$806,422
Splits, value.....	\$1,841,089	\$2,077,420	\$1,795,282	\$1,801,452
All other, value.....	\$143,144,469	\$139,095,651	\$106,798,793	\$83,135,657
All other products, value.....	\$13,134,413	\$8,632,689	\$7,665,223	\$5,514,395
Amount received for tanning and finishing for others.....	\$12,270,856	\$12,764,778	\$8,189,960	\$4,321,609

¹ Exclusive of 428,166 hides and 274,728 skins for 1914, 252,639 hides and 194,796 skins for 1909, and 12,463 hides and 39,285 skins for 1904, which were treated in establishments engaged primarily in other industries, but which made leather for use in further manufacture; also exclusive of 1,841,017 hides and 22,162,746 skins for 1914, 1,903,278 hides and 27,936,887 skins for 1909, 961,431 hides and 21,792,110 skins for 1904, treated for others not tanners, curriers, or finishers.

² Exclusive of leather to the value of \$7,160,436 for 1914, to the value of \$6,095,106 for 1909, and to the value of \$154,932 for 1904, made for use in further manufacture by establishments engaged primarily in other industries.

³ Not reported separately.

The following table gives for 1914 the quantities and values for a number of products for which statistics in detail were not compiled at prior censuses:

Table 89 CLASSIFICATION.	LEATHER, TANNED, CURRIED, AND FINISHED, 1914.		
	Unit.	Quantity.	Value.
LEATHER.			
Upper.....			\$85,051,550
Calf and kip.....	Skins.....	15,869,401	41,812,734
Goat and kid.....	Skins.....	29,874,538	20,113,234
Sheep and lamb.....	Skins.....	16,794,041	10,885,175
Cabretta, kangaroo, and wallaby.....	Skins.....	3,730,260	4,198,017
All other except cattle side and horse.....			2,042,390
Cattle side upper (other than patent).....			32,939,139
Chrome.....	Sides.....	4,684,829	19,119,061
Combination (chrome and vegetable tannage).....	Sides.....	1,339,446	4,753,030
Vegetable.....	Sides.....	2,221,689	9,067,048
Patent.....			15,590,812
Cattle.....	Sides.....	1,791,320	7,016,709
Horse.....	Sides.....	1,035,711	2,547,401
Calf and kip.....	Skins.....	58,135	3,100,612
Goat and kid.....	Skins.....	3,014,790	3,996,577
Sheep and lamb.....	Skins.....	973,327	632,303
Colt.....	Skins.....	223,169	312,038
All other.....			514,372
Fancy.....			8,775,968
Calf and kip.....	Skins.....	302,816	674,366
Goat and kid.....	Skins.....	1,132,254	1,200,218
Sheep and lamb.....	Skins.....	6,051,190	4,531,371
All other.....			2,370,013
Glove.....			3,286,352
Calf and kip.....	Skins.....	359,935	725,024
Goat and kid.....	Skins.....	5,694	4,080
Sheep and lamb.....	Skins.....	3,637,279	2,169,839
All other, except horse.....			387,409
Horse (other than patent).....			2,881,924
Upper.....	Sides.....	406,741	1,360,103
Glove.....	Sides.....	343,949	985,303
Other horse.....	Sides.....	214,660	523,518
Harness.....			20,969,169
Hemlock.....	Sides.....	274,489	2,105,769
Union.....	Sides.....	1,155,202	8,114,748
Oak.....	Sides.....	1,342,301	10,726,202
Chrome.....	Sides.....	5,320	22,450
Upholstery (auto, furniture, and carriage).....			14,328,358
Whole-hide grains.....	Hides.....	654,053	8,172,698
Whole-hide splits.....	Hides.....	1,104,561	6,155,660
Belting.....			9,198,126
Oak.....	Butts.....	688,789	8,235,075
Chrome.....	Butts.....	8,435	134,509
Belting offal.....			828,542
Bookbinders'.....			1,362,673
Whole-hide leather.....	Hides.....	248,726	1,079,529
Pig and other skins.....	Skins.....	265,133	283,144
Finished splits.....			8,547,153
Whole-side splits.....	Sides.....	7,359,312	7,788,086
Butt splits.....	Butts.....	1,288,497	759,067
Case, bag, and strap.....	Sides.....	1,004,581	5,383,255
Skirting.....	Sides.....	311,046	2,082,063
Saddlery.....	Sides.....	236,138	974,197
Chamois.....	Skins.....	1,948,533	925,492
Suspender.....	Skins.....	126,251	321,034
Piano action.....	Skins.....	92,639	159,031
All other, including lace, collar, etc.....			8,335,266
Miscellaneous by-products.....			13,134,413
Wool.....	Pounds.....	8,413,541	2,496,741
Hair.....	Pounds.....	65,232,896	2,361,975
Glue stock.....	Pounds.....	234,579,971	2,806,383
Fertilizer materials.....	Pounds.....	22,989,737	198,848
All other products and by-products.....			5,270,466

The statistics for "leather, tanned, curried, and finished" were first reported separately at the census of 1849. Table 223 (p. 648), shows the chief items for each census from 1849 to 1914, inclusive.

The apparent decrease from 1879 to 1889 in value of products and cost of materials is due to the fact that in 1879, as at earlier censuses, a plant engaged both in tanning and in currying and finishing was treated as two establishments, thus involving much more duplication than occurs in the figures for later censuses.

HIDES AND SKINS TAKEN FROM ANIMALS KILLED IN THE UNITED STATES: 1909.

By reason of a special amendment to the Thirteenth Census act, the Census Bureau collected statistics regarding the number of animals killed for food and the number of hides and skins taken off, not only in the wholesale slaughtering and meat-packing establishments, but also by retail butchers and on farms and ranges. Each wholesale or retail slaughtering establishment was required to report the number of hides and skins taken off, a number which differs somewhat from the total number of animals slaughtered. In the case of farms and ranges it has been assumed that the hides or skins were taken from all the animals reported as slaughtered, except, of course, from swine; but it was not considered practicable to ascertain the number taken off animals dying a natural death. The following table shows the results of this inquiry:

KIND.	HIDES AND SKINS FROM ANIMALS KILLED: 1909.		
	Total.	In slaughter-houses, rendering establishments, etc.	On farms and ranges.
Total.....	33,665,169	30,476,414	3,188,755
Beeves.....	13,764,686	12,356,046	1,408,640
Calves.....	5,196,043	4,064,443	1,131,600
Sheep and lambs.....	14,274,413	13,744,887	529,526
Goats and kids.....	287,497	168,508	118,989
Horses and colts.....	114,834	114,834	.....
All other animals.....	27,696	27,696	.....

In addition to the hides and skins taken from animals in the United States, the tanning establishments use large numbers that are imported. On the other hand, there is some exportation of green hides and skins.

BELTING, LEATHER.

The establishments included in this classification manufacture all kinds of leather belting used principally for the transmission of power, which covers belting for automobiles, motor cycles, and cycle cars, as well as for machinery. The industry prior to 1914 was "belting and hose, leather" but the designation was changed to "belting, leather" as only a small quantity of leather hose is made. No establishments were reported at the censuses of 1914 or 1909 as engaged primarily in the manufacture of leather hose, but the figures for the earlier censuses, in Table 223, (p. 576), include the manufacture of leather hose. Leather for belting is a product of the tanneries, and statistics for its manufacture are given in Table 87. In addition to the products covered by Table 223, leather belting to the value of \$738,174 was reported as the finished product of tanneries and other classifications in 1914 as compared with \$237,801 in 1909. Table 64 (p. 91) gives the statistics for the different kinds of belting.

BOOTS AND SHOES, INCLUDING CUT STOCK AND FINDINGS.

This group includes three industries—those engaged in the manufacture of leather boots and shoes, of boot and shoe cut stock, and of boot and shoe findings, respectively. As a number of large manufacturers of boots and shoes cut out their own stock and make some of the articles classed as findings, only the combined totals for the three industries are shown in Table 91. The total value of products for the industry as a whole necessarily involves considerable duplication. Separate statistics are given in Table 223 for each industry. It should not be assumed that the values shown for "cut stock" and "findings" represent the total value of such products made.

Table 91

CENSUS YEAR.	BOOTS AND SHOES, INCLUDING CUT STOCK AND FINDINGS.							
	Number of establishments.	Wage earners (average number.)	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
1914.....	1,960	206,088	112,929	\$297,609	\$112,973	\$382,112	\$590,027	\$207,915
1909.....	1,918	198,297	96,302	222,324	98,463	332,738	512,798	180,060
1904.....	1,895	160,294	63,968	136,802	73,072	225,288	357,688	132,400
1899.....	2,253	151,231	55,489	110,363	61,924	191,456	290,047	98,591
1889.....	2,881	142,116	35,461	108,693	63,764	136,899	245,359	108,960
1879.....	2,347	115,972	11,574	45,184	44,358	110,019	176,518	66,499

Boot and shoe cut stock, exclusive of that produced in boot and shoe factories.—The establishments included in this classification are engaged primarily in the manufacture of soles, tops, lifts, leather and rubber heels, tips, inner soles, and similar articles. Products of the same character are manufactured by establishments in the boot and shoe industry, and in addition, cut stock to the value of \$2,076,236 was reported in 1914 by establishments assigned to other industries, principally "belting, leather," and "boot and shoe findings." Statistics for the industry for the census years from 1879 to 1914, inclusive, are given in Table 223.

Boot and shoe findings, exclusive of those produced in boot and shoe factories.—The establishments included in this industry manufacture supplies, such as trimmings, pipings, cotton and paper specialties, uppers, tongues, facings, bindings, steel, copper, and wooden shanks, fiber board and counters, wooden and cork heels, arch supporters, linings, metal protectors, vamp stays, rands, straps, beading, leather bows, buckles, box toes, eyelets, backstays, shoe tacks, staples, and shoe pegs. The statistics in Table 223 begin with the census of 1869. In 1859 one establishment classified under "shoe and boot tips" and 43 establishments classified under "shoe findings" reported products valued at \$456,928. At the census of 1849 there were 24 establishments classified under "shoe pegs," with a product valued at \$73,918. In addition to the products given in the table, boot and shoe findings to the value of \$762,493 were reported in 1914 by establishments assigned to other industries. Boot and shoe factories manufacture findings for their own consumption to a considerable extent.

Boots and shoes, not including rubber boots and shoes.—The establishments included under this classification are engaged primarily in the manufacture of men's, women's, and children's shoes, boots, slippers, sandals, and similar articles. Some of the establishments work upon materials furnished by others, while some do only certain processes of manufacture, such as bottoming, heeling, and lasting. Certain shops do stitching only, others crimping only, some do nothing but work buttonholes in uppers, and a number make overgaiters, moccasins, and leggings, as their chief product.

Separate data are shown for 1914 in Table 87 for (1) the regular factories making boots, shoes, etc., from their own materials, although they may do contract work; (2) factories doing the whole or part of the work of manufacture on materials furnished by others; (3) stitching shops; (4) crimping; (5) establishments making buttonholes in uppers; and (6) the manufacture of footwear, not strictly boots and shoes, such as overgaiters, moccasins, leggings, etc.

Prior to the census of 1879 the statistics for the boot and shoe industry included those for the small shops engaged in custom work and repairing. The statistics for the factory industry were first reported separately at that census. The figures for that and subsequent censuses are shown in Table 223.

The following table shows the quantity and value of the principal classes of products for 1914, 1904, and 1899. Statistics for 1909 are not included, as the value of the different classes was not reported at that census.

PRODUCT.	BOOTS AND SHOES.		
	1914	1904	1899
Total value.....	\$501,760,458	\$320,107,458	\$258,969,580
Boots, shoes, and slippers:			
Total number of pairs.....	292,666,468	242,110,035	217,965,419
Total value.....	\$489,053,124	\$315,987,387	\$255,720,266
Boots and shoes—			
Number of pairs.....	252,516,603	218,039,401	195,589,173
Value.....	\$455,398,112	\$298,658,865	\$240,744,149
Men's—			
Number of pairs.....	98,031,144	82,434,322	67,742,839
Value.....	\$219,994,422	\$142,038,632	\$108,105,938
Boys' and youths—			
Number of pairs.....	22,895,719	21,717,236	21,030,479
Value.....	\$32,852,500	\$24,301,298	\$20,739,287
Women's—			
Number of pairs.....	80,916,239	69,470,876	64,972,653
Value.....	\$148,433,738	\$98,262,016	\$81,804,303
Misses' and children's—			
Number of pairs.....	48,322,395	41,416,967	41,843,202
Value.....	\$51,870,908	\$34,056,919	\$30,094,611
Fiber—			
Number of pairs.....	2,351,106	(²)	(²)
Value.....	\$2,246,484	(²)	(²)
Slippers—			
Number of pairs.....	17,733,689	17,518,291	17,092,841
Value.....	\$22,024,283	\$13,996,832	\$12,934,606
Men's, boys', and youths'—			
Number of pairs.....	3,666,972	4,403,097	4,446,965
Value.....	\$3,450,362	\$3,464,561	\$2,800,213
Women's, misses', and children's—			
Number of pairs.....	14,066,717	13,115,194	12,645,876
Value.....	\$18,573,921	\$10,532,271	\$10,134,393
Infants' shoes and slippers—			
Number of pairs.....	15,476,763	(²)	(²)
Value.....	\$7,572,774	(²)	(²)
All other kinds—			
Number of pairs.....	6,939,413	8,552,343	5,283,405
Value.....	\$4,057,955	\$3,331,690	\$2,041,511
All other products, including amount received for work done for others.....	\$12,707,334	\$4,120,071	\$3,249,314

¹ Exclusive of boots and shoes to the value of \$855,582 for 1914, and to the value of \$89,000 for 1904, reported by establishments engaged primarily in other industries.

² Not reported separately.

The value of "all other products" given in this table includes shoes with aluminum soles, and shoes with soles of steel, but with leather tops and an inner sole, also wooden, logging, athletic, and sporting shoes, shoes with wooden soles, shoe pegs, bathing slippers, sandals, and wooden dancing clogs, and dancing clogs with wood soles. The steel and aluminum soled shoes are used around furnaces, where a leather sole would soon be destroyed, and the wooden shoes are used principally for outdoor wear by some of the foreign born.

The number of pairs of different kinds of boots and shoes and slippers manufactured are shown in the following table for 1914 and 1909. Statistics of this character are not available for censuses prior to 1909.

KIND.	Census year.	NUMBER OF PAIRS OF BOOTS AND SHOES, BY CHARACTER OF MANUFACTURE: 1914 AND 1909.				
		Total.	Welted.	Turned.	McKay.	Wood or metal fastened.
Boots and shoes.....	1914 1909	252,516,603 247,043,197	104,466,823 87,391,763	29,609,882 26,317,990	93,448,378 107,063,644	24,991,520 26,869,800
Men's.....	1914 1909	98,031,144 93,888,892	63,975,763 53,212,450	582,802 989,240	14,951,419 20,438,585	18,521,160 19,248,617
Boys' and youths'.....	1914 1909	22,895,719 22,895,626	4,229,490 4,423,934	41,210 50,377	13,451,259 15,016,611	5,173,780 4,347,704
Women's.....	1914 1909	80,916,239 86,595,314	28,319,285 25,871,899	15,066,037 14,281,764	36,738,465 44,518,960	732,445 1,922,682
Misses' and children's.....	1914 1909	48,322,395 43,320,365	7,803,807 3,883,480	11,837,713 10,996,609	28,178,753 27,089,482	502,122 1,350,794
Fiber.....	1914 1909	2,351,106 (¹)	138,468 (¹)	2,082,120 (¹)	128,482 (¹)	2,036 (¹)

¹ Not reported separately.

KIND.	Census year.	NUMBER OF PAIRS OF BOOTS AND SHOES, BY CHARACTER OF MANUFACTURE: 1914 AND 1909.				
		Total.	Welted.	Turned.	McKay.	Wood or metal fastened.
Slippers.....	1914	17,733,689	1,362,287	9,087,331	7,222,128	61,943
	1909	17,507,834	1,318,995	7,611,748	8,390,874	180,217
Men's, boys', and youths'	1914	3,666,972	296,078	1,535,428	1,753,623	53,843
	1909	4,802,841	648,007	1,733,742	2,286,652	134,440
Women's, misses', and children's.	1914	14,066,717	1,066,209	7,523,903	5,468,505	8,100
	1909	12,704,993	670,988	5,878,006	6,110,222	45,777
Infants' shoes and slippers...	1914	15,476,763	864,015	13,226,124	1,311,024	75,600
	1909	15,000,721	1,979,593	11,447,508	1,520,072	53,548
All other.....	1914	6,939,413	21,575	3,455,624	3,328,214	134,000
	1909	4,865,429	1,429,249	1,189,742	1,286,281	960,157

¹ Includes athletic, sporting, logging, and mining shoes, sandals, and felt, and other fiber slippers.

GLOVES AND MITTENS, LEATHER.

Establishments manufacturing all kinds of gloves, mittens, and gauntlets, lined and unlined, made wholly or in part from leather, are included under this classification. The industry was designated "gloves and mittens" at censuses prior to 1904, but since that period fur gloves and mittens have been classified under "fur goods," and knit gloves and mittens under "hosiery and knit goods."

The quantity and value of the different kinds of products reported for this branch of the leather industry for 1914, 1909, 1904, and 1899 are shown in the following table:

PRODUCT.	GLOVES AND MITTENS, LEATHER.			
	1914	1909	1904	1899
Total value.....	1 \$21,614,109	1 \$23,630,598	1 \$17,740,385	1 \$16,926,156
Gloves, mittens, and gauntlets:				
Dozen pairs.....	3,082,376	3,368,655	3,370,146	2,895,061
Value.....	\$20,296,558	\$22,525,861	\$17,122,772	\$16,039,168
Men's—				
Dozen pairs.....	2,367,263	2,585,977	2,915,415	2,267,327
Value.....	\$15,334,605	\$17,060,797	\$14,515,770	\$12,418,258
Unlined—				
Dozen pairs.....	1,571,649	1,664,718	1,598,332	1,314,507
Value.....	\$11,286,861	\$11,835,623	\$8,182,689	\$7,458,356
Lined—				
Dozen pairs.....	594,880	921,259	1,317,083	952,820
Value.....	\$3,584,118	\$5,222,174	\$6,333,081	\$4,059,902
Part leather and part fabric—				
Dozen pairs.....	200,734	(³)	(³)	(³)
Value.....	\$463,626	(³)	(³)	(³)
Women's and children's—				
Dozen pairs.....	425,501	479,664	454,731	604,330
Value.....	\$3,963,170	\$4,390,423	\$2,607,002	\$3,470,258
Unlined—				
Dozen pairs.....	325,530	326,690	213,370	337,131
Value.....	\$3,196,761	\$3,375,560	\$1,576,159	\$2,222,342
Lined—				
Dozen pairs.....	99,971	152,974	241,361	267,149
Value.....	\$766,409	\$1,014,863	\$1,030,843	\$1,247,916
Boy's—				
Dozen pairs.....	289,612	303,014	(³)	(³)
Value.....	\$998,783	\$1,074,641	(³)	(³)
Unlined—				
Dozen pairs.....	51,797	90,511	(³)	(³)
Value.....	\$199,630	\$371,306	(³)	(³)
Lined—				
Dozen pairs.....	237,815	212,503	(³)	(³)
Value.....	\$799,153	\$703,335	(³)	(³)
All other products, value.....	\$1,317,551	\$1,104,737	\$617,613	\$886,988

¹ For 1914, exclusive of 16 establishments engaged primarily in other industries, that made 206,327 dozen pairs of leather gloves, mittens, and gauntlets, valued at \$642,462; for 1909, exclusive of 16 similar establishments that made 36,944 dozen pairs of leather gloves, mittens, and gauntlets, valued at \$264,961; for 1904, of gloves, mittens, and gauntlets, to the value of \$166,164; and for 1899, exclusive of gloves, mittens, and gauntlets, to the value of \$217,157.

² Includes 24,004 dozen pairs of gauntlets, valued at \$150,652, not distributed by kinds.

³ Not reported separately.

The general statistics for the industry for each census from 1849 to 1914, inclusive, are given in Table 223 (p. 630). The apparent decrease in the number of wage earners employed since 1899 is due to the fact that prior to 1909 the statistics included an estimate of the number of employees working at their homes on contract or piece-price work. At the census of 1914 there were 4,778 reported as employed in this manner, but they were not included with the regular employees and the amount paid for the work was reported as paid for contract work.

Table 95 shows for 1914 the number of pairs of gloves, mittens, and gauntlets manufactured from different kinds of leather and the value of the different styles of gloves manufactured during the year.

KIND.	Total.	Men's—			Women's and children's—	
		Unlined.	Lined.	Part leather and part fabric.	Unlined.	Lined.
Dress gloves, street gloves, mittens, and gauntlets:						
Dozen pairs.....	1,086,569	487,324	173,744		325,530	99,971
Value.....	\$10,494,253	\$4,974,044	\$1,557,039		\$3,196,761	\$766,409
Domestic lamb or sheep skin, dozen pairs.....	288,827	87,744	118,935		28,708	53,350
Imported lamb or sheep skin, dozen pairs.....	525,169	255,469	33,168		208,416	28,116
Moeha, dozen pairs.....	208,821	104,225	17,036		70,673	16,887
Goat or "real" kid, dozen pairs.....	24,298	10,728	1,482		10,533	1,495
All other, dozen pairs.....	39,454	29,158	3,123		7,050	123
Working gloves, mittens, and gauntlets:						
Dozen pairs.....	1,995,807	1,084,325	421,136	200,734	51,797	237,815
Value.....	\$9,802,305	\$6,312,817	\$2,027,079	\$463,626	\$199,630	\$799,153
Sheepskin, dozen pairs.....	675,190	262,665	137,956	55,973	41,417	177,179
Horsehide, cattle hide, or calfskin, dozen pairs.....	852,513	525,803	208,111	64,772	6,300	47,527
Deer or elk skin, dozen pairs.....	94,002	80,971	12,201		266	564
All other, dozen pairs.....	374,102	214,886	62,868	79,989	3,814	12,545

¹ No working gloves were reported for women and children.

LEATHER GOODS, NOT ELSEWHERE SPECIFIED.

The establishments included in this industry manufacture principally hand bags, belts, straps, suspender trimmings, music rolls, burnt-leather goods, razor strops, cases for holding papers, cigar and cigarette cases, physicians' cases, leather-covered buckles, fobs, handles, corners, embossed leather, firemen's leather helmets, wristlets for watches, jewel cases, diaries, memorandum books, pillows, table covers, tape for fur trimming, suspender parts, typewriter cases, gun, fishing tackle and rod cases, sweatbands, bag tags, bindings, school bags, desk pads, kid hair curlers, wrist protectors, blanket straps, knife and ax sheaths, leather cups, washers, valves, gaskets, and tufts, collar bags, and tie and handkerchief cases, portières, tie rings, shawl, trunk and auto top straps, cartridge belts, holsters, leggings, book binding, dog collars, leather garments, and similar products.

At the census of 1859 nine establishments classified under "razor strops" reported products to the value of \$56,800, and at the census of 1849 five classified under "morocco cases" reported products to the value of \$31,200. No establishments falling within the class known as "leather goods" were reported for 1869.

Table 223 (p. 647) presents comparative statistics for the industry for the census years from 1879 to 1914, inclusive. In addition to the products shown in the table, leather goods to the value of \$1,886,123 in 1914 and to the value of \$1,924,943 in 1909 were reported by establishments assigned to other industries.

POCKETBOOKS.

The principal products reported by the establishments included in this classification are pocketbooks, purses, ladies' purse hand bags, cardcases, bill folders, music cases, brief cases, wallets, strap books, coin purses, etc., made chiefly of leather. The general statistics for the industry for the census years from 1849 to 1914, inclusive, are given in Table 223 (p. 674). In addition to the products covered by the table, pocketbooks to the value of \$678,374 in 1914 and \$319,902 in 1909 were reported by establishments assigned to other classifications, principally "leather goods, not elsewhere specified," and "signs and advertising novelties."

While separate statistics are shown for leather goods, pocketbooks, saddlery and harness, and trunks and valises, the same establishment quite frequently reported the manufacture of all or two or more of these products. This condition must be considered in accepting the totals for the separate industries.

SADDLERY AND HARNESS.

Saddles and stirrups, saddletrees, wagon, buggy, and carriage harness, horse collars, halters, riding and other bridles, horse boots, sweat pads, saddle and horseshoe pads, turf goods, lines, straps, and feed bags are the principal products reported for establishments included in this classification. The materials used are wholly or chiefly of leather, but dog harness, web halters and straps, rope halters, and wooden harness were reported. Because of the inclusion of small custom shops in the returns for censuses prior to 1899 the data shown in Table 223 are by no means comparable.

In addition to the product given in the table, saddlery and harness to the value of \$1,028,992 in 1914, and of \$653,944 in 1909 were reported by establishments assigned to other classifications, principally "stoves and ranges," "belting, leather," "cordage and twine," and "hardware, saddlery."

TRUNKS AND VALISES.

The establishments included in this industry manufacture for the most part trunks (including automobile, wardrobe, steamer, and sample trunks) of wood, leather, canvas and fiber, and suit cases, telescopes, sample medicine and vacuum bottle carrying cases, hat and trunk boxes, luncheon kits, satchels, golf and traveling bags of leather, leatherette, imitation leather, canvas, fiber, or other materials. Statistics for the industry from 1849 to 1914, inclusive, are given in Table 223 (p. 702).

In addition to the product shown in the table, trunks and valises to the value of \$296,201 in 1914, and \$675,219 in 1909 were reported by establishments assigned to other classifications, principally "leather goods, not elsewhere specified," "saddlery and harness," and "fancy articles, not elsewhere specified."

PAPER AND PRINTING.

THE GROUP AS A WHOLE.

Under this heading five closely related groups of industries are shown, namely, (1) the manufacture of paper and wood pulp; (2) the manufacture of articles from paper; (3) printing and publishing; (4) industries relating to printing and publishing, and (5) establishments printing wall paper, but not manufacturing the paper used. As industries of the second, third, and fifth classes use materials provided by those of the first, and to some extent by those of the fourth, there is considerable duplication in the value of products for the group as a whole.

The table below shows the number of establishments, average number of wage earners, capital, total wages paid, cost of materials, value of products, and value added by manufacture for each of the industries included in the group "paper and printing," as reported at the census of 1914.

INDUSTRY.	PAPER AND PRINTING: 1914.						
	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
Total.....	37,196	452,900	\$1,433,176	\$296,493	\$580,715	\$1,456,046	\$875,331
Paper:							
Paper and wood pulp.....	718	88,457	534,625	53,246	213,181	332,147	118,966
Paper exclusively.....	495	42,481	177,413	24,681	103,678	158,427	54,749
Pulp exclusively.....	63	5,374	36,028	3,255	13,733	20,526	6,793
Paper and pulp.....	160	40,602	321,184	25,310	95,770	153,194	57,424
Manufactures of paper.....	1,711	74,630	138,888	33,473	93,741	174,681	80,940
Bags, paper, not including bags made in paper mills.....	59	3,505	11,078	1,659	12,201	17,603	5,402
Boxes, fancy and paper.....	1,043	45,311	60,027	18,705	36,268	74,711	38,443
Paper boxes and cartons.....	1,014	44,780	58,391	18,459	35,769	73,684	37,915
All other.....	29	531	1,636	246	499	1,027	528
Labels and tags.....	108	2,600	5,697	1,459	2,908	6,584	3,676
Paper patterns.....	25	1,073	2,612	577	626	3,026	2,400
Card cutting and designing.....	58	517	706	265	421	1,055	634
Cardboard, not made in paper mills.....	18	1,159	5,129	580	2,962	4,350	1,388
Envelopes.....	90	6,970	15,830	3,378	10,235	18,481	8,246
Paper goods, not elsewhere specified.....	310	13,495	37,809	6,850	28,120	48,871	20,751
Playing cards.....	3	1,402	4,634	685	918	3,898	2,980
All other.....	307	12,093	33,175	6,165	27,202	44,973	17,771
Printing and publishing.....	33,471	272,092	720,232	195,511	257,848	901,534	643,686
Printing and publishing, book and job.....	12,115	113,121	247,282	78,414	96,453	307,331	210,878
Job printing.....	11,080	104,684	186,847	72,408	86,595	247,326	160,731
Book publishing and printing.....	154	6,309	19,893	4,000	6,141	17,398	11,257
Book publishing without printing.....	665	176	36,638	111	3,351	38,781	35,430
Linotype work and typesetting.....	216	1,952	3,904	1,895	366	3,826	3,460
Printing and publishing, music.....	180	873	4,261	573	1,047	7,271	6,224
Printing and publishing.....	36	818	1,745	542	813	2,175	1,362
Publishing without printing.....	144	55	2,516	31	234	5,096	4,862
Printing and publishing, newspaper and periodicals.....	19,317	114,375	384,745	88,561	129,082	495,906	366,824
Printing and publishing.....	1,332	46,093	174,848	42,349	70,716	230,503	159,787
Printing, publishing, and job printing.....	14,208	67,449	170,054	45,622	47,379	176,272	128,893
Publishing without printing.....	3,777	833	39,843	590	10,987	89,131	78,144
Bookbinding and blank-book making.....	1,124	21,693	29,180	11,575	13,334	38,104	24,770
Engraving, steel and copper plate, including plate printing.....	399	6,859	19,079	4,527	3,915	13,786	9,871
Lithographing.....	336	15,171	35,685	11,861	14,017	39,136	25,119

Table 96—Continued.

INDUSTRY.	PAPER AND PRINTING: 1914.						
	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
Industries relating to printing and publishing.....	1,248	12,983	\$21,811	\$11,560	\$7,409	\$31,797	\$24,388
Engraving and diesinking.....	486	1,536	1,865	1,076	596	3,134	2,538
Engraving, wood.....	72	302	246	310	96	719	623
Photo-engraving, not done in printing establishments.....	376	6,211	7,703	6,167	2,798	15,359	12,561
Stereotyping and electrotyping..	189	3,457	4,710	3,001	2,255	8,154	5,899
Printing materials.....	94	423	1,771	340	763	2,111	1,348
Type founding.....	31	1,054	5,516	666	901	2,320	1,419
Wall paper, not made in paper mills..	48	4,738	17,620	2,703	8,536	15,887	7,351

PAPER AND WOOD PULP.

The principal products manufactured by establishments under this classification are news, book, writing, and wrapping paper of all kinds, boards, blotting paper, tissues, roofing and sheathing paper, and wood pulp.

Statistics of mills making paper exclusively, of those making both paper and wood pulp, and of those making wood pulp exclusively have been compiled separately for 1914 and 1909, and are given in the following table. Since many paper mills use the product of pulp mills as material, there is considerable duplication in the value of products for the industry as a whole. The relative amount of such duplication has varied somewhat from census to census. Many paper mills, of course, use basic materials other than wood pulp, such as rags, waste paper, straw, and fibers of various sorts. Where mills make pulp and convert it into paper, the value of products reported represents only that of the paper, and such pulp as is manufactured for sale to other establishments.

Table 97

ESTABLISHMENTS ENGAGED PRIMARILY IN THE MANUFACTURE OF—	PAPER AND WOOD PULP: 1914 AND 1909.						
	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
Total, 1914.....	718	88,457	\$534,625	\$53,246	\$213,151	\$332,147	\$118,966
1909.....	777	75,978	409,349	40,805	165,442	267,657	102,215
Paper exclusively:							
1914.....	495	42,481	177,413	24,681	103,678	158,427	54,749
1909.....	538	37,649	148,022	19,278	79,692	129,381	49,689
Paper and pulp:							
1914.....	160	40,602	321,184	25,310	95,770	153,194	57,424
1909.....	158	32,191	222,991	18,151	72,093	116,708	44,616
Pulp exclusively:							
1914.....	63	5,374	36,028	3,255	13,733	20,526	6,793
1909.....	81	6,138	38,336	3,376	13,657	21,568	7,910

Data for the industry as a whole, as reported for each census from 1849 to 1914, inclusive, are given in Table 223 (p. 666).

Table 98 presents statistics of materials and products in detail, for the census years 1914, 1909, 1904, and 1899.

Table 98	PAPER AND WOOD PULP (TONS OF 2,000 POUNDS).			
	1914	1909	1904	1899
MATERIALS.				
Total cost.....	\$213,181,286	\$165,442,341	\$111,251,478	\$70,530,236
Pulp wood, total:				
Cords.....	4,470,763	14,001,607	3,050,717	1,986,310
Value.....	\$39,408,453	\$33,772,475	\$20,800,871	\$9,837,516
Spruce, domestic—				
Cords.....	1,892,739	1,653,249	1,732,531	1,109,113
Value.....	\$17,893,673	(?)	\$11,937,852	\$5,586,942
Spruce, imported—				
Cords.....	768,056	768,332	538,305	349,084
Value.....	\$9,008,609	(?)	\$4,570,017	\$2,272,495
Poplar, domestic—				
Cords.....	328,513	302,876	213,058	236,820
Value.....	\$2,714,210	(?)	\$1,506,971	\$1,103,132
Poplar, imported—				
Cords.....	61,644	25,622	35,313	20,133
Value.....	\$582,924	(?)	\$251,600	\$90,962
Hemlock—				
Cords.....	602,754	559,657	(?)	(?)
Value.....	\$4,176,542	(?)	(?)	(?)
All other wood and waste—				
Cords.....	817,057	691,871	531,510	220,155
Value.....	\$5,032,495	(?)	\$2,534,431	\$783,985
Wood pulp, purchased, total:				
Tons.....	1,521,980	1,241,914	877,702	644,006
Cost.....	\$54,207,932	\$43,861,357	\$27,633,164	\$18,369,464
Ground, domestic—				
Tons.....	379,263	333,313		
Cost.....	\$7,540,922	\$6,764,475		
Ground, imported—				
Tons.....	153,463	119,536	317,286	261,962
Cost.....	\$3,148,755	\$2,723,033	\$5,754,259	\$4,361,211
Soda fiber, domestic—				
Tons.....	155,635	145,163		
Cost.....	\$6,764,892	\$6,464,870		
Soda fiber, imported—				
Tons.....	5,289	9,463	120,978	94,042
Cost.....	\$297,838	\$397,994	\$5,047,105	\$3,430,809
Sulphite fiber, domestic—				
Tons.....	436,196	453,636		
Cost.....	\$19,762,127	\$19,041,329		
Sulphite fiber, imported—				
Tons.....	261,172	172,393	433,160	273,194
Cost.....	\$12,128,105	\$8,143,397	\$16,567,122	\$10,112,189
Sulphate fiber, domestic—				
Tons.....	16,414			
Cost.....	\$679,326			
Sulphate fiber, imported—				
Tons.....	88,497	48,410	46,278	414,808
Cost.....	\$3,486,540	\$326,259	\$264,678	\$465,255
Screenings, mechanical—				
Tons.....	4,806	(?)	(?)	(?)
Cost.....	\$41,841	(?)	(?)	(?)
Screenings, chemical—				
Tons.....	21,245	(?)	(?)	(?)
Cost.....	\$357,586	(?)	(?)	(?)
Rags, including cotton and flax waste and sweepings:				
Tons.....	361,667	357,470	294,552	234,514
Cost.....	\$12,151,288	\$10,721,559	\$8,864,607	\$6,595,427
Old or waste paper:				
Tons.....	1,509,981	983,882	588,543	356,193
Cost.....	\$19,161,400	\$13,691,120	\$7,430,335	\$4,869,409
Manila stock:				
Rope—				
Tons.....	64,256			
Cost.....	\$2,492,094			
Jute bagging, waste, threads, etc.—				
Tons.....	56,914	117,050	107,029	99,301
Cost.....	\$1,553,473	\$3,560,033	\$2,502,332	\$2,437,256
Straw:				
Tons.....	307,839	303,137	304,585	367,305
Cost.....	\$1,675,598	\$1,460,282	\$1,502,886	\$1,395,659
Other stock for making paper:				
Tons.....	97,276	(?)	(?)	(?)
Cost.....	\$1,778,669	(?)	\$1,963,066	\$817,075
Sulphur:				
Tons.....	136,458	(?)	130,400	(?)
Cost.....	\$3,134,699	(?)	\$3,221,834	(?)
All other materials.....	\$77,617,680	\$58,375,515	\$37,332,383	\$26,208,430

Table 98—Continued.

PRODUCTS.	PAPER AND WOOD PULP (TONS OF 2,000 POUNDS).			
	1914	1909	1904	1899
Total value.....	\$332,147,175	\$267,656,964	\$188,715,189	\$127,326,162
Newspaper, in rolls or sheets:				
Tons.....	1,313,284	1,168,098	912,822	569,212
Value.....	\$52,942,774	\$46,390,041	\$35,906,460	\$20,091,874
Hanging papers:				
Tons.....	96,527	92,158	62,606	54,330
Value.....	\$4,488,910	\$4,431,514	\$3,013,464	\$2,265,345
Poster paper:				
Tons.....	7,883	7,456	(³)	(³)
Value.....	\$490,766	\$465,519	(³)	(³)
Book paper:				
Plain—				
Tons.....	786,626	575,616	434,500	282,093
Value.....	\$58,496,221	\$42,846,674	\$31,156,728	\$19,466,804
Coated—				
Tons.....	117,342	95,213	(³)	(³)
Value.....	\$11,605,584	\$9,413,961	(³)	(³)
Cover—				
Tons.....	21,679	17,578	22,150	18,749
Value.....	\$2,809,377	\$1,982,853	\$2,023,986	\$1,665,376
Plate, lithograph, map, wood cut, etc.—				
Tons.....	9,332	6,498	19,837	22,366
Value.....	\$588,332	\$555,352	\$1,458,343	\$2,018,933
Cardboard, bristol board, card middies, tickets, etc.:				
Tons.....	83,010	51,449	89,060	28,494
Value.....	\$5,376,434	\$3,352,151	\$2,764,444	\$1,719,813
Fine paper:				
Writing paper—				
Tons.....	195,351	169,125	131,934	90,204
Value.....	\$28,637,257	\$24,966,102	\$19,321,045	\$12,222,870
All other fine paper—				
Tons.....	52,377	29,088	14,838	22,503
Value.....	\$5,417,661	\$4,110,536	\$2,928,125	\$3,673,104
Wrapping paper:				
Manila (rope, jute, etc.)—				
Tons.....	77,878	73,731	86,826	89,419
Value.....	\$7,070,254	\$6,989,436	\$6,136,080	\$5,929,764
Heavy (mill wrappers, etc.)—				
Tons.....	98,780	108,561	96,992	82,875
Value.....	\$3,583,357	\$4,380,794	\$4,035,588	\$4,143,240
Straw—				
Tons.....	15,606	32,988	54,232	91,794
Value.....	\$519,309	\$870,419	\$1,389,348	\$2,027,518
Bogus or wood manila, all grades—				
Tons.....	353,987	367,932	228,371	203,826
Value.....	\$17,975,636	\$19,777,707	\$10,099,772	\$9,148,677
Kraft paper—				
Tons.....	109,753	12,661	(³)	(³)
Value.....	\$6,949,244	\$936,940	(³)	(³)
All other wrapping paper—				
Tons.....	225,795	167,194	177,870	67,338
Value.....	\$13,269,953	\$9,265,095	\$8,774,804	\$3,293,174
Tag stock (rope, jute, and sulphite):				
Tons.....	29,230	(³)	(³)	(³)
Value.....	\$1,935,693	(³)	(³)	(³)
Boards:				
Wood pulpboard—				
Tons.....	116,419	71,036	60,863	44,187
Value.....	\$4,227,493	\$2,639,496	\$2,347,250	\$1,406,130
Strawboard—				
Tons.....	175,424	171,789	167,278	157,534
Value.....	\$4,270,519	\$3,750,851	\$4,367,560	\$3,187,342
News board—				
Tons.....	127,966	74,606	38,560	32,119
Value.....	\$3,502,134	\$2,215,469	\$1,174,216	\$930,531
Binders', trunk, and press boards—				
Tons.....	61,453			
Value.....	\$2,663,744			
Leather boards—				
Tons.....	26,689	92,012	(³)	(³)
Value.....	\$1,177,189	\$3,819,071	(³)	(³)
All other boards—				
Tons.....	700,844	422,196	253,950	131,777
Value.....	\$23,652,095	\$13,720,637	\$9,070,531	\$4,829,316
Tissue paper:				
Tons.....	115,401	77,745	43,625	28,406
Value.....	\$11,535,720	\$8,553,654	\$5,056,438	\$3,436,652
Blotting paper:				
Tons.....	14,157	9,577	8,702	4,351
Value.....	\$1,457,897	\$1,186,180	\$1,046,750	\$530,750

See footnotes on p. 156.

Table 98—Continued.

	PAPER AND WOOD PULP (TONS OF 2,000 POUNDS).			
	1914	1909	1904	1899
PRODUCTS—continued.				
Building, roofing, asbestos, and sheathing paper:				
Tons.....	243,908	225,824	145,024	96,915
Value.....	\$9,475,733	\$9,251,368	\$4,845,628	\$3,025,967
All other paper:				
Tons.....	93,346	93,577	106,296	49,101
Value.....	\$7,404,182	\$6,869,169	\$6,729,820	\$2,795,841
Wood pulp made for sale or for consumption in mills other than where produced:				
Ground—				
Tons.....	313,951	310,747	273,400	280,052
Value.....	\$5,686,919	\$5,049,466	\$4,323,495	\$4,433,699
Soda fiber—				
Tons.....	163,522	155,844	130,366	99,014
Value.....	\$7,213,086	\$6,572,152	\$5,159,615	\$3,612,602
Sulphite fiber—				
Bleached—				
Tons.....	214,627			
Value.....	\$10,803,787	444,255	376,940	271,585
Unbleached—		\$17,955,748	\$13,661,464	\$10,451,400
Tons.....	192,687			
Value.....	\$7,284,492			
Sulphate fiber—				
Tons.....	10,052	(³)	(³)	(³)
Value.....	\$359,957	(³)	(³)	(³)
Screenings—				
Mechanical—				
Tons.....	2,553	(³)	(³)	(³)
Value.....	\$27,910	(-)	(-)	(³)
Chemical—				
Tons.....	15,098	(³)	(³)	(³)
Value.....	\$301,566	(³)	(-)	(-)
All other products, value.....	\$8,880,990	\$4,738,549	\$1,924,195	\$919,415
<i>Wood pulp.</i>				
Quantity produced (including that used in mills where manufactured), total tons.....	2,893,150	2,485,523	1,921,768	1,179,525
Ground, tons.....	1,293,661	1,179,266	968,976	586,374
Soda fiber, tons.....	347,928	298,026	196,770	177,114
Sulphite fiber—				
Bleached, tons.....	385,349	1,017,631	756,022	416,037
Unbleached, tons.....	765,978			
Sulphate fiber, tons.....	52,041	(³)	(³)	(³)
Screenings—				
Mechanical, tons.....	11,769	(³)	(³)	(³)
Chemical, tons.....	35,824	(³)	(³)	(³)
EQUIPMENT.				
Paper machines:				
Total number.....	1,540	1,480	1,369	1,232
Capacity, yearly, tons.....	6,439,787	5,293,397	3,857,903	2,782,219
Fourdrinier—				
Number.....	859	804	752	663
Capacity per 24 hours, tons.....	13,545	10,508	8,569	(²)
Cylinder—				
Number.....	681	676	617	569
Capacity per 24 hours, tons.....	8,024	6,316	4,740	(²)
Pulp machines:				
Grinders, number.....	1,497	1,435	1,362	1,168
Digesters, total number.....	581	542	517	426
Sulphite fiber, number.....	361	348	309	(³)
Soda fiber, number.....	197	194	208	(³)
Sulphate fiber, number.....	23	(²)	(²)	(²)
Capacity, yearly, tons of pulp.....	3,708,130	3,405,621	2,644,753	1,536,431
Ground, tons.....	1,789,363	1,809,685	1,515,088	(³)
Sulphite, tons.....	1,341,622	1,250,983	885,092	(³)
Soda, tons.....	499,325	344,953	244,573	(³)
Sulphate, tons.....	77,820	(²)	(²)	(²)

¹ The quantity of pulp wood reported in 1909 represents that used by all mills manufacturing wood pulp, which includes a few where it was not the primary product.

² Not reported.

³ Not reported separately.

⁴ Reported as "other chemical fiber."

⁵ In addition, in 1914, nine establishments engaged primarily in the manufacture of paper boxes, roofing materials, and in other industries, produced paper and pulp to the value of \$2,767,407, and in 1909, 15 establishments of this character manufactured \$2,567,267 worth of paper and pulp.

BAGS, PAPER, NOT INCLUDING BAGS MADE IN PAPER MILLS.

All kinds of paper bags are manufactured by the establishments included under this classification. Statistics for the industry for the census years from 1869 to 1914, inclusive, are given in Table 223.

In addition to the product shown in the table, there were reported for 1914 paper bags to the value of \$2,482,038 manufactured in paper mills and to the value of \$1,407,051 by establishments engaged primarily in manufacturing bags other than paper, and envelopes, and in other industries. A number of flour mills make the bags in which the products are shipped, and the same is true of other industries, such as "lime" and "cement." The value of bags made in such establishments is not reported separately.

BOXES, FANCY AND PAPER.

The establishments in this classification manufacture a large variety of plain and metal-edged boxes, made of paper, news board, or cardboard, for confectionery, millinery, small cigars, cigarettes, lunches, hosiery, underwear, shoes, ribbon, shirts, druggists' preparations, face powder, bottles, silverware, cutlery, etc. Cartons, folding boxes, mailing cases, shipping drums, charlotte-russe boxes, holders, cans, ice cream and oyster boxes, pails, egg cases, and bonbon cups are among the articles reported. Although paper and wood pulp are the principal materials, the products also include lithographed, lacquered, and plain tin boxes, tea caddies and canisters of tin, and fancy boxes of wood covered with cretonne, silk, tapestry, and similar textiles. Statistics for the industry were first shown separately at the census of 1849. (See Table 223.)

In addition to the products covered by the table there were reported for 1914 paper and other boxes similar to those included in this classification valued at \$6,961,514, manufactured in paper mills and in establishments assigned to other industries, principally wooden packing boxes, bags, paper, paper goods, not elsewhere specified, job printing, and industries requiring large numbers of boxes or cartons for their own use, as, for example, those making women's clothing, confectionery, corsets, boot and shoe cut stock, silverware, fancy articles, labels and tags, glass, hosiery and knit goods, needles, pins, and hooks and eyes, cigars and cigarettes, and toys and games.

In 1914 separate data for those establishments whose product of chief value was paper boxes and cartons, and for those whose chief product was "other boxes" (those covered with textile fabrics, and of tin, etc.), are shown in Table 96.

LABELS AND TAGS.

The principal manufactures of establishments in this classification are labels for cans, bags, boxes, packages, and bottles; tags, tickets for clothing; soda checks, baggage checks, and checks for hotel, club, and restaurant use; cigar bands, lithographed cigar box labels, and wine and liquor labels, etc.; but patented specialties, such as drug labels with dials to indicate the time for doses, and labels of woven cotton and silk fabrics, were also reported. Paper and cardboard are the principal materials used, but metals and other materials are used in some cases. Statistics for the industry for the census years from 1879 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, labels and tags to the value of \$3,492,853 in 1914, and of \$415,896 in 1909 were reported by establishments assigned to other industries, principally "boxes, fancy and paper," and "paper goods, not elsewhere specified."

PAPER PATTERNS.

The principal manufactures of establishments included under this classification are cut and stamped paper patterns for garments, embroidery, etc., transfer patterns, stencils, and fashion plates. Statistics for the industry from 1879 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, paper patterns valued at \$1,487,576 in 1914 and \$907,433 in 1909 were made incidentally by establishments printing and publishing newspapers and periodicals.

CARD CUTTING AND DESIGNING.

This industry includes the designing and cutting of cards. Index, library, and record cards, guides, etc., stencil cards for addressing machines, coin cards, card novelties, photograph mats, mounts, and folders, cards for the display of jewelry and samples, Jacquard cards, pattern cards for weaving, and lacquered cards for textile industries are among the products specified. Statistics for the industry for the census years from 1859 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, jewelers' and sample cards to the value of \$87,009 in 1914 and of \$50,635 in 1909 were reported by establishments assigned to other industries—"boxes, fancy and paper," "engraving, steel and copper plate, including plate printing," and "printing and publishing, book and job." Doubtless, however, a large quantity of products similar to those of establishments in this classification are made by other establishments which were unable to segregate their value from that of other products. Changes in the classification of individual establishments were doubtless largely responsible for the decrease from 1869 to 1879.

PAPER GOODS.

The manufacture of envelopes, cardboard, and paper goods, not elsewhere specified, is so closely allied that the three industries are combined and the totals presented in the following table:

CENSUS YEAR.	PAPER GOODS.								
	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.	
									Expressed in thousands.
1914.....	418	21,624	35,307	\$58,768	\$10,808	\$11,317	\$71,703	\$30,386	
1909.....	403	19,211	27,067	48,662	8,169	31,249	55,171	23,922	
1904.....	308	13,726	15,226	27,345	5,577	19,645	33,946	14,391	
1899.....	246	9,727	10,421	18,152	3,658	14,191	24,355	10,164	
1889.....	112	4,050	3,364	6,757	1,529	5,860	10,106	4,246	

Cardboard, not made in paper mills.—Establishments included in this industry are engaged principally in coating and lining box-boards and other paper boards for cards, boxes, picture mats, and the like. Cardboard is manufactured extensively in paper mills; the production in such mills in 1914 was valued at \$5,376,434 and in 1909 at \$3,352,151. At the census of 1859 six establishments in this industry reported the employment of 24 wage earners to whom they paid \$7,620 in wages; the cost of materials was \$6,136, and the value of products was \$17,246. The next separate presentation was at the census of 1879.

The statistics for 1879 to 1914 are given in Table 223.

Envelopes.—Establishments under this classification manufacture a great variety of machine-made envelopes, including those with metal clasps and patented devices, for letters, circulars, pamphlets, and other matter, for filing systems, and for numerous other purposes. The manufacture of *papeterie* and paper boxes, as well as printing, is frequently carried on in connection with envelope making. The manufacture of envelopes in this country is said to have begun about 1840. The census of 1849 was the first at which statistics were presented, two establishments reporting with a product valued at \$45,000. Data for each census from 1859 to 1914, inclusive, are given in Table 223.

In addition to the products shown in the table, envelopes to the value of \$1,630,578 were reported by establishments assigned to other classifications, principally "boxes, fancy and paper," "stationery goods, not elsewhere specified," and "bags, paper, not including bags made in paper mills."

Paper goods, not elsewhere specified.—Establishments classified under "paper goods, not elsewhere specified," make crêpe and surface-coated paper; glazed, waxed, oiled, fireproof, and corrugated paper; tar, fly, toilet, and shelf paper; paper lace; cigarette paper; cut and fancy paper for box and book covers; paper printed in imitation of wood and of stained glass; blue-print paper; playing cards; papier-mâché; confetti; napkins and doilies; folding cases; milk bottles; bottle caps; mailing and shipping tubes; wrappers; diamond paper; trunk linings; gummed paper; paper twine; towels; lynch rolls; tooth-pick tubes; cigarette tubes; bands and brims for ladies' hats; ribbon; adding machine and cash register paper; serpentines; mailing cases and tubes; megaphones; gummed tapes; mottoes; cups; charlotte-russe boxes; bon bon or candy cups; impression paper; tubes and cones; silver print paper; machine-folded powder papers; and many other articles.

Separate statistics are shown in Table 96 for those establishments making playing cards as their product of chief value and for those manufacturing all other paper products. General statistics for the industry from 1889 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, paper goods of a similar character to the value of \$3,155,683 in 1914 and of \$2,369,437 in 1909 were reported by establishments assigned to other classifications, principally paper and wood pulp, fancy and paper boxes, envelopes, glass, foundry and machine-shop products, wooden packing boxes, and paper bags.

PRINTING AND PUBLISHING.

Separate statistics have been compiled for the six industries of this group and are given in Table 96.

There are many establishments in other industries that incidentally do printing, lithographing, etc., chiefly for themselves but sometimes for others. Although the value of such work was not reported separately in many cases, it was segregated for the printing departments of mercantile establishments doing a large mail-order business, and for large manufacturing concerns engaged primarily in the manufacture of other products, and statistics for these are included. Such establishments do not sell their printed products—stationery, catalogues, pamphlets, circulars, and other advertising matter—but use them in their regular business. The principal industries in which such work is incidentally done are “boxes, fancy and paper,” “stationery goods, not elsewhere specified,” and “cash registers and calculating machines.” To a less extent it is done by establishments assigned to “bags, paper,” “cleansing and polishing preparations,” “boxes, cigar,” “jewelry,” “labels and tags,” “paper goods, not elsewhere specified,” “photo-engraving,” “signs and advertising novelties,” “stereotyping and electrotyping,” and “toys and games.”

Considerable duplication appears in the total value of products of the industry as a whole and in some of the branches.

The statistics given in the table below include book and job printing and publishing; the printing and publishing of music; and of newspapers and periodicals. 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.

Table 100 PRODUCT.	PRINTING AND PUBLISHING.			
	1914	1909	1904	1899
Total value	\$310,508,075	\$662,591,959	\$496,061,357	\$347,064,430
PUBLICATIONS.				
Newspapers and periodicals	419,209,701	337,596,288	258,816,282	175,789,610
Subscriptions and sales	163,577,090	135,063,043	111,298,691	79,928,483
Advertising	255,632,611	202,533,245	145,517,591	95,861,127
Newspapers	283,588,966	232,993,094	(*)	(*)
Subscriptions and sales	99,541,860	84,438,702	(*)	(*)
Advertising	184,047,106	148,554,392	(*)	(*)
Periodicals other than newspapers	135,620,735	104,603,194	(*)	(*)
Subscriptions and sales	64,035,230	50,624,341	(*)	(*)
Advertising	71,585,505	53,978,853	(*)	(*)
Ready-prints (patent insides and outsides) ..	1,965,214	2,293,077	(*)	
Books and pamphlets:				
Published or printed and published	68,587,773	62,930,394	53,312,492	
Printed for publication by others	19,049,651	10,209,509	(*)	
Sheet music and books of music:				
Published or printed and published	6,803,491	5,510,698	4,673,685	
Printed for publication by others	822,585	1,000,966	(*)	171,264,820
OTHER PRODUCTS FOR SALE AND IN EXECUTION OF ORDERS.				
Job printing	249,730,932	204,154,096	149,262,070	
Machine composition for others	5,682,098	(*)	(*)	
Bookbinding and blank books	15,097,109	18,810,392	15,585,118	
Electrotyping, engraving, lithographing, etc.	9,698,641	8,201,398	3,829,838	
All other products	13,860,875	11,885,141	12,601,822	
NEWSPAPERS AND PERIODICALS.				
Number	22,754	22,141	21,848	18,793
Aggregate circulation	205,594,907	164,463,040	150,009,723	106,889,334

See footnotes on p. 161.

Table 100—Continued. PRODUCT.	PRINTING AND PUBLISHING.			
	1914	1909	1904	1899
NEWSPAPERS AND PERIODICALS—contd.				
<i>By period of issue.</i>				
Daily:				
Number.....	2,580	2,600	2,452	2,226
Aggregate circulation.....	28,777,454	24,211,977	19,632,603	15,102,156
Sunday:				
Number.....	571	520	494	567
Aggregate circulation.....	16,479,943	13,347,282	12,022,341	(*)
Triweekly:				
Number.....	84	73	703	699
Aggregate circulation.....	549,495	335,389	3,233,658	3,061,478
Semiweekly:				
Number.....	583	635		
Aggregate circulation.....	2,483,629	2,312,919		
Weekly:				
Number.....	15,172	15,097	15,066	12,979
Aggregate circulation.....	50,336,963	40,822,965	36,226,717	34,242,052
Monthly:				
Number.....	2,822	2,491	2,500	1,817
Aggregate circulation.....	79,190,838	63,280,535	64,306,155	37,869,897
Quarterly:				
Number.....	500	361	693	505
Aggregate circulation.....	18,853,901	16,058,099	14,588,249	16,613,751
All other:				
Number.....	442	364		
Aggregate circulation.....	8,922,684	4,093,874		
<i>By character.</i>				
News, politics, and family reading:				
Number.....	17,574	17,698	17,032	15,506
Aggregate circulation.....	69,533,556	61,074,990	53,355,893	(*)
Religious:				
Number.....	1,412	1,251	1,287	952
Aggregate circulation.....	34,515,249	29,523,777	22,383,631	(*)
Agricultural, horticultural, dairy, stock raising, etc.:				
Number.....	346	316	360	307
Aggregate circulation.....	18,091,350	11,327,253	8,106,275	(*)
Commerce, finance, insurance, railroads, etc.:				
Number.....	323	264	364	190
Aggregate circulation.....	2,196,988	1,411,738	2,470,832	(*)
Trade journals generally:				
Number.....	873	685	627	520
Aggregate circulation.....	9,284,145	3,572,441	3,428,596	(*)
General literature, including monthly and quarterly magazines:				
Number.....	284	340	323	239
Aggregate circulation.....	38,495,435	31,322,035	30,615,577	(*)
Medicine and surgery:				
Number.....	178	197	192	111
Aggregate circulation.....	910,085	931,584	1,054,948	(*)
Law:				
Number.....	65	56	81	62
Aggregate circulation.....	76,571	151,346	194,035	(*)
Science and mechanics:				
Number.....	135	139	83	66
Aggregate circulation.....	1,683,381	1,421,955	525,523	(*)
Fraternal organizations:				
Number.....	312	419	450	200
Aggregate circulation.....	7,092,592	6,982,235	5,356,427	(*)
Education and history:				
Number.....	231	202	173	120
Aggregate circulation.....	2,533,633	1,879,383	2,119,797	(*)
Society, art, music, fashions, etc.:				
Number.....	212	164	155	88
Aggregate circulation.....	14,763,958	13,445,661	15,289,431	(*)
College and school periodicals:				
Number.....	303	271	178	139
Aggregate circulation.....	353,755	330,705	243,240	(*)
Labor:				
Number.....	163	(2)	(2)	(2)
Aggregate circulation.....	1,633,700	(2)	(2)	(4)
Reform and social science:				
Number.....	179	(2)	(2)	(2)
Aggregate circulation.....	2,900,574	(2)	(2)	(4)
Miscellaneous:				
Number.....	164	139	538	293
Aggregate circulation.....	1,589,735	1,087,937	4,860,518	(*)

See footnotes on p. 161.

Table 100—Continued.

PRODUCT.	PRINTING AND PUBLISHING.			
	1914	1909-	1904	1899
NEWSPAPERS AND PERIODICALS—contd.				
<i>By language.</i>				
English:				
Number	21,272	20,744	20,599	17,761
Aggregate circulation	193,600,407	155,432,243	142,441,068	(⁴)
Foreign (including foreign and English):				
Number	1,482	1,337	1,249	1,032
Aggregate circulation	11,994,500	9,030,797	7,568,655	(⁴)
French:				
Number	46	39	46	31
Aggregate circulation	477,436	446,739	252,135	(⁴)
German:				
Number	540	692	700	633
Aggregate circulation	4,095,672	4,434,146	3,922,227	(⁴)
Italian:				
Number	121	104	63	35
Aggregate circulation	755,367	500,475	319,450	(⁴)
Scandinavian:				
Number	167	161	162	115
Aggregate circulation	1,261,585	1,118,601	1,149,619	(⁴)
Letto-Slavic:				
Number	235	169	128	75
Aggregate circulation	1,655,363	917,649	605,987	(⁴)
All other:				
Number	373	232	150	143
Aggregate circulation	3,655,363	1,613,187	1,319,237	(⁴)

¹ In addition, printing and publishing to the value of \$2,813,574 in 1914 and of \$2,942,282 in 1909, was reported by establishments assigned to other industries.

² Not reported separately.

³ Included with circulation of dailies.

⁴ Not reported.

Printing and publishing, newspapers and periodicals.—Statistics as to periodicals published by establishments under this classification are shown in Table 100. This industry includes the printing of railway guides and other directories issued at frequent intervals, but not of theater programs or catalogues. All establishments publishing, or printing and publishing, newspapers are classified under this heading, however large the value of their job printing or other printing business. This includes publishers who have their printing done for them. Establishments which print periodicals for others to publish are included with "book and job printing" establishments.

Statistics for 1914 for establishments in this industry which did their own printing, for those that also did job printing, and for such as contracted for their printing to be done in other plants, respectively, are presented in Table 96.

Data for newspapers and periodicals were not shown separately until 1869. At the census of 1879 a special report on this branch of the printing and publishing industry was made, but general statistics sufficient for a comparative statement were not published. Statistics for the census of 1869 and for each census from 1889 to 1914, inclusive, are given in Table 223.

Printing and publishing, book and job.—Some establishments included in this classification both print and publish books and pamphlets; others publish but do not print them; others do no publishing, but print books, etc., for publishers and do miscellaneous jobs, such as the printing of posters, letterheads, billheads, catalogues, cards, circulars, pamphlets, etc., and still others do linotype work or typesetting exclusively. The statistics for establishments of these several classes for 1914 and 1909 are given in Table 101.

There is much duplication in the total value of products of the four classes of establishments combined. Job printing is also done to a great extent by establishments assigned to the newspaper and periodical branch of the industry.

The statistics for "printing and publishing, book and job," were first shown separately at the census of 1869; these, with the figures for each subsequent census, are given in Table 223.

ESTABLISHMENTS ENGAGED PRIMARILY IN—	PRINTING AND PUBLISHING, BOOK AND JOB.						
	Number of es- tablish- ments.	Wage earners (average num- ber).	Capital.	Wages.	Cost of ma- terials.	Value of products.	Value added by manu- facture.
Total, 1914.....	12, 115	113, 121	\$247, 282	\$78, 414	\$96, 453	\$307, 331	\$210, 878
1909.....	10, 708	108, 687	202, 662	66, 521	77, 651	250, 926	173, 275
Job printing:							
1914.....	11, 080	104, 684	186, 847	72, 408	86, 595	247, 328	160, 731
1909.....	9, 721	99, 122	151, 112	60, 536	63, 075	198, 607	129, 932
Book publishing without printing:							
1914.....	665	176	36, 638	111	3, 351	38, 781	35, 430
1909.....	666	423	28, 469	316	3, 327	32, 859	29, 532
Book publishing and printing:							
1914.....	154	6, 309	19, 893	4, 090	6, 111	17, 398	11, 257
1909.....	163	7, 727	20, 504	4, 354	6, 020	17, 839	11, 319
Linotype work and typesetting:							
1914.....	216	1, 952	3, 904	1, 895	366	3, 828	3, 460
1909.....	158	1, 415	2, 577	1, 255	229	2, 721	2, 492

The number of copies of the several classes of books and pamphlets reported as "published" in 1914 and 1909 is shown in the following table. Many books and pamphlets issued by business houses, societies and organizations, by public authorities, and others are not here included. The statistics represent essentially the business of what is commonly understood as book publishing.

CHARACTER OF BOOKS AND PAMPHLETS.	COPIES.	
	1914	1909
Total number published.....	175, 166, 698	161, 361, 844
Biography and correspondence.....	517, 662	657, 464
Description, geography, and travel.....	3, 017, 151	4, 540, 647
Domestic and rural.....	1, 500, 226	2, 023, 193
Education.....	51, 069, 521	41, 636, 847
Fiction.....	33, 528, 501	46, 942, 399
Fine arts, including illustrated gift books.....	1, 387, 604	2, 849, 371
History.....	2, 458, 912	2, 923, 187
Humor and satire.....	959, 288	885, 262
Juvenile.....	16, 329, 831	10, 184, 030
Law.....	1, 701, 602	1, 495, 134
Literature and collected works.....	5, 673, 732	5, 037, 972
Medicine and hygiene.....	2, 337, 312	1, 519, 480
Philosophy.....	139, 996	265, 077
Physical and mathematical science.....	1, 752, 826	356, 413
Poetry and the drama.....	1, 926, 892	1, 980, 824
Political and social science.....	1, 807, 042	1, 862, 429
Religion and theology.....	24, 411, 502	23, 608, 230
Scientific and similar associations.....	1, 279, 427	1, 258, 562
Sports and amusements.....	4, 011, 909	2, 430, 074
Useful arts.....	2, 133, 267	1, 104, 599
Works of reference.....	11, 032, 335	7, 799, 590

Printing and publishing, music.—The principal products of the establishments in this class are sheet music and books of music, but no establishment is included that does not itself publish the music. Plants printing music exclusively for others are included under book and job printing.

The greater number of publishers of music had their printing and presswork done by others, as is shown by the statistics in Table 103.

Establishments in the newspaper and periodical branch of the industry reported the printing and publishing of a considerable quantity of music, the value of which is not included in the table. At the census of 1859 two establishments were reported as engaged in printing and publishing music. After that no separate statistics were given for this branch of the industry until the census of 1839.

Table 103 ESTABLISHMENTS ENGAGED PRIMARILY IN—	PRINTING AND PUBLISHING, MUSIC.						
	Number of estab- lish- ments.	Wage earners (average num- ber).	Capital.	Wages.	Cost of mate- rials.	Value of products.	Value added by man- ufacture.
Total, 1914.....	180	873	\$1,261	\$573	\$1,047	\$7,271	\$6,224
1909.....	178	738	3,591	439	936	5,576	4,590
Publishing without printing:							
1914.....	144	55	2,516	31	234	5,096	4,362
1909.....	138	7	2,277	2	384	3,795	3,411
Publishing and printing:							
1914.....	36	818	1,745	542	813	2,175	1,362
1909.....	40	731	1,314	437	602	1,781	1,179

LITHOGRAPHING.

This industry includes establishments producing prints from designs inked upon stone or certain metals. The products include calendars, bank notes, commercial and bank forms, policies, fashion plates, labels, maps, picture post cards, religious cards and mottoes, show cards, lithometal novelties, blotters, advertising signs and pictures, hangers, booklets, cut-outs, wrappers, billheads, circulars, sketches, posters, art prints, view books and post cards, pictures, covers, etc. They also report cigar bands, checks, drafts, bonds, letterheads, pass books, tickets, liquor labels, etc., which are also among the products of establishments that do engraving on steel and copper plates. The making of designs and the preparation of lithograph plates of stone and metal, to be used by others in printing, are often included. The statistics for this industry for the census years from 1849 to 1914, inclusive, are given in Table 223.

In addition to the products shown in the table, lithographing to the value of \$1,025,365 was reported in 1914 by establishments assigned to other industries.

BOOKBINDING AND BLANK-BOOK MAKING.

The principal products of establishments in this classification are ledgers, account books, pass books, sales books, scrap books; receipts, orders, checks, etc., usually bound into books; loose-leaf devices and binders, holders and sheets; program blanks, pay rolls, bills of lading, X-ray ledgers, radium indexes, inventory blanks, pamphlets folded and stitched, etc. The binding of books and pamphlets for the trade is an important branch of the business, which also includes embossing, book gilding, paper ruling and cutting, card, book, and paper etching, card beveling and bronzing, mounting maps and samples, etc. Many establishments assigned to other branches of the printing industry do more or less work of the same character as those assigned to this branch. Statistics for the industry for the census years from 1849 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, bookbinding and blank-book making to the value of \$827,624 were reported in 1914 by establishments assigned to other industries.

ENGRAVING, STEEL AND COPPER PLATE, INCLUDING PLATE PRINTING.

Establishments assigned to this industry engrave steel and copper plates for use by others in printing, or engrave such plates and themselves make prints from them. The products include engraved stationery, visiting and other cards, invitations, announcements, securities, bonds, stock certificates, music plates, etc.; maps, art engravings, etchings, book illustrations, half tones, and other illustrations of similar character. The industry is distinguished from that of "engraving and diesinking" in that the plates engraved in this industry are in all cases intended for use in printing. The statistics for the industry for each census from 1879 to 1914, inclusive, are shown in Table 223.

In addition to the value of products shown in the table, engraved steel and copper plates to the value of \$591,899 were reported in 1914 by establishments assigned to other industries.

ENGRAVING AND DIESINKING.

Establishments included in this classification are engaged in engraving and etching on metals for purposes other than printing, such as jewelry, silverware, and fancy metals. The work is frequently done on materials furnished by others. Many different classes of articles are engraved, chased, or etched, among others name plates, music plates, notarial seals, charms, letters, bracelets, chains, lockets, buckles, boxes, watchcases, fobs, and medals. Steel and brass dies for embossing and stamping are also manufactured. It is probable that the figures for this industry for 1869 and 1889 are not comparable with those for other censuses by reason of differences in the classification of certain establishments. The statistics for the industry are given in Table 223 for the census years from 1849 to 1914, inclusive.

In addition to the products covered by the table, engraving and diesinking to the value of \$196,247 in 1914 and of \$112,694 in 1909 were reported by establishments assigned to other industries, principally "hand stamps" and "hardware." Beyond question, however, a great deal of engraving is done by other establishments as incidental to their business, and is not reported separately.

ENGRAVING, WOOD.

The principal products of establishments under this classification are woodcuts for use in printing. Statistics for the industry which was first reported separately in 1879 are given in Table 223 for that year and subsequent censuses. The decreases from 1889 to 1899 are attributable to changes in the classification of individual establishments and to the substitution of photo-engraving and other kinds of engraving for wood engraving.

In addition to the products covered by the table, woodcuts to the value of \$36,453 in 1914 and \$17,778 in 1909 were reported by establishments assigned to other industries, principally photo-engraving. Woodcuts were also made to some extent by printing establishments, but the value of these was not reported separately.

PHOTO-ENGRAVING, NOT DONE IN PRINTING ESTABLISHMENTS.

Establishments included under this classification manufacture photo-engraved plates for printing. The photographic process is now by far the most common method of reproducing photographs, maps, charts, diagrams, post cards, fashion plates, art pictures, drawings, half tones, line plates, and illustrations of all sorts. The establishments assigned to this classification do not ordinarily print from the plates which they make, but prepare them for printing by other concerns. A variety of different processes are used for making the plates. Some establishments make a specialty of the reproduction of colored work by the photographic method.

The designation of the industry at the census of 1889 was "photo-lithographing and engraving," and at the censuses of 1899 and 1904 "photo-lithographing and photo-engraving," but the scope was the same at these censuses as at the census of 1914. The statistics for the years 1889 to 1914, inclusive, are shown in Table 223. In addition to the value of products shown in the table, photo-engraving to the value of \$183,286 in 1914 and of \$205,203 in 1909 was reported by establishments assigned to other industries, principally "stereotyping and electrotyping." Many concerns in the printing industry, including, among others, periodical publishers, do photo-engraving work in connection with their general printing business.

At the census of 1914 photo-engraving departments of printing establishments reported 1,771 persons employed and receipts for work to the amount of \$2,200,694.

STEREOTYPING AND ELECTROTYPING.

A large part of the printing of periodicals and books at the present time is done not directly from type, but from plates prepared from the type by the stereotype or electrotype process. Establishments engaged primarily in making stereotype and electrotype plates, nickel types, matrix, and lead-moulded type for printing are included in the present classification. These establishments do not themselves do printing. Data for each census from 1859 to 1914 are shown in Table 223.

In addition to the value of products shown, stereotype and electrotype work to the value of \$377,439 in 1914 and of \$108,383 in 1909 was reported by establishments in other industries, principally in "photo-engraving." A great many printing establishments, however, make stereotype and electrotype plates for their own use.

TYPE FOUNDED AND PRINTING MATERIALS.

The manufacture of printing materials is so closely associated with type founding, and there is so much overlapping between these two industries that the statistics are combined in the following table, which presents the totals for the two industries from 1879 to 1914, inclusive:

CENSUS YEAR.	TYPE FOUNDED AND PRINTING MATERIALS.									
	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.	Expressed in thousands.	
1914.....	125	1,477	2,328	\$7,287	\$1,006	\$1,665	\$4,431	\$2,766		
1909.....	122	2,026	1,948	6,793	1,191	1,772	4,704	2,932		
1904.....	98	1,803	1,497	5,926	1,123	1,119	3,935	2,816		
1899.....	92	1,984	1,331	3,175	1,036	1,270	3,931	2,661		
1889.....	102	2,665	1,191	6,338	1,460	2,002	5,376	3,374		
1879.....	75	2,177	(1)	2,973	1,058	851	2,752	1,901		

¹ Figures not available.

Printing materials.—Establishments included under this classification manufacture principally printers' rules, sticks, chases, quoins, galleys, rollers, blocks, blankets, mallets, planes, leads, plate hooks, gauges, locking devices, etc. Statistics for the industry are presented in Table 223 for the census years from 1879 to 1914, inclusive.

In addition to the product covered by the table, printing materials to the value of \$159,743 were reported in 1914 by establishments assigned to other industries, principally type founding.

Type founding.—Printers' type and type for typewriting machines, of wood, brass, steel, or lead, are the principal products of establishments included under this classification. Brass rules, leads, and slugs are also reported by type foundries. In 1849 the classification was "type and stereotype," and in 1859 "type and stereotype founding," but these statistics are not strictly comparable with those for later censuses.

The statistics are given in Table 223 for each census from 1869 to 1914, inclusive. The introduction of typesetting machines which cast the type directly has checked the development of the industry and is responsible for the decrease shown at the last four censuses. In addition to the product covered by the table, type was reported to the value of \$59,410 by establishments assigned to other classifications, principally printing materials.

WALL PAPER, NOT MADE IN PAPER MILLS.

This classification includes statistics for establishments engaged in the designing of patterns and the printing of paper used to cover interior walls. The paper itself is made in paper mills, and the production designated as "hanging paper" is given in Table 98. The statistics for the industry from 1849 to 1914, inclusive, are shown in Table 223.

LIQUORS AND BEVERAGES.

THE GROUP AS A WHOLE.

The table following shows the number of establishments, average number of wage earners, capital, total wages paid, cost of materials, value of products, and value added by manufacture for each of the industries included in this general group, as reported at the census of 1914. The quantities of the distilled and fermented liquors, which are the chief products of the group, are not given here, as they are presented in detail in the annual reports of the Commissioner of Internal Revenue.

Table 105

LIQUORS AND BEVERAGES: 1914.

INDUSTRY.	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
Total.....	7,562	83,152	\$1,015,715	\$69,124	\$246,188	\$772,080	\$525,892
Liquors, distilled.....	434	6,295	91,235	3,994	40,997	206,779	165,782
Alcohol, including pure, neutral, or cologne spirits.....	27	2,042	21,535	1,544	19,214	102,943	83,729
Rum.....	6	52	1,085	43	461	2,394	1,933
Whisky, bourbon and rye.....	276	4,002	66,479	2,292	20,317	98,846	73,529
All other.....	125	199	2,186	115	1,005	2,596	1,591
Liquors, malt.....	1,250	62,070	792,914	53,244	129,724	442,149	312,425
Liquors, vinous.....	318	2,292	31,516	1,194	9,489	16,618	7,129
Malt.....	97	1,989	46,767	1,828	39,199	48,133	8,934
Mineral and soda waters, not including natural spring waters.....	5,463	15,506	53,233	8,864	26,779	58,401	31,622

LIQUORS, DISTILLED.

This classification includes establishments engaged in distilling whisky (corn, rye, and malt), brandy, fruit brandies, gin, rum, alcohol, denatured alcohol, and cologne spirits. The by-products include dried distillers' grain, dried feed, bran, fusel oil, grape-seed oil, yeast, and slop, swill, or refuse. In an effort to compile figures comparable with those of exports four subdivisions of the industry are shown in Table 105: (1) Alcohol, including pure, neutral, or cologne spirits; (2) rum; (3) whisky, bourbon or rye; (4) other distilled spirits. There is considerable overlapping between these subgroups, as alcohol to the value of \$3,559,159 was reported by manufacturers of whisky, while whisky to the value of \$10,936,632 was reported by the manufacturers of alcohol, and other distilled liquors to the value of \$973,809 were reported by manufacturers of alcohol and of whisky. Establishments assigned to other industries reported distilled liquors to the value of \$1,797,415 in 1914 and to the value of \$1,095,560 in 1909, principally by manufacturers of vinous liquors and of yeast. General statistics of the industry for the census years from 1849 to 1914, inclusive, are given in Table 223. The value of products given in the table is greatly affected by internal-revenue taxes, and the variations in the tax rate from time to time must be taken into account in considering the statistics.

The large increase in value of products from 1904 to 1909 is due in part to the fact that in 1909, in order to secure uniformity in the statistics, the internal-revenue tax was included in the value of products, whether paid by the manufacturer at the time the report was made, or whether the liquors were still held in bond pending the payment of the tax, whereas in 1904 and at prior censuses this tax was included only when it was actually paid and reported by the manufacturer. At censuses prior to that of 1914 and 1909 the internal-revenue tax was not reported separately, but was included in miscellaneous expenses, such as advertising, insurance, and repairs. For this reason it is impossible to determine how much of the increase in value of products from 1904 to 1909 is due to the uniform inclusion of the internal-revenue tax for 1909.

The number of distilleries operated during the year ending June 30, 1914, as reported by the Commissioner of Internal Revenue, was 743. This number exceeds that reported by the census for the calendar year 1914, the difference being due to the fact that the Census Bureau does not canvass small establishments—that is, those having an annual product valued at less than \$500—and does not count as distilleries those establishments which are engaged primarily in manufacturing other products, such as vinous liquors, or vinegar and cider, and which report distilled spirits only as a by-product. The quantity of distilled spirits produced was 174,611,645 gallons, exclusive of that made of fruits, and 7,307,897 gallons of fruit brandy, making a total production of 181,919,542 gallons.

LIQUORS, MALT.

The principal product included under this classification is lager beer. Less important products are ale, stout, porter, steam beer, weiss beer, bock beer, temperance beer, malt, tonics, and sake. Nearly all breweries reported the sale of sprouts and malted grain—by-products which are used for stock feed. Establishments doing

nothing but bottling were not canvassed, but bottled beer to the value of \$38,105,945 was reported by breweries, and to the value of \$235,514 by establishments assigned to other industries, namely, malt, mineral and soda waters, and ice. Statistics for each census from 1849 to 1914, inclusive, are presented in Table 223. Variations in the rate of internal-revenue tax on beer have affected somewhat the movement of the value of products. The expenses reported by brewers always include the internal-revenue tax on their entire output.

Many breweries manufacture ice for their own use, but 238 of those reporting in 1914 and 205 of those reporting in 1909 sold ice to the value of \$3,889,490 and \$3,130,639, respectively.

The number of breweries operated during the year ending June 30, 1914, as reported by the Commissioner of Internal Revenue, was 1,413, and the production was 66,189,466 barrels. The excess of 163 establishments over the number reported by the census is due to the inclusion of some that were assigned to other classifications, of some that operated breweries in different localities but made combined reports and were counted as a single establishment by the census, and of some for which the product was less than \$500.

LIQUORS, VINOUS.

This industry includes the manufacture of wines, still and effervescing, such as champagne, port, sherry, claret, dry wine, white and red wines, sweet and sour wines, angelica, sparkling wines, etc. It is practically confined to a few states, California alone furnishing 68 per cent of the total value of products for the United States in 1914. The internal-revenue tax on such vinous liquors as are taxable is included in the statistics of 1914 and 1909 and in those for some of the previous censuses, but does not affect the figures materially. General statistics for the industry for the census years from 1859 to 1914, inclusive, are presented in Table 223.

Of the 318 wineries reporting in 1914, 84 reported a by-product of distilled liquor (chiefly brandy), the total value amounting to \$1,223,906 as compared with 91 wineries in 1909 reporting distilled liquor to the value of \$1,089,675. These amounts are included in the value of products shown in the table for 1914 and 1909. Wine produced on farms is excluded from the census tabulations.

In addition to the products covered by the table, wine to the value of \$67,756 was reported by establishments assigned to other industries, principally distilled liquor.

MALT.

This classification includes establishments producing malt, chiefly from barley, but in some cases from corn, rye, wheat, and other cereals. Feed sprouts, screenings, chaff, malt dust, and skimmings are sold as by-products. It is likely that the great increase in the malt industry from 1849 to 1859, as shown in Table 223, was due to the rapid increase in the brewing of malt liquors and also to the increasing practice of making malt in separate establishments instead of in the breweries. The decline in the industry from 1889 to 1899 may have been due to an increased tendency of the brewers to make their own malt.

In addition to the products covered by the table, malt to the value of \$890,099 in 1914 and to the value of \$1,004,437 in 1909 was reported as made for sale by establishments engaged primarily in brewing beer.

MINERAL AND SODA WATERS, NOT INCLUDING NATURAL SPRING WATERS.

Under this classification are included establishments which manufacture, or manufacture and bottle, all kinds of carbonated beverages and so-called soft drinks, but it does not include natural spring waters. Some of the principal products are soda water, ginger ale, seltzer, artificial mineral waters, grape juice, celery phosphate, root beer, orangeade, sarsaparilla, vichy, ginger beer, moxie, cream soda, lime juice, birch beer, juniper ale, orange cider, coca-cola, kola ade, near beer, pop, lemon soda, hop ale, bludwine, nonalcoholic drinks, and fruit phosphates. Many manufacturers make beverages according to secret formulas and sell them under trade-mark names. Some of these beverages contain a small percentage of alcohol, but such beverages are exempt from internal-revenue tax, if the alcohol constituent is less than 3 per cent. The industry first appeared in census statistics in 1849. Comparative statistics are presented in Table 223.

In addition to the products covered by the table, mineral and soda waters to the value of \$2,035,978 in 1914, and to the value of \$1,267,885 in 1909 were reported principally by establishments making beer, confectionery, ice cream, ice, and vinegar and cider.

CHEMICALS AND ALLIED PRODUCTS.

THE GROUP AS A WHOLE.

The group "chemicals and allied products" includes not only the industries whose products are chemicals in the ordinary sense of that term, but also the industries which employ to a large extent chemical processes in manufacture. The group is a very complicated one and the various products differ most widely in character and in the use to which they are put. There is considerable duplication in the combined value of products for the group, due to the use of the products of certain industries as materials for others.

The following table shows the number of establishments, average number of wage earners, capital, total wages paid, cost of materials, value of products, and value added by manufacture for each of the industries included in this general group, as reported for the census of 1914:

INDUSTRY.	CHEMICALS AND ALLIED PRODUCTS: 1914.						
	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
Total.....	12,374	299,569	\$3,034,209	\$167,494	\$1,289,348	\$2,001,634	\$712,286
Baking powders and yeast.....	124	2,270	35,272	1,241	10,895	22,339	11,444
Baking powders.....	105	1,606	28,375	771	8,427	16,003	7,576
Yeast.....	19	664	6,897	470	2,468	6,336	3,868
Blacking, stains, and dressings.....	197	1,766	4,986	877	5,129	9,882	4,753
Bluing.....	66	254	712	105	489	1,184	695
Bone, carbon, and lamp black.....	27	339	4,995	231	686	1,464	778
Bone black and lamp black.....	7	164	656	114	263	535	272
Carbon black.....	20	175	4,339	117	423	929	506
Candles.....	15	387	2,286	183	1,119	1,731	612
Chemicals and acids.....	427	35,375	259,580	24,279	96,185	173,269	77,084
Chemicals.....	395	32,311	224,346	22,066	89,451	158,054	68,603
Sulphuric, nitric, and mixed acids.....	32	3,064	35,234	2,213	6,734	15,215	8,461
Cleansing and polishing preparations.....	398	1,239	5,898	619	3,895	9,152	5,267
Cleansing preparations.....	186	601	3,013	296	2,047	5,045	2,998
Polishing preparations.....	212	638	2,885	323	1,848	4,107	2,269
Coke, not including gas-house coke.....	231	21,107	161,561	14,289	69,138	99,275	30,137
Drugs, etc.....	3,844	26,561	136,156	13,293	71,555	175,452	103,897
Drug grinding.....	29	1,059	8,434	583	5,215	8,080	2,865
Druggists' preparations.....	416	9,277	46,638	4,755	22,935	48,010	25,075
Patent medicines and compounds.....	2,903	13,328	71,437	6,675	35,940	102,463	66,523
Perfumery and cosmetics.....	496	2,897	9,647	1,280	7,465	16,899	9,434
Dyestuffs and extracts.....	112	2,839	21,284	1,613	13,238	20,620	7,382
Explosives.....	111	6,306	71,351	4,488	25,627	41,433	15,806
Fertilizers.....	784	22,815	217,065	10,532	107,955	153,196	45,241
Gas, illuminating and heating.....	1,284	43,792	1,252,422	26,802	76,779	220,238	143,459
Glue, not elsewhere specified.....	47	3,129	17,162	1,854	9,368	13,733	4,365
Greases.....	556	5,582	22,368	3,794	19,828	29,820	9,992
Grease and tallow, not including lubricating greases.....	369	5,106	18,928	3,512	17,061	24,901	7,840
Soap stock.....	107	1,877	6,993	1,223	5,407	8,087	2,680
Tallow.....	180	1,750	7,157	1,249	8,412	11,389	2,977
All other.....	82	1,479	4,778	1,040	3,242	5,425	2,183
Lubricating greases.....	77	476	3,440	282	2,767	4,919	2,152
Ink, printing.....	70	1,391	11,943	1,064	6,806	13,830	7,024
Ink, writing.....	54	512	2,464	263	1,236	2,784	1,548
Oils.....	1,193	25,596	187,193	11,113	248,517	297,363	48,846
Cottonseed, and cake.....	882	21,810	118,073	8,490	180,977	212,127	31,150
Essential.....	105	249	1,617	133	1,565	2,314	749
Linseed.....	25	1,488	39,873	1,127	39,555	44,882	5,327
Not elsewhere specified.....	181	2,049	27,630	1,363	26,420	38,040	11,620
Fish.....	22	420	4,362	217	3,470	4,370	900
Oleo.....	5	248	837	171	1,807	2,295	488
All other.....	154	1,381	22,431	975	21,143	31,375	10,232
Paint and varnish.....	800	16,083	129,534	10,186	88,466	145,624	57,158
Paints.....	585	13,349	99,673	8,315	71,588	112,409	40,821
Varnishes.....	215	2,734	29,861	1,865	16,878	33,215	16,337
Petroleum refining.....	176	25,366	325,646	19,397	325,265	396,361	71,096
Salt.....	98	5,089	33,151	3,641	6,273	14,070	7,797
Soap.....	371	14,172	92,872	8,088	88,867	127,942	39,075
Turpentine and rosin.....	1,394	34,817	20,745	8,583	5,536	20,890	15,454
Wood distillation, not including turpentine and rosin.....	95	2,782	17,563	1,565	6,496	9,882	3,386

BAKING POWDERS AND YEAST.

This classification includes various compounds for raising bread, cake, and pastry, and dry, compressed, and liquid yeast. Table 106 shows separate statistics for the establishments whose chief product was baking powders and for those making yeast as the product of chief value. Many minor products were reported by the manufacturers of baking powder, such as bluing, chocolate, coffee, spice, confectionery, flavoring extracts, food preparations, and vinegar; while those making yeast also reported stock feed and alcohol. General statistics for the industry for the census years from 1859 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, baking powders to the value of \$1,867,674 were reported in 1914 as made for sale by establishments assigned to other industries, principally those grinding and roasting coffee and those manufacturing flavoring extracts. Yeast to the value of \$2,451,440 was reported as sold by distillers and manufacturers of vinegar. In 1909 baking powders and yeast to the value of \$3,963,573 were reported by establishments assigned to other industries. Many concerns make similar products for their own consumption in further processes of manufacture.

BLACKING, STAINS, AND DRESSINGS.

Establishments in this industry manufacture principally blackings, waxes, stains, dressings, and polishes for leather, boots and shoes, harness, and belting, stove polish, burnishing inks, and enameled carriage-top dressing, as well as pastes, washes, dyes, and gums. The industry was first reported separately at the census of 1859, and comparable statistics for that and for later censuses are given in Table 223.

In addition to the products covered by the table, blackings, stains, and dressings to the value of \$377,617 in 1914 were reported by establishments assigned to other classifications, principally "mucilage and paste," "paints," "patent medicines and compounds," and "leather, tanned, curried, and finished."

BLUING.

Establishments under this classification manufacture principally laundry bluing, soluble or liquid, aniline blue, etc. The usual materials used in this manufacture are indigo and Prussian blue. Statistics for the industry for the census years from 1869 to 1914, inclusive, are presented in Table 223.

In addition to the products covered by the table, bluing to the value of \$269,199 in 1914 and of \$350,377 in 1909 was reported by establishments assigned to other classifications, principally "pickles, preserves, and sauces," "flavoring extracts," "patent medicines and compounds," and "coffee and spice, roasting and grinding."

BONE, CARBON, AND LAMP BLACK.

Establishments in this classification are engaged in the preparation of black pigments. There are three principal methods: The carbonization of bones in retorts, producing bone black or animal charcoal, also known technically as "char"; the deposition of carbon black by the imperfect combustion of natural gas, the flame impinging upon slate or metallic slabs or revolving cylinders; and the deposition of lampblack by the incomplete combustion of coal tar, wood tar, petroleum, rosin, etc., the dense smoke depositing the soot in chambers. Some establishments make ivory black by the carbonization of scraps of animal teeth and tusks.

Table 106 shows statistics for "bone black and lampblack" and for "carbon black" separately, each establishment being classified according to its product of chief value. General statistics for the industry for the census years from 1849 to 1914, inclusive, are presented in Table 223. It is probable that the decreases shown for 1899 as compared with 1889 are due to differing classifications of establishments reporting. The same reason may be assigned for the variations shown in the statistics for some of the other censuses.

Table 107 presents the statistics of the production of bone black, carbon black, and lampblack by establishments in all industries for 1914 and 1909.

Table 107	BONE, CARBON, AND LAMP BLACK.		
	1914	1909	Per cent of increase, 1909-1914.
Total number of establishments.....	89	57	-----
Total value of products.....	\$2,953,947	\$2,135,554	38.3
PRODUCTS.			
Bone black (animal charcoal):			
Number of establishments.....	7	7	-----
Pounds.....	44,509,000	-----	-----
Value.....	\$1,532,000	\$1,070,333	43.1
Carbon black:			
Number of establishments.....	20	18	-----
Pounds.....	22,869,000	-----	-----
Value.....	\$918,091	\$625,514	47.5
Lampblack:			
Number of establishments.....	12	32	-----
Value.....	\$503,856	\$439,707	13.6

¹ Includes \$215,212, the value of 4,736,394 pounds, and \$238,644 for which no quantity was reported.

CANDLES.

The principal products of establishments under this classification are candles of all descriptions made of tallow, paraffin, stearin, and wax. Statistics for the industry for the census years from 1904 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, candles were reported in 1914 by petroleum refineries to the value of \$1,402,945 and by soap manufacturers to the value of \$150,492, while establishments assigned to other classifications, principally chemicals, reported candles to the value of \$411,631. The candles made by petroleum refineries were not reported separately in 1909, and the amount can not be stated, but candles to the value of \$527,910 were reported by establishments engaged primarily in the manufacture of "soap," "chemicals," and "oil, not elsewhere specified." Statistics for the candle industry were not shown separately prior to the census of 1904, but were included with those for soap.

CHEMICALS AND ACIDS.

Prior to the census of 1904 the general statistics for chemicals, sulphuric, nitric, and mixed acids, and wood distillation were included under the single classification of "Chemicals." For the censuses of 1904, 1909, and 1914, the three have been shown separately and a segregation of data made for 1899 for comparison. The general statistics for these respective industries at the censuses of 1914, 1909, 1904, and 1899 are given in Table 223, and the statistics for wood distillation products are given in Table 122.

Although the manufacture of sulphuric, nitric, and mixed acids is in the main a specialized industry, there is a considerable production by establishments that also manufacture other chemicals, and a large quantity of sulphuric acid is made in conjunction with the fertilizer industry. Hence, in the following table, which presents in detail the statistics for materials and products for 1914 in comparison with those for 1909, 1904, and 1899, the statistics for sulphuric, nitric, and mixed acids are included along with those for other acids. At prior censuses establishments engaged in the manufacture of supplies for calcium lights, chiefly lime cylinders, and oxygen gas, constituted a separate industry, but these are now included under chemicals.

The chemical products are classified under 12 groups: (1) acids; (2) sodas and sodium compounds; (3) potash and potassium salts; (4) alums; (5) coal-tar products; (6) cyanides; (7) bleaching materials; (8) chemical substances produced by the aid of electricity, including those belonging under other groups; (9) plastics; (10) compressed or liquefied gases; (11) fine chemicals; and (12) chemicals, not otherwise specified, such as glycerin, cream of tartar, epsom salts, blue vitriol, copperas, etc.

The schedule used in taking the census named, under the various groups, the chemicals which at prior censuses had been reported by three or more establishments, and provided for the reporting in detail of such other chemicals as were manufactured. In some cases, however, manufacturers did not separately report all products, consequently there results a large amount of unclassified chemicals, which may include a considerable production of some of those for which detail figures are given and undoubtedly includes others which could have been shown if they had been separately reported. The production is shown for all chemicals that can be separately given without the disclosure of individual operations, and those separately returned, but which can not be individually given, are named and reported as a whole under the several groups.

Many establishments distilling coal tar consume part of the product in the manufacture of roofing paper, roofing felt, etc., and hence are classified as engaged in other industries, and their coal-tar production is not included under Group 5. Except as stated, where the production made and consumed is given, the figures refer to the quantity and value of the product made for sale and do not include that made and consumed in the same plant.

With respect to the group of products produced by the aid of electricity (Group 8) it should be said that many of the electrochemical and electrometallurgical products have, until recent years, been under the protection of patents, and detail statistics of production can not be given for some of the most important without disclosing the operations of individual establishments.

Under plastics (Group 9) there is included pyroxylin plastics, sold under such trade names as celluloid, fiberloid, viscoloid, pegamoid, pyrolin, xylonite, etc.; pyroxylin or soluble cotton; viscose; artificial silk; phenolic condensation plastics, such as bakelite, and condensite; 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, kaolin, and other fillers are held in solid aggregations which may be molded or shaped. The value of the products reported includes the value of finished goods, such as combs, brushes, other toilet articles, collars and cuffs, buttons, talking-machine records, etc., manufactured in the establishments making the plastic material, but does not include that of finished plastic goods made from purchased plastic stock.

The group of compressed or liquefied gases (Group 10) embraces all gases which are compressed or liquefied for sale, with the exception of illuminating gases (acetylene, Pintsch gas, and Blau gas).

The group of fine chemicals (Group 11) embraces chemicals sold in the trade as chemically or absolutely pure; those which are more especially made use of in analytical operations and in pharmacy; and chemicals, like the salts of the precious metals, of a high unit value. The limitations of the group are not sharply defined, and as a result the statistics may not represent the total output of the respective products, since in some cases the data for certain products may have been included with those for unclassified goods, and, as reported at different censuses, may not be strictly comparable.

The figures in Table 108 aim to give the total production of each commodity in so far as the same is ascertainable from the returns, irrespective of whether it is a principal or subsidiary product of the establishment reporting, or the industry under which the establishment is classified. For example, the production of acetic acid, acetone, acetate of lime, and formaldehyde reported in this table includes that made in wood distillation establishments, the figures for which are given in Table 122; and the production of glycerin here reported, both crude and refined, includes the glycerin product of soap works as given in Table 120.

Table 108	THE CHEMICAL INDUSTRY, INCLUDING SULPHURIC, NITRIC, AND MIXED ACIDS (TONS OF 2,000 POUNDS).			
	1914	1909	1904	1899
Number of establishments.....	754	850	.....	.....
The chemical industry.....	395	359	297	316
Sulphuric, nitric, and mixed-acids industry...	32	42	32	34
Manufacturing subsidiary chemical products...	327	449	(¹)	(¹)
MATERIALS. ²				
Total cost.....	\$96,185,122	\$60,531,257	\$47,070,795	\$31,125,829
The chemical industry.....	\$89,450,684	\$64,145,429	\$42,097,957	\$27,092,591
Sulphuric, nitric, and mixed-acids industry...	\$6,734,428	\$5,388,828	\$4,972,838	\$4,033,238
Sulphur or brimstone:				
Tons.....	56,296	77,450	51,526	55,296
Cost.....	\$1,162,632	\$1,433,743	\$1,071,229	\$1,080,716
Pyrites:				
Tons.....	880,695	597,691	334,207	324,461
Cost.....	\$3,769,467	\$3,170,188	\$1,745,416	\$1,512,490
Nitrate of soda:				
Tons.....	58,101	52,976	45,021	37,892
Cost.....	\$2,696,172	\$2,373,220	\$1,895,248	\$1,250,520
Sulphuric acid:				
Tons.....	264,774	58,552	104,489	37,832
Cost.....	\$1,515,982	\$564,390	\$945,486	\$429,903
Nitric acid:				
Tons.....	7,819	1,525	3,068	1,220
Cost.....	\$641,405	\$139,591	\$320,818	\$127,811

See footnotes on p. 178.

Table 103—Continued.

	THE CHEMICAL INDUSTRY, INCLUDING SULPHURIC, NITRIC, AND MIXED ACIDS (TONS OF 2,000 POUNDS).			
	1914	1909	1904	1899
MATERIALS²—continued.				
Mixed acid:				
Tons.....	6,015	4,546	1,734	275
Cost.....	\$698,604	\$335,672	\$156,605	\$21,047
Ammonium sulphate:				
Tons.....	9,586	1,675	5,676	4,373
Cost.....	\$567,249	\$88,013	\$356,109	\$471,117
Alcohol:				
Grain—				
Gallons.....	296,886	479,428	187,389	120,474
Cost.....	\$145,066	\$287,416	\$449,604	\$263,472
Wood—				
Gallons.....	1,464,273	949,212	601,077	(¹)
Cost.....	\$577,122	\$370,017	\$367,223	
Fuel and rent of power.....	\$11,854,901	\$8,566,924	\$4,913,267	\$25,068,753
All other materials.....	\$72,556,462	\$32,202,083	\$34,849,790	
PRODUCTS.				
Total value.....	\$200,195,835	\$150,580,149	\$89,219,883	.....
The chemical industry, all products.....	\$158,053,602	\$117,741,103	\$75,357,495	\$48,158,261
Sulphuric, nitric, and mixed acid industry, all products.....	\$15,215,474	\$9,884,057	\$9,052,646	\$8,596,390
Subsidiary chemical products of other industries.....	\$26,926,759	\$22,954,989	\$4,809,742	(¹)
I.—Acids.				
Total value.....	\$30,516,569	\$23,722,874	\$17,008,656	\$9,935,202
Sulphuric acid:				
Number of establishments.....	194	183	(¹)	(¹)
Production reduced to 50° Baumé acid—				
Total, tons.....	4,047,982	* 2,764,455	1,869,436	1,548,123
For sale.....	{ tons 2,338,284	{ tons 1,479,200	{ tons 900,991	{ tons 452,942
Made and consumed, tons.....	{ value \$15,395,133	{ value \$10,193,425	{ value \$7,942,211	{ value \$4,071,848
Production according to strength—	1,709,698	1,285,255	968,445	1,095,181
50° Baumé—				
Total, tons.....	1,677,649	1,643,281	1,169,141	653,439
For sale.....	{ tons 451,121	{ tons 528,263	{ tons (1)	{ tons 60,387
Made and consumed, tons.....	{ value \$2,709,350	{ value \$3,176,430	{ value (1)	{ value \$627,882
60° Baumé—	1,226,528	1,115,018	(1)	893,052
Total, tons.....	795,489	189,384	48,688	17,012
For sale.....	{ tons 545,562	{ tons 177,414	{ tons (1)	{ tons 13,650
Made and consumed, tons.....	{ value \$3,754,866	{ value \$1,038,358	{ value (1)	{ value \$193,330
66° Baumé—	249,927	11,970	(1)	3,362
Total, tons.....	828,466	552,619	411,165	382,279
For sale.....	{ tons 732,186	{ tons 453,370	{ tons (1)	{ tons 250,328
Made and consumed, tons.....	{ value \$8,042,422	{ value \$5,454,002	{ value (1)	{ value \$3,244,586
Oleum or fuming, and sulphur trioxide—	96,280	99,249	(1)	131,951
Total, tons.....	77,758	32,237	(1)	(1)
For sale.....	{ tons * 62,354	{ tons * 28,594	{ tons 13,268	{ tons (1)
Made and consumed, tons.....	{ value \$888,495	{ value \$434,635	{ value \$361,018	{ value (1)
Reclaimed acid:	15,404	3,743	(1)	(1)
Tons.....	136,360	7,069	(1)	(1)
Value.....	\$518,890	\$62,935	(1)	(1)
Nitric acid:				
Number of establishments.....	52	25	(1)	(1)
Total production, tons.....	78,589	* 68,717	54,190	31,542
For sale.....	{ tons 14,685	{ tons 13,663	{ tons 23,132	{ tons 15,481
Made and consumed, tons.....	{ value \$1,591,625	{ value \$1,357,088	{ value \$2,250,944	{ value \$1,454,909
Mixed acid (sulphuric-nitric):	63,904	55,054	31,058	16,061
Number of establishments.....	37	14	(1)	(1)
Total production, tons.....	112,124	(1)	(1)	(1)
For sale.....	{ tons 42,725	{ tons * 28,591	{ tons 32,665	{ tons 21,151
Made and consumed, tons.....	{ value \$2,204,480	{ value \$1,860,787	{ value \$1,957,356	{ value \$1,109,758
Acetic acid:	69,399	(1)	(1)	(1)
Number of establishments.....	13	13	12	14
Total production, pounds.....	75,303,375	* 58,000,602	29,506,021	27,875,222
For sale.....	{ pounds 79,617,637	{ pounds 56,923,773	{ pounds 27,074,280	{ pounds 26,660,555
Made and consumed, pounds.....	{ value \$1,272,294	{ value \$1,336,874	{ value \$568,600	{ value \$426,892
Total production, pounds.....	4,685,738	1,076,829	2,431,741	1,214,667

See footnotes on p. 178.

Table 108—Continued.

THE CHEMICAL INDUSTRY, INCLUDING SULPHURIC, NITRIC, AND MIXED ACIDS (TONS OF 2,000 POUNDS).

	1914	1909	1904	1899
PRODUCTS—continued.				
I.—Acids—Continued.				
Boric acid:				
Number of establishments.....	5	5	7	3
Total production, pounds.....	8,590,311			
For sale..... (pounds)	8,584,311	5,554,914	6,936,896	2,684,935
Made and consumed, pounds..... (value)	\$588,981	\$295,776	\$527,190	\$198,212
	6,000	(1)	(1)	(1)
Citric acid:				
Number of establishments.....	3	5	4	3
Total production, pounds.....	2,729,943			
For sale..... (pounds)	2,657,840	2,102,256	2,265,631	3,886,382
Made and consumed, pounds..... (value)	\$1,516,336	\$777,235	\$598,718	\$335,297
	72,103	(1)	(1)	(1)
Hydrofluoric acid:				
Number of establishments.....	9	10	6	4
Total production, pounds.....	7,209,248	8,027,290		
For sale..... (pounds)	5,373,657	6,842,914	4,149,936	698,000
Made and consumed, pounds..... (value)	\$325,540	\$294,379	\$222,886	\$34,890
	1,835,591	1,184,376	(1)	(1)
Muriatic acid:				
Number of establishments.....	31	38	36	31
Total production, pounds.....	337,167,882	324,734,217	188,538,396	134,229,012
For sale..... (pounds)	170,876,878	203,214,879	174,520,762	116,675,109
Made and consumed, pounds..... (value)	\$1,348,805	\$1,758,355	\$1,612,848	\$1,015,915
	166,291,004	41,519,338	14,017,634	17,553,903
Oleic acid:				
Number of establishments.....	7	8		
Total production, pounds.....	23,187,579			
For sale..... (pounds)	21,932,736	16,377,063	(1)	(1)
Made and consumed, pounds..... (value)	\$1,301,353	\$845,106		
	1,254,843	(1)		
Phosphoric acid:				
Number of establishments.....	7	9	9	
Production for sale—				
Pounds.....	12,420,191	(1)	991,050	(1)
Value.....	\$680,239	\$667,505	\$68,541	
Stearic acid:				
Number of establishments.....	10	11		
Total production, pounds.....	14,960,169			
For sale..... (pounds)	14,351,404	(1)	(1)	(1)
Made and consumed, pounds..... (value)	\$1,242,492	\$1,143,213		
	608,705	(1)		
Tannic acid:				
Number of establishments.....	5			
Production for sale—				
Pounds.....	853,830			
Value.....	\$287,142	\$3,220,206	\$1,259,362	\$1,287,481
Fatty acids.....	\$206,576			
Miscellaneous acids.....	\$1,977,131			
Unclassified acids.....	\$59,552			
II.—Sodas and sodium compounds.				
Sodas:				
Number of establishments.....	69	70	63	50
Value.....	\$23,632,704	\$23,368,509	\$17,162,580	\$12,044,512
Bicarbonate of soda—				
Tons.....	90,169	82,800	68,867	68,856
Value.....	\$1,439,014	\$1,515,045	\$1,135,610	\$1,332,765
Caustic soda—				
Tons.....	212,539	131,612	86,840	166,783
Value.....	\$6,657,514	\$5,264,887	\$3,185,959	\$3,170,280
Sal soda, including monohydrate crystals—				
Tons.....	106,591	86,644	59,548	63,249
Value.....	\$1,510,449	\$1,156,882	\$631,869	\$675,243
Soda ash—				
Tons.....	935,305	646,057	518,954	390,653
Value.....	\$10,937,945	\$10,362,656	\$8,204,545	\$4,859,656
Borax—				
Tons.....	26,501	20,154	20,882	5,637
Value.....	\$2,071,774	\$1,756,922	\$2,122,808	\$502,480
Soda products not classified.....	\$1,016,008	\$3,312,117	\$1,681,789	\$1,304,088
Sodium:				
Phosphate—				
Tons.....	15,397	12,290	4,830	2,340
Value.....	\$853,528	\$540,282	\$244,373	\$155,989
Silicate—				
Tons.....	169,049	34,170	(1)	32,651
Value.....	\$1,648,854	\$366,621		\$416,005

See footnotes on p. 178.

Table 103—Continued.

THE CHEMICAL INDUSTRY, INCLUDING SULPHURIC, NITRIC,
AND MIXED ACIDS (TONS OF 2,000 POUNDS).

	1914	1909	1904	1899
PRODUCTS—continued.				
<i>II.—Sodas and sodium compounds—Contd.</i>				
Sodium—Continued.				
Sulphides—				
Tons.....	20,263	7,673	(¹)	(¹)
Value.....	\$516,644	\$206,450		
Sulphate—				
Glauber salts—				
Tons.....	34,537	46,471	(¹)	(¹)
Value.....	\$427,808	\$512,464		
Salt cake—				
Tons.....	90,442	(¹)	(¹)	(¹)
Value.....	\$841,887			
Bichromate—				
Tons.....	11,824	(¹)	(¹)	(¹)
Value.....	\$1,125,398			
Benzoate.....	\$61,490	(¹)	(¹)	(¹)
Sulphite.....	\$66,649	(¹)	(¹)	(¹)
Other sodium compounds.....	\$768,157	(¹)	(¹)	(¹)
Lye.....	\$2,447,406	(¹)	(¹)	(¹)
Soda washing compounds, not including soap—				
Tons.....	12,441	(¹)	(¹)	(¹)
Value.....	\$204,230			
<i>III.—Potash and potassium salts.</i>				
Number of establishments.....	42	31	39	67
Products, value.....	\$4,094,927			
Crude potash.....	\$30,644			
Potassium carbonate (unrefined and refined)...	\$19,007	\$88,940	\$104,655	\$178,180
Potassium nitrate (salt-peter):				
Tons.....	14,740	(¹)	(¹)	(¹)
Value.....	\$1,244,051			
Caustic potash and potassium salts—bicarbonate, chlorate, iodide, citrate, acetate, silicate, etc.....	\$2,801,225	(¹)	(¹)	(¹)
<i>IV.—Alums.</i>				
Number of establishments.....	19	19	17	13
Pounds.....	313,712,000	276,294,000	225,543,000	179,467,000
Value.....	\$3,467,969	\$3,022,355	\$2,956,844	\$2,446,575
Aluminum sulphate:				
Pounds.....	142,438,000	100,595,000	(¹)	(¹)
Value.....	\$1,277,836	\$843,956		
Alum cake:				
Pounds.....	23,338,000	27,001,000	19,496,000	4,049,000
Value.....	\$251,186	\$274,307	\$161,906	\$34,047
Concentrated alum:				
Pounds.....	42,562,000	54,879,000	80,919,000	103,017,000
Value.....	\$450,730	\$468,795	\$972,892	\$1,062,547
Burnt alum:				
Pounds.....	22,629,000	11,746,000	15,858,000	6,629,000
Value.....	\$364,656	\$209,904	\$364,328	\$174,600
Potash alum:				
Pounds.....	12,765,000	10,254,000	10,307,000	14,200,000
Value.....	\$219,968	\$155,319	\$156,448	\$215,004
Soda alum:				
Pounds.....	¹⁰ 13,995,000	¹⁰ 8,062,000	82,000	9,399,000
Value.....	\$254,477	\$133,941	\$4,923	\$228,500
Other alums—porous, excelsior, pearl, ammonium, chloride of alumina, etc:				
Pounds.....	55,985,000	¹¹ 63,757,000	98,881,000	42,173,000
Value.....	\$649,116	\$936,133	\$1,296,347	\$731,878
<i>V.—Coal-tar products.</i>				
Number of establishments.....	40	42	39	22
Coal-tar distillery products, value.....	¹² \$8,065,156	\$4,057,591		
Chemicals or medicinal preparations from coal-tar, value.....	\$774,350	\$228,528	\$3,984,821	\$1,421,720
<i>VI.—Cyanides.</i>				
Number of establishments.....	6	7	11	18
Pounds.....	¹³ 16,450,225	13,291,030	11,196,318	8,469,930
Value.....	\$2,398,674	\$1,941,893	\$1,710,823	\$1,595,505

Table 108—Continued.

THE CHEMICAL INDUSTRY, INCLUDING SULPHURIC, NITRIC, AND MIXED ACIDS (TONS OF 2,000 POUNDS).

	1914	1909	1904	1899
PRODUCTS—continued.				
VI.—Cyanides—Continued.				
Yellow prussiate of potash:				
Pounds.....	3,204,684	3,510,203	(1)	(1)
Value.....	\$451,092	\$463,983		
All other—sodium cyanide, metalocyanides, yellow prussiate of soda, trisalytes, and potassium cyanide:				
Pounds.....	13,245,541	9,780,872	(1)	(1)
Value.....	\$1,947,582	\$1,477,910		
VII.—Bleaching materials.				
Number of establishments.....	56	48	33	26
Value of products.....	\$5,302,359	\$3,215,728	\$1,159,064	\$592,658
Hypochlorites—chiefly chloride of lime and bleaching powder:				
Number of establishments.....	14	9	(1)	(1)
Pounds.....	310,380,000	116,802,000	39,176,000	21,988,000
Value.....	\$2,916,225	\$1,786,846	\$535,835	\$462,949
Hydrogen peroxide:				
Number of establishments.....	20	17	(1)	(1)
Pounds.....	14 32,595,000	14 9,926,000	4,371,000	588,000
Value.....	\$1,303,596	\$370,541	\$413,221	\$63,754
Bisulphite of soda, lime, etc.:				
Number of establishments.....	14	15	(1)	(1)
Pounds.....	26,346,000	31,718,000	12,446,000	2,922,000
Value.....	\$243,559	\$226,154	\$110,155	\$34,486
Chlorine:				
Number of establishments.....	7			
Pounds.....	12,217,000			
Value.....	\$472,836	\$332,187	\$98,853	\$31,469
All other—sodium peroxide, sulphur dioxide, lime sulphur solutions, etc.	\$366,143			
VIII.—Chemical substances produced by the aid of electricity. ¹⁵				
Number of establishments.....	36	16 34	21	14
Value of products.....	\$20,661,949	\$18,451,461	\$7,068,246	\$2,045,535
Chlorates:				
Number of establishments.....	5	5	(1)	(1)
Tons.....	8,304	5,785		
Value.....	\$1,131,316	\$904,550		
Hypochlorites:				
Number of establishments.....	4	5	(1)	(1)
Tons.....	73,197	45,976		
Value.....	\$1,714,837	\$1,506,831		
Caustic soda, caustic potash, and lye:				
Number of establishments.....	6			
Tons.....	48,663			
Value.....	\$2,309,811			
Ferro and other alloys ¹⁷ :				
Number of establishments.....	7			
Value.....	\$2,859,482	\$16,040,080	(1)	(1)
Oxygen and hydrogen:				
Number of establishments.....	5			
Value.....	\$68,441			
All other, named in order of value—aluminum, calcium carbide, abrasives, electrodes, sodium and sodium peroxide, phosphorus, silicon, chlorine, carbon bisulphide, and muriatic acid	\$21,578,062			
IX.—Plastics.				
Number of establishments.....	24	24	14	13
Value of products.....	\$13,895,784	\$7,472,732	\$3,949,124	\$3,191,330
Pyroxylin, including goods sold under trade names—celluloid, fiberloid, viscoloid, xylonite, etc.	\$8,876,509	\$5,682,379	\$2,136,976	\$1,526,572
In partially manufactured form—rods, sheets, blocks, etc.	\$3,778,374	(1)	(1)	(1)
Finished goods, manufactured in the producing establishments.....	\$5,098,135	(1)	(1)	(1)
Rubber substitutes, including finished goods.....	\$428,605	\$1,790,353	\$1,812,148	\$1,664,758
Other plastics, including artificial silk.....	\$4,590,670			

See footnotes on p. 178.

Table 108—Continued.

	THE CHEMICAL INDUSTRY, INCLUDING SULPHURIC, NITRIC, AND MIXED ACIDS (TONS OF 2,000 POUNDS).			
	1914	1909	1904	1899
PRODUCTS—continued.				
<i>X.—Compressed or liquefied gases.¹⁸</i>				
Total value.....	\$7,624,884	\$5,165,795	\$2,791,359	\$1,230,797
Anhydrous ammonia (NH ₃): ¹⁹				
Number of establishments.....	14	15	(1)	(1)
Pounds.....	16,659,789	11,969,846	5,752,233	2,443,729
Value.....	\$3,140,848	\$2,544,238	\$1,176,854	\$438,157
Carbonic acid gas, or carbon dioxide (CO ₂):				
Number of establishments.....	38	35	(1)	(1)
Pounds.....	50,445,779	47,953,291	35,991,627	12,084,281
Value.....	\$2,320,685	\$2,345,743	\$1,343,966	\$719,364
Laughing gas, or nitrous oxide (N ₂ O):				
Number of establishments.....	7	5	(1)	(1)
Gallons.....	²⁰ 17,838,000	²¹ 97,175	²¹ 41,020	
Value.....	\$213,099	\$38,589	\$28,311	
Oxygen:				
Number of establishments.....	51	20	(1)	(1)
Cubic feet ²²	104,714,000	3,814,000		
Value.....	\$1,829,446	\$177,469	\$69,246	\$38,170
Hydrogen:				
Number of establishments.....	6			
Cubic feet ²²	1,669,000			
Value.....	\$16,671			
Other gases—Cyanogen, nitrogen, and liquid air:				
Number of establishments.....	10			
Value.....	\$104,135	\$59,756	\$172,982	\$35,106
<i>XI.—Fine chemicals.</i>				
Total value.....	\$10,983,017	\$10,267,252	\$9,478,753	.....
Alkaloids:				
Ounces.....	5,805,212	3,482,617	5,797,925	4,054,478
Value.....	²³ \$4,738,335	\$3,188,914	\$3,229,527	\$1,750,503
Amyl acetate:				
Pounds.....	1,300,052	1,470,568	(1)	(1)
Value.....	\$465,664	\$442,771		
Chloroform:				
Pounds.....	1,333,954	1,869,685	616,670	(1)
Value.....	\$295,317	\$477,538	\$165,604	
Ether: ²⁴				
Pounds.....	2,120,082	1,168,631	854,411	263,233
Value.....	\$278,816	\$190,164	\$427,401	\$129,876
Gold salts:				
Ounces.....	28,817	42,544	47,641	12,347
Value.....	\$291,658	\$430,944	\$453,202	\$120,696
Silver salts:				
Ounces.....	2,563,238	2,030,399	1,899,081	1,606,108
Value.....	\$846,059	\$727,428	\$778,439	\$627,252
Platinum salts:				
Ounces.....	365	1,561	19,068	8,112
Value.....	\$6,998	\$19,123	\$175,682	\$61,400
Thorium compounds, radium, uranium, and vanadium.....	\$1,388,477			
Vanillin:				
Pounds.....	120,619			
Value.....	\$525,219			
Chemically pure (C. P.) preparations, including C. P. acids, alcohol, etc.....	\$530,476			
Chemicals used in the manufacture of photographic materials, not otherwise specified.....	\$121,690	\$4,790,370	\$1,248,898	(1)
Other specified fine chemicals—Refined camphor, synthetic oils and perfumery bases, refined tinsel oil, hypophosphites, ethyl chloride, sulphon-methane, and sulphon-ethyl-methane, nicotine, and butric ether (named in order of value).....	\$581,528			
All other fine chemicals, not reported separately.....	\$912,780			
<i>XII.—Chemicals, not otherwise specified.</i>				
Total value.....	\$47,597,084	\$42,403,414	.....	.....
Acetone:				
Number of establishments.....	8	8	(1)	(1)
Pounds.....	10,425,817	7,761,696	1,300,395	1,638,715
Value.....	\$1,099,585	\$812,978	\$161,320	\$178,666
Acetate of lime:				
Number of establishments.....	78	91	(1)	(1)
Pounds.....	163,522,000	141,478,000	110,384,000	86,826,000
Value.....	\$2,138,909	\$2,118,443	\$1,527,733	\$981,286

Table 108—Continued.

THE CHEMICAL INDUSTRY, INCLUDING SULPHURIC, NITRIC, AND MIXED ACIDS (TONS OF 2,000 POUNDS).

	1914	1909	1904	1899
PRODUCTS—continued.				
<i>XII.—Chemicals, not otherwise specified—Con.</i>				
Ammonium salts:				
Chloride—				
Pounds.....	11, 511, 934	}	(1)	(1)
Value.....	\$641, 040			
Sulphate—				
Pounds.....	8, 846, 616	}	(1)	(1)
Value.....	\$211, 314			
Other—Acetate, bifluoride, carbonate, phosphate, picrate, etc.....				
Pounds.....	\$260, 801	(1)	(1)	(1)
Aqua ammonia: ²⁵				
Pounds.....	35, 544, 246	}	(1)	(1)
Value.....	\$1, 412, 236			
Barium salts:				
Sulphate (blanc fixé)—				
Pounds.....	18, 278, 000	}	(1)	(1)
Value.....	\$257, 415			
Other—Carbonate, chloride, etc.....				
Pounds.....	\$103, 204	(1)	(1)	(1)
Copper salts:				
Sulphate (blue vitriol)—				
Pounds.....	37, 152, 351	}	(1)	(1)
Value.....	\$1, 593, 944			
Other.....				
Pounds.....	\$14, 383	(1)	(1)	(1)
Cream of tartar:				
Number of establishments.....	8	5	(1)	(1)
Pounds.....	12, 646, 120	15, 592, 937	15, 650, 000	10, 981, 680
Value.....	\$3, 124, 958	\$2, 925, 883	\$2, 892, 563	\$2, 117, 704
Epsom salts (magnesium sulphate):				
Number of establishments.....	12	10	(1)	(1)
Pounds.....	29, 265, 115	21, 621, 297	20, 566, 443	9, 239, 809
Value.....	\$296, 999	\$189, 791	\$215, 088	\$75, 066
Formaldehyde:				
Number of establishments.....	3	3	}	(1)
Pounds.....	8, 426, 247	3, 794, 486		
Value.....	\$655, 174	\$363, 717	(1)	(1)
Glycerin: ²⁶				
Crude, for sale—				
Pounds.....	16, 568, 920	}	}	(1)
Value.....	\$2, 278, 976			
Refined, pounds.....				
For sale.....	60, 944, 799	\$11, 752, 580	\$5, 355, 320	\$3, 096, 601
Value.....	\$9, 810, 405			
Made and consumed, pounds.....				
Value.....	\$10, 779, 204	(1)	(1)	(1)
Iron salts:				
Sulphate (copperas)—				
Pounds.....	27 92, 478, 823	28 25, 637, 092	9, 700, 104	27, 595, 909
Value.....	\$352, 772	\$78, 467	\$28, 096	\$199, 869
Other salts and compounds—Iron liquor (ferrous acetate), chloride, nitrate, oxide, ferrotungsten, vanadate of iron, etc.....				
Value.....	\$838, 993	(1)	(1)	(1)
Lead salts:				
Arsenate—				
Number of establishments.....	11	}	(1)	(1)
Pounds.....	8, 641, 856			
Value.....	\$511, 688	(1)	(1)	(1)
Other—				
Pounds.....	7, 290, 936	}	(1)	(1)
Value.....	\$474, 430			
Mercurial salts:				
Pounds.....	605, 701	}	(1)	(1)
Value.....	\$518, 023			
Nickel salts:				
Pounds.....	409, 548	}	(1)	(1)
Value.....	\$157, 149			
Niter cake:				
Number of establishments.....	31	24	}	(1)
Total production, tons.....	46, 143	27, 546		
For sale.....	24, 129	\$59, 693	(1)	(1)
Value.....	\$31, 580	(1)		
Made and consumed, tons.....				
Value.....	22, 014	(1)		
Sulphur, refined:				
Tons.....	29 31, 166	25, 269	}	(1)
Value.....	\$1, 141, 000	\$891, 501		
Tin salts:				
Pounds.....	8, 291, 239	10, 293, 377	11, 621, 378	6, 259, 794
Value.....	\$2, 028, 511	\$1, 535, 350	\$1, 361, 299	\$603, 937
Zinc salts:				
Pounds.....	40, 786, 886	25, 054, 213	11, 579, 546	9, 511, 909
Value.....	\$1, 130, 959	\$472, 302	\$201, 771	\$353, 900

See footnotes on p. 178.

Table 108—Continued.

	THE CHEMICAL INDUSTRY, INCLUDING SULPHURIC, NITRIC, AND MIXED ACIDS (TONS OF 2,000 POUNDS).			
	1914	1909	1904	1899
PRODUCTS—continued.				
<i>XII.—Chemicals, not otherwise specified—Con.</i>				
Other specified chemicals ²⁰	\$3,055,314	} \$18,750,329		
Unclassified chemicals.....	\$12,483,523			
<i>XIII.—All other products.</i>				
Chemical by-products and residues:			\$9,858,395	\$11,619,891
Pyrite cinder.....	\$399,458	\$325,632		
All other.....	\$4,010,162	\$5,558,976		
By-products, not chemical.....	\$3,702,017	} \$2,209,078		
Amount received for custom work.....	\$188,734			

¹ Figures not available.

² Does not include materials used in chemical manufacture by establishments producing chemicals as subsidiary products.

³ See Note 6.

⁴ Includes oleum, in 1914, 60,963 tons; and in 1909, 27,602 tons, converted, above, to 50° acid at 1.71; and sulphur trioxide, in 1914, 1,391 tons; and in 1909, 992 tons, converted, above, to 50° acid at 1.93.

⁵ Includes citric and lactic acids in 1899.

⁶ Includes considerable quantities of the acids for which statistics are given above, notably sulphuric, nitric, mixed, acetic, and muriatic acids, which a few establishments reported in lump without classification according to kind.

⁷ Includes the following acids, in order named as to value: Tartaric, carbolic, picric, salicylic, lactic, oxalic, hydrofluosilicic, pyrogallic, gallic, pyroligneous, hypophosphorus, benzoic, and arsenic.

⁸ Number manufacturing bicarbonate, caustic, sal soda, soda ash or borax in 1914 and 1909; and same not including borax in 1904 and 1899.

⁹ Includes the following sodium compounds in order named as to value: Hyposulphite, sesquicarbonate, acetate, nitrate, perborate, bromide, iodide, fluoride, bisulphate, citrate, diamide and oxalate.

¹⁰ Includes sodium aluminum sulphate.

¹¹ Includes \$3,342,000 pounds of unclassified alums.

¹² Not including value of 109,901,315 gallons of tar, \$2,867,274, produced by by-product coke ovens; of 125,938,607 gallons of tar, \$3,252,756, produced by gas plants; and of coal-tar dyes and intermediates, \$4,652,947, made largely from stock of foreign origin.

¹³ In addition, 1,239,382 pounds of cyanide blues, reported as Prussian blue, valued at \$387,077, were manufactured by 15 establishments engaged primarily in the manufacture of paints and pigments.

¹⁴ Quantities not comparable because of lack of uniformity in strength of solutions.

¹⁵ The statistics for products reported under other groups cover total production, inclusive of that made with the aid of electricity, and here included to the value of \$5,047,281 in 1914, and \$2,539,478 in 1909.

¹⁶ Includes number and output of one establishment engaged in the preparation of alumina.

¹⁷ In addition, there were made in electric furnaces in 1914 by 14 establishments in the iron and steel industry, 21,548 tons of foundry iron, and steel ingots and castings, chiefly direct steel castings.

¹⁸ For chlorine see "Bleaching materials."

¹⁹ Not including anhydrous ammonia produced at by-product recovery coke ovens (mainly ammoniacal liquor sold on a pound basis of NH₃ content), as follows: In 1914, 25,370,599 pounds, valued at \$2,300,137; in 1909, 4,871,014 pounds, valued at \$448,455.

²⁰ Equivalent to 2,378,400 cubic feet at atmospheric pressure.

²¹ Quantity reported in pounds.

²² At atmospheric pressure.

²³ In addition, alkaloids and derivatives valued at \$11,493,168 were reported by manufacturers of drug gists' preparations and patent medicines.

²⁴ Not including ether made and consumed in the explosive industry.

²⁵ Anhydrous ammonia reported under "Compressed or liquefied gases."

²⁶ Figures not available for total production of crude glycerin, 1914, as that made and consumed in the manufacture of a large portion of the refined glycerin was not reported.

²⁷ Produced by chemical plants, 19,206,084 pounds; by rolling mills, 13,158,859 pounds; by wire mills, 60,113,880 pounds.

²⁸ In addition, 11,690,006 pounds of copperas were made and consumed in the same establishments.

²⁹ Domestic production of sulphur, United States Geological Survey, 327,634 tons (2,240 pounds); imports for consumption, 26,135 tons.

³⁰ Comprises: Acetanilid, acetone oil, acid calcium phosphate and calcium salts, aluminum chloride, antimony salts, arsenic (total production, as reported by the Geological Survey, 4,670 tons, valued at \$313,147), bismuth salts, cadmium salts, carbon bisulphide, cerium salts and alloys, chrome salts, crown filler, ethers (not ethyl oxide), glyco-phosphates, hexamethylene-titramine, iodine resublimed and salts of iodine, iodoform, ketones, lithia and lithium salts, salts of magnesium and manganese, molybdenum, Paris green, sesquisulphate of phosphorus, strontium salts, sulphur chloride, titanium salts, trioxy-methylene, and tungsten.

CLEANSING AND POLISHING PREPARATIONS.

The products of the establishments in this industry include washing, ironing, sweeping, and scouring compounds; laundry and floor wax; pumice stone and tripoli; and especially preparations for cleansing and polishing furniture, floors, wall paper, gloves, metal ware, and cars, automobile body polish, paint and varnish removers, rust and stain removers, etc. In Table 106 separate statistics are given for those establishments whose product of chief value were cleansing preparations, and for those making polishing preparations as their chief product.

In addition to the products covered by the table, cleansing preparations to the value of \$520,846 and polishing preparations to the value of \$1,121,178 were reported by

establishments assigned to other classifications, principally those making mops, dusters, etc., and those making soap. General statistics for the industry for the census years from 1869 to 1914, inclusive, are given in Table 223.

Some cleansing and polishing preparations may have been reported under "all other products" by the large soap manufacturers and by the few slaughtering and meat-packing establishments where the soap departments were not returned as separate establishments. Washing soda (sal soda) is included under "chemicals."

COKE, NOT INCLUDING GAS-HOUSE COKE.

The principal product of establishments under this classification is coke obtained by the distillation of coal in coke ovens. From the "by-product ovens" a number of valuable by-products are obtained—tar, ammonium sulphate, and ammonia liquors. Establishments engaged primarily in the manufacture of gas, and making coke as a subsidiary product, are not included. Statistics of the materials and products for this industry are collected annually by the United States Geological Survey, therefore such data were not reported to the census in 1914. The following table gives the totals for that year as compiled by the United States Geological Survey, in comparison with those for the censuses of 1909, 1904, and 1899.

The total production of coke, including gas-house coke sold and that made and consumed in gas manufacture, was 38,138,000 tons in 1914 as compared with 41,947,000 in 1909 and 27,857,000 in 1904.

Table 109	COKE (TONS OF 2,000 POUNDS).			
	1914 ¹	1909 ¹	1904 ¹	1899
COAL.				
Coal charged into ovens:				
Tons.....	51,623,750	59,354,937	37,376,251	30,157,829
Cost.....	\$74,949,565	\$62,203,382	\$29,559,104	\$18,355,252
Run of mine, tons—				
Unwashed.....	36,517,276	40,594,842	25,165,692	20,844,637
Washed.....	5,515,290	6,007,760	2,902,721	1,457,961
Slack, tons—				
Unwashed.....	4,289,870	6,926,484	4,459,734	5,036,675
Washed.....	5,301,314	5,825,851	4,848,054	2,818,556
PRODUCTS.				
Total value.....	\$105,863,305	\$98,078,383	\$53,455,108	\$35,585,445
Coke: ²				
Tons.....	34,555,914	39,315,065	25,143,288	19,640,798
Value.....	\$88,334,217	\$89,965,483	\$50,304,623	\$34,633,418
Made in beehive ovens—				
Tons.....	23,335,971	33,060,421	22,674,902	(³)
Value.....	\$50,254,050	\$69,530,794	\$43,340,661	(³)
Made in retort or by-product ovens—				
Tons.....	11,219,943	6,254,644	2,468,386	(³)
Value.....	\$38,080,167	\$20,434,689	\$6,963,962	(³)
By-products obtained from retort or by-product ovens:				
Gas—				
Cubic feet (thousands).....	61,364,375	15,791,220	4,463,062	1,171,943
Value.....	\$6,009,583	\$2,609,211	\$843,787	\$225,022
Tar—				
Gallons.....	109,901,315	60,126,006	26,223,323	10,468,733
Value.....	\$2,867,274	\$1,408,611	\$613,388	\$207,952
Ammonia, sulphate or reduced to equivalent in sulphate—				
Pounds.....	170,763,906	123,111,197	431,546,781	11,984,931
Value.....	\$4,696,590	\$3,227,316	\$818,290	\$330,921
Anhydrous ammonia—				
Pounds.....	525,370,509	4,871,014	(³)	(³)
Value.....	\$2,300,137	\$448,455	(³)	(³)
Ammonia liquor—				
Gallons.....	5,938,233	(⁶)	4,791,468	1,572,325
Value.....	\$658,497	(⁶)	\$763,291	\$180,642
All other, value.....	\$997,007	\$419,307	\$111,729	\$7,490
EQUIPMENT.				
Ovens, number in existence at end of year.....	99,755	103,982	77,461	47,811
Building at end of year.....	1,249	2,950	2,127	(³)
Abandoned during the year.....	3,675	201	178	(³)

¹ Includes coal and coking products produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

² Not including gas-house coke, the statistics for which will be found under the classification "Gas, illuminating and heating."

³ Figures not available.

⁴ Not including the reduced equivalent of ammonia liquor in sulphate.

⁵ Mainly ammoniacal liquor sold on pound basis of NH₃.

⁶ Reported in part as anhydrous ammonia and in part as ammonium sulphate or reduced equivalents.

⁷ Mainly benzol.

DRUG GRINDING.

Powdered or pulverized drugs are the principal products reported by establishments under this classification, and include the grinding of drugs, charcoal, roots, herbs, gums, licorice root, etc. Statistics for the industry are presented in Table 223 for the census years from 1889 to 1914, inclusive.

There are no statistics giving the quantity or value of drugs ground by establishments classed under "patent medicines and compounds," and "druggists' preparations."

DRUGGISTS' PREPARATIONS, PATENT AND PROPRIETARY MEDICINES AND COMPOUNDS, AND PERFUMERY AND COSMETICS.

Druggists' preparations.—This industry includes all materials for use by druggists in compounding medicines to be dispensed upon physicians' prescriptions or orders. These comprise tinctures, fluid extracts, medicinal sirups, and other liquid preparations; pills, tablets, powders, etc.; alkaloids and derivatives (cocaine, codein, morphine, quinine, and strychnine); synthetic medicinal preparations, such as acetanilid, acetphenetid, phenolphthalein, saccharin, methylsalicylate, etc.; medicinal metals and their salts (bromides, acetates, citrates, bismuth, etc.); and biological products, such as serums, vaccines, toxins, etc. Concerns engaged in drug grinding as their principal business are not included in this industry.

Patent medicines and compounds.—This industry consists of "patent and proprietary medicines" which are those sold under the protection of a patent, copyright, or trade-mark, or prepared according to a secret formula; and "patent and proprietary compounds" which include all such compounds not intended for medical use, such as fire-extinguisher compounds, household ammonia, insecticides, etc.

Perfumery and cosmetics.—This industry comprises cologne, toilet waters, face powders, cold cream, etc., and perfumes.

The general statistics for the respective industries are separately presented in Table 223, "druggists' preparations" for the census years 1889 to 1914, inclusive, and "patent medicines and compounds" and "perfumery and cosmetics" for the years 1849 to 1914. Each establishment is classed, according to its principal products, in one of the three branches of the group of industries, but in many cases one establishment manufactures products pertaining to more than one branch, and there is a considerable production of these commodities by establishments classified in other industries.

The following table gives the statistics of the quantities of anesthetic and narcotic drugs used and classified products for 1914:

Table 110	Value or amount.		Value or amount.
MATERIALS.		CLASSIFIED PRODUCTS.	
Anesthetic and narcotic drugs used as material:		Druggists' preparations.....	\$49,375,739
Opium, pounds.....	118,282	Alkaloids and derivatives: ¹	
Morphine, or derivative, ounces.....	316,130	Number of establishments...	150
Cocaine, or derivative, ounces.....	414,255	Value.....	\$16,231,503
Heroin, ounces.....	13,039	Synthetic preparations:	
Diacetyl morphine, ounces.....	23,859	Number of establishments...	72
		Value.....	\$1,384,996
PRODUCTS.		Tincture, fluid extracts, medicinal sirups, etc.....	\$13,900,402
Total value.....	\$176,747,080	Pills, tablets, powders, etc.....	\$10,903,056
Classified industries—all products of included establishments:		Medicinal metals and their salts:	
Druggists' preparations.....	\$48,009,654	Number of establishments...	47
Patent medicines and compounds.....	\$102,463,374	Value.....	\$732,307
Perfumery and cosmetics.....	\$16,899,101	Biological products—serums, vaccines, toxins, etc.:	
Subsidiary products, other industries:		Number of establishments...	93
Druggists' preparations.....	\$5,353,646	Value.....	\$6,223,475
Patent medicines and compounds.....	\$3,202,057	Patent and proprietary medicines and compounds.....	\$99,969,616
Perfumery and cosmetics.....	\$819,248	Medicines.....	\$83,455,264
		Compounds.....	\$16,514,352
		Toilet preparations and perfumery and cosmetics.....	\$19,160,407
		All other products.....	\$8,241,318

¹ Includes alkaloids made by 8 chemical establishments—5,805,212 ounces, value \$4,738,335. They also made and consumed 138,948 ounces. Drugs used by chemical establishments in manufacture not reported, and not included above.

DYESTUFFS AND EXTRACTS.

Establishments in this industry make materials for dyeing and tanning purposes. The products include natural dyestuffs made from wood, bark, or berries; dyeing extracts; artificial dyestuffs, including synthetic or coal-tar dyes and the mineral colors or dyes; tanning extracts and liquors, including chrome tanning solutions; and mordants, assistants, and sizes. General statistics for the industry for the census years from 1849 to 1914, inclusive, are given in Table 223.

The statistics for dyestuffs and extracts given in the 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 apparent decline in the industry from 1889 to 1899 is due probably to the difference in classification of establishments making certain acids and compounds which are used in some cases for dyeing and in some cases in other arts. Sometimes they may have been classed under "dyestuffs and extracts," and at other times under "chemicals."

Detail statistics of the quantity and value of the products for the censuses from 1899 to 1914, are given in the following table:

Table 111	DYESTUFFS AND EXTRACTS.			
	1914	1909	1904	1899
Number of establishments.....	133	124	112	.....
Dyestuff and extract industry.....	112	107	98	77
Establishments manufacturing dyestuffs and extracts as subsidiary products.....	21	17	14	(1)
PRODUCTS.				
Total value.....	\$21,382,689	\$16,788,676	\$10,912,224	.....
Dyestuff and extract industry.....	\$20,620,336	\$15,954,574	\$10,893,113	\$7,350,748
Subsidiary products from other industries.....	\$762,353	\$834,102	\$219,111	(1)
Dyestuffs.....	\$7,114,855	\$4,819,247	\$3,331,738	\$3,494,632
Natural dyestuffs.....	\$1,862,162	\$1,135,694	\$1,567,284	\$1,687,902
Dyewood extracts—				
Logwood—				
Number of establishments.....	9	(1)	(1)	(1)
Pounds.....	28,989,962	22,317,248	29,799,606	39,252,743
Value.....	\$1,311,966	\$991,974	\$1,472,047	\$1,485,971
Fustic—				
Number of establishments.....	5	(1)	(1)	(1)
Pounds.....	4,509,943	(1)	(1)	(1)
Value.....	\$222,804	(1)	(1)	(1)
Quercitron—				
Number of establishments.....	4	(1)	(1)	(1)
Pounds.....	3,844,882	(1)	(1)	(1)
Value.....	\$112,945	(1)	(1)	(1)
Other dyewood extracts, Brazilwood, cutch, etc.—				
Pounds.....	3,434,150	(1)	(1)	(1)
Value.....	\$90,934	(1)	(1)	(1)
Dyewoods, ground or chipped—logwood, fustic, Brazilwood, turmeric, etc.—				
Pounds.....	4,128,202	15,046,954	9,999,906	12,690,037
Value.....	\$45,647	\$143,720	\$95,237	\$201,931
Dyestuffs, not dyewoods—ground and extracts.....	\$77,866	(1)	(1)	(1)
Artificial dyestuff:				
Synthetic or coal-tar dyes, including intermediates and products resulting from the blending of imported colors—				
Number of establishments.....	16			
Pounds.....	12,169,635			
Value.....	\$4,652,947			
Mineral colors or dyes, such as chrome yellow, orange or green, iron buff, prussian blue, ultramarine, etc.—				
Number of establishments.....	14	12,753,774	4,600,462	6,581,850
Pounds.....	4,991,336	\$3,683,553	\$1,764,454	\$1,806,730
Value.....	\$599,746			
Tanning materials.....	\$7,898,672	\$7,123,971	\$4,967,095	\$1,866,030
Extracts—				
Oak—				
Pounds.....	8,797,218			
Value.....	\$192,844	292,400,285	156,520,123	28,983,086
Chestnut—		\$6,132,582	\$2,411,184	\$529,670
Pounds.....	319,639,906			
Value.....	\$3,952,806			

See footnotes on p. 182.

Table 111—Continued.	DYE-STUFFS AND EXTRACTS.			
	1914	1909	1904	1899
PRODUCTS—continued				
Tanning materials—Continued.				
Extracts—Continued.				
Hemlock—				
Pounds.....	18,978,013	12,588,078	18,833,450	26,011,714
Value.....	\$340,402	\$280,487	\$406,619	\$563,591
Sumac—				
Pounds.....	4,512,361	3,143,790	4,093,619	4,349,742
Value.....	\$129,631	\$107,456	\$95,958	\$103,085
Quebracho, chrome tanning, spruce, myrobalans, gambier, mangrove or palmetto, and gallnuts extracts, in the order named as to value—				
Pounds.....	99,799,418	\$603,436	\$2,053,334	\$669,684
Value.....	\$2,944,906			
Other tanning materials.....				
	\$333,083			
Mordants:				
Tannic acid—				
Pounds.....	760,100	\$623,798	\$295,549	\$242,653
Value.....	\$234,630			
Other.....				
	\$157,791			
Assistants:				
Turkey red oil—				
Pounds.....	11,681,884	1,814,506	3,022,470	2,210,000
Value.....	\$820,491	\$108,292	\$159,666	\$14,757
Other.....				
	\$716,510	(¹)	(¹)	(¹)
Sizes:				
Dextrins—				
Pounds.....	18,913,641	16,143,931	6,651,731	(¹)
Value.....	\$705,584			
Gums, other than rosin—				
Pounds.....	3,832,182	\$610,999	\$231,708	(¹)
Value.....	\$205,282			
Rosin—				
Pounds.....	20,717,148	\$1,835,046	\$217,859	\$2,548
Value.....	\$373,218			
Other sizes.....				
	\$1,768,777			
All other products.....	\$1,386,879	\$1,662,323	\$1,689,498	\$1,730,128

¹ Figures not available.² Not distributable by kind.

EXPLOSIVES.

Establishments included in this classification manufacture blasting powder; black gunpowder; nitroglycerin; dynamite, including all explosives containing nitroglycerin; permissible explosives; guncotton, including pyroxylin, and all other cellulose nitrates; smokeless powder; and all other high-powered powders used as propellants.

Table 223 presents general statistics for the industry for the censuses from 1849 to 1914, inclusive, and the following table gives detail statistics for materials and products, for the census of 1914, in comparison with 1909, 1904, and 1899.

Table 112	EXPLOSIVES (TONS OF 2,000 POUNDS).			
	1914	1909	1904	1899
MATERIALS.				
Total cost.....	\$25,626,539	\$22,811,548	\$17,203,667	\$10,334,974
Sulphur or brimstone:				
Tons.....	15,832	17,389	19,574	12,742
Cost.....	\$372,763	\$367,866	\$507,469	\$317,383
Pyrites:				
Tons.....	25,885	(¹)	(¹)	(¹)
Cost.....	\$139,496	(¹)	(¹)	(¹)
Nitrate of soda:				
Tons.....	190,960	188,889	133,034	88,524
Cost.....	\$8,979,877	\$7,892,336	\$5,608,557	\$2,902,866
Glycerin:				
Pounds.....	29,002,008	(¹)	(¹)	(¹)
Cost.....	\$5,439,405	(¹)	(¹)	(¹)

See footnotes on p. 183.

Table 112—Continued.

	EXPLOSIVES (TONS OF 2,000 POUNDS).			
	1914	1909	1904	1899
MATERIALS—continued.				
Acids:				
Sulphuric—				
Consumption, tons.....	83,605	65,066	49,292	40,230
Purchased—				
Tons.....	52,398	22,501	15,298	7,864
Cost.....	\$723,795	\$406,204	\$247,301	\$130,699
Produced in works where consumed, tons.....	31,207	42,555	30,994	32,366
Nitric—				
Consumption, pounds.....	102,920,184	70,559,756	40,675,500	15,015,587
Purchased—				
Pounds.....	8,694,684	7,591,756	2,699,500	467,587
Cost.....	\$476,404	\$541,314	\$122,047	\$17,171
Produced in works where consumed, pounds.....	94,226,000	62,968,000	37,976,000	14,548,000
Mixed—				
Consumption, pounds.....	177,306,992	(¹)	(¹)	(¹)
Purchased—				
Pounds.....	38,509,594	51,764,694	105,552,404	66,906,146
Cost.....	\$1,047,377	\$1,512,626	\$3,098,429	\$1,505,754
Produced in works where consumed, pounds.....	138,797,398	(¹)	(¹)	(¹)
All other materials.....	\$8,447,422	\$12,091,202	\$7,624,864	\$5,461,101
<i>Produced in works where consumed.</i>				
Acids:				
Sulphuric, tons.....				
50° Baumé.....	31,207	42,555	30,994	32,366
50° Baumé.....	23,596	(¹)	(¹)	(¹)
68° Baumé.....	7,611	(¹)	(¹)	(¹)
Nitric, pounds.....				
Mixed, pounds.....	94,226,000	62,968,000	37,976,000	14,548,000
138,797,398	(¹)	(¹)	(¹)	(¹)
Saltpeper, pounds.....				
Nitroglycerin, pounds.....	5,409,350	12,050,225	3,559,376	(¹)
61,517,409	70,289,667	44,077,828	31,661,806	483,975
Nitrate of ammonia, pounds.....	29,891,837	10,904,319	2,863,857	(¹)
Cellulose nitrates, pounds.....	3,616,895	5,000,226	(¹)	(¹)
Charcoal, bushels.....	139,508	737,884	1,156,918	(¹)
PRODUCTS.				
Total value.....	\$41,432,970	\$40,139,661	\$29,602,884	\$17,125,418
Explosives, total:				
Pounds.....	² 481,752,040	³ 487,481,152	⁴ 360,980,734	215,980,720
Value.....	\$39,645,382	\$37,983,868	\$27,695,963	\$16,950,976
Dynamite—				
Number of establishments.....	26	26	(¹)	31
Pounds.....	223,667,630	220,145,791	130,920,829	85,846,456
Value.....	\$20,553,653	\$20,998,820	\$12,900,193	\$8,247,223
Permissible explosives—				
Number of establishments.....	20	13	(¹)	(¹)
Pounds.....	13,113,601	9,607,448	(¹)	(¹)
Value.....	\$1,604,072	\$363,209	(¹)	(¹)
Nitroglycerin—				
Number of establishments.....	58	49	(¹)	(¹)
For sale as such.....	22	23	(¹)	(¹)
For consumption.....	27	26	(¹)	(¹)
Production, pounds.....	65,302,833	74,212,980	52,013,764	35,280,498
Sold as such—				
Pounds.....	3,785,474	3,923,313	7,935,936	3,618,692
Value.....	\$950,611	\$863,360	\$1,620,117	\$783,299
Consumed in works where produced, pounds.....	61,517,409	70,289,667	44,077,828	31,661,806
Blasting powder—				
Number of establishments.....	48	38	(¹)	(¹)
Pounds.....	207,423,675	233,477,175	205,436,200	47
Value.....	\$8,459,113	\$9,608,265	\$7,377,977	123,314,104
Gunpowder, black—				
Number of establishments.....	8	8	(¹)	31
Pounds.....	7,685,036	12,862,700	10,383,944	5,310,351
Value.....	\$977,455	\$1,736,427	\$1,541,483	(¹)
Other explosives—				
Number of establishments—				10
Gun cotton or pyroxylin.....	4	2	(¹)	9
Smokeless powder.....	5	4	(¹)	(¹)
Other.....	6	8	(¹)	(¹)
Pounds.....	21,076,624	7,464,725	6,303,825	3,201,468
Value.....	\$7,100,478	\$3,913,787	\$4,256,193	\$2,610,103
All other products.....	\$1,787,588	\$2,155,793	\$1,906,921	\$174,442

¹ Figures not available.

² In addition 5,072,387 pounds, to the value of \$1,632,335, were made by Federal establishments, comprising 4,998,537 pounds of smokeless powder and 73,850 pounds of other explosives.

³ In addition 1,471,042 pounds, to the value of \$656,959 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 explosives.

⁴ In addition 1,105,082 pounds, to the value of \$567,804 were made by Federal establishments and by establishments engaged primarily in the manufacture of products other than explosives.

FERTILIZERS.

Establishments included in this classification manufacture principally "complete fertilizers" by which is meant a mixture of superphosphates with both potash and ammoniates; ammoniated fertilizers; superphosphates from minerals, bones, etc.; concentrated phosphates, etc. The production, for sale, of sulphuric and other acids, fish scrap, soda products, oil, bone black, glue, grease, and various chemicals is also reported. Large quantities of some of these products are made by fertilizer establishments for their own use. Statistics for fertilizers were first reported separately at the census of 1859, and statistics for that and for subsequent censuses are given in Table 223.

The quantity and value of the different classes of fertilizers manufactured in 1914 in comparison with those for the censuses of 1909, 1904, and 1899 are given in the following table. The statistics include the fertilizer products 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.

Table 113	FERTILIZERS (TONS OF 2,000 POUNDS).			
	1914	1909	1904	1899
Number of establishments.....	1,238	843	552	475
Fertilizer industry.....	784	550	399	422
Manufacturing fertilizers as subsidiary products.....	1,454	293	153	53
MATERIALS.				
Total cost.....	\$119,222,003	\$73,165,544		
The fertilizer industry.....	\$107,954,644	\$69,521,920	\$39,287,914	\$28,958,473
Other industries, fertilizer products.....	\$11,267,359	\$3,643,624	(²)	(²)
Ammoniates:				
Tons.....	1,213,168	842,557	(²)	(²)
Cost.....	\$28,550,524	\$17,200,611	\$9,915,648	\$9,934,145
Cottonseed meal—				
Tons.....	325,234		(²)	(²)
Cost.....	\$8,419,383		\$2,376,448	\$167,410
Tankage and ammoniates, not elsewhere specified—				
Tons.....	887,934	842,557	(²)	(²)
Cost.....	\$20,131,141	\$17,200,611	\$7,539,200	\$9,766,735
Ammonium sulphate:				
Tons.....	149,924	65,592	10,540	4,120
Cost.....	\$9,015,163	\$3,732,112	\$600,856	\$186,609
Cyanamid or lime nitrogen:				
Tons.....	25,911	(²)	(²)	(²)
Cost.....	\$1,176,119	(²)	(²)	(²)
Nitrate of soda:				
Tons.....	162,184	89,846	42,213	19,518
Cost.....	\$7,511,809	\$3,916,320	\$1,760,432	\$709,841
For mixed fertilizers—				
Tons.....	147,050	(²)	(²)	(²)
Cost.....	\$6,807,228	(²)	(²)	(²)
For acid manufacture—				
Tons.....	15,134	(²)	(²)	(²)
Cost.....	\$704,581	(²)	(²)	(²)
Phosphate rock:				
Tons.....	2,080,961	1,549,497	888,571	787,927
Cost.....	\$11,222,992	\$8,828,834	\$4,244,554	\$3,554,174
Fish:				
Tons.....	250,110	242,045	(²)	(²)
Cost.....	\$3,111,991	\$3,066,613	\$847,142	\$183,542
Raw bones:				
Tons.....	64,590	(²)	(²)	(²)
Cost.....	\$1,603,353	(²)	(²)	(²)
Steamed bone:				
Tons.....	55,067	(²)	(²)	(²)
Cost.....	\$1,178,959	(²)	(²)	(²)
Ground bone:				
Tons.....	25,139	(²)	(²)	(²)
Cost.....	\$593,226	(²)	(²)	(²)
Bone discard:				
Tons.....	3,395	(²)	(²)	(²)
Cost.....	\$35,007	(²)	(²)	(²)
Pyrites:				
Tons.....	613,842	456,574	342,962	288,778
Cost.....	\$3,590,235	\$2,831,994	\$2,020,759	\$1,466,285
Sulphur or brimstone:				
Tons.....	2,041	4,236	4,210	12,728
Cost.....	\$42,716	\$68,924	\$92,234	\$268,670

Table 113—Continued.	FERTILIZERS (TONS OF 2,000 POUNDS).			
	1914	1909	1904	1899
MATERIALS—continued.				
Sulphuric acid:				
Purchased—				
Tons.....	728,889	620,708	197,865	231,527
Cost.....	\$4,387,317	\$3,460,132	\$1,084,304	\$1,355,382
Made and consumed, tons.....	1,276,715	841,935	692,904	(²)
Superphosphate:				
Purchased—				
Tons.....	1,096,178	532,886	320,559	286,898
Cost.....	\$9,301,501	\$5,175,957	\$2,912,010	\$2,176,245
Made and consumed (acid phosphate), tons.....	2,723,317	1,838,865	884,211	(²)
Basic slag or Thomas phosphate powder:				
Tons.....	16,190	(²)	(²)	(²)
Cost.....	\$144,213	(²)	(²)	(²)
Guano:				
Tons.....	120,128	(²)	(²)	(²)
Cost.....	\$445,416	(²)	(²)	(²)
Kaimit:				
Tons.....	448,885	347,104	190,493	54,700
Cost.....	\$3,939,263	\$3,008,183	\$1,891,073	\$520,833
Potash salts:				
Tons.....	529,973	270,459	122,107	(²)
Cost.....	\$12,774,113	\$7,714,367	\$3,606,701	\$3,098,400
Muriate of potash:				
Tons.....	177,372	(²)	(²)	(²)
Cost.....	\$6,497,364	(²)	(²)	(²)
Sulphate of potash:				
Tons.....	39,232	(²)	(²)	(²)
Cost.....	\$1,684,998	(²)	(²)	(²)
Double manure salts:				
Tons.....	108,580	(²)	(²)	(²)
Cost.....	\$1,740,241	(²)	(²)	(²)
Nitrate of potash or saltpeter—				
Tons.....	507	(²)	(²)	(²)
Cost.....	\$28,287	(²)	(²)	(²)
Other potash salts—				
Tons.....	3,204,282	(²)	(²)	(²)
Cost.....	\$2,823,223	(²)	(²)	(²)
Hardwood ashes:				
Tons.....	4,437	(²)	(²)	(²)
Cost.....	\$54,171	(²)	\$2,050	(²)
All other materials.....	\$20,543,915	\$14,161,497	\$10,310,151	\$5,504,347
PRODUCTS.				
Total value.....	\$169,017,550	\$111,871,481	\$63,008,593	\$46,209,397
Fertilizer industry.....	\$153,196,152	\$103,960,213	\$56,541,253	\$44,657,385
Subsidiary fertilizer products, other industries.....	\$15,821,398	\$7,911,268	\$6,467,340	\$1,552,012
Fertilizers:				
Tons.....	8,432,206	5,618,234	3,591,771	2,887,014
Value.....	\$153,260,212	\$100,089,971	\$56,928,034	\$42,097,673
Complete and ammoniated fertilizers—				
Tons.....	5,612,421	3,523,759	2,385,201	1,622,474
Value.....	\$121,676,356	\$74,109,307	\$44,325,882	\$28,781,883
Superphosphates—				
Production, tons.....	4,416,022	3,062,834	1,670,978	.....
For sale.....	1,692,705	1,223,969	786,767	937,008
Made and consumed, tons.....	\$14,778,654	\$13,744,831	\$7,821,096	\$8,592,360
Concentrated phosphate—				
Tons.....	67,585	270,128	(²)	(²)
Value.....	\$1,367,005	\$2,713,513	(²)	(²)
Other fertilizers—				
Tons.....	1,059,495	600,378	419,803	327,532
Value.....	\$15,438,167	\$9,522,320	\$4,781,056	\$4,723,430
Sulphuric acid (reduced to 50° Baumé):				
Production, tons.....	1,405,768	995,384	717,406	.....
For sale.....	129,053	153,449	24,502	71,176
Made and consumed, tons.....	\$768,873	\$928,582	\$194,578	\$437,925
Value.....	1,276,715	841,935	692,904	(²)
Fish scrap:				
Tons.....	62,930	78,484	(²)	(²)
Value.....	\$1,915,530	\$2,006,724	(²)	(²)
Pyrite cinder:				
Tons.....	5,245,082	5,291,653	(²)	(²)
Value.....	\$231,869	\$143,607	(²)	(²)
Oil:				
Gallons.....	2,445,026	3,218,393	(²)	(²)
Value.....	\$778,337	\$510,938	(²)	(²)

See footnotes on p. 186.

Table 113—Continued.

PRODUCTS—continued.	FERTILIZERS (TONS OF 2,000 POUNDS).			
	1914	1909	1904	1899
Bone black:				
Pounds.....	41,054,769	(2)	(2)	(2)
Value.....	\$1,413,166	(2)	(2)	(2)
Glue.....	\$1,131,243	(2)	(2)	(2)
Grease.....	\$1,209,334	(2)	(2)	(2)
All other products.....	\$8,308,986	\$7,891,659	\$5,885,981	\$3,673,799

¹ Includes 179 cottonseed-oil mills, 64 grease and tallow establishments, 45 slaughtering and meat packing, and 166 distributed among some 15 other industries that produce wastes of fertilizing value.

² Figures not available.

³ Includes 17,430 tons reported simply as potash salts.

⁴ Includes fertilizers reported as ammoniated fertilizers but containing both superphosphates and potash, viz, in 1914, 1,519,156 tons; 1909, 522,389 tons; 1904, 775,987 tons; and 1899, 142,898 tons.

⁵ Not including 155,634 tons in 1914, and 72,402 tons in 1909, of no value at the works.

⁶ Includes chemicals—soda products, acids, etc.—to the value of \$400,597.

The value of all products of the industry proper, which includes some that are not fertilizers, was \$153,196,152 in 1914, as compared with \$103,960,213 in 1909, \$56,541,253 in 1904, and \$44,657,385 in 1899. Including the fertilizer by-products of other industries, the total production of fertilizers in 1914 was 8,432,206 net tons, valued at \$153,260,212. During the period 1909-1914 the tonnage of the fertilizer products increased 50.1 per cent. Some of the materials, such as sulphuric acid and superphosphates, are the products of establishments engaged in this industry, and therefore are duplicated in the total value of products.

GAS, ILLUMINATING AND HEATING.

Establishments under this classification manufacture illuminating and fuel gas, chiefly by destructive distillation of coal, wood, resins, and oil, or other carbonaceous substances. The production of natural gas, of course, is not included. Many manufacturing concerns convert coal, through imperfect combustion, into "producer" gas for use as fuel or in gas engines. This process, however, is not covered by the statistics of the gas industry, nor is the production of blast-furnace gas. The manufacture of Pintsch gas, used principally for lighting railway cars, which carry it in compressed form, is included, likewise Blau gas and acetylene, whether distributed through mains or marketed compressed in cylinders, as well as the operations of municipal gas plants.

The data for the industry for every census since 1849, except that of 1879, when no returns were received, are given in Table 223. The statistics for the industry do not include those for establishments operating retort coke ovens, for which see Table 109. The gas purchased by the gas companies is largely retort coke-oven gas.

The total production of gas made for sale by all establishments, inclusive of retort coke-ovens and the by-products of establishments outside of the gas and the coke industries, was, in 1914, 265,060,574 thousand cubic feet, valued at \$181,207,482, and in 1909, 166,667,641 thousand cubic feet, valued at \$141,478,557.

The statistics for materials and products for 1914, in comparison with those for 1909, 1904, and 1899, are given in the following table:

Table 114

	GAS, ILLUMINATING AND HEATING.			
	1914	1909	1904	1899
Number of establishments.....	1,284	1,296	1,019	877
Commercial.....	1,146	1,177	(1)	(1)
Municipal.....	138	119	(1)	(1)
Number manufacturing—				
Straight coal gas.....	277	343	397	.....
Carbureted water gas.....	430	325	237	.....
Mixed coal and water gas.....	147	154	140	(1)
Oil gas.....	² 153	179	125	.....
Acetylene.....	³ 165	158	53	.....
All other gas (gasoline, cold process).....	112	137	67	.....
Number operating gas and electric light and power plants in conjunction.....	⁴ 385	⁴ 389	(1)	(1)

See footnotes on p. 188.

Table 114—Continued.

	GAS, ILLUMINATING AND HEATING.			
	1914	1909	1904	1899
MATERIALS.				
Total cost.....	\$76,779,288	\$52,427,844	\$41,193,951	\$20,605,356
Coal used for gas making:				
Tons (2,000 pounds).....	6,116,672	4,940,598	4,431,774	2,487,287
Cost.....	\$20,872,517	\$16,304,832	\$14,607,485	\$7,164,472
Oil used for gas making:				
Gallons.....	715,418,623	578,309,411		
Cost.....	\$24,720,998	\$17,105,981		
Benzene or benzol:				
Purchased—				
Gallons.....	388,146	253,837	410,989,564	194,857,296
Cost.....	\$54,653	\$27,543	\$15,015,602	\$8,168,657
Made and consumed, gallons.....	99,238	302,994		
Benzine, gasoline, or naphtha:				
Gallons.....	998,353	1,093,874		
Cost.....	\$169,020	\$212,226		
Coke used for gas making:				
Tons (2,000 pounds).....	964,851	591,919	435,534	217,354
Cost.....	\$4,500,289	\$2,667,706	\$1,602,762	\$726,736
Calcium carbide:				
Pounds.....	31,749,491	6,080,465	(1)	(1)
Cost.....	\$887,937	\$195,836	(1)	(1)
Gas purchased:				
Cubic feet, thousands.....	28,351,074	16,769,705	2,696,571	(1)
Cost.....	\$8,883,016	\$5,416,601	\$937,252	(1)
Fuel for boilers and retorts.....	\$3,784,911	\$2,369,131	\$2,298,168	\$1,082,844
Amount paid for lamps and appliances purchased for sale.....	\$7,393,224	\$5,537,936	\$4,013,885	\$3,462,647
All other materials.....	\$5,512,723	\$2,590,052	\$2,718,797	
PRODUCTS.				
Total value.....	\$220,237,790	\$166,814,371	\$125,144,945	\$75,716,693
Gas:				
For sale—				
Cubic feet, thousands.....	203,639,260	150,835,793	112,549,979	67,093,553
Value.....	\$175,065,920	\$138,615,309	\$112,662,568	\$69,432,582
Average value 1,000 cubic feet.....	\$0.86	\$0.92	\$1.00	\$1.03
Made and consumed, 1,000 cubic feet.....	1,121,108	1,730,563	1,363,757	(1)
Straight coal—				
Cubic feet, thousands.....	10,509,946	19,985,253	12,693,034	(1)
Value.....	\$10,726,514	\$18,085,841	\$12,868,604	(1)
Average value 1,000 cubic feet.....	\$1.02	\$0.90	\$1.01	(1)
Carbureted water—				
Cubic feet, thousands.....	90,017,725	\$1,144,568	55,402,968	(1)
Value.....	\$74,516,534	\$70,802,780	\$48,903,620	(1)
Average value 1,000 cubic feet.....	\$0.83	\$0.87	\$0.88	(1)
Mixed coal and water—				
Cubic feet, thousands.....	86,281,339	40,775,233	40,980,414	(1)
Value.....	\$72,012,021	\$36,953,543	\$45,605,263	(1)
Average value 1,000 cubic feet.....	\$0.83	\$0.91	\$1.11	(1)
Oil—				
Cubic feet, thousands.....	13,512,274	8,688,860	3,441,352	(1)
Value.....	\$15,044,509	\$12,111,458	\$5,141,460	(1)
Average value 1,000 cubic feet.....	\$0.91	\$1.39	\$1.49	(1)
Acetylene—				
Distributed through mains—				
Cubic feet, thousands.....	14,868			
Value.....	\$194,019			
Average value 1,000 cubic feet.....	\$13.05	25,186	7,881	(1)
Delivered in containers (compressed)—				
Cubic feet, thousands.....	121,696	\$361,348	\$104,267	(1)
Value.....	\$2,317,605	\$14.35	\$13.23	(1)
Average value 1,000 cubic feet.....	\$19.04			
All other gas (gasoline, cold process)—				
Cubic feet, thousands.....	181,412	216,643	24,330	(1)
Value.....	\$254,718	\$320,339	\$39,354	(1)
Average value 1,000 cubic feet.....	\$1.40	\$1.48	\$1.62	(1)

See footnotes on p. 188.

Table 114—Continued.	GAS, ILLUMINATING AND HEATING.			
	1914	1909	1904	1899
PRODUCTS—continued.				
Coke:				
Production, bushels.....	179,128,257	131,599,836	135,707,619	
For sale—				
Bushels.....	114,091,753	82,049,683	89,146,434	
Value.....	\$8,719,920	\$5,723,215	\$5,195,461	
Made and consumed, bushels.....	65,036,504	49,550,153	46,561,185	
Tar:				
Production, gallons.....	153,311,196	109,930,058	82,288,299	
For sale—				
Gallons.....	125,938,607	78,339,880	67,515,421	\$4,283,204
Value.....	\$3,252,765	\$1,875,549	\$2,064,343	
Made and consumed, gallons.....	27,372,589	31,590,178	14,772,878	
Ammonium liquors (16-ounce strength):				
Gallons.....	50,737,762	37,277,864		
Value.....	\$1,235,442	\$725,702		
Ammonium sulphate:				
Pounds.....	6,216,618	(1)	\$972,992	
Value.....	\$134,196	(1)		
Hydrocarbons.....	\$35,902	\$44,509		
All other products.....	\$20,815,871	\$12,786,697		
Receipts from rents and sales of lamps and appliances.....	\$10,977,774	\$7,043,390	\$4,249,581	\$2,000,907
Candlepower—average for the year:				
Number of establishments reporting candlepower—				
15 and less.....	50	34		
16 and 17.....	290	228		
18, 19, and 20.....	431	405		
21, 22, and 23.....	153	179	(1)	(1)
24 and over.....	131	291		
Number not reporting candlepower.....	229	159		
British thermal units—per cubic foot:				
Number of establishments reporting B. t. units—				
Less than 500.....	3			
500 to 599.....	163			
600 to 699.....	577			
700 to 899.....	11	(1)	(1)	(1)
900 to 1,300.....	45			
Over 1,300.....	11			
Number not reporting B. t. units.....	474			
Miles of mains.....	58,727	45,119	32,528	(1)
Gas stoves and heaters, number connected with mains at end of year ²	5,168,924	3,603,435	1,481,656	(1)

¹ Figures not available.

² Includes 61 Pintsch gas and 4 Blau gas.

³ Includes 40 without distributing mains; gas sold compressed in cylinders.

⁴ Number operated under same company name: 1914, 377; 1909, 372.

⁵ Includes amount paid for lamps and appliances, \$4,013,885, not included in Table 223.

⁶ In addition to the following products of gas manufacture were produced commercially by 6 establishments in 1914 and 4 in 1909, engaged primarily in other lines of manufacture:

	1914	1909		1914	1909
Products, total value...	\$158,743	\$261,802	Coke:		
Gas:			Bushels.....	114,371	44,347
Cubic feet, thousands.....	56,939	40,628	Value.....	\$9,356	\$3,399
Straight coal.....	41,744	27,558	Tar:		
Carbureted water.....	10,154		Gallons.....	35,100	38,370
Acetylene (compressed).....	5,041	13,070	Value.....	\$2,076	\$1,372
Value.....	\$131,979	\$254,037	Receipts from rents and sales of lamps and appliances....	\$15,332	\$2,994

⁷ Includes 47 Pintsch gas, 18 acetylene, and 28 gasoline gas.

⁸ Chiefly Pintsch gas, acetylene, and Blau gas.

⁹ Includes only those of which the company has record.

GLUE, NOT ELSEWHERE SPECIFIED.

The principal products of establishments included in this classification are glue, flexible and liquid; gelatin; and glue jelly or paste, derived from hides, bones, fleshings, and fish. Statistics for the industry for the censuses from 1849 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, glue and gelatin to the value of \$3,088,764 were made in slaughtering and meat-packing establishments, while fertilizer factories reported glue to the value of \$1,131,243. Other establishments, principally those making sand and emery paper and cloth, tallow, soap stock, food preparations, oleo oil and fish oil, reported glue and gelatin to the value of \$1,772,872, making the total manufacture of glue \$19,725,703 in 1914, as compared with \$16,328,579 in 1909.

GREASE AND TALLOW, NOT INCLUDING LUBRICATING GREASES.

Establishments in this classification render soap grease from fat, bones, meat, scraps, garbage, etc., and render tallow from the solid fat of cattle, sheep, and other animals. Establishments making grease and tallow reported hides, skins, bones, tankage, fertilizers, poultry feed, dried blood, oils, stearine, cracklings, hoofs, horns, glue stock, ground bones, etc. General statistics for the industry for the censuses from 1859 to 1914, inclusive, are presented in Table 223.

Table 106 gives separate statistics for those establishments making soap stock, for those rendering tallow, and for those reporting other products, respectively, classified according to the product of chief value.

There is considerable overlapping between the three subclassifications, as soap stock to the value of \$598,876 was made by those establishments rendering tallow and other products, while tallow to the value of \$265,491 was reported by those making soap stock, and other products to the value of \$23,858 were made by tallow plants. In addition, soap stock to the value of \$1,209,334 was reported by the fertilizer industry, and to the value of \$3,742,747 by slaughtering and meat-packing establishments, while establishments assigned to other classifications, principally glue, reported soap stock to the value of \$1,311,839.

Tallow to the value of \$12,371,206 was reported by slaughtering and meat-packing establishments, and to the value of \$744,143 by establishments assigned to other classifications, principally oleo oil. These amounts are in addition to the products shown in the tables. The variations in the extent to which the business of rendering grease and tallow has been conducted in establishments assigned to other industries affect the comparability of the statistics for different censuses.

LUBRICATING GREASES.

This classification includes establishments engaged primarily in the manufacture of grease lubricating compounds and axle grease for automobiles, carriages, wagons, and railway cars. The industry was known as "axle grease" prior to 1914, and was first reported separately at the census of 1879. (See Table 223 for comparative statistics.) The decreases from 1889 to 1899 shown in the table were due doubtless to a change in the classification of individual establishments by reason of a change in the character of the chief product.

In addition to the products covered by the table, petroleum refineries reported the production of lubricating and axle greases to the value of \$2,293,103, in 1914, and establishments assigned to other classifications, principally those making fish and miscellaneous oils, reported lubricating grease to the value of \$1,755,586.

INK, PRINTING.

The mixing of boiled oil or varnish with black or other pigments to be used in printing is the principal business of establishments in this classification, which includes printing, lithographing, and embossing inks, colored inks, and gold and bronze ink. At the censuses of 1849 and 1879 there was no separate presentation of the statistics, the classification "ink" including both printing and writing ink. (See Table 223.)

In addition to the products covered by the table, printing inks to the value of \$177,672 in 1914 and of \$89,839 in 1909 were reported by establishments assigned to other industries, principally "bags, other than paper," "paints," and "stationery goods, not elsewhere specified."

INK, WRITING.

Establishments under this classification manufacture inks consisting principally of an infusion of galls, copperas, gum arabic, and pigments of various kinds. At the censuses of 1849 and 1879 only the totals for "ink" of all kinds were given. Comparable figures, as far as available, are presented in Table 223. Establishments making writing inks also reported the manufacture of mucilage and paste in 1914 to the value of \$616,926. This is included in the value of products shown in the table.

In addition to the value given in the table, writing ink to the value of \$67,508, in 1914, and of \$59,965, in 1909, was reported by establishments assigned to other classifications, principally those making glue, typewriter ribbons, mucilage, and polishing preparations.

OIL, COTTONSEED, AND CAKE.

The establishments under this classification are engaged primarily in the manufacture of oil, cake and meal, hulls, and linters from cotton seed, and in some cases in the refining of oil. General statistics for the industry for the census years from 1859 to 1914, inclusive, are given in Table 223.

The following table presents the statistics for cottonseed products for the last four censuses:

	COTTONSEED PRODUCTS (TONS OF 2,000 POUNDS).			
	1914	1909	1904	1899
Cotton seed, crushed..... tons..	4,790,774	3,798,549	3,308,930	2,479,386
Products, total value.....	\$212,127,024	\$147,867,894	\$96,407,621	\$58,726,632
Primary products manufactured, whether for sale or for further use:				
Crude oil..... gallons..	191,163,261	157,115,689	132,051,801	93,325,729
Cake and meal..... tons..	2,191,610	1,661,734	1,343,977	884,391
Hulls..... tons..	1,385,940	1,258,612	1,201,079	1,169,286
Linters..... pounds..	330,624,502	174,620,099	116,707,298	57,272,053

In addition, cottonseed products to the value of \$2,638,390 in 1914 and of \$2,017,305 in 1909 were reported by establishments assigned to other industries. These establishments crushed, in 1914, 56,854 tons of seed and produced 2,169,758 gallons of crude oil, 25,768 tons of cake and meal, 16,969 tons of hulls, and 3,492,011 pounds of linters. In 1909 they crushed 28,752 tons of seed, and produced 1,212,852 gallons of crude oil, 12,811 tons of cake and meal, 8,926 tons of hulls, and 1,152,978 pounds of linters. In 1904, 36,440 tons of seed were crushed and produced 1,765,971 gallons of crude oil, 16,195 tons of cake and meal, 12,265 tons of hulls, and 1,085,671 pounds of linters.

OIL, ESSENTIAL.

Establishments under this classification extract or distill the oils of various plants, such as peppermint, spearmint, wormwood, pennyroyal, wintergreen, fleabane, tansy, and fireweed. Black birch, spruce, cedar, juniper and sassafras oils, peppermint-camphor (menthol) and witch-hazel extract are among the products. General statistics for the industry for the censuses from 1859 to 1914 are given in Table 223.

The decrease in the value of products for the decade 1869-1879 may be accounted for on the supposition that in 1869 the production on farms was included in the manufactures statistics, and that in 1879 it was given with statistics of agriculture. The depreciated currency of 1869 also increased the nominal value of the products that year by about one-fifth.

The quantity and value of the natural oils, and of witch-hazel extract produced, and the value of all other products of the essential-oil industry for 1914, 1909, 1904, and 1899 are shown in the following table:

	ESSENTIAL OILS.			
	1914 ¹	1909 ¹	1904 ²	1899
Number of establishments.....	107	74	52	47
PRODUCTS.				
Total value.....	\$2,565,361	\$1,773,304	\$1,464,662	\$813,495
Essential oil, value.....	\$1,289,482	\$1,111,805	\$1,023,937	\$700,709
Peppermint—				
Pounds.....	363,991	305,781	130,022	202,550
Value.....	\$601,617	\$519,079	\$470,037	\$188,559
Spearmint—				
Pounds.....	94,209	33,400	(³)	(³)
Value.....	\$238,074	\$83,283	(³)	(³)
Black birch—				
Pounds.....	41,178	67,053	(³)	(³)
Value.....	\$67,691	\$102,045	(³)	(³)
Wintergreen—				
Pounds.....	6,000	22,281	4,737	2,166
Value.....	\$24,538	\$68,983	\$15,579	\$3,638

See footnotes on p. 191.

Table 116—Continued.	ESSENTIAL OILS.			
	1914 ¹	1909 ¹	1904 ²	1899
PRODUCTS—continued.				
Essential oil, value—Continued.				
Wormwood—				
Pounds.....	4,702			
Value.....	\$9,040	\$338,415	\$538,321	\$508,512
Other essential oils.....	\$348,522			
Witch-hazel extracts:				
Gallons.....	917,690	691,823	797,700	110,260
Value.....	\$575,938	\$419,793	\$367,873	\$54,649
All other products.....	\$699,941	\$241,706	\$72,852	\$58,137

¹ Includes two establishments in 1914 and six in 1909 which were engaged primarily in other industries.
² In addition, essential oils to the value of \$14,500, not distributable by kind, were produced by establishments engaged primarily in the manufacture of other products.
³ Not reported separately.

OIL, LINSEED.

The expressing of oil from flaxseed is the chief business of the establishments in this classification, but oil cake and meal and ground flaxseed were also among the products. Linseed oil is used principally in mixing paints. Statistics for the industry for the census years from 1849 to 1914 are given in Table 223.

In addition to the products covered by the table, raw linseed oil to the value of \$1,201,839 in 1914 and to the value of \$1,106,181 in 1909 was made for sale in paint and varnish factories, and to the value of \$84,408 in 1914 and of \$63,100 in 1909, by establishments assigned to other industries.

OIL, NOT ELSEWHERE SPECIFIED.

The compounding and blending of mineral, animal, and vegetable oils for lubricating purposes and the manufacture of castor oil, oleo oil, fish or whale oil, resinol and neat's-foot oil, floor oil, signal oil, coconut oil, wool oil, palm oil, and lard oil, etc., constitute the operations carried on by the establishments in this classification.

The classifications at the various censuses which were combined under "oil, not elsewhere specified," at the census of 1914 included "oil, castor" in 1909, and also "oil, lard" in 1904 and 1899; "oil, illuminating, not including petroleum refining," "oil, lard," "oil, lubricating," and "oil, resin," in 1889; the same, with the addition of "oil, neat's-foot," in 1879; "oil, animal," "oil, fish," "oil, lubricating," and "oil, vegetable, not specified," in 1869; "oil, coconut," "oil, fish, whale, and other," "oil, lard," "oil, neat's-foot," "oil, resin," and "oil, chemical," in 1859; and "oil, lard," "oil, whale," and "oil, miscellaneous," in 1849. Statistics for the industry for the census years from 1849 to 1914, inclusive, are given in Table 223.

Table 106 gives separate figures for the establishments whose products of chief value were "fish oil," "oleo oil," and "all other" oils. In addition to the products covered by the table, oil to the value of \$778,337, chiefly "fish oil," was reported by manufacturers of fertilizers, and "fish oil" to the value of \$164,373 by establishments assigned to other classifications, principally those making miscellaneous oils and grease and tallow.

Oleo oil was reported by slaughtering and meat-packing establishments to the value of \$11,925,832 and by grease and tallow factories to the value of \$471,771. In 1909, slaughtering and meat-packing establishments reported oleo oil to the value of \$16,475,726, and miscellaneous oils to the value of \$6,350,745, while fertilizers reported oils to the value of \$810,938, and establishments assigned to other classifications reported oils to the value of \$2,651,710.

Miscellaneous oils to the value of \$4,009,602 were reported by slaughtering and meat-packing establishments and to the value of \$3,400,175 by establishments assigned to other classifications, principally those making fish oil, paints, chemicals, food preparations, soap stock, and starch.

Differences in the classifications of individual establishments are doubtless responsible for the great apparent increase in the industry from 1859 to 1869 and the great decline from 1869 to 1879. At the census of 1869 there was only one kind of schedule for all industries; it called for general statistics only. It is probable that at that census the manufacture of lard and other animal oils in slaughtering and meat-packing establishments was included under "oil, animal." At the more recent censuses, and probably also at those of 1889 and 1879 this branch of the business of slaughtering and meat-packing establishments was not segregated.

PAINT AND VARNISH

The general statistics for establishments engaged primarily in the manufacture of paint and for those engaged primarily in the manufacture of varnish are separately given in Table 223 for the censuses from 1859 to 1914, inclusive. There is such an overlapping in the products of some of the establishments, however, that the detail statistics of materials and products are considered for the combined industries.

Paints.—The principal products of establishments in this industry are pigments, and the mixtures of these with linseed oil, turpentine, benzine, wood alcohol, etc., which constitute paint in paste or ready for use. Water paints and kalsomine, stains, and putty are also among the products. The manufacture of white lead or of zinc white is the sole or principal business of some concerns, while some are engaged solely in paint mixing, using the materials made by other establishments. There is thus considerable duplication in the gross value of products for the industry as a whole. Many manufacturing and other concerns mix paints for their own use, the value of which is not reported; but the materials used for such paints are mainly covered by the data for the paint and varnish, linseed oil, and turpentine and rosin industries.

Varnishes.—The establishments in the varnish industry manufacture principally varnishes consisting of solutions of gums of various kinds, or of rosins, in solvents such as alcohol, linseed oil, turpentine, naphtha, and benzine. Among the products are the black varnishes called japans, enamels, and fillers made of linseed oil with powdered glass, ground slate, or silica. In some instances in both paint and varnish establishments other products are reported as made for sale, such as linseed oil, raw and boiled, and bleached shellac, but larger quantities of such products are made for use in the same establishment.

The inquiry at the present census in regard to specific materials used in the manufacture of paints and varnishes was confined to pig lead, alcohol (grain and wood), linseed oil, and gums. The statistics for paint and varnish products and the consumption of the above-named materials are given in the following table, for 1914, 1909, 1904, and 1899:

Table 117	PAINT AND VARNISH.			
	1914	1909	1904	1899
Number of establishments.....	856	863	712	652
Paint industry.....	585	588	449	419
Varnish industry.....	215	203	190	181
Establishments manufacturing paint or varnish as subsidiary products.....	56	72	73	52
Certain specified materials used:				
Pig lead—				
Tons (2,000 pounds).....	150,762	150,163	129,629	99,052
Cost.....	\$11,488,113	\$12,380,524	\$11,214,961	\$8,585,688
Grain alcohol—				
Gallons.....	1,061,324	356,225	59,064	78,309
Cost.....	\$436,509	\$226,724	\$138,703	\$175,907
Wood alcohol—				
Gallons.....	987,451	1,325,807	1,357,682	310,059
Cost.....	\$422,122	\$693,362	\$790,243	\$285,510
Linseed oil—				
Gallons.....	24,481,623	(¹)	20,642,781	16,157,117
Cost.....	\$12,049,218	(¹)	\$7,904,978	\$7,495,196
Gums—				
Pounds.....	48,902,000	(¹)	37,712,000	36,584,000
Cost.....	\$4,797,944	(¹)	\$4,329,031	\$3,470,695
PRODUCTS.				
Total value.....	\$149,130,873	\$127,472,819	\$92,060,947	\$73,498,986
Paint industry.....	\$112,408,742	\$94,572,005	\$67,277,910	\$50,874,995
Varnish industry.....	\$33,214,949	\$30,317,417	\$23,561,699	\$18,687,240
Subsidiary products from other industries.....	\$3,507,182	\$2,583,397	\$1,221,338	\$3,936,751
Colors (pigments)*.....				
White lead—	\$17,407,955	\$18,134,869	\$13,933,290	\$13,683,161
Production, pounds.....	279,269,860	247,971,503	240,092,000	254,692,000
For sale—				
Pounds.....	71,643,812	85,269,414	62,446,000	123,070,000
Value.....	\$3,697,702	\$3,924,528	\$2,879,609	\$4,501,058
Made and consumed, pounds.....	207,626,048	162,702,089	177,646,000	131,622,000
Lead oxides—				
Production, pounds.....	61,335,290	70,293,679	73,326,000	64,466,000
For sale—				
Pounds.....	58,642,588	65,787,254	63,476,000	62,386,000
Value.....	\$3,281,716	\$3,798,551	\$3,509,275	\$2,862,743
Made and consumed, pounds.....	2,692,702	4,526,425	9,850,000	2,080,000

See footnotes on p. 194.

Table 117—Continued.

PRODUCTS—continued.	PAINT AND VARNISH.			
	1914	1909	1904	1899
Colors (pigments)—Continued.				
Barytes—				
Pounds.....	46,920,380	56,254,838	(1)	(1)
Value.....	\$325,922	\$348,470	(1)	(1)
Iron buff and other earth colors—				
Pounds.....	92,896,956	213,285,734	48,826,000	34,904,000
Value.....	\$797,819	\$1,085,438	\$336,616	\$367,987
Lithopone—				
Pounds.....	48,972,062			
Value.....	\$1,857,510			
Chrome yellow—				
Pounds.....	5,747,317			
Value.....	\$641,584			
Orange or green—				
Pounds.....	8,024,409			
Value.....	\$877,329			
Prussian blue—				
Pounds.....	1,239,382	163,713,582	142,848,385	159,488,931
Value.....	\$387,077	\$6,523,728	\$5,134,806	\$4,080,746
Ultramarine—				
Pounds.....	2,698,639			
Value.....	\$222,769			
Other dry colors— ³				
Pounds.....	95,616,993			
Value.....	\$3,616,445			
Vermilion (true)—				
Pounds.....	322,759	259,558		
Value.....	\$200,134	\$107,472		
Fine colors not elsewhere specified—				
Pounds.....	4,215,874	8,420,120	8,630,330	3,898,447
Value.....	\$690,235	\$1,052,443	\$1,091,853	\$1,009,096
Pulp colors, sold moist—				
Pounds.....	21,420,854	28,600,222	25,505,482	20,060,935
Value.....	\$1,011,763	\$1,294,239	\$931,131	\$861,531
Paints.....				
In paste form, ground in oil—	\$70,582,461	\$57,380,539	\$41,454,124	\$33,181,681
White lead—				
Pounds.....	281,417,563	246,569,970	229,622,000	119,012,000
Value.....	\$18,141,444	\$15,234,539	\$11,789,982	\$6,127,960
Zinc—				
Pounds.....	9,551,840			
Value.....	\$730,918			
All other—				
Pounds.....	129,042,658	165,038,353	134,042,000	191,420,000
Value.....	\$10,165,819	\$11,435,937	\$8,892,755	\$11,751,240
In oil, already mixed for use—				
Gallons.....	40,745,563	34,278,989	22,755,018	17,437,311
Value.....	\$41,544,280	\$30,710,063	\$20,771,887	\$15,302,481
Varnishes and japans.....				
Oleoresinous varnishes—	\$36,142,256	\$31,758,735	\$21,808,409	\$18,724,908
Gallons.....	17,801,438	18,692,527	17,323,719	14,804,251
Value.....	\$18,762,399	\$17,559,898	\$15,704,237	\$14,530,159
Spirit varnishes, not turpentine—				
Gallons.....	2,964,172	1,273,411	1,540,362	553,432
Value.....	\$3,080,425	\$1,502,398	\$2,199,213	\$921,169
Damar and similar turpentine and benzine varnishes—				
Gallons.....	3,297,371	3,483,994	(1)	(1)
Value.....	\$2,865,256	\$2,839,534	(1)	(1)
Pyroxylin varnishes—				
Gallons.....	852,571	1,886,541	452,561	171,129
Value.....	\$1,308,796	\$2,356,692	\$555,959	\$187,626
Drying japans and dryers—				
Gallons.....	6,560,406	6,638,706	4,357,505	6,564,370
Value.....	\$3,015,907	\$3,165,539	\$3,349,000	\$3,085,954
Baking japans and lacouers—				
Gallons.....	4,888,816	2,983,285	(1)	(1)
Value.....	\$2,960,856	\$2,079,927	(1)	(1)
All other.....	\$4,148,617	\$2,254,697	(1)	(1)
Fillers—				
Liquid—				
Gallons.....	965,636	1,166,533	1,059,948	123,552
Value.....	\$670,033	\$828,393	\$786,517	\$112,921
Dry or in paste—				
Pounds.....	49,587,548	65,148,395	(1)	(1)
Value.....	\$1,318,720	\$1,199,595	(1)	(1)
Putty—				
Pounds.....	69,828,017	67,767,348	43,931,556	17,287,323
Value.....	\$1,250,421	\$1,169,633	\$728,468	\$238,427

See footnotes on p. 194.

Table 117—Continued.

	PAINT AND VARNISH.			
	1914	1909	1904	1899
PRODUCTS—continued.				
Water paints and kalsomine—				
Dry or in paste—				
Pounds.....	61,904,258	47,465,715	28,457,447	14,412,653
Value.....	\$2,055,180	\$1,917,047	\$936,607	\$744,024
Mixed for use—				
Gallons.....	297,173	543,733	(¹)	(¹)
Value.....	\$147,101	\$64,114	(¹)	(¹)
Linseed oil—				
Raw—				
Gallons.....	2,230,988	2,098,696	(¹)	(¹)
Value.....	\$1,201,839	\$1,106,181	(¹)	(¹)
Boiled—				
Gallons.....	572,561	1,379,025	-----	-----
Value.....	\$306,569	\$806,846	-----	-----
Other oils.....	\$999,392	(¹)	(¹)	(¹)
Bleached shellac—				
Pounds.....	8,654,514	3,905,593	(¹)	(¹)
Value.....	\$1,806,802	\$772,240	(¹)	(¹)
Acetate of lead—				
Pounds.....	2,896,313	(¹)	(¹)	(¹)
Value.....	\$150,587	(¹)	(¹)	(¹)
Driers—				
Gallons.....	1,047,140	(¹)	(¹)	(¹)
Value.....	\$257,725	(¹)	(¹)	(¹)
All other products.....	\$14,833,832	\$12,334,577	\$12,413,532	\$6,813,864

¹ Figures not available.

² In addition, in 1914, 106,791 tons of pigments, valued at \$9,978,710, were made by smelters direct from the ore, and 66,766 tons of natural mineral pigments, valued at \$473,076, were marketed; and in 1909, 87,525 tons of pigments, valued at \$7,963,332, were made by smelters direct from the ore, and 61,137 tons of natural mineral pigments, valued at \$613,133, were marketed.

³ Includes lampblack and other carbon blacks made by paint and varnish establishments. See Table 107 for bone, carbon, and lamp black statistics.

PETROLEUM, REFINING.

All crude petroleum refineries are included under this classification. The principal products are illuminating, fuel, and lubricating oils, gasoline, and paraffin wax. Other products are lubricating and other greases, oil asphaltum, coke, black naphtha, tar, and sludge acid and residuums. The statistics for each census from 1859 to 1914, inclusive, are given in Table 223.

The products of the petroleum-refining industry, statistics for which are presented in the following table, aggregated \$396,361,406 in value in 1914, as compared with \$236,997,659 in 1909, and \$175,005,320 in 1904, and \$123,929,384 in 1899, the increase during the last decade (1904-1914) being 126.5 per cent. This conforms closely to the increase in the cost of crude petroleum used, which was 132.3 per cent. The crude petroleum used increased in quantity from 66,982,862 barrels of 42 gallons in 1904 to 191,262,724 barrels in 1914, or 185.5 per cent, and the refined-oil products aggregated 40,290,985 barrels of 50 gallons in 1899, 46,454,062 barrels in 1904, 89,082,810 barrels in 1909, and 152,944,877 barrels in 1914, an increase for the last decade of 229.2 per cent.

Table 118

	PETROLEUM, REFINING.			
	1914	1909	1904	1899
Number of establishments.....	176	147	98	67
MATERIALS.				
Total cost.....	\$325,264,509	\$199,273,402	\$139,387,213	\$102,859,341
Crude petroleum used ¹				
Barrels (42 gallons).....	191,262,724	120,775,439	66,982,862	52,011,005
Cost.....	\$249,727,856	\$152,307,040	\$107,487,091	\$80,424,207
California—				
Barrels.....	41,901,651	13,481,885	(²)	(²)
Cost.....	\$30,157,013	\$10,108,541	(²)	(²)
Mid-Continent—				
Barrels.....	92,462,637	42,895,051	(²)	(²)
Cost.....	\$121,188,441	\$41,959,100	(²)	(²)

See footnotes on p. 196.

Table 118—Continued.	PETROLEUM, REFINING.			
	1914	1909	1904	1899
MATERIALS—continued.				
Crude petroleum used 1—Continued.				
Pennsylvania grade—				
Barrels.....	21, 196, 964	24, 508, 218	(²)	(²)
Cost.....	\$50, 019, 939	\$47, 545, 138	(²)	(²)
Illinois—				
Barrels.....	17, 672, 279	26, 236, 883	(²)	(²)
Cost.....	\$30, 137, 986	\$36, 218, 407	(²)	(²)
Gulf—				
Barrels.....	5, 787, 313	5, 262, 664	(²)	(²)
Cost.....	\$6, 080, 907	\$4, 669, 486	(²)	(²)
Lima-Indiana—				
Barrels.....	2, 564, 742	8, 083, 096	(²)	(²)
Cost.....	\$4, 286, 588	\$11, 455, 764	(²)	(²)
Colorado and Wyoming—				
Barrels.....	3, 441, 893	307, 642	(²)	(²)
Cost.....	\$2, 088, 700	\$350, 604	(²)	(²)
Mexican—				
Barrels.....	6, 235, 245	(²)	(²)	(²)
Cost.....	\$5, 768, 282	(²)	(²)	(²)
Partly refined oils and waxes purchased:				
Barrels (50 gallons).....	7, 942, 444	(²)	(²)	(²)
Cost.....	\$24, 395, 541	(²)	(²)	(²)
Caustic soda:				
Tons.....	11, 108			
Cost.....	\$361, 421			
Sulphur and pyrites.....	\$206, 053			
Sulphuric acid:				
Consumption, tons (2,000 pounds).....	328, 895	\$4, 003, 108	\$2, 304, 635	\$1, 735, 782
Purchased—				
Tons.....	290, 455			
Cost.....	\$3, 519, 552			
Made and consumed, tons.....				
	38, 440	48, 580	49, 379	(²)
Containers and materials therefor:				
Wooden.....				
	\$12, 944, 471	\$8, 937, 421	\$17, 870, 348	\$11, 151, 733
Metal.....				
	\$7, 292, 207	\$8, 037, 467		
Fuel and rent of power.....				
	\$13, 567, 284	\$3, 376, 323	\$5, 139, 934	\$3, 120, 441
All other materials.....				
	\$13, 250, 124	\$17, 611, 893	\$6, 585, 205	\$6, 427, 178
PRODUCTS.				
Total value.....	\$396, 361, 406	\$236, 997, 650	\$175, 005, 320	\$123, 929, 384
Naphthas and lighter products:				
Gasoline (petroleum refineries)—				
Barrels (50 gallons).....				
Value.....	\$23, 908, 242			
All other:				
Barrels.....	\$108, 140, 170	10, 806, 550	5, 811, 289	5, 615, 554
Value.....		\$39, 771, 959	\$21, 314, 837	\$15, 991, 742
Illuminating oils:				
Barrels.....	5, 292, 522			
Value.....	\$19, 779, 137			
Fuel oils:				
Barrels.....	38, 705, 496	33, 495, 798	27, 135, 094	25, 171, 289
Value.....	\$96, 806, 452	\$94, 547, 010	\$91, 366, 434	\$74, 694, 297
Fuel oils:				
Barrels.....	74, 681, 841	34, 034, 577	7, 209, 428	6, 095, 224
Value.....	\$84, 017, 916	\$36, 462, 883	\$9, 205, 391	\$7, 550, 604
Distillates—				
Barrels.....	9, 149, 833	(²)	(²)	(²)
Value.....	\$15, 999, 342	(²)	(²)	(²)
Gas oils—				
Barrels.....	15, 111, 168	(²)	(²)	(²)
Value.....	\$22, 803, 340	(²)	(²)	(²)
Residual fuel oils—				
Barrels.....	50, 420, 840	(²)	(²)	(²)
Value.....	\$45, 213, 234	(²)	(²)	(²)
Lubricating oils:				
Barrels.....	10, 356, 776	10, 745, 885	6, 298, 251	3, 403, 918
Value.....	\$55, 812, 120	\$38, 884, 236	\$23, 553, 091	\$10, 897, 214
Pale or paraffin, viscosity less than 100 per cent Universal; or flash under 400 per cent Fahrenheit, closed cup—				
Barrels.....	1, 868, 442	3, 239, 230	1, 644, 400	1, 606, 783
Value.....	\$8, 084, 650	\$9, 473, 975	\$6, 210, 279	\$3, 987, 037
Red or neutral, viscosity 100 per cent Universal; or flash 400 per cent Fahrenheit, or over, closed cup (not including cylinder oils)—				
Barrels.....	2, 327, 550	614, 884	504, 042	608, 185
Value.....	\$12, 426, 023	\$2, 255, 924	\$1, 942, 153	\$2, 256, 626
Cylinder oils—				
Barrels.....	2, 058, 982	1, 587, 579	1, 366, 661	517, 787
Value.....	\$13, 703, 772	\$9, 482, 568	\$9, 332, 299	\$2, 984, 264
All other lubricating oils, including compounded (except cylinder oils)—				
Barrels.....	4, 162, 302	7, 530, 192	2, 783, 148	676, 163
Value.....	\$21, 597, 675	\$17, 671, 769	\$6, 068, 360	\$1, 069, 287

See footnotes on p. 196.

Table 118—Continued.

	PETROLEUM, REFINING.			
	1914	1909	1904	1899
PRODUCTS—continued.				
Residuum or tar, including liquid asphaltic road oils:				
Barrels.....	2,696,887	1,787,008	3,187,921	596,615
Value.....	\$4,017,858	\$2,215,023	\$3,138,361	\$688,455
Greases:				
Barrels.....	280,128	138,302	202,439	572,140
Value.....	\$3,536,491	\$1,567,647	\$1,394,130	\$2,454,617
Petrolatum, mineral jelly, etc.—				
Barrels.....	121,561	(²)	(²)	(²)
Value.....	\$1,243,388	(²)	(²)	(²)
Lubricating greases—				
Barrels.....	99,603	(²)	(²)	(²)
Value.....	\$1,624,949	(²)	(²)	(²)
Axle grease—				
Barrels.....	58,964	(²)	(²)	(²)
Value.....	\$608,154	(²)	(²)	(²)
Paraffin wax:				
Barrels.....	1,150,776	946,830	794,068	774,924
Value.....	\$8,897,106	\$9,388,812	\$10,007,274	\$7,791,149
Asphalt, other than liquid asphalt:				
Tons (2,000 pounds).....	465,157	233,328	(²)	(²)
Value.....	\$4,867,213	\$2,724,752	(²)	(²)
Coke:				
Tons.....	213,777	(²)	(²)	(²)
Value.....	\$818,889	\$507,695	\$149,653	\$176,281
Reclaimed or separated acid sold (calculated at 66° Baumé):				
Tons.....	89,792	133,215	165,104	(²)
Value.....	\$491,350	\$402,295	\$400,480	(²)
Candles.....	\$1,402,945			
Other special products.....	\$88,507,993			
All other products.....	\$5,265,736	\$10,524,747	\$14,475,669	\$3,684,965
EQUIPMENT.				
Stills, number.....	3,639	2,395	1,907	1,774
Steam—				
Number.....	612	467	297	316
Capacity (barrels, 42 gallons).....	426,000	431,000	(²)	(²)
Fire—				
Number.....	3,027	1,928	1,610	1,458
Capacity.....	2,021,000	1,657,000	(²)	(²)
Agitators.....	770	529	374	327
Chilling houses for paraffin.....	76	79	67	48
Hydraulic or other presses.....	459	357	311	510
Storage tanks for—				
Crude petroleum—				
Number.....	1,014	678	304	275
Capacity (gallons).....	580,202,000	242,591,000	245,760,000	(²)
Refined petroleum products—				
Number.....	6,967	6,476	3,575	2,869
Capacity.....	1,042,836,000	1,041,627,000	576,459,000	(²)
Fuel oil—				
Number.....	807			
Capacity.....	343,132,000			
Other storage tanks—				
Number.....	4,111	(²)	(²)	(²)
Capacity.....	646,608,000	(²)	(²)	(²)

¹ Crude petroleum production (United States Geological Survey) and refinery consumption, by fields:

FIELD.	1914		1909	
	Production (United States).	Consumption by refineries.	Production (United States).	Consumption by refineries.
Total number of barrels (42 gallons).....	265,762,535	191,262,724	183,170,874	120,775,439
California.....	99,775,327	41,901,651	55,471,601	13,481,885
Mid-continent (Kansas, Oklahoma, etc.)..	97,995,400	92,462,637	50,833,740	42,895,051
Pennsylvania grade (Appalachian).....	24,101,048	21,196,964	26,535,844	24,508,218
Illinois.....	21,919,749	17,672,279	30,898,339	29,236,883
Gulf.....	13,117,528	5,787,313	10,883,240	5,262,664
Lima, Indiana.....	5,062,543	2,564,742	8,211,443	8,083,096
Colorado, Wyoming, and other fields (United States).....	3,790,940	3,441,893		
Mexican.....		6,235,245	336,667	307,642

² Figures not available.

³ Included under "All other materials."

⁴ Quantities represented, sulphur 2,035 tons, pyrites 23,669 tons.

⁵ Includes "wet" natural gas estimated at 1,500,208 thousand cubic feet, cost \$92,476, used by refineries.

⁶ The production of casing-head gasoline—that made at the wells from natural gas—was 853,053 barrels (42,652,632 gallons). Excluding duplication on account of casing-head gasoline reported by refineries the total production of gasoline was 24,711,565 barrels (50 gallons).

⁷ Includes 2,564,812 barrels reported as reduced oil.

⁸ Includes partly finished stock, paraffin acid oil, tree sprays, etc.

SALT.

All establishments producing salt, whether by mining or by evaporation, as well as those refining salt, are included in this classification. The products include brine, bromine, and calcium chloride. The major part of the business is of the nature of manufacturing rather than of mining or extracting material from the earth. General statistics for the industry are presented in Table 223 for the censuses from 1849 to 1914, inclusive.

Statistics of the materials and products for this industry are collected annually by the United States Geological Survey, therefore such data were not reported to the census in 1914. The following table gives the totals for that year as compiled by the United States Geological Survey in comparison with those for the censuses of 1909, 1904, and 1899:

PRODUCT.	SALT.			
	1914	1909	1904	1899
Total value.....	\$14,070,333	\$11,327,834	\$9,437,662	\$7,966,897
Salt:				
Barrels.....	234,804,683	29,933,060	17,128,572	15,187,819
Value.....	\$10,271,358	\$3,311,729	\$6,955,734	\$5,869,362
Bromine:				
Pounds.....	576,991	569,725	261,665	279,437
Value.....	\$203,094	\$57,600	\$72,584	\$64,921
Calcium chloride: ³				
Tons (2,000 pounds).....	19,403	12,853		
Value.....	\$121,766	\$63,198	\$2,409,344	\$2,032,614
All other products, value.....	\$3,474,115	\$2,895,307		
Salt, classified by grade (barrels):				
Table and dairy.....	4,121,574	3,042,824	3,119,091	1,866,058
Common fine.....	6,237,860	7,745,204	6,254,293	6,866,126
Common coarse.....	3,789,163	2,843,393	1,878,666	2,635,282
Packers.....		385,802	498,943	182,980
Coarse solar.....	1,080,199	1,109,396	1,677,182	916,974
Rock salt, mined.....	7,577,172	5,938,721	3,416,835	2,543,679
Milling, other grades, and brine.....	11,998,715	8,867,720	283,562	182,770

¹ In addition, 25,043 barrels of salt, to the value of \$3,415, were produced by establishments engaged primarily in the manufacture of products other than those covered by the industry designation.

² Includes solar salt of Porto Rico.

³ From natural brine; not including that obtained in connection with the manufacture of soda.

SOAP.

Establishments under this classification manufacture chiefly hard soaps, including powdered soaps, toilet, shaving and special soaps; soft soaps, and glycerin. General statistics for the industry for the census years from 1904 to 1914, inclusive, are presented in Table 223.

The statistics for the soap industry, given in the following table for 1914, 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, in 1909, \$114,488,298, and in 1914, \$129,673,164.

The cost of the materials used in the soap industry was \$88,866,786 in 1914, \$72,179,418 in 1909, and \$43,625,608 in 1904, the increase for the ten-year period being 103.7 per cent. The value of all products was \$127,942,441 in 1914, \$111,357,777 in 1909, and \$68,274,700 in 1904, the increase for the ten-year period being 87.4 per cent. With the addition of the by-products from establishments in other industries the total value of soap products was \$135,304,499 in 1914. The chief soap product was hard soap, which, including that made in establishments engaged primarily in the manufacture of products other than soap, aggregated 1,032,114 net tons in 1914. Glycerin is an important product of the soap industry. Reference should be made to Table 108 for the total glycerin product, including that of chemical establishments.

Table 120

	SOAP.		
	1914	1909	1904
Number of establishments.....	513	526	.....
Soap industry.....	371	420	436
Manufacturing subsidiary soap products.....	142	106	(1)
MATERIALS. ²			
Total cost.....	\$88,866,786	\$72,179,418	\$43,625,608
Tallow, grease, and other fats:			
Pounds.....	546,289,571	413,969,787	475,618,277
Cost.....	\$32,565,899	\$23,341,905	\$19,723,311
Cocoanut and palm-kernel oil:			
Gallons.....	13,225,330	11,856,337	6,833,132
Cost.....	\$9,406,583	\$5,875,294	\$2,692,034
Cottonseed oil:			
Consumption, gallons.....	16,144,736	26,611,810	14,196,416
Purchased—			
Gallons.....	15,903,691	24,221,712	13,276,006
Cost.....	\$6,700,688	\$3,718,988	\$3,832,987
Produced and consumed, gallons.....	241,095	2,390,098	920,410
Rosin:			
Pounds.....	185,310,786	207,296,447	168,107,246
Cost.....	\$4,067,992	\$4,362,412	\$2,734,848
Foots:			
Pounds.....	123,032,886	94,050,892	59,761,740
Cost.....	\$6,456,734	\$2,453,609	\$1,222,952
Caustic soda:			
Tons (2,000 pounds).....	55,320	52,172	71,551
Cost.....	\$1,936,575	\$2,212,232	\$2,843,988
Soda ash:			
Tons (2,000 pounds).....	140,983	121,016	53,777
Cost.....	\$1,997,575	\$2,281,787	\$1,011,694
All other materials.....	\$25,734,090	\$21,933,191	\$9,513,764
<i>Produced in works where consumed.³</i>			
Red oil, gallons.....	3,653,557	3,128,736	1,149,346
Tallow, pounds.....	5,331,000	16,664,000	10,613,000
Cottonseed oil, gallons.....	241,095	2,390,098	920,410
Caustic lye (30° Baumé), gallons.....	22,777,000	15,804,000	9,569,000
Sodium silicate, pounds.....	43,197,235	37,466,246	1,597,886
Glycerin, pounds.....	2,156,591	5,879,279	3,433,359
Framed soap, pounds.....	618,036,000	524,775,000	(1)
PRODUCTS.			
Total value.....	\$135,304,499	\$115,455,190	\$72,110,023
Soap industry.....	\$127,942,441	\$111,357,777	\$68,274,700
Subsidiary products, other industries.....	\$7,362,058	\$4,097,413	\$3,835,323
Hard soaps:			
Quantity, pounds.....	2,064,228,000	1,794,249,000	1,386,610,000
Tallow soap.....	938,447,000	944,409,000	(1)
Olein soap.....	42,524,000	33,696,000	
Foots soap.....	111,063,000	73,444,000	
Toilet soap.....	169,926,000	111,571,000	
Powdered soap.....	367,744,000	301,176,000	
Soap chips.....	97,746,000	329,953,000	
All other hard soaps.....	336,778,000		
Value.....	\$104,464,542	\$91,064,466	\$58,027,406
Soft soap:			
Pounds.....	57,002,000	60,037,000	43,899,000
Value.....	\$1,697,424	\$1,269,187	\$701,081
Special soap articles.....	\$832,654	\$706,177	\$554,881
Glycerin ⁴ :			
Crude, for sale—			
Pounds.....	12,745,336		
Value.....	\$1,817,536		
Refined, pounds.....	34,831,032		
For sale—			
Pounds.....	32,674,491	\$6,790,282	\$5,401,520
Value.....	\$5,775,837		
Produced and consumed, pounds.....	2,156,591	5,879,279	3,433,359
Lye:			
Pounds.....	23,346,000		
Value.....	\$891,265		
Perfumes and toilet preparations.....	\$6,804,508	\$15,625,078	\$7,365,135
Candles.....	\$150,492		
All other products.....	\$12,870,191		

¹ Figures not available.

² Not including those consumed in soap manufacture in establishments making subsidiary soap products.

³ See table 108, chemicals, for total glycerin production.

⁴ Includes cottonseed products, \$3,003,336; chemicals, \$941,379; cleansing and polishing preparations, \$500,466; grease and tallow, \$235,195; lard oil, \$125,706; dyestuffs and extracts, \$73,003; patent medicines and compounds, \$64,477; and miscellaneous and undesignated products, \$7,921,579.

TURPENTINE AND ROSIN.

The establishments included in this classification distil the gum exuded from the southern pine, the distillate being turpentine and residuum rosin. Establishments engaged in the destructive distillation of wood are not included here, but under "wood distillation." The industry includes the extraction of the raw material from the trees as well as its distillation. General statistics for the industry for the censuses from 1849 to 1914, inclusive, are given in Table 223. The decrease shown in value of products during the decade 1859-1869 was due primarily to the Civil War.

The following table gives the quantity and value of the turpentine and rosin produced in 1914, 1909, 1904, and 1899:

PRODUCT.	TURPENTINE AND ROSIN.			
	1914	1909	1904	1899
Total value.....	\$20,990,191	\$25,295,017	\$23,937,024	\$20,344,888
Turpentine:				
Gallons.....	26,980,981	28,988,954	30,687,051	37,733,500
Value.....	\$10,509,527	\$12,654,228	\$15,170,499	\$14,960,235
Rosin:				
Barrels (280 pounds).....	2,885,077	3,263,857	3,508,347	4,348,094
Value.....	\$10,329,410	\$12,576,721	\$8,725,619	\$5,129,268
Dross and other products, value.....	\$151,254	\$64,068	\$40,906	\$255,385

¹ In addition, in 1914, 92,401 gallons of turpentine, valued at \$36,617, and 8,027 barrels of rosin, valued at \$44,734, were reported by establishments assigned to lumber and timber products, and 575,557 gallons of turpentine, valued at \$194,183, and 51,825 barrels of rosin, valued at \$198,165, by wood distillation. In 1909, 18,310 gallons of turpentine, valued at \$7,482, were reported by lumber manufactures, and 706,868 gallons, valued at \$249,526, by wood distillation. In 1904, 442,185 gallons of turpentine, valued at \$176,521, were reported by wood distillation.

The total production of turpentine in all industries was 27,648,939 gallons valued at \$10,740,327 in 1914, as compared with 29,714,132 gallons, valued at \$12,911,236 in 1909, and 31,129,236 gallons valued at \$15,347,020 in 1904.

The acreage of timber land worked in 1914 was 8,428,088, compared with 8,056,915 in 1909, making an increase of 4.6 per cent. The returns show a very great increase in the use of the cup system of gathering crude gum. In 1914 the number of crops (of 10,500 cups) worked was 11,813, as compared with only 2,383 in 1909, the percentage of increase being 395.7. On the other hand, the number of crops worked by the boxing system decreased from 17,775 in 1909 to 6,353 in 1914, or 64.3 per cent. The number of crops in back-boxed timber increased from 6,795 in 1909 to 8,314 in 1914, or by 22.4 per cent.

WOOD DISTILLATION, NOT INCLUDING TURPENTINE AND ROSIN.

This classification includes establishments engaged in the manufacture of wood alcohol (methyl alcohol), pyroligneous acid, acetates, tar, turpentine, and charcoal by the destructive distillation of wood in retorts, ovens, or kilns, but does not include establishments making spirits of turpentine from the crude turpentine or gum exuded by the southern pine. The statistics for the industry for 1899, 1904, 1909, and 1914 are shown in Table 223. The statistics include establishments engaged in the refining of crude wood alcohol. In the North the hard woods are generally used with a production of wood alcohol, while in the South wood distillation is usually confined to pine with a production of turpentine.

The statistics for materials, products, and equipment, for 1914, in comparison with those for the censuses of 1909, 1904, and 1899, are given in the following table:

	WOOD DISTILLATION.			
	1914	1909	1904	1899
Number of establishments.....	101	136	150	111
Wood distillation industry.....	95	120	141	102
Manufacturing subsidiary wood distillation products.....	6	16	9	9
Number producing crude alcohol.....	80	98	129	93
Number producing refined alcohol.....	16	17	15	13
Number distilling pine wood.....	15	33	31	4

Table 122—Continued.

	WOOD DISTILLATION.			
	1914	1909	1904	1899
MATERIALS.				
Wood, cords.....	1,042,517	1,265,157	1,049,503	490,939
Hardwoods.....	970,308	1,149,847	1,018,072	487,805
Pine.....	72,209	115,310	31,431	3,134
Crude wood alcohol:				
Consumed, gallons.....	7,383,902	9,670,497		
Purchased—				
Gallons.....	5,565,446	7,135,614	(¹)	(²)
Cost.....	\$1,408,124	\$1,754,029	(²)	(³)
Made and consumed, gallons.....	1,823,456	2,534,883	1,468,028	(²)
PRODUCTS.				
Total value.....	\$10,529,829	\$10,312,657	\$9,037,313	.....
Wood distillation industry.....	\$9,882,537	\$9,736,998	\$7,813,483	\$6,001,023
Subsidiary products, other industries.....	\$647,292	\$575,659	\$1,223,830	(²)
Wood alcohol:				
Crude, gallons.....	9,020,431	9,307,583	8,282,286	.....
For sale—				
Gallons.....	7,196,975	6,772,700	6,814,258	4,945,963
Value.....	\$1,605,880	\$1,774,459	\$2,201,961	\$1,976,986
Made and consumed, gallons.....	1,823,456	2,534,883	1,468,028	(¹)
Refined, gallons.....	6,464,955	.....	.....	.....
For sale—				
Gallons.....	6,235,113	6,732,877	5,917,153	3,038,140
Value.....	\$2,709,369	\$3,096,808	\$3,455,025	\$2,296,898
Made and consumed, gallons.....	229,842	(²)	(²)	(²)
Acetate of lime, pounds.....	³ 166,084,523	.....	.....	.....
For sale—				
Pounds.....	163,521,577	141,478,296	110,383,997	86,826,000
Value.....	\$2,138,809	\$2,118,443	\$1,527,733	\$981,286
Made and consumed, pounds.....	2,562,946	(²)	(²)	(²)
Turpentine:				
Gallons.....	4,575,557	706,868	442,185	(⁴)
Value.....	\$194,183	\$249,526	\$176,521	(²)
Tar, gallons.....	2,794,881	.....	.....	.....
For sale—				
Gallons.....	1,396,324	1,570,257	(²)	(²)
Value.....	\$174,154	\$113,225	(²)	(²)
Made and consumed, gallons.....	1,488,557	(²)	(²)	(²)
Wood creosote:				
Pounds.....	2,073,057	2,549,190	(²)	(²)
Value.....	\$38,872	\$34,645	(²)	(²)
Charcoal:				
Bushels.....	44,450,485	39,952,235	29,917,212	17,154,802
Value.....	\$2,801,401	\$2,426,648	\$1,457,165	\$726,672
Rosin:				
Barrels.....	4,51,825	(²)	(²)	(²)
Value.....	\$198,165	(²)	(²)	(²)
Other wood distillation products.....	⁶ \$441,399	\$281,192	\$138,481	\$19,181
All other products.....	\$227,497	\$267,711	\$49,827	
DISTILLATION EQUIPMENT.				
Aggregate capacity, cords.....	26,707	24,594	(²)	(²)
Retorts: ⁷				
Number.....	794	1,448	(²)	(²)
Capacity, cords.....	1,850	2,703	(²)	(²)
Ovens: ⁷				
Number.....	228	177	(²)	(²)
Capacity, cords.....	1,717	1,080	(²)	(²)
Kilns: ⁷				
Number.....	326	310	(²)	(²)
Capacity, cords.....	23,140	20,811	(²)	(²)

¹ Forest Products of the United States, 1909, p. 163; includes some wood used in charcoal burning.² Figures not available.³ Total production of acetate of lime.⁴ Total production of turpentine and rosin, all industries; turpentine, 27,648,939 gallons; rosin, 2,944,929 barrels.⁵ Total value of products of the charcoal industry and of charcoal made for sale in other industries, \$3,299,628.⁶ Includes acetic acid, acetate of soda, acetone, formaldehyde, pyrolignite of iron, and wood ashes. Total production for sale by all industries, of acetone, 10,425,817 pounds, value \$1,093,585; acetic acid, 70,617,037 pounds, value \$1,272,294; formaldehyde, 8,426,247 pounds, value \$655,174.⁷ In some cases equipment was reported as retorts at one census and ovens at another census.

STONE, CLAY, AND GLASS PRODUCTS.

THE GROUP AS A WHOLE.

Nearly all of the establishments included in this group derive their principal material from the earth in the form of stone, clay, or sand, and the grouping is based upon this similarity with respect to source of material rather than upon any similarity in the character or use of the finished product. The industries designated "china decorating, not including that done in potteries," "statuary and art goods," "mirrors, framed and unframed," and "glass, cutting, staining, and ornamenting," which are included in the group, use as their principal materials the products of other industries in the group. In the total value of products of the group there is thus a certain amount of duplication.

Some of the industries in this group are closely related to quarrying. In a number of instances both quarrying and manufacturing are carried on by the same establishment, and the two branches of the business are in many cases of nearly equal importance. As these establishments usually keep but one set of books, and as the same employees in many cases work in both branches of the industry, a separation of the data for quarrying from those for manufacturing is not practicable. At the census of 1909 the statistics for these border-line establishments were included both with those for manufactures and with those for mining. At that census reports for mines and quarries and manufactures were collected by the same agents. It is probable that the 1909 figures included a larger number of quarries at which some manufacturing was done than were reported for the census of 1914, which was confined to manufactures. This explains, in part, the decrease in some branches of the industry in certain states.

In certain industries, in which raw material is extracted from the ground and subsequently manipulated by the same concern, as in the manufacture of cement, brick, tile, terra cotta, fire-clay products, pottery, lime, etc., the manufacturing operations are so much the more important that the statistics for these establishments, as a whole, are included with those for manufactures, and no part of their operations was included with the statistics for mines and quarries at the census of 1909.

In some industries, such as the production of gypsum, slate, graphite, whetstones, oilstones, and millstones, the operations of most of the establishments are, primarily, those of quarrying, and the manufacturing processes are only an incidental or minor part of the work of preparing the products for sale. For such establishments the data are omitted from the general statistics for manufactures; but establishments which perform similar manufacturing operations on materials bought from the original producers are covered by the report on manufactures. Thus, it will be seen that the statistics presented in the report for manufactures do not represent the entire output of the products named above.

The table below shows the number of establishments, average number of wage earners, capital, total wages paid, cost of materials, value of products, and value added by manufacture for the different industries included in the group "stone, clay, and glass products," as reported for the census of 1914. In this table the industries are divided into three groups: (1) Those in which stone is the principal material, (2) those in which clay is the principal material, and (3) the glass industry and those industries using glass as their principal material. The placing of one or two industries is rather arbitrary. For example, artificial stone may be made from sand and cement, and plaster and stone, as well as clay, are used in the manufacture of statuary and art goods.

INDUSTRY.	STONE, CLAY, AND GLASS PRODUCTS: 1914.						
	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
	Expressed in thousands.						
Total	14,747	334,702	\$987,328	\$205,419	\$238,734	\$614,162	\$375,428
Industries using stone as a material.....	9,453	114,213	455,659	73,831	117,453	273,754	156,301
Artificial stone products.....	3,548	10,255	19,414	6,308	8,904	21,934	13,030
Marble and stone work.....	4,901	54,981	118,423	37,960	37,802	107,055	69,253
Monuments and tombstones.....	3,365	14,385	30,720	10,858	16,333	40,977	24,644
Marble and stone work, other than slate.....	1,346	32,399	74,312	22,901	19,205	57,712	38,507
Roofing slate.....	112	6,219	10,555	3,094	1,445	5,914	4,469
Other slate products.....	78	1,978	2,836	1,107	819	2,452	1,633

See footnote on p. 202.

Table 123—Continued.

INDUSTRY.	STONE, CLAY, AND GLASS PRODUCTS: 1914.						
	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
	Expressed in thousands.						
Industries using stone as a material—Continued.							
Lime.....	627	12,429	\$34,124	\$6,040	\$7,558	\$18,391	\$10,833
Cement.....	133	27,916	243,485	18,192	51,987	101,756	49,769
Wall plaster.....	165	5,339	29,511	3,453	7,993	16,544	8,551
Emery and other abrasive wheels.....	49	2,337	8,224	1,491	3,006	7,130	4,124
Grindstones.....	14	686	1,979	323	116	684	568
Hones and whetstones.....	16	170	499	64	87	260	173
Industries using clay as a material.....	4,129	134,736	359,916	76,294	62,108	190,688	128,580
Brick and tile, terra-cotta, and fire-clay products.....	3,239	100,182	279,860	54,907	42,723	135,921	93,193
Building brick.....	2,177	55,652	148,036	30,513	21,514	71,361	49,847
Sewer pipe and drain tile.....	679	15,480	46,565	9,060	8,005	25,330	17,325
Fire brick and stove lining.....	210	16,005	52,104	8,021	7,885	21,579	13,634
Tiles, other than drain tiles.....	43	4,156	8,346	2,018	2,045	5,754	3,709
Architectural and fireproofing terra-cotta.....	115	8,478	24,335	5,106	3,152	11,450	8,298
All other.....	15	411	474	189	122	447	325
Sand-lime brick.....	45	557	2,185	322	350	994	644
Pottery.....	350	26,705	44,704	16,666	12,032	36,943	24,911
China ware.....	123	19,166	28,174	12,149	9,139	26,235	17,096
Earthen and stone ware.....	187	5,901	12,433	3,461	2,052	8,192	6,140
All other.....	35	1,638	4,097	1,056	841	2,516	1,675
China decorating, not including that done in potteries.....	51	295	463	160	330	727	397
Crucibles.....	10	302	1,871	171	1,270	1,886	616
Minerals and earths, ground.....	244	4,707	27,439	2,485	4,561	10,307	5,746
Statuary and art goods.....	190	1,988	3,394	1,533	842	3,910	3,068
Glass and manufactures of glass.....	1,165	85,753	171,753	55,294	59,173	149,720	90,547
Glass.....	348	74,502	153,926	48,656	46,016	123,085	77,069
Glass, cutting, staining, and ornamenting.....	635	8,067	11,310	4,670	7,143	16,446	9,303
Mirrors, framed and unframed.....	182	3,184	6,517	1,968	6,014	10,189	5,475

¹ The table does not include the statistics for establishments engaged in the manufacture of "millstones," which are included in the total for "All other industries," in order to avoid disclosing the operations of individual establishments.

The statistics for the quantity and value of the different products for cement, lime, wall plaster, brick and tile, terra-cotta and fire-clay products, pottery and sand-lime brick, grindstones and hones and whetstones are collected annually by the United States Geological Survey, and the tables giving figures for the different products for 1914 are taken from the reports of that office.

ARTIFICIAL STONE PRODUCTS.

The principal materials used in this industry are Portland or other cement, sand, gravel, and crushed rock; but since cement is the material which binds the others together, the artificial stone is often referred to as "cement." "Concrete" is another term used to describe the product. While cement building blocks form the chief product of this industry, many articles which were formerly made of stone, brick, wood, or iron are now made of cement. A few of the many uses to which it is put are the manufacture of burial vaults, water tanks, sewer pipes and drain tile, monuments and headstones, laundry tubs, ash and garbage cans, vases and garden furniture, posts, chimneys, floor tiles, columns, arches, balusters, and capitals, window and door sills and lintels, caps, porch spindles, and copings, moldings, shingles, mangers and troughs, tables, covers for sewers and catch basins, battery wells, and receptacles for railway signal batteries. Concerns engaged chiefly in constructing concrete buildings, bridges, walks, foundations, cellar walls, curbing, steps, piers, etc., were not canvassed by the census, which does not cover the building industries generally. Some establishments, however, were engaged in building work and also in making portable articles of the kinds named, and the statistics here presented cover a certain amount of such construction work.

In addition to the principal materials already named, other materials, such as cinders, marble scrap, plaster of Paris, marble dust, clay, coal ashes, slag, lime, iron rods, and asbestos, are used in some cases.

Table 223 presents the more important data for this industry for 1914, 1909, and 1904. Prior to 1904 the statistics for "artificial stone" were included in those for the marble and stone work industry. Cement blocks and concrete work were made only to a limited extent, however, even in 1899, and the artificial stone industry in its present form is of recent development.

In addition to the products covered by the table, artificial stone products to the value of \$199,789 in 1914 and of \$279,023 in 1909 were reported by establishments assigned to other classifications, principally wall plaster; marble and stone work; brick and tile, terra-cotta, and fire-clay products; and planing-mill products.

MARBLE AND STONE INDUSTRIES.

Separate statistics have been compiled for establishments making chiefly monuments and tombstones and for those reporting other products, but there is so much overlapping of products that only combined totals are shown in Table 223, which gives the statistics for the censuses from 1859 to 1914, inclusive, and by states for 1914. Although data for the two branches of the industry can not be compiled with that degree of accuracy attending the figures for other industries, separate totals are significant and therefore are given in Tables 124 and 125.

Marble and stone work.—This industry covers, broadly speaking, (1) the sawing, cutting, dressing, and polishing of marble, granite, limestone, bluestone, soapstone, freestone, brownstone, and other stones for building work and other purposes, whether done at quarries (in which case statistics of the quarrying operations are included) or in separate establishments. The products include building stone, door and window sills and lintels, floors and ceilings, stepstones, posts, bondstones, copings, columns, sidewalk stones, paving blocks and curbing, floor tiles, steps, flagging, panels, tables, tubs, sinks, altars, marble counters, slabs, basins, soda-water fountains, fireplace work, shelves, stairs, mantels, standards, mosaic and terrazzo work, and store and office fixtures; (2) roofing slate, and (3) a great variety of articles made from slate, such as electrical switchboards, panels, and fixtures, wainscoting, counter tops, billiard and pool table beds, sinks and sink tops, mantels, school slates, slate blackboards, laundry tubs, washboards, screens, bulletin boards, flagging, curbing, structural slate, interior finish, mill stock, and inlaid and enameled slate. Table 123 gives separate figures for the three divisions of the industry. In many cases stone-cutting is done in immediate connection with building construction, which is not covered by the census of manufactures.

The following table presents the statistics for this industry for each census year from 1859 to 1914. Prior to 1904 the statistics include the production of artificial stone.

CENSUS YEAR.	MARBLE AND STONE WORK.							
	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
1914.....	1,536	40,596	168,630	\$87,703	\$27,102	\$21,469	\$66,078	\$44,609
1909.....	1,986	51,292	158,924	87,335	32,306	22,248	74,688	52,440
1904.....	1,169	38,486	86,176	63,353	23,686	17,813	59,155	41,342
1899 ¹	1,687	31,072	71,570	40,339	16,607	13,656	43,344	29,638
1889.....	1,411	23,470	18,175	25,897	16,268	17,487	45,052	27,565
1879 ²	2,892	22,196	(³)	17,249	10,552	13,220	32,446	19,226
1869.....	923	13,190	5,637	11,288	7,601	8,935	21,317	13,282
1859.....	1,806	15,379	(³)	8,865	5,672	5,346	16,244	10,898

¹ Includes "artificial stone." ² Includes "monuments and tombstones." ³ Figures not available.

Monuments and tombstones.—This classification includes establishments engaged primarily in the cutting, polishing, and finishing, for the wholesale trade, of all kinds of stone, but chiefly of slate, marble, and granite, for cemetery purposes. The principal products are monuments, tombstones, tablets, headstones, footstones, coping, crosses, cornerstones, posts, markers, vaults, bases, mausoleums, sarcophagi, shafts, and inclosures for cemetery lots. The census does not now cover the numerous small yards where finished or partly finished monuments and tombstones are purchased and where the only work is lettering or finishing, done to the individual order. Such establishments, however, are included in the figures prior to 1899, which accounts for the decrease in number of establishments and value of products from 1889 to 1899.

The following table gives the statistics for this branch of the industry, beginning with 1869, when the figures were first shown separately. In 1879 the industry was included in "marble and stone work," and the statistics for that year are included in those given in Table 124.

CENSUS YEAR.	MONUMENTS AND TOMBSTONES.							
	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
	Expressed in thousands.							
1914.....	3,365	14,385	38,831	\$30,720	\$10,858	\$16,333	\$40,977	\$24,644
1909.....	2,978	14,311	28,762	27,507	10,241	15,149	38,405	23,256
1904.....	1,439	12,624	16,711	15,817	8,213	8,756	25,689	16,933
1899.....	1,265	10,614	11,549	12,643	6,236	7,890	20,323	12,433
1889.....	2,052	9,778	3,589	13,073	6,028	7,636	20,671	13,035
1869.....	1,049	5,719	988	4,942	2,490	3,710	8,917	5,207

LIME.

From 1879 to 1899, inclusive, the data for the manufacture of lime included cement and wall plaster under the designation "lime and cement." The figures have some value for purposes of comparison, and Table 126 combines statistics for lime, cement, and wall plaster for the censuses from 1849 to 1914, inclusive.

CENSUS YEAR.	LIME, CEMENT, AND WALL PLASTER.							
	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
	Expressed in thousands.							
1914.....	925	45,734	566,162	\$307,120	\$27,685	\$67,538	\$136,691	\$69,153
1909.....	1,186	45,463	425,362	236,803	23,691	42,082	93,961	51,879
1904.....	831	32,388	187,856	121,559	15,302	22,378	54,788	32,410
1899.....	998	19,085	93,540	48,787	7,741	11,040	28,674	17,634
1889.....	873	13,043	18,610	18,752	4,944	5,668	15,742	10,074
1879.....	615	5,669	(¹)	6,352	1,579	2,649	5,772	3,123
1869.....	1,367	9,595	8,876	9,207	3,102	6,662	13,643	6,981
1859.....	1,035	4,659	(¹)	3,798	1,316	2,546	5,676	3,130
1849.....	936	3,626	(¹)	1,926	954	1,584	3,224	1,640

¹ Figures not available.

General statistics for the production of "lime" are given in Table 223. The quarrying of limestone and the burning of the stone into lime are usually done by the same establishments, and the data covers both branches of the industry.

In addition to the products covered by Table 223, lime to the value of \$778,316 in 1914, and of \$180,206 in 1909, was reported by establishments assigned to other classifications, principally paving materials and cement. The value of products reported by the census probably includes some products other than lime. The reports of the Geological Survey show that the production of lime in 1914 amounted to 3,380,928 tons (2,000 pounds), valued at \$13,247,676. Of the total production, 1,163,433 tons were used for building or structural purposes; 689,948 tons for fertilizing; and the remainder in various manufacturing establishments, such as paper mills, tanneries, sugar factories, chemical works, etc.

CEMENT.

This industry consists in the manufacture of hydraulic cement, chiefly Portland cement, from rock usually quarried by the same establishments. It also includes the manufacture of natural and puzzolan cements.

In comparative Table 223 no figures are presented for the censuses of 1879, 1889, and 1899, as in the published reports for these years the data for the manufacture of cement were included with those for the manufacture of lime.

The quantity and value of products for the cement industry for 1914, 1909, and 1904, are given in the following table:

Table 127	PRODUCT.	1914	1909	1904
	Total value.....	\$101,850,480	\$63,274,715	.....
	Cement industry.....	101,756,444	63,205,455	\$29,873,122
	Subsidiary products from other industries.....	94,036	69,260	(¹)
	Cement:			
	Barrels.....	87,257,552	66,689,715	31,675,257
	Value.....	\$80,533,203	\$53,610,563	\$26,031,920
	Portland—			
	Barrels.....	86,437,956	64,991,431	26,505,881
	Value.....	\$80,118,475	\$52,358,354	\$23,355,119
	Natural—			
	Barrels.....	751,285	1,537,638	4,866,331
	Value.....	\$351,370	\$652,756	\$2,450,150
	Puzzolan—			
	Barrels.....	68,311	160,646	303,045
	Value.....	\$63,358	\$99,453	\$226,651
	All other products, value.....	\$21,317,277	\$9,664,152	\$3,841,202

¹ Figures not available.

Comparatively little natural cement was made in 1914 and a still smaller quantity of puzzolan cement. The former is an argillaceous limestone calcined and ground; the latter a ground mixture of blast-furnace slag and slaked lime. The hydraulic cement called Portland cement is a calcined and ground mixture of limestone, chalk or marle, and clay or shale.

At the censuses of 1909 and 1904 the statistics of the production of cement were collected in cooperation with the United States Geological Survey, which compiles annual statistics for the industry. The figures for the quantities and values of the different kinds of cements for 1914 were taken from the reports of the survey. The value of the cement is the value in bulk, exclusive of the value of the barrels and bags used as containers. The value of the containers used and the subsidiary or by-products, such as crushed rock, marble dust, and mixed ashes and cement, not reported by the survey, are included in the total for "all other products."

WALL PLASTER.

This classification covers the manufacture for sale of a great variety of wall plasters or similar preparations, such as hard wall plaster, whitewash, plaster wainscoting, fiber plaster, stucco, calcined plaster, hydrated lime, plaster board, terra alba, marble dust, asphalt mastic, plaster of Paris, and ornamental plasterwork for interior decoration. This industry was reported at the census of 1869 as "plaster, ground," at the census of 1859 as "plaster, and manufactures of," and at the census of 1849 as "plaster, gypsum." At the censuses of 1879, 1889, and 1899 it was included in "lime and cement," and at the census of 1904 it was reported separately under the classification of "gypsum wall plaster." So many materials besides gypsum rock are used, however, that the designation was changed in 1909 to "wall plaster." Some of the more important of these materials reported in 1914 were sand, lime, cement, plaster of Paris, wood fiber, stucco, hair, felt paper retarder, asbestos, cinders, coal ashes, asphalt, clay, and siag.

Table 223 summarizes the statistics for the industry as reported for the censuses from 1849 to 1914, inclusive, except those of 1899, 1889, and 1879, when they were included in "lime and cement." The figures cover the entire quarrying and manufacturing operations of certain establishments which quarried gypsum and made wall plaster from it.

Wall plaster to the value of \$59,556 in 1914 and of \$175,094 in 1909 was also made by establishments engaged primarily in the manufacture of cement. The annual report of the United States Geological Survey shows that the production for 1914 of calcined gypsum sold as plaster of Paris, wall plaster, Keene's cement, etc., amounted to 1,565,937 tons of 2,000 pounds valued at \$6,038,777 as compared with 1,438,706 tons valued at \$5,070,334 in 1909.

EMERY AND OTHER ABRASIVE WHEELS.

This classification embraces the manufacture of grinding wheels of emery, corundum, adamite, and alundum, and also of polishing and buffing wheels, belts, and disks of cloth or leather. Some of the establishments also reported as subsidiary products oilstones, hones, and emery bricks. The classification was "emery wheels" from the census of 1869 to that of 1904, inclusive; it was changed to "emery and other abrasive wheels" at the census of 1909. General statistics for the industry for the census years from 1869 to 1914, inclusive, are presented in Table 223.

Emery and other abrasive wheels to the value of \$121,172 in 1914 and of \$6,003 in 1909 were reported by establishments assigned to other industries, principally foundries and machine shops and rubber belting and hose.

The following table gives the statistics for this branch of the industry, beginning with 1869, when the figures were first shown separately. In 1879 the industry was included in "marble and stone work," and the statistics for that year are included in those given in Table 124.

CENSUS YEAR.	MONUMENTS AND TOMBSTONES.							Value added by manufacture.
	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	
1914.....	3,365	14,385	38,831	\$30,720	\$10,858	\$16,333	\$40,977	\$24,644
1909.....	2,978	14,311	28,762	27,507	10,241	15,149	38,405	23,256
1904.....	1,439	12,624	16,711	15,817	8,213	8,756	25,689	16,933
1899.....	1,265	10,614	11,549	12,643	6,236	7,890	20,323	12,433
1889.....	2,052	9,778	3,589	13,073	6,028	7,636	20,671	13,035
1869.....	1,049	5,719	988	4,942	2,490	3,710	8,917	5,207

LIME.

From 1879 to 1899, inclusive, the data for the manufacture of lime included cement and wall plaster under the designation "lime and cement." The figures have some value for purposes of comparison, and Table 126 combines statistics for lime, cement, and wall plaster for the censuses from 1849 to 1914, inclusive.

CENSUS YEAR.	LIME, CEMENT, AND WALL PLASTER.							Value added by manufacture.
	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	
1914.....	925	45,734	566,162	\$307,120	\$27,685	\$67,538	\$136,691	\$69,153
1909.....	1,186	45,463	425,362	236,803	23,691	42,082	93,961	51,879
1904.....	831	32,388	187,856	121,559	15,302	22,378	54,788	32,410
1899.....	998	19,085	93,540	48,787	7,741	11,040	28,674	17,634
1889.....	873	13,043	18,610	18,752	4,944	5,668	15,742	10,074
1879.....	615	5,669	(¹)	6,332	1,579	2,649	5,772	3,123
1869.....	1,367	9,595	8,376	9,207	3,102	6,662	13,643	6,981
1859.....	1,035	4,659	(¹)	3,798	1,316	2,546	5,676	3,130
1849.....	936	3,626	(¹)	1,926	954	1,584	3,224	1,640

¹ Figures not available.

General statistics for the production of "lime" are given in Table 223. The quarrying of limestone and the burning of the stone into lime are usually done by the same establishments, and the data covers both branches of the industry.

In addition to the products covered by Table 223, lime to the value of \$778,316 in 1914, and of \$180,206 in 1909, was reported by establishments assigned to other classifications, principally paving materials and cement. The value of products reported by the census probably includes some products other than lime. The reports of the Geological Survey show that the production of lime in 1914 amounted to 3,380,928 tons (2,000 pounds), valued at \$13,247,676. Of the total production, 1,163,433 tons were used for building or structural purposes; 689,948 tons for fertilizing; and the remainder in various manufacturing establishments, such as paper mills, tanneries, sugar factories, chemical works, etc.

CEMENT.

This industry consists in the manufacture of hydraulic cement, chiefly Portland cement, from rock usually quarried by the same establishments. It also includes the manufacture of natural and puzzolan cements.

In comparative Table 223 no figures are presented for the censuses of 1879, 1889, and 1899, as in the published reports for these years the data for the manufacture of cement were included with those for the manufacture of lime.

The quantity and value of products for the cement industry for 1914, 1909, and 1904, are given in the following table:

Table 127	PRODUCT.	1914	1909	1904
	Total value.....	\$101,850,480	\$63,274,715	.....
	Cement industry.....	101,758,444	63,205,455	\$29,873,122
	Subsidiary products from other industries.....	94,036	69,260	(1)
	Cement:			
	Barrels.....	87,257,552	66,689,715	31,675,257
	Value.....	\$80,533,203	\$53,610,563	\$26,031,920
	Portland—			
	Barrels.....	86,437,956	64,991,431	26,505,881
	Value.....	\$80,118,475	\$52,858,354	\$23,355,119
	Natural—			
	Barrels.....	751,285	1,537,638	4,866,331
	Value.....	\$351,370	\$652,756	\$2,450,150
	Puzzolan—			
	Barrels.....	68,311	160,646	303,045
	Value.....	\$63,358	\$99,453	\$226,651
	All other products, value.....	\$21,317,277	\$9,604,152	\$3,841,202

¹ Figures not available.

Comparatively little natural cement was made in 1914 and a still smaller quantity of puzzolan cement. The former is an argillaceous limestone calcined and ground; the latter a ground mixture of blast-furnace slag and slaked lime. The hydraulic cement called Portland cement is a calcined and ground mixture of limestone, chalk or marle, and clay or shale.

At the censuses of 1909 and 1904 the statistics of the production of cement were collected in cooperation with the United States Geological Survey, which compiles annual statistics for the industry. The figures for the quantities and values of the different kinds of cements for 1914 were taken from the reports of the survey. The value of the cement is the value in bulk, exclusive of the value of the barrels and bags used as containers. The value of the containers used and the subsidiary or by-products, such as crushed rock, marble dust, and mixed ashes and cement, not reported by the survey, are included in the total for "all other products."

WALL PLASTER.

This classification covers the manufacture for sale of a great variety of wall plasters or similar preparations, such as hard wall plaster, whitewash, plaster wainscoting, fiber plaster, stucco, calcined plaster, hydrated lime, plaster board, terra alba, marble dust, asphalt mastic, plaster of Paris, and ornamental plasterwork for interior decoration. This industry was reported at the census of 1869 as "plaster, ground," at the census of 1859 as "plaster, and manufactures of," and at the census of 1849 as "plaster, gypsum." At the censuses of 1879, 1889, and 1899 it was included in "lime and cement," and at the census of 1904 it was reported separately under the classification of "gypsum wall plaster." So many materials besides gypsum rock are used, however, that the designation was changed in 1909 to "wall plaster." Some of the more important of these materials reported in 1914 were sand, lime, cement, plaster of Paris, wood fiber, stucco, hair, felt paper retarder, asbestos, cinders, coal ashes, asphalt, clay, and slag.

Table 223 summarizes the statistics for the industry as reported for the censuses from 1849 to 1914, inclusive, except those of 1899, 1889, and 1879, when they were included in "lime and cement." The figures cover the entire quarrying and manufacturing operations of certain establishments which quarried gypsum and made wall plaster from it.

Wall plaster to the value of \$59,556 in 1914 and of \$175,094 in 1909 was also made by establishments engaged primarily in the manufacture of cement. The annual report of the United States Geological Survey shows that the production for 1914 of calcined gypsum sold as plaster of Paris, wall plaster, Keene's cement, etc., amounted to 1,565,937 tons of 2,000 pounds valued at \$6,038,777 as compared with 1,438,706 tons valued at \$5,070,334 in 1909.

EMERY AND OTHER ABRASIVE WHEELS.

This classification embraces the manufacture of grinding wheels of emery, corundum, adamite, and alundum, and also of polishing and buffing wheels, belts, and disks of cloth or leather. Some of the establishments also reported as subsidiary products oilstones, hones, and emery bricks. The classification was "emery wheels" from the census of 1869 to that of 1904, inclusive; it was changed to "emery and other abrasive wheels" at the census of 1909. General statistics for the industry for the census years from 1869 to 1914, inclusive, are presented in Table 223.

Emery and other abrasive wheels to the value of \$121,172 in 1914 and of \$6,003 in 1909 were reported by establishments assigned to other industries, principally foundries and machine shops and rubber belting and hose.

The establishments engaged in the manufacture of sandpaper and emery paper and cloth use practically the same kind of materials as those in this industry. These establishments, however, are classified as a separate industry and included in the group of "miscellaneous industries." (See Table 156.)

GRINDSTONES.

Table 223 presents the statistics for this industry as shown in the reports of the censuses of manufactures from 1849 to 1914. The statistics for the different censuses are by no means closely comparable, as there is no sharp line of demarcation between the manufacturing and the quarrying business.

In addition to the product covered by the table, grindstones to the value of \$377,547 were reported in 1914 by establishments assigned to other classifications—principally marble and stone work, hardware, and saws. The annual report of the United States Geological Survey shows that the grindstones and pulp stones produced during 1914 were valued at \$689,344.

MILLSTONES.

Only two establishments appear under this classification, but this statement furnishes no accurate measure of the extent of the industry, which is conducted largely at the places where the material is quarried. The statistics therefore appear in the annual report of the United States Geological Survey. The establishments are there reported as having quarried, or quarried and dressed, millstones to the value of \$43,316. These establishments were situated in New York, Virginia, North Carolina, Pennsylvania, and Alabama. Millstones are used extensively for grinding cement, talc, quartz, and mineral paints, as well as for grinding grain. (See Table 156, "All other industries.")

HONES AND WHETSTONES.

This industry includes the manufacture of razor hones, whetstones, oilstones, scythes, lawn-mower sharpeners, rubbing stones for hardware finish, rubbing brick, and shoemakers' sandstones. General statistics for the industry are given in Table 223 for the censuses from 1859 to 1914, inclusive.

In addition to the products covered by the table, hones and whetstones worth \$67,460 were reported in 1914 by establishments making emery and other abrasive wheels.

There were several classifications in 1859 which are combined in Table 223 for comparison. These classifications were "oilstones," "scythe rifles," "scythesstones," and "whetstones." Hones and whetstones are also made by certain quarries, no part of whose business is covered by the table. The annual report of the United States Geological Survey shows that the oilstones and scythesstones produced during 1914 were valued at \$167,948.

BRICK, TILE, POTTERY, AND OTHER CLAY PRODUCTS.

The general statistics for establishments engaged primarily in the manufacture of "brick and tile, terra-cotta, and fire-clay products," of "pottery," and of "sand-lime brick" are shown separately in Table 223 for 1914, by states. In order to obtain figures comparable with those of the Geological Survey the classification was changed from that used in 1909 and prior censuses.

Table 128 shows the totals for the manufacture of brick, tile, pottery, and other clay products for each census from 1849 to 1914, inclusive.

CENSUS YEAR.	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
1914.....	3,634	127,444	470,758	\$326,749	\$71,895	\$55,105	\$173,858	\$118,753
1909.....	5,037	132,696	451,186	316,023	66,892	45,647	168,895	123,248
1904.....	5,507	113,449	360,280	230,833	53,824	32,908	135,353	102,445
1899.....	6,423	105,693	252,502	148,038	39,575	22,921	95,394	72,613
1889.....	6,555	123,156	131,821	108,706	38,578	18,258	89,828	71,570
1879.....	6,383	76,576	(¹)	35,940	17,044	12,684	41,811	29,127
1859.....	3,959	50,167	12,708	26,776	13,333	9,531	36,368	26,837
1850.....	2,240	24,569	(¹)	9,708	5,225	2,931	13,988	11,057
1849.....	2,121	19,801	(¹)	5,217	4,890	1,768	8,189	6,421

¹ Figures not available.

The following table shows the quantity and value of the different products reported for the entire industry at each census from 1899 to 1909, inclusive. It also gives the quantities and values as compiled by the United States Geological Survey for 1914. The census reports for the same establishments that furnished statistics to the survey contain the value of subsidiary products and the cost of containers that are not included in the reports to the survey. The value of such products are included in this table as "all other products." Therefore, the total value of products does not agree with the total published by the survey. Further, the survey reports the products sold during the year, while the census covers the production, some of which may not have been sold.

PRODUCTS.	BRICK, TILE, POTTERY, AND OTHER CLAY PRODUCTS.			
	1914	1909	1904	1899
Total value.....	\$179,964,016	\$169,532,756	\$135,652,306	.....
Brick and tile, terra-cotta, and fire-clay products industry.....	135,921,445	} 168,895,365	} 135,352,854	\$95,533,862
Pottery industry.....	36,942,606			
Sand-lime brick industry.....	994,199			
Subsidiary products from other industries.....	6,105,766			
Brick and tile, terra-cotta, and fire-clay products, value.....	\$130,641,360	\$136,387,846	\$109,003,306	\$76,551,645
Brick, value.....	\$84,239,587	\$97,137,844	\$78,728,083	\$58,640,228
Common—				
Thousand.....	7,145,809	9,787,671	8,683,897	7,654,528
Value.....	\$43,763,554	\$57,216,789	\$51,239,871	\$39,674,749
Fire—				
Thousand.....	816,784	838,167	678,362	800,862
Value.....	\$16,427,547	\$16,620,695	\$11,752,625	\$8,636,562
Vitrified, paving, etc.—				
Thousand.....	931,324	1,023,654	715,559	590,720
Value.....	\$12,500,866	\$11,269,586	\$7,256,088	\$4,828,456
Front, including fancy colored—				
Thousand.....	810,395	816,164	} 626,142	} 451,420
Value.....	\$9,289,623	\$9,712,219		
Fancy or ornamental.....	\$124,459	\$174,073	\$7,335,511	\$5,170,492
Sand lime—				
Thousand.....	172,629	(1)	(1)	(1)
Value.....	\$1,058,512	\$1,150,580	\$698,003	(1)
Enameled.....	\$1,075,026	\$993,902	\$445,985	\$329,969
Drain tile.....	\$8,522,039	\$9,798,978	\$5,522,193	\$3,662,184
Sewer pipe.....	\$14,014,767	\$10,322,324	\$3,416,009	\$4,560,334
Architectural terra-cotta.....	\$6,087,652	\$6,251,625	\$3,792,763	\$2,027,532
Fireproofing, terra-cotta lumber, and hollow building tile, or blocks.....	\$8,385,337	\$4,466,708	\$4,317,312	\$1,665,031
Tile, not drain.....	\$5,705,583	\$5,291,963	\$2,725,717	\$1,276,360
Stove lining.....	\$520,585	\$423,583	(1)	\$416,235
Other brick and tile.....	\$3,165,810	\$2,694,321	\$5,501,224	\$4,303,801
Pottery, value.....	\$35,398,161	\$31,048,341	\$25,834,513	\$17,222,040
White ware, including C. C. ware, white granite, semiporcelain ware, and semi-vitreous porcelain ware.....	\$14,968,079	\$13,728,316	\$9,195,703	\$6,376,351
Sanitary ware.....	\$7,874,269	\$5,989,295	\$3,932,506	\$2,211,877
Stoneware and yellow and Rockingham ware.....	\$3,349,301	\$3,993,859	\$3,481,521	\$2,130,263
Porcelain electrical supplies.....	\$4,130,270	\$3,047,499	\$1,500,283	\$470,355
China, bone china, delft and belleek ware.....	\$2,334,686	\$1,766,766	\$3,478,627	\$1,297,978
Red earthenware.....	\$1,059,904	\$804,806	\$821,695	\$762,260
Other pottery.....	\$1,631,652	\$1,717,800	\$3,424,178	\$3,972,956
All other products, value.....	\$13,924,495	\$2,096,569	\$814,487	\$1,760,177

¹ Figures not available.

Brick and tile, terra-cotta, and fire-clay products.—This classification includes establishments manufacturing (1) brick of various kinds, common, glazed, enameled, vitrified, paving, fancy, ornamental, etc., except sand-lime brick; (2) sewer pipe, drain tile, silo blocks, sewer blocks, encaustic tile, conduits; (3) fire brick, stove linings, flue linings, furnace blocks, fire-clay retorts, locomotive arch blocks, and similar products; (4) all kinds of tiles, other than drain tile, such as roofing, floor, mosaic ceramics, faience and wall tile for structural work; (5) terra-cotta, architectural and fireproofing, hollow building tile or block, and (6) all other terra-cotta or fire-clay products. This grouping was adopted for 1914 in order to obtain figures comparable with those compiled by the Geological Survey. Separate totals for each of the six groups are given in Table 123. As no such segregation was made prior to 1914, comparative figures can not be given. Table 223 gives general statistics for the industry for 1914 by states.

Building brick to the value of \$1,159,487 was reported as subsidiary products of the other five groups, and to the value of \$54,643 by establishments assigned to other classifications, principally paving materials. Sewer pipe and draintile to the value of \$1,544,596 were made by the other groups, and establishments in other branches of industry reported \$66,886 worth of such tile as a subsidiary product. Fire brick and stove lining were reported by the establishments in the other groups to the value of \$1,306,132 and to the value of \$40,755 by establishments in other industries, mainly wall plaster. Tiles, other than draintile, to the value of \$37,917 were made by the establishments in the other groups, and to the value of \$65,046 by establishments engaged principally in cutting, staining, and ornamenting glass. Architectural and fireproofing terra-cotta to the value of \$1,478,238 were reported by establishments in the other groups and to the value of \$20,574 by establishments assigned to other classifications, principally copper, tin, and sheet-iron products.

Sand-lime brick.—This classification covers those establishments that manufacture brick from a combination of sand and lime. It was first shown as a separate industry in 1914, having been included with brick and tile prior to this census. Table 223 gives general statistics for the industry, and by states for 1914.

In addition to the products reported for the classified industry, sand-lime brick to the value of \$82,306 was reported by establishments assigned to other classifications, principally marble and stone work other than slate.

Pottery.—This classification covers establishments which manufacture stoneware, earthenware, white and cream-colored ware, chinaware, delft and belleek ware, porcelain electrical supplies, insulators and potters' supplies, dinner ware, crockery, flowerpots, jardinières, cooking ware, jars, jugs, pots, bowls, baking dishes, art ware, vases, yellow ware, door knobs, etc.

Separate totals are given in Table 123 for establishments engaged primarily in the manufacture of (1) chinaware, (2) earthen and stone ware, and (3) all other pottery. The general statistics for the industry for 1914 are given in Table 223. In addition to the products reported for the classified industry, earthen and stone ware to the value of \$221,407 were reported by establishments assigned to other classifications, principally plumbers' supplies, fire brick and stove lining, and paints, while all other pottery to the value of \$25,000 was reported by establishments making chinaware, and to the value of \$2,779 by establishments assigned to other classifications.

Table 129 enumerates the different kinds of pottery produced and gives the value or each from 1899 to 1914, inclusive.

CHINA DECORATING, NOT INCLUDING THAT DONE IN POTTERIES.

This classification includes establishments engaged in firing or decorating china and earthen ware. The china pieces themselves are usually owned by others and the value of products represents the charges for work done. The decorations may be painted by hand or added by the use of decalcomania. The numerous small establishments where such work is done to individual order or for private customers are not included in Table 223, giving comparative figures, except for the census of 1889. Many establishments in the pottery industry decorate the china they produce, so that the statistics given in the tables by no means represent the entire business.

The census of 1889 was the first at which separate statistics appeared for the industry, except that two establishments, with products valued at \$185,000, were classed under "china and glass decorating" at the census of 1859.

In addition to the products covered by Table 223, china decorating to the value of \$16,400 was reported by establishments assigned to other classifications.

CRUCIBLES.

In the manufacture of crucibles, most of which are made to withstand a very high temperature, fire clay, German clay, fire sand, kaolin, and plumbago are the principal materials. Comparative statistics for the censuses from 1859 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, crucibles to the value of \$684,285 in 1914, and of \$751,007 in 1909, were reported by establishments assigned to other industries, principally lead pencils.

MINERALS AND EARTHS, GROUND.

Under this classification are included those establishments which are engaged in the grinding or pulverizing of certain earths, rocks, or minerals. Some of the more important of these are emery ore, flint, chalk, cliffstone, talc, ocher, clay, mica, pumice, feldspar, rottenstone, ferromanganese, slate, slag, needle antimony, manganese, barytes, borax, fuller's earth, Paris white and whiting, kaolin, soapstone, limestone, sandstone, keystone, cornwall stone, silica, flux, shale, schist, marble, and

alundum. Where the material is prepared for the market at the quarry the operations of quarries are included. The industry was first reported at the census of 1869, and statistics from 1869 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, minerals and earths ground to the value of \$378,704 in 1914 and of \$49,654 in 1909 were reported by establishments assigned to other classifications, principally brick and tile, terra-cotta and fire-clay products, lime, cement, dyestuffs and extracts, and paving materials.

STATUARY AND ART GOODS.

This classification covers the manufacture of a variety of products, such as statues, vases, urns, brackets, garden and lawn furniture, flower boxes, fountains, plaques, mantels, columns, panels, moldings, pedestals, ornamental plaster work, architectural sculpture, small images, scagliola, church statuary, bronze statuary, and papier-mâché articles. When bronze statues are cast in bronze foundries as a subordinate part of the business, their value is included in the value of products for the brass, bronze, and copper products industry. The cutting of marble and other stone statues is a part of the industry. The materials used are as varied as the products. Besides the principal materials—clay, plaster of Paris, cement, marble, white lead, whiting, chalk, granite, and alabaster—a great number of binding, coloring, and finishing materials were reported. The term "art goods" is necessarily vague, and there are many products of other industries to which it might be applied; but the art goods covered by this classification are more or less closely related to the art of sculpture. Prior to 1904 the statistics for statuary and art goods were included under other classifications. Table 223 gives comparative figures for the three years, 1904, 1909, and 1914.

In addition to the products covered by the table, statuary and art goods to the value of \$108,515 in 1914 and of \$89,137 in 1909 were reported by establishments assigned to other classifications, principally electric fixtures and monuments and tombstones.

GLASS.

The products of this industry are the various kinds of building glass—window glass, rough and polished plate glass, cathedral glass, wire glass, and skylight glass—as well as all kinds of pressed and blown glass, such as tableware, lamps, lamp chimneys, globes, vases, bulbs, tubes, opal ware, bottles and jars, stoppers, glass bars and canes, marbles, nest eggs, and blanks for cutting. General statistics for the industry for the census years from 1849 to 1914, inclusive, are presented in Table 223.

The following table gives comparative statistics for the glass industry in the United States for 1914, 1909, 1904, and 1899. The quantity of pressed and blown glass shown in the table for 1914 does not include a number of specialties, such as stoppers, reflectors, marbles, thermos bottles, vases, etc., some of which were reported in pounds and some in number of pieces. There were also nearly 600,000 gross of bottles and jars that could not be assigned to any specific class; these are not included in the table. The values, however, are included in their proper class.

Table 130 PRODUCTS.	GLASS.			
	1914.	1909	1904	1899
Total value.....	\$123,085,019	\$92,095,203	\$79,607,998	\$56,539,712
Building glass, value.....	\$36,824,069	\$26,308,438	\$21,697,861	\$17,096,234
Window glass:				
Square feet.....	400,998,893	346,080,550	242,615,750	217,064,100
Value.....	\$17,495,956	\$11,742,959	\$11,610,851	\$10,879,355
Obscured glass, including cathedral and skylight—				
Square feet.....	43,040,079	22,815,946	21,870,634	12,526,055
Value.....	\$2,417,253	\$1,358,574	\$972,014	\$732,338
Plate glass—				
Total cast, square feet.....	75,770,261	60,105,694	34,804,986	21,172,129
Polished—				
Square feet.....	60,333,516	47,370,254	27,293,138	16,883,578
Value.....	\$14,773,787	\$12,204,875	\$7,978,253	\$5,158,598
Rough (made to be sold as such)—				
Square feet.....	131,492	205,690	17,784	628,684
Value.....	\$25,859	\$37,431	\$3,529	\$75,887
Wire glass—				
Polished—				
Square feet.....	1,707,848	(2)	(2)	(2)
Value.....	\$534,322	(2)	(2)	(2)
Rough (made to be sold as such)—				
Square feet.....	13,986,996	(2)	(2)	(2)
Value.....	\$1,056,612	(2)	(2)	(2)
All other building glass, value.....	\$520,280	\$964,599	\$1,133,214	\$250,056

See footnotes on p. 210.

Table 130—Continued. PRODUCTS.	GLASS.			
	1914	1909	1904	1899
Pressed and blown glass, value.....	\$30,279,290	\$27,398,445	\$21,956,158	\$17,076,125
Tableware, 100 pieces.....	1,554,056	1,286,056	1,283,974	655,141
Jellies, tumblers, and goblets, dozen.....	18,030,243	11,687,036	7,346,214	8,544,060
Lamps, dozen.....	580,196	322,482	487,017	807,765
Chimneys, dozen.....	6,989,624	6,652,967	7,039,756	6,901,192
Lantern globes, dozen.....	1,363,562	952,620	1,765,247	1,044,816
Shades, globes, and other gas goods, dozen.....	2,016,800	1,541,449	878,244	2,673,854
Blown tumblers, stem ware, and bar goods, dozen.....	11,377,310	9,182,060	6,282,606	6,127,367
Opal ware, dozen.....	4,636,051	3,095,666	1,091,208	3,750,443
Cut ware, dozen.....	297,957	206,336	83,736	134,726
Decorated glassware, dozen.....	1,158,077	(²)	(²)	(²)
Bottles and jars, value.....	\$51,958,728	\$36,018,333	\$33,631,063	\$21,676,791
Prescriptions, vials, and druggists' wares, gross.....	4,893,416	3,624,022	3,202,586	2,423,932
Beer, soda, and mineral, gross.....	4,573,610	2,345,204	2,351,852	1,351,118
Liquors and flasks, gross.....	2,689,022	1,887,344	2,157,801	985,374
Milk jars, gross.....	1,188,891	440,302	253,651	146,142
Fruit jars, gross.....	1,198,952	1,124,485	1,061,829	789,298
Battery jars and other electrical goods, gross.....	79,211	9,981	19,974	(²)
Patent and proprietary, gross.....	1,384,689	1,637,798	1,657,372	1,296,131
Packers and preservers, gross.....	3,271,174	1,237,175	1,237,065	784,588
Demijohns and carboys, dozen.....	160,796	122,570	64,450	83,243
All other products, value.....	\$4,022,932	\$2,369,987	\$2,322,916	\$690,562

¹ In addition, 42,639 gross of bottles and jars, valued at \$90,490 in 1909 and glassware to the value of \$9,663 in 1904, were reported by establishments engaged primarily in other lines of manufacture.

² Not reported separately.

GLASS, CUTTING, STAINING, AND ORNAMENTS.

This classification covers establishments engaged in cutting, beveling, staining, ornamenting, and engraving glass. The most important products are cut-glass tableware, decanters, buttons, imitation precious stones, artificial eyes, graduated measures, leaded glass, stained and leaded art-glass windows, partitions, screens and panels, shades and domes, ceilings, vials, pictures, vases, memorial tablets, fringes, inhalers, labels, signs, vacuum jars, electrodes and X-ray tubes, mosaic work, glass surgical instruments, chemical apparatus, syringes, test tubes, medicine droppers, beads, prismatic glass, jewelry boxes, magnifying glasses, spirit-level vials, silver decorated glass, and spun glass. Establishments which make a specialty of bending glass are also included in this classification. Establishments engaged chiefly in making lenses and other optical and photographic apparatus are not included under this classification, but are classified under "optical goods," "photographic apparatus," and "photographic materials."

At the census of 1849 eight "glass cutters" were reported, having 174 wage earners and showing \$60,300 paid in wages, \$71,133 expended for materials, and \$165,950 as the value of products. There was no separate classification for the industry for 1859. Statistics for the industry for the census years from 1869 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, glass, cutting, staining, and ornamenting to the value of \$810,042 in 1914 and of \$618,437 in 1909 was reported by establishments assigned to other classifications, principally mirrors, where beveling is done to quite an extent.

MIRRORS, FRAMED AND UNFRAMED.

Establishments engaged in the production of mirrors—pier glasses, mantel mirrors, and mirrors for hall racks and for show cases, etc., are placed under this classification. Receipts for the resilvering of mirrors form a part of the value of products. The statistics for the censuses of 1869 and 1879 are probably not closely comparable with those for later censuses. Statistics for the industry for the census years from 1869 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, mirrors valued at \$522,831 in 1914 and at \$730,619 in 1909 were reported by establishments engaged primarily in other industries, principally "glass, cutting, staining, and ornamenting."

METALS AND METAL PRODUCTS OTHER THAN IRON AND STEEL.

THE GROUP AS A WHOLE.

This group covers industries of the same general type as those included in the group "iron and steel and their products," the difference being that the basic materials are other metals. As in the case of the iron and steel group, there is no sharp line of distinction between certain industries assigned to this group and those assigned to other groups, particularly the group "miscellaneous industries."

The principal basic metals of the industries in this group are copper, lead, zinc, tin, gold, and silver. Some of the industries included in the group extract these metals from ores, or refine them or alloy them, while other industries use the metals in the manufacture of more highly elaborated commodities. It should be noted that these same basic metals are used to a very large extent in industries assigned to other groups. Thus, in the various kinds of machinery the manufacture of which is included in the iron and steel group, other metals are frequently used.

As the metals and alloys produced by the basic industries of this general group are used as materials by other industries in the group, there is much duplication in the total value of products for the group as a whole. It may be noted that the basic industries which extract the metals from ores or refine and alloy them usually add relatively little to the value of the raw material which they use, while the industries which use these metals and alloys as materials are of a more highly elaborated character and add very considerably to the value of the materials.

The following table shows the number of establishments, average number of wage earners, capital, total wages paid, cost of materials, value of products, and value added by manufacture for each of the industries included in the general group, as reported for the census of 1914. In this table the industries are divided into (1) those producing metals and alloys, (2) those using metals and alloys in the manufacture of articles ready for consumption, and (3) those performing certain partial processes of manufacture.

Table 131

INDUSTRY.	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
Total.....	10,023	262,154	\$1,013,632	\$166,893	\$1,023,354	\$1,417,042	\$393,688
Metals.....	1,378	79,700	506,968	57,450	766,892	926,439	159,547
Babbitt metal and solder.....	109	1,035	8,919	701	15,652	19,180	3,528
Babbitt metal.....	49	333	2,696	217	2,810	3,996	1,186
White metal.....	12	232	2,565	195	4,899	5,816	917
Type metal.....	13	51	680	32	467	656	189
Solder.....	35	369	2,978	267	7,476	8,712	1,236
Brass, bronze, and copper products.....	992	40,306	116,093	25,064	115,487	162,199	46,712
Brass and bronze.....	904	33,208	95,828	20,676	85,131	123,580	38,449
Copper.....	41	5,047	14,966	2,944	25,317	30,723	5,406
All other.....	47	2,051	5,299	1,464	5,039	7,896	2,857
Gold and silver, reducing and refining, not from the ore.....	78	456	4,407	391	25,709	28,588	2,879
Lead, bar, pipe, and sheet.....	27	585	5,036	407	6,048	7,431	1,383
Smelting and refining, copper.....	37	17,731	171,420	16,149	379,157	444,022	64,865
Smelting only.....	26	10,570	92,733	11,015	112,469	161,037	48,568
Smelting and refining ¹	11	7,161	78,687	5,134	266,688	282,985	16,297
Smelting and refining, lead.....	22	7,385	143,249	6,134	154,015	171,579	17,564
Smelting only.....	12	5,241	52,747	4,588	51,135	63,695	12,560
Smelting and refining ²	10	2,144	90,502	1,546	102,830	107,884	5,004
Smelting and refining, zinc.....	29	9,617	36,388	6,700	39,573	53,538	13,965
Pigs, bars, plates, and sheets.....	22	7,206	33,627	6,468	31,557	39,711	8,154
All other.....	7	2,411	2,761	232	8,016	13,327	5,811
Smelting and refining, not from the ore.....	84	2,585	21,456	1,884	31,251	39,902	8,651
Metal products.....	8,118	178,290	499,406	106,808	248,833	477,350	228,517
Aluminum ware.....	37	4,614	11,088	2,611	14,421	19,597	5,176
Bells.....	12	445	1,040	244	438	970	532

See footnotes on p. 212.

Table 131—Continued.

INDUSTRY.	METALS AND METAL PRODUCTS OTHER THAN IRON AND STEEL: 1914.						Value added by manufacture.
	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	
							Expressed in thousands.
Metal products—Continued.							
Clocks.....	48	6,754	\$13,564	\$3,653	\$4,008	\$11,032	\$7,024
Watches.....	15	12,390	36,389	7,524	2,669	14,275	11,606
Watches.....	10	6,636	15,948	3,892	1,578	7,972	6,394
Watch movements.....	5	5,754	20,441	3,632	1,091	6,303	5,212
Watch and clock materials.....	25	670	1,296	380	343	1,015	672
Watch materials.....	15	230	372	118	55	264	209
Clock materials.....	10	440	924	262	288	751	463
Watch cases.....	31	3,514	11,220	1,938	4,002	7,831	3,829
Copper, tin, and sheet-iron work	4,527	28,714	57,396	20,518	50,174	94,891	44,717
Tin ware, not elsewhere specified	294	22,584	118,218	12,217	53,841	81,931	28,090
Stamped and enameled ware, not elsewhere specified.....	270	28,731	68,979	15,243	32,472	65,121	32,649
Stamped ware.....	231	19,242	45,720	10,148	24,123	45,837	21,714
Enameled ware.....	34	9,184	21,617	4,910	8,067	18,706	10,639
Bathtubs, lavatories, and sinks.....	5	305	1,642	185	282	578	296
Gas and electric fixtures.....	460	10,913	27,629	6,504	14,090	28,740	14,650
Gas fixtures.....	138	4,146	13,322	1,977	5,922	10,178	4,256
Electric fixtures.....	263	5,363	11,535	3,742	6,333	15,468	8,635
All other.....	59	1,404	2,772	785	1,335	3,094	1,759
Lamps and reflectors.....	151	7,134	15,671	4,173	8,012	16,638	8,626
Automobile lamps.....	34	2,272	3,431	1,432	2,893	5,812	2,919
Carriage and wagon lamps.....	7	65	102	40	99	216	117
All other lamps.....	95	4,504	11,720	2,506	4,705	9,532	5,127
Reflectors.....	15	293	418	195	315	778	463
Needles, pins, and hooks and eyes.....	49	5,339	9,424	2,507	3,242	7,891	4,649
Gold and silver, leaf and foil.....	79	1,135	1,174	498	1,452	2,432	980
Jewelry.....	1,914	28,289	72,404	18,302	39,116	81,006	41,890
Pens, gold.....	12	246	408	174	302	642	340
Silversmithing and silverware.....	108	7,070	27,942	4,795	8,275	19,786	11,511
Plated ware.....	72	8,717	22,215	5,000	8,304	18,484	10,180
Knives, forks, and spoons.....	10	1,712	5,751	957	1,568	3,470	1,902
Hollow ware.....	19	1,816	3,982	1,196	1,160	3,273	2,113
All other.....	43	5,189	12,482	2,847	5,576	11,741	6,165
Tin foil.....	14	1,031	3,349	527	3,672	5,068	1,399
Related industries.....	527	4,164	7,258	2,635	7,629	13,253	5,624
Electroplating.....	479	2,584	2,842	1,713	1,336	4,773	3,437
Galvanizing.....	48	1,580	4,416	922	6,293	8,480	2,187

¹ Includes 1 establishment engaged exclusively in refining.

² Includes 2 establishments engaged exclusively in refining.

BABBITT METAL AND SOLDER.

The establishments included under this classification manufacture nonferrous metals and alloys, principally from pig lead, antimony, copper, zinc, and tin, used for antifriction bearings and for joining metals.

Table 131 shows separate statistics for establishments whose product of chief value is (1) babbitt metal, (2) white metal, (3) type metal, and (4) solder, including hard, soft, white, spelter, gold, silver, plumbers', pewterers', and button solder.

There is considerable overlapping between these subdivisions of the industry, as babbitt metal to the value of \$2,630,432 was reported by establishments assigned to the other groups, and to the value of \$1,592,128 by establishments assigned to other industries, principally those included in the classification "smelting and refining, not from the ore," and those making brass and bronze products, and bar, pipe, and sheet lead.

White metal to the value of \$66,457 was reported by establishments making babbitt metal and solder, and to the value of \$77,574 by establishments classified as "smelting and refining, not from the ore."

Type metal to the value of \$532,746 was reported by the other subdivisions, and to the value of \$383,889 by establishments assigned to the classification "smelting and refining, not from the ore," and those making pipe, bar, and sheet lead.

Solder to the value of \$517,704 was reported by establishments whose chief product was babbitt, white, or type metal, and to the value of \$1,484,798 by establishments

classified as "smelting and refining, not from the ore," and those making pipe, bar, and sheet lead and brass products.

Statistics for the industry for the censuses from 1869 to 1914, inclusive, are given in Table 223.

BRASS, BRONZE, AND COPPER PRODUCTS.

This classification includes the manufacture of brass and bronze (alloys consisting chiefly or solely of copper and zinc and of copper and tin), and of copper ingots, bars, plates, sheets, rods, and tubing, and the foundry work and finishing of such metals; car and engine brasses; refinishing brass work; oiling devices; safety steam appliances; brass spigots; hose couplings, etc.; stair plates; stair rods; fenders; screen plates; signs; letters; novelties; metal spinning, etc. The classification does not include the manufacture of brass and copper wire by establishments chiefly engaged in drawing such wire from purchased rods, or by the wire departments of rolling mills.

Separate statistics are given in Table 131 for "brass and bronze," "copper," and "all other." The totals in this table represent the establishments classified according to product of chief value. The group "all other" includes establishments that manufacture German silver, gun metal, aluminum castings, etc., as principal products.

Table 223 presents general statistics for the industry for the censuses from 1869 to 1914, inclusive. For 1909 these statistics were shown as one industry with five sub-classifications. For 1904, 1899, and 1889 five separate industries were presented, "brass and copper, rolled," "brass casting and finishing," "brass ware," "bronze castings," and "brass" which consists of brass from scrap metal. For 1879 the same industries were shown with the exception of brass from scrap metal, which was not reported separately. For 1869 "brass and copper, rolled" was divided into three industries—"brass and copper tubing," "brass rolled," and "copper rolled." The designations employed for the group of brass industries at the census of 1859 were "brass and bell founding," "brass and copper tubing," "brass and German silver, rolled," "brass book clasps and badges," "brass founding and brass ware," "brass ornaments," "brass wire and wire cloth," "copper and brass ware," "copper mining," "copper, rolled," "copper, sheet and bolt," "copper smelting," and "copper work." At the census of 1849 only "brass foundries" and "copper and brass" were shown.

The following table presents statistics for the different brass, bronze, and copper products as reported for 1914. Similar statistics were not compiled for prior censuses. This table includes the statistics for brass and copper wire made in departments of steel works and rolling mills and by establishments engaged in drawing wire from purchased rods. Under "Other manufactured products" are included chiefly brass castings.

PRODUCT.	Total.	Establishments assigned to this industry.	Establishments engaged primarily in other industries.	Distributed by kind of metal.		
				Brass and bronze.	Copper.	Other.
Total value	\$231,262,754	\$162,199,019	\$69,063,735	\$131,503,724	\$82,841,246	\$16,917,784
Ingot and bars	8,819,571	4,791,708	4,027,863	7,460,396	1,357,804	1,371
Plates and sheets	43,019,997	41,655,037	1,364,960	25,928,193	13,638,770	3,453,034
Rods	14,569,759	12,189,421	2,380,338	8,277,358	6,220,937	72,304
Tubing	13,934,641	13,914,790	19,851	10,131,975	3,613,370	182,296
Seamless	10,273,755	10,268,980	4,775	6,967,813	3,119,458	182,484
Brazed	3,660,886	3,645,810	15,076	3,164,162	493,912	2,812
Wire	60,069,738	14,333,142	45,736,596	5,851,670	52,940,097	1,277,971
Plain	44,360,456	13,486,703	30,873,753	5,851,670	1,372,230,815	1,277,971
Insulated	15,709,282	846,439	14,862,843	.....	15,709,282	.....
Other manufactured products	85,206,435	69,819,397	15,387,038	73,854,102	5,071,138	\$ 6,281,195
All other products	5,642,613	5,495,524	147,089	.....	.....	\$ 5,642,613

¹ Includes \$13,966,315, estimated value of 23,458 tons manufactured and consumed in establishments engaged in the manufacture of electrical machinery.

² Includes aluminum castings to the value of \$6,101,198.

³ Includes amounts received for contract or custom work and value of some products made from metals other than brass, bronze, copper, German silver, or aluminum.

GOLD AND SILVER, REDUCING AND REFINING, NOT FROM THE ORE.

Establishments classed under this heading are generally such as reduce and refine manufacturing jewelers' gold and silver and platinum sweepings, clippings, and polishings; plated scrap and other waste; and old gold and old silver from all sources.

They are known as "sweep smelters" and sometimes also as "assayers and refiners." A few of the establishments reported refined doré bars. The value of products reported in some instances included considerable amounts representing the value of gold and silver bought and sold again, but it was not practicable to separate the statistics for these purely commercial transactions. Statistics of smelting and refining from the principal ores in which gold and silver are found are included under "smelting and refining, copper," and "smelting and refining, lead."

The statistics for "gold and silver, reducing and refining, not from the ore," were first reported separately at the census of 1869. The great decrease in value of products from 1889 to 1899 was doubtless due to a difference in the statistical treatment of the industry at the two censuses. The value of products of some establishments extracting gold and silver from sweepings, etc., for others, has included the value of the precious metals extracted, while that of other establishments has included only the amount received for the work done. Thus an abnormal increase or decrease may be shown from one census to another. (See Table 223.)

Products to the value of \$184,173, similar to those covered by Table 223, were reported by establishments included under other classifications, principally those assigned to "smelting and refining, not from the ore."

LEAD, BAR, PIPE, AND SHEET.

The establishments in this classification manufacture lead pipe and sheet lead. Bar and block lead, milled lead, and lead traps and bends were also reported. In 1879 the classification was "lead, bar, pipe, sheet, and shot," and, as the statistics for the production of shot can not be segregated, the figures as reported are included in Table 223. At the census of 1869 there were two classifications, "lead, bar and sheet," and "lead pipe." At the census of 1859 the only reports were for "lead, manufactures of," and "lead, mining and smelting." The figures for these classifications are not comparable with those for this industry for other censuses. At the census of 1849 "lead" and "lead pipe" were the classifications. Ten establishments reported the manufacture of lead pipe, with 71 wage earners, to whom \$26,004 were paid in wages. The cost of materials was \$678,330, and the value of products \$797,166. Statistics for the industry for the censuses from 1869 to 1914, inclusive, are given in Table 223. The decrease in the value of products of this industry from 1869 to 1879 was due to the great reduction in the price of lead and to the fact that currency values were reported for the former census.

In addition to the products covered by Table 223 "lead, bar, pipe, and sheet," to the value of \$3,375,025 in 1914 and of \$917,499 in 1909 was reported by establishments assigned to other industries, principally those classified as "babbitt metal and solder," "paints," and "smelting and refining, not from the ore."

SMELTING AND REFINING, COPPER.

This classification includes the smelting and refining establishments owned by mining companies, and also those independent of mines, which usually smelt or refine copper ore for toll. The cost of materials and the value of products reported for establishments which treat ore for others include the estimated value of the ore treated and of the metal produced. In the smelting and refining of copper and lead a large part of the value of products consists of the value of the gold and silver extracted.

Table 133 presents, for 1914 and 1909, separate statistics for the establishments engaged in copper smelting exclusively and for those reporting both smelting and refining.

ESTABLISHMENTS ENGAGED IN—	Number of establishments.	Wage earners (average number).	SMELTING AND REFINING, COPPER.					Value added by manufacture.
			Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.	
Expressed in thousands.								
Total, 1914.....	37	17,731	\$171,420	\$16,149	\$379,157	\$444,022	\$64,865	
1909.....	38	15,628	111,443	13,396	333,532	378,806	45,274	
Smelting and refining: ¹								
1914.....	11	7,161	78,687	5,134	266,688	282,985	16,297	
1909.....	18	7,642	64,435	5,843	231,518	251,106	19,588	
Smelting only:								
1914.....	26	10,570	92,733	11,015	112,469	161,037	48,568	
1909.....	20	7,986	47,008	7,553	102,014	127,700	25,686	

¹ Includes 1 establishment engaged exclusively in refining.

The value of the products of establishments engaged in both smelting and refining copper duplicates largely that of the establishments engaged only in smelting, the value of the blister copper as it comes from the smelter being included in the cost of materials for the refineries. The distinction between the mining and manufacturing industries was not clearly made prior to the census of 1899, and the statistics for smelting and refining were included with those for mines in such a manner as to make it impossible to obtain satisfactory comparative figures. Statistics for the censuses from 1899 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, copper to the value of \$4,824,350 in 1914 was reported by establishments engaged in smelting and refining lead.

SMELTING AND REFINING, LEAD.

Separate statistics for 1914 and 1909 are given in the following table for the establishments that both smelt the lead ores and refine the bullion and for those that smelt only. The value of products of establishments of the first class largely duplicate that of the establishments which smelt only. In addition to refined lead, lead smelters and refineries produced as subsidiary products chemicals, gold, silver, and copper:

ESTABLISHMENTS ENGAGED IN—	SMELTING AND REFINING, LEAD.						
	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
Total, 1914.....	22	7,385	\$143,249	\$6,134	\$154,015	\$171,579	\$17,564
1909.....	28	7,424	132,310	5,431	151,963	167,406	15,443
Smelting and refining: ¹							
1914.....	10	2,144	90,502	1,546	102,880	107,884	5,004
1909.....	12	2,758	90,976	1,893	111,309	119,880	8,571
Smelting only:							
1914.....	12	5,241	52,747	4,588	51,135	63,695	12,560
1909.....	16	4,666	41,334	3,538	40,654	47,526	6,872

¹ Includes 2 establishments in 1914 and 1 establishment in 1909, engaged exclusively in refining.

For the reasons given in the discussion of the smelting and refining of copper, it is impossible to obtain satisfactory comparative statistics for the smelting and refining of lead for censuses prior to 1899, but Table 223 gives the statistics for 1914, 1909, 1904, and 1899. The decrease from 1904 to 1909 is due almost entirely to the fact that separate reports were prepared for the copper and lead departments of an important copper and lead smelting and refining establishment in 1904, while the operations of the entire establishment were reported as smelting and refining copper at the census of 1909.

In addition to the products covered by the table, lead to the value of \$840,204 was reported in 1914 by establishments smelting and refining copper, zinc, and scrap metal.

SMELTING AND REFINING, ZINC.

Spelter and sheet zinc, which is a rolled product, are the principal products reported for establishments included under this classification. The only comparable figures are for 1914, 1909, 1904, and 1899, and are presented in Table 223. Separate statistics are presented in Table 131 for those establishments whose product of chief value was pigs, bars, plates, and sheets of zinc, and for those reporting other zinc products.

In addition to the products covered by the table, zinc pigs, bars, plates, and sheets to the value of \$83,568 were reported in 1914 by establishments assigned to other classifications.

SMELTING AND REFINING, NOT FROM THE ORE.

Establishments in this industry smelt and refine scrap metals of many kinds, not including gold and silver. The products include art metal; babbitt metal; solder; spelter; refined white metal; linotype, monotype, electrotype, and stereotype metal; lead; brass, bronze, and copper ingots; antimony; nickel; aluminum; zinc; tin; and similar products. General statistics for the industry for the censuses from 1899 to 1914, inclusive, are given in Table 223. In 1879 there were four establishments reported under "smelting and refining (base scrap metal, not from the ore)," with 311 wage

earnings, \$158,300 paid in wages, \$8,171,900 as cost of materials, and \$8,411,100 as the value of products. At the census of 1889 there was a classification "smelting and refining," but the statistics are not comparable with those for subsequent censuses.

In addition to the products covered by the table, similar products to the value of \$636,586 in 1914, and of \$177,340 in 1909 were reported by establishments assigned to other classifications, principally "chemicals" and "foundry and machine-shop products."

ALUMINUM WARE.

Establishments under this classification manufacture cooking utensils; kettles—candy, varnish, and steam jacketed; coffee percolators; salt and pepper shakers; drinking cups; scoops; biscuit cutters; frames; stamps; pads; rules; thermometers; screen caps; indexes; and other fabricated articles of pig aluminum. This industry was not shown separately prior to 1914, but was included with fancy articles, house-furnishing goods, and stamped and enameled ware in 1909. Aluminum castings are included in the brass, bronze, and copper industry. Table 223 gives statistics for 1914, by states.

In addition to the products covered by the table, aluminum ware to the value of \$461,132 was reported by establishments engaged primarily in the manufacture of other products, principally lamps, fireless cookers, enameled ware, clocks, and foundry products.

BELLS.

The establishments included in this classification manufacture principally bronze bells and gongs and their fixtures, including church, tower, chime, clock, engine, automobile, cycle, call, hand, door, sleigh, and ship bells, and bell toys. The statistics for the industry were first reported separately at the census of 1859, and comparable figures are given in Table 223.

In addition to the products covered by the table, bells to the value of \$309,708 in 1914 were reported by establishments assigned to other classifications, principally "foundry and machine-shop products," "plumbers' supplies, not elsewhere specified," "electrical machinery, apparatus, and supplies," and "toys and games."

The slight decrease from 1904 to 1909 is due to a change in the classification of some establishments which were included with this industry at the earlier censuses, but in 1909 made some other product—in one instance, toys and games—of greater value than bells. Differences in classification also account in part for the decrease from 1879 to 1889.

CLOCKS AND WATCHES, INCLUDING CASES AND MATERIALS.

This classification includes establishments engaged in the manufacture of clocks, watches, watchcases, and watch and clock materials. Clocks and watches are in a number of instances made in the same factory, and all four industries are so closely related that the combined totals are given in the following table. Separate statistics are given in Table 223, each establishment being assigned according to its product of chief value. The total value of products include some duplication.

CENSUS YEAR.	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
1914.....	119	23,328	15,647	\$62,469	\$13,495	\$11,021	\$34,153	\$23,132
1909.....	120	23,857	14,957	57,500	12,944	11,131	35,197	24,066
1904.....	97	22,579	10,731	42,189	11,892	9,872	29,790	19,918
1899.....	109	17,155	7,251	31,514	8,315	8,819	22,110	13,291
1889.....	127	14,312	4,346	21,266	7,551	7,802	19,730	11,928
1879.....	82	9,368	(¹)	8,328	4,412	5,853	12,322	6,469
1869.....	142	4,171	1,168	4,552	2,817	2,629	8,236	5,607

¹ Figures not available.

Clocks.—Complete clocks of all descriptions, with wooden or metal cases, and clock movements are the principal products of establishments under this heading. Tower clocks, self-winding, program, automobile, hall, electric, calendar, master and secondary clocks, timing apparatus, etc., were among the products reported.

Statistics for the industry for the censuses from 1849 to 1914, inclusive, are given in Table 223. In addition to the products covered by the table, clocks to the value of \$938,091 in 1914 were reported by establishments assigned to other industries, principally by manufacturers of watches.

Watches.—Establishments manufacturing complete watches, watch parts, and watch movements are included in this industry. Table 131 shows separate data for those establishments whose product of chief value is watches and for those whose product of chief value is watch movements. There was no classification "watches" in 1849, and as watch repairing was included in the returns for 1859, the figures for that year are not comparable with those for subsequent censuses, and are, therefore, omitted from Table 223, which gives comparable figures for the censuses from 1869 to 1914, inclusive. In addition to the products covered by the table, watches to the value of \$1,161,354 in 1914 were reported by establishments assigned to other classifications, principally by manufacturers of clocks.

Watch and clock materials.—This industry includes establishments manufacturing balance wheels, hairsprings, jewels, and other watch materials, clock springs, chimes, dials, cases, etc. Table 131 gives separate statistics for "watch materials" and for "clock materials," each establishment being assigned according to the product of chief value. The first separate statistics appeared for 1869, when there were three classifications, "clock cases," "clock materials," and "watch materials," statistics for which are combined in Table 223, which presents comparable data for the censuses from 1869 to 1914, inclusive.

Watch cases.—Gold, gold-filled, platinum, silver, nickel, and brass watch cases, with some cases made of other metals, are the principal products of the establishments for which statistics are given for the censuses from 1869 to 1914, inclusive, in Table 223.

COPPER, TIN, AND SHEET-IRON PRODUCTS.

Table 223 shows separate figures for the three industries included in this group: Copper, tin, and sheet-iron work; tinware; and stamped and enameled ware. Some establishments in each branch manufacture products similar to those of the other branches, and therefore in the following table the statistics are combined:

CENSUS YEAR.	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manu- facture.
1914.....	5,091	80,029	75,263	\$244,593	\$47,978	\$136,437	\$241,943	\$105,456
1909.....	4,228	73,615	62,366	217,532	39,501	112,582	199,824	87,242
1904.....	2,540	53,035	30,229	147,608	26,269	63,921	119,933	56,012
1899.....	1,985	38,317	28,829	49,679	16,924	42,602	78,359	35,757
1889.....	7,125	39,395	11,054	48,504	19,062	36,842	78,376	41,534
1879.....	7,723	30,057	(¹)	25,643	12,258	29,120	54,503	25,383
1869.....	6,710	26,461	1,685	21,756	9,878	19,865	42,357	22,492
1859.....	3,558	11,818	(¹)	9,667	4,316	8,362	18,000	9,638
1849.....	2,280	7,393	(¹)	4,130	2,363	4,305	8,933	4,628

¹ Figures not available.

Copper, tin, and sheet-iron work.—This classification includes establishments engaged primarily in the manufacture of cornices; gutters; spouts; smokestacks; stove and furnace pipes, elbows, and casings; ventilators; skylights; tanks; bins; corrugated-iron culverts; and coppersmithing and sheet-iron work. Table 223 gives general statistics for the industry for the censuses from 1904 to 1914, inclusive. In addition to the products covered by the table, copper, tin, and sheet-iron work to the value of \$2,481,467 was reported by establishments engaged primarily in the manufacture of other products, principally refrigerators, stoves and hot-air furnaces, gas and oil stoves, structural iron, and tinware.

Tinware, not elsewhere specified.—This classification includes establishments making tin pails; buckets; cans; boxes; household and cooking utensils; and cabinet and other tinware. Table 223 gives statistics for the industry for the censuses from 1904 to 1914, inclusive. This table does not cover the manufacture of tin cans and other containers by establishments engaged in canning and preserving. In addition

to the products covered by the table, tinware to the value of \$3,174,674 was reported by establishments assigned to other classifications, principally "stamped and enameled ware," "copper, tin, and sheet-iron work," "glass," and "stoves and ranges." The manufacture of tinware, except at the censuses of 1914, 1909, and 1904, was included under "tinsmithing, coppersmithing, and sheet-iron working," or under "tinware, copperware, and sheet-iron ware."

Stamped and enameled ware, not elsewhere specified.—The establishments included in this classification manufacture primarily articles stamped out of sheet tin, copper, and zinc, including kitchen utensils, the most important class; combs, buckles, pins, initials, monograms, millinery ornaments, etc.; perforated screens for milling and mining; baggage checks, bag frames, and railway-car seals. In many cases these articles are enameled, usually in the same establishment which stamps them. At the censuses of 1889 and 1879 establishments manufacturing stamped and enameled ware were classed under the headings "enameled goods," "fruit-jar trimmings," and "stamped ware." They were not reported separately at the censuses of 1869 and 1859, unless "enameling" embraced "enameled goods." At the censuses of 1904 and 1899 establishments reporting either the manufacture of enameled stamped ware or the enameling of materials for others were classified under "enameling and enameled goods." This accounts in part for the large increase shown for stamped and enameled ware for 1909, as compared with the two preceding censuses. At the census of 1909 the manufacture of enameled stamped ware was distinguished from the enameling of products by establishments other than the original manufacturers of the stamped ware, the latter business being classified separately as "enameling."

Table 131 gives separate statistics for "stamped ware," "enameled ware," and "bath tubs, lavatories, and sinks," each establishment being classified according to the product of chief value. There is more or less overlapping between these groups, as stamped ware to the value of \$679,291 was reported by establishments engaged in enameling, and enameled ware to the value of \$677,480 was reported by manufacturers of stamped ware. In addition, stamped ware to the value of \$355,649 was made by other establishments, principally those making plated ware, flavoring extracts, paper goods, and tinware. Enameled ware to the value of \$70,833 was reported by foundries and turners and carvers of wood, and lavatories and sinks were reported by manufacturers of plumbers' supplies to the value of \$173,955.

GAS AND ELECTRIC FIXTURES AND LAMPS AND REFLECTORS.

Separate figures for the two industries included under this classification are given in Table 223, each establishment being assigned according to its product of chief value. As some of the establishments assigned to each of these classes manufacture articles similar to those of establishments assigned to the other class, the combined totals are given in the following table:

CENSUS YEAR.	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
1914.....	611	18,047	18,668	\$43,300	\$10,677	\$22,102	\$45,378	\$23,276
1909.....	619	18,861	15,862	36,835	10,393	20,467	45,057	24,590
1904.....	405	12,570	8,444	28,002	6,408	11,078	26,560	15,482
1899.....	377	11,238	6,991	15,855	5,188	7,962	19,821	11,859
1889.....	201	7,080	5,335	9,769	3,916	3,750	11,865	8,115
1879.....	109	4,799	(¹)	5,122	2,212	3,529	7,687	4,158
1869.....	79	3,027	875	3,413	1,519	2,030	5,057	3,027
1859.....	64	2,007	(¹)	1,554	707	938	2,836	1,898
1849.....	46	1,179	(¹)	591	366	622	1,354	732

¹ Figures not available.

Gas and electric fixtures.—The establishments under this classification include (1) those making as their product of chief value gas fixtures, chandeliers, domes, burners, mantels, etc., (2) those making electric fixtures, holders, electroliers, brackets, portables, etc., and (3) those making both gas and electric fixtures or combinations. Separate statistics are given in Table 131 for these three groups. There is considerable

overlapping between the groups. Gas fixtures to the value of \$1,139,681 were reported by the manufacturers of electric fixtures and of combination fixtures, and to the value of \$130,398 by establishments assigned to other classifications, principally electrical machinery, apparatus, and supplies. Electric fixtures to the value of \$701,400 were reported by manufacturers of gas and of combination fixtures, and to the value of \$320,253 by other manufacturers, principally of hardware. Electric lighting fixtures to the value of \$3,383,955 were also reported by establishments classed under "electrical machinery, apparatus, and supplies." Combination fixtures to the value of \$352,396 were reported by manufacturers of gas fixtures and of electric fixtures, and to the value of \$107,912 by other manufacturers, principally those making looking-glass and picture frames. Comparable statistics for the industry for the censuses from 1849 to 1914, inclusive, are given in Table 223. In 1849 this industry was reported under the designation "gas fixtures." In 1859 two classifications were employed—"gas fixtures, lamps, and chandeliers," and "lamp fixtures"—statistics for which are combined in Table 223. "Gas and lamp fixtures" was the classification used at the census of 1869 and at each subsequent census until 1909, when it was changed to its present form and thus made more comprehensive, although it had previously included the manufacture of electric fixtures.

Lamps and reflectors.—The manufacture of lamps, lanterns, headlights, reflectors, and supplies of various kinds and for many purposes is covered by this classification. Among the specific products reported are (1) automobile lamps, (2) carriage, wagon, and coach lamps, (3) other lamps, such as desk, table, and night lamps, cabin lamps, portable lamps, street lamps and lanterns, anchor or riding lamps for barges, mine and safety lamps, acetylene lamps and lanterns, gasoline and kerosene lamps, signal lamps, and marine lamps and fixtures, and (4) reflectors, headlights, footlights, and railroad-track lights. Separate statistics for these four groups are given in Table 131. There is considerable overlapping between these groups. These products do not include the arc, incandescent, and other electric lamps for which statistics are given in connection with those for electrical machinery, apparatus, and supplies. Similar products to the value of \$735,252 were reported by establishments assigned to other classifications, principally glass, stamped and enameled ware, tinware, furniture, clocks, brass and bronze, and electrical machinery, apparatus, and supplies. General statistics for the censuses from 1849 to 1914 are given in Table 223. In 1849 and 1859 the classification was "lamps," and in 1869, "lamps, lanterns, and locomotive headlights."

NEEDLES, PINS, AND HOOKS AND EYES.

The principal products of establishments included in this classification are spring and latch knitting-machine needles, sewing-machine needles, mattress and bag needles, needle-pointed goods used in the various textile industries, ordinary pins, metal hairpins, safety pins, hooks and eyes, garment fasteners, and dress hooks. "Pins" was the only classification in 1849, when 4 establishments were reported, with 265 wage earners and products valued at \$297,550. In 1859 there were four classifications, "needles," "sewing-machine needles," "pins," and "hooks and eyes," and thereafter two, "needles and pins" and "hooks and eyes," until the census of 1904, when they were consolidated as at present. The combined figures are shown in Table 223 for each census from 1859 to 1914, inclusive.

The following table gives the quantities and values of the different products of the industry for 1914, 1904, and 1899. Detail statistics were not collected in 1909, but the total value of products was \$6,694,095.

PRODUCTS.	NEEDLES, PINS, AND HOOKS AND EYES.		
	1914	1904	1899
Total value.....	\$7,890,879	\$4,750,589	\$3,237,982
Needles:			
Thousands.....	163,734	204,505	161,356
Value.....	\$1,278,444	\$1,140,924	\$1,027,949
Knitting machine—			
Latch—			
Thousands.....	46,165	44,762	39,764
Value.....	\$492,387	\$422,655	\$414,504
Spring—			
Thousands.....	47,934	47,921	44,246
Value.....	\$129,397	\$118,223	\$114,660
All other needles, including sewing machine—			
Thousands.....	74,635	111,822	77,346
Value.....	\$656,660	\$600,046	\$498,785

See footnotes on p. 220.

Table 138—Continued. PRODUCTS.	NEEDLES, PINS, AND HOOKS AND EYES.		
	1914	1904	1899
Pins, value.....	\$2, 713, 782	\$2, 067, 637	\$898, 054
Common or toilet, value.....	\$1, 245, 757	\$1, 129, 006	\$465, 605
Made of steel wire—			
Pounds.....	641, 121	(2)	(2)
Value.....	\$153, 907	(2)	(2)
Packs of 3,360.....	1, 828, 673	(2)	(2)
Value.....	\$182, 585	(2)	(2)
Made of brass wire—			
Pounds.....	1, 186, 397	(2)	(2)
Value.....	\$375, 780	(2)	(2)
Packs of 3,600.....	1, 638, 035	(2)	(2)
Value.....	\$526, 485	(2)	(2)
Hairpins, made of metal—			
Gross.....	9, 242, 012	1, 704, 900	1, 189, 104
Value.....	\$528, 362	\$109, 245	\$78, 155
Safety pins—			
Gross.....	4, 744, 303	2, 550, 650	1, 640, 284
Value.....	\$936, 663	\$829, 386	\$354, 294
Hooks and eyes:			
Great gross.....	1, 076, 177	(2)	(2)
Value.....	\$1, 394, 745	(2)	(2)
Made of steel wire—			
Great gross.....	654, 714	(2)	(2)
Value.....	\$761, 476	(2)	(2)
Made of brass wire—			
Great gross.....	421, 463	(2)	(2)
Value.....	\$633, 269	(2)	(2)
Snap fasteners and clasps, or parts of:			
Great gross.....	91, 957	(2)	(2)
Value.....	\$714, 492	(2)	(2)
All other products, value.....	\$1, 789, 416	\$1, 542, 028	\$1, 311, 979

¹ In addition, needles, pins, and hook and eyes to the value of \$1,155,144 in 1914; \$942,506 in 1904; and \$536,742 in 1899 were produced as subsidiary products by establishments engaged primarily in the manufacture of other products.

² Not reported separately.

GOLD AND SILVER, LEAF AND FOIL.

The establishments included in this classification manufacture principally gold leaf for sign painters, decorators, and bookbinders, and gold foil for dentists. There were no establishments making silver leaf and foil as their product of chief value in 1914, but a small amount of silver leaf was reported, with some composition leaf. The statistics for "gold and silver, leaf and foil," were first reported separately at the census of 1859. Comparable figures are given in Table 223 for the censuses from 1859 to 1914. In addition to the products covered by the table, gold leaf and foil to the value of \$2,490 was reported by establishments making tin foil.

JEWELRY.

Jewelry, made of gold, silver, platinum, "gold-filled" metal, rolled gold plate, brass, bronze, copper, or other metal, with or without precious or semiprecious stones, constitutes the principal product reported for establishments included under this designation. Rings, pins—class, bar, veil, scarf, hat, stick, and sporting—medals, badges, emblems, loving cups, bracelets, chains—watch, belt, and guard—lockets, pendants, drops, lavallières, brooches, slides, charms, fobs, earrings, buttons—cuff, link, and collar—bangles, necklaces, tie clasps and holders, eyeglass chains, cases, holders and mountings, bags, mesh bags, chatelaines, puff boxes, vanity cases, card and cigarette cases, cigar cutters, cigar and cigarette holders, card trays, thimbles, studs, lognettes, knives, bands, frames, swivels, crosses, rosaries, fligree, oriental, Chinese, and enameled jewelry, gold and silver mountings for canes, combs, pipes, fountain pens, umbrellas, and other articles, buckles and hair ornaments, gold and silver pencils, and jewelers' findings are also among the products. Statistics of establishments engaged in setting diamonds and other stones and in chasing gold and silver for the trade are included. Since some establishments do work in whole or in part on materials furnished by others, there is some duplication in value of products. Statistics for the industry for the censuses from 1859 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, jewelry to the value of \$320,659 in 1914 and of \$1,321,571 in 1909 was reported by establishments engaged primarily in making gold pens, umbrellas and canes, brass and bronze products, and engraving steel and copper plate.

PENS, GOLD.

Gold pens are the principal products reported for establishments included under this industry. Statistics for the industry are given in Table 223 for the censuses from 1869 to 1914, inclusive. Changes in the classification of individual establishments doubtless account for the decrease shown in value of products for the five-year period 1899-1904.

In addition to the products covered by the table, gold pens to the value of \$10,660 were reported in 1914, by establishments assigned to other classifications, namely, pens, fountain and stylographic, and jewelry. Statistics for steel, gold, and fountain and stylographic pens are given in Table 76.

SILVERWARE AND PLATED WARE.

Table 223 gives separate statistics for the two industries included under this classification. Establishments in each branch, however, manufacture some products covered by the other class, and therefore the combined totals are given in the following table:

CENSUS YEAR.	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
1914.....	180	15,787	18,738	\$50,157	\$9,796	\$16,580	\$38,271	\$21,691
1909.....	183	16,610	15,183	46,759	10,282	18,332	42,229	23,897
1904.....	158	14,861	12,873	37,732	8,625	14,459	32,840	18,381
1899.....	169	12,205	8,486	30,628	6,531	11,659	26,114	14,455
1889.....	122	9,036	5,343	18,879	4,944	6,981	17,958	10,457
1879.....	132	5,835	(¹)	7,760	3,206	5,231	11,114	5,883
1869.....	258	5,050	2,250	5,869	2,892	4,994	10,487	5,493
1859.....	234	3,843	(¹)	3,250	1,489	4,006	7,248	3,242

¹ Figures not available.

Silversmithing and silverware.—The principal products reported for establishments included under this heading are hollow and flat tableware; ecclesiastical ware; candelabra; cups; ornaments; silver-deposited glassware and china; manicure and toilet articles; picture frames; boxes, cigar, cigarette, and match; coin holders; candlesticks; tea balls; salt and pepper shakers; vanity cases; and novelties. Table 223 gives the statistics for the industry for the census years from 1859 to 1914, inclusive. The classification in 1849 was "silversmiths, jewelers, etc.," the figures of course not being comparable with those shown in the table. The number of establishments reported was 583, employing 5,262 wage earners, and having products valued at \$9,401,765. In addition to the products covered by the table, silversmithing and silverware to the value of \$2,900,274 was reported in 1914 by establishments assigned to other classifications, principally "plated ware," "watch cases," and "jewelry."

Plated ware.—Various kinds of ware plated with gold, silver, and other metals are represented in the products classified under this heading. Some britannia ware and German-silver ware are also reported. The articles made are similar to those made in the silverware branch of the industry except as to material. In 1849 the classification was "britannia and plated ware"; in 1859, "silver plated and britannia ware," in 1899 "plated and britannia ware." Table 223 gives comparative figures from 1849 to 1914, inclusive.

Separate statistics for those establishments making "knives, forks, and spoons"; "hollow ware"; and "all other," which includes flat pieces, toilet sets, manicure sets, mesh bags, carving sets, jewel cases, desk sets, trays, shaving sets, military sets, ornaments, and novelties, etc., are given in Table 131, each establishment being assigned according to the product of chief value.

There is considerable overlapping between the three groups, knives, forks, and spoons to the value of \$1,927,014 being reported by the other two groups, and to the value of \$454,743 by manufacturers of silverware. Hollow ware to the value of \$1,059,183 was reported by the other plated-ware establishments, and to the value of \$243,171 by other industries, while "all other" plated ware to the value of \$10,253 was reported by establishments assigned to other classifications.

TIN FOIL.

The establishments included in this classification manufacture principally tin foil. Collapsible tubes, bottle caps, pill pipes, and aluminum leaf are also among the products. Separate statistics were first shown in 1879, when four establishments were reported, employing 186 wage earners, whose wages for the year were \$100,673, expending \$193,942 for materials, and reporting products valued at \$416,849. In 1889 there were only two establishments. Table 223 gives statistics for the industry for the censuses from 1899 to 1914, inclusive. In addition to the products covered by the table, tin foil to the value of \$1,900 was reported by manufacturers of gold leaf and foil.

ELECTROPLATING.

The silver and gold plating of jewelry by means of electric current is the principal business of establishments in this industry. In many cases the work is done on articles furnished by jewelry manufacturers or dealers, the value of the work performed constituting the value of products reported. Oxidizing and coloring, and the plating of carriage and other mountings with brass, bronze, nickel, and copper, are also reported. Many establishments making jewelry, plated ware, and other articles electroplate their own wares, but the cost of the electroplating is not reported separately. Statistics for the industry are given in Table 223 for the censuses from 1879 to 1914, inclusive.

In addition to the products covered by the table, electroplating to the value of \$100,219 in 1914 and of \$202,725 in 1909, was reported by establishments engaged chiefly in the manufacture of brass products, machine-shop products, and phonographs and graphophones.

GALVANIZING.

Galvanized sheets and roofing are the principal products included under this classification. Galvanizing is the process of coating iron with zinc. Aluminum coated steel sheets were reported as well as galvanized wire. Statistics for each census from 1869 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, galvanized sheets and plates to the value of \$42,862,394 in 1914, and of \$25,912,056 in 1909 were reported by steel works and rolling mills, and to the value of \$381,236 in 1914 and of \$109,432 in 1909 by establishments engaged chiefly in making stamped and enameled ware, babbitt metal, foundry and machine-shop products, and iron and steel bolts, nuts, rivets, etc.

TOBACCO MANUFACTURES.

The statistics for the manufacture of tobacco are shown separately for two groups of establishments, namely, those that reported chewing and smoking tobacco and snuff as the principal product, and those engaged primarily in the manufacture of cigars and cigarettes. The totals for these groups and for certain subdivisions of each are given for 1914 in Table 140.

Table 140

TOBACCO MANUFACTURES: 1914.							
INDUSTRY.	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
Expressed in thousands.							
Total.....	13,951	178,872	\$303,840	\$77,856	\$207,134	\$490,165	\$283,031
Tobacco, chewing and smoking, and snuff.....	436	25,980	131,858	9,550	76,604	175,281	98,677
Chewing.....	116	8,445	29,430	3,274	25,793	58,670	32,877
Smoking.....	238	15,893	71,554	5,496	44,805	100,471	55,666
Snuff.....	35	1,473	30,467	711	5,596	15,490	9,894
All other.....	47	169	407	69	410	650	240
Tobacco, cigars and cigarettes.....	13,515	152,892	171,982	68,306	130,530	314,884	184,354
Cigars.....	13,298	140,955	122,503	63,932	97,915	233,423	135,508
Cigarettes.....	196	11,842	49,387	4,342	32,526	81,246	48,720
Cigars and cigarettes.....	21	95	92	32	89	215	126

All branches of tobacco manufacture are subject to internal-revenue taxes which are included in the value of the products reported to the census. The fact that the rates of taxation have been changed from time to time should be considered in accepting the figures reported for the various censuses.

According to the report of the Commissioner of Internal Revenue there were in operation at the close of the year 1914, 2,432 tobacco and snuff factories, 16,754 cigar factories, and 381 cigarette factories. These numbers are in excess of the number of establishments reported to the census because (1) for internal-revenue purposes the same firm or establishment may be registered a number of times (i. e., as a manufacturer of cigars, as a manufacturer of tobacco, and as a manufacturer of cigarettes), while for census purposes such an establishment would make only one report and it would be classified according to its product of chief value; (2) a separate register is required by the Bureau of Internal Revenue for each plant or factory, though operated under the same ownership, while for census purposes one report may be made for several factories and they would be counted as a single establishment; (3) every dealer in scrap tobacco is required to register with the Internal Revenue Bureau, not as a dealer, but as a manufacturer of tobacco, and these, of course, are not considered manufacturers for census purposes; (4) all growers of Perique tobacco are required by the Internal Revenue Bureau to register as manufacturers of tobacco, but are not considered as manufacturers by the census; (5) a large number of manufacturers registered for taxation did not have a product valued at \$500 during 1914, and therefore did not report to the census.

TOBACCO, CHEWING AND SMOKING, AND SNUFF.

The products covered by this classification include (1) plug or chewing tobacco, (2) smoking tobacco, (3) snuff, and (4) all other, which includes scraps, cuttings, siftings, clippings, fillers, stems, powder, and dust. Statistics for the four groups are given in Table 140. There is considerable overlapping between the tobacco subclassifications, chewing tobacco to the value of \$22,707,008 being reported by manufacturers of smoking tobacco, of snuff, and of cigars. Smoking tobacco to the value of \$8,385,286 was reported by manufacturers of chewing tobacco and of cigars and cigarettes. Snuff to the value of \$21,055 was reported by manufacturers of chewing and smoking tobacco and of cigars and cigarettes. "All other" tobacco to the value or \$40,256 was reported by manufacturers of cigars and of cigarettes. Comparative statistics for the manufacture of chewing and smoking tobacco and snuff for each census from 1859 to 1914 are given in Table 223.

At the census of 1849 the classification was "tobacconists." The number of establishments reported was 1,418, employing 14,236 wage earners, with a wage payment of \$2,420,208, and reporting \$7,341,728 as cost of materials used, while the products reported were valued at \$13,491,147.

TOBACCO, CIGARS AND CIGARETTES.

The products of this classification cover (1) establishments that made cigars only, (2) those that made cigarettes only, and (3) those that made both cigars and cigarettes. The following table gives statistics for these three groups for the censuses of 1909 and 1914. Cigars to the value of \$244,068 were reported by manufacturers of smoking and chewing tobacco, and of snuff and of cigarettes. Cigarettes to the value of \$6,349,436 were reported by manufacturers of other tobaccos, principally those making smoking tobacco. Statistics for the industry for each census from 1859 to 1914 are given in Table 223.

ESTABLISHMENTS MANUFACTURING—	TOBACCO, CIGARS AND CIGARETTES.						
	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
	Expressed in thousands.						
Total, 1914.....	13,515	152,892	\$171,982	\$68,306	\$150,530	\$314,884	\$184,354
1909.....	15,362	139,578	131,576	60,432	102,720	260,088	157,368
Cigars:							
1914.....	13,298	140,955	122,503	63,932	97,915	233,423	135,508
1909.....	15,146	129,518	107,010	56,888	85,214	214,621	129,407
Cigarettes:							
1914.....	196	11,842	49,387	4,342	32,526	81,246	48,720
1909.....	193	8,159	22,502	2,363	16,228	41,499	25,271
Cigars and cigarettes:							
1914.....	21	95	92	32	89	215	126
1909.....	23	1,901	2,064	681	1,278	3,968	2,690

VEHICLES FOR LAND TRANSPORTATION.

THE GROUP AS A WHOLE.

This group of industries includes the manufacture of all kinds of vehicles for transportation on land, such as carriages, wagons, automobiles, motorcycles, bicycles, railway cars, sleighs, sleds, baby carriages, and wheelbarrows. Work done in small repair shops and in railroad repair shops is not included. The manufacture of locomotives is also omitted from this group.

The following table shows the number of establishments, average number of wage earners, capital, total wages paid, cost of materials, value of products, and value added by manufacture for each of the industries included in the general group, as reported at the census of 1914:

INDUSTRY.	Number of establishments.	Wage earners (average number).	Capital.	Wages	Cost of materials.	Value of products.	Value added by manu- factu-
Total.....	9,909	263,076	\$803,496	\$197,078	\$586,670	\$1,034,497	\$447,827
Automobiles.....	300	79,307	312,876	66,934	292,598	503,230	210,632
Automobile bodies and parts.....	971	47,785	94,854	34,993	63,610	129,601	65,991
Automobile repairing.....	3,273	12,562	17,098	10,614	9,154	29,920	20,766
Repair work.....	3,178	12,385	16,795	10,485	8,957	29,349	20,392
Vulcanizing tires.....	95	177	303	129	197	571	374
Carriages, wagons, and repairs.....	4,601	41,304	150,798	26,498	52,173	106,697	54,524
Carriages and wagons.....	4,056	39,641	147,943	25,317	51,076	103,283	52,207
Repair work only.....	545	1,663	2,855	1,181	1,097	3,414	2,317
Carriage and wagon materials.....	456	11,087	26,845	6,059	13,546	24,850	11,304
Cars, steam-railroad, not including operations of railroad companies.....	103	54,288	157,811	41,394	132,200	194,776	62,576
Cars, electric-railroad, not including operations of railroad companies.....	14	3,840	14,752	2,467	6,350	10,495	4,145
Motorcycles, bicycles, and parts.....	78	6,680	18,135	4,739	10,928	22,234	11,306
Carriages and sleds, children's.....	92	5,900	9,380	3,181	5,682	11,752	6,070
Wheelbarrows.....	21	323	947	199	429	942	513

There is an intimate relation between the group of industries classed as "vehicles for land transportation," and the group of "railroad repair shops" (see Table 153). The repair shops of steam and electric railroads manufacture considerable numbers of complete cars, although the greater part of their expenditure is for repairs to cars and locomotives. However, inasmuch as some of the work of railroad repair shops is not connected with the rolling stock, and as the method of valuing the product of such shops is different from that in most other industries, it was considered advisable to class steam and electric railroad repair shops as a separate main group. The manufacture of locomotives, which is assigned to the group "iron and steel and their products," is also intimately associated with the manufacture of vehicles for land transportation. If the total value of products of the industries classed in the group "vehicles for land transportation," \$1,034,497,001 be added to the value of products of railroad repair shops, \$552,617,790, and also the value of products of the locomotive industry, \$43,374,141, a grand total of \$1,630,488,932 is obtained, which represents approximately the value of the output of industries producing or repairing vehicles for land transportation in 1914 as compared with \$1,030,908,879 in 1909.

AUTOMOBILES, INCLUDING BODIES AND PARTS.

There are two classes of establishments engaged in the automobile industries: (1) Those which produce the complete machine, either from parts manufactured in the establishment or from parts purchased from others; and (2) those manufacturing chiefly parts, such as chassis, bodies, tops, mufflers, radiators, wind shields, fenders, steering wheels and gears, transmissions, differentials, carburetors, axles, bearings, gaskets, crank shafts, gears, wheels, hoods, etc. The products of establishments of the second class largely become the materials of those of the first class. There is thus

considerable duplication within the industry as a whole. Some establishments that manufacture complete automobiles also manufacture, incidentally, parts of machines for sale. The manufacture of automobile engines, if not conducted by establishments making complete automobiles, is classified under "engines, steam, gas, and water;" the manufacture of rubber tires for automobiles under "rubber goods, not elsewhere specified;" automobile springs under "springs, steel, car and carriage;" automobile starters under "electrical machinery, apparatus and supplies;" and lamps for automobiles under "lamps and reflectors."

The manufacture of automobiles was first shown as a separate industry at the census of 1904, but establishments reporting automobiles in 1899, which were originally included with those making carriages and wagons, have been segregated for purposes of comparison.

The following table presents combined statistics for the two classes of establishments in the automobile industry for 1914, 1909, 1904, and 1899:

CENSUS YEAR.	AUTOMOBILES, INCLUDING BODIES AND PARTS.							
	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
1914.....	1,271	127,092	173,684	\$407,730	\$101,927	\$356,208	\$632,831	\$276,623
1909.....	743	75,721	75,550	173,837	48,694	131,646	249,202	117,556
1904.....	178	12,049	10,109	23,084	7,159	13,151	30,034	16,883
1899.....	57	2,241	3,164	5,769	1,321	1,804	4,748	2,944

Automobiles.—Statistics for the number and value of the different kinds of automobiles manufactured are given in the following table for 1914, 1909, and 1904:

PRODUCT.	AUTOMOBILES.					
	1914		1909		1904	
	Number.	Value.	Number.	Value.	Number.	Value.
Total value.....	.....	\$503,230,137	.....	\$193,823,108	.....	\$26,645,064
Automobiles.....	568,781	458,760,916	126,593	164,269,324	21,692	23,751,234
Gasoline and steam ¹	564,112	448,712,320	122,767	157,009,894	20,267	21,254,979
Electric.....	4,669	10,048,596	3,826	7,259,430	1,425	2,496,255
Passenger vehicles (pleasure, family, and public conveyances)	543,881	414,541,820	123,296	158,985,641	21,281	22,804,287
Runabouts and buggies.....	81,597	45,890,476	40,786	30,421,729	12,131	8,831,504
Touring cars.....	451,032	345,972,679	76,114	113,403,188	7,220	11,781,521
Closed (limousines, cabs, etc.).	11,098	22,349,767	5,205	12,729,304		
All other (omnibuses, sight-seeing wagons, etc.).....	154	323,898	1,191	2,381,420	1,930	2,191,262
Government, municipal, etc. (ambulances, fire department vehicles, and patrol wagons).....	728	3,941,249	42	103,660		
Business vehicles (merchandise).....	24,172	40,277,847	3,255	5,230,023	411	946,947
Delivery wagons.....	4,391	4,749,889	1,862	1,918,856	251	455,457
Trucks.....	19,519	34,741,097	1,366	3,165,512	160	491,490
All other.....	262	786,861	27	145,655	(²)	(³)
All other products.....	.....	44,469,221	.....	29,553,784	.....	2,893,830

¹ In addition, 4,258 automobiles, valued at \$6,296,558 in 1914; 694 automobiles, valued at \$330,080 in 1909; and 1,138 automobiles, valued at \$379,205 in 1904; were reported by establishments engaged primarily in other industries.

² Returns were received from only two establishments making steam automobiles in 1914 and were consolidated with those for establishments making gasoline automobiles to avoid disclosure of operations.

³ None reported.

The following table shows the number of the various kinds of automobiles manufactured in 1914 and 1909, classified according to horsepower rating:

CLASS.	NUMBER OF AUTOMOBILES MANUFACTURED: 1914 AND 1909.						
	Total.	Classified according to horsepower rating.					
		Less than 10.	10 to 19.	20 to 29.	30 to 49.	50 to 89.	90 or more.
Total number:							
1914.....	568,781	4,952	44,877	344,311	161,622	12,840	179
1909.....	126,593	7,539	29,353	35,257	51,218	3,197	29
Passenger vehicles (pleasure, family, government, municipal, and public conveyances):							
1914.....	544,609	3,539	40,250	336,749	151,247	12,645	179
1909.....	123,338	7,220	28,154	34,346	50,510	3,079	29
Runabouts and buggies—							
1914.....	81,597	430	9,845	57,610	13,519	180	13
1909.....	40,786	5,014	21,283	11,270	3,085	157	7
Touring cars—							
1914.....	451,032	3	29,584	276,565	133,091	11,658	131
1909.....	76,114	177	5,415	21,773	45,926	2,802	21
Closed (limousines, cabs, etc.)—							
1914.....	11,098	3,102	781	2,545	4,278	389	3
1909.....	5,205	1,589	1,474	1,250	829	62	1
All other (omnibuses, sight-seeing wagons, ambulances, patrol wagons, fire department vehicles, etc.)—							
1914.....	882	4	40	29	359	418	32
1909.....	1,233	440	12	53	670	58	.....
Business vehicles (merchandise):							
1914.....	24,172	1,413	4,627	7,562	10,375	195	.....
1909.....	3,255	319	1,199	911	708	118	.....
Delivery wagons—							
1914.....	4,391	223	2,125	747	1,278	13	.....
1909.....	1,862	263	878	624	97	.....	.....
Trucks—							
1914.....	19,519	1,122	2,502	6,788	8,941	166	.....
1909.....	1,366	56	317	286	606	101	.....
All other—							
1914.....	262	63	.....	27	156	16	.....
1909.....	27	.....	4	1	5	17	.....

The numbers and values shown in these tables are as reported by the manufacturers and it is probable that some automobiles reported for a given class were converted to another class after being sold. The annual production is no indication of the number of automobiles in actual use, which is best shown by statistics concerning the number of machines registered.

The following table shows the number registered in each state in 1914 and the revenue derived from this source, as compiled by the Department of Agriculture. It contains some duplications because a number of machines are registered in two or more states, but the figures are an indication of the number in use during the census year.

STATE.	MOTOR VEHICLE REGISTRATIONS AND REVENUES, 1914.								
	Registrations.					Revenues.			
	Automobiles. ¹	Motor trucks. ²	Motor cycles.	Cars for hire.	Owners' and chauffeurs' licenses.	Manufacturers' and dealers' licenses.	Automobile fines to state road fund.	Gross registration revenues.	Net registration revenues.
Totals.....	1,666,984	44,355	152,945	1,812	427,179	21,255	\$101,364	\$12,270,035.78	.....
Alabama.....	8,672	.....	742	485	655	63	.....	113,201.75	\$101,904.38
Arizona.....	5,040	.....	743	.....	.....	.....	.....	34,077.50	30,215.18
Arkansas.....	5,642	.....	(³)	.....	.....	100	.....	56,420.00	55,856.00
California.....	123,504	.....	24,709	.....	18,601	927	.....	1,338,785.25	1,182,457.14
Colorado.....	17,756	.....	3,683	.....	2,058	677	.....	80,047.00	76,606.41
Connecticut.....	24,818	2,968	3,476	1,327	38,793	204	8,734	406,623.34	316,697.13

See footnotes on p. 227.

Table 146—
Continued.

MOTOR VEHICLE REGISTRATIONS AND REVENUES, 1914.

STATE.	Registrations.					Revenues.			
	Automobiles. ¹	Motor trucks. ²	Motor cycles.	Cars for hire.	Owners' and chauffeurs' licenses.	Manufacturers' and dealers' licenses.	Automobile fines to state road fund.	Gross registration revenues.	Net registration revenues.
Delaware ⁴	3,050		321		3,390	156		\$35,672.00	
Florida.....	⁵ 3,368		(³)					⁶ 6,736.00	
Georgia.....	20,915		(³)					104,575.00	\$96,866.20
Idaho.....	3,346		396			76		53,779.75	
Illinois.....	131,140		14,852		17,827	1,198		699,725.30	
Indiana.....	66,500		10,403		2,769	511		432,308.78	381,420.57
Iowa.....	106,087		7,318			2,320		1,040,135.54	984,412.86
Kansas.....	49,374		8,068			1,093		263,471.00	
Kentucky.....	11,766		(³)					⁶ 5,883.00	
Louisiana.....	⁶ 12,000		(³)					192,542.14	
Maine.....	15,065	635	727		18,428	310		263,231.07	230,508.00
Maryland.....	18,269	1,944	3,989		(⁷)	948	\$4,907	923,961.74	767,358.07
Massachusetts.....	69,010	8,236	8,161		99,532	1,518	39,690		
Michigan ⁸	76,389		(³)			300			
Minnesota ⁴	⁹ 67,862		(³)		5,935	270		132,398.00	
Mississippi.....	¹⁰ 5,694		(³)					51,146.00	
Missouri.....	54,468		(³)		6,381	935		235,873.50	205,100.49
Montana.....	10,200		(³)		800			27,000.00	21,000.00
Nebraska.....	16,385		1,555			65		34,325.00	
Nevada.....	1,487		(³)					4,331.08	
New Hampshire.....	8,410	1,161	(³)					185,288.21	169,701.50
New Jersey.....	60,427	2,534	10,029		70,313	634	25,025	314,536.50	787,603.55
New Mexico.....	3,090		334			102		19,663.23	16,967.25
New York.....	150,898	17,325	(³)		66,636	1,743	18,000	1,529,852.36	1,350,000.00
North Carolina.....	14,677		1,300			226		89,580.19	
North Dakota.....	17,347		1,255					55,964.00	50,349.59
Ohio.....	122,504		20,647		11,276	1,159		685,457.25	603,720.04
Oklahoma.....	13,500		(³)					13,500.00	13,500.00
Oregon.....	14,865	¹¹ 1,582	2,899		1,838	110		77,692.00	61,000.86
Pennsylvania.....	106,401	6,453	14,592		28,085	3,579		1,185,039.50	985,039.50
Rhode Island.....	11,033	1,298	1,199		17,372	60	5,008	157,020.00	151,020.00
South Carolina.....	⁵ 14,000		(³)					14,000.00	
South Dakota.....	20,929		1,723			491		125,000.00	
Tennessee ⁴	¹² 19,769		(³)					39,638.00	
Texas ⁴	⁵ 40,000		(³)					4,852.00	3,602.00
Utah.....	¹² 2,253		(³)		173			154,266.91	⁶ 133,596.91
Vermont.....	8,266	219	415		10,335	111		120,314.50	115,225.37
Virginia.....	13,934		1,529		1,209	167		60,508.00	
Washington ⁴	30,253		(³)					60,648.49	56,868.49
West Virginia ⁴	6,159		(³)		236			293,580.00	⁶ 265,000.00
Wisconsin.....	53,161		7,880			1,202		12,140.00	
Wyoming.....	2,428		(³)					20,147.50	
Dist. Columbia ⁴	¹² 4,833				4,537				

¹ Includes all motor vehicles subject to registration when statutes do not specify separate classifications.

² Classification as fixed by statutes.

³ State registration not required.

⁴ Revenue not directly applicable to roads.

⁵ Estimated; no state registration.

⁶ Approximate.

⁷ Not recorded by calendar year.

⁸ Law declared unconstitutional May, 1914.

⁹ Registration for a three-year period.

¹⁰ Approximate; returns not complete.

¹¹ Includes delivery cars and excursion taxis.

¹² Perennial registration.

Automobile bodies and parts.—General statistics for the industry are presented in Table 223 for the census years from 1904 to 1914, inclusive. The figures by no means represent the full value of automobile parts and supplies, since products of this character were made by establishments in other industries, and were not always distinguished from the other products of such establishments. Many of the parts and tires made by establishments in other industries are sold to dealers or direct to owners, and do not appear in the value of products of the automobile industry.

The following statement gives for 1914 the value of some of the different automobile parts and supplies that can be identified. The total value is not given (in this table) because it would not represent the value of all the equipment used in the manufacture of automobiles.

CLASSIFICATION—AUTOMOBILE BODIES AND PARTS: 1914.	Value.
Automobile bodies and parts.....	\$129,601,337
Rubber goods, not elsewhere specified—Automobile tires.....	139,515,716
Engines, steam, gas, and water—Automobile engines.....	11,622,961
Springs, steel, car and carriage—Automobile springs.....	6,527,854
Lamps and reflectors—Automobile lamps.....	5,812,439
Electrical machinery, apparatus, and supplies—Automobile motors and starting and lighting systems.....	7,284,715

AUTOMOBILE REPAIRING.

The increase in the manufacture of automobiles has been accompanied by the establishment of garages or shops for the repair of the vehicles. By 1914 this branch of the industry had developed to such an extent that statistics concerning it were included in the census of manufactures. Reports were secured only from establishments using power in which the repair work was similar to that done in machine shops. No special effort was made at the census of 1909 to collect statistics for this industry, but some reports were received and the data included with those for foundries and machine shops. The totals for 1914 and general data by states are given in Table 223.

Table 142 gives separate statistics for establishments doing repair work only and for those vulcanizing tires. In addition to the products shown in the tables, automobile repairing to the value of \$610,735 was reported by establishments assigned to other classifications, principally automobile bodies and parts, carriages and wagons, and machine-shop products. Furthermore, a large amount of custom and repair work was done by establishments engaged in the manufacture of automobiles.

CARRIAGES AND WAGONS AND MATERIALS.

The manufacture of complete carriages and wagons and that of carriage and wagon materials are so closely connected that there is considerable overlapping in the statistics. For this reason, while the data for the two industries are given in Table 223, combined statistics are presented in the following table under the classification "carriages and wagons and materials." The statistics for the combined industry necessarily include considerable duplication.

Table 147

CENSUS YEAR.	CARRIAGES AND WAGONS AND MATERIALS.							
	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
	Expressed in thousands.							
1914.....	5,057	52,391	112,549	\$177,643	\$32,557	\$65,719	\$131,547	\$65,828
1909.....	5,492	69,928	126,032	175,474	37,595	81,951	159,893	77,942
1904.....	5,588	77,882	106,159	152,345	38,363	77,528	155,869	78,341
1899.....	6,792	73,812	83,771	128,962	33,565	66,772	138,262	71,490
1889.....	5,111	66,521	49,458	106,433	33,339	53,411	118,943	65,532
1879.....	4,253	52,896	¹ 10,813	45,008	21,722	35,378	75,066	39,688
1869.....	11,891	55,381	8,946	36,889	21,417	23,002	65,954	42,952
1859.....	7,230	37,127	(²)	18,733	13,426	11,911	35,583	23,672

¹ Carriages and wagons only.² Figures not available.

Carriages, wagons, and repairs.—This classification covers establishments manufacturing a great variety of vehicles, including light and heavy business wagons, such as delivery wagons, baggage wagons, express wagons, drays and trucks; farm wagons; hand carts; hearses; street sprinklers and street sweepers; ambulances; mail wagons; police and fire wagons; family and pleasure carriages; and cabs, hacks, hansoms, and omnibuses. Sleighs, pungs, and sleds are also included. The manufacture of children's carriages and sleds is not included.

As a large amount of repair work is done by establishments included in this classification, Table 142 is compiled to show separate statistics for those making carriages and wagons, and for those doing repair work only. Concerns that manufacture less than five vehicles and those doing only repair work were not fully reported for the censuses of 1909 or 1904. The figures for 1859 and 1869 given in Table 223 probably include a great number of small repair shops, and also many establishments making only parts, so there is considerable duplication in the value of products.

The following table presents statistics of the number and value of the different kinds of vehicles for 1914, 1909, 1904, and 1899:

Table 148 PRODUCT.	CARRIAGES, WAGONS, AND REPAIRS.			
	1914	1909	1904	1899
Total value.....	\$106,697,437	\$125,366,912	\$125,332,976	\$113,234,590
Complete vehicles of all classes:				
Number.....	1,126,026	1,519,782	1,711,529	1,594,465
Value.....	\$69,899,107	\$91,263,264	\$97,190,693	\$85,910,177
Carriages:				
Number.....	538,071	828,411	937,409	904,639
Value.....	\$33,329,879	\$47,756,118	\$55,750,276	\$51,295,393
Wagons:				
Number.....	533,601	587,685	643,755	570,428
Value.....	\$34,506,942	\$39,932,910	\$37,195,230	\$31,080,738
Business—				
Number.....	139,621	154,631	133,422	(²)
Value.....	\$13,022,860	\$16,440,816	(²)	(²)
Light and package commodity, number.....	81,393	107,190	71,733	(²)
Heavy and bulk commodity, num- ber.....	31,458	32,780	31,956	(²)
Pushcarts, number.....	14,937	7,330	6,089	(²)
Hearse, number.....	402	807	642	(²)
Street sprinklers, number.....	197	1,063	157	(²)
Other business wagons, number.....	11,234	5,471	22,845	(²)
Farm (including carts or trucks)—				
Number.....	384,663	429,952	505,025	(²)
Value.....	\$19,708,423	\$22,615,875	(²)	(²)
Government, municipal, etc.—				
Number.....	9,317	3,102	5,308	(²)
Value.....	\$1,775,659	\$376,219	(²)	(²)
Ambulances, number.....	346	598	245	(²)
Mail and mail carriers' wagons and carts, number.....	5,549	1,912	4,703	(²)
Patrol wagons (fire and police) hose wagons, and prison vans, number.....	3,422	592	360	(²)
Public conveyances:				
Number.....	1,221	2,243	2,711	2,218
Value.....	\$279,656	\$939,267	\$1,314,952	\$1,114,090
Sleighs and sleds:				
Number.....	52,010	100,899	127,455	117,006
Value.....	\$1,207,705	\$2,065,850	\$2,694,560	\$2,290,903
Automobiles: ³				
Number.....	1,123	544	199	174
Value.....	\$574,925	\$569,119	\$235,675	\$129,053
All other products, including parts and amount received for repair work.....	\$36,798,330	\$34,103,648	\$28,142,283	\$27,324,413

¹ In addition, in 1914, 12,330 carriages, valued at \$863,489; 38,808 wagons, valued at \$2,026,210; 63 public conveyances, valued at \$45,508; 1,311 sleighs and sleds, valued at \$24,309; and parts, materials, and repair work, valued at \$1,533,099, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designation. In 1909, this class of establishments made 14,908 carriages, valued at \$1,078,935; 42,112 wagons, valued at \$2,063,288; 104 public conveyances, valued at \$5,615; 8,209 sleighs and sleds, valued at \$165,917; and parts and materials, valued at \$1,184,256, and in 1904 such establishments made carriages and wagons, valued at \$612,173.

² Not reported separately.

³ Manufactured in establishments devoted primarily to the manufacture of carriages and wagons.

Carriage and wagon materials.—Under this classification are included establishments making carriage and wagon bodies, hubs, felloes, spokes, wheels, axles, whiplies, trees, eveners, neck yokes, poles, reaches, dashboards, tops, cushions, lamp brackets, gears, washers, whip sockets, etc. The manufacture of carriage and wagon springs is, however, classed as a separate industry (see Table 67). The figures for 1859 and 1869 in Table 223, which presents comparative statistics, are for the industry designated "carriage trimmings," and therefore are not as wide in their scope as those for later censuses.

MOTORCYCLES, BICYCLES, AND PARTS.

The statistics for this industry cover establishments engaged primarily in the manufacture or assembling of complete bicycles and motorcycles, and also those making parts and accessories for these machines, such as handles and handlebars, frames, saddles, saddle springs and seat posts, hubs, bicycle bells and cyclometers, coaster brakes, spokes, nipples, rims, pedals, chains, ball bearings, guards, and parcel carriers. There is thus considerable duplication in the total value of products for the industry.

Some establishments engaged in this industry also manufacture three-wheeled delivery vans and tandems, and the various types of wheels used by vaudeville acrobats and circus performers. At the censuses of 1899 and 1904 the industry designation was "bicycles and tricycles," and the published reports include the statistics for a considerable output of children's tricycles and velocipedes. Establishments engaged primarily in the latter class of manufacture were classified under "toys and games" in 1909 and 1914.

It is impossible to present statistics showing the full value of all parts and supplies made in other industries, many of which are not used by the factories, but are sold directly by the manufacturers to dealers, repair shops, etc. In particular, the value of tires, a product of the rubber-goods industry, is only partly accounted for in the cost of materials reported for the motorcycle and bicycle industry. Table 223 presents the general statistics for the industry for the last five censuses.

The following table presents the comparative statistics of the number and value of motorcycles and bicycles manufactured:

PRODUCT.	MOTORCYCLES, BICYCLES, AND PARTS.			
	1914	1909	1904	1899
Total value ¹	\$22,234,262	\$10,698,567	\$5,153,240	\$31,915,908
Motorcycles:				
Number.....	62,154	18,623	2,300	160
Value.....	\$12,161,775	\$3,015,988	\$354,980	\$33,674
Bicycles:				
Number.....	299,029	168,824	225,309	1,112,880
Value.....	\$3,757,318	\$2,436,996	\$3,203,505	\$22,127,310
All other products, including parts.....	\$6,315,169	\$5,245,583	\$1,594,755	\$9,754,924

¹ In addition, similar products were reported by establishments engaged primarily in the manufacture of other products, as follows:

PRODUCT.	1914	1909	1904	1899
Motorcycles:				
Number.....	639		28	
Value.....	\$144,672		\$4,200	
Bicycles:				
Number.....	99,870	64,883	25,178	60,811
Value.....	\$1,603,912	\$791,193	\$537,418	\$1,529,177
All other products, including parts.....	\$2,899,214	\$579,927	\$34,341	\$24,000

CARRIAGES AND SLEDS, CHILDREN'S.

Under this classification are included those establishments engaged primarily in the manufacture of baby and doll carriages, "walkers," go-carts, children's sleds, express wagons, and auto coasters. As shown in Table 223, which is a comparative summary covering a period of 45 years, there has not been a great increase in the number of establishments, but the value of products in 1914 was over eight times that reported in 1869. At the census of 1859 the manufacture of "carriages, children's" (sleds were not included), was reported by 32 establishments, employing 357 wage earners. The products were valued at \$374,350. In addition to the products covered by the table, children's carriages and sleds to the value of \$2,213,026 in 1914 and of \$1,759,271 in 1909 were made by establishments engaged primarily in the manufacture of other products.

WHEELBARROWS.

Table 223 presents comparative statistics for the manufacture of wheelbarrows for all censuses from 1869 to 1914. Some of the establishments reported products other than wheelbarrows, the more important being porch swings, hand or push carts, warehouse trucks, and minor articles used on farms, such as stone boats, whippetrees, sleds, crates, etc. In addition to the products covered by the table, wheelbarrows to the value of \$264,896 in 1914 and of \$197,659 in 1909 were reported by establishments engaged primarily in the manufacture of other products, principally planing-mill and foundry and machine-shop products, and agricultural implements.

STEAM AND ELECTRIC RAILROAD CARS.

The following table presents comparative statistics for the manufacture of cars, steam and electric, and includes those made by establishments engaged primarily in the manufacture of steam cars, of electric cars, and of cars made by both steam and electric railroad repair shops, as well as those reported by establishments assigned to other classifications.

PRODUCT.	STEAM AND ELECTRIC RAILROAD CARS.			
	1914	1909	1904	1899
Total: Number.....	137,823	101,243	124,634	.....
Value.....	\$104,959,665	\$102,147,396	\$110,249,222	.....
Steam-railroad cars:				
Number.....	134,960	98,471	119,940	144,502
Value.....	\$154,796,515	\$94,884,287	\$100,346,912	\$36,050,664
Passenger service—				
Number.....	3,568	1,819	2,446	1,369
Value.....	\$45,245,184	\$15,120,961	\$20,486,260	\$8,810,032
Freight service—				
Number.....	131,392	96,652	117,494	143,133
Value.....	\$109,551,331	\$79,763,326	\$79,860,652	\$77,240,632
Electric-railroad cars:				
Number.....	2,863	2,772	4,694	(²)
Value.....	\$10,163,150	\$7,263,109	\$9,902,310	(²)

¹ Includes all service cars not passenger.

² Not reported separately.

Cars, steam-railroad, not including operations of railroad companies.—This classification includes establishments whose chief product is cars, whether of wood or of steel, for use on steam railroads. It does not include, however, the manufacture of steam railroad cars in steam railroad repair shops or in establishments engaged primarily in the manufacture of street railroad cars. Some establishments, besides making finished cars, reported the manufacture, for sale as such, of car materials and parts, such as brake beams, axles, underframes, trucks, car wheels, bolsters, castings, and car bodies, so there is some duplication in value of products within the industry. Most concerns making exclusively or primarily parts or materials for cars are, however, placed under other classifications, such as "brass, bronze, and copper products," "foundry and machine-shop products," "lumber and timber products," and "springs, steel, car and carriage."

Besides the common classes of passenger cars, box cars, and flat cars, a large variety of cars designed for carrying special kinds of freight were reported, as, for instance, poultry, ice, rock, logging, and tank cars. Construction cars, track-laying cars, dump, work, and sprinkler cars, snowplows, show and boarding cars, and cabooses were also reported. Sleeping and parlor cars and other special classes of passenger cars are likewise included. General statistics of the industry for the censuses from 1889 to 1914 are given in Table 223. No separation of the statistics was made at the census of 1879, but 130 establishments classified as "cars, railroad and street, and repairs, not including establishments operated by steam railroad companies," reported \$27,997,591 in value of products. At the census of 1869, 170 establishments shown under "cars, railroad and repairs" in the general table reported products valued at \$31,070,734. "Cars, omnibuses, and repairing" were reported at the census of 1859 to the value of \$4,302,613, by 62 establishments; and at the census of 1849 "cars, railroad," were made by 41 establishments to the value of \$2,493,558. These statistics can not be considered comparable with those for later censuses.

Statistics of establishments constructing steam railroad cars not including the work of steam railroad companies in their repair shops, or that of establishments primarily engaged in the construction of electric cars are given for the last four censuses in the following table:

Table 151 PRODUCT.	CARS, STEAM-RAILROAD.			
	1914	1909	1904	1899
Total value.....	\$194,775,669	\$123,729,627	\$111,175,310	\$90,510,180
Steam-railroad cars:				
Number.....	120,084	74,778	102,646	117,569
Value.....	\$140,157,583	\$75,521,432	\$87,289,248	\$69,529,312
Passenger service ¹ —				
Number.....	3,434	1,601	2,030	979
Value.....	\$43,955,798	\$13,829,607	\$18,140,293	\$7,368,299
Baggage and express—				
Number.....	438	216	199	72
Value.....	\$3,642,629	\$1,105,779	\$896,185	\$238,554
Mail—				
Number.....	145	95	95	42
Value.....	\$1,497,824	\$600,912	\$576,230	\$197,465
Passenger ¹ —				
Number.....	1,645	957	428	331
Value.....	\$19,577,886	\$7,209,425	\$2,955,517	\$1,975,469
Chair, dining and buffet, parlor, sleeping, and all other—				
Number.....	1,206	333	1,308	534
Value.....	\$19,237,459	\$4,913,491	\$13,712,361	\$4,956,811
Freight service—				
Number.....	116,650	73,177	100,616	116,590
Value.....	\$96,201,785	\$61,691,825	\$69,148,955	\$62,161,013
Box—				
Number.....	50,481	29,728	38,184	47,838
Value.....	\$40,952,538	\$23,982,446	\$28,508,632	\$26,562,893
Caboose—				
Number.....	340	537	160	193
Value.....	\$420,568	\$525,605	\$150,977	\$184,865
Flat—				
Number.....	4,781	3,232	5,412	4,525
Value.....	\$3,120,084	\$2,033,801	\$2,893,154	\$1,923,525
Gondolas—				
Number.....	25,077	19,607	9,518	11,821
Value.....	\$22,808,750	\$18,128,186	\$5,518,084	\$6,873,145
Hopper ² —				
Number.....	9,754	11,473	27,998	28,857
Value.....	\$10,708,407	\$9,419,655	\$21,367,218	\$18,414,718
Refrigerator—				
Number.....	5,800	2,618	3,353	2,354
Value.....	\$8,077,062	\$2,747,957	\$3,042,835	\$1,956,097
Stock—				
Number.....	3,929	2,349	4,235	2,760
Value.....	\$2,587,065	\$1,586,008	\$2,453,123	\$1,426,800
Tank—				
Number.....	1,250			
Value.....	\$1,255,167			
Other varieties—		3,633	11,756	18,242
Number.....	³ 15,238	\$3,268,167	\$5,214,932	\$4,818,970
Value.....	³ \$6,272,144			
Electric-railroad cars:				
Number.....	194	603	418	935
Value.....	\$711,198	\$2,023,922	\$994,654	\$1,090,854
Passenger—				
Number.....	161	558	331	902
Value.....	\$685,804	\$1,903,317	\$930,791	\$1,062,172
Other—				
Number.....	33	45	87	33
Value.....	\$75,394	\$120,605	\$63,863	\$28,682
All other products, value.....	\$53,906,888	\$46,184,273	\$22,891,408	\$19,890,014

¹ Includes gasoline motors for use as passenger cars by steam railroads, for 1904 and 1909.

² Reported as coal and coke in 1909, 1904, and 1899.

³ Includes, in 1914, 9,737 logging, mining, industrial, and dump cars valued at \$1,825,693.

Cars, electric-railroad, not including operations of railroad companies.—The following table gives the number and value of the different kinds of cars made in establishments constructing street or electric railroad cars. It does not include cars made in the shops of railroad companies or by establishments primarily engaged in making steam-railroad cars.

General statistics for the industry are given in Table 223 for the censuses from 1889 to 1914, inclusive.

Table 152

PRODUCT.	CARS, ELECTRIC-RAILROAD.		
	1914	1909	1904
Total value.....	\$10,494,953	\$7,809,866	\$10,844,196
Electric-railroad cars—			
Number.....	2,348	1,922	3,966
Value.....	\$8,078,348	\$4,602,435	\$8,302,512
Passenger—			
Number.....	2,174	1,787	3,677
Value.....	\$7,439,906	\$4,346,098	\$7,878,470
Closed—			
Number.....	1,876	1,323	2,621
Value.....	\$6,802,764	\$3,500,781	\$5,777,257
Combination—			
Number.....	143	369	502
Value.....	\$383,694	\$704,309	\$1,240,864
Open—			
Number.....	155	95	554
Value.....	\$253,448	\$141,008	\$860,349
Freight, express, and mail—			
Number.....	66	92	16
Value.....	\$174,334	\$179,293	\$24,022
Other varieties—			
Number.....	108	43	273
Value.....	\$464,108	\$77,044	\$400,020
Steam-railroad cars—			
Number.....	17	167	136
Value.....	\$72,034	\$111,813	\$59,663
All other products, value.....	\$2,344,571	\$3,095,618	\$2,482,021

RAILROAD REPAIR SHOPS.

This group includes only two industries, which are designated "cars and general shop construction and repairs by steam-railroad companies" and "cars and general shop construction and repairs by electric-railroad companies." Briefly, they may be called steam-railroad repair shops and electric-railroad repair shops, respectively.

As a rule, steam and electric railroad companies operate one or more repair shops for the purpose of maintaining the rolling stock in proper condition. Incidental to their repair work, however, such shops often manufacture complete cars and locomotives. While the great bulk of the work of repair shops is on the rolling stock, they also do shopwork in connection with the construction and repair of bridges and other fixed property. The products are not ordinarily assigned a selling or contract value, and the amount reported to the census is usually the cost of production.

Table 153

INDUSTRY.	RAILROAD REPAIR SHOPS: 1914.						
	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
Total.....	2,011	365,902	\$417,706	\$253,150	\$261,439	\$552,618	\$291,179
Steam-railroad repair shops.....	1,362	339,518	354,092	234,505	243,829	514,041	270,212
Electric-railroad repair shops.....	649	26,384	63,614	18,645	17,610	38,577	20,967

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. Most of the value represents that of repairs, comparatively little representing new construction. General statistics for the industry are given in Table 223 for the censuses from 1889 to 1914, inclusive. The number of establishments was less in 1909 and in 1904 than in 1899. This decrease is due probably to the

concentration of railroad repair work in large repair shops. All the other items show decided increases from census to census.

CLASS OF WORK.	STEAM-RAILROAD REPAIR SHOPS.			
	1914	1909	1904	1899
Total value.....	\$514,041,225	\$405,600,727	\$309,775,089	\$218,238,277
Motive power and machinery department.....	\$236,723,724	\$184,971,870	\$149,643,953	\$94,447,260
Locomotives built—				
Number.....	187	215	148	272
Value.....	\$3,594,003	\$3,289,140	\$1,853,939	\$3,276,393
Repairs to locomotives, motors, etc.....	\$169,057,932	\$127,928,773	\$101,326,805	\$57,383,143
Work for other corporations.....	\$7,053,430	\$4,735,004	\$5,681,307	\$3,338,589
All other products or work.....	\$57,018,359	\$49,018,953	\$40,781,902	\$30,449,135
Car department.....	\$242,976,774	\$199,768,939	\$149,748,820	\$118,376,552
Cars built, value.....	\$11,999,983	\$13,326,171	\$12,990,011	\$16,521,352
Passenger—				
Number.....	123	218	414	390
Value.....	\$1,233,302	\$1,291,354	\$2,337,977	\$1,441,733
Freight—				
Number.....	10,314	13,972	14,742	26,543
Value.....	\$10,513,676	\$11,767,664	\$10,006,642	\$15,079,619
Other—				
Number.....	308	359	2,000	(²)
Value.....	\$253,005	\$267,153	\$645,392	(²)
Repairs to cars of all kinds.....	\$183,753,538	\$147,194,065	\$105,319,032	\$74,665,500
Work for other corporations.....	\$14,819,984	\$8,784,239	\$6,946,990	\$7,084,857
All other products or work.....	\$32,403,269	\$30,464,464	\$24,492,787	\$20,104,843
Bridge and building department (shopwork).....	\$3,127,644	\$2,799,898	\$5,096,141	\$5,414,465
Repairs and renewals.....	\$2,449,821	\$1,906,737	\$4,351,487	\$3,937,170
Work for other corporations.....	\$37,061	\$46,496	\$49,581	\$241,626
All other products or work.....	\$640,762	\$846,665	\$704,073	\$1,235,669
All other products and work, not classified.....	\$31,213,083	\$18,060,020	\$5,286,175	(²)

¹ Includes \$124,619 reported for Alaska.

² Not reported.

CARS AND GENERAL SHOP CONSTRUCTION AND REPAIRS BY ELECTRIC-RAILROAD COMPANIES.

The following table presents statistics of the operations of the construction and repair shops of electric-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. General statistics for the industry are given in Table 223 for the census years from 1889 to 1914, inclusive.

CLASS OF WORK.	ELECTRIC-RAILROAD REPAIR SHOPS.		
	1914	1909	1904
Total value.....	\$38,576,565	\$31,962,561	\$13,437,121
Motive power and machinery department.....	\$5,380,573	\$4,510,332	\$510,946
Repairs to motors, etc.....	\$4,933,436	\$4,004,336	.....
Work for other corporations.....	\$56,944	\$88,070	\$2,626
All other products or work.....	¹ \$390,193	² \$417,926	\$508,320
Car department.....	\$31,086,043	\$25,835,463	\$12,581,365
Cars built.....	\$811,104	\$626,752	\$605,144
Passenger—			
Number.....	235	129	288
Value.....	\$737,926	\$498,709	\$580,669
Freight—			
Number.....	11	63	13
Value.....	\$21,196	\$59,102	\$11,366
Other—			
Number.....	58	51	9
Value.....	\$51,982	\$68,941	\$13,109
Repairs to cars of all kinds.....	\$27,628,802	\$22,869,777	\$11,254,505
Work for other corporations.....	\$441,323	\$624,805	\$36,714
All other products or work.....	\$2,204,814	\$1,714,129	\$685,002
Bridge and building department (shopwork).....	\$434,427	\$330,948	\$327,855
Repairs and renewals.....	\$199,751	\$273,581	\$253,133
Work for other corporations.....	\$479	\$5,093	.....
All other products or work.....	\$234,197	\$52,274	\$74,722
All other products and work, not classified.....	\$1,675,522	\$1,285,818	\$16,955

¹ Includes the value of 1 locomotive.

² Includes the value of 3 electric locomotives.

MISCELLANEOUS INDUSTRIES.

THE GROUP AS A WHOLE.

This group includes all industries not presented in the 13 groups preceding. Some of them could not be properly classed in any of the other groups on account of the varied character of the materials used; others on account of the peculiar nature or use of the products. Some, however, resemble rather closely industries included under other groups, especially the groups "iron and steel and their products" and "metals and metal products, other than iron and steel." Such resemblance is particularly marked in the case of the following industries of the miscellaneous group: "Electrical machinery, apparatus, and supplies"; "agricultural implements"; "fire extinguishers, chemical"; "instruments, professional and scientific"; and "soda-water apparatus." It often happens that articles which constitute the chief products of these industries are also made in considerable quantities by establishments classed under the two groups before mentioned. There is also a considerable overlapping of the products within the miscellaneous group itself. On the other hand, there are few of the industries in the miscellaneous group whose products are chiefly used as materials in other industries of the group or in industries assigned to other groups.

The following table shows the number of establishments, average number of wage earners, capital, total wages paid, cost of materials, value of products, and value added by manufacture, for each of the industries included in the general group as reported for the census of 1914:

INDUSTRY.	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
Total.....	19, 193	594, 465	\$2, 047, 842	\$361, 635	\$835, 139	\$1, 749, 418	\$914, 279
Aeroplanes and parts.....	16	168	401	135	134	790	656
Agricultural implements.....	601	48, 459	338, 532	34, 593	73, 509	164, 087	90, 578
Ammunition.....	32	11, 493	37, 454	6, 751	16, 277	30, 840	14, 563
Cartridges.....	7	9, 889	30, 531	5, 983	13, 159	25, 573	12, 414
All other.....	25	1, 604	6, 923	768	3, 118	5, 267	2, 149
Artificial flowers.....	217	4, 808	3, 349	1, 991	3, 207	7, 614	4, 407
Artificial limbs.....	153	488	1, 003	369	316	1, 498	1, 182
Artists' materials.....	44	604	2, 947	315	2, 065	3, 238	1, 173
Crayons.....	11	127	325	50	68	181	113
All other.....	33	477	2, 622	265	1, 997	3, 057	1, 060
Asbestos products, not including steam packing.....	32	962	3, 520	484	1, 360	2, 814	1, 454
Building materials.....	10	651	2, 723	329	716	1, 813	1, 097
All other.....	22	311	797	155	644	1, 001	357
Belting and hose, rubber.....	18	5, 115	22, 437	2, 902	12, 967	23, 561	10, 594
Rubber belting.....	7	2, 442	11, 250	1, 451	5, 927	11, 580	5, 653
Rubber hose.....	11	2, 673	11, 187	1, 451	7, 040	11, 981	4, 941
Boots and shoes, rubber.....	23	18, 687	46, 051	9, 986	23, 956	53, 822	29, 866
Brooms.....	868	5, 642	8, 706	2, 624	7, 884	14, 085	6, 201
From broom corn.....	828	5, 548	8, 581	2, 573	7, 729	13, 800	6, 071
All other.....	40	94	125	51	155	285	130
Brushes.....	359	7, 213	14, 333	3, 461	9, 327	17, 894	8, 567
Toilet.....	41	1, 208	2, 329	660	1, 109	2, 675	1, 566
Paint and varnish.....	45	2, 420	6, 483	1, 262	4, 208	7, 303	3, 095
All other.....	273	3, 585	5, 521	1, 539	4, 010	7, 916	3, 966
Buttons.....	517	14, 511	19, 075	6, 424	8, 702	20, 712	12, 010
Combs and hairpins, not made from metal or rubber.....	66	2, 773	2, 959	1, 393	2, 853	5, 478	2, 625
Dairymen's, poultrymen's, and apiarists' supplies.....	236	5, 551	21, 281	3, 363	9, 248	18, 950	9, 702
Incubators and brooders.....	54	1, 065	3, 031	508	1, 470	3, 162	1, 692
All other poultrymen's supplies.....	57	299	609	152	537	1, 085	498
Cream separators.....	27	2, 620	12, 235	1, 722	2, 904	7, 779	4, 875
All other dairymen's supplies.....	72	1, 106	3, 969	717	3, 214	5, 136	1, 922
Apiarists' supplies.....	26	461	1, 437	264	1, 073	1, 788	715
Dental goods.....	172	3, 080	10, 949	1, 616	10, 715	16, 160	5, 445
Teeth.....	33	1, 731	6, 226	740	1, 864	4, 189	2, 325
All other.....	139	1, 349	4, 723	876	8, 851	11, 971	3, 120

Table 156—Continued.

INDUSTRY.	MISCELLANEOUS INDUSTRIES: 1914.						Value added by manufacture.
	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	
Expressed in thousands.							
Electrical machinery, apparatus, and supplies.....	1,030	118,078	\$355,725	\$73,806	\$154,728	\$335,170	\$180,442
Enameling.....	77	1,314	2,128	649	969	2,166	1,197
Engravers' materials.....	13	106	352	73	551	768	217
Fancy articles, not elsewhere specified.....	493	7,399	11,879	3,567	8,429	17,659	9,230
Beadwork.....	19	341	251	104	704	1,083	379
Celluloid novelties.....	28	529	732	270	808	1,493	675
Metal novelties.....	107	1,615	2,659	825	1,307	3,209	1,902
Paper novelties.....	46	822	1,573	359	541	1,453	912
Wood novelties.....	32	405	535	195	193	556	363
All other.....	261	3,687	6,129	1,814	4,876	9,875	4,999
Feathers and plumes.....	239	4,483	5,396	1,988	6,102	11,451	5,349
Fire extinguishers, chemical.....	27	256	675	200	574	1,298	724
Fireworks.....	41	1,324	2,162	616	1,206	2,296	1,090
Foundry supplies.....	57	555	2,814	301	997	2,013	1,016
Fuel, manufactured.....	14	141	1,771	112	609	863	254
Fur goods.....	1,322	9,030	29,677	6,335	23,847	43,633	19,786
Furs, dressed.....	96	1,525	2,490	923	906	2,875	1,969
Graphite, ground and refined.....	11	250	3,059	181	723	1,724	1,001
Hair work.....	205	1,193	2,543	581	1,529	3,355	1,806
Hand stamps.....	277	1,321	2,273	848	1,093	3,383	2,290
Hat and cap materials.....	98	1,775	6,417	804	5,052	6,929	1,877
Hats, straw.....	149	9,483	12,589	5,253	14,086	25,444	11,358
House-furnishing goods, not elsewhere specified.....	370	6,935	19,014	3,307	17,391	26,453	9,062
Comforts and quilts.....	54	1,772	5,742	693	4,478	6,270	1,792
Feather pillows and beds.....	38	540	2,846	313	2,249	3,194	945
Cotton batting.....	18	327	1,277	158	982	1,516	534
Mops and dusters.....	74	512	1,107	231	1,434	2,893	1,459
All other.....	186	3,784	8,042	1,912	8,248	12,580	4,332
Ice, manufactured.....	2,543	23,011	174,309	14,841	17,755	60,386	42,631
Instruments, professional and scientific.....	307	7,107	16,742	4,652	5,582	17,495	11,913
Medical and surgical.....	110	2,084	3,765	1,255	1,639	4,667	3,023
Optical.....	11	104	234	69	65	207	142
All other.....	186	4,919	12,743	3,328	3,878	12,621	8,743
Ivory, shell, and bone work, not including combs and hairpins.....	54	795	1,160	391	958	1,896	938
Japanning.....	35	228	261	149	95	381	286
Jewelry and instrument cases.....	125	2,393	2,187	1,094	1,450	3,621	2,171
Lapidary work.....	89	584	3,613	641	3,941	5,360	1,419
Mattresses and spring beds.....	1,000	11,747	24,922	6,723	22,399	33,717	16,313
Models and patterns, not including paper patterns.....	762	4,274	5,534	3,103	2,045	8,605	6,560
Mucilage and paste.....	127	700	3,550	399	3,338	5,695	2,357
Musical instruments and materials.....	241	1,831	3,858	1,161	1,023	3,625	2,602
Brass and other metal.....	39	733	1,906	495	297	1,391	1,094
Violins and other stringed instruments.....	135	495	993	293	273	1,142	869
All other.....	67	603	962	373	453	1,092	639
Musical instruments, organs.....	85	3,063	8,042	1,993	2,660	6,297	3,637
Musical instruments, pianos.....	255	23,877	101,746	15,705	29,091	62,775	33,684
Musical instruments, piano and organ materials.....	138	10,616	21,201	5,655	9,502	19,876	10,374
Piano materials.....	121	10,436	20,789	5,519	9,358	19,493	10,135
Organ materials.....	17	180	412	136	144	383	239
Optical goods.....	314	7,919	17,011	4,649	6,606	18,188	11,582
Paving materials.....	609	19,540	57,432	11,184	14,163	35,678	21,515
Pencils, lead.....	14	4,330	10,670	1,944	4,564	8,328	3,764
Pens, fountain and stylographic.....	55	1,154	3,270	718	1,614	6,865	5,251
Phonographs and graphophones.....	18	9,381	33,771	6,342	7,048	27,116	20,068
Photographic apparatus.....	87	2,016	4,397	1,289	1,535	4,273	2,738
Cameras.....	21	675	1,751	389	598	1,254	656
Motion-picture machines.....	16	659	1,362	498	622	1,820	1,198
All other apparatus and parts.....	50	682	1,284	402	315	1,199	884
Photographic materials.....	59	6,658	31,991	4,256	10,004	34,768	24,764
Motion-picture films, not exposed.....	4	155	1,074	83	317	411	94
All other.....	55	6,503	30,917	4,173	9,687	34,357	24,670
Pipes, tobacco.....	47	2,354	3,232	1,188	2,308	4,220	1,912
Roofing materials.....	170	4,088	23,645	2,642	17,605	27,978	10,373
Metal shingles and ceilings.....	41	780	4,000	478	2,878	4,380	1,502
All other.....	129	3,308	19,645	2,164	14,727	23,598	8,871
Rubber goods, not elsewhere specified.....	301	50,220	199,183	31,279	126,112	223,611	97,499
Sand and emery paper and cloth.....	12	681	5,279	359	2,686	4,328	1,642

Table 156—Continued.

INDUSTRY.	Number of establishments.	Wage earners (average number).	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
Shipbuilding, iron and steel.....	79	33,508	\$132,712	\$25,166	\$29,270	\$66,217	\$36,947
New vessels.....	46	28,142	112,630	20,719	25,826	51,340	28,514
Repair work only.....	28	4,849	18,342	4,065	3,027	10,267	7,240
Small boats, masts, spars, oars, and the rigging of vessels.....	5	517	1,740	382	417	1,610	1,193
Shipbuilding, wooden, including boat building.....	1,068	10,981	23,348	7,765	9,327	22,465	13,138
New vessels.....	273	4,802	9,580	3,416	4,691	10,427	5,736
Repair work only.....	179	4,109	8,947	2,946	2,518	7,256	4,738
Small boats.....	588	1,895	4,614	1,280	1,956	4,414	2,458
Masts, spars, oars, and the rigging of vessels.....	28	175	207	123	162	368	206
Signs and advertising novelties.....	776	9,566	21,288	5,933	9,059	24,792	15,733
Electric signs.....	76	839	3,111	625	896	2,300	1,404
Other signs.....	515	4,385	10,047	3,049	3,873	11,098	7,825
Advertising novelties.....	185	4,342	8,130	2,259	4,290	10,794	6,504
Soda-water apparatus.....	67	2,229	10,419	1,661	3,883	8,781	4,898
Sporting and athletic goods.....	162	5,602	8,468	2,771	6,952	13,235	6,283
Stationery goods, not elsewhere specified.....	189	7,728	18,186	3,791	10,763	21,903	11,140
Penholders.....	6	68	58	38	39	114	75
All other.....	183	7,660	18,128	3,753	10,724	21,789	11,065
Steam packing.....	149	4,213	17,708	2,525	8,176	14,213	6,037
Stencils and brands.....	107	446	863	301	332	1,103	771
Surgical appliances.....	238	4,282	11,883	2,211	7,098	14,920	7,822
Theatrical scenery.....	7	88	266	89	125	327	202
Toys and games.....	290	7,887	10,484	3,499	5,779	13,757	7,978
Umbrellas and canes.....	265	4,792	9,469	2,167	8,592	13,813	5,221
Washing machines and clothes wringers.....	111	2,302	7,298	1,221	4,148	7,600	3,452
Whips.....	40	1,163	3,050	559	1,341	3,162	1,821
Windmills.....	31	1,955	6,426	1,252	2,555	5,497	2,942
Window shades and fixtures.....	286	4,077	11,526	2,181	11,889	17,444	5,555
All other industries ¹	8	357	3,481	235	454	1,104	650

¹ Includes the following industries with number of establishments as indicated: "Millstones," 2; "ordnance and accessories," 2; "pulp, from fiber other than wood," 3; and "whalebone cutting," 1.

AEROPLANES AND PARTS.

Establishments included in this classification manufacture biplanes, monoplanes, hydroplanes, and parts. Statistics for this industry, which has been developed during the past decade, were not shown separately at prior censuses. The data for any establishments that were in operation at the census of 1909 were included with those for motorcycles, bicycles, and parts. General statistics for the industry are given in Table 223. The classification covers only the establishments that produce the complete machine. Statistics for the manufacture of aeroplane tires, engines, and other equipment, when made by establishments not manufacturing the complete machine, are included in other classifications, such as "rubber goods, not elsewhere specified," and "engines, steam, gas, and water." The number of establishments reported for this industry in 1914 was 16; the production of aeroplanes, hydroplanes, and parts for that year was valued at \$481,022; the receipts for repair work amounted to \$209,481; and the value of "all other products" was reported as \$99,369.

AGRICULTURAL IMPLEMENTS.

Establishments in this classification manufacture all kinds of plows, cultivators, seeders and planters, harvesting implements, and seed separators. Table 157 gives the value of four principal groups of products and the number of the more important machines and implements manufactured in 1914, 1909, 1904, and 1899. The value of all products increased from \$101,207,428 in 1899 to \$164,086,835 in 1914, or by 62.1 per cent. This includes the value of miscellaneous agricultural implements and parts not classifiable under any 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. Table 223 presents statistics for the industry from 1849 to 1914, inclusive.

Table 157

PRODUCT.	AGRICULTURAL IMPLEMENTS.				
	1914	1909	1904	1899	
Total value.....	\$164,086,835	\$146,329,268	\$112,007,344	\$101,207,428	
Plows and cultivators.....	38,662,037	36,784,477	30,607,960	98,010,506	
Planters and seeders.....	12,188,757	12,141,474	11,225,122		
Harvesting implements.....	39,581,286	34,568,131	30,862,435		
Seed separators.....	13,096,289	11,030,412	6,639,883		
All other products, including parts for all classes of agricultural implements.....	59,121,201	48,690,082	30,703,648	3,196,922	
Amount received for repair work.....	1,437,265	3,114,692	1,968,296		
PRINCIPAL KINDS OF IMPLEMENTS.		NUMBER.			
Plows and cultivators:					
Cultivators—					
Beet.....	2,184	3,172	3,459	2,008	
Small (horse or hand).....	492,239	469,696	239,173	207,171	
Wheeled.....	378,934	435,429	313,088	295,799	
Cotton scrapers.....	17,537	20,180	22,519	15,230	
Fertilizing machines.....	180,854	(²)	(²)	(²)	
Harrow—					
Disk.....	209,077	193,000	104,323	97,961	
Spring-tooth.....	187,370	112,832	86,408	380,259	
Spike-tooth.....	368,219	394,988	262,442		
Land rollers.....	22,470	(²)	(²)	(²)	
Listers.....	37,953	44,840	23,012	26,995	
Plows—					
Disk.....	15,708	22,132	39,146	17,345	
Gang.....	75,839	91,686	(²)	(²)	
Shovel.....	181,550	254,737	121,899	102,320	
Engine.....	3,265	2,355	1,599	207	
Sulky (single).....	108,232	134,936	138,899	136,105	
Walking.....	870,414	1,110,006	956,898	819,022	
Pulverizers.....	12,724	(²)	(²)	(²)	
Other.....	80,096	(²)	(²)	(²)	
Planters and seeders:					
Seeders (broadcast and wagon or endgate) and seeder attachments.....	60,297	61,970	33,546	36,862	
Corn planters—					
Hand.....	101,850	96,465	86,553	129,515	
Horse.....	114,657	122,780	90,929	78,335	
Cotton planters.....	101,256	79,271	127,052	45,575	
Potato planters.....	37,191	23,092	35,756	25,338	
Drills.....	198,881	142,547	105,763	118,877	
Seed sowers, hand, field.....	12,608	7,847	59,910	83,283	
Other planters or seeders.....	4,124	(²)	(²)	(²)	
Harvesting implements:					
Grain cradles.....	38,728	22,635	30,056	36,163	
Harvesters—					
Bean.....	3,401	1,409	665	1,425	
Corn.....	52,087	19,693	6,924	20,707	
Grain.....	215,386	129,274	108,810	233,542	
Harvesters and thrashers combined.....	270	543	(²)	(²)	
Other.....	2,758	1,707	3,161	6,283	
Hay carriers.....	44,277	45,064	85,121	54,303	
Hayforks, horse.....	31,976	43,675	62,801	51,770	
Hay loaders.....	25,865	34,705	27,174	7,273	
Hayrakes, horse.....	183,082	266,260	236,297	216,345	
Hay stackers.....	6,437	17,212	8,670	12,069	
Hay tedders.....	9,796	34,396	35,745	14,510	
Mowers.....	274,521	359,264	273,385	398,616	
Other haying tools.....	37,706	(²)	(²)	(²)	
Potato diggers, horse.....	25,758	25,632	11,703	(²)	
Reapers.....	56,982	58,294	60,996	35,945	
Other.....	13,746	(²)	(²)	(²)	
Seed separators:					
Clover hullers.....	324	437	351	661	
Corn huskers.....	341	318	1,327	10,726	
Corn huskers and shredders.....	4,338	1,294	(²)	(²)	
Corn shellers—					
Hand.....	63,206	74,223	47,189	106,381	
Power.....	11,113	9,049	6,082	8,185	
Fanning mills.....	23,047	33,805	22,994	30,369	
Thrashers—					
Horsepower.....	302	822	2,237	1,314	
Engine.....	13,246	12,957	7,950	3,651	
Other.....	6,212	(²)	(²)	(²)	

¹ In addition, agricultural implements to the value of \$4,033,797 in 1914, \$2,989,276 in 1909, and \$1,349,679 in 1904, were made by establishments engaged primarily in the manufacture of products other than those covered by the industry designated.

² Not reported separately.

AMMUNITION.

Establishments in this industry manufacture small-arms ammunition, including metallic and paper cartridges, empty and loaded gun shells, exploder shells, gun wads, caps, primers, shot, and bullets; also blasting caps and electric blasting caps, fuses and electrical exploder fuses, miners' squibs, railway torpedoes, etc. The ammunition for large guns is made in steel works and rolling mills and Federal establishments, and the value was not reported separately. Establishments making powder, dynamite, etc., as their chief product are classed under "explosives." Statistics for the industry for the censuses from 1849 to 1914, inclusive, are given in Table 223. The figures in the table for 1869 include those for "ammunition, cartridges," "lead, shot," and "percussion caps;" for 1859, "ammunition," "fire bomb lances," "powder flasks, and percussion caps," and "safety fuse;" and for 1849, "percussion caps," and "shot." The apparent decrease in value of products from 1869 to 1879 is to be attributed to the exclusion in 1879 of shot factories, which were placed under the classification "lead, bar, pipe, sheet, and shot." It is probable that shot factories in 1859 were included with "lead, manufactures of"; if so, this accounts for the decrease shown for the decade 1849-1859. In addition to the products covered by the table, ammunition to the value of \$3,101,645 was reported in 1914 by establishments assigned to other classifications, principally "foundry and machine-shop products," "smelting and refining, lead," "paints," and "ordnance and accessories."

ARTIFICIAL FLOWERS AND FEATHERS AND PLUMES.

The statistics for the preparation or manufacture of feathers and plumes are combined in Table 158 with those for the manufacture of artificial flowers because both kinds of products are often reported by a single establishment. General statistics for the two industries are shown separately in Table 223, but there is considerable overlapping between them.

The classification "feathers and plumes" was a part of "artificial feathers and flowers" at the census of 1904 and at previous censuses covered by Table 158, except as indicated in the footnote. At the census of 1859, 3 establishments were reported under the heading of "flowers"; 7 wage earners were employed; the total amount of wages paid was \$2,028; the materials cost \$9,500; and the value of products was \$16,500. At the census of 1849, 23 establishments were classed under "artificial flowers"; the wage earners numbered 434, and received \$45,792 in wages; the cost of materials was \$52,785; and the value of products was \$146,120.

A great many artificial flowers and feathers and plumes are made as subsidiary products in establishments classed under "millinery and lace goods," although they have not always been reported separately. Sometimes one class of products predominates sometimes another, thus changing the classification of individual establishments from one census to another. This is the explanation for some of the apparent decreases shown in the table, but the fact that small neighborhood establishments were included for 1889, but excluded from the comparative totals shown for 1899 is also responsible for part of the decrease.

Table 158

ARTIFICIAL FLOWERS AND FEATHERS AND PLUMES.

CENSUS YEAR.	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
1914.....	456	9,291	606	\$8,745	\$3,979	\$9,310	\$19,065	\$9,755
1909.....	412	10,016	334	9,693	3,974	13,627	23,981	10,354
1904.....	213	4,343	184	2,568	1,397	2,014	5,247	3,233
1899.....	224	5,331	113	3,633	1,561	2,763	6,293	3,530
1889.....	251	6,357	36	3,082	2,126	4,646	9,079	4,433
1879.....	174	4,342	(1)	1,253	1,081	2,444	4,879	2,435
1869 *.....	73	2,034	32	893	420	836	1,846	1,010

¹ Figures not available.

² Designated as "artificial feathers, flowers, and fruits" and "feathers, cleaned, dressed, and dyed."

Artificial flowers.—This classification includes establishments engaged in the manufacture of artificial leaves, palms, grasses, wreaths, plants, foliage and vines, thorns, buds and fruits, wax flowers, and in the preservation of flowers and plants, stems,

tubing, and other materials for use in the manufacture of artificial flowers. There is considerable overlapping between this industry and "feathers and plumes." Table 223 gives the statistics for the census years 1914 and 1909. In addition to the products covered by the table, artificial flowers to the value of \$820,520 were reported in 1914 by establishments assigned to other classifications, principally "feathers and plumes."

Feathers and plumes.—This classification includes establishments producing fancy feathers, plumes—horse, theatrical, hearse, military, and society—boas, muffs, and quills, and also those engaged in the dyeing, curling, and renovating of ostrich feathers. Statistics for the industry, for 1914 and 1909, are given in Table 223. In addition to the products covered by the table, feathers and plumes to the value of \$1,339,869 were reported for 1914 by establishments assigned to other classifications, principally "artificial flowers" (\$1,101,223), "house-furnishing goods" (feather pillows and beds), and "millinery and lace goods" (trimmed hats and hat frames).

ARTIFICIAL LIMBS.

Artificial legs, arms, hands, fingers, feet, and orthopaedic appliances and joints are the principal products of the establishments included in this industry. Crutches, extension shoes, and artificial-leg wood, prepared for sale as such, were also reported. Statistics for the industry for the censuses from 1849 to 1914 are given in Table 223.

The decrease in value of products from 1869 to 1879 was doubtless due to changes in the classification of individual establishments. In addition to the products covered by the table, artificial limbs to the value of \$11,727 were reported for 1914 by establishments assigned to other classifications, principally "surgical appliances," "wood, turned and carved," "metal furniture," and "sewing machines."

ARTISTS' MATERIALS.

Among the many kinds of products manufactured by establishments in this classification are canvas board; prepared canvases or frames; oil colors; air-brushes for portrait work; air compressors for art work; easels; drawing tables and boards; palettes; sketch boxes; pantographs; wax crayons; gold and bronze mixtures, powders, paints, and size; gold and aluminum enamel, paint for china painting; pyrography goods, including platinum points; brass-craft goods; drafting tools and materials; blue-print and brown-print cloth and paper; and drawing ink. The statistics given in Table 223 are for the censuses from 1859 to 1914, inclusive, except that of 1879, when the industry was included under other classifications. Changes in classification are doubtless responsible for the decrease in value of products from 1889 to 1899.

Table 156 gives separate statistics for those establishments whose principal product was crayons—dustless crayons; wax crayons; school crayons; tailors' chalk; marking, checking, and carpenters' crayons; toy crayons; crayon pencils, etc.—and for other artists' materials.

ASBESTOS PRODUCTS, NOT INCLUDING STEAM PACKING.

This classification includes the recovery of mineral wool from the mineral and its manufacture into building materials—slates, sheathing, siding, air-cell covering, flooring, etc.—and other articles, such as mats, pads, holders for sadirons, rings, tapes, yarns, cloths, packing for ice boxes and refrigerating cars, friction and transmission facings and linings, etc. The industry was not shown separately prior to 1914, being included with "steam packings" and "roofing materials" for 1909. Table 156 gives separate statistics for those establishments making building materials and for those making other products.

Table 223 gives the principal statistical items for the asbestos-product industry, by states. In addition to the products covered by the table, asbestos products to the value of \$790,082 were reported by establishments assigned to other classifications, principally "steam packing" and "roofing materials."

BROOMS AND BRUSHES.

The manufacture of brooms and that of brushes were not shown as separate industries at the censuses from 1879 to 1904, inclusive, but separate statistics are available for 1849, 1859, 1869, as well as for 1909 and 1914. For comparative purposes the two industries are combined in Table 159, which presents the statistics from 1849 to 1914, inclusive. Separate data for each industry are given in Table 223 and in other tables of the census reports, each establishment being assigned according to its product of chief value.

Table 159

CENSUS YEAR.	BROOMS AND BRUSHES.								
	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.	
									Expressed in thousands.
1914.....	1,227	12,855	10,892	\$23,039	\$6,085	\$17,211	\$31,979	\$14,768	
1909.....	1,282	12,153	8,800	18,982	5,404	15,578	29,126	13,548	
1904.....	1,316	11,425	6,441	12,052	4,380	10,999	21,104	10,105	
1899.....	1,523	10,346	4,482	9,616	3,788	9,544	18,484	8,940	
1889.....	1,235	9,556	1,952	7,744	3,299	6,901	14,156	7,255	
1879.....	930	8,773	(¹)	4,187	2,424	5,695	10,561	4,866	
1869.....	792	7,631	574	3,700	1,960	4,986	9,317	4,331	
1859.....	349	3,562	(¹)	1,419	882	1,868	3,525	1,657	
1849.....	449	3,589	(¹)	1,026	799	1,167	2,514	1,347	

¹ Figures not available.

Brooms.—Establishments in this classification manufacture brooms for sweeping floors, streets, etc., and for cleaning ceilings and hearths, and whisk brooms for brushing clothes, etc. These are made generally of the tops of broom corn; but some—for example, those for brewers' use—are made of bristles, and others, such as street or push brooms, are made of brass and steel, of rattan, of basswood fiber, or of split bamboo. Scrub and toy brooms are included. Table 156 gives separate figures for brooms made from broom corn and from other materials. In addition to the products covered by the table, brooms made from broom corn, to the value of \$72,375, were reported by establishments assigned to other classifications, principally brushes, while "all other brooms" to the value of \$95,091 were reported by brush manufacturers and others. Separate statistics are shown for the censuses of 1914, 1909, 1869, 1859, and 1849 in Table 223.

Brushes.—Brushes, composed principally of bristles, vegetable fiber, the hair of animals, feathers, wool, and wire, are the products of establishments in this classification. They include (1) brushes for toilet purposes—hairbrushes, military brushes, toothbrushes, nailbrushes, and shaving brushes; (2) brushes for artists and painters; and (3) all other, such as clothes, bonnet, and hat brushes; brushes for household use, for cleaning and polishing, and for dairy use; tanners' and brewers' brushes; gun and rifle brushes; fruit-cleaning brushes; textile-machinery brushes; acid brushes; dentists' and platers' brush wheels, of brass, steel, and bristles; machine, mill, and mechanical brushes, including comb cards and loom dusters; and brushes and buffs for jewelers, silversmiths, and metal workers. Feather and wool dusters and dust cloths were also reported. Other products are brush ferrules and brush fibers. The dressing of bristles is a branch of the industry. Table 156 gives separate statistics for the three classes of brushes. There is considerable overlapping among the groups. Toilet brushes to the value of \$545,501 were made by paint and varnish and other brush manufacturers, and to the value of \$92,369 by manufacturers in other industries. Paint and varnish brushes to the value of \$42,500 were reported by the "toilet" and "all other" groups, and to the value of \$309,169 by establishments assigned to other classifications, principally "paints." "All other" brushes to the value of \$260,884 were made by toilet and paint brush manufacturers, and to the value of \$685,399 by establishments in other classifications—principally "upholstering materials, not elsewhere specified," and "brooms." Separate statistics for the censuses of 1914, 1909, 1869, 1859, and 1849 are given in Table 223.

BUTTONS.

Plain and fancy buttons for fastenings or for ornamentation are manufactured in all sizes and styles and of many kinds of materials by the establishments under this classification. Among the materials are bone, brass, celluloid, cloth, composition, fresh-water mussel shells, glass, hoof, horn, iron, leather, mother-of-pearl, paper board, steel, and vegetable ivory. General statistics for the industry for the census years from 1849 to 1914, inclusive, are given in Table 223.

The table following shows the quantities and values of the various kinds of buttons manufactured in 1914.

KIND.	BUTTONS: 1914.		KIND.	BUTTONS: 1914.	
	Gross.	Value.		Gross.	Value.
Total value.....		\$20,711,979		3,017,436	\$1,600,178
Agate.....	3,660	5,100	Covered.....		
Bone.....	2,198,946	329,934	Trouser:		
Celluloid, plastic.....	623,169	724,354	Steel.....	535,207	307,802
Collar and cuff.....	1,771,053	56,251	Other metal.....	252,248	44,150
Glass.....	217,224	100,201	Vegetable ivory.....	2,289,402	1,326,227
Horn.....	537,096	299,487	Other composition.....	1,510,272	658,880
Ivory.....	382,560	283,484	Vegetable ivory, not including trouser.....	2,838,603	1,559,276
Metal, not including trouser or collar and cuff:			Wood.....	1,831	2,522
Dress or uniform.....	257,823	283,352	Others, not specified.....	1,458,446	388,538
All other.....	614,740	172,133	Parts of buttons.....	388,201	111,325
Pearl or shell:			Blanks or molds.....	14,304,148	2,349,406
Fresh water.....	21,664,436	4,879,844	Snap fasteners (great gross):		
Ocean.....	4,516,969	2,489,364	Steel.....	517,895	159,351
Shoe.....	15,520,037	610,796	Other metal.....	641,151	252,034
			All other products.....		1,717,990

¹ In addition, buttons to the value of \$482,061 were manufactured by establishments engaged primarily in other industries.

Statistics as to quantities and values of the various kinds of buttons manufactured were not collected for 1909, but for 1904 such data were secured. The following table gives comparable figures, so far as available, for 1914 and 1904:

KIND.	BUTTONS.			
	1914		1904	
	Gross.	Value.	Gross.	Value.
Total value.....		\$20,711,979		\$11,133,769
Buttons.....	60,599,359	16,233,198	29,859,292	9,040,029
Pearl.....	26,181,405	7,369,205	13,143,553	4,870,274
Fresh water.....	21,664,436	4,879,844	11,405,723	3,359,167
Ocean.....	4,516,969	2,489,364	1,737,830	1,511,107
Metal.....	1,660,018	807,437	6,815,962	1,312,741
Vegetable ivory.....	5,128,005	2,885,503	2,470,409	1,305,766
Cloth.....	3,017,436	1,600,178	2,990,750	786,091
Bone.....	2,198,946	329,934	956,412	124,454
All other.....	22,413,549	3,240,938	3,482,206	660,703
Button blanks, made for sale.....	14,304,148	2,349,406	6,991,738	916,003
Snap fasteners (great gross).....	1,159,046	411,385	(²)	(²)
All other products.....		1,717,990		1,177,737

¹ Exclusive of buttons valued at \$482,061 in 1914 and \$1,034,843 in 1904, made by establishments engaged primarily in the manufacture of other products.

² Not shown separately.

DAIRYMEN'S, POULTRYMEN'S, AND APIARISTS' SUPPLIES.

This classification covers establishments manufacturing (1) incubators and brooders; (2) other poultry men's supplies, which include coops of iron or wood, hovers, houses, incubator regulators, egg carriers, exercisers, feeders, crates and chicken-shipping boxes, crushed oyster shells, drinking fountains, egg cases and egg-case fillers, feed cookers, insecticides, egg testers, nest eggs, egg markers, and remedies; (3) cream separators, centrifugal and gravity, and accessories; (4) other dairymen's supplies, which include automatic sanitary butter machines; butter workers, vats, colors, packers, ladles, cutters, printers, and molds; cheese boxes, hoops, presses, and band-ages; rennet extract and lactic ferment; ripeners; junket tablets; creamery machinery and supplies; churns, barrel, dash, and other; dairy tinware; ice-cream freezers; milk cans, tanks, measures, and coolers; bottle sterilizers and fillers; milk testers; capping machines, caps, and rings; pasteurizers; portable stalls; skim-milk weighers; washers and sinks; tanks of steel or cypress; and milking machines; and (5) products intended for apiarists' use, including bee escapes, bee veils, comb foundation, hives, and honey boxes and sections. Table 156 gives separate statistics for these five groups.

There is some overlapping among the subclassifications, poultrymen's supplies to the value of \$54,445 and dairymen's supplies to the value of \$158,841 being reported by the other subclasses. In addition to the products shown in the table, incubators and brooders to the value of \$151,773, other poultrymen's supplies to the value of \$43,748, cream separators to the value of \$467,321, other dairymen's supplies to the value of \$249,101, and apiarists' supplies to the value of \$69,071 were reported by establishments assigned to other industries. The statistics for 1914, 1909, and 1904

are the only figures available, the industry having been merged with others in the classifications employed prior to 1904. (See Table 223.)

DENTAL GOODS.

The statistics for establishments in this classification are grouped so as to give separate figures for the manufacture of (1) teeth and (2) all other dental goods, consisting principally of dental alloys; carborundum disks and wheels; paper and emery cloth disks; casting machines; cauterizing supplies and cotton pellets; embossing compounds; dental files; filling materials; fine gold and silver plate and anodes; gold caps, plates, and crown and bridge work; gold foil, cylinders, and shells; solders and wire; impression materials; linen and celluloid finishing strips; mandrels; working compounds; nerve broaches; dental plasters; platenoid specialties; platinum plates; aluminum plates; polishing cups; porcelain enamel; rubber plate work and suction plates and cups; swages; and wax preparations.

Table 156 gives separate statistics for the two groups of establishments. There is considerable overlapping between the two, teeth to the value of \$11,683 being made by manufacturers of other dental goods, and dental goods to the value of \$264,029 being reported by other establishments, mainly by manufacturers of teeth. General statistics for the industry for the censuses from 1859 to 1914, inclusive, are presented in Table 223.

ELECTRICAL MACHINERY, APPARATUS, AND SUPPLIES.

Establishments manufacturing machinery and apparatus employed directly in the generation, storage, transmission, or ultimate use of electrical energy are included in this classification. Dynamos, transformers, switchboards, motors, and auxiliary apparatus, batteries, carbons, arc and incandescent lamps, telegraph and telephone apparatus, electric heating apparatus, measuring instruments, mine and railway locomotives, insulated wires and cables, and magneto-ignition apparatus are the principal products, some of which are reported in considerable variety, as shown by Table 162. Table 223 presents comparable statistics for the industry for the censuses from 1879 to 1914, inclusive.

The following table gives for the census years 1899 to 1914, inclusive, statistics for all products of establishments in the industry and those for electrical machinery, apparatus, and supplies made by establishments in other industries. The value of all products was \$359,432,155 in 1914, representing an increase of 49.7 per cent compared with \$240,037,479 in 1909. In general the highest rates of increase follow the development of the automobile industry, as shown by the statistics for small dynamos and automobile starter-generator sets, magneto-ignition apparatus, spark-plugs, coils, etc.

PRODUCT.	ELECTRICAL MACHINERY, APPARATUS, AND SUPPLIES.			
	1914	1909	1904	1899
Total value.....	\$359,432,155	\$240,037,479	\$159,551,402	\$105,831,865
The electrical industry.—Electrical machinery apparatus and supplies—all products.....	\$335,170,194	\$221,308,563	\$140,809,369	\$92,434,435
Subsidiary electrical products of other industries.....	\$24,261,961	\$18,728,916	\$18,742,033	\$13,397,430
Dynamos, value.....	\$23,233,437	\$17,231,804	\$12,824,768	\$10,852,323
Direct current.....				
Small dynamos and automobile starter-generator sets—				
Number.....	208,545			
Value.....	\$5,933,273			
All other, including generators for direct connection to steam turbines—		13,882	13,756	9,182
Number.....	9,633	414,222	640,350	321,451
Kilowatt capacity.....	221,221	\$4,710,524	\$6,973,130	\$6,297,925
Value.....	\$2,967,465			
Alternating current, including generators for direct connection to steam turbines—				
Number.....	2,512	2,909	1,324	1,345
Kilowatt capacity.....	1,188,005	991,728	355,832	256,673
Value.....	\$7,437,445	\$8,370,524	\$4,111,104	\$4,174,651
Dynamo parts and supplies.....	\$1,527,359	\$996,023	(1)	(1)
Dynamotors, motor-generators, boosters, rotary converters, double-current generators, etc.—				
Number.....	8,393	2,291	2,135	649
Kilowatt capacity.....	780,009	295,079	209,664	10,798
Value.....	\$5,367,895	\$3,154,733	\$1,740,534	\$379,747
Transformers, value.....	\$13,120,065	\$8,801,019	\$4,468,567	\$2,962,871
Under 50 kilowatts—				
Number.....	110,177	72,776	63,311	(1)
Kilowatt capacity.....	762,707	677,408	350,174	(1)
Value.....	\$7,316,615	\$4,184,832	\$3,292,207	(1)

See footnotes on p. 245.

Table 162—Continued.

PRODUCT.	ELECTRICAL MACHINERY, APPARATUS, AND SUPPLIES.			
	1914	1909	1904	1899
Transformers, value—Continued.				
50 to 500 kilowatts—				
Number.....	4,857			
Kilowatt capacity.....	544,443			
Value.....	\$2,625,414			
500 kilowatts and over—				
Number.....	809	3,953	3,387	(1)
Kilowatt capacity.....	1,337,644	1,058,021	378,007	(1)
Value.....	\$3,178,036	\$4,616,187	\$1,176,360	(1)
Rheostats, resistances, controllers, motor-starting and speed-controlling devices, feeder-potential regulators, and reactances.	\$9,543,224	\$2,674,963	\$932,925	\$1,186,878
Generator-voltage regulators.	\$245,154	(1)	(1)	(1)
Rectifying apparatus (including rotating commutators, electric valves, mercury rectifiers, and vibrating commutators).	\$147,965	(1)	(1)	(1)
Switchboards, panel boards, and cut-out cabinets for light and power.	\$8,989,111	\$5,971,804	\$3,766,044	\$1,846,624
Motors, value.	\$44,176,235	\$32,087,482	\$22,370,626	\$19,505,504
Direct current for industrial power and railways—				
Number.....	133,492			
Horsepower.....	980,820			
Value.....	\$13,316,489			
Alternating current for industrial power and railways—				
Number.....	284,500	257,223	92,175	50,888
Horsepower.....	1,901,975	2,410,369	1,392,091	1,182,374
Value.....	\$18,969,660	\$24,604,938	\$18,070,743	\$15,120,321
For automobiles—				
Number.....	11,880	2,796	1,819	3,017
Horsepower.....	36,858	12,471	19,907	8,220
Value.....	\$1,351,442	\$294,152	\$152,685	\$192,030
For fans.....	\$4,835,850	\$2,450,739	\$1,168,254	\$1,055,369
For miscellaneous uses.	\$1,190,564	\$1,942,874	\$2,978,944	\$3,137,784
Motor parts and supplies.	\$4,512,230	\$2,794,779	(1)	(1)
Batteries, parts and supplies, value.	\$23,402,455	\$10,612,470	\$4,243,893	\$3,679,045
Storage.	\$13,030,964	\$4,678,209	\$2,645,749	\$2,559,601
Value of batteries.....	\$10,615,150	\$4,243,984	\$1,569,371	\$2,559,601
Weight of plates, pounds.....	41,079,047	23,119,331	16,113,072	(1)
Value of parts and supplies.....	\$2,465,814	\$434,225	\$1,076,378	(1)
Primary.	\$10,321,491	\$5,934,261	\$1,598,144	\$1,119,444
Liquid and testing—				
Number.....	306,351	344,650	1,734,801	708,077
Value.....	\$802,525	\$729,513	\$515,530	\$571,370
Dry—				
Number.....	71,092,438	33,988,881	4,888,361	1,946,688
Value.....	\$8,719,164	\$4,583,082	\$513,026	\$316,013
Value of parts and supplies.....	\$799,802	\$621,666	\$569,588	\$232,061
Carbons (including furnace, lighting, brushes, battery, and miscellaneous).	\$3,602,741	\$1,934,864	\$2,710,935	\$1,731,248
Arc lamps:				
With luminous or metallic arcs—				
Number.....	22,846			
Value.....	\$441,992			
With flame arcs—				
Number.....	4,631	123,985	195,157	158,187
Value.....	\$153,433	\$1,706,959	\$1,574,422	\$1,827,771
With carbon arcs—				
Number.....	7,635			
Value.....	\$146,717			
Searchlights, projectors, and focusing lamps.	\$2,081,545	\$935,874	\$114,795	\$225,635
Incandescent lamps, value.	\$17,350,385	\$15,714,809	\$6,953,205	\$3,515,118
Tungsten—				
Number.....	74,434,059	11,738,619		
Value.....	\$11,886,354	\$6,241,133		
Carbon filament—				
Number.....	14,092,055	55,038,378	112,711,558	25,320,198
Value.....	\$1,397,572	\$6,157,066	\$6,308,299	\$3,442,183
Gem, vacuum and vapor, nitrogen, glower, and tantalum.	\$2,363,730	\$2,715,991	\$395,155	
Decorative and miniature lamps, X-ray bulbs, vacuum tubes, etc.	\$1,702,729	\$600,619	\$249,751	\$72,935
Sockets, receptacles, bases, etc.	\$5,512,609	\$4,521,720	\$2,010,860	\$593,929
Electric-lighting fixtures.	\$3,383,955	\$2,200,668	\$3,294,606	\$3,750,670
Telegraph apparatus.	\$2,248,375	\$1,957,432	\$1,111,194	\$1,642,266
Intelligence (key, sounder, etc.)	\$201,956	\$197,669	\$187,744	\$354,212
Police, fire, district, etc.	\$1,253,954	\$1,126,658	\$592,070	\$1,231,167
Wireless apparatus.	\$672,575	\$448,262	\$114,050	(1)
Switchboards and telegraph parts and supplies.	\$119,890	\$184,843	\$217,330	\$56,887

See footnotes on p. 245.

Table 162—Continued.

PRODUCT.	ELECTRICAL MACHINERY, APPARATUS, AND SUPPLIES.			
	1914	1909	1904	1899
Telephone apparatus.....	\$22,815,640	\$14,259,357	\$15,863,698	\$10,512,412
Substation instruments—				
Central battery.....	\$3,916,869			
Magneto.....	\$1,799,834			
Interior systems—				
Number.....	62,258			
Value.....	\$510,509	\$10,137,534	\$13,227,008	\$9,187,076
Central switchboards—				
Manual—				
Central battery.....	\$10,701,764			
Magneto.....	\$374,851			
Automatic.....	\$1,002,722			
Private branch exchange switchboards—				
Number.....	3,693	2,252	3,917	(1)
Value.....	\$448,203	\$369,915	\$504,795	(1)
Parts and supplies.....	\$4,060,888	\$3,751,908	\$2,071,895	\$1,324,736
Electric-heating apparatus.....	\$4,048,915	\$1,954,112	\$395,827	(1)
Air heaters, including those for cars.....	\$352,617			
Cooking devices:				
Stoves and ranges.....	\$671,413	\$919,533	(1)	(1)
Miscellaneous cooking devices.....	\$1,327,183			
Flatirons.....	\$1,466,620	\$951,074	(1)	(1)
Welding apparatus (not including motor-generator sets).....	\$231,082	\$83,505	(1)	(1)
Electric measuring instruments.....	\$8,786,506	\$7,800,010	\$5,004,763	\$1,842,135
Station apparatus.....	\$1,585,500	\$1,639,202	\$418,998	(1)
Testing and scientific.....	\$1,073,060	\$546,970	\$1,000,685	(1)
Meters for consumers' circuits.....	\$6,127,946	\$5,613,838	\$3,585,080	(1)
Electric locomotives, mine and railway:				
Number.....	900	(1)	(1)	(1)
Value.....	\$3,720,914	(1)	(1)	(1)
Electrical therapeutic apparatus.....	\$2,653,098	\$1,107,858	\$1,036,962	(1)
Magneto-ignition apparatus, spark-plugs, coils, etc.....	\$22,260,847	\$6,092,343	\$678,077	(1)
Electric switches, signals, and attachments.....	\$6,393,551	\$5,377,843	\$1,451,337	\$1,129,891
Annunciators.....	\$263,806	\$235,567	\$185,870	\$224,885
Electric clocks and time mechanisms.....	\$410,774	\$352,513	\$373,926	\$132,149
Insulated wire and cables ⁶	\$69,505,573	\$51,624,737	\$34,519,699	\$21,292,001
Electric conduits (underground and interior).....	\$4,874,709	\$5,098,264	\$2,416,245	\$1,066,163
Lightning arresters.....	\$1,188,773	\$940,171	\$587,124	
Fuses.....	\$1,757,430	\$1,001,719	\$868,079	\$595,497
Circuit fittings of all kinds.....	\$2,067,683	\$1,080,287	\$3,525,446	(1)
All other electrical machinery, apparatus, and supplies.....	\$27,276,294	\$18,995,176	\$26,267,509	\$15,716,850
All other products, including amount received for custom work and repairing.....	\$23,628,244	\$17,765,645		

¹ Not reported separately
² Rheostats and resistances only
³ Rheostats and resistances and heating and welding apparatus.
⁴ Includes vacuum and vapor, and glow lamps only.
⁵ Not including fixtures made in establishments engaged primarily in the manufacture of "gas and electric fixtures."
⁶ Including insulated wire made in wire-drawing mills.

ENAMELING.

The enameling, under contract, of goods furnished by others and the manufacture of enameled wares are the principal business of the establishments in this classification. The kinds of goods enameled include metallic art tile, automobile parts, badges, bathtubs, bedsteads, bicycles, conduit pipe, signs, cowhides, dice, emblems, goatskins and horsehides, books, ironware, jewelry, wooden goods, wooden handles, and many others. Decorated tin plates are manufactured, together with enameled sheets and enamel coating for plumbers' supplies.

At the censuses of 1899 and 1904 the classification was "enameling and enameled goods," but prior to 1899 there were two classifications, "enameling" and "enameled goods." For 1909 and 1914 the bureau employed, in part, the method of classification used prior to 1899. In 1909 "enameling" was shown as a subgroup under "enameling and japanning," and in 1914 as a separate industry, "enameled goods" being added to "stamped ware," and the classification designated "stamped and enameled ware, not elsewhere specified." This change transferred several large establishments enameling their own stamped ware from "enameling and enameled goods," under which they were placed for 1904 and 1899, to "stamped and enameled ware" for 1909 and 1914, so that the statistics for some of the earlier censuses as shown in Table 223 are not comparable with those for 1909 and 1914. At the census of 1859 one establishment with products valued at \$10,000 was reported under "enameling."

In addition to the products covered by the table, enameling to the value of \$19,451 was reported in 1914 by establishments assigned to other classifications.

ENGRAVERS' MATERIALS.

Establishments in this classification are engaged primarily in the preparation of boxwood for engravers' use, cherry and maple for photo-engravers' mounts, chalk plates for illustrators, and color plates; and in the dressing, grinding, finishing, and polishing of lithographic stone for lithographers, and of steel, brass, copper, and zinc plates for the use of engravers, photo-engravers, and etchers. Some establishments reported machine work on photo-engravers', wood engravers', and metal engravers' plates. Table 223 presents comparable statistics for the censuses from 1879 to 1914, inclusive.

In addition to the products covered by the table, engravers' materials valued at \$29,332 in 1914 and at \$87,414 in 1909 were reported by establishments engaged primarily in the manufacture of other products, principally "wood, turned and carved." There is some overlapping between this industry and others, such as "engraving, wood," and "photo-engraving." In some cases a given establishment was evidently classified at one census with this industry and at another with one of the related industries. This probably explains in part the decreases and increases in the industry.

FANCY ARTICLES, NOT ELSEWHERE SPECIFIED.

Establishments assigned to this industry make a wide variety of articles. A partial list comprises the following: Air-brush and other souvenir post cards; albums made by the photogelatin printing process; aluminum novelties; atomizers; automobile license tags and figures; bag, purse, and pocketbook frames; bamboo novelties; bath mats; bead, pearl, and glass necklaces; beaded bags, collars, necklaces, and novelties for women's wear; brass and rhinestone ornaments for millinery; burnt-wood novelties; calendars (novelty); candle and electric-light shades of paper and silk; cane mounts; college goods—pennants, pillow tops, etc.; composition ornaments; cork-screws; corn files; decalcomania; decorative goods covered with moss, bark, leather, etc.; fan handles and fans; hand-painted silk novelties; jewel bags and powder puffs; ladies' belt and bag stands and racks; mail boxes; marquetry mat board; match scratchers; metal and glass trays; metal-frame pictures; needle and pin books, boxes, and cushions; needle threaders and thread-cutter thimbles; paper weights; passe partouts; pearl handles; photo buttons, medallions, and jewelry; picture puzzles; tally cards; pipe cases; fancy receptacles for ice cream, punches, etc.; salt and pepper shakers; sachet cases; theatrical and costumers' supplies; thermos bottles; tourists' cups; tweezers; and umbrella tassels. Articles similar to those included in this group, but for which separate values were not reported, were also manufactured to some extent by establishments assigned to the classification, "ivory, shell, and bone work, not including combs and hairpins."

Table 156 shows separate statistics for those establishments whose chief products were (1) beadwork (bead and glass necklaces, beaded bags, collars, lamp shades, and novelties), (2) celluloid novelties, (3) metal novelties, (4) paper novelties, (5) wood novelties, and (6) all other fancy articles not specified, such as novelties made of cloth, leather, felt, hair, ribbon, glass, etc.

There is considerable overlapping among the groups; celluloid novelties to the value of \$124,105, metal novelties to the value of \$114,116, paper novelties to the value of \$148,203, and wood novelties to the value of \$100,000 being reported by establishments assigned to one or more of the other groups. Establishments assigned to other classifications reported fancy articles similar to those enumerated to the value of \$2,327,866. This amount is not included in the value of products covered by the table. Statistics for the industry for each census from 1879 to 1914, inclusive, are presented in Table 223. Those for 1869 are not comparable, and the close relation between this industry and certain others may affect the comparability of the data for the later censuses.

IVORY, SHELL, AND BONE WORK, NOT INCLUDING COMBS AND HAIRPINS.

The products of establishments in this industry include a wide variety of articles for use or ornament, such as mosaics; whip handles; devices for curling hair; knife handles and tips; fobs; collar supporters; novelties of various sorts; napkin rings; pacifier and teething rings; buckles, slides, and other fittings for jewelers' use; letter openers; handles and settings for umbrellas, whisk brooms, etc.; manicure implements; watch chains; hatpins; stick pins; inlaying for musical instruments, etc. The chief materials used in the manufacture of these articles are bone, horn, ivory, mother-of-pearl, tortoise shell, and amber, together with imitations of these materials. The classification was "ivory and bone work" from 1879 to 1904, inclusive. General statistics for the industry are given in Table 223 for the census years from 1849 to 1914, inclusive.

In addition to the products covered by the table, ivory, shell, and bone work to the value of \$250,608 was reported by establishments assigned to other classifications. Articles similar in character, but for which separate values were not reported, were manufactured by establishments classified as "fancy articles, not elsewhere specified." The decrease in value of products from 1904 to 1909 is only apparent. Many important establishments making horn, celluloid, and other combs and hairpins were classified at the census of 1909 under "combs and hairpins," whereas at the census of 1904 they were included with "ivory and bone work."

COMBS AND HAIRPINS, NOT MADE FROM METAL OR RUBBER.

Combs and hairpins for dressing or ornamenting the hair are the principal products of establishments in this classification. Among the materials of which these combs and hairpins are made are fiber, bone, horn, tortoise shell, celluloid, and ivory. Novelties for ladies' headdress, barrettes, hair-puff pins, hair ornaments, and comb mountings are included. The statistics for the manufacture of hairpins and of combs were combined for 1909. For prior years the figures are for combs only, the production of hairpins being included in other classifications. The statistics for 1914 do not include figures for rubber combs and hairpins or for metal hairpins. The former are included with "rubber goods, not elsewhere specified," and the latter with "needles, pins, and hooks and eyes."

It seems probable that many of the comb manufacturers in 1869 and 1879, especially those making combs of rubber, were included in classifications other than "combs," such as "india rubber and elastic goods," "ivory work," and "celluloid and celluloid goods." This may account for a part of the decline in value of products between 1859 and 1869, the decline being particularly large in Connecticut, where the manufacture of rubber goods is a leading industry. Changes of fashion in hairdressing and hair ornamentation have also had an effect upon the comb and hairpin industry. Owing to the overlapping of this industry with others, there is doubt as to the comparability of any of the figures relating to it in Table 223. Combs and hairpins were manufactured to some extent in establishments reported under "fancy articles, not elsewhere specified," and "ivory, shell, and bone work, not including combs and hairpins," but separate values were not reported for these articles, and it is, therefore, impossible to indicate the extent of overlapping in the products of the three industries.

FIRE EXTINGUISHERS, CHEMICAL.

Chemical engines, separate or in combination with hose wagons or with ordinary fire engines, portable and stationary fire extinguishers operated with chemicals, dry or liquid chemicals for fire extinguishing, and hand grenades are the principal products of establishments under this classification. Statistics for the industry for the census years from 1879 to 1914, inclusive, are given in Table 223. In addition to the products covered by the table, chemical fire extinguishers to the value of \$404,364 in 1914 and of \$56,572 in 1909 were reported by establishments engaged primarily in the industries, "automobiles," "copper, tin, and sheet-iron work," and others.

FIREWORKS.

Display fireworks of all kinds are the principal manufactures of establishments in this classification. Among specific products are air torpedoes, bombs, mines, set pieces, shells, wheels, torches, rockets, colored fire, lances, electric sparklers, fire-crackers, paper balloons, and roman candles. Statistics for the industry for the census years from 1859 to 1914 are given in Table 223. The manufacture of explosives, which was included with that of fireworks in 1879, has been placed in a separate classification at subsequent censuses. The decrease for the decade 1879-1889, therefore, is apparent only.

FOUNDRY SUPPLIES.

The various articles necessary to metal casting are the principal products of establishments in this classification. They include mixed sand and bituminous coal facings; dry sand and loam facings; plumbago and sea-coal facings; the soapstone and charcoal facings used to keep the metal from contact with the molding sand; the "parting," composed of clay and hydrocarbons and used to prevent the mold halves from adhering; brass flux; brazing compounds; brush wheels; core oil, core flour, and core compound; flasks, sieves, brushes, rammers, ladles, pipe blacking, cement filler, etc.; and foundry flour, plumbago, soapstone, and welding compounds.

It is probable that some foundries make their own facings and other supplies. If so, these are not generally reported separately. The industry was first reported separately at the census of 1859, as "foundry facings." Seven establishments in that year employed 30 wage earners, to whom they paid \$12,900 in wages. The cost of materials was \$44,696 and the value of products \$105,950. The business was included

in other classifications in 1869. Table 223 gives statistics for the census years from 1879 to 1914, inclusive.

In addition to the products covered by the table, foundry supplies to the value of \$78,992 were reported for 1914 by establishments assigned to other industries.

FUEL, MANUFACTURED.

Briquettes made of bituminous coal and anthracite dust mixed with tar and pitch as a binder; briquettes of crude carbon, a by-product of oil-gas generators; coalette; carriage-heater coal composed of charcoal, pitch, tar, and soda; and smudge fuel, a composition of crude oil and shavings, are the principal products of establishments in this industry. This classification first appeared at the census of 1879, when one establishment reported 70 wage earners and products valued at \$102,000. For 1889 two establishments were reported, but no separate statistics could be shown. Table 223 presents statistics for the censuses of 1909 and 1914. According to the annual report of the United States Geological Survey the production of briquetted fuel in 1914 amounted to 250,635 tons of 2,000 pounds, valued at \$1,154,678.

FUR GOODS.

Establishments in this classification manufacture principally ladies', misses', and children's fur sets and furs, including boas, capes, collars and collarettes, muffs, scarfs, shawls and stoles, fur coats and cloaks, fur and fur-lined overcoats, other fur garments, fur robes, and fur hats, caps, gloves, and mittens. Various other minor products were reported, including bands, rugs, tippets, heads, tails, and paws. The principal kinds of fur skins used are bear; caracal; coney; ermine; fox; hare; lynx; marmot; marten; mink; muskrat; beaver; rabbit; Chinese weasel; wildcat; rat; nutria; opossum; otter; raccoon; sable; seal (Alaska and hair); skunk; squirrel; Angora and Chinese goat; Bulgarian, Chinese, and Persian lamb; calf; dog; horse; kangaroo; kid; Russian pony; sheep; and wolf. The furs used as material are sometimes purchased in a dressed condition, but in a number of instances the establishments tan and dress the skins, thus overlapping with the dressed-furs industry. Table 223 presents statistics for the industry for the census years from 1889 to 1914, inclusive.

At the census of 1859, 95 establishments were reported under "furs," and for 1849, 49 under "furriers." No classification approaching "fur goods" appeared either in 1879 or 1869, and such establishments as are now included in this class were probably classed with "clothing, men's," "clothing, women's," or "furs, dressed."

In addition to the products covered by the table, fur goods to the value of \$813,550 in 1914 and of \$532,781 in 1909 were reported by establishments engaged primarily in the manufacture of men's clothing, women's clothing, horse clothing, millinery and lace goods, leather gloves and mittens, etc.

FURS, DRESSED.

The preparation of fur skins is the chief business of establishments in this classification; it involves the scraping, currying and tanning, and bleaching and dyeing of the pelts. Hatters' fur, dressed hair, and bristles are also reported as products. Sheepskins with the wool on and horse and cattle hides are tanned and finished by some establishments. Statistics for the industry for the census years from 1869 to 1914, inclusive, are given in Table 223. As already stated, some establishments in the fur-goods industry dress their own furs, but these did not report separately the value of such work. The value of products reported for 1869 and 1879 probably covered the output of some establishments manufacturing fur goods which dressed their own materials.

In addition to the products covered by the table, dressed furs to the value of \$8,850 were reported for 1914 by establishments assigned to other classifications, principally women's clothing.

GRAPHITE, GROUND AND REFINED.

The refining of graphite, sometimes known also as plumbago or black lead, which is used in making lead pencils, refractory crucibles, lubricants, stove blacking, paint, and foundry facings, is the chief business of establishments in this classification. As a rule, graphite milling or extraction from the ore, unless done at the mine, is also here included. Graphite made by electrical processes, graphitized carbon, and graphite greases are among the products, as well as graphite and carbon from petroleum-coke, retort carbon, liquid graphite, paste, semipaste, and pipe-joint paste. Statistics for the industry for the census years from 1879 to 1914, inclusive, are given in Table 223.

The decrease from 1879 to 1889 was due doubtless to the inclusion in 1879 of the product of a graphite-coal mine in Massachusetts. The mineral was used in the reduction of high-grade iron ore. The great apparent increase from 1904 to 1909 was due largely to changes in the classification of individual establishments. Much of

the refining is that of imported graphite. There is some overlapping between this industry and the manufacture of foundry supplies, crucibles, and lead pencils, graphite made for sale to the value of \$687,217 being reported for 1914 by these manufacturers.

HAIR WORK.

Establishments in this classification clean, bleach, curl, and otherwise prepare human hair, including that of Chinese and Japanese, mohair, and yak, horse, camel, and other hairs, and manufacture them into articles of adornment. The products include ornamental hair work, puffs, rats, refined yak hair, rolls, theatrical and other wigs, toupees, transformations, foundations, switches, fronts, braids, beards, bangs, turbans and turban pads, waves, and wavy hair for switches and wigs. Table 223 presents comparable statistics for the census years from 1849 to 1914, inclusive. Prior to 1899 the returns included small local establishments manufacturing chiefly to individual order. In addition to the products covered by the table, hair work to the value of \$11,615 was reported for 1914 by establishments assigned to other industries, principally millinery and lace goods.

HAND STAMPS AND STENCILS AND BRANDS.

These classifications include, respectively, establishments manufacturing hand stamps and those manufacturing stencils and brands. Separate statistics for the two industries are given in Table 223, but there is so great an overlapping in the products that the combined figures are shown in Table 163. Establishments assigned to "hand stamps" reported stencils and brands to the value of \$175,645, and manufacturers of stencils and brands made hand stamps to the value of \$103,242.

CENSUS YEAR.	HAND STAMPS AND STENCILS AND BRANDS.							
	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
* Expressed in thousands.								
1914.....	384	1,767	1,384	\$3,186	\$1,149	\$1,425	\$4,486	\$3,061
1909.....	361	1,651	903	2,439	952	1,127	3,673	2,546
1904.....	327	1,508	721	1,915	797	737	2,811	2,074
1899.....	360	1,470	462	1,736	696	663	2,611	1,948
1889.....	340	1,062	149	1,444	554	600	2,316	1,716
1879.....	150	468	(¹)	328	223	248	791	543

¹ Figures not available.

Hand stamps.—The establishments included in this classification manufacture principally rubber and metal stamps, dies, seals, and presses, steel letters and figures, door and name plates, metal badges and checks, check protectors, time stamps, numbering machines, rubber type, copper and brass stamps for marking textiles, and steel shoe stamps. General statistics for the industry are given in Table 223 for the census years from 1869 to 1914, inclusive. In addition to the products covered by the table, hand stamps to the value of \$229,754 were reported in 1914 by establishments assigned to other classifications, principally "stencils and brands" and "printing, job."

Stencils and brands.—Establishments in this industry manufacture principally stencils of metal, cardboard, or other material, for use in painting and marking or in addressing machines; and branding irons or irons to be heated and used in marking casks, boxes, articles of merchandise, etc. Stencil cutters and punchers are also reported as subsidiary products. Statistics for the census of 1859 and for each subsequent census except that of 1869 are given in Table 223. In addition to the products covered by the table, stencils and brands to the value of \$231,372 were reported in 1914 by establishments assigned to other classifications, such as "hand stamps," "engraving and diesinking," "printing, job," and "regalia and society badges and emblems."

HAT AND CAP MATERIALS.

Many articles used by manufacturers of hats and caps are made by establishments in this classification. The products include blown and kettle fur of the hare, mink, muskrat, nutria, and rabbit; hat bindings, clasps, sweatbands, trimmings, and wires; fur roundings cut from old fur-felt hats and ground for felt; fur prepared from fur-

garment manufacturers' waste; tip printing; satin linings; paper cap fronts and hat brims; visors; japanned visors; crimping and stitching; cloth coated in imitation of leather; coated or waterproof paper; gold-leaf work on hat bands; mourning bands; motormen's bands, etc. Other important materials used in making hats and caps, such as cloth, leather, and dressed fur, are not covered by this classification. Statistics for the industry for the census years from 1859 to 1914, inclusive, are given in Table 223. The depreciated currency of 1869, which increased nominal values by about one-fifth, is almost wholly responsible for the apparent decrease in value of products from 1869 to 1879.

In addition to the products covered by the table, hat and cap materials to the value of \$110,206 in 1914 and of \$50,535 in 1909, were reported by establishments assigned to other industries, principally fur-felt hats, straw hats, labels and tags, leather goods, and paper boxes and cartons.

HATS, STRAW.

The establishments in this classification manufacture principally machine-made and hand-made straw hats for men, women, and children, from various kinds of braided straw; they also bleach, shape, and finish Panama hats. In some establishments hat bodies only are made, the finishing being done by others, so that there is some duplication in the gross value of products of the industry. Statistics for "hats, straw," were not shown separately prior to 1904. (See Table 223.) In addition to the products covered by the table, straw hats to the value of \$2,474,553 in 1914 and of \$1,271,973 in 1909 were reported by establishments assigned to other industries, such as "millinery and lace goods," "trimmed hats and hat frames," "hats, fur-felt," "hats and caps, other than felt, straw and wool," "fur goods," etc. Table 51 gives the combined statistics for the various hat and cap industries.

HOUSE-FURNISHING GOODS, NOT ELSEWHERE SPECIFIED.

Miscellaneous articles for household use are the principal products of establishments in this classification. Table 156 gives separate figures for five groups of establishments, namely, those manufacturing (1) comforts and quilts; (2) feather pillows, beds, bolsters, and down cushions; (3) cotton batting, wadding, and bolts; (4) mops and dusters; and (5) all other, such as art needlework, baby-carriage robes, casseroles, chafing dishes, coffee and tea percolators, copper hollow ware, table mats and pads, kitchen equipment, paper lining for carpets, cushion tops, decorated leather, desk sets, portieres, draperies, tapestry, hassocks, interior decorations, lambrequins, laundry bags, mattress covers and protectors, mop wringers, mosquito canopies, novelty bags, novelties for lamps and oil stoves, piano covers and scarfs, pillow covers, renovated feathers and down, sheets, slip covers, stair padding, stamped linen and other cloths for various uses, stamped novelties, water coolers and purifiers, fly swatters, flycatchers, carpet beaters, clotheslines, air cushions, pincushions, cork and floss cushions, and many others. There is much overlapping between this and other industries.

Comforts and quilts to the value of \$427,652, feather pillows and beds to the value of \$1,229,399, cotton batting to the value of \$1,143,550, mops and dusters to the value of \$1,156,066, and "all other" house-furnishing goods to the value of \$707,438 were reported in 1914 by establishments assigned to other industries. These values are not included in the table. General statistics for the industry are presented in Table 223 for the census years from 1879 to 1914, inclusive.

ICE, MANUFACTURED.

Ice produced artificially, generally by the evaporation of liquefied ammonia, is the product of establishments under this classification. Can ice is made in metal cans placed in tanks containing chilled brine, and plate ice in tanks having parallel hollow partitions through which the refrigerating fluid runs, the water solidifying in plates on the outer surfaces of the partitions. The statistics represent the production of ice for sale by establishments classified in this industry, but breweries, creameries, and meat-packing establishments often manufacture ice for sale as well as for their own use. General statistics for the industry are given in Table 223 for the census years from 1869 to 1914, inclusive.

The following table shows the quantities and cost of the ammonia used and the quantities and values of ice produced for 1914, 1909, 1904, and 1899:

Table 164	ICE, MANUFACTURED.			
	1914	1909	1904	1899
MATERIALS.				
Ammonia used, cost.....	\$1,528,975	\$1,021,913	\$613,138	\$359,549
Compressor system—				
Anhydrous—				
Pounds.....	4,696,699	3,097,191	¹ 1,944,266	946,666
Cost.....	\$1,235,047	\$326,222	¹ \$493,524	\$249,838
Absorption system—				
Anhydrous—				
Pounds.....	709,218	369,093	136,604	109,869
Cost.....	\$186,149	\$100,283	\$37,506	\$29,842
Aqua—				
Pounds.....	1,927,664	1,670,698	1,347,561	1,323,454
Cost.....	\$107,779	\$95,408	\$82,108	\$79,869
PRODUCTS.				
Total value.....	² \$60,386,267	² \$42,953,055	² \$23,790,045	³ \$13,874,513
Ice:				
Tons (2,000 pounds).....	18,324,691	12,647,949	7,199,448	4,294,439
Value.....	\$55,258,327	\$39,889,263	\$22,450,503	\$13,308,874
Can—				
Tons (2,000 pounds).....	17,145,599	11,671,547	6,695,789	4,139,764
Value.....	\$52,150,488	\$37,085,533	\$21,020,547	\$12,863,160
Plate—				
Tons (2,000 pounds).....	1,179,092	976,402	503,659	154,675
Value.....	\$3,107,839	\$2,803,730	\$1,429,956	\$440,714
All other products, value.....	\$5,127,940	\$3,063,792	\$1,339,542	\$570,639

¹ Includes 148,373 pounds of aqua ammonia, costing \$8,755.

² In addition, in 1914, 534 establishments engaged primarily in the manufacture of products other than ice made 2,718,372 tons of ice, valued at \$6,934,086; in 1909, 335 similar establishments made 1,582,259 tons, valued at \$4,249,790; and in 1904, 163 such establishments made 814,689 tons, valued at \$1,899,912.

³ Includes, for purposes of comparison, products valued at \$93,335, not included in the general tables.

INSTRUMENTS, PROFESSIONAL AND SCIENTIFIC.

Establishments in this classification manufacture all kinds of anthropometrical, astronomical, physiological, chemical, and physical apparatus for educational and commercial purposes; engineering, surveying, and nautical instruments; and optical, surgical, dental, orthopedic, and veterinary instruments. The products include, among others, aseptic hospital furniture; auriphones; automobile speed indicators and odometers; barometers; Bunsen burners; coal-testing apparatus; combustion furnaces; dental mirrors, dental-engine equipments, and other dental appliances; drafting instruments; embalming instruments; engineer transits and levels; eye, ear, and nose instruments; gauge dials; glass syringes; head mirrors; high-frequency vacuum electrodes; hydrometers; hypodermic syringes and needles; marine compasses, binnacles, and binnacle lamps; mercury testing columns; micrometers and micrometer gauges; ophthalmoscopes; optical projection apparatus; oven indicators; oxygenators; perimeters; pitometers and photopitometers; platinum burner points, needles, etc.; prisms; pulmotors; pyrometers; range-finder telescopes; rifle telescopes; retinasopes; speed indicators (for machinery); saccharometers; spectrosopes; telescopes; textile microscopes (thread-counting instruments); thermometers; throat mirrors; vulcanizers; weights and measures; and wind gauges. Table 156 gives separate statistics for those establishments whose products of chief value were medical and surgical instruments; for those making optical instruments; and for those manufacturing all other instruments, which include those for scientific, educational, and commercial purposes.

In addition to the products covered by the table, medical and surgical instruments to the value of \$160,066, optical instruments to the value of \$9,216, and "all other" to the value of \$1,772,307, making a total of \$1,941,589, in 1914 as compared with \$299,149 in 1909, were reported by establishments assigned to other industries, principally dental and optical goods.

General statistics for the industry are given in Table 223 for the censuses from 1849 to 1914, inclusive. There are so many classifications to which establishments making articles similar to those manufactured by the establishments here included may be assigned that the decrease in value of products for the decade ending in 1879 can easily be attributed to a change in the classification of certain establishments.

JAPANING.

Most of the work done by establishments in this classification consists of the japaning and decorating of sheet metals, castings, sewing-machine parts, automobile parts, tags, zinc for shoe-lace tips, wood, brass beds, gas and electric fixtures, jewelry, paper, cloth, and canvas. The work is usually done under contract, the principal materials being generally furnished by others. A few establishments reported the manufacture of japanned tinware, lacquered tin, and varnished cloth. General statistics for the census years from 1849 to 1914, inclusive, are given in Table 223.

For 1909 and 1914 establishments manufacturing lacquered and lithographed tin boxes were included under "boxes, fancy and paper," instead of under "japaning," as in 1904. This difference of classification accounts for the decrease shown. In addition to the products covered by the table, japaning to the value of \$402,533 was reported for 1914 by establishments assigned to other industries, principally "stamped and enameled ware, not elsewhere specified," "tinware, not elsewhere specified," "copper, tin, and sheet-iron work," and "jewelry."

JEWELRY AND INSTRUMENT CASES.

Establishments in this classification manufacture principally leather, metal, and wooden boxes, cases, bags, and trays, lined with plush, satin, silk, cotton, etc., and in some cases covered with satin, silk, velvet, and other cloths. They are intended for containing such articles as cigarettes, combs, compasses, cutlery, instruments of all kinds, jewelry, eyeglasses, razors, articles for religious use, pipes, fountain pens, stationery articles, novelties, toilet sets, scissors, files, and silverware. Statistics for the industry for the census years from 1859 to 1914 are given in Table 223.

In addition to the products covered by the table, jewelry and instrument cases to the value of \$115,368 in 1914 and of \$215,571 in 1909 were reported by establishments engaged primarily in the industries "boxes, fancy and paper," and "lumber, planing-mill products, not including planing mills connected with sawmills."

It is probable that establishments assigned to other industries also manufactured jewelry and instrument cases but did not report separate values for them. Because of the overlapping between this industry and others, comparisons of the returns for different censuses are of doubtful significance.

LAPIDARY WORK.

The cutting and polishing of coral, diamonds, sapphires, rubies, emeralds, opals, tourmaline, topaz, chalcedony, amethyst, onyx, beryl, garnet, spodumene, shell cameos, and other precious and semiprecious stones, and the drilling of pearls are the operations reported by the establishments in this classification. In many cases this work is done for jewelry concerns which furnish the material. Recutting and setting are also done largely for the trade. In addition, jewels are prepared for surveyors' and electrical instruments and for watches and chronometers, and real and imitation stones for emblems. Statistics for the industry for the census years from 1859 to 1914, inclusive, are given in Table 223. It is probable that some jewelry manufacturers cut stones for their own use without reporting the value of such lapidary work separately, and diamond cutting may not have been included under this classification prior to the census of 1899.

MATTRESSES AND SPRING BEDS.

The manufacture of quilted or otherwise fastened mattresses filled with cotton, curled hair, excelsior, feathers, felt, fiber, leather tufts, shoddy, tow, husk, etc., and the fabrication of wire springs, either plain or woven, for use on beds, couches, and cots, are the principal lines of industry followed by establishments in this classification. Spiral springs and spring cushions for hospital use, and renovated mattresses, feather pillows, beds and cots, were also reported. Statistics for the industry for each census year from 1879 to 1914 are given in Table 223. At the census of 1859, under "beds, spring," 15 establishments were reported, with products valued at \$313,300, and under "mattresses and beds," 36, with products valued at \$104,499. At the census of 1869 the manufacture of "mattresses and spring beds" was not reported separately.

In addition to the products covered by the table, mattresses and spring beds to the value of \$3,342,390 in 1914 and of \$1,408,649 in 1909 were reported by establishments engaged primarily in the manufacture of furniture, house-furnishing goods, upholstering materials, and other products.

MODELS AND PATTERNS, NOT INCLUDING PAPER PATTERNS.

Establishments in this classification manufacture principally patterns or models for making matrices or cavities into which molten lead is poured for casting; but also produce both miniature and full-sized representations of the castings or other objects to be made, and forms on which to display textiles, hair work, or other goods, etc. These products are made for the most part of various metals—including aluminum, spelter, and lead—papier-mâché, plaster, rubber, wax, and wood. Table 223 presents general statistics for the industry for the census years from 1849 to 1914, inclusive.

In addition to the products covered by the table, models and patterns to the value of \$351,391 in 1914 and of \$401,683 in 1909 were reported by establishments assigned to other industries, principally "foundry and machine-shop products," "glass," "brass, bronze, and copper products," "furniture," and "iron and steel, steel works and rolling mills."

MUCILAGE AND PASTE.

Sticking and gumming preparations, made for the most part of gum arabic, dextrin, glue, or other adhesive materials, or of flour and water boiled and sometimes strengthened with starch, and various kinds of adhesive cements (rubber, leather, asbestos, vulcanizing, elastic, and roofing) are the principal products of establishments in this classification. Among products not clearly indicated by this description are sealing wax and compounds of various sorts, pneumatic-tire fillers, and sizing. The manufacture of glue is not included. Statistics for the industry for the census years from 1869 to 1914, inclusive, are given in Table 223. It is probable that the decrease in value of products for the decade ending in 1879 was due to changes in the classification of individual establishments.

In addition to the products covered by the table, mucilage and paste to the value of \$853,471 in 1914 and of \$659,736 in 1909 were reported by establishments assigned to other classifications, principally writing ink, food preparations, and glue.

MUSICAL INSTRUMENTS AND MATERIALS.

This group includes statistics for five classes of establishments engaged in the manufacture of pianos; organs; piano and organ materials; metal and stringed instruments and materials; and phonographs, graphophones, and talking machines. Table 223 presents separate statistics for each of the five industries, and the following table gives combined figures for the census years from 1849 to 1914, inclusive:

CENSUS YEAR.	MUSICAL INSTRUMENTS AND MATERIALS.							
	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
1914.....	737	48,768	57,902	\$168,618	\$30,856	\$49,324	\$119,689	\$70,365
1909.....	712	45,041	49,417	120,895	26,594	47,754	104,744	56,990
1904.....	639	38,617	34,259	80,966	21,373	33,278	79,811	46,533
1899.....	630	24,951	23,288	51,054	13,383	19,404	46,665	27,261
1889 ¹	674	18,096	11,788	29,650	11,649	14,436	36,868	22,432
1879.....	429	11,350	(²)	14,447	7,099	8,361	19,255	10,894
1869 ³	337	7,167	2,018	9,555	5,107	4,835	13,906	9,071
1859.....	248	4,758	(²)	4,623	2,530	2,325	6,968	4,643
1849.....	204	2,331	(²)	1,546	1,055	698	2,581	1,883

¹ Exclusive of two establishments reported under "all other industries" in 1889.

² Figures not available.

³ "Musical instruments, not specified."

Pianos and organs.—General statistics for the manufacture of each of these two classes of musical instruments are presented in Table 223 for 1859 and for the census years from 1904 to 1914, inclusive.

The table following presents statistics for the number and value of organs and pianos manufactured during 1914, 1909, and 1904.

Table 166 PRODUCT.	PIANOS AND ORGANS.		
	1914	1909	1904
Total value ¹	\$69,072,383	² \$70,056,223	\$52,964,315
Pianos:			
Number.....	326,274	364,545	261,197
Value.....	\$56,311,863	\$58,493,846	\$41,497,789
Upright—			
Without player attachments—			
Number.....	227,686	321,309	251,957
Value.....	\$31,431,382	\$45,180,176	³ \$37,418,984
For or with player attachments—			
Number.....	88,078	34,495	1,868
Value.....	\$20,265,514	\$9,275,001	\$417,382
Grand—			
Without player attachments—			
Number.....	9,679	8,720	
Value.....	\$4,201,302	\$4,009,769	7,372
For or with player attachments—			
Number.....	831	21	\$3,661,423
Value.....	\$413,665	\$28,900	
Player attachments made separate—			
Number.....	6,493	10,898	20,391
Value.....	\$854,774	\$1,474,630	\$2,004,266
Organs:			
Number.....	42,806	65,335	113,966
Value.....	\$6,378,312	\$5,309,016	\$6,625,319
Pipe—			
Number.....	2,273	1,224	901
Value.....	\$4,660,301	\$2,713,587	\$1,989,979
Reed—			
Number.....	40,533	64,111	113,065
Value.....	\$1,718,011	\$2,595,429	⁴ \$4,635,340
Perforated music rolls, value.....	\$833,357	\$216,150	
Parts, materials, and supplies, value.....	\$2,913,197	\$2,442,611	\$2,836,941
All other products, value.....	\$1,780,880	\$2,119,970	

¹ In addition, pianos, organs, parts and materials to the value of \$750,845 in 1914, \$680,188 in 1909, and \$149,114 in 1904 were reported by establishments engaged primarily in other industries.

² Figures do not agree with the general statistics in Table 223, because certain establishments revised their reports.

³ Includes \$21,310, the value of square pianos.

⁴ Includes \$478,287, the value of street and self-playing organs.

Piano and organ materials.—Establishments in this classification make various parts used in the manufacture of pianos, organs, and players. These include piano strings, plates, keys, actions, keyboards, cases, back frames, pedal attachments, hammers, sounding boards, legs, trusses, etc.; organ reeds and reed boards, pipes, pipe-organ actions, pipe feet, stops, knobs, stems and tablets, keyboards, pedals and pumping pedals, reed poles, and tremolos; piano and organ hardware, etc. Table 156 shows separate statistics for those establishments whose product of chief value was piano materials and for those engaged primarily in the manufacture of organ materials. Piano materials to the value of \$496,900 were reported by establishments assigned to other industries, principally billiard tables and materials, and needles, pins, and hooks and eyes. General statistics for the industry for the census years from 1904 to 1914 are given in Table 223. Prior to 1904 piano materials were included with pianos, and organ materials with organs.

Phonographs and graphophones.—Mechanical devices, by whatever names known, for registering and reproducing speech, music, and other sound, are the principal products of establishments in this classification. Records, blanks, horns, needles, matrices, multiplex attachments, and other supplies are also among the products. The statistics for 1914, 1909, 1904, and 1899—the only censuses for which separate figures are shown—are given in Table 223. Two establishments were reported at the census of 1889, one from Connecticut and one from New York; they were included under "All other industries."

The following table presents statistics for the number and value of phonographs, graphophones, and talking machines, for 1914, 1909, 1904, and 1899:

Table 167 PRODUCT.	PHONOGRAPHS AND GRAPHOPHONES.			
	1914	1909	1904	1899
Total value.....	¹ \$27,115,916	¹ \$11,725,996	\$10,237,075	\$2,246,274
Phonographs, graphophones, and talking machines (including office dictation instruments):				
Number.....	515,154	344,681	(²)	151,403
Value.....	\$15,290,491	\$5,406,684	\$2,966,343	\$1,240,503
Records and blanks:				
Number.....	27,221,290	27,183,959	(²)	2,763,277
Value.....	\$11,111,418	\$5,007,104	\$4,678,547	\$539,370
Parts, materials, and supplies, value...	\$356,935	\$844,631	(²)	(²)
All other products, value.....	\$357,072	\$467,577	\$2,592,185	\$466,401

¹ In addition, in 1914, phonograph and graphophone parts and materials valued at \$66,531, and in 1909 records and parts valued at \$31,899 were made by establishments engaged primarily in the manufacture of products other than those covered by this industry designation.

² Not reported.

Musical instruments and materials, not specified.—Various kinds of wind, percussive, and stringed musical instruments and materials therefore are the principal products of establishments in this classification. The instruments include, among others, accordions; banjos; bones; bugles; castanets; concertinas and parts; cornets, trombones, tubas, and other brass instruments for band and orchestral use; cymbals; drums, bass and snare, and drummers' traps and accessories; dulcimers; fifes, flageolets, flutes, and piccolos; guitars; harps; jew's-harps; lutes; lyres; mandolins; mechanical musical instruments; musical bells; sonnettes of wood and metal; ukuleles; tambourines; tympanies; violins, violoncellos, and all other instruments of the violin type; xylophones and accessories; and zithers. Parts of these instruments, such as strings (including also strings for tennis rackets), drumheads, violin bows and bridges, etc., are also produced for sale as such direct to musicians or to manufacturers of complete instruments. There is thus some duplication within the industry. Music racks, cardboard music, and other accessories were also reported. Table 156 gives separate statistics for establishments manufacturing as their products of chief value (1) brass and other metal instruments; (2) violins and other stringed instruments; and (3) all other instruments, not specified. General statistics for the industry are given in Table 223 for the census years from 1859 to 1914, inclusive.

In addition to the products covered by the table, musical instruments to the value of \$352,204 in 1914 and of \$72,434 in 1909, were reported by establishments assigned to other industries, principally "foundry and machine-shop products."

OPTICAL GOODS.

The establishments in this classification are those of manufacturing opticians. While some of them make complete spectacles and eyeglasses of various kinds, the manufacture is generally divided between the grinding of the lenses in certain plants and the production of the frames in others. Artificial human eyes and glass eyes for furriers' and taxidermists' trade are also manufactured. Other products include automatic eyeglass holders, automobile eye protectors, eye shields and shades, field glasses, goggles, microscopes, opera glasses, optometers, photographic lenses and shutters, rough slabs for eyeglasses, springs and clips, stereopticons, stereoscopes, and eye-testing sets. There is considerable overlapping between this industry and "jewelry," "instruments, professional and scientific," "photographic apparatus," and "photographic materials." Statistics for the industry for the census years from 1869 to 1914 are given in Table 223. At the census of 1859 one establishment was reported under "artificial eyes," with products valued at \$6,000. Two wage earners were employed, receiving \$1,800 in wages, and the cost of materials was \$590.

In addition to the products covered by the table, optical goods to the value of \$199,416 in 1914 and of \$307,771 in 1909 were reported by establishments assigned to other industries, principally jewelry and instruments cases, combs and hairpins, and jewelry.

PAVING MATERIALS.

All kinds of paving blocks and paving materials, mixed and unmixed, for streets or floors, are produced by establishments in this classification. The blocks are made of asphalt, bitumenized brick, cedar, hardwood, creosoted wood, bluestone, cement, concrete, rubble stone, granite, and limestone. The unmixed paving materials

reported include crushed furnace slag, granite, sandstone, and limestone; distillates; dry natural asphalt; pitch; tar; coal-tar oil; flux; screenings; macadam; riffraff; and ballast. The mixtures include artificial asphalt, asphalt paving mixture for top coat and binder, bituminous and other cements, liquid asphalt, and tar concrete. The statistics for the industry at the census of 1889 included street construction work, and are therefore not comparable with the figures given in Table 223.

In addition to the products covered by Table 223, paving materials to the value of \$2,741,194 in 1914 and \$94,359 in 1909 were reported by establishments assigned to other classifications, principally "lime," "roofing materials," "brick and tile, terra-cotta, and fire-clay products," "marble and stone work," "cement," and "wood preserving."

PENCILS, LEAD.

Graphite is the principal material used in the manufacture of pencils by the establishments in this classification. Crayons and indelible pencils are reported, as well as the ordinary writing and drawing pencils. Statistics for the industry for the census years from 1869 to 1914, inclusive, are given in Table 223.

PENS, FOUNTAIN AND STYLOGRAPHIC.

Establishments included in this industry manufacture principally complete fountain pens. A few reported stylographic pens and ink pencils, either as their sole product or in addition to the ordinary fountain pens. Some manufacture gold and plated pen points for their own use and for separate sale. Other establishments make exclusively the rubber holders and other parts, including mountings in gold, silver, and plate. Table 223 gives statistics for the industry for the census years from 1889 to 1914, inclusive.

In addition to the products covered by the table, fountain and stylographic pens to the value of \$167,967 were reported for 1914 by establishments assigned to other classifications, principally lead pencils, gold pens, rubber goods, and jewelry. Table 76 presents statistics for fountain and stylographic, steel, and gold pens.

PHOTOGRAPHIC APPARATUS.

In Table 156 which presents statistics for this industry the establishments are classified in three groups, according to their products of chief value: (1) Those manufacturing cameras of all kinds; (2) those making motion-picture machines; and (3) those manufacturing blue-printing machines, flash-light apparatus, tripods, film rewinders and reels, plate holders, developing tanks, shutters, and other parts for sale as such.

In addition to the products covered by the table, photographic apparatus to the value of \$685,949 was reported by establishments assigned to other classifications. Of this amount, \$73,602 represented the value of motion-picture machines. Comparable statistics for the industry for the census years from 1869 to 1914, inclusive, are given in Table 223.

The apparent decrease in value of products between 1904 and 1909 is due to changes in the classification of individual establishments. The most important change was in the case of one large establishment in New York state, which in 1909 was placed wholly under "photographic materials," while at the census of 1904 its business was in part assigned to "photographic apparatus." The decrease from 1869 to 1879 may perhaps be accounted for both by changes in classification and by the depreciated currency in which values were reported for the former census.

PHOTOGRAPHIC MATERIALS.

Sensitized products, chemicals for photographic use, and other photographic supplies are the principal products of establishments in this industry. These include, among others, sensitized paper and cloth of many varieties, sensitized cards and novelties, developing and other chemicals, dry plates, photographic mounts and frames, films, flash-light materials, lantern and stereopticon slides, sensitized ferro-type plates, and sheet gelatin. Table 156 gives separate figures for those establishments making motion-picture films (not exposed) and for those making other photographic materials. In addition to the products covered by the table, photographic materials to the value of \$114,751 were reported in 1914 by establishments assigned to other classifications. No census statistics for the industry were shown for 1869. Table 223 gives the general statistics for the census of 1859 and for each census from 1879 to 1914, inclusive.

PIPES, TOBACCO.

A great variety of pipes are made by establishments in this industry. The materials for the pipe bowls include apple and brier wood, clay, corncobs, dogwood, hazel wood, hickory, meerschaum, and rosewood; those for the stems include various woods,

reeds, rubber, and composition; and those for the bits or mouthpieces include amber, black composition, bone, celluloid, horn, ivory, meerscham, rubber, wood, etc. Cigar and cigarette holders are also reported. Statistics for the industry are presented in Table 223 for the census years 1869 to 1914, inclusive.

In addition to the products covered by the table, pipes to the value of \$2,500 in 1914 and of \$3,880 in 1909 were reported as subsidiary products by tobacco manufacturers.

PULP, FROM FIBER OTHER THAN WOOD.

Only three establishments—one in Connecticut, one in Michigan, and one in Ohio—reported the product covered by this classification, pulp from rags. Separate figures can not be shown for the industry. (See "All other industries," Table 156.)

ROOFING MATERIALS.

Waterproof substances for use upon roofs are the principal products of establishments in this classification. Table 156 gives separate statistics (1) for metal shingles and ceilings, and (2) for all other roofing materials, which embrace asbestos shingles and sheets, asphalt, asphalt paint and shingles, various kinds of roofing and building paper, roofing cement, crushed furnace slag, plaster board of paper and stucco, cement roofing tile, purified pine tar, tarred and other saturated felts, shingle stains, waterproofed cotton duck, tarpaulins, mastic, and roofing pitch. The work of placing these materials upon roofs, being a building rather than a manufacturing process, is not included. The figures for 1889 covered such construction work and, therefore, are not comparable. (See Table 223.)

There is considerable overlapping between this and other industries, roofing materials to the value of \$5,210,372 in 1914 and to the value of \$3,019,842 in 1909 being reported by establishments engaged primarily in the manufacture of other products. The larger portions of these amounts were returned by manufacturers of paper and wood pulp, although establishments making chemicals, steam packing, and paving materials as their chief products were also represented. Prior to 1909 this classification included establishments making roofing slate; but such establishments, which reported products to the value of \$5,913,909 in 1914 and of \$1,899,747 in 1909, are now classified under "marble and stone work."

RUBBER GOODS.

The manufacture of rubber goods is covered by three classifications: "Belting and hose, rubber," "boots and shoes, rubber," and "rubber goods, not elsewhere specified." Table 168 gives statistics of quantities and values for the three industries for 1914. Data in similar detail were not secured at prior censuses. In 1909 the total production of rubber goods was valued at \$197,394,638. The increase in value of products during the five-year period, therefore, was \$103,599,158, or 52.5 per cent.

Table 168		Table 168	
PRODUCT.	Quantity and value.	PRODUCT.	Quantity and value.
Total value.....	\$300,993,796	Tires—Continued.	
Boots:		Motorcycle and bicycle (including aeroplane tires)—	
Pairs.....	4,024,486	Number.....	3,728,138
Value.....	\$12,647,934	Value.....	\$6,905,853
Shoes:		Belting, value.....	\$7,989,405
Pairs.....	57,211,728	Hose, value.....	\$16,853,693
Value.....	\$37,858,222	Packing, value.....	\$3,507,651
Tires:		Clothing, value.....	\$6,799,515
Automobile—		Druggists' and stationers' sundries, value.....	\$7,511,755
Casings—		All other manufactures of rubber, value.....	\$40,133,250
Number.....	8,021,371	Scrap and old rubber (sold or on hand), value.....	\$1,250,836
Value.....	\$105,678,951	Reclaimed rubber (sold or on hand), value.....	\$11,134,958
Inner tubes—		All other products, value.....	\$8,885,008
Number.....	7,907,351		
Value.....	\$20,101,084		
Solid, all kinds, value.....	\$13,735,681		

¹ In addition, products to the value of \$752,503 were reported by establishments assigned to other classifications.

Boots and shoes, rubber.—All kinds of rubber footwear for men, women, and children are made by establishments in this classification. Leather-soled rubber boots and rubber heels are also reported. General statistics for the census years from 1879 to 1914, inclusive, are given in Table 223. The large decrease in value of products from 1904 to 1909 is due in part to the fact that some establishments reported list-price values at the census of 1904. For detail statistics see Table 168.

Belting and hose, rubber.—The chief products of establishments in this industry are fire, garden, and other hose and machinery belting made of rubber. In many instances factories assigned to this industry also reported other rubber articles, such as tiling, mats, matting, and tubing. Table 223 gives general statistics for the censuses from 1889 to 1914, inclusive. Table 156 gives separate statistics for the establishments whose product of chief value was belting, and for those whose chief product was hose.

Rubber goods, not elsewhere specified.—Establishments in this classification manufacture a great variety of articles from india rubber. These embrace solid tires and pneumatic casings and inner tubes for automobiles; tires for carriages, bicycles, and motorcycles; tire reinforcements and accessories; hard and soft rubber goods; and rubberized cloth and clothing. In detail, the list includes automobile-top material; air cushions and mattresses; rubber bands; bath brushes; bumpers; card cloth; carriage cloth; collars, cuffs, etc.; rubber-covered wire; diaphragms; disks; dip-rubber goods, including gloves, finger stalls, balloons, and other specialties; doormats; dress shields; ear cushions; erasers; fountain-pen fillers; friction cloth; horseshoe pads; gaskets; hard-rubber bowling balls; hard-rubber razor handles; hospital sheeting; house balls; insulating paint and tape; fruit-jar rings; nursing bottles and nipples; oil-well caps; rubber linings; sheet rubber; shoe soles; specialties for plumbers, and for the drug, surgical, and dental trade; stopples; rubber thread; toys; water bottles; and many other products. Table 223 gives statistics for 1914 and 1909. The statistics for 1904 and prior census years cover elastic woven goods, and are therefore not comparable with those for 1909 and 1914.

SAND AND EMERY PAPER AND CLOTH.

The coating of paper and of cotton twills, drills, duck, and other cloth with abrasives is the principal business of establishments in this classification. The abrasives employed include adamite, carborundum, corundum, emery, flint, garnet, and quartz; and glue is used to fasten them to the various bases used. Statistics for the industry for the census years from 1859 to 1914, inclusive, are given in Table 223.

Changes in classification account for the decrease from 1889 to 1899 and for the very large increase from 1904 to 1909. One establishment classified under "glue" in 1899 made sandpaper to a very large extent, and one very large establishment classified under "glue" in 1904 was placed under "sand and emery paper and cloth" in 1909 because its most important product in that year was sandpaper.

SHIPBUILDING, INCLUDING BOAT BUILDING.

The statistics for this industry cover establishments engaged in the construction or repair of iron and steel and wooden vessels and boats, large and small, rowboats and canoes, as well as large steamships. Some establishments make only parts of boats, such as hulls, stems, keels, knees, rudder posts, spars, masts, sails, and rigging, and others make some parts of this character for sale as such in addition to making complete vessels. A considerable proportion of the total value of products consists of charges for dry-docking and for repairs. A large number of rowboats, small sailboats, small power boats, house boats, scows, and similar craft are built by carpenters, fishermen, sportsmen, and establishments having boats for hire. These operations were not covered by the census, and therefore the statistics do not represent the entire production of the craft of this character.

Table 223 gives separate statistics for iron and steel shipbuilding and for wooden shipbuilding, for the census years from 1899 (when the industries were first shown separately) to 1914, inclusive. The following table presents the combined statistics for the two industries for the census years from 1849 to 1914, inclusive:

Table 169

CENSUS YEAR.	SHIPBUILDING, INCLUDING BOAT BUILDING.							
	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
1914.....	1,147	44,489	115,333	\$156,060	\$32,931	\$38,597	\$88,682	\$50,085
1909.....	1,353	40,506	88,063	126,118	25,268	31,214	73,360	42,146
1904.....	1,097	50,754	78,127	121,624	29,241	37,463	82,769	45,306
1899.....	1,107	46,747	61,797	77,341	24,825	33,475	74,532	41,057
1899.....	1,006	22,143	18,192	27,263	13,084	16,521	38,065	21,544
1879.....	2,188	21,345	(¹)	20,980	12,714	19,736	36,800	17,064
1869.....	964	13,915	5,136	11,463	7,073	9,380	21,484	12,104
1859.....	675	10,071	(¹)	5,953	4,539	5,789	13,424	7,635
1849.....	953	12,976	(¹)	5,373	6,056	7,420	16,938	9,518

¹ Figures not available.

Table 156 gives for each industry separate statistics for shipyards engaged chiefly in the construction of new vessels of 5 tons or more; shipyards engaged in repair work exclusively; establishments constructing chiefly boats of under 5 tons; and establishments making a specialty of masts, spars, oars, and the rigging of vessels.

The following table presents comparable figures for 1914 and 1909 so far as figures for these subdivisions are available. Only two subclasses were given for iron and steel shipbuilding at the census of 1909.

Table 170

ESTABLISHMENTS ENGAGED PRIMARILY IN—	SHIPBUILDING, INCLUDING BOAT BUILDING, 1914 AND 1909.							
	Number of establishments.	Wage earners (average number).	Primary horse-power.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
Total, 1914.....	1,147	44,489	115,333	\$156,060	\$32,931	\$38,597	\$88,682	\$50,085
1909.....	1,353	40,506	88,063	126,118	25,268	31,214	73,360	42,146
Iron and steel shipbuilding:								
New construction on vessels of 5 tons and over—								
1914.....	46	28,142	63,888	112,630	20,719	25,826	54,340	28,514
1909.....	38	24,242	(¹)	88,710	14,756	19,584	42,722	23,138
Repair work only—								
1914 ²	33	5,366	19,818	20,082	4,447	3,444	11,877	8,433
1909 ³	15	3,901	(¹)	11,462	2,459	2,133	6,895	4,762
Wooden shipbuilding and boat building:								
New construction on vessels of 5 tons and over—								
1914.....	273	4,802	14,148	9,580	3,416	4,691	10,427	5,736
1909.....	369	6,613	(¹)	12,789	4,665	5,817	13,495	7,678
Repair work only—								
1914.....	179	4,109	11,180	8,947	2,946	2,518	7,256	4,738
1909.....	134	3,065	(¹)	7,357	1,758	1,417	4,458	3,041
Making boats under 5 tons—								
1914.....	588	1,895	5,770	4,614	1,280	1,956	4,414	2,458
1909.....	767	2,554	(¹)	5,563	1,550	2,118	5,458	3,340
Making masts, spars, and oars, and rigging vessels—								
1914.....	28	175	529	207	123	162	368	206
1909.....	30	131	(¹)	237	80	145	332	187

¹ Not shown separately.

² Includes 4 establishments making boats under 5 tons, and 1 making masts, spars, oars, and the rigging of vessels.

³ Includes 1 establishment making boats under 5 tons.

Number of vessels launched.—Table 171 gives statistics as to number, and, so far as available, as to tonnage, for vessels launched during the census years 1914, 1909, 1904, and 1899, distinguishing Government shipyards from those privately owned. A large part of the work on vessels launched during the year was performed during prior years, and, conversely, much work was done during each census year on vessels not yet ready for launching at the end of the year. The gross tonnage of a ship is the total internal capacity, expressed in "tons" of 100 cubic feet. The displacement tonnage is the weight of the volume of water displaced, or the weight of the vessel and its load. While gross tonnage and displacement tonnage are not by any means the same, it was necessary to combine the tonnage of vessels whose capacity is reckoned in one way with that of vessels whose capacity is reckoned by the other method in order to obtain a total which should represent approximately the total tonnage launched during the year.

CLASS AND CENSUS YEAR.	VESSELS LAUNCHED DURING THE YEAR BY—							
	All establish-ments.		Private establish-ments in ship-building industry.		Private estab-lishments in other indus-tries.		Government shipyards.	
	Num-ber.	Gross tonnage. ¹	Num-ber.	Gross tonnage.	Num-ber.	Gross tonnage.	Num-ber.	Dis-placement ton-nage.
Vessels of 5 gross tons and over, total:								
1914.....	1,255	455,167	1,113	424,660	94	13,654	48	16,853
1909.....	1,637	481,813	1,584	467,219	22	12,535	31	2,059
1904.....	2,279	728,104	2,114	678,525	134	22,327	31	27,252
1899.....	2,081	687,159	2,081	687,159				
Classified by material—								
Iron and steel—								
1914.....	215	268,470	126	242,559	69	9,792	20	16,119
1909.....	169	260,765	158	254,986	8	5,429	3	350
1904.....	172	352,669	152	328,411	3	408	17	23,850
1899.....	134	262,516	134	262,516				
Wooden—								
1914.....	1,040	186,697	987	182,101	25	3,862	28	734
1909.....	1,468	221,048	1,426	212,233	14	7,106	28	1,709
1904.....	2,107	375,435	1,962	350,114	131	21,919	14	3,402
1899.....	1,947	424,643	1,947	424,643				
Classified by power—								
Steam—								
1914.....	149	243,011	140	234,636			9	8,375
1909.....	194	235,315	181	234,633	3	429	10	253
1904.....	320	368,117	368	349,600	6	467	6	18,050
1899.....	519	286,311	519	286,311				
Motor—								
1914 ²	439	13,266	427	13,220	4	6	8	40
1909 ²	515	12,065	513	12,041	2	24		
1904.....	311	3,247	307	3,157	4	90		
1899.....								
Sail—								
1914.....	48	6,000	40	2,224	8	3,776		
1909.....	51	14,807	51	14,807				
1904.....	352	68,615	349	64,615			3	4,000
1899.....	648	80,294	648	80,294				
Unrigged—								
1914.....	619	192,890	506	174,580	82	9,872	31	8,438
1909.....	877	219,626	839	205,738	17	12,082	21	1,806
1904.....	1,296	288,125	1,150	261,153	124	21,770	22	5,202
1899.....	914	320,554	914	320,554				
Boats of less than 5 gross tons:								
1914.....	4,518		3,706		758		54	
1909.....	9,042		8,577		412		53	
1904.....	3,916		3,499		365		52	
1899.....	2,364		1,687				677	

¹ The figures in this column represent the sum of the gross tonnage reported by private establishments and the displacement tonnage reported by Government shipyards.

² Includes sailing vessels with auxiliary power.

Table 172 shows the value of the construction work done, the amount received for repair work, and the value of all other work done by establishments assigned to the shipbuilding industry, for those that built vessels in connection with other industries, and for Government shipyards.

KIND OF WORK AND CENSUS YEAR.	VALUE OF WORK DONE DURING YEAR BY—			
	All establish-ments.	Private estab-lishments in shipbuilding industry.	Private estab-lishments in other indus-tries.	Government shipyards.
Total, 1914	\$119,423,028	\$88,682,071	\$1,523,692	\$29,217,265
1909.....	100,009,054	73,360,315	776,706.	25,872,033
1904.....	100,692,050	82,769,239	657,342	17,265,469
Work on new vessels and boats:				
All kinds—				
1914.....	52,401,805	46,334,134	1,279,630	4,788,041
1909.....	45,036,492	42,310,925	594,244	2,131,323
1904.....	60,718,307	56,121,227	610,560	3,986,520
Vessels of 5 gross tons and over—				
1914.....	48,105,561	42,545,445	947,805	4,612,311
1909.....	40,145,084	37,718,018	449,089	1,977,977
1904.....	57,193,223	53,119,935	463,018	3,610,270
Boats of less than 5 gross tons—				
1914.....	4,296,244	3,788,689	331,825	175,730
1909.....	4,891,408	4,592,907	145,155	153,346
1904.....	3,525,084	3,001,292	147,542	376,260
Repair work:				
1914.....	36,966,676	32,835,212	185,777	3,945,687
1909.....	33,304,658	26,673,643	80,461	11,545,554
1904.....	32,513,533	22,829,040	46,782	9,637,711
All other work done:				
1914.....	30,054,547	19,512,725	58,285	20,483,537
1909.....	16,667,904	4,370,747	102,001	12,195,156
1904.....	7,460,210	3,818,972	(2)	3,641,238

¹ Includes engines to the value of \$4,498,703.

² Included with repair work.

SIGNS AND ADVERTISING NOVELTIES.

Establishments in this classification make signs and novelties of wide variety. The instructions to the special agents who gathered the data directed that certain classes of establishments—among them those engaged in “house and sign painting”—must not be reported. This rule excluded from the canvass local establishments doing custom sign painting for offices, stores, or billboards.

The signs made by establishments in this classification are principally of brass, bronze, copper, sheet iron, steel, cardboard, celluloid, cloth, fiberoid, glass, porcelain-enameled iron, silver, tin, wire, and wood. They comprise (1) electric signs; (2) other signs, including illuminated signs, “talking signs,” triple signs, those used on street cars to show their destination, painted and decorated show cards, and gold-plated, metallic, enameled-wood, and other letters; and (3) the advertising novelties, which include many tools, utensils, and conveniences marked with advertising notices, for example, corkscrews, match boxes, diaries, calendars, fans, purses, memorandum books, card cases, pencils, bottle openers, celluloid novelties, and devices for advertising purposes. Colored cards and wood samples for paint manufacturers were also reported. The manufacture of printed advertising matter is not here included, but appears as part of the printing and publishing industry.

“Signs and advertising novelties” is a classification used for the first time at the census of 1909. (See Table 223.) The establishments making the products here specified were, at previous censuses, divided among several classifications, such as “electrical machinery, apparatus, and supplies,” “house-furnishing goods, not elsewhere specified,” “leather goods, not elsewhere specified,” and “stationery goods, not elsewhere specified.” There is some overlapping between this new class and those specified, as well as others.

Table 156 gives separate figures for the three groups, “electric signs,” “other signs,” and “advertising novelties.” There is considerable overlapping among the groups, electric signs to the value of \$208,254 being reported by manufacturers of other signs and of advertising novelties, other signs to the value of \$180,733 by makers of advertising novelties and of electric signs, and advertising novelties to the value of \$29,730 by sign manufacturers. Establishments assigned to other classifications reported electric signs to the value of \$19,137, other signs to the value of \$574,735, and advertising novelties to the value of \$357,134, making a total of \$951,006 for 1914. The corresponding total for 1909 was \$695,470.

SODA-WATER APPARATUS.

The various devices used to charge water with carbonic acid gas, to store the water and the sirups used with it, and to draw and serve it, are manufactured by establishments in this classification. The process of charging water is not included. (See "mineral and soda waters.") Statistics for the industry for the census years from 1869 to 1914, inclusive, are given in Table 223. In addition to the products covered by the table, soda-water apparatus to the value of \$111,707 in 1914 and of \$400,221 in 1909 was reported by establishments assigned to other industries, principally "furniture," "foundry and machine-shop products," and "mineral and soda waters."

SPORTING AND ATHLETIC GOODS.

Among the sporting goods reported by establishments assigned to this classification are artificial flies and baits; air rifles; canvas goods; clay-pigeon traps; fishing tackle of all sorts; dice; fish spears and tongs; gun cases; oars and paddles; shell boxes; bait baskets and boxes; decoy ducks and crows; duck, crow, turkey, and snipe calls; reels; leaders; floats; leads; toboggans; skis; bows and arrows; magazine-shell vests; etc. The manufacture of firearms and ammunition falls under a separate classification.

Athletic goods are represented by baseballs and bats, gloves, mitts, masks, and uniforms for baseball; basket-ball supplies; boxing gloves; bowling balls; cricket bats; exercisers; footballs and football supplies; golf clubs, balls, and bags; gymnasium goods and apparatus; hockey sticks; polo balls, mallets, and saddles; roller skates; punching bags and punching-bag platforms; tennis rackets, balls, and supplies; track suits; toe clips; playground apparatus; bulletin and score boards; medicine balls; circus apparatus; juggling goods; water wings; Indian clubs and dumbbells; and similar products. Statistics for the industry for the census years from 1879 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, sporting and athletic goods to the value of \$838,645 in 1914 and of \$239,266 in 1909 were reported by establishments assigned to other classifications, principally "hosiery and knit goods," "hardware," "lasts," "clothing, men's," "ammunition," "awnings, tents, and sails," and "tools, not elsewhere specified."

STATIONERY GOODS, NOT ELSEWHERE SPECIFIED.

Manufacturers of various articles used in writing and in connection therewith, in manifolding, in-filing written matter, and for miscellaneous purposes, are included in this classification. Table 156 gives separate statistics for those establishments whose product of chief value was "penholders" and for those making "all other" stationery goods. The latter group comprises establishments manufacturing, among other products, albums; copying baths; binders for loose leaves and all sorts of loose-leaf devices; blackboard erasers and supplies; blotters; boxes for documents; card files and indexes; cardcases; coin wrappers and currency straps; desk calendars and pads; devices for books and ledgers; duplicators made from gelatin or glue, and glycerin; engraved envelopes and stationery; envelope openers; paper clips and fasteners; filing devices; inkstands and inkstand bases and inking pads; labels and label cabinets; letter-copying presses; library and bank supplies; paper and twine holders and cutters; paper tablets; pencil sharpeners; portfolios; ruled papers; ruling pens; school globes, maps, tablets, erasers, and slates; stencil duplicators; waxed stencil sheets; printing machines using inked ribbons; stenographers' copyholders; thumb tacks; and tin plates for mounting. There is much overlapping between this industry and others, penholders to the value of \$756,969, and other stationery to the value of \$2,255,668—a total of \$3,012,637—being reported for 1914 by establishments assigned to other classifications, such as "pencils, lead," "toys and games," "envelopes," and "paper and wood pulp." The corresponding total for 1909 was \$1,505,600. "Stationery goods, not elsewhere specified" does not appear at the census of 1869. Table 223 gives statistics for 1859 and for each census year from 1879 to 1914, inclusive.

The production of envelopes in 1914 was valued at \$18,481,013, and of writing paper, as reported by paper mills, at \$23,637,257. These amounts are included in the totals for "paper and printing" (Table 96).

The following table presents statistics for typewriter supplies. These figures were included in Table 67 with those for the group of industries "iron and steel and their products" (which includes the manufacture of typewriters). In this connection reference should be made to "typewriters and supplies."

Table 173

	TYPEWRITER SUPPLIES.							
	Number of establishments.	Wage earners (average number).	Primary horsepower.	Capital.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
Total.....	57	788	1,462	\$3,354	\$456	\$1,894	\$4,649	\$2,755
Carbon paper.....	23	317	539	1,526	190	855	2,192	1,337
Ribbons.....	20	304	824	1,607	197	925	2,121	1,196
All other.....	14	167	99	221	69	114	336	222

STEAM PACKING.

Establishments in this classification manufacture principally the materials used in the stuffing boxes of the cylinders and steam chests of steam engines to render impervious the joints through which the piston rods and valve stems move; in the boxes or journals in which shafts revolve, to assist in lubrication; in pipe joints of many kinds; in air compressors; in gas, oil, and other engines; and for the covering of boilers and steam pipes to prevent the radiation of heat. These packings and coverings are of vegetable, animal, and mineral origin. The vegetable materials comprise duck cloth, flax, hemp, rubber, and cotton waste; the animal materials, wool and leather; and the mineral materials, antimony, asbestos, brass, graphite, cast iron, lead, lead wool, magnesia, mineral wool from slag and limestone, mica, and tin. Statistics for the industry for the census years from 1889 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, steam packing to the value of \$1,319,286 in 1914 and of \$876,425 in 1909 were reported by establishments assigned to other industries, principally roofing materials, mucilage and paste, and paper and wood pulp.

SURGICAL APPLIANCES.

Establishments included in this industry manufacture all kinds of surgical appliances, bandages, and dressings, except surgical instruments and dental appliances, which fall under the classifications "instruments, professional and scientific" and "dental goods." (See Table 156.) The products embrace, among others, trusses, elastic hosiery and belts, braces, extension shoes, arch supports for insteps, obesity belts, surgical gauze, douches, pneumatic splints, abdominal supporters, shoulder braces, magnetic insoles, sutures, ear drums, electric belts, anklets, knee caps, suspensories, etc. Statistics for the industry for the census years from 1879 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, surgical appliances to the value of \$105,486 were reported for 1914 by establishments assigned to other classifications, namely, "artificial limbs," "hosiery and knit goods," "patent medicines and compounds," "house-furnishing goods, not elsewhere specified," and "corsets."

THEATRICAL SCENERY.

This industry includes the production of theatrical scenery, for theaters or opera houses, halls, and schools; advertising curtains; stage hardware and equipment; floats for street pageants; etc., but does not include the incidental work done on theatrical scenery in theaters.

Statistics for the industry were not secured for censuses prior to 1914.

TOYS AND GAMES.

The articles made by establishments assigned to this class are numerous. They include indoor ball games; swings; checkers; dominoes; dolls; stuffed animals; stereoscopic views; toy furniture and utensils; various card and other games; playground goods; toy building blocks; children's driving reins; rattles and floor-rolling chimes; cribbage boards; croquet sets; toy drums; jig-saw and other puzzles; hobbyhorses and rocking-horses; velocipedes and tricycles; kites; magic lanterns and slides; magical apparatus, tricks, and novelties; masks; mechanical toys; toy railways, engines, and cars; toy saving banks; play suits; wigwams; doll clothing; marbles; fabric and leather covered balls; educational boards; game boards; toy tools, balloons, canes, pistols, and bells; etc. Statistics for the industry as reported at the censuses from 1859 to 1914, inclusive, are given in Table 223.

In addition to the products covered by the table, toys and games to the value of \$1,609,555 in 1914 and of \$1,156,411 in 1909 were reported by establishments assigned to other industries, principally hardware, planing mills, tinware, sawmills, wooden goods, furniture, signs and advertising novelties, etc. On the other hand, there is considerable overlapping between "toys and games" and such industries as "paper goods, not elsewhere specified," "leather goods, not elsewhere specified," "fancy articles, not elsewhere specified," "boxes, fancy and paper," "carriages and sleds, children's," and "wood, turned and carved," the amount of which was not always disclosed by the returns.

UMBRELLAS AND CANES.

Establishments in this classification manufacture, besides ordinary umbrellas and parasols and canes and parts thereof, toy parasols. Some establishments make only parts which others purchase and assemble, and some do contract work on materials furnished by others. There is thus some duplication in value of products within the industry. Statistics for this industry for the census years from 1849 to 1914 are given in Table 223. The decrease in value of products from 1889 to 1899 was due, in part at least, to the fact that prior to the census of 1899 statistics of small neighborhood shops were included in the returns. The decrease from 1899 to 1904 and from 1909 to 1914 may be attributed to changes in the classification of individual establishments.

In addition to the products covered by the table, umbrellas and canes to the value of \$28,368 in 1914 and of \$61,216 in 1909 were reported by establishments assigned to other classifications, such as men's clothing, fancy articles, fur goods, pocket-books, and wool-felt hats.

WASHING MACHINES AND CLOTHES WRINGERS.

Establishments in this classification manufacture principally machines for washing, for wringing, for drying, and for ironing clothing, table linen, bed linen, etc. They are operated by hand or by steam, water, electric, or other power. Statistics for the industry for the census years from 1859 to 1914 are given in Table 223. The slight decrease in value of products from 1869 to 1879 is more than accounted for by the high prices due to the depreciated currency of 1869, which increased nominal values about one-fifth. In addition to the products covered by the table, washing machines and clothes wringers to the value of \$432,092 in 1914 and of \$233,611 in 1909 were reported by establishments assigned to other industries, principally "agricultural implements," "foundry and machine-shop products," "sewing machines," and "toys and games."

WHALEBONE CUTTING.

Only one establishment, situated in New York City, was reported for this industry. Its product is whalebone cut for corsets, dresses, and whips. The statistics can not be given separately. (See "All other industries," Table 156.)

WHIPS.

Establishments in this classification manufacture whips, crops, lashes, and parts of whips, of rattan, rawhide, reed, whalebone, wood, and iron. Statistics for the industry as reported at each census from 1849 to 1914, inclusive, are given in Table 223. In addition to the products covered by the table, whips to the value of \$142,524 in 1914 and of \$114,306 in 1909 were reported by establishments engaged primarily in the manufacture of brooms, leather gloves and mittens, and saddlery and harness.

WINDMILLS.

The principal products of establishments in this classification are the wind motors used chiefly on farms to pump water, cut fodder for stock, turn grindstones, etc. Not only the vanes or sails that catch the wind, but also the towers, cylinders, and tanks are manufactured by these establishments. The first census at which windmills were reported separately was that of 1859, when five establishments reported products valued at \$28,750. The next census at which a separate presentation was made was that of 1879. Table 223 gives statistics for the census years from 1879 to 1914, inclusive. In addition to the products covered by the table, windmills to the value of \$116,122 in 1914 and of \$1,033,787 in 1909 were reported by establishments assigned to other classifications, such as "agricultural implements," "carriages and wagons," "foundry and machine-shop products," and "scales and balances."

WINDOW SHADES AND FIXTURES.

Window shades of cotton, linen, muslin, lonsdale, silk, or holland cloth, paper, or of opaque cloth or paper, are the principal products of establishments in this classification. The barrel spring and other rollers, brass rods, wooden poles and slats,

hardware, and other fixtures used with shades, as well as various other incidental products are included. At the census of 1859, 15 establishments were reported under "window blinds and shades." Their products were valued at \$134,620. For 1879 the classification was "window blinds and shades," and for 1889, "window shades." Comparable statistics are presented in Table 223 for the census years from 1879 to 1914, inclusive. In addition to the products covered by the table, window shades and fixtures to the value of \$499,876 in 1914 and of \$200,665 in 1909 were reported by establishments engaged primarily in the manufacture of "awnings, tents, and sails," "wall paper, not made in paper mills," and "window and door screens."

LOCAL CONCENTRATION OF CERTAIN INDUSTRIES.

There is much more local concentration in some industries than in others. This condition, however, may be set forth more clearly by selecting from among the large number of industries those which are of importance and which also show a marked degree of concentration, and indicating what proportion of the total value of products of each industry was reported from the states and cities which lead in that industry. The following table presents statistics for 50 selected industries of this character:

INDUSTRY, STATE, AND CITY.	VALUE OF PRODUCTS.			
	Amount.		Per cent of United States total.	
	1914	1909	1914	1909
INDUSTRY AND STATE.				
Agricultural implements.....	\$164,086,835	\$146,329,268		
Illinois.....	65,337,663	57,268,325	39.8	39.1
Wisconsin.....	20,119,068	11,411,303	12.3	7.8
Ohio.....	17,484,615	14,440,461	10.6	9.9
New York.....	14,576,694	14,970,980	8.9	10.2
Indiana.....	12,791,461	13,669,824	7.8	9.3
Michigan.....	7,731,217	9,272,787	4.7	6.3
Artificial flowers and feathers and plumes.....	19,064,570	23,980,567		
New York.....	16,455,637	21,162,385	86.3	88.2
Automobiles, including bodies and parts.....	632,831,474	249,202,075		
Michigan.....	398,289,022	96,651,451	62.9	38.8
Ohio.....	85,710,585	38,838,754	13.5	15.6
New York.....	42,115,276	30,979,527	6.7	12.4
Indiana.....	29,389,088	23,764,070	4.6	9.5
Boots and shoes, including cut stock and findings.....	590,028,167	512,797,642		
Massachusetts.....	255,188,013	236,342,915	43.2	46.1
New York.....	71,412,755	48,185,914	12.1	9.4
Missouri.....	52,522,006	48,751,235	8.9	9.5
New Hampshire.....	46,694,765	39,439,544	7.9	7.7
Ohio.....	33,641,705	31,550,957	5.7	6.2
Pennsylvania.....	28,989,470	20,218,784	4.9	3.9
Boots and shoes, rubber.....	53,822,123	49,720,567		
Massachusetts.....	23,788,788	18,722,363	44.2	37.7
Brass, bronze, and copper products.....	162,199,019	149,989,058		
Connecticut.....	69,353,103	66,932,969	42.8	44.6
Butter, cheese, and condensed milk.....	364,285,150	274,557,718		
Wisconsin.....	72,858,592	53,843,249	20.0	19.6
New York.....	43,262,309	42,458,345	11.9	15.5
Minnesota.....	33,797,436	25,287,462	9.3	9.2
Iowa.....	27,605,968	25,849,866	7.6	9.4
Canning and preserving.....	243,439,859	157,101,201		
California.....	61,162,849	32,914,829	25.1	21.0
New York.....	25,944,634	19,039,735	10.7	12.1
Maryland.....	18,028,779	13,709,449	7.4	8.7
Carpets and rugs, other than rag.....	69,128,185	71,188,152		
New York.....	26,075,521	25,606,262	37.7	36.0
Pennsylvania.....	23,099,647	24,879,232	33.4	34.9
Clocks.....	11,031,720	12,235,631		
Connecticut.....	4,523,975	6,809,746	41.0	55.7
New York.....	3,310,386	3,051,910	30.0	24.9

Table 174—Continued.

INDUSTRY, STATE, AND CITY.	VALUE OF PRODUCTS.			
	Amount.		Per cent of United States total.	
	1914	1909	1914	1909
INDUSTRY AND STATE—continued.				
Clothing, men's, including shirts.....	\$554,025,998	\$568,076,635		
New York.....	238,626,691	266,075,427	43.1	46.8
Illinois.....	89,144,448	89,472,755	16.1	15.8
Clothing, women's.....	473,888,354	384,751,649		
New York.....	345,315,642	272,517,792	72.9	70.8
Pennsylvania.....	37,059,174	32,837,424	7.8	8.5
Coke, not including gas-house coke.....	99,275,020	95,696,622		
Pennsylvania.....	42,996,443	51,816,449	43.3	54.1
Alabama.....	10,353,477	8,842,512	10.4	9.2
Collars and cuffs, men's.....	18,530,840	17,230,452		
New York.....	17,719,796	15,897,376	95.6	92.3
Corsets.....	40,550,702	33,257,187		
Connecticut.....	12,935,805	12,814,736	31.9	38.5
Cotton goods, including cotton small wares.....	701,300,933	628,391,813		
Massachusetts.....	197,322,111	186,462,313	28.1	29.7
North Carolina.....	90,743,683	72,680,385	12.9	11.6
South Carolina.....	78,446,145	65,929,585	11.2	10.5
Georgia.....	59,982,008	48,036,817	8.6	7.6
Rhode Island.....	49,718,837	50,312,597	7.1	8.0
Cutlery and edge tools.....	25,540,987	22,884,914		
Connecticut.....	7,356,772	6,720,700	28.8	29.4
New York.....	5,056,270	4,060,632	19.8	17.7
Massachusetts.....	4,354,119	4,391,424	17.0	19.2
Dyeing and finishing textiles, exclusive of that done in textile mills.....	109,291,536	83,556,432		
New Jersey.....	27,986,512	15,795,788	25.6	18.9
Massachusetts.....	22,455,086	21,892,890	20.5	26.2
New York.....	16,302,576	9,673,228	14.9	11.6
Rhode Island.....	16,300,783	13,955,700	14.9	16.7
Pennsylvania.....	15,451,576	12,059,297	14.1	14.4
Firearms and ammunition.....	41,384,225	34,111,564		
Connecticut.....	25,657,797	19,948,235	62.0	58.5
Fur goods.....	43,632,693	55,937,549		
New York.....	30,312,136	41,301,451	69.5	73.8
Furnishing goods, men's.....	52,453,338	42,129,938		
New York.....	23,205,074	19,763,785	44.2	46.9
Glass.....	123,085,019	92,095,203		
Pennsylvania.....	39,797,822	32,817,936	32.3	35.6
Ohio.....	19,191,342	14,358,274	15.6	15.6
Indiana.....	14,881,372	11,593,094	12.1	12.6
West Virginia.....	14,631,171	7,779,483	11.9	8.4
Gloves and mittens, leather.....	21,614,109	23,630,598		
New York.....	12,845,284	14,336,365	59.4	60.7
Grindstones.....	683,936	1,688,171		
Ohio.....	488,361	1,498,256	71.4	88.8
Hair work.....	3,334,946	11,216,175		
New York.....	2,022,333	7,861,306	60.7	70.1
Hats, fur-felt.....	37,349,744	47,864,630		
Pennsylvania.....	11,040,820	13,022,617	29.6	27.2
Connecticut.....	9,475,778	10,399,860	25.4	21.7
New Jersey.....	7,969,344	8,825,217	21.3	18.4
New York.....	6,637,380	10,218,660	17.8	21.4
Hosiery and knit goods (not including hand-knit goods).....	258,041,324	198,571,588		
New York.....	77,711,105	65,652,133	30.1	33.2
Pennsylvania.....	64,063,771	49,583,463	24.8	25.0

See footnotes on p. 270.

Table 174—Continued.

INDUSTRY, STATE, AND CITY.	VALUE OF PRODUCTS.			
	Amount.		Per cent of United States total.	
	1914 .	1909	1914	1909
INDUSTRY AND STATE—continued.				
Ink, printing.....	\$13,830,312	\$8,865,504		
New York.....	6,169,815	4,058,557	44.6	45.8
Iron and steel, blast furnaces.....	317,653,983	391,429,283		
Pennsylvania.....	135,806,067	168,578,413	42.8	43.1
Ohio.....	72,969,368	83,699,238	23.0	21.4
Illinois.....	25,861,528	38,299,897	8.1	9.8
Alabama.....	20,065,739	21,235,984	6.3	5.4
New York.....	18,485,638	26,620,948	5.8	6.8
Iron and steel, steel works and rolling mills.....	918,664,565	985,722,534		
Pennsylvania.....	448,106,324	500,343,995	48.8	50.8
Ohio.....	205,023,391	197,780,043	22.3	20.1
Illinois.....	64,995,121	86,608,137	7.1	8.8
Indiana.....	58,882,522	38,651,848	6.4	3.9
New York.....	32,077,757	39,532,414	3.5	4.0
Jewelry.....	81,006,289	80,349,874		
New York.....	21,810,245	20,362,620	26.9	25.3
Rhode Island.....	21,522,251	20,685,100	26.6	25.7
Massachusetts.....	14,175,857	15,210,738	17.5	18.9
New Jersey.....	11,347,455	13,272,004	14.0	16.5
Leather, tanned, curried, and finished.....	367,201,705	327,874,187		
Pennsylvania.....	85,252,532	77,926,321	23.2	23.8
Massachusetts.....	45,265,434	40,002,079	12.3	12.2
Wisconsin.....	42,204,202	44,667,676	11.5	13.6
New York.....	36,018,342	27,642,383	9.8	8.4
New Jersey.....	31,651,831	28,430,955	8.6	8.7
Michigan.....	25,503,573	15,331,104	6.9	4.7
Illinois.....	17,509,256	14,911,782	4.8	4.5
Ohio.....	11,627,916	10,127,836	3.2	3.1
West Virginia.....	11,014,540	12,450,592	3.0	3.8
California.....	10,020,739	9,366,545	2.7	2.9
Virginia.....	9,834,439	8,266,850	2.7	2.5
Delaware.....	9,183,205	12,079,225	2.5	3.7
Liquors, vinous.....	16,618,378	13,120,846		
California.....	11,299,858	8,936,848	68.0	68.1
Millinery and lace goods.....	114,160,462	85,893,032		
New York.....	72,328,556	52,106,200	63.4	60.7
Needles, pins, and hooks and eyes.....	7,890,879	6,694,085		
Connecticut.....	5,108,556	4,230,036	64.7	63.3
Oil, cottonseed, and cake.....	212,127,024	147,867,894		
Texas.....	41,944,689	29,915,772	19.8	20.2
Georgia.....	32,714,801	23,640,779	15.4	16.0
Louisiana.....	18,106,257	13,084,586	8.5	8.8
Mississippi.....	17,599,651	15,965,543	8.3	10.8
South Carolina.....	16,379,858	10,902,935	7.7	7.4
North Carolina.....	15,269,364	8,504,477	7.2	5.8
Alabama.....	14,982,159	9,178,016	7.1	6.2
Tennessee.....	11,414,243	6,592,776	5.4	4.5
Arkansas.....	9,249,457	7,788,885	4.4	5.3
Paper and wood pulp.....	332,147,175	267,656,964		
New York.....	56,335,681	48,859,610	17.0	18.3
Massachusetts.....	43,352,545	40,096,713	13.1	15.0
Maine.....	40,179,744	33,950,230	12.1	12.7
Wisconsin.....	31,205,395	25,962,099	9.4	9.7
Pennsylvania.....	25,439,346	19,872,717	7.7	7.4
Ohio.....	23,284,192	16,965,260	7.0	6.3
Michigan.....	22,049,990	13,922,124	6.6	5.2
New Hampshire.....	17,708,138	13,994,251	5.3	5.2
Peanuts, grading, roasting, cleaning, and shelling.....	14,996,369	9,736,551		
Virginia.....	10,981,159	7,933,440	73.2	81.5
Pens, fountain, stylographic, and gold.....	7,507,535	4,738,693		
New York.....	5,169,218	3,218,760	68.9	67.9

Table 174—Continued.

INDUSTRY, STATE, AND CITY.	VALUE OF PRODUCTS.			
	Amount.		Per cent of United States total.	
	1914	1909	1914	1909
INDUSTRY AND STATE—continued.				
Pipes, tobacco.....	\$4,220,084	\$5,311,900	.....	.....
New York.....	2,689,133	3,212,262	63.7	60.5
Plated ware.....	18,484,235	18,526,193	.....	.....
Connecticut.....	11,942,797	14,333,213	64.6	77.4
New York.....	4,611,100	2,414,334	24.9	13.0
Rice, cleaning and polishing.....	23,039,294	22,371,457	.....	.....
Louisiana.....	12,966,690	12,528,656	56.3	56.0
Texas.....	7,216,359	8,142,438	31.3	36.4
Rubber goods, not elsewhere specified.....	223,610,784	128,435,747	.....	.....
Ohio.....	109,658,605	53,910,531	49.0	42.0
New Jersey.....	25,458,216	19,543,489	11.4	15.2
Massachusetts.....	23,011,349	15,796,490	10.3	12.3
Salt.....	14,070,333	11,327,834	.....	.....
Michigan.....	4,420,772	3,652,996	31.4	32.2
New York.....	3,553,638	2,896,826	25.3	25.6
Ohio.....	2,197,204	1,807,347	15.6	16.0
Kansas.....	1,334,269	1,105,920	9.5	9.8
California.....	1,214,551	746,211	8.6	6.6
Silk goods, including throwsters.....	254,011,257	196,911,667	.....	.....
Pennsylvania.....	86,938,554	62,061,302	34.2	31.5
New Jersey.....	75,706,449	65,429,550	29.8	33.2
Connecticut.....	30,591,825	21,062,687	12.0	10.7
New York.....	29,260,763	26,518,821	11.5	13.5
Slaughtering and meat packing.....	1,673,978,930	1,370,568,101	.....	.....
Illinois.....	489,230,324	389,594,906	29.2	28.4
Kansas.....	151,647,123	165,360,516	9.1	12.1
New York.....	148,105,659	127,130,051	8.8	9.3
Nebraska.....	104,503,333	92,305,484	6.2	6.7
Missouri.....	92,060,499	79,581,294	5.5	5.8
Iowa.....	74,289,387	59,045,232	4.4	4.3
Smelting and refining, copper.....	444,021,958	378,805,974	.....	.....
New Jersey.....	159,198,876	125,651,087	35.9	33.2
Arizona.....	53,438,160	41,059,240	12.0	10.8
Smelting and refining, zinc.....	53,538,398	34,205,894	.....	.....
Illinois.....	18,421,039	9,003,624	34.4	26.3
Kansas.....	5,258,613	10,857,250	9.8	31.7
Turpentine and rosin.....	20,990,191	25,295,017	.....	.....
Florida.....	9,573,083	11,937,518	45.6	47.2
Georgia.....	4,607,590	6,938,957	22.0	27.4
Alabama.....	2,047,132	2,471,999	9.8	9.8
Mississippi.....	1,997,139	1,474,629	9.5	5.8
Louisiana.....	1,858,391	1,173,848	8.9	4.6
Texas.....	608,374	217,826	2.9	0.9
Wood distillation, not including turpentine and rosin.....	9,882,537	9,736,998	.....	.....
Pennsylvania.....	3,417,199	2,960,162	34.6	30.4
New York.....	2,789,731	3,401,722	28.2	34.9
Michigan.....	2,678,151	2,398,927	27.1	24.6
INDUSTRY AND CITY.				
Agricultural implements:				
Moline, Ill.....	9,738,631	11,493,184	5.9	7.9
Springfield, Ohio.....	5,761,511	5,442,397	3.5	3.7
Artificial flowers and feathers and plumes:				
New York, N. Y.....	16,348,118	21,098,226	85.8	88.0
Automobiles, including bodies and parts:				
Detroit, Mich.....	164,075,944	59,536,154	25.9	23.9
Cleveland, Ohio.....	27,116,595	21,403,926	4.3	8.6
New York, N. Y.....	9,484,214	6,194,354	1.5	2.5

See footnotes on p. 270.

Table 174—Continued.

INDUSTRY, STATE, AND CITY.	VALUE OF PRODUCTS.			
	Amount.		Per cent of United States total.	
	1914	1909	1914	1909
INDUSTRY AND CITY—continued.				
Boots and shoes, including cut stock and findings:				
Brockton, Mass.....	\$44,122,125	\$39,293,118	7.5	7.7
Lynn, Mass.....	43,891,058	46,659,709	7.4	9.1
Haverhill, Mass.....	35,641,354	29,149,609	6.0	5.7
St. Louis, Mo.....	31,048,945	33,970,372	5.3	6.6
Boston, Mass.....	27,162,708	26,146,755	4.6	5.1
New York, N. Y.....	26,161,767	18,376,429	4.4	3.6
Manchester, N. H.....	18,800,729	17,646,652	3.2	3.4
Cincinnati, Ohio.....	15,329,293	14,998,672	2.6	2.9
Rochester, N. Y.....	² 13,519,755	13,450,155	2.3	2.6
Philadelphia, Pa.....	³ 8,864,348	6,517,371	1.5	1.3
Brass, bronze, and copper products:				
Waterbury, Conn.....	32,624,187	31,461,875	20.1	21.0
Carpets and rugs, other than rag:				
Philadelphia, Pa.....	20,586,553	22,628,537	29.8	31.8
Clocks:				
New York, N. Y.....	2,194,129	1,941,438	19.9	15.9
Clothing, men's, including shirts:				
New York, N. Y.....	192,112,240	218,411,030	34.7	38.4
Chicago, Ill.....	84,339,611	85,296,407	15.2	15.0
Baltimore, Md.....	38,485,444	36,269,212	6.9	6.4
Philadelphia, Pa.....	29,153,294	29,000,899	5.3	5.1
Rochester, N. Y.....	¹ 19,760,253	18,878,508	3.6	3.3
Clothing, women's:				
New York, N. Y.....	339,842,534	266,477,381	71.7	69.3
Philadelphia, Pa.....	34,142,518	30,132,842	7.2	7.8
Chicago, Ill.....	19,211,137	15,676,925	4.1	4.1
Collars and cuffs, men's:				
Troy, N. Y.....	16,702,773	13,638,745	90.1	79.2
Corsets:				
Bridgeport, Conn.....	7,639,753	6,898,875	18.8	20.7
Cotton goods, including cotton small wares:				
New Bedford, Mass.....	¹ 51,766,234	42,505,007	7.4	6.8
Fall River, Mass.....	49,995,011	48,576,114	7.1	7.7
Lowell, Mass.....	23,178,333	24,744,240	3.3	3.9
Philadelphia, Pa.....	19,383,216	22,537,898	2.8	3.6
Pawtucket, R. I.....	13,461,269	14,337,874	1.9	2.3
Warwick, R. I.....	8,060,419	7,621,518	1.1	1.2
Dyeing and finishing textiles, exclusive of that done in textile mills:				
New York, N. Y.....	8,380,858	6,002,643	7.7	7.2
Philadelphia, Pa.....	7,596,570	6,327,261	7.0	7.6
Paterson, N. J.....	7,526,704	6,206,830	6.9	7.4
Providence, R. I.....	3,641,006	2,521,315	3.3	3.0
Pawtucket, R. I.....	2,901,751	2,450,858	2.7	2.9
Fur goods:				
New York, N. Y.....	29,070,984	39,874,386	66.6	71.3
Furnishing goods, men's:				
New York, N. Y.....	21,446,080	18,819,024	40.9	44.7
Gloves and mittens, leather:				
Gloversville, N. Y.....	7,309,017	8,869,706	33.8	37.5
Johnstown, N. Y.....	2,914,259	3,258,362	13.5	13.8
Hair work:				
New York, N. Y.....	1,980,677	7,817,490	59.4	69.7
Hats, fur-felt:				
Philadelphia, Pa.....	9,914,443	10,401,794	26.5	21.7
Danbury, Conn.....	7,065,765	7,114,683	18.9	14.9
Newark, N. J.....	3,900,954	4,433,132	10.4	9.3
New York, N. Y.....	3,601,944	4,765,029	9.6	10.0
Orange, N. J.....	2,822,860	1,904,860	7.6	4.0

See footnotes on p. 270.

Table 174—Continued.

INDUSTRY, STATE, AND CITY.	VALUE OF PRODUCTS.			
	Amount.		Per cent of United States total.	
	1914	1909	1914	1909
INDUSTRY AND CITY—continued.				
Hosiery and knit goods (not including hand-knit goods):				
Philadelphia, Pa.....	\$31,267,277	\$23,901,699	12.1	12.0
New York, N. Y.....	18,596,462	12,386,254	7.2	6.2
Utica, N. Y.....	9,475,541	8,053,844	3.7	4.1
Amsterdam, N. Y.....	7,916,442	8,158,701	3.1	4.1
Reading, Pa.....	6,500,704	4,551,087	2.5	2.3
Little Falls, N. Y.....	3,579,072	4,654,852	1.4	2.3
Cohoes, N. Y.....	3,439,176	5,087,315	1.3	2.6
Ink, printing:				
New York, N. Y.....	6,113,476	3,965,174	44.2	44.7
Iron and steel, blast furnaces:				
Pittsburgh, Pa.....	16,982,402	20,668,023	5.3	5.3
Iron and steel, steel works and rolling mills:				
Pittsburgh, Pa.....	61,007,875	82,306,627	6.6	8.3
Youngstown, Ohio.....	48,796,464	50,175,153	5.3	5.1
Cleveland, Ohio.....	33,388,829	38,463,316	3.6	3.9
Chicago, Ill.....	27,001,775	45,983,782	2.9	4.7
Jewelry:				
Providence, R. I.....	20,933,990	20,166,003	25.8	25.1
New York, N. Y.....	20,467,868	19,236,368	25.3	23.9
Newark, N. J.....	11,215,214	13,152,340	13.8	16.4
Attleboro, Mass.....	8,358,935	7,396,558	10.3	9.2
Leather, tanned, curried, and finished:				
Philadelphia, Pa.....	23,557,091	23,526,421	6.4	7.2
Milwaukee, Wis.....	22,893,306	27,483,829	6.2	8.4
Newark, N. J.....	20,118,019	18,858,046	5.5	5.8
Chicago, Ill.....	15,662,742	13,243,550	4.3	4.0
Peabody, Mass.....	14,720,944	12,893,653	4.0	3.9
Camden, N. J.....	7,733,358	5,920,238	2.1	1.8
Cincinnati, Ohio.....	5,425,725	5,058,920	1.5	1.5
Millinery and lace goods:				
New York, N. Y.....	70,800,274	51,238,787	62.0	59.7
Peanuts, grading, roasting, cleaning, and shelling:				
Petersburg, Va.....	2,800,861	1,721,576	18.7	17.7
Pens, fountain, stylographic, and gold:				
New York, N. Y.....	5,169,218	3,218,760	68.9	67.9
Pipes, tobacco:				
New York, N. Y.....	2,624,873	3,136,671	62.2	59.0
Rice, cleaning and polishing:				
New Orleans, La.....	5,484,304	5,124,836	23.8	22.9
Beaumont, Tex.....	1,597,133	1,627,868	6.9	7.3
Rubber goods, not elsewhere specified:				
Akron, Ohio.....	92,547,496	49,329,235	41.4	38.4
Trenton, N. J.....	8,068,038	4,969,259	3.6	3.9
Silk goods, including throwsters:				
Paterson, N. J.....	44,672,401	40,358,271	17.6	20.5
New York, N. Y.....	15,008,138	16,949,664	5.9	8.6
Allentown, Pa.....	10,209,972	7,455,523	4.0	3.8
Philadelphia, Pa.....	8,237,255	6,502,044	3.2	3.3
Seranton, Pa.....	5,754,859	6,630,848	2.3	3.4
Slaughtering and meat packing:				
Chicago, Ill.....	410,709,225	325,061,657	24.5	23.7
Kansas City, Kans.....	133,826,338	148,459,212	8.0	10.8
New York, N. Y.....	110,706,686	95,862,422	6.6	7.0
Indianapolis, Ind.....	137,780,039	39,133,737	2.3	2.9
St. Louis, Mo.....	36,633,630	26,600,956	2.2	1.9

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

² Excluding statistics for 7 establishments, to avoid disclosure of individual operations.

³ Excluding statistics for 2 establishments, to avoid disclosure of individual operations.