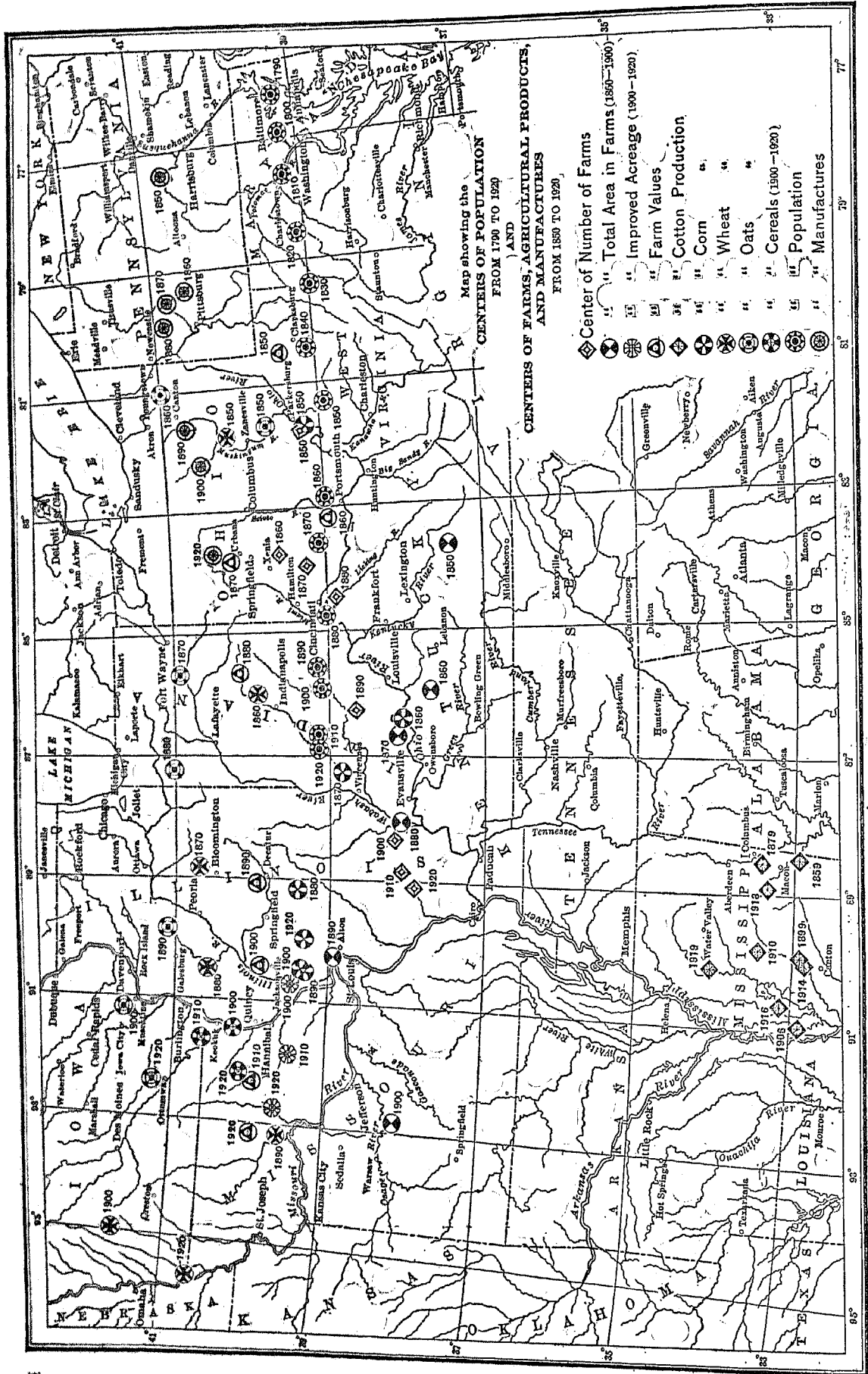

GENERAL REPORT
AND ANALYTICAL TABLES



NOTE.—The centers for manufactures and for all crops except cotton are based on data for the year preceding the census year indicated on the map; for the centers of cotton production the exact dates are shown on the map.

INTRODUCTION AND EXPLANATION OF TERMS.

INTRODUCTION.

Scope of report.—This report is a summary and analysis of the statistics of manufactures for the United States for the calendar year 1919, as compiled by the Census Bureau.

The principal facts derived from the census inquiry are presented in eight general tables at the end of the report.

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 censuses of 1919, 1914, 1909, and 1904 were taken in conformity with the provision of the law which directs that the canvass shall "be confined to manufacturing establishments conducted under what is known as the factory system, exclusive of the so-called neighborhood, household, and hand industries."

The instructions were to exclude the following classes of establishments:

(1) All establishments reporting products valued at less than \$500 during the census year.

(2) Establishments doing only work to the order of the individual customer, such as custom tailoring, dressmaking, millinery, and shoemaking establishments, the purpose being to confine the census to establishments producing for the general or wholesale trade. This rule did not apply to large concerns manufacturing to meet special orders.

(3) Establishments engaged in the building industries other than those manufacturing building materials for the general trade.

(4) Establishments engaged in the so-called neighborhood industries and hand trades, such as blacksmithing, harness making, and tinsmithing, in which little, if any, power machinery is used, and which usually do only a local business.

(5) Retail stores which incidentally manufacture on a small scale, particularly where it is impossible to distinguish the data relating to the manufac-

turing business from those relating to the mercantile business.

(6) Educational, eleemosynary, and penal institutions engaged in manufacturing industries.

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.

EXPLANATION OF TERMS.

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 of industries.—The establishments were assigned to the several classes of industries according to their product 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 products may be made in establishments in which it is not the product of chief value.

The present report on manufactures distinguishes 358 industries, although for certain purposes 98 of these are subdivided into two or more branches. There were 330 of these subgroups indicated, although it was possible to publish separate statistics for but 306 subclasses. Statistics could not be shown separately for 7 industries, 3 of which are shown as "All other industries" and 2 each combined with a third industry.

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.

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; where this 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 given date.

The number of wage earners reported for the representative day is not totaled for all industries combined, 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.

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 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, to whom according to the pay rolls, wages were paid on that date, no doubt represent a larger number in any industry than would be required to perform the work if all were continuously employed during the year.

Amount paid for contract work.—It is the practice of manufacturers in some industries to have the work done under contract by persons who do not work in the factory of the establishment reporting. This practice is common in the clothing industry and in the manufacture of gloves, shoes, and other products where the work is supervised by subcontractors or done at the factories or homes of the persons contracted with. The amounts paid for such work represent wages almost entirely, but since it is not paid to the regular employees of the manufacturer reporting it is not included in the amount paid as wages, but is shown as a separate item under "contract work."

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 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 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 considered as being of limited value except as indicating very general conditions. 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 but do show an approximation of the amounts invested in different industries or in different localities.

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 rent reported is confined to that paid for "factory or works" and does not include that paid for other buildings or offices. The taxes include certain Federal taxes and state, county, and local taxes. Under "Federal taxes" there are included the internal revenue tax on manufacturing (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 the 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 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.