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DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS
SAM. L. ROGERS, DIRECTOR

CENSUS OF
MANUFACTURES

1914

VOLUME I

REPORTS BY STATES WITH STATISTICS FOR PRINCIPAL CITIES
AND METROPOLITAN DISTRICTS

Prepared under the supervision of

W. M. STEUART
Chief Statistician for Manufactures



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1918

CENSUS OF MANUFACTURES: 1914.

VOLUME I.—REPORTS BY STATES WITH STATISTICS FOR PRINCIPAL CITIES AND METROPOLITAN DISTRICTS. 1,680 pages.
VOLUME II.—REPORTS FOR SELECTED INDUSTRIES AND DETAIL STATISTICS FOR INDUSTRIES BY STATES. 950 pages.
ABSTRACT OF THE CENSUS OF MANUFACTURES: 1914. 722 pages.

(2)

LETTER OF TRANSMITTAL.

DEPARTMENT OF COMMERCE,
BUREAU OF THE CENSUS,
Washington, D. C., August 27, 1918.

SIR: I transmit herewith Volume I of the Report on Manufactures for the census of 1914.

The Census of Manufactures was taken in conformity with the act of Congress of March 6, 1902. The statistics were collected during the year 1915, but relate in general to the year ending December 31, 1914. The field work was done for the most part by clerks detailed from the permanent force of the bureau, and by special agents appointed expressly for the purpose of collecting statistics of manufactures, but a large number of returns were secured by correspondence.

The results of the manufactures census are contained in three volumes. Volume I, the present volume, contains a separate report on the manufactures of each state, each state report having previously been issued in bulletin form; Volume II contains special reports relating to selected industries, which also have been published as a series of separate bulletins; and the Abstract of the Census of Manufactures, 1914, issued as a separate volume June 22, 1917, which contains in condensed form the essential statistics collected at the census of 1914.

The manuscript for North Carolina, the first state ready for publication, was sent to the Government Printing Office November 6, 1916, while that for New Jersey, the last state, was sent on June 22, 1917. Owing to the unusual demands upon the Public Printer because of war work, publication of the bulletins was greatly delayed, the bulletin for New Jersey not being issued until May 13, 1918.

The collection and compilation of the statistics and the preparation of the text were done under the supervision of William M. Steuart, Chief Statistician for Manufactures, prior to May 3, 1917, when he resigned to accept a position with the United States Tariff Commission, of which he is now secretary. He was succeeded by Eugene F. Hartley, under whose supervision the report has been completed.

Respectfully,

Sam. S. Rogers

Director.

To Hon. Wm. C. REDFIELD,
Secretary of Commerce.

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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 should 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 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 1914, or the business year which corresponded most nearly to that calendar year, and cover a year's operations, except for establishments which began or discontinued business during the year.

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

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

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

Comparisons with previous censuses.—Owing to 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, as a rule, has been followed in compiling the statistics of 1914 when placed in comparison with those for 1909 and prior years. The comparative summary for 1914, 1909, and 1904, therefore, does not show separately all the industries given for 1914 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 1914 and 1909 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 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, without distinction of sex or age. From these figures the average number of wage earners for the year has been calculated by dividing the sum of the numbers reported for the several months by 12. The average thus obtained approximates the number of wage earners that would be required to perform the work done if all were constantly employed during the entire year. Accordingly, the importance of the industry as an employer of labor is believed to be more accurately measured by this average than by the number employed at any one time or on a given day.

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 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. 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.

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

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, all or 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 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 internal revenue, corporation income tax, and state, county, and local taxes. In some instances the amount of the corporation tax for 1914 had not been ascertained when the report was prepared and the amount paid for 1913 was therefore given.

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 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 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 interest or depreciation, 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 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, since in most cases an engine or motor is not required to deliver continuously its full rated horsepower.

Fuel.—Statistics of the quantity of fuel used are shown only for anthracite and bituminous coal, coke, oil, and gas. They relate to the quantity used during the year, which may be more or less than the quantity purchased. As only the principal varieties of fuel are shown, no comparison can be made with the total cost of all fuel.

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INTRODUCTION.

This volume contains the statistics for the manufacturing industries of the several states. These data were published as separate bulletins and are now collected in the present volume, forming Volume I of the reports for the Census of Manufactures: 1914.

The figures may differ in some unimportant details from those given in the bulletins for the reason that certain minor errors discovered in the bulletins as first published have been corrected.

In this volume the reports for the states and the District of Columbia are arranged in alphabetical order, together with the statistics for cities of 10,000 inhabitants or over. At the Thirteenth Census a separate bulletin was published for the metropolitan districts, and this formed a part of Volume X—Reports for Principal Industries. In this report the statistics for the following metropolitan districts are presented with the returns for the respective states: Baltimore, Md., Birmingham, Ala., Boston, Mass., Buffalo, N. Y., Chicago, Ill., Cincinnati, Ohio, Cleveland, Ohio, Detroit, Mich., Los Angeles, Cal., Minneapolis-St. Paul, Minn., New York, N. Y., Philadelphia, Pa., St. Louis, Mo., and San Francisco-Oakland, Cal.

The report for each state summarizes the general results of the census inquiry, presenting a series of tables in which the most important figures printed in the general tables are given in convenient form for the state as a whole, for cities of 10,000 inhabitants or over, and for important industries. It also presents tables in which the statistics for all manufacturing industries combined, for a few important industries separately, and for cities of 10,000 inhabitants or more,

are classified by character of ownership, value of products, number of wage earners, and prevailing hours of labor. Information could not be presented for every industry without disclosing the operations of individual establishments. Data of a supplemental character regarding the quantity and cost of materials, the quantity and value of products, and other information for securing which no provision is made on the general schedule, were collected for certain industries by means of special schedules and are presented for the important industries in each state. Statistics for power laundries are also shown in each state.

At the end of the report for each state are two general tables. The first is a comparative summary for 1914, 1909, and 1904, and gives the number of establishments, average number of wage earners, primary horsepower, wages, cost of materials, and value of products, for certain selected industries in the state, and for the cities having 50,000 inhabitants or more, and similar data for all industries combined for the cities having from 10,000 to 50,000 inhabitants. The second table is a detail statement for 1914, presenting, for the state as a whole and for the cities with 50,000 inhabitants or more, statistics in detail for 1914 for each industry that can be shown without the disclosure of the operations of individual establishments, and for each of the cities in the state having from 10,000 to 50,000 inhabitants, similar data for all industries combined.

The statistics in this volume are confined to continental United States, and therefore include no data for Alaska, Hawaii, Porto Rico, or other possessions.