

DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS
WASHINGTON

FOURTEENTH CENSUS OF THE UNITED STATES
MANUFACTURES: 1919

ALASKA

Prepared under the supervision of EUGENE F. HARTLEY, Chief Statistician for Manufactures

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WASHINGTON
GOVERNMENT PRINTING OFFICE
1921

EXPLANATION OF TERMS.

Scope of census.—Census statistics of manufactures are compiled primarily for the purpose of showing the absolute and relative magnitude of the different branches of industry covered and their growth or decline. Incidentally, the effort is made to present data throwing light upon character of ownership, size of establishments, and similar subjects. When use is made of the statistics for these purposes it is imperative that due attention be given to their limitations, particularly in connection with any attempt to derive from them figures purporting to show average wages, cost of production, or profits.

The census did not cover establishments which were idle during the entire year or for which products were valued at less than \$500, or the manufacturing done in educational, eleemosynary, and penal institutions.

Period covered.—The returns relate to the calendar year 1919, or the business year which corresponded most nearly to that calendar year, and cover a year's operations, except for establishments which began or discontinued business during the year.

The establishment.—As a rule, the term "establishment" represents a single plant or factory, but in some cases it represents two or more plants which were operated under a common ownership or for which one set of books of account was kept. If, however, the plants constituting an establishment as thus defined were not all located within the same city, county, or state, separate reports were secured in order that the figures for each plant might be included in the statistics for the city, county, or state in which it was located. In some instances separate reports were secured for different industries carried on in the same establishment.

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

As a rule, the same designation is used for the industry wherever it appears, although all of the products indicated by this designation were not manufactured in the state or city for which these statistics are presented. In some instances the wording is changed so as to more correctly describe the products represented. For a number of industries subclasses are shown which indicate more definitely the kind of products.

Selected industries.—The general tables at the end of this bulletin give the principal facts separately for the industries of the state. A selection has been made of certain leading industries of the state for more detailed consideration. Sometimes an industry of great importance has to be omitted because it comprises so few establishments that a detailed presentation would reveal the operations of individual concerns.

Comparisons with previous censuses.—Owing to changes in industrial conditions it is not always possible to classify establishments by industries in such a way as to permit accurate comparison with preceding censuses. At the census of 1909 the figures for kindred industries were combined. This practice has been followed in compiling the statistics for 1919 and 1914 when placed in comparison with those for 1909 and prior years. The comparative summary for 1919, 1914, and 1909, therefore, does not show separately all the industries given for 1919 in the detailed statement for the state.

Influence of increased prices.—In comparing figures for cost of materials, value of products, and value added by manufacture in 1919 with the corresponding figures for earlier censuses, account should be taken of the general increase in the prices of commodities during recent years. To the extent to which this factor has been influential the figures fail to afford an exact measure of the increase in the volume of business.

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

The number of persons engaged in each industry, segregated by sex, and, in the case of wage earners, also by age (whether under 16 or 18 and over), was reported for a single representative day. The 15th of December was selected as representing for most industries normal conditions of employment, but where this date was not a representative day an earlier date was chosen.

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

In addition to the more detailed report by sex and age of the number of wage earners on the representative date, a report was obtained of the number employed on the 15th of each month, by sex, without distinction of age. From these figures the average number of wage earners for the year has been calculated by dividing the sum of the numbers reported for the several months by 12. The importance of the industry as an employer of labor is believed to be more accurately measured by this average than by the number employed at any one time or on a given day.

The number of wage earners reported for the representative day, though given in certain tables for each separate industry, is not totaled for all industries combined for any state, because, in view of the variations of date, such a total is not believed to be significant. It would involve more or less duplication of persons working in different industries at different times, would not represent the total number employed in all industries at any one time, and would give an undue weight to seasonal industries as compared with industries in continual operation. This total, however, is shown for the different cities, because the limited area and greater regularity of employment largely overcame the objection incident to its publication for the separate states or the United States.

In order to determine as nearly as possible the age distribution of the average number of wage earners for a given state as a whole, the per cent distribution by age of the wage earners in each industry for December 15, or the nearest representative day, has been calculated from the actual numbers reported for that date. The percentages thus obtained have been applied to the average number of wage earners for the year in that industry to determine the average numbers 16 years and over, and under 16, employed. These calculated averages for the several industries have been added to give the average distribution for each state as a whole and for the entire country.

Salaries and wages.—Under these heads are given the total payments during the year for salaries and wages, respectively. The Census Bureau has not undertaken to calculate the average annual earnings of either salaried employees or wage earners. Such averages would possess little real value, because they would be based on the earnings of employees of both sexes, of all ages, and of widely varying degrees of skill. Furthermore, so far as wage earners are concerned, it would be impossible to calculate accurately even so simple an average as this, since the number of wage earners fluctuates from month to month in every industry, and in some cases to a very great extent. The Census Bureau's figures for wage earners, as already explained, are averages based on the number employed on the 15th of each month, and while representing the number according to the pay rolls to whom wages were paid on that date, no doubt represent a larger number than would be required to perform the work in any industry if all were continuously employed during the year.

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

Capital.—The instructions on the schedule for scouring data relating to capital were as follows:

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

These instructions were identical with those employed at the censuses of 1914 and 1909. The data compiled in respect to capital, however, at both censuses, as well as at all preceding censuses of manufactures, have been so defective as to be of little value except as indicating very general conditions. In fact, it has been repeatedly recommended by the census authorities that this inquiry be omitted from the schedule. While there are some establishments whose accounting systems are such that an accurate return for capital could be made, this is not true of the great majority, and the figures therefore do not show the actual amount of capital invested.

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

Rent and taxes.—The taxes include certain Federal taxes and state, county, and local taxes. Under "Federal taxes" there are included the internal revenue tax on manufactures (tobacco, beverages, etc.), excise taxes when included in values reported for products, corporation capital stock tax, and corporation income tax, but not the income tax for individuals and partners.

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

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

Cost of manufacture and profits.—The census data do not show the entire cost of manufacture, and consequently can not be used for the calculation of profits. No account has been taken of depreciation or interest, rent of offices and buildings other than factory or works, insurance, ordinary repairs, advertising, and other sundry expenses.

Primary horsepower.—This item represents the total primary power generated by the manufacturing establishments plus the amount of power, principally electric, rented from other concerns. It does not cover the power of electric motors taking their current from dynamos driven by primary power machines operated by the same establishment, because the inclusion of such power would obviously result in duplication. The figures for primary horsepower represent the rated capacity of the engines, motors, etc., and not the amount of power in actual daily use.

Fuel.—Statistics of the quantity of fuel used are shown only for anthracite and bituminous coal, coke, fuel oils, gasoline and other volatile oils, and gas—natural and manufactured, and represent the quantity used during the year. As only the principal kinds of fuel are shown, comparison as to the total cost of all fuels is impracticable. A comparison, however, of the total quantities of the several kinds of fuel used in 1919 and 1914 is given.

ALASKA.

GENERAL STATISTICS.

General character of the territory.—Alaska, comprising a gross area of 590,884 square miles, was purchased by the United States from the Russian Government in 1867. The inhabitants of the territory in 1900 numbered 63,592; in 1910, 64,356; and in 1920, 54,899. The number of inhabitants per square mile in 1910 was slightly more than one-tenth of 1, the corresponding figures for 1920 being less than one-tenth of 1. There were no cities in the territory in 1920 having more than 10,000 inhabitants.

Importance and growth of manufactures (Table 1).—The large increases in wages, cost of materials, and the value of products, as presented in this table, are largely due to the change in industrial conditions brought about by the World War, and therefore can not properly be used to measure the growth of manufactures during the census period 1909 to 1919. However, the increases in the average number of wage earners and horsepower are significant evidences of the growth of the manufacturing activities of the territory. The addition of the Federal income tax since 1909 will account for the abnormal increase in "Rent and taxes."

Comparative summary for selected industries (Table 2).—This table emphasizes the importance of the fish-canning industry in Alaska. In 1919 the value of products for fish canning represented 94.4 per cent of

the total for all manufacturing industries in the territory and 92.5 per cent of the average number of wage earners. The corresponding proportions in 1909 were 81 per cent and 87.7 per cent, respectively. Of the total value of products for the fish-canning industry, \$37,354,031, or 95.4 per cent, was canned salmon.

Wage earners, by months (Table 3).—The statistics for wage earners generally will show the steadiness of employment, or the reverse, in accordance with the industrial conditions existing during the several census years. The preponderance of the fish-canning industry is emphasized in this table, which shows such large proportions of the wage earners employed during the summer months, when the canneries were in operation.

Character of ownership (Table 4).—The prominence of corporate ownership in manufactures is illustrated in this table, which shows the large percentages of the several items reported by this form of ownership.

Size of establishments, by value of products (Table 5).—At the census of 1909 establishments with products valued at \$100,000 to \$1,000,000 constituted one group, but at the census of 1919 this group was subdivided into "\$100,000 to \$500,000" and "\$500,000 to \$1,000,000." The table, therefore, gives combined figures for these two additional groups in the case of all items for 1909.

TABLE 1.—COMPARATIVE SUMMARY: 1919, 1909, 1904, AND 1899.

	MANUFACTURING INDUSTRIES.				PER CENT OF INCREASE. ¹		
	1919	1909	1904	1899	1909-1919	1904-1909	1899-1904
Number of establishments.....	147	152	82	48	-3.3		
Persons engaged.....	7,316	3,479	2,164	(²)	110.3	60.8	
Proprietors and firm members.....	55	135	31	(²)	-59.3		
Salaries employees.....	680	245	195	82	180.0	25.6	
Wage earners (average number).....	6,575	3,039	1,938	2,260	112.2	59.9	-14.2
Primary horsepower.....	18,646	3,975	2,946	1,071	369.1	34.9	175.1
Capital.....	\$64,949,405	\$13,060,116	\$10,684,799	\$3,568,704	397.3	22.2	199.4
Salaries and wages.....	10,835,712	2,327,780	1,417,488	1,402,450	368.1	64.2	-5.0
Rent and taxes.....	2,053,260	379,754	321,909	117,770	441.5	18.0	173.3
Cost of materials.....	8,830,452	1,948,026	1,095,579	1,374,680	353.8	77.8	-20.2
Wages.....	2,447,962	99,350	1,005,662	(²)	2,364.0	-90.1	
Paid for contract work.....	1,577,501	137,734	80,731	(²)	1,045.3	58.8	
Rent and taxes.....	19,482,485	5,119,613	3,741,946	1,762,583	280.5	36.8	112.3
Cost of materials.....	41,465,243	11,340,105	8,244,524	4,194,421	265.9	37.5	96.6
Value of products.....	22,012,758	6,220,492	4,502,578	2,431,838	253.0	38.2	85.2
Value added by manufacture.....							

¹ A minus sign (-) denotes decrease; percentages are omitted where base is less than 100.
² Figures not available.

³ Exclusive of internal revenue.
⁴ Value of products less cost of materials.

MANUFACTURES—ALASKA.

TABLE 2.—COMPARATIVE SUMMARY FOR SELECTED INDUSTRIES: 1919, 1909, AND 1904.

	Census year.	Number of establishments.	PERSONS ENGAGED IN INDUSTRY.				Primary horse-power.	Capital.	Salaries.	Wages.	Cost of materials.	Value of products.	Value added by manufacture.
			Total.	Proprietors and firm members.	Salaried employees.	Wage earners (average number).							
			Expressed in thousands.										
All industries.....	1919	147	7,316	55	686	6,575	18,646	\$64,949	\$2,056	\$8,539	\$19,482	\$41,495	\$22,013
	1909	152	3,479	135	245	3,099	3,975	13,000	380	1,948	5,120	11,340	6,220
	1904	82	2,164	31	195	1,938	2,946	10,685	322	1,096	3,742	8,245	4,503
Canning and preserving, fish.....	1919	104	6,711	13	613	6,085	15,021	61,664	1,902	8,137	18,536	39,161	20,625
	1909	46	2,922	21	184	2,717	1,855	10,822	247	1,458	4,053	9,190	5,137
	1904	63	1,993	13	175	1,805	2,305	10,276	292	950	3,546	7,736	4,190
Lumber and timber products.....	1919	22	273	27	24	222	2,019	865	46	327	311	950	630
	1909	22	178	28	19	131	1,391	658	36	108	169	400	231
	1904	6	72	5	4	63	335	205	8	72	78	245	167
All other industries.....	1919	21	332	15	49	268	1,006	2,420	108	375	635	1,384	749
	1909	84	379	86	42	251	729	1,580	97	382	808	1,750	882
	1904	13	90	13	16	70	306	204	22	74	118	204	146

TABLE 3.—WAGE EARNERS, BY MONTHS: 1919 AND 1909.

MONTH.	NUMBER. ¹		PER CENT OF MAXIMUM.		MONTH.	NUMBER. ¹		PER CENT OF MAXIMUM.	
	1919	1909	1919	1909		1919	1909	1919	1909
January.....	502	<i>242</i>	3.3	<i>3.9</i>	July.....	15,406	<i>6,143</i>	100.0	100.0
February.....	610	<i>256</i>	4.0	<i>4.2</i>	August.....	14,861	<i>6,055</i>	96.5	98.6
March.....	2,443	<i>588</i>	15.9	<i>9.6</i>	September.....	9,210	<i>6,117</i>	59.8	83.3
April.....	6,298	<i>4,977</i>	40.9	<i>81.0</i>	October.....	2,877	<i>1,229</i>	18.7	20.0
May.....	11,720	<i>5,875</i>	76.1	<i>95.6</i>	November.....	724	<i>438</i>	4.7	7.1
June.....	13,774	<i>5,992</i>	89.4	<i>97.5</i>	December.....	475	<i>281</i>	3.1	4.6

¹ The figures represent the number employed on the 15th of each month or the nearest representative day. Maximum number indicated by bold-faced figures, minimum by *italic* figures.

TABLE 4.—CHARACTER OF OWNERSHIP: 1919 AND 1909.

	Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.		Number of establishments.	Average number of wage earners.	Value of products.	Value added by manufacture.
All industries:					Per cent of total:				
1919.....	147	6,575	\$41,495,243	\$22,012,758	1919.....	100.0	100.0	100.0	100.0
1909.....	152	3,099	11,340,105	6,220,492	1909.....	100.0	100.0	100.0	100.0
Individuals:					In Individuals:				
1919.....	19	339	1,765,784	628,824	1919.....	12.9	5.2	4.3	2.9
1909.....	65	303	879,038	544,628	1909.....	42.8	9.8	7.8	8.8
Corporations:					Corporations:				
1919.....	113	6,023	38,788,930	20,903,405	1919.....	76.9	91.6	93.5	95.0
1909.....	58	2,675	9,603,065	5,314,629	1909.....	38.2	86.3	84.7	85.4
All others:					All others:				
1919.....	15	213	940,529	480,529	1919.....	10.2	3.2	2.3	2.2
1909.....	29	121	858,002	361,235	1909.....	19.1	3.9	7.6	5.8

¹ Includes the group "Other" to avoid disclosure of individual operations.

TABLE 5.—SIZE OF ESTABLISHMENTS, BY VALUE OF PRODUCTS: 1919 AND 1909.

VALUE OF PRODUCT.	NUMBER OF ESTABLISHMENTS.		AVERAGE NUMBER OF WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.	
	1919	1909	1919	1909	1919	1909	1919	1909
All classes.....	147	152	6,575	3,099	\$41,495,243	\$11,340,105	\$22,012,758	\$6,220,492
Less than \$5,000.....	14	50	13	56	40,435	139,141	24,930	86,025
\$5,000 to \$20,000.....	16	41	40	127	181,399	441,851	116,610	277,259
\$20,000 to \$100,000.....	22	34	233	507	1,047,813	1,632,783	569,784	917,042
\$100,000 to \$500,000.....	78	27	3,597	12,409	20,693,108	19,126,330	9,914,075	14,940,166
\$500,000 to \$1,000,000.....	11								885	7,351,590	3,435,931
\$1,000,000 and over.....	6		1,798		12,180,892		7,951,428	
PER CENT DISTRIBUTION.								
All classes.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than \$5,000.....	9.5	32.9	0.2	1.8	0.1	1.2	0.1	1.4
\$5,000 to \$20,000.....	10.9	27.0	0.7	4.1	0.4	3.9	0.5	4.5
\$20,000 to \$100,000.....	15.0	22.4	3.5	16.4	2.5	14.4	2.6	14.7
\$100,000 to \$500,000.....	53.1	17.8	54.7	77.7	49.9	80.5	45.0	79.4
\$500,000 to \$1,000,000.....	7.5							
\$1,000,000 and over.....	4.1		27.3		29.4		36.1	

¹ Includes the group "\$1,000,000 and over."

MANUFACTURES—ALASKA.

GENERAL TABLE.

Table 6 presents, for 1919, statistics in detail for the territory as a whole and for each industry that can be shown without the disclosure of individual operations.

TABLE 6.—DETAILED STATEMENT OF ALL INDUSTRIES COMBINED AND SPECIFIED INDUSTRIES: 1919.

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN THE INDUSTRY.							WAGE EARNERS DEC. 15, OR NEAREST REPRESENTATIVE DAY.					EXPENSES.				
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.		Clerks, etc.			Wage earners.		Total.	16 and over.		Under 16.		Capital.	Salaries and wages.	
				Male.	Female.	Average number.	Number, 15th day of—		Male.	Female.		Male.	Female.	Officials.	Clerks, etc.			
							Maximum month.	Minimum month.										
1 All industries.....	147	7,316	55	371	259	56	6,575	Jy 15,406	De 475	(2)	(3)	(3)	(3)	(3)	Dollars. 61,949,405	Dollars. 1,572,046	Dollars. 484,214	
2 Canning and preserving, fish.....	104	6,711	13	324	241	48	6,085	Jy 14,742	De 304	14,546	13,761	780	3	2	61,663,625	1,462,774	438,770	
3 Lumber and timber products.....	22	273	27	16	8	.....	222	My 312	Ja 59	339	337	2	.....	.....	865,460	34,797	11,629
4 All other industries.....	21	332	15	31	10	.....	268	.....	.....	.....	.....	.....	.....	.....	2,420,320	74,475	33,815

INDUSTRY.	EXPENSES—continued.							POWER.							
	Wage earners.	For contract work.	Rent and taxes.		For materials.		Value of products.	Value added by manufacture.	Primary horsepower.					Electric horsepower generated in establishments reporting.	
			Rent of factory.	Taxes, Federal, state, county, and local.	Principal materials.	Fuel and rent of power.			Total.	Owned.			Rented. ²		
										Steam engines (not turbines).	Steam turbines.	Internal-combustion engines.			Water power. ¹
1 All industries.....	Dollars. 8,839,452	Dollars. 2,447,902	Dollars. 76,195	Dollars. 1,501,306	Dollars. 18,644,840	Dollars. 847,045	Dollars. 41,435,243	Dollars. 22,012,758	18,646	8,722	248	7,890	1,291	405	3,205
2 Canning and preserving, fish.....	8,136,659	2,432,438	68,533	1,432,983	17,785,010	750,568	39,160,622	20,625,344	15,021	5,757	238	7,625	1,204	197	3,188
3 Lumber and timber products.....	327,292	15,524	60	11,612	308,229	3,219	650,256	638,817	2,019	1,715	.....	294	60	40	17
4 All other industries.....	375,501	.....	7,602	56,711	551,010	83,858	1,384,065	748,597	1,606	1,250	10	61	27	258	.....

¹ Includes water wheels and turbines (irrespective of ownership of water supply) and water motors (operated by water from city mains).

² Electric motors operated by rented (or purchased) current.

* No figures given for reasons stated under "Explanation of terms."

DEPARTMENT OF COMMERCE
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FOURTEENTH CENSUS OF THE UNITED STATES
MANUFACTURES: 1919

HAWAII

Prepared under the supervision of EUGENE F. HARTLEY, Chief Statistician for Manufactures
By RICHARD C. LAPPIN, Supervisor of the Census of Hawaii

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EXPLANATION OF TERMS.

Scope of census.—Census statistics of manufactures are compiled primarily for the purpose of showing the absolute and relative magnitude of the different branches of industry covered and their growth or decline. Incidentally, the effort is made to present data throwing light upon character of ownership, size of establishments, and similar subjects. When use is made of the statistics for these purposes it is imperative that due attention be given to their limitations, particularly in connection with any attempt to derive from them figures purporting to show average wages, cost of production, or profits.

The census of Hawaii for 1919, like that for 1909, was not confined strictly to manufacturing establishments conducted under the factory system, as distinguished from the neighborhood, hand, and building industries.

The census did not cover establishments which were idle during the entire year or whose products were valued at less than \$500, or the manufacturing done in educational, eleemosynary, and penal institutions.

Period covered.—The returns relate to the calendar year 1919, or the business year which corresponded most nearly to that calendar year, and cover a year's operations, except for establishments which began or discontinued business during the year.

The establishment.—As a rule, the term "establishment" represents a single plant or factory, but in some cases it represents two or more plants which were operated under a common ownership or for which one set of books of account was kept. If, however, the plants constituting an establishment as thus defined were not all located within the same city or county, separate reports were secured in order that the figures for each plant might be included in the statistics for the city or county in which it was located. In some instances separate reports were secured for different industries carried on in the same establishment.

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

Selected industries.—The general tables at the end of this bulletin give the principal facts separately for the industries of the territory. A selection has been made of certain leading industries of the territory for more detailed consideration. Sometimes an industry of great importance has to be omitted because it comprises so few establishments that these detailed presentations would reveal the operations of individual concerns.

Comparisons with previous censuses.—Owing to changes in industrial conditions it is not always possible to classify establishments by industries in such a way as to permit accurate comparison with preceding censuses. At the census of 1909 the figures for kindred industries were combined. This practice has been followed in compiling the statistics for 1919 when placed in comparison with those for 1909 and prior years. The comparative summary for 1919, 1909, and 1899, therefore, does not show separately all the industries given for 1919 in the detailed statement for the territory.

Influence of increased prices.—In comparing figures for cost of materials, value of products, and value added by manufacture in 1919 with the corresponding figures for earlier censuses, account should be taken of the general increase in the prices of commodities during recent years. To the extent to which this factor has been influential the figures fail to afford an exact measure of the increase in the volume of business.

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

The number of persons engaged in each industry, segregated by sex, and, in the case of wage earners, also by age (whether under 16 or 16 and over), was reported for a single representative day. The 15th of December was selected as representing for most industries normal conditions of employment, but where this date was not a representative day an earlier date was chosen.

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

In addition to the more detailed report by sex and age of the number of wage earners on the representative date, a report was obtained of the number employed on the 15th of each month, by sex, without distinction of age. From these figures the average number of wage earners for the year has been calculated by dividing the sum of the numbers reported for the several months by 12. The importance of the industry as an employer of labor is believed to be more accurately measured by this average than by the number employed at any one time or on a given day.

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

In order to determine as nearly as possible the age distribution of the average number of wage earners for the territory as a whole, the per cent distribution by

age of the wage earners in each industry for December 15, or the nearest representative day, has been calculated from the actual numbers reported for that date. The percentages thus obtained have been applied to the average number of wage earners for the year in that industry to determine the average numbers 16 years and over, and under 16, employed.

Salaries and wages.—Under these heads are given the total payments during the year for salaries and wages, respectively. The Census Bureau has not undertaken to calculate the average annual earnings of either salaried employees or wage earners. Such averages would possess little real value, because they would be based on the earnings of employees of both sexes, of all ages, and of widely varying degrees of skill. Furthermore, so far as wage earners are concerned, it would be impossible to calculate accurately even so simple an average as this, since the number of wage earners fluctuates from month to month in every industry, and in some cases to a very great extent. The Census Bureau's figures for wage earners, as already explained, are averages based on the number employed on the 15th of each month, and while representing the number according to the pay rolls to whom wages were paid on that date, no doubt represent a larger number than would be required to perform the work in any industry if all were continuously employed during the year.

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

Capital.—The instructions on the schedule for securing data relating to capital were as follows:

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

These instructions were identical with those employed at the census of 1909. The data compiled in respect to capital, however, at that census, as well as at the preceding census of manufactures, have been so defective as to be of little value except as indicating very general conditions. In fact, it has been repeatedly recommended by the census authorities that this inquiry be omitted from the schedule. While there are some establishments whose accounting systems are such that an accurate return for capital could be made, this is not true of the great majority, and the figures therefore do not show the actual amount of capital invested.

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

Rent and taxes.—The taxes include certain Federal taxes and state, county, and local taxes. Under "Federal taxes" there are included the internal revenue tax on manufactures (tobacco, beverages, etc.), excise taxes when included in values reported for products, corporation capital stock tax, and corporation income tax, but not the income tax for individual and partnership establishments.

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

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

Cost of manufacture and profits.—The census data do not show the entire cost of manufacture, and consequently can not be used for the calculation of profits. No account has been taken of depreciation or interest, rent of offices and buildings other than factory or works, insurance, ordinary repairs, advertising, and other sundry expenses.

Primary horsepower.—This item represents the total primary power generated by the manufacturing establishments plus the amount of power, principally electric, rented from other concerns. It does not cover the power of electric motors taking their current from dynamos driven by primary power machines operated by the same establishment, because the inclusion of such power would obviously result in duplication. The figures for primary horsepower represent the rated capacity of the engines, motors, etc., and not the amount of power in actual daily use.

Fuel.—Statistics of the quantity of fuel used are shown only for anthracite and bituminous coal, coke, fuel oils, gasoline and other volatile oils, and gas—natural and manufactured, and represent the quantity used during the year. As only the principal kinds of fuel are shown, comparison as to the total cost of all fuel is impracticable. A comparison, however, of the total quantities of the several kinds of fuel used in 1919 and 1909 is given.

FACTURES-

TRIES P. ...

HAWAII.

GENERAL STATISTICS.

General character of the territory.—Hawaii consists of a group of 20 islands which lie in the North Pacific Ocean, more than 2,000 miles from the nearest mainland. The main islands of the group extend over a distance of 390 miles from the westernmost point of Niihau to the eastern extremity of the island of Hawaii. It lies within longitude 154° 40' and 160° 30' west, and latitude 22° 16' and 18° 55' north.

Of the 20 islands comprising the group, only 9 are inhabited, 2 having a very small population. The land area of the territory contains 6,449 square miles. Its population in 1900 was 154,001; in 1910, 191,909; and in 1920, 255,912.

Honolulu (coextensive with Honolulu district), with 83,327 inhabitants, and Hilo, with 10,431 inhabitants, are the only two cities in 1920 having a population of 10,000 or more. The remainder of the population is mostly rural.

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

Comparative summary (Table 1).—This table summarizes the more important data relative to all classes of manufactures combined in the territory of Hawaii for the censuses of 1899, 1909, and 1919.

In connection with the percentages of increase from census to census, due consideration must be given to the fact that increases in wages, in cost of materials used, and in value of products since 1909 reflect very largely industrial conditions brought about by the World War and the lessened purchasing power of the dollar.

Principal industries, ranked by value of products (Table 2).—As shown in this table the prosperity of Hawaii depends largely on the production of sugar. Rice ranked second in value of products in 1909. Its loss in position is due to the phenomenal growth in the value of pineapples canned, which increased 1,094 per cent during the decade, while the increase in rice was 142.8 per cent.

Persons engaged in manufacturing industries (Table 3).—The age classification of the average number of wage earners in this and other tables is an estimate obtained by the method described in the "Explanation of terms." The classification by sex for 1919 was reported separately, but for 1909 was obtained in the same manner as the distribution by age. Figures for individual industries will be found in Table 20.

Average number of wage earners for selected industries and cities (Table 4).—The industries included in this table embrace those having 100 or more wage earners in 1919, and for which statistics can be shown without the possibility of disclosing individual operations.

Wage earners employed, by months (Table 5).—The statistics for wage earners are intended to show the steadiness of employment, or the reverse, in accordance with the conditions as they existed at the two censuses. The wide variation in the numbers employed in July and August over the other months is due to the canning and preserving of pineapples, which industry is seasonal in character.

Wage earners, by months, for selected industries and cities (Table 6).—In addition to the number employed by months, this table gives similar data for males and females for all industries combined. There was no industry in 1919 in which female wage earners predominated; but the industries which provided employment for a large number of that sex are shown.

Prevailing hours of labor (Table 7).—Since the census of 1909 there has been a shortening of the hours of labor for wage earners. In 1909, 44.1 per cent were included in the group "over 60"; the corresponding proportion in 1919 was 29.6 per cent.

Size of establishments, by average number of wage earners, for selected industries and cities (Table 8).—The extent to which the small manufacturing establishment predominated in the territory is shown in this table. Only 5 establishments employed more than 250 wage earners each.

Size of establishments, by value of products (Table 9).—At the census of 1909 establishments with products of \$100,000 to \$1,000,000 formed one group; but in 1919 this group was subdivided as follows: "\$100,000 to \$500,000" and "\$500,000 to \$1,000,000." The figures for these two groups separately were not available for 1909.

Size of establishments, by value of products, for selected industries (Table 10).—In the preparation of this table it was necessary in several instances to combine the establishments of one group with those of some other group to avoid the possibility of disclosing the operations of individual establishments.

Size of establishments, by value of products, for cities of 10,000 inhabitants or more (Table 11).—The statistics for the cities of Hilo and Honolulu are shown in this table.

Character of ownership (Table 12).—It will be seen from this table that, notwithstanding the increase of 29.3 per cent in the number of establishments owned by corporations in 1919 over 1909, there was a decrease in the total number, due to a loss of 34.2 per cent of the number owned by "all others."

Manufactures, by population groups, in cities of 10,000 inhabitants or more (Table 13).—The extent to which manufacturing is centralized in the cities of Hilo and Honolulu is shown in this table. In 1919 Honolulu produced 32.8 per cent of the total value of products, and employed 54.7 per cent of the average number of wage earners; the corresponding percentages in 1899 were 14 per cent and 25.4 per cent, respectively.

er and horsepower of types of prime movers (Table 14).—Steam engines decreased 22.7 per cent in number in 1919, but increased 30.1 per cent in horsepower; steam furnished 78.4 per cent of the total horsepower in 1919. Rented (or purchased) electric power increased 630.3 per cent in number of motors and 989.4 per cent in horsepower during the ten-year period.

Fuel consumed (Table 15).—As the Hawaiian Islands have practically no mineral resources, all mineral fuel must be procured elsewhere, principally from the United States. In the sugar-mill industry a large amount of fuel is required and has been largely supplied by the refuse from sugar cane.

TABLE 1.—COMPARATIVE SUMMARY: 1919, 1909, AND 1899.

	MANUFACTURING INDUSTRIES.			PER CENT OF INCREASE. ¹	
	1919	1909	1899	1909-1919	1899-1909
Number of establishments.....	496	500	222	-0.8	125.2
Persons engaged.....	11,744	7,572	4,418	55.1	71.4
Proprietors and firm members.....	700	² 1,074	244	-34.8	340.2
Salaried employees.....	1,075	594	519	81.0	14.4
Wage earners (average number).....	9,969	5,904	3,655	68.9	61.5
Primary horsepower.....	04,295	41,930	19,590	53.3	114.0
Capital.....	\$48,841,000	\$23,875,000	\$10,746,000	104.6	122.2
Salaries and wages.....	8,666,000	2,795,000	2,038,000	210.1	37.1
Salaries.....	2,029,000	686,000	565,000	195.8	21.4
Wages.....	6,637,000	2,109,000	1,473,000	214.7	43.2
Paid for contract work.....	35,000	188,000	(³)	-81.4	.....
Rent and taxes.....	10,663,000	1,236,000	(³)	702.7	.....
Cost of materials.....	81,144,000	25,629,000	12,251,000	216.6	109.2
Value of products.....	133,096,000	47,404,000	23,354,000	180.8	103.0
Value added by manufacture ⁴	51,952,000	21,775,000	11,103,000	138.6	96.1

¹ A minus sign (-) denotes decrease.

² Includes 272 members of cooperative associations not reported in 1899 or 1919.

³ Figures not available.

⁴ Value of products less cost of materials.

MANUFACTURES—HAWAII.

5

TABLE 2.—PRINCIPAL INDUSTRIES, RANKED BY VALUE OF PRODUCTS: 1919.

INDUSTRY.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.	
		Average number.	Per cent distribution.	Amount (expressed in thousands).	Per cent distribution.	Amount (expressed in thousands).	Per cent distribution.
All industries.....	496	9,969	100.0	\$133,096	100.0	\$51,952	100.0
Sugar, cane.....	43	3,143	31.5	80,236	60.3	34,339	66.1
Canning and preserving, pineapples.....	9	2,855	28.6	18,998	14.3	8,225	15.8
Rice, cleaning and polishing.....	69	134	1.3	5,436	4.1	967	1.9
Printing and publishing, newspapers and periodicals.....	45	541	5.4	1,259	0.9	947	1.8
Bread and other bakery products.....	30	195	2.0	1,129	0.8	302	0.6
Coffee, cleaning and polishing.....	10	39	0.4	1,051	0.8	175	0.3
Lumber, planing-mill products, not including planing mills connected with sawmills.....	8	135	1.4	613	0.5	190	0.4
Confectionery and ice cream.....	20	102	1.0	587	0.4	194	0.4
Automobile repairing.....	31	266	2.7	595	0.4	403	0.8
Food preparations, not elsewhere specified (see note).....	46	176	1.8	573	0.4	202	0.4
Mineral and soda waters.....	32	157	1.6	519	0.4	267	0.5
Coffee and spice, roasting and grinding.....	16	21	0.2	304	0.2	60	0.1
All other industries.....	149	2,205	22.1	21,806	16.4	5,681	10.9

1 Among the industries, the statistics for which can not be shown separately without the possibility of disclosing individual operations, are a number having products in excess of some for which figures are shown in the table. Of these industries the most important are the following: Fertilizers; foundry and machine-shop products; gas, illuminating and heating; slaughtering and meat packing; and tinware, not elsewhere specified.

NOTE.—The articles included under "Food preparations, not elsewhere specified," for 1919 and 1909 are shown in the following statement:

PRODUCT.	Number of establishments.		Value of products.		PRODUCT.	Number of establishments.		Value of products.	
	1919	1909	1919	1909		1919	1909	1919	1909
Total.....	40	87	\$573,182	\$341,052	Soy and fish paste.....	5	5	\$107,141	\$9,137
Pol.....	28	74	306,097	271,720	Bean curd.....	3	4	2,145	4,665
					Macaroni.....	4	4	97,799	55,530

TABLE 3.—PERSONS ENGAGED IN MANUFACTURING INDUSTRIES: 1919 AND 1909.

CLASS.	Census year.	Total.	Male.	Fe-male.	PER CENT OF TOTAL.		CLASS.	Census year.	Total.	Male.	Fe-male.	PER CENT OF TOTAL.	
					Male.	Fe-male.						Male.	Fe-male.
All classes.....	1919 1909	11,744 7,572	10,450 7,046	1,294 526	89.0 93.1	11.0 6.9	Clerks and other subordinate salaried employees.....	1919 1909	530 330	475 317	55 13	89.6 96.1	10.4 3.9
Proprietors and officials.....	1919 1909	1,245 1,333	1,217 1,327	28 11	97.8 99.2	2.2 0.8	Wage earners (average number).....	1919 1909	9,969 5,904	8,758 5,402	1,211 502	87.9 91.5	12.1 8.5
Proprietors and firm members.....	1919 1909	700 1,074	678 1,063	22 11	96.9 99.0	3.1 1.0	16 years of age and over.....	1919 1909	9,909 5,842	8,706 5,345	1,203 497	87.9 91.5	12.1 8.5
Salaried officers of corporations.....	1919 1909	42 24	42 24	.....	100.0 100.0	.....	Under 16 years of age.....	1919 1909	60 62	52 57	8 5	86.7 91.9	13.3 8.1
Superintendents and managers.....	1919 1909	503 240	497 240	6	98.8 100.0	1.2							

TABLE 4.—AVERAGE NUMBER OF WAGE EARNERS FOR SELECTED INDUSTRIES AND CITIES, WITH PER CENT, BY SEX AND AGE: 1919 AND 1909.

INDUSTRY AND CITY.	Census year.	Wage earners (average number).	PER CENT OF TOTAL.			INDUSTRY AND CITY.	Census year.	Wage earners (average number).	PER CENT OF TOTAL.		
			16 years of age and over.		Under 16 years of age.				16 years of age and over.		Under 16 years of age.
			Male.	Fe-male.					Male.	Fe-male.	
All industries.....	1919 1909	9,969 5,904	87.8 90.5	11.6 8.4	0.6 1.1	Printing and publishing, newspapers and periodicals.....	1919 1909	541 294	77.4 87.1	18.7 9.2	3.9 3.7
Bread and other bakery products.....	1919 1909	195 107	78.9 90.7	21.5 6.5	1.5 2.8	Rice, cleaning and polishing.....	1919 1909	134 138	97.8 100.0	2.2.....	.....
Canning and preserving, pineapples.....	1919 1909	2,855 816	77.8 69.1	22.2 30.0	..... 0.9	Sugar, cane.....	1919 1909	3,143 2,517	97.4 96.5	2.6 3.4	(1) 0.1
Food preparations, not elsewhere specified.....	1919 1909	176 172	84.1 83.1	13.6 16.9	2.3	All other industries.....	1919 1909	2,633 1,523	89.1 90.9	9.9 6.8	1.0 2.2
Lumber, planing-mill products, not including planing mills connected with sawmills.....	1919 1909	135 254	100.0 98.8	.....	1.2	HILO.....	1919 1909	499 (2)	89.4	8.6	2.0
Mineral and soda waters.....	1919 1909	157 83	93.6 97.6	3.2	3.2 2.4	HONOLULU.....	1919 1909	5,449 2,432	83.6 82.9	15.6 15.2	0.8 1.9

1 Less than one-tenth of 1 per cent.

2 Not shown separately.

MANUFACTURES—HAWAII.

TABLE 5.—WAGE EARNERS, BY MONTHS: 1919 AND 1909.

MONTH.	NUMBER. ¹		PER CENT OF MAXIMUM.		MONTH.	NUMBER. ¹		PER CENT OF MAXIMUM.	
	1919	1909	1919	1909		1919	1909	1919	1909
January.....	8,035	5,927	59.4	81.3	July.....	13,068	7,292	98.1	100.0
February.....	9,136	6,086	62.9	83.5	August.....	14,533	6,324	100.0	86.7
March.....	9,172	6,041	63.1	82.8	September.....	9,698	5,726	96.7	78.5
April.....	9,056	6,509	62.3	89.3	October.....	9,183	4,345	93.2	59.6
May.....	9,239	6,457	63.6	88.5	November.....	8,660	4,214	59.6	57.8
June.....	9,834	6,608	67.7	90.6	December.....	8,514	5,326	58.6	73.0

¹ The figures represent the number employed on the 15th of each month or the nearest representative day. Maximum numbers indicated by **bold-faced** figures, minimum by *italic* figures.

TABLE 6.—WAGE EARNERS, BY MONTHS, FOR SELECTED INDUSTRIES AND CITIES: 1919.

[The month of maximum employment for each industry is indicated by **bold-faced** figures and that of minimum employment by *italic* figures.]

INDUSTRY AND CITY.	Average number employed during year.	NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY.												Per cent minimum is of maximum.
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
All industries.....	9,969	8,635	9,136	9,172	9,056	9,239	9,834	13,068	14,533	9,698	9,183	8,660	8,514	58.6
Males.....	8,753	7,894	8,341	8,373	8,296	8,309	8,836	11,408	11,770	8,312	8,105	7,716	7,646	65.0
Females.....	1,211	741	795	799	760	840	998	2,660	2,763	1,386	1,078	944	868	26.8
Automobile repairing.....	263	258	247	255	259	268	260	258	282	283	270	281	285	83.5
Bread and other bakery products.....	195	186	187	190	188	193	191	193	193	190	204	208	214	86.8
Canning and preserving, pineapples.....	2,855	1,417	1,641	1,642	1,462	1,668	2,172	6,437	7,165	3,449	2,720	2,389	2,092	10.8
Confectionery and ice cream.....	102	105	100	99	99	99	101	101	105	100	106	103	106	93.4
Food preparations, not elsewhere specified.....	176	173	173	180	174	175	176	174	174	172	183	170	179	94.0
Lumber, planing-mill products, not including planing mills connected with sawmills.....	135	144	142	138	132	121	118	136	132	138	139	142	138	11.9
Mineral and soda waters.....	157	151	170	151	153	154	159	158	162	162	160	162	162	92.6
Printing and publishing, newspapers and periodicals.....	541	527	528	527	537	545	545	546	541	553	547	541	556	94.6
Rice, cleaning and polishing.....	134	131	133	132	127	124	132	135	139	139	138	137	141	87.9
Sugar, cane.....	3,143	3,403	3,648	3,599	3,645	3,660	3,865	3,015	2,559	2,438	2,315	2,562	2,562	63.5
All other industries.....	2,255	2,160	2,189	2,260	2,282	2,332	2,371	2,465	2,620	1,968	2,266	2,203	2,070	74.5
<i>Industries showing large proportion of females.</i>														
Canning and preserving, pineapples.....	715	254	294	291	264	331	481	2,048	2,178	892	633	505	409	11.7
Printing and publishing, newspapers and periodicals.....	109	106	105	103	103	107	112	115	110	112	112	113	110	89.6
Total for cities.....	5,948	4,673	4,949	5,036	5,020	5,202	5,372	8,561	9,844	6,050	5,937	5,536	5,181	47.5
Hilo.....	499	525	536	523	605	584	595	494	517	404	401	385	419	63.6
HONOLULU.....	5,449	4,148	4,413	4,513	4,424	4,618	4,777	8,067	9,327	5,652	5,536	5,151	4,762	44.5

TABLE 7.—AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR PER WEEK, FOR SELECTED INDUSTRIES AND CITIES: 1919 AND 1909.

INDUSTRY AND CITY.	Census year.	Total.	IN ESTABLISHMENTS WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—							
			44 and under.	Between 44 and 48.	48. ¹	Between 48 and 54.	54.	Between 54 and 60.	60.	Over 60.
All industries.....	1919	9,969	385	20	1,250	822	652	205	3,682	2,953
	1909	5,904	(²)	(²)	190	839	825	580	855	2,605
Bread and other bakery products.....	1919	195	1	.....	17	31	78	.....	32	36
	1909	167	(²)	(²)	14	1	17	.....	7	68
Canning and preserving, pineapples.....	1919	2,855	24	.....	.....	.....	.....	2,764	.....	.....
	1909	816	.....	.....	.....	.....	310	235	271	.....
Food preparations, not elsewhere specified.....	1919	176	29	.....	33	1	16	.....	55	42
	1909	172	(²)	(²)	61	3	8	.....	70	30
Lumber, planing-mill products, not including planing mills connected with sawmills.....	1919	135	.....	.....	55	78	2	.....	.....	.....
	1909	254	(²)	(²)	32	16	15	181	10	.....
Mineral and soda waters.....	1919	157	8	.....	21	.....	95	2	30	1
Printing and publishing, newspapers and periodicals.....	1919	541	17	.....	382	7	127	.....	8	.....
Rice, cleaning and polishing.....	1919	134	5	.....	1	14	53	6	38	17
	1909	138	.....	.....	.....	11	27	1	61	38
Sugar, cane.....	1919	3,143	34	.....	.....	.....	28	92	190	2,799
	1909	2,517	.....	.....	.....	.....	.....	115	331	2,402
All other industries.....	1919	2,633	267	20	741	691	186	105	565	58
	1909	1,900	(²)	(²)	83	808	448	163	331	87
Total for cities.....	1919	5,948	286	20	1,154	799	496	95	2,919	179
Hilo.....	1919	499	16	.....	111	71	107	17	95	82
HONOLULU.....	1919	5,449	270	20	1,043	728	389	78	2,824	97

¹ Includes 48 and under for 1909.

² Corresponding figures not available.

MANUFACTURES—HAWAII.

TABLE 8.—SIZE OF ESTABLISHMENTS, BY AVERAGE NUMBER OF WAGE EARNERS, FOR SELECTED INDUSTRIES AND CITIES: 1919.

INDUSTRY AND CITY.	TOTAL.		ESTABLISHMENTS EMPLOYING—															
	Establishments.	Wage earners (average number).	No wage earners.		1 to 5 wage earners, inclusive.		6 to 20 wage earners, inclusive.		21 to 50 wage earners, inclusive.		51 to 100 wage earners, inclusive.		101 to 250 wage earners, inclusive.		251 to 500 wage earners, inclusive.		Over 1,000 wage earners.	
			Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.
All industries.....	496	9,969	77	244	556	96	951	33	1,123	24	1,647	17	2,768	4	1,616	1	1,306	
Automobile repairing.....	31	260	4	13	33	12	132	1	45	1	56							
Bread and other bakery products.....	30	195	4	16	41	9	90			1	64							
Canning and preserving, pineapples.....	9	2,855						1	24	2	120	3	485	2	920	1	1,306	
Confectionery and ice cream.....	20	102	3	8	16	8	61	1	25									
Food preparations, not elsewhere specified.....	40	176	4	24	57	12	119											
Lumber, planing-mill products, not including planing mills connected with sawmills.....	8	135		3	11	3	31	2	93									
Mineral and soda waters.....	32	157	2	10	43	10	92	1	22									
Printing and publishing, newspapers and periodicals.....	45	541	12	16	40	9	72	6	204	1	75	1	150					
Rice, cleaning and polishing.....	69	134	18	45	87	6	47											
Sugar, cane.....	43	3,143				5	76	13	442	15	1,036	10	1,589					
All other industries.....	169	2,265	30	100	228	22	231	8	270	4	296	3	544	2	696			
Total for cities.....	298	5,048	35	150	380	76	722	18	634	9	596	4	694	4	1,616	1	1,306	
Hilo.....	57	499	2	31	73	18	175	4	146	2	165							
HONOLULU.....	241	5,449	34	119	307	58	547	14	488	7	491	4	694	4	1,616	1	1,306	

TABLE 9.—SIZE OF ESTABLISHMENTS, BY VALUE OF PRODUCTS: 1919 AND 1909.

VALUE OF PRODUCT.	NUMBER OF ESTABLISHMENTS.		AVERAGE NUMBER OF WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.	
	1919	1909	1919	1909	1919	1909	1919	1909
All classes.....	496	500	9,969	5,904	\$133,096,412	\$47,403,880	\$51,952,282	\$21,774,571
Less than \$5,000.....	164	255	168	355	370,562	564,867	213,141	288,576
\$5,000 to \$20,000.....	160	109	539	540	1,540,948	1,085,306	757,226	495,977
\$20,000 to \$100,000.....	84	72	845	855	3,583,682	2,951,873	1,453,609	1,198,972
\$100,000 to \$500,000.....	49	52	1,421	2,818	11,854,770	20,733,541	3,883,144	8,502,543
\$500,000 to \$1,000,000.....	11		594		8,055,920		2,848,780	
\$1,000,000 and over.....	38	12	6,402	1,336	107,680,530	22,068,293	42,796,376	11,228,503
PER CENT DISTRIBUTION.								
All classes.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than \$5,000.....	33.1	51.0	1.7	6.0	0.3	1.2	0.4	1.3
\$5,000 to \$20,000.....	30.2	21.8	5.4	9.1	1.2	2.3	1.5	2.3
\$20,000 to \$100,000.....	16.9	14.4	8.5	14.5	2.7	6.2	2.8	5.5
\$100,000 to \$500,000.....	9.9		14.2	47.7	8.9		7.5	39.3
\$500,000 to \$1,000,000.....	2.2	10.4	6.0		6.0		5.5	
\$1,000,000 and over.....	7.7	2.4	64.2	22.6	80.9	46.6	82.4	51.6

TABLE 10.—SIZE OF ESTABLISHMENTS, BY VALUE OF PRODUCTS, FOR SELECTED INDUSTRIES: 1919 AND 1909.

INDUSTRY AND VALUE OF PRODUCT.	NUMBER OF ESTABLISHMENTS.			AVERAGE NUMBER OF WAGE EARNERS.				VALUE OF PRODUCTS.			VALUE ADDED BY MANUFACTURE.					
	1919	1909	Per cent distribution.	1919	1909	Per cent distribution.		1919	1909	Per cent distribution.	1919	1909	Per cent distribution.			
						1919	1909						1919	1909		
CANNING AND PRESERVING, PINEAPPLES.....	9	10	100.0	100.0	2,855	816	100.0	100.0	\$18,997,975	\$1,561,073	100.0	100.0	\$8,225,230	\$664,482	100.0	100.0
\$20,000 to \$100,000 ¹		6		60.0		127		15.6		279,850		17.6		124,657		18.7
\$100,000 to \$500,000 ²	4	4	44.4	40.0	245	689	8.5	84.4	1,350,836	1,311,214	7.1	82.4	547,228	540,425	6.7	81.3
\$1,000,000 and over.....	5		55.5		2,610		91.4		17,647,139		92.9		7,678,002		93.3	
RICE, CLEANING AND POLISHING.....	69	74	100.0	100.0	134	138	100.0	100.0	5,436,455	2,238,667	100.0	100.0	966,686	637,909	100.0	100.0
Less than \$5,000.....	18	34	26.1	45.9	1	22	0.7	15.9	30,838	74,529	0.6	3.3	6,374	27,769	0.7	4.4
\$5,000 to \$20,000.....	20	19	29.0	25.7	16	31	11.9	22.5	203,560	205,777	3.7	9.2	50,296	35,322	5.2	5.5
\$20,000 to \$100,000.....	18	15	26.1	20.3	47	54	35.1	39.1	850,870	617,962	15.7	27.6	221,059	198,860	22.0	31.2
\$100,000 and over.....	13	6	18.8	8.1	70	31	52.2	22.5	4,351,137	1,340,399	80.0	59.9	688,987	375,958	71.3	58.9
SUGAR, CANE.....	43	46	100.0	100.0	3,143	2,517	100.0	100.0	80,236,244	35,949,822	100.0	100.0	34,330,233	17,407,747	100.0	100.0
\$20,000 to \$100,000.....		3		6.5		54		2.1		228,770		0.6		73,941		0.4
\$100,000 to \$500,000.....	9		20.9	69.6	212	1,179	6.7	46.8	2,670,829	14,670,438	3.3	40.8	1,042,874	6,234,800	3.0	35.8
\$500,000 to \$1,000,000.....	8		18.6		316		10.1		6,282,864		7.8		2,172,637		6.3	
\$1,000,000 and over.....	26	11	60.5	23.9	2,615	1,284	83.2	51.0	71,282,551	21,050,614	88.8	58.6	31,123,722	11,099,006	90.6	63.8

² Includes the group "\$500,000 to \$1,000,000."

¹ Includes the group "Less than \$5,000."

MANUFACTURES—HAWAII.

TABLE 11.—SIZE OF ESTABLISHMENTS, BY VALUE OF PRODUCTS, FOR CITIES OF 10,000 INHABITANTS OR MORE: 1919.

CITY AND VALUE OF PRODUCT.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		CITY AND VALUE OF PRODUCT.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.	
		Average number.	Per cent of total.	Amount.	Per cent of total.	Amount.	Per cent of total.			Average number.	Per cent of total.	Amount.	Per cent of total.	Amount.	Per cent of total.
Hilo.....	57	499	100.0	\$5,612,196	100.0	\$2,410,708	100.0	HONOLULU.....	241	5,449	100.0	\$43,611,175	100.0	\$14,762,662	100.0
Less than \$5,000.....	17	25	5.0	37,923	0.7	22,430	0.9	Less than \$5,000.....	67	70	1.3	165,495	0.4	112,534	0.8
\$5,000 to \$20,000.....	20	89	17.8	189,315	3.4	86,802	3.6	\$5,000 to \$20,000.....	88	345	6.3	905,628	2.1	507,041	3.4
\$20,000 to \$100,000.....	12	132	26.5	481,550	8.6	227,170	9.4	\$20,000 to \$100,000.....	50	575	10.6	2,047,227	4.7	848,664	5.7
\$100,000 and over.....	8	253	50.7	4,903,408	87.4	2,074,306	86.0	\$100,000 to \$500,000 ¹	26	1,056	19.4	6,785,957	15.6	2,317,270	15.7
								\$1,000,000 and over.....	10	3,403	62.5	33,706,808	77.3	10,977,163	74.4

¹Includes the group "\$500,000 to \$1,000,000."

TABLE 12.—CHARACTER OF OWNERSHIP FOR SELECTED INDUSTRIES AND FOR CITIES: 1919 AND 1909.

INDUSTRY AND CITY.	Census year.	NUMBER OF ESTABLISHMENTS OWNED BY—			AVERAGE NUMBER OF WAGE EARNERS.									VALUE OF PRODUCTS.								
		Individuals.	Corporations.	All others.	Total.	In establishments owned by—			Per cent of total.			Total.	Of establishments owned by—			Per cent of total.						
						Individuals.	Corporations.	All others.	Individuals.	Corporations.	All others.		Individuals.	Corporations.	All others.	Individuals.	Corporations.	All others.				
All industries.....	1919	236	181	79	9,969	609	9,007	363	6.1	90.4	3.5	\$133,096,412	\$2,639,523	\$125,577,707	\$4,870,182	2.0	94.3	3.7				
	1909	240	140	120	5,904	529	4,935	440	9.0	83.5	7.4	47,403,880	1,596,352	43,982,101	1,825,427	3.4	92.8	3.8				
Printing and publishing, newspapers and periodicals.	1919	21	17	7	541	149	389	3	27.5	71.9	0.6	1,258,690	227,259	1,015,338	15,993	18.0	80.7	1.3				
	1909	3	16	7	294	35	221	38	11.9	75.2	12.9	398,661	38,366	344,093	16,202	9.6	86.3	4.1				
Rice, cleaning and polishing	1910	30	10	29	134	30	44	60	22.4	32.8	44.8	5,436,455	745,257	3,003,013	1,688,185	13.7	55.2	31.1				
	1909	38	6	30	138	58	27	53	42.0	19.6	38.4	2,238,667	536,900	1,106,128	595,639	24.0	49.4	26.6				
Sugar, cane.....	1919	1	42	.....	3,143	.....	3,143	.....	100.0	.....	.....	80,236,244	.....	180,236,244	.....	.....	100.0	.....			
	1909	1	43	2	2,517	.....	2,465	152	.....	97.9	12.1	35,949,822	.....	35,469,604	1480,218	.....	98.7	11.3
Total for cities.....	1919	145	108	45	5,948	470	5,251	227	7.9	88.3	3.8	40,223,371	1,491,729	44,165,659	3,565,983	3.0	89.7	7.2				
HILO.....	1919	30	23	4	499	88	394	17	17.6	79.0	3.4	5,612,196	173,883	5,386,184	52,129	3.1	96.0	0.9				
HONOLULU.....	1919	115	85	41	5,449	382	4,857	210	7.0	89.1	3.9	43,611,175	1,317,846	38,779,475	3,513,854	3.0	88.9	8.1				

¹Includes the group "Individuals."

TABLE 13.—MANUFACTURES BY POPULATION GROUPS, IN CITIES OF 10,000 INHABITANTS OR MORE: 1919, 1909, AND 1899.

ITEM.	Census year.	Total.	LOCATION OF ESTABLISHMENTS.			PER CENT OF TOTAL.		
			Honolulu.	Hilo.	Outside districts.	Honolulu.	Hilo.	Outside districts.
Population ¹	1920	255,912	83,327	10,431	162,154	32.6	4.0	63.4
	1910	191,909	52,183	.....	139,726	27.2	.....	72.8
	1900	194,001	39,306	.....	114,695	25.5	.....	74.5
Number of establishments.....	1919	496	241	57	198	48.6	11.5	39.9
	1909	500	236	.....	264	47.2	.....	52.8
	1899	222	53	.....	169	23.9	.....	76.1
Average number of wage earners.....	1919	9,969	5,449	499	4,021	54.7	5.0	40.3
	1909	5,904	2,432	.....	3,472	41.2	.....	58.8
	1899	3,655	929	.....	2,726	25.4	.....	74.6
Value of products.....	1919	\$133,096,412	\$43,611,175	\$5,612,196	\$83,873,041	32.8	4.2	63.0
	1909	47,403,880	10,704,744	.....	36,699,136	22.6	.....	77.4
	1899	23,353,665	3,264,574	.....	20,089,091	14.0	.....	86.0
Value added by manufacture.....	1919	51,952,282	14,762,662	2,410,708	34,778,912	28.4	4.7	66.9
	1909	21,774,571	4,335,520	.....	17,439,051	19.9	.....	80.1
	1899	11,102,764	1,293,339	.....	9,809,425	11.6	.....	88.4

¹ Population, 1920, as of Jan. 1, 1920; 1910, as of Apr. 15, 1910; 1900, as of June 1, 1900.

TABLE 14.—NUMBER AND HORSEPOWER OF TYPES OF PRIME MOVERS: 1919 AND 1909.

POWER.	NUMBER OF ENGINES OR MOTORS.		HORSEPOWER.			
			Amount.		Per cent distribution.	
	1919	1909	1919	1909	1919	1909
Primary power, total.....	1,450	942	64,295	41,930	100.0	100.0
Owned.....	727	843	55,140	41,354	80.4	98.6
Steam.....	512	662	50,402	38,745	78.4	92.4
Engines.....	472	(²)	39,285	(²)	61.1	.....
Turbines.....	40	(²)	11,117	(²)	17.3	.....
Internal-combustion engines.....	137	87	2,686	1,117	4.2	2.7
Water.....	78	94	5,052	1,492	7.9	3.6
Water wheels and turbines.....	78	85	5,052	1,345	7.9	3.2
Water motors.....	.....	9	.....	147	.....	0.4
Rented.....	723	99	6,155	576	9.6	1.4
Electric.....	723	99	6,155	565	9.6	1.3
Other.....	.....	.....	.....	11	.....	(³)
Electric.....	1,056	189	14,283	1,807	100.0	100.0
Rented.....	723	99	6,155	565	43.1	31.2
Generated by establishment reporting.....	373	90	8,128	1,242	56.9	68.8

¹ Figures for horsepower include for 1909 the amount reported under the head of "Other" owned power.
² Not reported separately.
³ Less than one-tenth of 1 per cent.

TABLE 15.—FUEL CONSUMED, FOR SELECTED INDUSTRIES AND CITIES: 1919.

INDUSTRY AND CITY.	COAL.		Coke (tons, 2,000 lbs.).	Fuel oils (barrels).	Gasoline and other volatile oils (barrels).	Gas, manufactured (1,000 cubic feet).
	An-thra-cite (tons, 2,240 lbs.).	Bi-tu-minous (tons, 2,000 lbs.).				
All industries..... 1919..	118	2,700	822	501,971	10,071	14,125
..... 1909..	1,222	4,747	720	272,392	(¹)	4,120
Per cent of increase ²	-90.3	-43.1	14.2	88.0	(¹)	242.7
Canning and preserving, pine-apples.....	.....	272	.....	47,870	2,427	354
Gas, illuminating and heating.....	.....	.....	.....	41,537	.....	1,530
Ice, manufactured.....	.....	200	.....	24,729	.....	.....
Sugar, cane.....	.....	2,047	.....	355,870	4,518	.....
All other industries.....	118	181	822	32,969	3,126	12,241
Total for cities.....	118	370	821	122,309	3,370	14,125
Hilo.....	.....	20	80	11,903	109	1,669
Honolulu.....	118	350	741	110,406	3,261	12,456

¹ Included in figures for fuel oil.
² A minus sign (-) denotes decrease.

SPECIAL STATISTICS.

For certain industries the Census Bureau collects, by means of special schedules, details regarding the quantity and value of materials and products which do not appear on the general schedule. Data for the quantity and value of products for two important industries in Hawaii are here presented.

Canning and preserving, pineapples.—The value of the canning and preserving pineapple industry amounted to \$18,997,975 in 1919; this includes by-products, consisting of string beans, pineapple jellies, and lime juice, valued at \$114,761; in 1909 the total value of products was \$1,591,073. Owing to the variations in the sizes of cans used at the two censuses, comparative data of quantities of products can not be shown.

The following statement gives the number of cases put up during 1919 according to the various size cans:

WEIGHT.	Number of cases.	WEIGHT.	Number of cases.
12-ounce No. 1 cans.....	403, 632	110-ounce No. 10 cans.....	1, 023, 625
20-ounce No. 2 cans.....	1, 759, 700	Special sizes and weights...	9, 002
30-ounce No. 2½ cans.....	1, 777, 227		

Rice mills (Table 16).—The following table shows the growth of custom milling during the last census period. In 1919 the value of custom treated rice formed 52.9 per cent of the total value of rice milled, while the corresponding percentage for 1909 was only 39.5 per cent.

TABLE 16.—RICE MILLS: 1919 AND 1909.

	1919	1909
Total number of mills.....	69	74
Merchant.....	28	35
Custom.....	11	7
Merchant and custom.....	30	32
Total value of products.....	\$5, 436, 455	\$2, 238, 667
Merchant milled.....	2, 561, 188	1, 354, 267
Custom milled.....	2, 875, 267	884, 400

Rice, cleaning and polishing (Table 17).—The quantities of domestic and foreign rough rice milled in 1919 and 1909 are shown in this table. The aggregate value of rice products increased 142.8 per cent in 1919 over 1909.

TABLE 17.—RICE, CLEANING AND POLISHING: 1919 AND 1909.

CLASS.	1919		1909	
	Quantity (pounds).	Value.	Quantity (pounds).	Value
Rough rice, milled.....	65, 199, 195	(1)	62, 768, 070	(1)
Domestic.....	33, 574, 410	(1)	34, 019, 055	(1)
Foreign.....	31, 624, 785	(1)	28, 749, 015	(1)
Rice products, aggregate...	(1)	\$5, 436, 455	(1)	\$2, 238, 667
Clean.....	49, 462, 345	5, 276, 491	51, 967, 465	2, 184, 157
Polish.....	235, 705	18, 358	10, 146	92
Bran.....	5, 715, 319	122, 375	6, 415, 232	67, 689
Flour.....	8, 300	207	(1)	(1)
Hulls and waste.....	110, 500	1, 630	134, 089	134
All other.....	(1)	17, 394	(1)	36, 565

¹ Not reported.

Laundries.—Statistics for power laundries are not included in the general tables nor in the totals for manufacturing industries in the various tables in this report. Table 18, however, summarizes the statistics for such laundries in the territory as reported for 1919 and 1909.

TABLE 18.—POWER LAUNDRIES: 1919 AND 1909.

	NUMBER OR AMOUNT.		Per cent of increase, ¹ 1909-1919.
	1919	1909	
Number of establishments.....	3	4	.....
Persons engaged.....	181	88	.....
Proprietors and firm members.....	2	4	.....
Salaried employees.....	14	2	.....
Wage earners (average number).....	165	82	.....
Primary horsepower.....	200	65	.....
Capital.....	\$58, 445	\$75, 355	-22.4
Salaries and wages.....	77, 230	24, 987	208.1
Salaries.....	15, 808	2, 040	679.3
Wages.....	61, 332	22, 947	167.3
Rent and taxes.....	10, 822	858	161.3
Cost of materials.....	52, 336	6, 613	691.4
Amount received for work done.....	182, 588	52, 409	248.4

¹ A minus sign (-) denotes decrease; per cent omitted where base is less than 100.

GENERAL TABLES.

Table 19 gives the number of establishments, average number of wage earners, primary horsepower, wages, cost of materials, and value of products for all industries combined, and for selected industries (1) for the territory as a whole and (2) for the city of Honolulu, 1919, 1909, and 1899.

Table 20 presents, for 1919, statistics in detail for the territory as a whole and for each industry that

can be shown without the disclosure of individual operations.

Table 21 presents, for 1919, statistics in detail for the city of Honolulu as a whole and for each industry that can be shown without the disclosure of individual operations; statistics are also shown for the city of Hilo for all industries combined.

TABLE 19.—COMPARATIVE SUMMARY FOR SELECTED INDUSTRIES FOR THE TERRITORY AND HONOLULU: 1919, 1909, AND 1899.

INDUSTRY.	Cen- sus year.	Num- ber of estab- lish- ments.	Wage earn- ers (aver- age num- ber).	Pri- mary horse- power.	Wages.	Cost of ma- terials.	Value of prod- ucts.	INDUSTRY.	Cen- sus year.	Num- ber of estab- lish- ments.	Wage earn- ers (aver- age num- ber).	Pri- mary horse- power.	Wages.	Cost of ma- terials.	Value of prod- ucts.	
					Expressed in thousands.								Expressed in thousands.			
THE TERRITORY	1919	496	9,969	64,295	\$6,637	\$81,144	\$133,096	Rice, cleaning and polishing...	1919	69	134	1,822		\$96	\$4,470	\$5,436
All industries.	1909	500	5,904	41,930	2,109	25,629	47,404		1909	74	135	1,428		36	1,601	2,239
	1899	222	3,655	19,590	1,473	12,251	23,354		1899	41	173	609		49	482	664
Boot and shoe shops.....	1919	12	23	10	13	34	64	Saddlery and harness.....	1919	5	8	2		6	21	45
	1909	14	31	4	17	78	126		1909	6	14		6	28	40
	1899	14	30	11	20	47		1899	7	21		16	47	78
Bread and other bakery prod- ucts.	1919	30	105	152	88	827	1,129	Sugar, cane.....	1919	43	3,143	49,128	2,027	45,897	80,236	
	1909	46	107	38	36	220	344		1909	46	2,517	36,426	781	18,542	35,950	
	1899	8	4	.....	1	5	10		1899	44	2,369	17,774	748	9,778	19,255
Carriages and wagons and ma- terials.	1919	5	8	2	7	12	29	All other industries.....	1919	182	5,353	11,178	3,650	27,367	41,753	
	1909	17	68	25	33	50	116		1909	134	2,052	2,662	856	4,359	6,982	
	1899	7	51	37	33	50	106		1899	44	650	703	530	1,658	2,619	
Coffee and spice, roasting and grinding.	1919	10	21	63	12	244	304	HONOLULU	1919	241	5,449	8,471	3,924	28,849	43,011	
	1909	4	28	33	4	36	50	All industries.	1909	230	2,432	4,327	1,080	6,369	10,705	
	1899	4	17	29	4	26	38		1899	53	929	1,001	626	1,971	3,265	
Coffee, cleaning and polishing..	1919	10	39	369	21	875	1,051	Boot and shoe shops.....	1919	4	9	5		6	18	34
	1909	5	71	237	12	251	297		1909	9	68	4		14	68	119
	1899	6	47	140	9	60	95		1899	6	37		10	17	37
Food preparations, not else- where specified.	1919	40	176	164	101	371	573	Printing and publishing.....	1919	32	481	215	346	302	1,152	
	1909	87	172	41	36	195	341		1909	23	251	95	127	88	383	
	1899	27	82	28	17	25	62		1899	6	118	49	76	31	181	
Lumber, planing-mill prod- ucts, not including planing mills connected with saw- mills.	1919	8	135	625	119	423	613	Rice, cleaning and polishing...	1919	14	56	836	48	2,926	3,471	
	1909	8	254	805	110	67	281		1909	13	54	611	14	1,028	1,447	
	1899	3	35	205	22	42	91		1899	4	29	155	14	134	188	
Mineral and soda waters.....	1919	32	157	444	89	252	519	All other industries.....	1919	191	4,903	7,415	3,524	25,603	38,954	
	1909	22	83	114	35	74	194		1909	191	2,059	3,617	925	5,185	8,765	
	1899	7	35	10	11	25	89		1899	37	745	797	526	1,789	2,859	
Printing and publishing.....	1919	150	577	266	408	351	1,344									
	1909	37	319	117	147	98	435									
	1899	10	132	55	22	33	200									

1 Includes "engraving, steel and copper plate, including plate printing."

MANUFACTURES—HAWAII.

TABLE 20.—DETAILED STATEMENT FOR THE TERRITORY,

INDUSTRY.	Number of establishments.	PERSONS ENGAGED IN THE INDUSTRY.										WAGE EARNERS DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Capital. Dollars. 48,840,967
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks, etc.		Average number.	Wage earners.		Total.	16 and over.		Under 16.				
					Male.	Female.		Number, 15th day of—			Male.	Female.	Male.	Female.			
								Maximum month.	Minimum month.								
1 All industries.....	406	11,744	700	545	475	55	9,960	Au 14,533	De 8,514	(3)	(3)	(3)	(3)	(3)			
2 Automobile repairing.....	31	317	19	19	13	-----	266	De 285	Ja 238	283	271	1	11	-----			
3 Boot and shoe shops.....	12	44	16	5	-----	-----	23	Ja ⁴ 25	Jy ⁴ 22	24	20	-----	-----	-----			
4 Bread and other bakery products.....	30	277	44	18	17	3	195	-----	-----	213	164	46	2	1			
5 Biscuits and crackers.....	7	70	14	5	4	2	45	No ⁴ 52	Ja ⁴ 40	51	39	12	-----	-----			
6 All other.....	23	207	30	13	13	1	150	De 162	Se 140	102	125	34	2	1			
7 Canning and preserving, pineapples.....	9	3,033	8	59	98	13	2,855	Au 7,165	Ja 1,417	2,258	1,757	501	-----	-----			
8 Carriages, wagons, and repairs.....	4	14	6	-----	-----	-----	8	Jy ⁴ 9	Ja ⁴ 7	8	8	-----	-----	-----			
9 Clothing, men's.....	5	19	5	-----	-----	-----	14	Au 17	Ja ⁴ 13	14	9	-----	-----	-----			
10 Clothing, women's.....	4	18	9	-----	-----	-----	9	Jy ⁴ 11	Ap ⁴ 9	9	6	-----	-----	-----			
11 Coffee and spice, roasting and grinding.....	10	37	11	3	2	-----	21	De 23	Fe ⁴ 21	22	17	-----	-----	-----			
12 Coffee, cleaning and polishing.....	10	52	7	5	1	-----	39	Ja 53	Jy 18	69	40	20	-----	-----			
13 Confectionery and ice cream.....	20	157	29	15	6	5	102	Oc ⁴ 106	Mh ⁴ 99	106	71	-----	-----	-----			
14 Copper, tin, and sheet-iron work.....	13	47	12	2	3	1	29	De 41	Mh ⁴ 21	41	39	34	-----	-----			
15 Food preparations, not elsewhere specified.....	40	236	41	12	7	-----	176	-----	-----	185	156	25	3	1			
16 Macaroni, vermicelli, and noodles.....	4	23	2	3	1	-----	17	No 22	Ja ⁴ 16	22	12	10	-----	-----			
17 All other.....	36	213	39	9	6	-----	159	Mh 163	Se 155	103	144	15	3	1			
18 Furniture.....	5	22	9	3	-----	-----	10	Je 13	Au 7	11	10	-----	-----	-----			
19 Jewelry.....	6	69	27	5	1	-----	36	Oc ⁴ 37	My ⁴ 35	36	36	1	-----	-----			
20 Lumber, planing-mill products, not including planing mills connected with sawmills.....	8	155	15	2	3	-----	135	Ja 144	Je 118	138	138	-----	-----	-----			
21 Marble and stone work.....	3	10	3	1	-----	-----	6	(⁶) 6	(⁶) 6	6	6	-----	-----	-----			
22 Mattresses and spring beds.....	5	17	2	-----	-----	-----	15	Jy 17	Ja 12	16	14	2	-----	-----			
23 Millinery and lace goods.....	9	34	10	1	-----	-----	23	No ⁴ 27	Ap ⁴ 21	25	8	17	-----	-----			
24 Mineral and soda waters.....	32	235	55	19	7	-----	157	De ⁴ 162	Fe 150	164	154	5	5	-----			
25 Musical instruments and materials.....	4	35	3	-----	-----	-----	32	No 44	Ja ⁴ 21	41	26	14	-----	-----			
26 Optical goods.....	3	12	2	-----	-----	-----	10	Au ⁴ 12	Ja ⁴ 8	11	11	-----	-----	-----			
27 Pickles, preserves, and sauces.....	3	12	6	1	1	-----	4	Au ⁴ 7	Ja ⁴ 1	7	5	2	-----	-----			
28 Printing and publishing, book and job.....	4	42	3	4	-----	-----	35	(⁶) 35	(⁶) 35	35	26	5	4	-----			
29 Printing and publishing, newspapers and periodicals.....	45	713	21	49	94	8	541	-----	-----	557	431	104	16	6			
30 Printing and publishing.....	9	19	3	5	2	-----	9	Se 11	Mh ⁴ 9	10	9	1	-----	-----			
31 Printing, publishing, and job printing.....	26	674	13	40	86	8	527	De 542	Ja ⁴ 512	542	421	99	16	6			
32 Publishing, without printing.....	10	20	5	4	6	-----	5	(⁶) 5	(⁶) 5	5	1	4	-----	-----			
33 Rice, cleaning and polishing.....	69	459	276	31	18	-----	134	De 141	My 124	140	143	3	-----	-----			
34 Saddlery and harness.....	5	18	7	2	1	-----	8	No ⁴ 8	Mh ⁴ 6	8	7	-----	-----	-----			
35 Shirts.....	6	9	6	-----	-----	-----	3	(⁶) 3	(⁶) 3	3	3	-----	-----	-----			
36 Sugar, cane.....	43	3,421	1	199	75	3	3,143	Fe 3,046	No 2,315	3,403	3,313	89	1	-----			
37 All other industries*.....	58	2,227	47	90	128	22	1,940	-----	-----	-----	-----	-----	-----	-----			

*All other industries embrace—
 Artificial stone products..... 2 Carriage and wagon materials..... 1 Electroplating..... 1
 Automobile bodies and parts..... 5 Cars and general shop construction and repairs by electric-railroad companies..... 1 Engraving, steel and copper plate, including plate printing..... 3
 Awnings, tents, and sails..... 2 Cars and general shop construction and repairs by steam-railroad companies..... 1 Fertilizers..... 1
 Brooms..... 1
 Printing and publishing..... 1 Flavoring extracts..... 1

¹ Includes water wheels and turbines (irrespective of ownership of water supply) and water motors (operated by water from city mains).
² Chiefly electric motors operated by rented (or purchased) current; other power included (chiefly shaft-belt or transmitted power from neighboring power plants).

MANUFACTURES—HAWAII.

ALL INDUSTRIES COMBINED AND SPECIFIED INDUSTRIES: 1919.

EXPENSES.										POWER.						
Salaries and wages.			For contract work.	Rent and taxes.		For materials.			Value of products.	Value added by manufacture.	Primary horsepower.					Electric horsepower generated in establishments reporting.
Officials.	Clerks, etc.	Wage earners.		Rent of factory.	Taxes, Federal, state, county, and local.	Principal materials.	Fuel and rent of power.	Total.			Steam engines (not turbines).	Steam turbines.	Internal-combustion engines.	Water power. ¹	Rent. ²	
Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	64,295	39,285	11,117	2,686	5,052	6,155	8,128
1,338,965	690,296	6,636,763	34,826	427,946	10,234,084	79,748,272	1,395,858	133,096,412	51,952,282	273	4	48	1	1	221	14
29,182	10,656	220,240	.....	20,071	9,701	172,411	9,999	585,156	402,746	10	.....	.....	.....	.....	10	3
3,815	.....	12,513	.....	3,038	186	33,312	310	64,419	30,797	152	.....	.....	1	.....	151	4
19,300	12,752	87,958	.....	12,906	2,885	805,561	21,277	1,129,294	302,456	46	.....	.....	1	.....	45	5
4,930	2,968	22,764	.....	5,087	1,630	241,168	7,314	322,744	74,272	106	.....	.....	1	.....	106	6
14,370	9,784	65,194	.....	7,819	1,255	564,403	13,963	806,550	228,184	.....	.....	.....	.....	.....	.....	.....
171,492	176,246	1,391,522	.....	1,982	1,325,200	10,043,343	129,402	18,997,975	8,225,230	2,272	874	75	184	.....	1,139	56
.....	.....	7,381	.....	2,460	176	11,177	385	16,789	2	2	.....	.....	.....	2	.....	7
.....	.....	5,862	.....	2,244	174	14,470	162	29,774	2	.....	.....	.....	.....	.....	.....	9
.....	.....	4,446	.....	2,082	126	11,760	.....	23,728	.....	.....	.....	.....	.....	.....	.....	10
3,260	1,160	11,566	.....	4,390	3,495	240,817	3,188	304,019	60,034	63	.....	4	1	.....	58	11
7,030	600	20,516	.....	150	1,524	868,599	6,864	1,050,752	175,289	369	98	.....	261	.....	10	12
18,290	8,160	51,279	.....	11,130	6,304	384,872	8,275	587,330	194,183	73	.....	.....	.....	.....	73	13
3,450	1,645	23,738	500	3,142	478	54,689	1,091	103,799	48,019	5	.....	.....	.....	.....	5	14
11,385	3,730	100,802	180	7,181	7,392	357,440	13,822	573,182	201,920	164	.....	61	1	.....	102	15
3,900	30	8,936	.....	937	581	75,612	905	97,799	21,282	25	.....	.....	5	.....	20	16
7,485	3,709	91,866	180	6,244	6,811	281,823	12,917	475,363	180,638	139	.....	.....	56	1	82	17
1,855	.....	9,345	.....	2,227	68	7,888	635	29,169	20,646	11	.....	.....	.....	.....	11	18
4,890	780	26,414	.....	3,000	2,118	45,692	740	107,963	61,531	14	.....	.....	.....	.....	14	19
5,200	2,260	118,717	.....	4,880	6,271	418,195	4,721	612,906	189,990	625	230	.....	40	.....	355	20
1,800	.....	5,048	.....	514	108	6,199	315	18,780	12,266	13	.....	.....	.....	.....	13	21
.....	.....	11,844	.....	1,586	471	29,759	630	54,035	23,646	10	.....	.....	.....	.....	10	22
900	.....	12,946	.....	3,796	400	46,501	304	74,790	27,985	4	.....	.....	.....	.....	4	23
26,887	5,033	88,534	.....	6,294	34,939	225,811	25,952	518,569	266,806	444	75	.....	218	32	119	24
.....	.....	22,051	.....	1,078	163	5,768	579	38,512	32,165	10	.....	.....	.....	.....	10	25
.....	.....	6,774	.....	3,060	561	10,051	396	32,111	21,664	2	.....	.....	.....	.....	2	26
375	325	1,447	.....	605	52	22,143	673	34,481	11,665	17	.....	12	.....	.....	5	27
11,160	.....	25,655	.....	2,370	1,190	36,971	694	80,365	42,700	16	.....	.....	.....	.....	16	28
74,053	112,556	381,400	28,051	25,186	12,807	301,101	10,292	1,258,590	947,197	249	.....	1	.....	.....	248	29
3,450	670	4,393	.....	480	118	3,194	142	19,790	16,454	7	.....	.....	.....	.....	7	30
68,069	110,106	375,225	1,332	23,950	12,375	297,683	10,150	1,200,055	892,222	242	.....	.....	1	.....	241	31
3,144	1,780	1,782	20,445	756	314	224	.....	38,745	38,521	.....	.....	.....	.....	.....	.....	32
24,184	9,097	96,473	.....	15,465	38,379	4,449,133	20,636	5,436,455	966,656	1,892	150	.....	1,015	307	420	150
3,000	30	6,262	.....	2,378	273	20,702	70	44,610	23,838	2	.....	.....	.....	.....	2	34
.....	.....	1,560	.....	2,268	106	11,400	108	25,900	14,332	1	.....	.....	.....	.....	1	35
625,269	149,526	2,027,128	2,257	137,637	7,942,222	45,164,647	792,364	80,236,244	34,330,233	49,128	35,226	10,750	481	2,611	60	7,485
291,608	195,931	1,857,336	3,538	144,626	837,155	15,407,800	341,994	21,015,153	5,265,359	8,472	2,628	280	372	2,100	3,092	393

Flax and hemp, dressed.....	1	Lime.....	1	Shipbuilding, wooden, including boat building....	4
Foundry and machine-shop products.....	5	Looking-glass and picture frames.....	2	Slaughtering and meat packing.....	2
Gas, illuminating and heating.....	3	Paper and wood pulp.....	1	Soap.....	1
Hats and caps, other than felt, straw, and wool....	1	Patent medicines and compounds.....	1	Tinware, not elsewhere specified.....	1
Hats, straw.....	1	Paving materials.....	1	Tobacco, cigars, and cigarettes.....	1
Ice, manufactured.....	8	Salt.....	2		

¹ No totals given for reasons stated under "Explanation of terms." ² Same number reported for one or more other months.
³ Same number reported throughout the year.

MANUFACTURES—HAWAII.

TABLE 21.—DETAILED STATEMENT FOR HONOLULU, ALL INDUSTRIES COMBINED AND

INDUSTRY AND CITY.	Number of establishments.	PERSONS ENGAGED IN THE INDUSTRY.									WAGE EARNERS DEC. 15, OR NEAREST REPRESENTATIVE DAY.					Capital. Dollars. 19,861,770
		Total.	Proprietors and firm members.	Salaried officers, superintendents, and managers.	Clerks, etc.		Average number.	Wage earners.		Total.	10 and over.		Under 16.			
					Male.	Female.		Number, 15th day of—			Male.	Female.	Male.	Female.		
								Maximum month.	Minimum month.							
1 HONOLULU—All industries.....	241	6,346	334	215	303	45	5,449	Au 9,327	Ja 4,148	(3)	(3)	(3)	(3)	(3)		
2 Automobile repairing.....	24	210	17	13	8	.....	172	De 198	Ja 148	198	189	.....	9	.....	
3 Boot and shoeshops.....	4	20	8	3	.....	.....	9	Ja ⁴ 11	Jy ⁴ 8	10	9	.....	1	.....	
4 Bread and other bakery products.....	12	188	25	14	12	.....	137	De 149	So 129	149	121	26	2	.....	
5 Canning and preserving, pineapples.....	3	2,339	.....	25	75	13	2,226	Au 5,753	Ja 1,046	1,657	1,307	350	.....	.....
6 Clothing, women's.....	4	18	9	.....	.....	.....	9	Jy ⁴ 11	Ap ⁴ 9	9	6	3	.....	.....
7 Confectionery and ice cream.....	14	143	23	15	6	5	94	Oc ⁴ 98	Mh 91	98	67	30	1	.....	
8 Copper, tin, and sheet-iron work.....	8	19	8	1	1	.....	9	De 11	Fe ⁴ 8	11	10	.....	1	.....	
9 Food preparations, not elsewhere specified.....	17	145	13	11	6	.....	115	Mh ⁴ 117	Fe ⁴ 113	117	107	10	.....	.....
10 Furniture.....	5	22	9	3	.....	.....	10	Je ⁴ 13	Au 7	11	10	1	.....	.....
11 Jewelry.....	6	69	27	5	1	.....	38	Oc ⁴ 37	My ⁴ 35	36	36	.....	.....	.....
12 Marble and stone work.....	3	10	3	1	.....	.....	6	(⁶) 6	(⁶) 6	6	6	.....	.....	.....
13 Mattresses and spring beds.....	5	17	2	.....	.....	.....	15	Jy 17	Ja 12	16	14	2	.....	.....
14 Millinery and lace goods.....	9	34	10	1	.....	.....	23	No ⁴ 27	Ap ⁴ 21	25	8	17	.....	.....
15 Mineral and soda waters.....	8	64	1	2	2	.....	59	Au ⁴ 62	Fe ⁴ 56	60	59	1	.....	.....
16 Musical instruments and materials.....	4	35	3	.....	.....	.....	32	No 44	Ja ⁴ 21	41	26	14	1	.....	
17 Optical goods.....	3	12	2	.....	.....	.....	10	Au ⁴ 12	Ja ⁴ 8	11	11	.....	.....	.....
18 Printing and publishing, newspapers and periodicals.....	28	581	12	32	82	8	447	De 463	Mh 437	463	368	82	10	3		
19 Rice, cleaning and polishing.....	14	149	78	12	3	.....	56	Ja ⁴ 57	Mh ⁴ 55	57	57	.....	.....	.....
20 Shirts.....	6	9	6	.....	.....	.....	3	(⁵) 3	(⁵) 3	3	.....	3	.....	.....
21 All other industries*.....	64	2,262	78	77	107	19	1,981	.....	.....	.....	.....	.....	.....	.....
22 HILO—All industries.....	57	659	48	54	53	5	499	Ap 605	No 385	(3)	(3)	(3)	(3)	.....	

*All other industries embrace—

Artificial stone products.....	1	Cars and general shop construction and repairs by electric-railroad companies.....	1	Electroplating.....	1
Automobile bodies and parts.....	2	Cars and general shop construction and repairs by steam-railroad companies.....	1	Engraving, steel and copper plate, including plate printing.....	1
Awnings, tents, and sails.....	2	Clothing, men's.....	2	Fertilizers.....	1
Brooms.....	1	Coffee and spice, roasting and grinding.....	8	Flavoring extracts.....	1
Carriages, wagons, and repairs.....	3	.....	.....	Flax and hemp, dressed.....	1

¹ Includes water wheels and turbines (irrespective of ownership of water supply) and water motors (operated by water from city mains).
² Chiefly electric motors operated by rented (or purchased) current; other power included (chiefly shaft-belt or transmitted power from neighboring power plants).

MANUFACTURES—HAWAII.

SPECIFIED INDUSTRIES, AND FOR HILO ALL INDUSTRIES COMBINED: 1919.

EXPENSES.										POWER.						
Salaries and wages.			For contract work.	Rent and taxes.		For materials.		Value of products.	Value added by manufacture.	Primary horsepower.					Electric horsepower generated in establishments reporting.	
Officials.	Clerks, etc.	Wage earners.		Rent of factory.	Taxes, Federal, territorial, and local.	Principal materials.	Fuel and rent of power.			Total.	Owned.	Rent- ² ed.	Electric horsepower generated in establishments reporting.			
Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	8,471	2,562	275		1,042	20	4,572
18,141	5,935	139,489	16,638	3,297	116,329	5,144	389,462	267,989	173	4	169	4
2,175	.....	5,553	.....	1,376	83	17,855	82	33,592	15,652	5	.....	.....	.....	.....	5	2
14,970	9,573	64,573	.....	7,442	1,670	649,201	13,092	909,044	246,751	126	.....	.....	.....	.....	126	4
116,191	153,727	1,179,929	.....	1,500	1,276,150	7,890,885	72,641	14,946,028	6,982,501	1,561	495	75	87	.....	904	5
.....	.....	4,446	.....	2,682	126	11,760	.....	33,728	11,968	.....	.....	.....	.....	.....	.....	6
18,290	8,160	49,049	.....	10,265	6,195	376,140	7,965	570,232	186,127	73	.....	.....	.....	.....	73	7
450	45	5,896	.....	1,642	106	11,140	178	25,493	14,169	.....	.....	.....	.....	.....	61	8
11,085	3,709	74,388	.....	5,294	6,860	304,900	9,178	468,271	154,193	61	.....	.....	.....	.....	.....	9
1,855	.....	9,345	.....	2,227	68	7,888	635	29,169	20,646	11	.....	.....	.....	.....	11	10
4,890	780	26,414	.....	3,000	2,118	45,692	740	107,963	61,631	14	.....	.....	.....	.....	14	11
1,800	.....	5,048	.....	514	108	6,199	315	18,780	12,266	13	.....	.....	.....	.....	13	12
.....	.....	11,844	.....	1,586	471	29,759	630	54,035	23,646	10	.....	.....	.....	.....	10	13
900	.....	12,946	.....	3,796	400	46,501	304	74,790	27,985	4	.....	.....	.....	.....	4	14
4,525	2,545	38,480	.....	2,625	15,250	95,381	4,792	194,332	94,159	39	.....	12	.....	.....	27	15
.....	.....	22,051	.....	1,078	163	5,768	579	38,512	32,165	10	.....	.....	.....	.....	10	16
.....	.....	6,774	.....	3,060	561	10,051	396	32,111	21,664	2	.....	.....	.....	.....	2	6
50,450	80,089	320,156	27,563	22,514	10,031	255,010	8,515	1,069,203	805,678	199	.....	.....	1	.....	198	1
11,338	2,522	47,794	.....	6,294	31,955	2,913,647	12,621	3,471,453	545,185	836	150	.....	646	20	20	19
.....	.....	1,560	.....	2,268	106	11,460	108	25,900	14,332	1	.....	.....	.....	.....	1	20
263,163	172,184	1,897,824	3,838	160,210	774,060	15,614,920	290,102	21,129,077	5,224,055	5,333	1,913	200	296	.....	2,924	173
.....
104,020	57,572	352,199	668	20,168	331,650	3,141,269	60,219	5,612,196	2,410,708	6,063	2,465	230	51	2,130	1,187	332

Foundry and machine-shop products.....	4	Looking-glass and picture frames.....	2	Saddlery and harness.....	4
Gas, illuminating and heating.....	2	Lumber, planing-mill products, not including planing mills connected with sawmills.....	6	Salt.....	2
Hats and caps, other than felt, straw, and wool.....	1	Pickles, preserves, and sauces.....	2	Shipbuilding, wooden, including boat building.....	4
Ice, manufactured.....	3	Printing and publishing, book and job.....	3	Slaughtering and meat packing.....	2
Lime.....	1			Tinware, not elsewhere specified.....	1

¹ No totals given for reasons stated under "Explanation of terms."

² Same number reported for one or more other months.

³ Same number reported throughout the year.

MINES AND QUARRIES.

Comparative summary.—The statistics of quarries shown in the accompanying table for the year 1919 (with comparative figures for 1909) are compiled from returns received from establishments engaged in quarrying basalt or trap rock, which was used principally as rubble and for road work and, to a

limited extent, also for curbing, building, and concrete construction.

Limestone was also quarried on the islands for use in lime manufacture; the returns received on such operations are included in the statistics compiled for manufactures.

TABLE 22.—QUARRIES, COMPARATIVE SUMMARY: 1919 AND 1909.

	1919	1909		1919	1909
Number of operators.....	5	4	Expenses (selected items):		
Number of quarries.....	5	6		Salaries.....	\$5,533
Number of persons employed:			Wages.....	89,305	\$14,058
Salaried employees.....	6	.....	Materials and supplies.....	34,423	5,371
Wage earners (average number).....	145	143	Fuel and power purchased.....	14,500	.....
Primary power.....	325	197	Rent and royalties.....	26,282	206
Capital.....	\$112,882	\$45,700	Taxes.....	1,037	(?)
			Value of products.....	250,538	20,955

¹ Number employed Dec. 15, 1909.

² Not available.

DEPARTMENT OF COMMERCE
 BUREAU OF THE CENSUS
 WASHINGTON

FOURTEENTH CENSUS OF THE UNITED STATES
 MANUFACTURES: 1919

PORTO RICO

Prepared under the supervision of EUGENE F. HARTLEY, Chief Statistician for Manufactures
 By STARKE M. GROGAN, Supervisor of the Census of Porto Rico

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EXPLANATION OF TERMS.

Scope of census.—Census statistics of manufactures are compiled primarily for the purpose of showing the absolute and relative magnitude of the different branches of industry covered and their growth or decline. Incidentally, the effort is made to present data throwing light upon character of ownership, size of establishments, and similar subjects. When use is made of the statistics for these purposes it is imperative that due attention be given to their limitations, particularly in connection with any attempt to derive from them figures purporting to show average wages, cost of production, or profits.

The census did not cover establishments which were idle during the entire year or for which products were valued at less than \$500, or the manufacturing done in educational, eleemosynary, and penal institutions.

Period covered.—The returns relate to the calendar year 1919, or the business year which corresponded most nearly to that calendar year, and cover a year's operations, except for establishments which began or discontinued business during the year.

The establishment.—As a rule, the term "establishment" represents a single plant or factory, but in some cases it represents two or more plants which were operated under a common ownership or for which one set of books of account was kept. If, however, the plants constituting an establishment as thus defined were not all located within the same municipality, separate reports were secured in order that the figures for each plant might be included in the statistics for the municipality in which it was located. In some instances separate reports were secured for different industries carried on in the same establishment.

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

As a rule, the same designation is used for the industry wherever it appears, although all of the products indicated by this designation were not manufactured in the municipality for which these statistics are presented. In some instances the wording is changed so as to more correctly describe the products represented. For a number of industries subclasses are shown which indicate more definitely the kind of products.

Selected industries.—The general tables at the end of this bulletin give the principal facts separately for the industries of the territory. A selection has been made of certain leading industries of the territory for more detailed consideration. Sometimes an industry of great importance has to be omitted because it comprises so few establishments that these detailed presentations would reveal the operations of individual concerns.

Comparisons with previous census.—Owing to changes in industrial condition it is not always possible to classify establishments by industries in such a way as to permit accurate comparison with preceding census. At the census of 1909 the figures for kindred industries were combined. This practice has been followed in compiling the statistics for 1919 when placed in comparison with those for 1909. The comparative summary for 1919 and 1909, therefore, does not show separately all the industries given for 1919 in the detailed statement for the territory.

Influence of increased prices.—In comparing figures for cost of materials, value of products, and value added by manufacture in 1919 with corresponding figures for 1909, account should be taken of the general increase in the prices of commodities during recent years. To the extent to which this factor has been influential the figures fail to afford an exact measure of the increase in the volume of business.

Persons engaged in the industry.—The following general classes of persons engaged in the manufacturing industries were distinguished: (1) Proprietors and firm members, (2) salaried officers of corporations, (3) superintendents and managers, (4) clerks (including other subordinate salaried employees), and (5) wage earners.

The number of persons engaged in each industry, segregated by sex, and, in the case of wage earners, also by age (whether under 16 or 16 and over), was reported for a single representative day. The 15th of December was selected as representing for most industries normal conditions of employment, but where this date was not a representative day an earlier date was chosen.

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

In addition to the more detailed report by sex and age of the number of wage earners on the representative date, a report was obtained of the number employed on the 15th of each month, by sex, without distinction of age. From these figures the average number of wage earners for the year has been calculated by dividing the sum of the numbers reported for the several months by 12. The importance of the industry as an employer of labor is believed to be more accurately measured by this average than by the number employed at any one time or on a given day.

In order to determine as nearly as possible the age distribution of the average number of wage earners for the territory as a whole, the per cent distribution by age of the wage earners in each industry for December 15, or the nearest representative day, has been calculated from the actual numbers reported for that date. The percentages thus obtained have been applied to the average number of wage earners for the year in that industry to determine the average numbers 16 years and over, and under 16, employed. These calculated averages for the several

industries have been added to give the average distribution for the territory as a whole.

Salaries and wages.—Under these heads are given the total payments during the year for salaries and wages, respectively. The Census Bureau has not undertaken to calculate the average annual earnings of either salaried employees or wage earners. Such averages would possess little real value, because they would be based on the earnings of employees of both sexes, of all ages, and of widely varying degrees of skill. Furthermore, so far as wage earners are concerned, it would be impossible to calculate accurately even so simple an average as this, since the number of wage earners fluctuates from month to month in every industry, and in some cases to a very great extent. The Census Bureau's figures for wage earners, as already explained, are averages based on the number employed on the 15th of each month, and, while representing the number, according to the pay rolls, to whom wages were paid on that date, no doubt represent a larger number than would be required to perform the work in any industry if all were continuously employed during the year.

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

Capital.—The instructions on the schedule for securing data relating to capital were as follows:

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

These instructions were identical with those employed at the census of 1909. The data compiled in respect to capital, however, have been so defective as to be of little value except as indicating very general conditions. In fact, it has been repeatedly recommended by the census authorities that this inquiry be omitted from the schedule. While there are some establishments whose accounting systems are such that an accurate return for capital could be made, this is not true of the great majority, and the figures therefore do not show the actual amount of capital invested.

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

Rent and taxes.—The taxes include certain Federal taxes and insular and local taxes. Under "Federal taxes" there are included the internal revenue tax on manufactures (tobacco, beverages, etc.), excise taxes when included in values reported for products, corporation capital stock tax, and corporation income tax, but not the income tax for individual and partnership establishments.

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

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

Cost of manufacture and profits.—The census data do not show the entire cost of manufacture, and consequently can not be used for the calculation of profits. No account has been taken of depreciation or interest, rent of offices and buildings other than factory or works, insurance, ordinary repairs, advertising, and other sundry expenses.

Primary horsepower.—This item represents the total primary power generated by the manufacturing establishments plus the amount of power, principally electric, rented from other concerns. It does not cover the power of electric motors taking their current from dynamos driven by primary power machines operated by the same establishment, because the inclusion of such power would obviously result in duplication. The figures for primary horsepower represent the rated capacity of the engines, motors, etc., and not the amount of power in actual daily use.

Fuel.—Statistics of the quantity of fuel used are shown only for anthracite and bituminous coal, coke, fuel oils, gasoline and other volatile oils, and gas, and represent the quantity used during the year. As only the principal kinds of fuel are shown, comparison as to the total cost of all fuel is impracticable.

PORTO RICO.

GENERAL STATISTICS.

General character of the territory.—Porto Rico contains 3,435 square miles. Its population in 1899 was 953,243; in 1910, 1,118,012; and in 1920, 1,299,809.

Comparative summary (Table 1).—This table summarizes the more important data relative to all classes of manufactures combined in the territory of Porto Rico for the censuses of 1919 and 1909.

In connection with the percentages of increase, due consideration must be given to the fact that increases in wages, in cost of materials used, and in value of products since 1909 reflect very largely industrial conditions brought about by the World War and the lessened purchasing power of the dollar.

Principal industries ranked by value of products (Table 2).—The ranking of industries by value of products is often misleading as to their true importance from a manufacturing standpoint. The coffee cleaning and polishing industry, for instance, which ranked second in value of products, ranked fourth by average number of wage earners and value added by manufacture.

Persons engaged in manufacturing industries (Table 3).—The age classification of the average number of wage earners in this and other tables is an estimate obtained by the method described in the "Explanation of terms." The classification by sex in 1919 was reported separately, but in 1909 was obtained in the same manner as the distribution by age. Figures for individual industries will be found in Table 19.

Average number of wage earners for selected industries (Table 4).—The industries included in this table embrace those having 100 or more wage earners in 1919, and for which statistics can be shown without the possibility of disclosing individual operations.

Average number of wage earners, by sex and age, and value of products, for cities of 10,000 inhabitants or more (Table 5).—The two leading manufacturing cities, San Juan and Ponce, show considerable increases in the number of females employed in 1919 over 1909, while the class "under 16 years of age" has been reduced from 135 to 3 in San Juan and from 88 to 3 in Ponce during the decade. The table shows large gains in the value of products for each city for which comparative data can be shown.

Wage earners employed, by months (Table 6).—The statistics for wage earners are intended to show the steadiness of employment, or the reverse, in accordance with the conditions as they existed for the two censuses. For the territory the variations between

the maximum and minimum are most noticeable in the months of June and July.

Wage earners, by months, for selected industries and cities (Table 7).—In addition to the number employed by months, similar data are given for males and females for all industries combined and for the females for four industries which provided employment for a large number of that sex.

Prevailing hours of labor (Table 8).—In comparing the data for the two years reported a marked change is noted in the hours of labor per week for wage earners; about three-fourths, or 74.8 per cent, of the wage earners for 1919 worked more than 48 hours per week, as compared with 55 per cent of the number of wage earners who worked the same number of hours in 1909.

Size of establishments, by average number of wage earners, for selected industries and cities (Table 9).—The extent to which the small manufacturing establishments predominated in the territory is shown in this table. Only 12 establishments employed more than 250 wage earners.

Size of establishments, by value of products (Table 10).—In 1909 establishments with products valued at \$100,000 to \$1,000,000 formed one group, but in 1919 this group was subdivided, as follows: \$100,000 to \$500,000 and \$500,000 to \$1,000,000. The figures for these two groups separately are not available for 1909.

Size of establishments, by value of products, for selected industries (Table 11).—In the preparation of this table it was necessary in several instances to combine the establishments of one group with those of some other group to avoid the possibility of disclosing the operations of individual establishments.

Size of establishments, by value of products, for cities of 10,000 inhabitants or more (Table 12).—This table shows that few of the establishments in the group, "1,000,000 and over," are located within the corporate limits of the cities.

Character of ownership, for selected industries and cities (Table 13).—The tendency of manufactures toward the corporate form of ownership is evidenced by the increase in the number of establishments under "corporations" in 1919 over 1909, while "individuals" and "all others" show large decreases during the decade.

Manufactures, by population groups (Table 14).—This table furnishes data for cities of 10,000 inhabitants or more arranged in two groups—"10,000 to 25,000" and "25,000 to 100,000."

MANUFACTURES—PORTO RICO.

Number and horsepower of types of prime movers (Table 15).—The use of steam and internal-combustion engines shows a marked increase in both the number of engines and in horsepower for 1919 as compared with 1909, the most noticeable being that of the number of internal-combustion engines, which increased 200 per cent.

Rented electric power increased 371.8 per cent in

number of motors and 381 per cent in horsepower during the ten-year period.

Fuel consumed, for selected industries and cities (Table 16).—The total quantities of the principal kinds of fuel used by the manufacturing plants in the territory, 1919 and 1909, are shown in this table, and also, for 1919, the amounts used by a number of industries which are large consumers of fuel.

TABLE 1.—COMPARATIVE SUMMARY: 1919 AND 1909.

	MANUFACTURING INDUSTRIES.		Per cent of increase, ¹ 1909-1919.		MANUFACTURING INDUSTRIES.		Per cent of increase, ¹ 1909-1919.
	1919	1909			1919	1909	
Number of establishments.....	619	939	-34.1	Salaries and wages.....	\$9,104,465	\$4,898,228	85.9
Persons engaged.....	18,454	18,122	1.8	Salaries.....	2,338,861	1,259,032	85.8
Proprietors and firm members.....	787	1,478	-46.8	Wages.....	6,765,604	3,639,196	85.9
Salaried employees.....	1,682	1,062	58.4	Paid for contract work.....	157,784	21,326	639.9
Wage earners (average number).....	15,985	15,582	2.6	Rent and taxes.....	2,194,740	2,041,292	-25.4
Primary horsepower.....	67,226	34,005	97.7	Cost of materials.....	59,827,274	21,479,292	178.5
Capital.....	\$84,151,310	\$25,544,385	229.4	Value of products.....	85,506,834	36,749,742	132.7
				Value added by manufacture.....	25,679,580	15,270,450	68.2

¹ A minus sign (-) denotes decrease.

² Value of products less cost of materials.

TABLE 2.—PRINCIPAL INDUSTRIES, RANKED BY VALUE OF PRODUCTS: 1919.

INDUSTRY.	Number of establishments.		WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.		INDUSTRY.	Number of establishments.		WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.	
	Average number.	Per cent distribution.	Amount (expressed in thousands).	Per cent distribution.	Amount (expressed in thousands).	Per cent distribution.	Average number.	Per cent distribution.		Amount (expressed in thousands).	Per cent distribution.	Average number.	Per cent distribution.	Amount (expressed in thousands).	Per cent distribution.	Amount (expressed in thousands).	Per cent distribution.
All industries.....	619	15,985	100.0	\$85,507	100.0	\$25,680	100.0	Clothing, men's.....	5	179	1.1	\$262	0.3	\$112	0.4		
Sugar, cane.....	55	7,490	46.8	56,412	66.0	16,350	63.7	Ice, manufactured.....	13	86	0.5	249	0.3	103	0.6		
Coffee, cleaning and polishing.....	31	578	3.6	11,444	13.4	509	2.0	Boot and shoe shops.....	27	96	0.6	241	0.3	121	0.5		
Tobacco, cigars and cigarettes.....	183	5,098	31.9	8,135	9.5	5,095	19.8	Printing and publishing, job.....	11	143	0.9	204	0.2	154	0.6		
Bread and other bakery products.....	152	880	5.5	4,761	5.6	1,335	5.2	Bay rum.....	6	17	0.1	172	0.2	62	0.2		
Foundry and machine-shop products.....	5	271	1.7	749	0.9	361	1.4	Mineral and soda waters.....	11	56	0.4	134	0.2	85	0.3		
Printing and publishing, newspapers and periodicals.....	24	168	1.1	468	0.5	295	1.2	Flour-mill and gristmill products.....	10	11	0.1	116	0.1	33	0.1		
Food preparations, not elsewhere specified.....	6	129	0.8	296	0.3	103	0.4	All other industries.....	80	783	4.9	1,861	2.2	902	3.5		

TABLE 3.—PERSONS ENGAGED IN MANUFACTURING INDUSTRIES: 1919 AND 1909.

CLASS.	Census year.	Total.	Male.	Female.	PER CENT OF TOTAL.		CLASS.	Census year.	Total.	Male.	Female.	PER CENT OF TOTAL.	
					Male.	Female.						Male.	Female.
					Male.	Female.						Male.	Female.
All classes.....	1919	18,454	15,953	2,501	86.4	13.6	Clerks and other subordinate salaried employees.	1919	891	820	71	92.0	8.0
	1909	18,122	16,300	1,822	89.9	10.1		1909	754	737	17	97.7	2.3
Proprietors and officials.....	1919	1,578	1,507	71	95.5	4.5	Wage earners (average number).....	1919	15,985	13,626	2,359	85.2	14.8
	1909	1,786	1,635	151	91.5	8.5		1909	15,582	13,928	1,654	89.4	10.6
Proprietors and firm members.....	1919	787	724	63	92.0	8.0	16 years of age and over.....	1919	15,881	13,531	2,350	85.2	14.8
	1909	1,478	1,331	147	90.1	9.9		1909	14,824	13,268	1,556	89.5	10.5
Salaried officers of corporations.....	1919	132	120	3	97.7	2.3	Under 16 years of age.....	1919	104	95	9	91.3	8.7
	1909	44	44	.....	100.0	.....		1909	768	660	98	87.1	12.9
Superintendents and managers.....	1919	659	651	5	99.2	0.8							
	1909	264	269	4	98.5	1.5							

MANUFACTURES—PORTO RICO.

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TABLE 4.—AVERAGE NUMBER OF WAGE EARNERS FOR SELECTED INDUSTRIES, WITH PER CENT, BY SEX AND AGE: 1919 AND 1909.

INDUSTRY.	Cen-sus year.	Wage earners (aver-age num-ber).	PER CENT OF TOTAL.			INDUSTRY.	Cen-sus year.	Wage earners (aver-age num-ber).	PER CENT OF TOTAL.		
			16 years of age and over.		Under 16 years of age.				16 years of age and over.		Under 16 years of age.
			Male.	Fe-male.					Male.	Fe-male.	
All industries.....	1919	15,985	84.6	14.7	0.7	Printing and publishing, job.....	1919	143	93.7	6.3	.....
	1909	15,582	85.1	10.9	4.9		1909	82	90.2	4.9	
Bread and other bakery products.....	1919	880	99.0	0.0	0.4	Printing and publishing, newspapers and periodicals.	1919	168	97.0	2.4	0.6
	1909	1,197	98.3	1.7		1909	271	89.7	3.3		7.0
Clothing, men's.....	1919	179	3.4	91.6	5.0	Sugar, cane.....	1919	7,490	98.8	0.2	1.0
	1909	120	75.0	25.0		1909	5,062	91.1	1.4		7.5
Coffee, cleaning and polishing.....	1919	578	21.5	78.5	.....	Tobacco, cigars and cigarettes.....	1919	5,098	70.2	29.7	0.1
	1909	129	38.5	56.6	4.9		1909	7,025	78.9	17.9		3.2
Food preparations, not elsewhere specified..	1919	129	42.6	57.4	.....	All other industries.....	1919	1,019	88.5	10.6	1.0
	1909	122	38.5	56.6		1909	1,515	86.9	7.7		5.4
Foundry and machine-shop products.....	1919	271	100.0	.....	.....				
	1909	188	88.3	.....	11.7						

TABLE 5.—AVERAGE NUMBER OF WAGE EARNERS, BY SEX AND AGE, AND VALUE OF PRODUCTS, FOR CITIES OF 10,000 INHABITANTS OR MORE: 1919 AND 1909.

CITY.	AVERAGE NUMBER OF WAGE EARNERS IN MANUFACTURING INDUSTRIES.								VALUE OF PRODUCTS.	
	Total.		16 years of age and over.				Under 16 years of age.			
			Male.		Female.					
	1919	1909	1919	1909	1919	1909	1919	1909	1919	1909
Arecibo.....	400	.....	400	.....	.....	.....	.....	.....	\$2,300,062	.....
Bayamon.....	775	.....	595	.....	180	.....	.....	.....	1,851,023	.....
Caguas.....	157	72	155	63	.....	4	2	5	1,184,223	\$124,038
Mayaguez.....	691	479	623	406	68	70	.....	3	3,296,698	2,255,330
Ponce.....	1,544	971	1,167	763	374	120	3	88	4,695,714	2,399,895
San Juan.....	2,696	2,760	1,902	2,260	791	355	3	135	6,712,723	3,242,820

TABLE 6.—WAGE EARNERS, BY MONTHS: 1919 AND 1909.

MONTH.	NUMBER. ¹		PER CENT OF MAXIMUM.		MONTH.	NUMBER. ¹		PER CENT OF MAXIMUM.	
	1919	1909	1919	1909		1919	1909	1919	1909
January.....	15,144	17,461	82.6	96.2	July.....	11,062	13,683	60.3	75.4
February.....	17,090	18,161	93.2	100.0	August.....	16,365	18,009	80.2	71.7
March.....	17,076	17,812	93.1	98.1	September.....	17,221	13,079	93.0	72.1
April.....	16,692	17,789	91.0	98.0	October.....	17,217	13,457	93.0	74.1
May.....	16,473	17,416	89.8	96.0	November.....	18,183	13,683	99.1	75.4
June.....	<i>10,956</i>	15,101	59.7	83.2	December.....	18,341	16,335	100.0	90.0

¹ The figures represent the number employed on the 15th of each month or the nearest representative day. Maximum number indicated by bold-faced figures, minimum by *italic* figures.

TABLE 7.—WAGE EARNERS, BY MONTHS, FOR SELECTED INDUSTRIES AND CITIES: 1919.

[The month of maximum employment for each industry is indicated by bold-faced figures and that of minimum employment by *italic* figures.]

INDUSTRY AND CITY.	Aver-age num-ber em-ployed during year.	NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY.												Per cent mini-mum is of maximum.
		Janu-ary.	Febru-ary.	March.	April.	May.	June.	July.	August.	Sep-tem-ber.	Octo-ber.	Novem-ber.	Decem-ber.	
All industries.....	15,985	15,144	17,090	17,076	16,692	16,473	<i>10,956</i>	11,062	16,365	17,221	17,217	18,183	18,341	59.7
Males.....	13,626	13,964	16,058	15,995	15,524	15,225	9,712	8,567	12,912	13,716	13,604	14,057	14,178	53.4
Females.....	2,359	1,180	1,032	1,081	1,168	1,248	1,244	2,495	3,453	3,505	3,613	4,126	4,163	24.8
Bread and other bakery products.....	880	855	867	867	865	863	870	883	886	886	899	906	921	92.8
Clothing, men's.....	179	142	142	142	161	161	161	161	162	161	161	162	162	74.0
Coffee, cleaning and polishing.....	578	826	728	761	781	745	805	161	5	62	253	375	894	5.0
Food preparations, not elsewhere specified..	129	128	130	132	127	128	129	133	130	127	132	132	130	91.7
Foundry and machine-shop products.....	271	289	240	228	244	238	235	248	256	302	348	294	330	65.5

MANUFACTURES—PORTO RICO.

TABLE 7.—WAGE EARNERS, BY MONTHS, FOR SELECTED INDUSTRIES AND CITIES: 1919—Continued.

[The month of maximum employment for each industry is indicated by bold-faced figures and that of minimum employment by *italic* figures.]

INDUSTRY AND CITY.	Average number employed during year.	NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY.												Per cent minimum is of maximum.
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Printing and publishing, job.....	143	<i>136</i>	138	140	144	144	145	146	143	145	144	145	146	93.2
Printing and publishing, newspapers and periodicals.....	168	<i>152</i>	<i>161</i>	157	157	157	161	162	162	188	189	189	191	79.1
Sugar, cane.....	7,490	10,312	12,524	12,484	11,979	11,585	6,086	3,626	3,983	4,227	4,106	4,415	4,553	29.0
Tobacco, cigars, and cigarettes.....	5,098	<i>1,354</i>	<i>1,203</i>	<i>1,188</i>	1,191	1,242	1,259	4,437	9,548	10,053	9,872	9,858	9,871	11.8
All other industries.....	1,049	<i>360</i>	977	977	1,010	1,181	1,075	1,075	1,020	1,040	1,083	1,087	1,113	80.4
<i>Industries showing large proportion of females.</i>														
Clothing, men's.....	173	<i>136</i>	<i>136</i>	<i>130</i>	185	185	185	185	186	185	185	186	186	73.1
Coffee, cleaning and polishing.....	454	649	579	625	650	637	688	120	76	74	74	675	695	17.3
Food preparations, not elsewhere specified.....	74	72	73	75	75	75	76	76	76	74	74	60	76	80.8
Tobacco, cigars and cigarettes.....	1,515	202	<i>122</i>	124	126	132	134	1,057	3,069	3,110	3,077	3,058	3,069	3.9
Total for cities.....	6,263	3,926	4,105	4,095	3,990	4,141	<i>2,981</i>	5,026	8,907	9,487	9,375	9,575	9,598	30.5
Males.....	4,850	3,562	3,798	3,785	3,624	3,686	<i>2,526</i>	3,328	6,353	6,867	6,798	6,940	6,933	36.4
Females.....	1,413	364	307	310	366	455	405	1,698	2,554	2,620	2,577	2,635	2,665	11.5
ARECIBO.....	400	572	632	605	546	484	<i>157</i>	259	253	294	293	330	375	24.8
Males.....	400	572	632	605	546	484	<i>157</i>	259	253	294	293	330	375	24.8
Females.....														
BAYAMON.....	775	677	629	657	545	510	48	458	1,121	1,182	1,157	1,163	1,153	4.1
Males.....	595	603	625	653	541	506	45	287	786	788	770	762	768	5.5
Females.....	180	14	4	4	4	4	5	171	385	306	387	401	385	1.0
CAGUAS.....	157	202	204	204	204	205	203	112	112	112	112	<i>102</i>	112	49.8
Males.....	157	202	204	204	204	205	203	112	112	112	112	<i>102</i>	112	49.8
Females.....														
MAYAGUEZ.....	691	722	761	765	769	956	797	627	<i>531</i>	555	557	621	631	55.5
Males.....	623	665	703	707	711	818	709	538	<i>477</i>	501	503	597	577	58.3
Females.....	68	57	58	58	58	138	88	89	<i>54</i>	54	54	64	54	39.1
PONCE.....	1,544	817	1,065	1,057	1,045	1,076	802	1,196	2,177	2,323	2,266	2,383	2,341	33.9
Males.....	1,170	661	923	914	897	921	643	791	1,573	1,696	1,645	1,745	1,626	37.1
Females.....	374	156	142	143	148	155	154	405	604	627	621	618	715	19.9
SAN JUAN.....	2,696	936	814	807	881	910	924	2,374	4,713	5,021	4,990	4,996	4,986	16.1
Males.....	1,905	799	711	702	725	752	766	1,341	3,202	3,478	3,475	3,434	3,475	20.2
Females.....	791	137	103	105	156	158	158	1,033	1,511	1,543	1,515	1,562	1,511	6.6

TABLE 8.—AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR PER WEEK, FOR SELECTED INDUSTRIES AND CITIES: 1919 AND 1909.

INDUSTRY AND CITY.	Census year.	Total.	IN ESTABLISHMENTS WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE—							
			44 and under.	Between 44 and 48.	48.1	Between 48 and 54.	54.	Between 54 and 60.	60.	Over 60.
All industries.....	1919	15,985	400	60	3,565	377	4,236	695	1,195	5,448
	1909	15,582	(²)	(²)	7,007	197	1,938	336	1,200	4,814
Bread and other bakery products.....	1919	880	54	(²)	201	21	9	444	160	572
	1909	1,197	(²)	(²)	258	54	9	274	572	
Clothing, men's ²	1919	179	37		142					
Coffee, cleaning and polishing.....	1919	578			368			180	30	
	1909	120	(²)	(²)	12		19	7	34	48
Food preparations, not elsewhere specified.....	1919	129			121			8		
	1909	122	(²)	(²)	91				31	
Foundry and machine-shop products.....	1919	271			170		101			
	1909	188					169		19	
Printing and publishing, job ²	1919	143			143					
Printing and publishing, newspapers and periodicals ²	1919	168	2	4	148			14		
Sugar, cane.....	1919	7,490	15	(²)	793	334		174	1,000	5,174
	1909	5,062	(²)	(²)	213	9	198	27	604	4,011
Tobacco, cigars and cigarettes.....	1919	5,098	69	47	961	8	4,009		2	2
	1909	7,025	(²)	(²)	5,630	58	1,221	15	82	19
All other industries.....	1919	1,049	232	9	518	14	126	55	13	62
	1909	1,868	(²)	(²)	803	46	322	13	520	164
Total for cities.....	1919	6,263	51	55	1,323	320	3,276	335	188	715
ARECIBO.....	1919	400	5		33			38		324
BAYAMON.....	1919	775			11		517	17		230
CAGUAS.....	1919	157			5	4	1	3	115	29
MAYAGUEZ.....	1919	691	9	9	431		23	121	73	25
PONCE.....	1919	1,544			226	316	777	133		92
SAN JUAN.....	1919	2,696	37	46	617		1,958	23		16

¹ Includes 48 and under for 1909.² Corresponding figures for 1909 not available.

MANUFACTURES—PORTO RICO.

TABLE 9.—SIZE OF ESTABLISHMENTS, BY AVERAGE NUMBER OF WAGE EARNERS, FOR SELECTED INDUSTRIES AND CITIES: 1919.

INDUSTRY AND CITY.	TOTAL.		ESTABLISHMENTS EMPLOYING—																	
	Establishments.	Wage earners (average number).	No wage earners.		1 to 5 wage earners, inclusive.		6 to 20 wage earners, inclusive.		21 to 50 wage earners, inclusive.		51 to 100 wage earners, inclusive.		101 to 250 wage earners, inclusive.		251 to 500 wage earners, inclusive.		501 to 1,000 wage earners, inclusive.		Over 1,000 wage earners.	
			Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.	Establishments.	Wage earners.
All industries.....	619	15,985	22	372	992	143	1,503	29	986	19	1,389	22	3,479	6	1,944	5	3,861	1	1,831	
Bread and other bakery products.....	152	880	1	97	309	51	446	2	55	1	70									
Clothing, men's.....	5	179		1	2			3	104	1	73									
Coffee, cleaning and polishing.....	31	578	1	16	38	7	86	2	75	5	379									
Food preparations, not elsewhere specified.....	6	129	1	1	3	1	8	2	59	1	59									
Foundry and machine-shop products.....	5	271		1	2			2	64	1	80		1	125						
Printing and publishing, job.....	11	143	3	5	14	2	26					1	103							
Printing and publishing, newspapers and periodicals.....	24	168	3	11	33	9	111	1	21											
Sugar, cane.....	55	7,490		5	8	7	105	4	133	10	728	18	2,861	6	1,944	2	1,711			
Tobacco, cigars and cigarettes.....	133	5,098	6	128	349	40	411	4	157			1	200			3	2,150	1	1,831	
All other industries.....	147	1,049	7	104	234	25	310	9	315			1	190							
Total for cities.....	176	6,263	7	90	260	50	558	13	444	5	392	6	888	2	616	2	1,274	1	1,831	
ARECIBO.....	18	400	1	9	29	7	71					1	229	1	300					
BAYAMON.....	10	775		8	28											1	518			
CAGUAS.....	11	157		6	17	4	25					1	115							
MAYAGUEZ.....	52	691	2	33	84	10	98	4	121	1	73	2	315							
PONCE.....	38	1,544	1	19	66	12	140	1	21	3	239			1	316	1	756			
SAN JUAN.....	47	2,696	3	15	36	17	218	8	302	1	80	2	229							

TABLE 10.—SIZE OF ESTABLISHMENTS, BY VALUE OF PRODUCTS: 1919 AND 1909.

VALUE OF PRODUCT.	NUMBER OF ESTABLISHMENTS.		AVERAGE NUMBER OF WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.	
	1919	1909	1919	1909	1919	1909	1919	1909
	1919	1909	1919	1909	1919	1909	1919	1909
All classes.....	619	939	15,985	15,582	\$85,506,834	\$36,749,742	\$25,679,560	\$15,270,450
Less than \$5,000.....	226	574	498	1,824	592,048	1,104,697	384,923	577,073
\$5,000 to \$20,000.....	159	216	781	1,025	1,622,693	2,065,216	813,984	887,803
\$20,000 to \$100,000.....	150	77	1,819	2,743	7,327,465	3,839,985	2,342,555	1,724,835
\$100,000 to \$500,000.....	40	66	1,640	4,790	10,253,489	20,160,343	2,159,163	7,279,773
\$500,000 to \$1,000,000.....	21	6	3,039	8,217	15,202,059	9,579,591	3,503,147	4,800,966
\$1,000,000 and over.....	23	6	8,217	4,300	50,538,180	9,579,591	16,475,788	4,800,966
PER CENT DISTRIBUTION.								
All classes.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than \$5,000.....	36.5	61.1	3.1	11.7	0.7	3.0	1.5	3.8
\$5,000 to \$20,000.....	25.7	23.0	4.9	12.4	1.9	5.6	3.2	5.8
\$20,000 to \$100,000.....	24.2	8.2	11.4	17.6	8.6	16.4	9.1	11.3
\$100,000 to \$500,000.....	6.5	7.0	10.2	30.7	12.0	54.9	8.4	47.7
\$500,000 to \$1,000,000.....	3.4	7.0	19.0	30.7	17.8	26.1	13.6	31.4
\$1,000,000 and over.....	3.7	0.6	51.4	27.6	59.1	26.1	64.2	31.4

TABLE 11.—SIZE OF ESTABLISHMENTS, BY VALUE OF PRODUCTS, FOR SELECTED INDUSTRIES: 1919 AND 1909.

INDUSTRY AND VALUE OF PRODUCT.	NUMBER OF ESTABLISHMENTS.				AVERAGE NUMBER OF WAGE EARNERS.				VALUE OF PRODUCTS.				VALUE ADDED BY MANUFACTURE.			
	1919		1909		1919		1909		1919		1909		1919		1909	
	Per cent distribution.		Per cent distribution.		Per cent distribution.		Per cent distribution.		Per cent distribution.		Per cent distribution.		Per cent distribution.			
	1919	1909	1919	1909	1919	1909	1919	1909	1919	1909	1919	1909	1919	1909		
BREAD AND OTHER BAKERY PRODUCTS.....	152	258	100.0	100.0	880	1,197	100.0	100.0	\$4,761,192	\$1,729,886	100.0	100.0	\$1,335,172	\$556,450	100.0	100.0
Less than \$5,000.....	11	131	7.2	50.8	16	340	1.8	28.4	34,615	350,174	0.7	20.2	15,711	111,184	1.2	20.9
\$5,000 to \$20,000.....	49	117	32.2	45.3	197	701	15.6	58.6	594,470	1,087,359	12.5	62.9	180,088	346,493	13.9	62.3
\$20,000 to \$100,000.....	89	10	58.6	3.9	602	156	68.4	13.0	3,596,906	292,353	75.5	16.9	1,000,712	98,773	74.9	17.8
\$100,000 to \$500,000.....	3		2.0		125		14.2		535,201		11.2		132,661		9.9	
COFFEE, CLEANING AND POLISHING.....	31	37	100.0	100.0	378	120	100.0	100.0	11,443,636	5,652,599	100.0	100.0	508,794	288,339	100.0	100.0
Less than \$20,000.....	3	7	9.7	18.9	1	13	0.2	10.8	17,900	89,963	0.2	1.8	2,682	9,932	0.5	3.4
\$20,000 to \$100,000.....	4	13	12.9	35.1	7	44	1.2	36.7	275,000	767,530	2.4	15.2	20,157	53,723	4.0	19.3
\$100,000 to \$500,000.....	16	17	51.6	45.9	143	63	24.7	52.5	4,563,293	4,195,097	39.9	83.0	140,455	222,684	27.6	77.2
\$500,000 to \$1,000,000.....	5		16.1		203		35.1		3,420,843		29.9		190,500		37.4	
\$1,000,000 and over.....	3		9.7		224		38.8		3,168,600		27.7		155,000		30.5	

1 Includes the group "\$500,000 to \$1,000,000."

MANUFACTURES—PORTO RICO.

TABLE 11.—SIZE OF ESTABLISHMENTS, BY VALUE OF PRODUCTS, FOR SELECTED INDUSTRIES: 1919 AND 1909—Continued.

INDUSTRY AND VALUE OF PRODUCT.	NUMBER OF ESTABLISHMENTS.				AVERAGE NUMBER OF WAGE EARNERS.				VALUE OF PRODUCTS.				VALUE ADDED BY MANUFACTURE.			
	1919		1909		1919		1909		1919		1909		1919		1909	
	Percent distribution.		Percent distribution.		Percent distribution.		Percent distribution.		Percent distribution.		Percent distribution.		Percent distribution.			
	1919	1909	1919	1909	1919	1909	1919	1909	1919	1909	1919	1909	1919	1909	1919	1909
PRINTING AND PUBLISHING, NEWSPAPERS AND PERIODICALS.....	24	32	100.0	100.0	168	271	100.0	100.0	467,542	237,681	100.0	100.0	294,500	177,912	100.0	100.0
Less than \$5,000.....	7	20	29.2	62.5	16	29	9.5	10.7	21,613	39,894	4.6	16.8	16,544	35,104	5.6	19.7
\$5,000 to \$20,000.....	10	12	41.7	37.5	60	242	35.7	89.3	94,677	197,787	20.2	83.2	68,176	142,808	23.1	80.3
\$20,000 to \$100,000.....	7		29.2		92		54.8		351,252		75.1		209,780		71.2	
SUGAR, CANE.....	55	103	100.0	100.0	7,490	5,062	100.0	100.0	56,411,932	20,599,348	100.0	100.0	16,350,196	8,295,793	100.0	100.0
Less than \$5,000.....		48		44.4		201		4.0		78,344		0.4		37,353		0.5
\$5,000 to \$20,000.....	2	8	14.5	11.1	9	120	0.1	2.4	29,114	115,558	0.1	0.6	10,692	44,046	0.1	0.5
\$20,000 to \$100,000.....	5	8	9.1	7.4	212	223	2.8	4.4	1,225,152	440,007	2.1	2.1	194,503	158,678	1.2	1.9
\$100,000 to \$500,000.....	10	37	18.2	34.3	430	3,122	5.7	61.7	2,710,330	13,651,857	4.8	66.4	743,634	5,396,587	4.5	65.1
\$500,000 to \$1,000,000.....	14		25.5		1,553		20.7		10,283,047		18.2		2,605,352		15.9	
\$1,000,000 and over.....	18	3	32.7	2.8	5,286	1,396	70.6	27.6	42,164,289	6,283,582	74.7	30.5	12,796,015	2,658,229	78.3	32.0
TOBACCO, CIGARS AND CIGARETTES.....	183	282	100.0	100.0	5,098	7,025	100.0	100.0	8,134,534	6,060,393	100.0	100.0	5,094,993	4,002,848	100.0	100.0
Less than \$5,000.....	130	231	71.0	81.9	343	850	6.7	12.1	308,571	370,544	3.8	6.1	226,459	251,526	4.4	6.3
\$5,000 to \$20,000.....	35	27	19.1	9.6	274	500	5.4	7.1	325,282	245,609	4.0	4.1	220,008	160,300	4.3	4.2
\$20,000 to \$100,000.....	12	14	6.6	5.0	281	1,312	5.5	18.7	388,561	855,957	4.8	14.1	227,879	616,045	4.5	15.4
\$100,000 to \$500,000.....	4	7	3.3	2.5	4,200	1,459	82.4	20.8	7,114,120	1,292,304	87.4	21.3	4,420,587	820,240	86.8	20.6
\$1,000,000 and over.....		3		1.1		2,904		41.3		3,295,919		54.4		2,142,737		53.5

¹ Includes the group "\$20,000 to \$100,000."

² Includes the group "Less than \$5,000."

³ Includes the group "\$500,000 to \$1,000,000."

⁴ Includes the groups "\$500,000 to \$1,000,000" and "\$1,000,000 and over."

TABLE 12.—SIZE OF ESTABLISHMENTS, BY VALUE OF PRODUCTS, FOR CITIES OF 10,000 INHABITANTS OR MORE: 1919.

CITY AND VALUE OF PRODUCT.	Number of establishments.	WAGE EARNERS.		VALUE OF PRODUCTS.		VALUE ADDED BY MANUFACTURE.	
		Average number.	Per cent of total.	Amount.	Per cent of total.	Amount.	Per cent of total.
ARECIBO.....	18	400	100.0	\$2,300,062	100.0	\$580,606	100.0
Less than \$5,000.....	4	7	1.8	7,456	0.3	5,598	0.9
\$5,000 to \$20,000.....	5	19	4.8	51,288	2.2	18,439	3.1
\$20,000 to \$100,000.....	5	40	10.0	158,870	6.9	37,235	6.3
\$100,000 and over.....	4	334	83.5	2,082,448	90.5	528,334	89.6
BAYAMON.....	10	775	100.0	1,851,023	100.0	550,798	100.0
Less than \$20,000.....	3	11	1.4	25,494	1.4	10,914	2.0
\$20,000 and over.....	7	764	98.6	1,825,529	98.6	539,884	98.0
CAGUAS.....	11	157	100.0	1,186,223	100.0	356,880	100.0
Less than \$5,000.....	3	10	6.4	8,618	0.7	5,232	1.5
\$5,000 to \$20,000.....	3	8	5.1	25,079	2.1	12,701	3.6
\$20,000 and over.....	5	139	88.5	1,152,526	97.2	338,947	95.0
MAYAGUEZ.....	52	691	100.0	3,396,698	100.0	921,394	100.0
Less than \$5,000.....	10	45	6.5	55,247	1.6	41,426	4.5
\$5,000 to \$20,000.....	13	50	7.2	128,748	3.8	66,514	7.2
\$20,000 to \$100,000.....	13	148	21.4	450,685	13.3	206,649	22.4
\$100,000 to \$500,000.....	4	256	37.0	840,681	24.7	242,950	26.4
\$500,000 to \$1,000,000.....	3	192	27.8	1,921,337	56.6	363,855	39.5
PONCE.....	38	1,544	100.0	4,605,714	100.0	1,522,273	100.0
Less than \$5,000.....	12	32	2.1	38,595	0.8	24,912	1.6
\$5,000 to \$20,000.....	11	79	5.1	104,845	2.3	61,282	4.0
\$20,000 to \$100,000.....	10	122	7.9	479,996	10.4	158,286	10.4
\$100,000 and over.....	5	1,311	84.9	3,982,778	86.5	1,277,793	83.9
SAN JUAN.....	47	2,696	100.0	6,712,723	100.0	4,210,905	100.0
Less than \$5,000.....	9	16	0.6	24,844	0.4	17,651	0.4
\$5,000 to \$20,000.....	12	110	4.1	123,377	1.8	81,276	1.9
\$20,000 to \$100,000.....	19	362	13.4	1,035,766	15.4	491,376	11.7
\$100,000 and over.....	7	2,208	81.9	5,528,736	82.4	3,020,602	88.0

MANUFACTURES—PORTO RICO.

TABLE 13.—CHARACTER OF OWNERSHIP, FOR SELECTED INDUSTRIES AND CITIES: 1919 AND 1909.

INDUSTRY AND CITY.	Census year.	NUMBER OF ESTABLISHMENTS OWNED BY—			AVERAGE NUMBER OF WAGE EARNERS.									VALUE OF PRODUCTS.								
		Individ-uals.	Corpora-tions.	All oth-ers.	Total.	In establishments owned by—			Per cent of total.			Total.	Of establishments owned by—			Per cent of total.						
						Individ-uals.	Corpora-tions.	All oth-ers.	Individ-uals.	Corpora-tions.	All oth-ers.		Individ-uals.	Corpora-tions.	All oth-ers.	Individ-uals.	Corpora-tions.	All oth-ers.				
All industries.....	1919 1909	431 672	80 204	108 204	15,985 15,582	2,816 3,652	10,713 8,608	2,456 3,322	17.6 23.4	67.0 55.2	15.4 21.3	Dollars. 85,506,834 30,749,742	Dollars. 10,449,452 4,781,309	Dollars. 55,094,026 18,977,267	Dollars. 19,963,356 12,991,175	12.2 13.0	64.4 51.6	23.3 35.4				
Bread and other bakery products.	1919 1909	124 217	1 5	27 36	880 1,197	673 973	1,207 245	179	76.5 81.3	23.5 3.8	15.0	4,761,192 1,729,886	3,371,622 1,390,367	461,073	1,389,570 278,446	70.8 80.4	29.2 3.5	29.2 16.1				
Coffee, cleaning and polishing.	1919 1909	6 7	25 30	578 120	91 13	457	107	15.7 10.8	84.3 89.2	15.7	11,443,636 5,052,539	1,675,800 582,585	9,767,836 4,470,014	14.6 11.5	85.4 88.5	14.6 11.5	85.4 88.5					
Printing and publishing, newspapers and periodicals.	1919 1909	12 20	10 1	2 11	168 271	55 111	113 160	32.7 41.0	67.3 59.0	18.0	467,542 237,681	69,442 112,625	398,100 125,050	14.9 47.4	85.1 52.6	14.9 47.4	85.1 52.6					
Sugar, cane.....	1919 1909	12 51	33 23	10 34	7,490 5,062	644 546	5,779 3,067	1,067 1,449	8.6 10.8	77.2 60.6	14.2 28.6	56,411,932 20,569,348	3,333,521 1,328,809	45,925,205 13,129,453	7,153,206 6,111,086	5.9 6.5	81.4 63.8	12.7 29.7				
Tobacco, cigars and cigarettes.	1919 1909	169 240	6 14	8 28	5,098 7,025	809 1,386	4,042 4,764	247 875	15.9 19.7	79.3 67.8	4.8 12.5	8,134,534 6,060,393	861,331 728,839	6,894,934 4,793,641	378,269 537,913	10.6 12.0	84.8 79.1	4.6 8.9				
Total for cities.....	1919	112	28	36	6,263	1,269	2,709	2,285	20.3	43.2	36.5	20,052,443	5,022,039	7,595,304	7,435,100	25.0	37.9	37.1				
ARECIBO.....	1919	11	3	4	400	61	320	19	15.2	80.0	4.8	2,300,062	204,901	1,609,958	485,203	8.9	70.0	21.1				
BAYAMON.....	1919	5	2	3	775	18	757	1	2.3	97.7	0.0	1,851,023	119,445	1,731,578	6.5	93.5	0.0					
CAGUAS.....	1919	10	1	1	157	157	0	100.0	100.0	0.0	1,186,223	1,186,223	0	100.0	0.0	0.0						
MAYAGUEZ.....	1919	37	6	9	691	255	170	266	36.9	24.6	38.5	3,396,698	1,286,487	745,765	1,364,446	37.8	22.0	40.2				
PONCE.....	1919	29	1	8	1,644	579	1,065	37.5	62.5	4.0	6.5	4,605,714	1,870,187	2,735,527	40.6	59.4	0.0					
SAN JUAN.....	1919	20	15	12	2,696	199	2,219	278	7.4	82.3	10.3	6,712,723	354,796	5,239,531	1,118,346	5.3	78.0	16.7				

¹ Includes the group "Corporations."

² Included the group "Other" in 1909.

³ Includes the group "All others."

TABLE 14.—MANUFACTURES, BY POPULATION GROUPS, IN CITIES OF 10,000 INHABITANTS OR MORE: 1919 AND 1909.

	Census year.	Aggregate.	CITIES HAVING A POPULATION OF 10,000 OR OVER.						THE TERRITORY OUTSIDE OF CITIES HAVING A POPULATION OF 10,000 OR OVER.	
			Total.		10,000 to 25,000.		25,000 to 100,000.		Number or amount.	Per cent of aggregate.
			Number or amount.	Per cent of aggregate.	Number or amount.	Per cent of aggregate.	Number or amount.	Per cent of aggregate.		
Number of places.....	1919 1909	.....	6 4	.....	1 2	.....	2 2	.....	.....
Population ¹	1920 1910	1,297,772 1,118,012	163,941 110,660	12.6 9.9	51,673 26,917	4.0 2.4	112,298 83,743	8.6 7.5	1,133,831 1,607,352	87.4 90.1
Number of establishments.....	1919 1909	619 939	176 178	28.4 19.0	91 71	14.7 7.6	85 107	13.7 11.4	443 761	71.6 81.0
Average number of wage earners.....	1919 1909	15,985 15,582	6,263 4,272	39.2 27.4	2,023 551	12.7 3.5	4,240 3,721	26.5 23.9	9,722 11,310	60.8 72.6
Value of products.....	1919 1909	\$85,506,834 30,749,742	\$20,052,443 8,022,273	23.5 21.8	\$8,734,096 2,379,558	10.2 6.5	\$11,318,437 5,642,715	13.2 15.4	\$65,454,391 28,727,469	76.5 78.2
Value added by manufacture.....	1919 1909	25,679,560 15,270,450	8,151,856 3,418,479	31.7 22.4	2,418,678 582,487	9.4 3.8	5,733,178 2,835,992	22.3 18.6	17,527,704 11,851,971	68.3 77.6

¹ Population of 1920, as of Jan. 1, 1920; 1910, as of Apr. 1, 1910.

TABLE 15.—NUMBER AND HORSEPOWER OF TYPES OF PRIME MOVERS: 1919 AND 1909.

POWER.	NUMBER OF ENGINES OR MOTORS.		HORSEPOWER.			
	1919	1909	Amount.		Per cent distribution.	
			1919	1909	1919	1909
Primary power, total.....	1,257	662	67,226	34,005	100.0	100.0
Owned.....	856	577	65,105	33,564	96.8	98.7
Steam ¹	695	506	63,911	32,527	95.1	95.7
Engines.....	685	(²)	61,612	(²)	91.6	.....
Turbines.....	10	(²)	2,299	(²)	3.4	.....
Internal-combustion engines.....	159	53	1,172	842	1.7	2.5
Water.....	2	18	22	195	(³)	0.5
Water wheels and turbines.....	2	17	22	183	(³)	0.5
Water motors.....	1	1	12	12	(³)	(³)
Rented—Electric.....	401	85	2,121	441	3.2	1.3
Electric.....	637	115	8,137	1,385	100.0	100.0
Rented.....	401	85	2,121	441	26.1	31.8
Generated by establishments reported.....	236	30	6,016	944	73.9	68.2

¹ Figures for horsepower include for 1909 the amount reported under the head of "Other" owned power. ² Not reported separately. ³ Less than one-tenth of 1 percent.

TABLE 16.—FUEL CONSUMED, FOR SELECTED INDUSTRIES AND CITIES: 1919.

INDUSTRY AND CITY.	COAL.		Coke (tons, 2,000 pounds).	Fuel oils (barrels).	Gasoline and other volatile oils (barrels).	Gas (1,000 cubic feet).
	Anthracite (tons, 2,240 pounds).	Bituminous (tons, 2,000 pounds).				
All industries..... 1919.....	2,100	16,808	2,296	98,134	3,265	27,602
..... 1909.....	946	41,988	368	1,036	(¹)	
Per cent of increase ²	122.0	-60.0	523.9			
Bread and other bakery products.....	150		32	174	1,036	
Cars and general shop construction and repairs by steam railroad companies.....			12	1,184	440	708
Coffee, cleaning and polishing.....		890		310	2	
Foundry and machine-shop products.....	50	170	716	108	72	25,000
Ice, manufactured.....		190		11,680	1	
Lime.....	515					
Liquors, distilled.....				3,487		
Liquors, malt.....				6,552		
Sugar, cane.....	1,381	15,515	875	72,628	1,488	
Tobacco, cigars and cigarettes.....			50	1,915		
All other industries.....	4	43	611	96	226	1,894
Total for cities.....	675	3,680	846	30,898	341	26,894
ARECIBO.....		1,190	5	3,525		
BAYAMON.....		800	6	249	50	
CAGUAS.....		400		2,000	24	
MAYAGUEZ.....	150		202	2,382	232	
PONCE.....	475	1,110	110	6,640	20	
SAN JUAN.....	50	160	523	16,093	15	26,894

¹ Included in figures for fuel oils.² A minus sign (-) denotes decrease.

SPECIAL STATISTICS.

For a number of important industries the Census Bureau collects, by means of special schedules, certain details which do not appear in the general schedule.

Sugar and molasses.—In 1919 there were reported 686,037,703 pounds of raw sugar, 122,668,473 pounds of clarified sugar, 10,342,600 pounds of brown sugar, and 18,783,172 gallons of molasses, as compared with 566,445,203 pounds of raw sugar and 17,874,097 gallons of molasses in 1909. The total value of all kinds of sugar was \$55,607,202, of molasses \$637,799, and of all other products \$166,931, or an aggregate value of products of \$56,411,932 in 1919, as compared with \$20,164,887 for raw sugar, \$397,008 for molasses, and \$7,453 for all other products in 1909. As already stated, sugar is the leading manufacturing industry of the island. The modern methods and machinery installed in recent years have increased the production of sugar, but the quantity of molasses produced has remained about stationary. In 1909 there were no refineries in Porto Rico, and all the sugar used and exported was raw brown sugar.

Tobacco manufactures.—The quantity of cigarettes and the value of cigars and cigarettes can not be published separately without disclosing the operations of individual establishments, but a total of 171,184,749 cigars was reported as manufactured during 1919, as compared with 217,792,000 manufactured during

1909. The total value of all tobacco products for 1919 was \$8,134,534, as compared with \$6,060,393 for 1909. While the tobacco plant is indigenous to the island, its cultivation was, prior to 1870, confined to small plantings for domestic consumption.

Coffee, cleaning and polishing.—The coffee tree is not native to the island, but was introduced there in the first half of the eighteenth century. Practically all of the coffee raised goes through a complete or partial process of cleaning, hulling, polishing, and grading to prepare it for the market. The total quantity of cleaned and polished coffee reported in 1919 was 50,252,820 pounds, as compared with 44,350,435 pounds in 1909. All but 3 of the 31 coffee mills reported the process of polishing the coffee. The modern wet process is superseding the older dry method, but requires a larger investment than the small planters can afford. The result is that the business of preparing the coffee for market is being transferred from the plantation to the large custom mills. The total value of products for 1919 was \$11,443,636, as compared with \$5,052,599 for 1909.

The following statement shows the number of coffee cleaning and polishing establishments engaged in merchant and in custom work, together with the value of products of the several classes of establishments in 1919 and 1909:

	1919	1909
Total number of mills.....	31	37
Merchant.....	18	26
Custom.....	13	7
Merchant and custom.....		4
Total value of products.....	\$11,443,636	\$5,052,599
Merchant milled.....	7,775,631	2,899,491
Custom milled.....	3,668,005	2,153,108

Laundries.—Statistics for power laundries are not included in the general tables nor in the totals for manufacturing industries. Table 17, however, summarizes the statistics for such laundries in the territory for 1919.

TABLE 17.—POWER LAUNDRIES: 1919.

	Number or amount.
Number of establishments.....	3
Persons engaged.....	68
Proprietors and firm members.....	2
Salaried employees.....	6
Wage earners (average number).....	60
Primary horsepower.....	68
Capital.....	\$61,536
Salaries and wages.....	24,880
Salaries.....	4,052
Wages.....	20,828
Paid for contract work.....	785
Rent and taxes.....	4,828
Cost of materials.....	13,150
Amount received for work done.....	75,469

GENERAL TABLES.

Table 18 gives the number of establishments, average number of wage earners, primary horsepower, wages, cost of materials, and value of products for all industries combined and for selected industries in the territory, 1919 and 1909. Certain kindred

industries are combined in some instances for comparison with 1909. Table 19 presents, for 1919, statistics in detail for the territory as a whole and for each industry that can be shown without the disclosure of individual operations.

TABLE 18.—COMPARATIVE SUMMARY FOR SELECTED INDUSTRIES AND CITIES: 1919 AND 1909.

INDUSTRY.	Cen-sus year.	Num-ber of estab-lish-ments.	Wage earners (aver-age num-ber).	Pri-mary horse-power.	Wages.			Value of prod-ucts.	INDUSTRY.	Cen-sus year.	Num-ber of estab-lish-ments.	Wage earners (aver-age num-ber).	Pri-mary horse-power.	Wages.			Value of prod-ucts.
					Expressed in thousands.	Cost of mate-rials.	Value of prod-ucts.							Expressed in thousands.	Cost of mate-rials.	Value of prod-ucts.	
All industries.....	1919 1909	619 939	15,985 15,582	67,226 34,005	\$0,760 3,039	\$59,827 21,479	\$85,507 36,750	Lime.....	1919 1909	19 12	62 28	..... .....	19 3	21 8	58 14	
Bay rum.....	1919 1909	6 6	17 6	3	7 1	110 9	172 16	Printing and publishing.....	1919 1909	35 43	311 353	144 89	\$187 98	\$224 136	\$672 371		
Boot and shoe shops.....	1919 1909	27 59	96 303	2 3	44 55	120 98	241 190	Sugar, cane.....	1919 1909	55 108	7,490 5,062	62,150 31,055	2,832 1,228	40,062 12,274	56,412 20,569		
Bread and other bakery products.	1919 1909	152 258	880 1,197	630 45	514 366	3,426 1,173	4,761 1,730	Tobacco, cigars and cigarettes..	1919 1909	183 282	5,098 7,025	55 150	2,267 1,480	3,040 2,058	8,135 6,060		
Brick and tile.....	1919 1909	4 25	16 66	..... .....	5 12	3 7	15 31	All other industries.....	1919 1909	72 81	1,052 1,138	1,253 1,047	423 277	1,325 837	2,462 2,383	
Carriages and wagons, including repairs.	1919 1909	7 11	17 54	..... 25	7 12	4 19	21 43	SAN JUAN.....	1919 1909	47 70	2,696 2,750	954 748	1,398 673	2,502 1,209	6,713 3,243	
Coffee, cleaning and polishing...	1919 1909	31 37	578 120	1,575 1,085	227 32	10,935 4,764	11,444 5,053	ARECIBO.....	1919	18	400	3,287	136	1,711	2,300		
Flour-mill and gristmill products.	1919 1909	10 5	11 4	155 30	5 1	83 9	116 12	BAYAMON.....	1919	10	775	1,634	304	1,300	1,851		
Foundry and machine-shop products.	1919 1909	5 6	271 188	303 230	193 64	388 58	749 178	CAGUAS.....	1919 1909	11 15	157 72	1,075 30	92 16	829 47	1,186 124		
Ice, manufactured.....	1919 1909	13 6	86 38	956 237	36 10	86 29	249 100	MAYAGUEZ.....	1919 1909	52 56	691 479	2,502 484	325 119	2,475 1,750	3,397 2,256		
								PONCE.....	1919 1909	38 37	1,544 971	3,312 2,886	649 252	3,083 1,568	4,606 2,400		

MANUFACTURES—PORTO RICO.

COMBINED AND FOR SPECIFIED INDUSTRIES: 1919.

EXPENSES.								Value of products.	Value added by manufacture.	POWER.				
Salaries and wages.			For contract work.	Rent and taxes.		For materials.				Primary horsepower.				
Officials.	Clerks, etc.	Wage earners.		Rent of factory.	Taxes, Federal, insular, and local.	Principal materials.	Fuel and rent of power.			Total.	Owned.			Electric horsepower generated in establishments reporting.
									Steam engines (not turbines).	Steam turbines.	Internal combustion engines.	Water power. ¹	Rent. ²	

THE TERRITORY—ALL INDUSTRIES COMBINED AND SPECIFIED INDUSTRIES.

Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.							
1,553,110	785,742	6,765,604	157,784	405,024	1,789,716	58,720,395	1,106,879	85,506,834	25,679,500	67,226	61,612	2,299	1,172	22	2,121	6,016
3,525	75	6,583	167	795	8,553	108,930	1,064	172,275	62,381	3				3		2
2,136	1,164	43,944		2,606	616	119,523	480	240,789	120,786							3
53,214	71,912	514,140	30	47,379	10,632	3,249,766	176,254	4,761,192	1,335,172	630		367		263		4
		4,921			160	2,546		15,303	12,102							5
		6,848			72	3,905		21,210	16,728							6
4,420	7,560	55,234	7,500	3,000	4,296	148,564	1,405	262,456	112,487	15				15		7
5,076	10,156	227,125		7,439	7,439	10,834,990	40,852	11,443,636	508,791	1,575	1,270		3	22	280	8
	1,960	5,085	1,550	180	312	78,593	4,415	115,916	32,908	155			53	102		9
8,472	1,788	20,578	280		2,372	185,540	7,731	296,015	102,744	76	39		10	27		10
3,000	26,006	192,610		3,720	19,363	352,456	35,621	749,268	361,191	303			31	272		11
17,461	15,321	35,882	500	240	4,351	33,289	52,323	248,889	163,277	956	775		51	130		12
300	416	19,074		900	231	10,014	11,145	58,014	36,855							13
	244	1,850		1,500	61	2,126		14,755	12,629							14
3,959	360	4,507		360	235	19,970	1,135	38,755	17,650	30			22	5		15
7,767	4,063	20,739	554	2,464	830	46,227	2,866	134,402	85,309	43			25	18		16
		987			103	4,508	1,438	12,900	6,954	2	2					17
2,433	410	750		1,066	305	6,318		20,806	14,488							18
12,060	7,744	70,071		14,068	4,943	45,931	4,545	204,045	159,569	37				37		19
43,579	33,135	117,029	37,120	14,073	4,242	167,258	5,784	467,542	294,500	107			8	99		20
33,179	31,155	117,029		13,833	4,242	167,258	5,784	427,642	254,600	107			8	99		21
10,400	1,980		37,120	840				39,900	39,900							22
1,112,944	477,663	2,832,022	77,623	254,641	1,309,384	39,362,738	698,998	56,411,632	16,350,196	62,150	58,917	2,299	477	457	5,947	23
216,210	86,131	2,267,204		41,391	342,205	3,033,820	5,721	8,134,534	5,094,693	55				55		24
1,200	744	23,611		2,000	477	65,695	180	85,806	19,931	9				9		25
51,763	32,857	285,810	32,460	11,705	68,524	787,088	44,775	1,596,289	763,826	1,078	609		125	344	69	26

Knit goods.....	1	Lumber, planing-mill products, not including	1	Pickles, preserves, and sauces.....	1
Leather, tanned, curried, and finished.....	2	planing mills connected with sawmills.....	2	Pottery.....	2
Liquors, distilled.....	1	Millinery and lace goods.....	1	Salt.....	2
Liquors, malt.....	1	Perfumery and cosmetics.....	1	Sand-lime brick.....	1
				Tobacco, plug or chewing.....	1

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

179,150	136,233	1,397,631	50,580	57,820	162,510	2,409,718	92,100	6,712,723	4,210,905	954	265				689	69
4,200	7,180	15,000		3,620	471	82,902	6,028	135,937	47,007	6					6	
11,700	7,744	66,717		13,264	4,848	40,591	4,520	181,505	136,394	35					35	
39,755	31,678	84,447	37,120	11,473	3,864	147,067	5,204	377,924	225,653	85					85	
29,355	20,608	84,447		10,633	3,864	147,067	5,204	338,024	185,753	85					85	
10,400	1,980		37,120	840				39,900	39,900							
96,930	36,629	922,896		14,890	74,014	1,291,545	2,828	4,414,622	3,120,249	29				29		7
26,565	53,002	308,571	13,460	14,564	79,313	847,613	73,520	1,602,735	681,602	799	265			534	69	8

Copper, tin, and sheet-iron work.....	1	Liquors, malt.....	1	Mattresses and spring beds.....	1
Poultry and machine-shop products.....	2	Lumber, planing-mill products, not including	1	Mineral and soda waters.....	1
Ice, manufactured.....	1	planing mills connected with sawmills.....	1	Trunks and valises.....	2

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

38,814	12,403	135,579		2,680	39,687	1,658,705	52,751	2,300,062	589,606	3,287	3,225			42		20
45,879	33,196	304,167	1,040	6,412	35,968	1,291,911	8,314	1,851,023	550,798	1,634	1,200	490			34	259
17,120	6,100	92,014	554	2,040	16,703	809,633	28,710	1,188,223	356,880	1,075	1,000				75	218
52,142	21,429	325,208	310	12,162	29,051	2,485,024	40,280	3,396,608	921,394	2,502	2,358			125	19	5
149,965	39,472	649,015	79,463	17,316	91,014	3,024,480	59,961	4,605,714	1,522,273	3,312	2,975			30	307	73

¹No figures given for reasons stated under "Explanation of terms."
²Same number reported for one or more other months.
³Same number reported throughout the year.

MINES AND QUARRIES.

The gross value of products of all quarries (there being no mines reported as such) in Porto Rico in 1919 amounted to \$158,157. It is of interest to note that while the number of quarries decreased 7.1 per cent during the decennial period, capital increased 143.2 per cent and value of products 2,797.2 per cent.

TABLE 20.—MINES AND QUARRIES—COMPARATIVE SUMMARY OF PRINCIPAL STATISTICS FOR PORTO RICO:
1919 AND 1909.

	1919	1909		1919	1909
Number of operators.....	13	14	Expenses (selected items):		
Number of quarries.....	13	14	Salaries.....	\$9,583	.....
Number of persons employed:			Wages.....	56,279	\$3,251
Salaried employees.....	26	.....	Materials and supplies.....	10,653	390
Wage earners (average number).....	183	¹ 156	Fuel and power purchased.....	5,557	257
Primary power.....	35	25	Rent and royalties.....	8,789	(?)
Capital.....	\$84,173	\$34,605	Taxes.....	1,343	.....
			Value of products.....	158,157	5,459

¹ Number employed Dec. 15, 1909.

² Not available.